



Current Agreements

Dealdoc

Licensing, development and option agreement for QPI-1002

Quark Pharmaceuticals

Novartis

Aug 18 2010

Licensing, development and option agreement for QPI-1002

Companies:	Quark Pharmaceuticals Novartis
Announcement date:	Aug 18 2010
Deal value, US\$m:	680.0 : sum of upfront, milestone and option exercise payments

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Details

Announcement date:	Aug 18 2010
Start date:	Aug 17 2010
Industry sectors:	Bigpharma Pharmaceutical
Exclusivity:	Exclusive
Asset type:	Compound Hospital care » Surgery Hospital care » Transplantation
Therapy areas:	Cardiovascular Genitourinary » Renal failure Gene therapy Genomics
Technology types:	Implant Peptides RNA therapeutics Small molecules Development
Deal components:	Licensing Option
Stages of development:	Phase II
Geographic focus:	Worldwide

Financials

Deal value, US\$m:	680.0 : sum of upfront, milestone and option exercise payments
Upfront, US\$m:	10.0 : option grant payment 480.0 : option exercise fees and development and regulatory milestone payments 190 : sales-based milestone payments
Milestones, US\$m:	n/d : majority of the development and regulatory milestone payments are linked to events relating to the acute kidney injury indication n/d : remainder of the development and regulatory milestone payments are split, in roughly equal parts, between the delayed graft function indication and an unspecified third indication
Royalty rates, %:	n/d : royalties on net sales of licensed products at a rates higher than 10% and lower than 20%

Semi-quant royalties:

Low teens
Mid teens
High teens

Termsheet

18 August 2010

Quark has granted Novartis an option to obtain an exclusive worldwide license to develop and commercialize its p53 temporary inhibitor siRNA drug QPI-1002, currently the subject of a Phase II clinical trial.

Quark will receive initially a non-refundable fee of 10 million USD.

In the event that Novartis exercises the option, Quark would receive option exercise fees and milestone payments that could potentially total 670 million USD.

In addition Quark would be entitled to potential royalties on sales of licensed products.

Press Release

Quark Pharmaceuticals and Major Pharmaceutical Company Enter into Licensing Option Agreement

FREMONT, Calif., Aug 18, 2010 /PRNewswire via COMTEX/ -- Quark Pharmaceuticals, Inc., a world leader in the discovery and development of RNAi-based therapeutics, today announced that it has granted Novartis an option to obtain an exclusive worldwide license to develop and commercialize its p53 temporary inhibitor siRNA drug QPI-1002, currently the subject of a Phase II clinical trial.

Quark will receive initially a non-refundable fee of 10 million USD. In the event that Novartis exercises the option, Quark would receive option exercise fees and milestone payments that could potentially total 670 million USD. In addition Quark would be entitled to potential royalties on sales of licensed products.

Dr. Daniel Zurr, Quark's Chief Executive Officer, stated, "We are very pleased to have reached this agreement with Novartis. We believe that Novartis represents an outstanding partner for Quark. With its world-leading expertise in transplantation and acute care Novartis will provide invaluable support to the global development of QPI-1002, in development for the prevention of acute kidney injury (AKI) in patients undergoing cardiac surgery and for delayed graft function (DGF) in kidney transplant patients. The gene target of QPI-1002, p53, is a major player in apoptotic cell death; its temporary suppression rescues cells, prevents them from dying in conditions of severe stress such as ischemia, potentially opening opportunities for Novartis to novel treatments in additional indications."

About QPI-1002

QPI-1002 is designed to temporarily inhibit expression of the stress-response gene, p53 and is the first synthetic siRNA to be administered systemically to humans. QPI-1002 is being developed for the prevention of acute kidney injury (AKI) in patients undergoing major cardiovascular surgery, and for the prophylaxis of delayed graft function (DGF) in patients receiving deceased donor kidney transplants. QPI 1002 completed Phase I studies in these patient populations and an independent Data Safety Monitoring Board recommended continuation of QPI-1002 clinical development in both diseases. QPI-1002 was granted Orphan designation by the US Food and Drug Administration (FDA) and the European Medicines Agency (EMA) for the prophylaxis of delayed graft function in kidney transplant patients.

About Quark Pharmaceuticals, Inc.

Quark Pharmaceuticals, Inc., a world leader in novel RNAi discovery and development, has the largest clinical-stage siRNA pipeline in the industry. The Company's fully integrated drug development platform spans therapeutic target identification to drug development. Quark's approach to delivery allows targeting of tissues and organs including the eye, kidney, ear, lung, spinal cord and brain.

In addition to QPI-1002, Quark's pipeline includes PF-655, currently in two Phase II clinical trials for the treatment of wet age-related macular degeneration (AMD) and diabetic macular edema (DME). The siRNA therapeutic candidate PF-655 is licensed to Pfizer, who is conducting both trials in collaboration with Quark. PF-655 targets Quark's proprietary gene, RTP801, discovered using its BiFAR(TM) target discovery platform that identifies clinically relevant critical genes and proteins that reverse the disease phenotype when inhibited. The Company owns a family of patents covering the RTP801 gene, its RNA and protein product sequences, specific antibodies, and gene inhibition across different pathologies. For the structure of these products, Quark has obtained licenses from Silence Therapeutics and from Alnylam Pharmaceuticals.

Quark is currently conducting clinical trials of QPI-1007, its proprietary synthetic siRNA drug candidate for ocular neuroprotection. QPI-1007 utilizes a proprietary structure developed in collaboration with BioSpring GmbH that provides Quark with freedom to operate in the siRNA intellectual property arena and chemical modifications that are designed to preserve RNAi activity while ameliorating potential off-target and immunostimulatory effects of siRNAs.

Quark is also committed to leveraging a broad research pipeline of siRNA drug candidates and novel siRNA structures to develop additional RNAi drug candidates.

Quark is headquartered in Fremont, California and operates research and development facilities in Boulder, Colorado and Ness-Ziona, Israel. Additional information is available at www.quarkpharma.com.

Filing Data

On August 17, 2010, we entered into an Option Agreement with Novartis International Pharmaceutical Limited (the "Option Agreement") under which we granted to Novartis an option to license QPI-1002, our siRNA therapeutic directed against the p53 gene. In the event that Novartis exercises this option, we will automatically grant to Novartis an exclusive, worldwide license to develop and commercialize QPI-1002 and any other p53-directed siRNAs controlled by us, pursuant to a separate, pre-negotiated license agreement (the "License Agreement"). During the term of the Option Agreement and License Agreement, we are prohibited from entering into a collaboration or license agreement with any third party in connection with the development or commercialization of any p53-directed siRNA.

Prior to exercise of the option, we will conduct at our expense Phase II trials on QPI-1002 for two indications: delayed graft function following renal transplantation and acute kidney injury following cardiovascular surgery. Novartis' option will expire a few months following receipt by Novartis of the final results of the first Phase II clinical trial that meets the pre-defined success criteria, or a few months following receipt of the final results of both Phase II clinical trials, if neither meets the pre-defined success criteria. In the event that Novartis does not exercise the option prior to its expiration, the License Agreement will not come into effect, and in most cases we will be free to enter into agreements with third parties relating to QPI-1002 without further obligation to Novartis. However, under certain circumstances of failure in both Phase II trials, Novartis will have a right of first negotiation for a pre-set period of time in the event that we determine to license QPI-1002 or another p53-directed siRNA to a third party.

Following exercise of the option, Novartis will be solely responsible for all development, manufacturing, and commercialization of the licensed products, except that we will remain obliged to complete at our own expense the remaining portions, if any, of the Phase II trials for QPI-1002 that we initiated. Additionally, Quark will have the right to conduct a portion of the phase III clinical trials in Israel and to act as Novartis' distributor of products in Israel, in accordance with agreements that will be negotiated by the parties. Novartis' development and commercialization will be overseen by a joint steering committee with members appointed by both us and Novartis, but Novartis will have the deciding vote in the event of any disputes.

Upon execution of the Option Agreement, Novartis paid us a \$10 million option grant fee. Assuming that the option is exercised, we could potentially receive up to \$480 million in option exercise fees and development and regulatory milestone payments and up to \$190 million in sales-based milestone payments. The majority of the development and regulatory milestone payments are linked to events relating to the acute kidney injury indication, and the remainder of the development and regulatory milestone payments are split, in roughly equal parts, between the delayed graft function indication and an unspecified third indication. In addition, we would be entitled to receive royalties on net sales of licensed products at a rates higher than 10% and lower than 20%, subject to potential reductions depending upon, for example, the degree of exclusivity of the licensed product in the marketplace and the extent of Novartis' third party royalty obligations in connection with the commercialization of our drug.

Either we or Novartis may terminate the License Agreement in the event of an uncured material breach or insolvency of the other party, and Novartis may terminate the License Agreement without cause at any time upon prior written notice. Following termination of the License Agreement by Novartis for our material breach or insolvency, all licenses granted to Novartis will remain in effect, and Novartis' payment obligations will continue, subject to significant reduction in the event of certain material breaches. If not terminated, the License Agreement will remain in effect, for a particular licensed product in a given country, until the expiration of all relevant patents and regulatory exclusivity with respect to such licensed product and such country, or ten years from the first commercial sale of such licensed product in such country, whichever is later.

Contract

OPTION AGREEMENT

This OPTION AGREEMENT ("Option Agreement") is made as of this 17th day of August, 2010 ("Option Agreement Effective Date"), by and between Novartis International Pharmaceutical Limited, located at 131 Front Street, Hamilton, Bermuda, a corporation organized and existing under the laws of Bermuda ("Novartis") and Quark Pharmaceuticals, Inc., located at 6501 Dumbarton Circle, Fremont, CA 94555, U.S.A., a corporation organized and existing under the laws of California, U.S.A. ("Quark"). Novartis and Quark are each referred to individually as a "Party" and together as the "Parties."

RECITALS

WHEREAS, Quark owns or controls the Quark Patents and Quark Know-How (each as defined below) relating to the Quark Compounds (as defined below);

WHEREAS, Novartis wishes to obtain, and Quark wishes to grant to Novartis, an exclusive option to obtain exclusive rights to the Quark Compounds in the Field (as defined below).

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the Parties agree as follows.

1. DEFINITIONS AND INTERPRETATION

1.1 Definitions. Unless the context otherwise requires, the terms in this Option Agreement with initial letters capitalized, shall have the meanings set forth below, or the meaning as designated in the indicated places throughout this Option Agreement.

"Affiliate" has the meaning set forth on Exhibit A.

"AKI Final Report" means the complete, signed, detailed, data cleaned, statistically analyzed, unbiased, unblinded, unblended and cGCP audited and compliant final report(s) of the AKI Phase II Trial setting forth patient outcomes for [*] following dosing based on a fully monitored, cleaned, QA/QC assessed and locked database, the format and content of which shall be in accordance with the ICH E3 Guidelines, and which shall include all available raw data in a user-friendly electronic format, as well as primary and secondary efficacy endpoint data, all material efficacy, safety, clinical and medical data, and any other information related thereto.

"AKI First Interpretable Results" means an interim report of the AKI Phase II Trial setting forth patient outcomes for [*] following dosing based on cleaned, unbiased, unblinded data, the format and content of which shall be in accordance with the template attached as Exhibit J, and which shall include all available raw data in a user-friendly electronic format on a fully monitored, cleaned QA/QC assessed and locked database, as well as primary and secondary efficacy endpoint data, all material efficacy, safety, clinical and medical data, and any other information related thereto.

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"AKI Indication" has the meaning set forth on Exhibit A.

"AKI Phase II Trial" means the Phase II Clinical Trial for use of a Product for the AKI Indication to be conducted by Quark in accordance with the AKI Phase II Trial Protocol.

"AKI Phase II Trial Protocol" means the draft protocol for the AKI Phase II Trial attached as Exhibit C, as such protocol may be amended by Quark from time to time prior to the Option Exercise Date.

"AKI Phase II Trial [*] Criteria" means the [*] criteria for the AKI Phase II Trial set forth on Exhibit D.

"Business Day" has the meaning set forth on Exhibit A.

"Calendar Quarter" has the meaning set forth on Exhibit A.

"Calendar Year" has the meaning set forth on Exhibit A.

"cGCP" means current good clinical practice as required by the FDA and all applicable FDA rules, regulations, orders and guidances, and the requirements with respect to current good clinical practices prescribed by the European Community and the ICH.

"cGLP" means current good laboratory practice as required by the FDA and all applicable FDA rules, regulations, orders and guidances, and the requirements with respect to current good clinical practices prescribed by the European Community and the ICH.

"cGMP" means current good manufacturing practices as required by the FDA under provisions of 21 C.F.R. parts 210 and 211 (as the same may be amended) and all applicable FDA rules, regulations, orders and guidances, and the requirements with respect to current good manufacturing practices prescribed by the European Community under provisions of "The Rules Governing Medicinal Products in the European Community, Volume 4, Good Manufacturing Practices, Annex 13, Manufacture of investigational medicinal products, July 2003," as each may, from time to time, be amended, and the ICH.

"Claims" means all Third Party demands, claims, actions, proceedings and liability (whether criminal or civil, in contract, tort or otherwise) for losses, damages, reasonable legal costs and other reasonable expenses of any nature whatsoever.

"Commercialize" and "Commercialization" have the meaning set forth on Exhibit A.

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“Commercially Reasonable Efforts” means the expenditure of those efforts and resources used [*] in pursuing development or commercialization of [*], or where [*] does not [*], the expenditure of such efforts and use of such resources [*]. For clarity, “Commercially Reasonable Efforts” shall be [*], accordingly, [*] with respect to [*] may [*] with respect to [*].

“Confidential Information” means all Know-How and other proprietary information and data of a financial, commercial or technical nature which the disclosing Party or any of its Affiliates has supplied or otherwise made available to the other Party or its Affiliates, whether made available orally, in writing or in electronic form, including information comprising or relating to concepts, discoveries, inventions, data, designs or formulae in relation to this Option Agreement.

“Damaged Party” has the meaning set forth in Section 8.6.

“Develop” and “Development” have the meaning set forth on Exhibit A.

“Development Costs” means expenses incurred by Quark in carrying out the remaining work under the Quark Development Plan, as agreed by the Parties in accordance with Section 3.2(e), calculated as the sum of the following:

- (a) all [*] incurred by Quark with respect to the activities outlined in the Quark Development Plan, [*]; and
- (b) the [*] in carrying out the activities outlined in the Quark Development Plan [*].

“Development Cost Budget” has the meaning set forth in Section 3.2(e).

“DGF DMC Top Line Interim Report” means an interim report(s) of DGF Phase II Trial (after each interim analysis) setting forth patient outcomes for [*] following dosing based on a partially monitored and source-verified data, provided however that all data fields relating to the analysis of the efficacy success criteria are [*]. All other data fields will be consistent with industry practices for interim review in an on-going blinded trial. All data will be collected in a 21 C.F.R. 11 validated database with full audit trail. All the DMC recommendations [*] as based on their review of un-blinded data, will be provided verbatim to Quark and Novartis. Interim blinded data will also be provided in a user-friendly electronic format to Novartis. Such blinded data shall include all material efficacy, safety, clinical and medical data, and any other information related thereto, including data relating to patient and graft survival. Serious Adverse Event (SAE) listings and adverse events (AE) listings are based on the unlocked database.

“DGF Final Report” means the complete, signed, detailed, data cleaned, statistically analyzed, unbiased, unblinded, unblinded and cGCP audited and compliant final report(s) of the DGF Phase II Trial setting forth patient outcomes for [*] following dosing based on a fully monitored, cleaned, QA/QC assessed and locked database, the format and content of which shall be in accordance with the ICH E3 Guidelines, and which shall include all available raw data in a user-friendly electronic format, as well as primary and secondary efficacy endpoint data, all material efficacy, safety, clinical and medical data, and any other information related thereto.

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“DGF Indication” has the meaning set forth on Exhibit A.

“DGF Phase II Trial” means the Phase II Clinical Trial for use of a Product for the DGF Indication to be conducted by Quark in accordance with the DGF Phase II Trial Protocol.

“DGF Phase II Trial Protocol” means the protocol for the DGF Phase II Trial attached as Exhibit E, as such protocol may be amended by Quark from time to time.

“DGF Phase II Trial [*] Criteria” means the [*] criteria for the DGF Phase II Trial set forth on Exhibit F.

“DGF [*] Report” means the complete, signed, detailed, data cleaned, statistically analyzed, unbiased, unblinded and cGCP audited and compliant interim report(s) of the DGF Phase II Trial setting forth patient outcomes for [*] following dosing based on a fully monitored, cleaned, QA/QC assessed and locked database, the format and content of which shall be in accordance with the ICH E3 Guidelines, and which shall include all available raw data in a user-friendly electronic format, as well as primary and secondary efficacy endpoint data, all efficacy, safety, clinical and medical data, and any other information related thereto, including all available top line data relating to patient and graft survival, Serious Adverse Event (SAE) listings (including biopsy proven acute rejections) and adverse events (AE) listings based on the unlocked database for the period beyond the [*] locked data.

“DMC” means the Independent Data Monitoring Committee, consisting of external experts to the applicable Phase II Clinical Trial, to assess the progress, safety data and endpoint adjudication following a harmonized and standardized endpoint assessment and to perform pre-defined, semi-blended interim analyses.

“Draft Phase II Trial Report” has the meaning set forth in Section 3.5(a).

“Expiration Date” has the meaning set forth in Section 4.1(b)(v).

“Field” has the meaning set forth in Exhibit A.

“FTE Rate” means a rate of [*] US Dollars (\$[*]) per Calendar Year based on the yearly time of an employee for a full-time equivalent scientific person year (consisting of a total of [*] hours per Calendar Year) of work, to be pro-rated on a daily basis if necessary (per Calendar Year amount to be divided by [*] to produce the rate per whole day consisting of eight (8) hours); such rate to [*] and [*]. For the avoidance of doubt, such rate includes [*] for which [*]. The FTE Rate shall be [*] to [*] in the [*] from the Option Agreement Effective Date.

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“HSR Act” means the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the rules promulgated thereunder.

“HSR Filing Date” shall have the meaning set forth in Section 4.2.

“Insolvency Event” has the meaning set forth in Exhibit A.

“Joint Development Technology” means all Know-How and Patent Rights created, conceived, reduced to practice or invented jointly by (a) Quark, its Affiliates, agents or Third Parties acting on its behalf and (b) Novartis, its Affiliates, agents or Third Parties acting on its behalf, under this Option Agreement.

“Joint Discussion Committee” or “JDC” means the committee established as set forth in Section 3.1.

“Know-How” has the meaning set forth on Exhibit A.

“License” has the meaning set forth in Section 4.1(c).

“License Effective Date” means the later of (i) the Option Exercise Date or (ii) the date on which the waiting period provided by the HSR Act shall have terminated or expired without any action by any government agency or challenge to the License (or any other timeline required by another relevant agency or authority).

“Novartis Development Technology” means all Know-How and Patent Rights (if any) created, conceived, reduced to practice or invented solely by Novartis, its Affiliates, agents or by Third Parties acting on its behalf, in connection with the Quark Program during the term of this Option Agreement.

“Novartis Success Criteria Notice” has the meaning set forth in Section 4.1(a)(i)

“Option” has the meaning set forth in Section 2.1.

“Option Agreement Effective Date” shall have the meaning set forth in the first paragraph of this Option Agreement.

“Option Exercise Date” means the date (if any) on which Novartis exercises the Option in accordance with Section 4.1(a) (or Section 3.4(b), if applicable).

“Option Grant Fee” has the meaning set forth in Section 2.2.

“Option Period” means the period of time commencing on the Option Agreement Effective Date and ending on the earlier of (a) the Option Exercise Date; (b) the date on which the Option expires in its entirety pursuant to Section 4.1(b).

“Out-of-Pocket Cost” means direct project related expenses paid or payable to Third Parties and specifically identifiable and incurred in accordance with the Quark Development Plan; such expenses shall have been recorded [*] in accordance with Quark’s Accounting Standards and for the avoidance of doubt, [*].

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"Patent Rights" has the meaning set forth in Exhibit A.

"Person" means any individual, partnership, limited liability company, firm, corporation, association, trust, unincorporated organization or other entity.

"Phase II Clinical Trial" has the meaning set forth in Exhibit A.

"Phase II Trial Reports" means, collectively, the DGF DMC Top Line Interim Report, the DGF [*] Report, the DGF Final Report, the AKI First Interpretable Results, and the AKI Final Report.

"Product" has the meaning set forth in Exhibit A.

"Quark Compounds" has the meaning set forth in Exhibit A.

"Quark Development Plan" means Quark's plan for the development of the Products through to completion of the AKI Phase II Trial and the DGF Phase II Trial, as set forth on Exhibit G, as such development plan may be amended by Quark from time to time prior to the Option Exercise Date.

"Quark Development Technology" means all Know-How and Patent Rights created, conceived, reduced to practice or invented solely by Quark, its Affiliates, agents or by Third Parties acting on its behalf, in connection with the Quark Program during the term of this Option Agreement.

"Quark Know-How" has the meaning set forth in Exhibit A.

"Quark Notice of [*]" has the meaning set forth in Section [*]

"Quark Patents" has the meaning set forth in Exhibit A.

"Quark Program" means Quark's program relating to the research and development of the Quark Compounds and the Products, including the AKI Phase II Trial and the DGF Phase II Trial.

"Quark Program Confidential Information" means information and data relating to the Quark Compounds, Product and/or Quark Program and the Quark Know-How, Quark Patents (to the extent not published) and other non-public Quark Technology, in each case, to the extent that such information and data is of a type and character which is, consistent with industry practice, kept confidential.

"Quark Technology" has the meaning set forth in Exhibit A, and shall include, for the avoidance of doubt, all Quark Development Technology.

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"Regulatory Authority" has the meaning set forth in Exhibit A.

"Regulatory Filings" has the meaning set forth in Exhibit A.

"Section 8.1(a) Decision Period" has the meaning set forth in Section 4.1(a)(i).

"Senior Officers" means, for Novartis, the Head of Development (for Development matters) and Head of Business Development and Licensing (for all other matters) of Novartis Pharma AG, and for Quark, the Chief Executive Officer (for all matters).

"Territory" has the meaning ascribed to such term in Exhibit A.

"Third Party" means any Person other than a Party or an Affiliate of a Party.

"United States" or "US" means the United States of America, its territories and possessions.

"USD" or "US\$" means the lawful currency of the United States.

1.2 Interpretation. In this Option Agreement unless otherwise specified:

(a) "includes" and "including" shall mean respectively includes and including without limitation;

(b) a statute or statutory instrument or any of their provisions is to be construed as a reference to that statute or statutory instrument or such provision as the same may have been or may from time to time hereafter be amended or re-enacted;

(c) words denoting the singular shall include the plural and vice versa and words denoting any gender shall include all genders;

(d) the Exhibits and other attachments form part of the operative provision of this Option Agreement and references to this Option Agreement shall, unless the context otherwise requires, include references to the Exhibits and attachments;

(e) the headings in this Option Agreement are for information only and shall not be considered in the interpretation of this Option Agreement;

(f) general words shall not be given a restrictive interpretation by reason of their being preceded or followed by words indicating a particular class of acts, matters or things; and

(g) the Parties agree that the terms and conditions of this Option Agreement are the result of negotiations between the Parties and that this Option Agreement shall not be construed in favor of or against any Party by reason of the extent to which any Party participated in the preparation of this Option Agreement.

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2. OPTION GRANT

2.1 Option Grant. Subject to the terms and conditions of this Option Agreement, Quark hereby grants to Novartis an exclusive option to obtain the License ("Option"). Novartis may exercise its rights and perform its obligations under this Option Agreement itself or through any of its Affiliates; provided that Novartis shall remain primarily liable for any acts or omissions of its Affiliates under this Option Agreement or the License Agreement.

2.2 Option Grant Fee. In consideration of the Option granted to Novartis hereunder, Novartis shall pay to Quark a one-time, non-refundable, non-creditable payment of ten million USD (US\$ 10,000,000) ("Option Grant Fee") within [*] days after receipt by Novartis of an original invoice for such amount from Quark in the form attached hereto as Exhibit H, which invoice shall be issued no earlier than the Option Agreement Effective Date.

2.3 Exclusivity During Option Period. Throughout the Option Period Quark shall not initiate, solicit, discuss, negotiate or enter into any agreement or arrangement with any Third Party regarding any:

(a) license, assignment or other disposition of any of its rights (also by way of granting an option similar to the Option) in any Quark Compound, Product or [*] Quark Technology to any Third Party; or

(b) collaboration or license agreement with any Third Party in connection with the development and/or commercialization of any [*].

3. GOVERNANCE AND DEVELOPMENT DURING OPTION PERIOD

3.1 Joint Discussion Committee.

(a) The Parties will establish a Joint Discussion Committee, composed of [*] senior personnel of Quark and [*] senior personnel of Novartis (one (1) of which will be the Party's Alliance Manager and which personnel for each Party, collectively, shall have a general understanding of drug manufacturing, development and commercialization issues). Within [*] following the Option Agreement Effective Date, each Party will designate its initial members to serve on the JDC and notify the other Party of the dates of availability for the first meeting of the JDC. Each Party may replace its representatives on the JDC on written notice to the other Party.

(b) At meetings of the JDC, Quark will update Novartis on, and the Parties will review and discuss, the status of Quark's Development activities with respect to the Quark Compounds and the Product and any key issues encountered in the Development of the Quark Compounds and the Product. Without limiting Quark's obligations under Section 3.3(a), Quark shall deliver any data and/or information required to be delivered under Section 3.3(a) that has not yet been delivered within a reasonable period of time prior to the next JDC meeting.

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(c) The JDC shall meet at least [*] per Calendar Year during the Option Period and at such other times as the JDC or the Parties may agree. The first meeting of the JDC shall be held as soon as reasonably practicable, but in no event later than [*] following the Option Agreement Effective Date. Meetings shall be held at such place or places as are mutually agreed or by teleconference or videoconference. Each Party may from time to time invite a reasonable number of participants who are under obligations of confidentiality consistent with this Option Agreement, in addition to its representatives, to attend JDC meetings in a non-voting capacity, with the consent of the other Party (which shall not be unreasonably withheld).

(d) The Parties agree that the costs incurred by each Party in connection with its participation at any meetings under this Section 3.1 shall be borne solely by such Party.

(e) For avoidance of doubt, during the Option Period, Quark retains all decision making rights regarding Development of the Quark Compounds and the Product. Quark will consider in good faith Novartis' opinions as discussed during the JDC meetings but may amend the DGF Phase II Trial Protocol and the AKI Phase II Trial Protocol without Novartis' consent.

3.2 Development During the Option Period.

(a) During the Option Period, Quark will have the sole right to conduct and will be responsible for conducting, at its sole expense, and shall use Commercially Reasonable Efforts to carry out, all research and preclinical, clinical and other development of the Quark Compounds and/or Product; provided that Novartis will provide, through its participation in the JDC, a reasonable degree of know-how and technical advice with respect to such activities; provided further that Quark shall not be obligated to conduct any research and preclinical, clinical and other development of the Quark Compounds and/or Product except as set forth below in Section 3.2(b).

(b) Without limiting Section 3.2(a) above, Quark will be responsible for completing, and shall use Commercially Reasonable Efforts to complete, at its sole cost and expense (except as provided below) and in accordance with the Quark Development Plan, the DGF Phase II Trial and the AKI Phase II Trial, including the Phase II Trial Reports and the AKI [*] and [*] safety follow-up reports. The DGF Phase II Trial shall be completed in accordance with the DGF Phase II Trial Protocol and the AKI Phase II Trial shall be completed in accordance with the AKI Phase II Trial Protocol. Notwithstanding the foregoing, if [*] as specified in the [*], as applicable, after [*] specified therein by [*], [*], and the Parties [*]. For clarity, in no event shall Quark be obligated to implement any changes to the Quark Development Plan, the DGF Phase II Trial Protocol, or the AKI Phase II Trial Protocol that would have the effect of [*] of the DGF Phase II Trial and/or the AKI Phase II Trial.

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(c) Quark covenants that in performing all such development (i) it shall comply with all applicable current international regulatory standards, including cGMP, cGLP, cGCP and other rules, regulations and requirements and (ii) it will not employ or use any person that has been debarred under Section 306(a) or 306(b) of the U.S. Federal Food, Drug and Cosmetic Act.

(d) Subject to the foregoing, during the Option Period, Quark shall retain decision making authority on all matters in connection with the Development (including all agreements with Third Parties) of the Quark Compounds and/or Product and shall reasonably keep Novartis updated with respect to any material decisions, data, results and draft agreements related thereto.

(e) Notwithstanding anything to the contrary in this Option Agreement, if [*] do not [*] and the [*] do not [*], and the [*], Quark may [*] and shall [*], provided, however, that [*]. For a period of [*] after [*] and the [*], the Parties shall [*]. If the Parties [*], such [*] will [*] and [*], Quark will [*], and Novartis [*], and Quark shall [*], provided, however, that Novartis [*]. Quark shall [*] after the Parties [*]. Novartis shall [*]. Such [*] will be [*].

3.3 Covenants Prior to Option Exercise.

(a) Information relating to Quark Compounds and/or Product. During the Option Period, Quark shall promptly notify Novartis of, and promptly provide to Novartis, all data and/or information relating to the Quark Compounds and/or Product that Quark generates during the Option Period which, in Quark's reasonable judgment, would be relevant for Novartis' decision concerning the exercise of the Option, whether or not such data or information is specifically requested by Novartis.

(b) Regulatory Developments. During the Option Period, Quark will provide to Novartis copies of all substantive written communications between Quark (or its Affiliates) and Regulatory Authorities related to any Quark Compound or Product. Novartis shall have the right to have representatives of Novartis attend (as observers) all meetings between Quark (or its Affiliates) and any Regulatory Authority relating to the DGF Phase II Trial and/or the AKI Phase II Trial, except to the extent prohibited by applicable law or regulation.

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(c) Due Diligence. During the Option Period, Quark shall permit Novartis to conduct a reasonable due diligence investigation to enable Novartis to make an informed decision on whether or not to exercise the Option and its other rights hereunder. The key due diligence items shall include: (i) discussions with Quark on interactions with the Regulatory Authorities relating to the Quark Compounds and/or the Product and all past, current, and planned related clinical trials relating to Quark Compounds and/or Product, and review of all filings and correspondence with Regulatory Authorities relating to the Quark Compounds and/or the Product, including minutes of meetings and telephone calls with such Regulatory Authorities regarding such matters; (ii) review of all pre-clinical and clinical data, and of the formulation composition and CMC sections of Regulatory Filings, in each case, related to Quark Compounds and/or Product; (iii) review of all contracts related to the Development, manufacturing or Commercialization of the Quark Compounds or the Products, including all agreements entered into by Quark during the Option Period; (iv) review of all intellectual property relating to Quark Compounds and/or Product; (v) access to any contract research organization(s) and contract manufacturer(s) of the Quark Compounds of Product, including for purposes of conducting quality audits if requested by Novartis; and (vi) any other items reasonably related to Quark Compounds and/or Product or the License, as the case may be. Such due diligence items shall be provided by Quark promptly upon reasonable request by Novartis from time to time, but shall be subject to Third Party confidentiality obligations of Quark which will be clearly identified and listed before entering due diligence (provided that if information material to Novartis's decision about exercising its Option is subject to a Third Party confidentiality obligation, Quark shall so advise Novartis and work with Novartis to enable Novartis to make its decision about Option exercise in an informed manner).

(d) Financial Disclosures. During the Option Exercise Period, Quark shall promptly notify Novartis:

(i) of the occurrence of the following:

(A) Quark's [*] fall below US\$[*];

(B) Quark's [*] (excluding [*]) exceed US\$[*], and any increase in Quark's [*] of more than US\$[*]; or

(C) any increase of more than US\$[*] in Quark's [*] as compared to [*],

it being agreed that, if any of the foregoing occurs, the Parties shall discuss possible alternatives which may include (but are not limited to) [*], provided that, for the sake of clarity, the occurrence of an event described in this Section 3.3(d)(i), in the absence of other circumstances, shall not be considered [*] and such notification thereof by Quark shall not be considered [*] by Quark which would give rise to [*] in accordance with [*];

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(ii) if and when Quark first becomes aware of any proceedings, or the likely occurrence of any proceedings, in connection with an Insolvency Event or other similar arrangement or proceeding in regard to Quark (such notice, an "Insolvency Event Notice by Quark").

3.4 Option Acceleration.

(a) In the event that Novartis reasonably determines, during the Option Exercise Period, that [*] has or is likely to occur in connection with [*] it may issue written notice to Quark of such determination (such notice, [*]).

(b) Within [*] of any [*] by Quark or any [*] by Novartis, Novartis may exercise the Option by notice in writing to Quark, which will have the effect described in Section 8.3 of Exhibit A hereto.

(c) Nothing in this Section 3.4 shall limit any other rights of Novartis under this Option Agreement, and for clarity, nothing in this Section 3.4 shall preclude Novartis from exercising the Option at any later time during the Option Period in the event that it does not exercise the Option under this Section 3.4.

3.5 Delivery of Study Reports.

(a) Quark shall deliver to Novartis a draft of each of the Phase II Trial Reports except the DGF DMC Top Line Interim Report and the AKI First Interpretable Results, which will each only be delivered in a final form (all reports shall, in each case, include all available raw data in a user-friendly electronic format, as well as primary and secondary efficacy endpoint data, all material efficacy, safety, clinical and medical data, and any other information related thereto and shall be produced in a substantially similar form as the report template provided by Novartis from time to time) (each, a "Draft Phase II Trial Report") no more than [*] following the date on which the applicable Draft Phase II Trial Report becomes available to Quark in essentially complete form.

(b) Each Draft Phase II Trial Report shall be accompanied by a report setting forth all other material efficacy, safety, clinical and medical data, manufacturing data and a summary of the data generated from the pre-clinical and clinical studies in sufficient detail so as to reasonably

demonstrate whether efficacy has been achieved in accordance with defined endpoints and whether any unexpected or untoward effects resulted from such studies which would limit further development of the Product.

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(c) For a period of [*] from and after the delivery of each Draft Phase II Trial Report, Novartis shall have the right to request from Quark such additional information then in the possession of or readily available to Quark as Novartis may reasonably require in order to make a scientific, legal and business evaluation of the development and commercialization potential of the Product. Quark shall promptly respond in writing to any questions Novartis may have regarding the applicable Draft Phase II Trial Report and the report provided under Section 3.5(b), and shall promptly provide or make available any additional information relating thereto requested by Novartis, in any case, within [*] following any such questions and/or request.

(d) Novartis will within [*] of receiving a Draft Phase II Trial Report issue a written notice to Quark either confirming or disputing whether such Draft Phase II Trial Report meets the requirements set forth in the relevant Phase II Trial Report definition under this Option Agreement, such confirmation not to be unreasonably withheld. In the event such written notice disputes whether such Draft Phase II Trial Report meets the requirements set forth in the relevant Phase II Trial Report definition under this Option Agreement, such written notice shall include a list of specific deficiencies to be corrected in the final version of the applicable Phase II Trial Report.

(e) Quark will provide Novartis with the final version of the following Phase II Trial Reports:

(i) The DGF DMC Top Line Interim Report within [*] of the final dosing of the last patient for each interim analysis in the DGF Phase II Trial;

(ii) The DGF [*] Report within [*] of the final dosing of the last patient for the DGF Phase II Trial;

(iii) The DGF Final Report within [*] of the final dosing of the last patient for the DGF Phase II Trial;

(iv) The AKI First Interpretable Results within [*] of the final dosing of the last patient in the AKI Phase II Trial; and

(v) The AKI Final Report within [*] of the final dosing of the last patient for the AKI Phase II Trial.

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Each such Phase II Trial Report shall be deemed to have been accepted by Novartis [*] after it was first made available to Novartis in final and complete form, provided that such report reasonably addresses any deficiencies in the corresponding Draft Phase II Trial Report that were identified by Novartis under Section 3.5(d) above. If Novartis believes the report, as submitted by Quark in final and complete form, did not reasonably address such deficiencies, it shall promptly advise Quark and the Parties shall seek to resolve such dispute. If the Parties do not reach agreement on such matter, either Party may submit the issue to an arbitration under Section 10.5. If the arbitration rules [*] the applicable [*] shall be [*] but the [*] with respect to [*] shall be [*] following receipt of the written decision of arbitration. If the arbitration rules [*], then [*] in accordance with the ruling of the arbitrator and shall [*], and the [*].

(f) For a period of [*] from and after the delivery of the DGF DMC Top Line Interim Report, the AKI First Interpretable Results, the DGF [*] Report and the AKI Final Report, Novartis shall have the right to request from Quark such further additional information then in the possession of or readily available to Quark as Novartis may reasonably require in order to make a scientific, legal and business evaluation of the Development and Commercialization potential of the Product. Quark shall promptly respond in writing to any questions Novartis may have regarding the DGF DMC Top Line Interim Report, the AKI First Interpretable Results, the DGF [*] Report or the AKI Final Report, as applicable, and the report provided under Section 3.5(b), and shall promptly provide or make available any additional information relating thereto requested by Novartis, in any case, within [*] following any such questions and/or request.

4. EXERCISE OF OPTION AND GRANT OF LICENSE

4.1 Exercise of Option and Grant of License.

(a) Subject to Sections 4.1(a)(i) and 4.1(a)(ii) below, Novartis may exercise the Option by written notice to Quark ("Novartis Option Exercise Notice") during the Option Period pursuant to Section 8.1(a), 8.1(b), 8.1(c) or 8.1(d) of Exhibit A.

(i) Within [*] of the [*] of (A) the date on which [*] or (B) the date on which [*], Novartis shall provide written notice to Quark [*]. [*], within [*] of [*], [*] by written notice that [*]. If Novartis [*] during such [*] to provide [*] to exercise the Option pursuant to [*]. The [*] shall not exceed [*]. The [*] to provide [*]. If [*] within such [*], Novartis shall [*] and [*] shall, [*] to exercise the Option [*].

(ii) The Novartis Option Exercise Notice shall set forth which provision in Sections 8.1(a) through (d) in Exhibit A shall apply. For clarity, except as provided in Section 3.4 above, the Option may only be exercised by Novartis pursuant to one of the provisions set forth in Sections 8.1(a) through (d) of Exhibit A.

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(b) Unless exercised by Novartis, the Option shall expire in its entirety as follows:

(i) Except as provided in Sections 4.1(b)(ii), 4.1(b)(iii), 4.1(b)(iv) or 4.1(b)(v), the Option shall expire in its entirety [*] after the [*] of (A) [*] or (B) [*].

(ii) In the event either [*] or [*], and [*], the Option shall expire in its entirety upon the expiry of [*].

(iii) In the event that (A) both [*] and [*], or [*], and (B) either [*] or [*], the Option shall expire in its entirety on the date that is [*] after the earlier of (X) the date on which the [*] that [*] was accepted by Novartis as set forth [*] or (Y) the date on which the [*] that [*] was accepted by Novartis as set forth [*].

(iv) In the event Quark [*] as set forth[*]and the Parties [*] the Parties shall [*], the Option shall expire in its entirety [*].

(v) In the event that (A) both [*] and [*] and (B) neither [*] nor [*] and Novartis does not exercise the Option pursuant to Section 4.1(b)(iv), the Option shall expire in its entirety on the date that is [*] after the later of (X) the date on which the [*] was accepted by Novartis [*] or (Y) the date on which the [*] was accepted by Novartis [*]. If, after expiration of the Option pursuant to this Section 4.1(b)(v), Quark [*] or otherwise [*] with respect to [*] or [*], Quark [*]. Novartis will [*]. If Novartis [*], or if [*] during such [*], then Quark [*].

(vi) In the event Quark believes the Option is about the expire under the provisions of any of paragraphs (i)-(v) above, Quark shall give written notice to Novartis not less than [*] and nor more than [*] prior to the date on which Quark believes such expiration would occur.

(c) Quark hereby grants to Novartis, effective as of the License Effective Date, an exclusive (even as to Quark), royalty-bearing, sub-licensable license under the Quark Technology and Quark's interest in any Joint Development Technology to research, Develop, make, have made, use, import, export, offer for sale, sell and otherwise Commercialize the Quark Compounds and the Product in the Field in the Territory and to have the foregoing done on its behalf (the "License") on the terms and conditions set forth in Exhibit A. The Parties acknowledge and agree that Exhibit A sets forth all the material terms and conditions of the License. Such License (and the Parties' rights and obligations thereunder) shall automatically become effective on the License Effective Date without the need for further action by the Parties.

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(d) If Novartis does not exercise the Option within the Option Period, then: (i) the Option shall no longer be exercisable and the License granted under Section 4.1(c) shall be of no force or effect; and (ii) Quark will be free to initiate, solicit, discuss, negotiate or enter into any agreement or arrangement with any Third Party regarding licensing or other disposition of any rights to the Quark Technology, the Quark Compounds or the Product, without further obligation to Novartis.

(e) Attached hereto as Exhibit B is a decision tree illustrating the option exercise mechanism set forth in this Section 4.1 and in Sections 8.1 and 8.2 of Exhibit A. Such decision tree is included herein solely for illustrative purposes. To the extent there exists any inconsistencies between Exhibit B and the language in the body of this Option Agreement or between Exhibit B and the language in Exhibit A, the language in the body of this Option Agreement and/or the language in Exhibit A (as applicable) shall control.

4.2 Antitrust Filings. Upon request by Novartis (whether during the Option Period or following exercise of the Option by Novartis), Quark agrees to cooperate with Novartis and to prepare and make appropriate filings under the HSR Act and other antitrust requirements relating to the License as soon as reasonably practicable after the Option Exercise Date ("HSR Filing Date"). The Parties agree to cooperate in the antitrust clearance process and to furnish promptly to the Federal Trade Commission (FTC), the Antitrust Division of the Department of Justice and any other agency or authority, any information reasonably requested by them in connection with such filings. In the event a provision of the License needs to be deleted or substantially revised in order to obtain regulatory clearance of this transaction, the Parties will negotiate in good faith in

accordance with Section 10.3. Each Party shall bear its own expenses in connection with the Parties' cooperation under this Section 4.2, except that Novartis shall pay all filing fees due with respect to any filings under the HSR Act.

4.3 Cooperation and Transfer of Technology

(a) Within [*] of the License Effective Date (or such longer period as may be agreed between the Parties), Quark, without additional consideration, shall disclose to Novartis or its designated Affiliate all Quark Know-How in existence at the License Effective Date. Such disclosures shall include all such Quark Know-How pertaining to the formulation, manufacture and Development of the Quark Compounds and/or Product and any other data, information and documents known to Quark which may be necessary or useful to Novartis to research, Develop, manufacture, register, use or Commercialize the Quark Compounds and/or Product and practice the License efficiently. Quark will also provide reasonable assistance to Novartis or its designated Affiliate in connection with understanding and using the Quark Know-How within the scope of the License. In providing Know-How under this paragraph (a), Quark shall deliver written and electronic materials to Novartis, during the period of [*] from the License Effective Date, such assistance from its professional staff for meetings (including travel to sites other than Quark facilities) telephone calls, studies, reports and other assistance as may reasonably be required by Novartis to enable it to understand and use the Quark Know-How, shall be provided without charge to Novartis. After such [*] period and during the term of the License Agreement, Quark shall ensure that its professional staff shall continue to be available as reasonably required at Quark facilities and by telephone, without charge to Novartis, provided that [*].

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(b) Within [*] following the License Effective Date (or such longer period as may be agreed between the Parties), Quark or its Affiliates shall, provide to Novartis or its designated Affiliate such quantities of the Quark Compounds and/or Product in Quark's possession as may be reasonably requested by Novartis, which supplies shall be provided to Novartis at [*].

(c) During the term of the License, Quark shall fully cooperate with and provide reasonable assistance to Novartis or its designee, through documentation, consultation and face-to-face meetings, to enable Novartis or its designee in an efficient and timely manner to proceed with Development and manufacturing of the Quark Compounds and/or Product and to obtain all appropriate regulatory approvals for manufacturing (including qualification by the applicable Regulatory Authority of manufacturing sites), provided that during the period of [*] from the License Effective Date, such assistance (including travel to sites other than Quark facilities) shall be provided without charge to Novartis. After such [*] period such assistance shall, where provided at Quark facilities or by telephone, continue to be provided without charge, provided that [*].

(d) During the period from the License Effective Date until the First Commercial Sale of the Quark Compounds and/or Product under the License, Quark shall make appropriate personnel available to assist Novartis or its designee from time to time as reasonably requested by Novartis, and shall provide the appropriate personnel of Novartis or its designee with access to the personnel and manufacturing and other operations of Quark for such periods of time and in such manner as is reasonable in order to familiarize the personnel of Novartis or its designee with Quark Know-How relating to the Development and manufacture of the Quark Compounds and/or Product and the application of the same, provided that during the period of [*] from the License Effective Date, such assistance (including travel to sites other than Quark facilities) shall be provided without charge to Novartis. After such [*] period such assistance shall, where provided at Quark facilities or by telephone, continue to be provided without charge, provided that [*].

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4.4 Transition Plan. Within [*] of the License Effective Date, the Parties shall agree to a plan ("Transition Plan") for the transfer to Novartis of all Development and manufacturing activities then being undertaken by Quark, taking into account Quark's obligations to complete the DGF Phase II Trial and/or the AKI Phase II Trial, and any other ongoing clinical or pre-clinical studies, as set forth in Section 5.1(a) of Exhibit A. Quark shall, without additional consideration, transition all such activities to Novartis in accordance with the Transition Plan.

5. CONFIDENTIALITY

5.1 Duty of Confidence.

(a) Subject to the other provisions of this Article 5, all Confidential Information disclosed by a Party or its Affiliates under this Option Agreement will be maintained in confidence and otherwise safeguarded by the recipient Party. The recipient Party may only use the Confidential Information for the purposes of this Option Agreement (including the License granted hereunder). Subject to the other provisions of this Article 5, each Party shall hold as confidential such Confidential Information of the other Party or its Affiliates in the same manner and with the same protection (in no

case less than reasonable care) as such recipient Party maintains its own confidential information. Subject to the other provisions of this Article 5, a recipient Party may only disclose Confidential Information of the other Party to employees, agents, contractors, consultants and advisers of the Party and its Affiliates and sublicensees to the extent reasonably necessary for the purposes of, and for those matters undertaken pursuant to, this Option Agreement; provided that such Persons are bound to maintain the confidentiality of the Confidential Information in a manner consistent with the confidentiality provisions of this Option Agreement.

(b) During the term of this Option Agreement Quark shall take all commercially reasonable precautions to protect the confidentiality of the Quark Program Confidential Information.

5.2 Exceptions. The obligations under this Article 5 shall not apply to any information to the extent the recipient Party can demonstrate by competent evidence that such information:

(a) is (at the time of disclosure) or becomes (after the time of disclosure) known to the public or part of the public domain through no breach of this Option Agreement by the recipient Party or its Affiliates;

(b) was known to, or was otherwise in the possession of, the recipient Party or its Affiliates prior to the time of disclosure by the disclosing Party or any of its Affiliates;

(c) is disclosed to the recipient Party or an Affiliate on a non-confidential basis by a Third Party who is entitled to disclose it without breaching any confidentiality obligation to the disclosing Party or any of its Affiliates; or

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(d) is independently developed by or on behalf of the recipient Party or its Affiliates, as evidenced by its written records, without access or reference to the Confidential Information disclosed by the disclosing Party or its Affiliates under this Option Agreement.

Specific aspects or details of Confidential Information shall not be deemed to be within the public domain or in the possession of the recipient Party merely because the Confidential Information is embraced by more general information in the public domain or in the possession of the recipient Party. Further, any combination of Confidential Information shall not be considered in the public domain or in the possession of the recipient Party merely because individual elements of such Confidential Information are in the public domain or in the possession of the recipient Party unless the combination and its principles are in the public domain or in the possession of the recipient Party.

5.3 Authorized Disclosures. In the event the recipient Party is required to disclose Confidential Information of the disclosing Party by law or regulation or in connection with bona fide legal process, such disclosure shall not be a breach of this Option Agreement; provided that the recipient Party (i) informs the disclosing Party as soon as reasonably practicable of the required disclosure; (ii) limits the disclosure to the required purpose; and (iii) at the disclosing Party's reasonable request and expense, assists in an attempt to object to or limit the required disclosure.

5.4 Ongoing Obligation for Confidentiality. In the event that Novartis does not exercise the Option before the end of the Option Period, each Party and its Affiliates shall immediately return to the other Party or destroy any Confidential Information disclosed by the other Party during the Option Period, except for one copy which may be retained in its confidential files for archive purposes.

5.5 Confidentiality Obligations Under License. For clarity, in the event that Novartis exercises the Option, the provisions of Article 11 of Exhibit A shall apply with respect to all Confidential Information disclosed by a Party to the other Party under this Option Agreement, and the provisions of this Article 5 shall be of no further force or effect with respect to such Confidential Information.

6. INTELLECTUAL PROPERTY

6.1 Ownership of Development Technology. Each Party agrees promptly to disclose to the other Party all Know-How and Patent Rights created, conceived, reduced to practice or invented by either Party, its Affiliates, agents or by Third Parties acting on its behalf, as a direct result of a Party performing activities under this Option Agreement. As between the Parties, (a) title to all Quark Development Technology shall be owned by Quark, (b) title to all Novartis Development Technology shall be owned by Novartis, and (c) title to all Joint Development Technology shall be jointly owned by Quark and Novartis as contemplated under US patent laws, including 35 U.S.C. § 262.

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6.2 Joint Development Technology. Subject to the rights herein including the Option, and if the Option is exercised, the License, each Party shall have the right to practice and exploit Joint Development Technology, without any obligation to account to the other for profits, or to obtain any approval of the other Party to license, assign or otherwise exploit Joint Development Technology, by reason of joint ownership thereof, and each Party hereby waives any right it may have under the laws of any jurisdiction to require any such approval or accounting; and to the extent there are any applicable laws that prohibit such a waiver, each Party will be deemed to so consent. Should one or both Parties decide to file a patent application related to or claiming Joint Development Technology the Parties shall refer the preparation and filing of such application(s) to a mutually agreed-upon outside intellectual property counsel, the expenses of which shall be borne equally by the Parties. Either Party may determine that it is no longer interested in supporting the continued prosecution or maintenance of a particular patent or patent application claiming Joint Development Technology in a particular country or jurisdiction, in which case: (i) the disclaiming Party shall, if requested by the other Party, assigns its ownership interest in such patent or patent applications in such country or jurisdiction to the other Party for no additional consideration; and (ii) if such assignment is effected, the disclaiming Party and any Affiliates thereof would have immunity from suit under such patent or patent application in the applicable country or jurisdiction. In the event of an infringement anywhere in the world of any Patent Rights which comprise Joint Development Technology, the Parties shall jointly decide how to proceed. If one Party brings any action to enforce Patent Rights that has been agreed upon by the Parties, the other Party agrees to be joined as a party if necessary to prosecute the action and to give the first Party reasonable assistance and authority to file and prosecute the action.

6.3 Data. All data generated by Quark in the course of the Development of the Quark Compounds and/or the Product during the term of the Option Agreement shall be owned by Quark and included in the Quark Know-How. All data generated by Novartis in the course of the Development of the Quark Compounds and/or the Product during the term of the Option Agreement shall be owned by Novartis.

6.4 Disputes as to Inventorship. Should the Parties fail to agree regarding inventorship of any invention made in the conduct of activities under this Option Agreement, the Parties shall refer the matter to a mutually agreed-upon outside counsel, with expertise in intellectual property, for resolution, the expenses of which shall be borne equally by the Parties. All determinations of inventive contribution for inventions arising hereunder shall be determined under United States patent law.

6.5 No Implied Rights. No license or other right is or shall be created or granted hereunder by implication, estoppel or otherwise, except as expressly provided for herein.

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6.6 Infringement of Third Party Rights. If Quark identifies any Third Party intellectual property rights that it believes would be relevant to the Development, manufacture, use or Commercialization of the Quark Compounds and/or the Product, Quark will so notify Novartis and the Parties shall confer to discuss the scope and relevance of such intellectual property rights and shall discuss whether and on what terms Quark should attempt to obtain rights to such intellectual property rights. In the event that Quark wishes to enter into any agreement under which Quark would assign or grant to Novartis a sublicense if Novartis exercises the Option, Quark shall use Commercially Reasonable Efforts to negotiate and execute a license (or similar) agreement (each such agreement an "Option Term Agreement") to acquire rights to such intellectual property rights that is (i) [*], and (ii) is [*]. Quark shall submit to the JDC a draft of such agreement for Novartis to review and Quark shall consider any comments Novartis may have in good faith. Further, Quark shall send a copy of any such agreement entered into with a Third Party to Novartis within [*] following execution of any such agreement.

6.7 Patent Filings. Prior to filing any patent application in Quark Patents or any amendment thereto, and prior to any decision not to file any patent application in Quark Patents or amendment thereto or to allow any patent or patent application in Quark Patents to lapse or become abandoned, or prior to any submission to the U.S. Patent and Trademark Office or similar foreign office, Quark shall provide to Novartis a written draft of any such filing or submission or written notice of any decision to not file such application, abandon an application or to allow any patent or patent application to lapse, as the case may be, in accordance with the notice provisions set forth in Section 10.9 within a reasonable time prior to such filing, submission or decision for Novartis to review and comment, in good faith, on such filing, submission or decision, provided, that Quark shall consider such comments in good faith but Quark retains final decision-making authority as to all such filings, submissions and decisions.

6.8 Requested Divisionals. Quark has identified to Novartis, as of the Option Agreement Effective Date, those Quark Patents which have apparent utility with respect to Quark activities both within and outside the scope of this Option Agreement or the License Agreement (Table 6 of draft Exhibit A to Exhibit A). Within [*] following the Option Agreement Effective Date, Novartis shall identify to Quark those divisional patent applications that Novartis would like to have filed specific to [*] of such Quark Patent, and Quark shall thereafter [*] such divisional patent applications and patents issuing therefrom. The Parties shall cooperate to make such process practical and efficient.

7. TERM AND TERMINATION

7.1 Term. Unless earlier terminated as set forth in this Article 7, the term of this Option Agreement will commence upon the Option Agreement Effective Date and continue until the end of the Option Period.

7.2 Termination by Novartis Without Cause. Novartis may terminate this Option Agreement without cause at any time after the Option Agreement Effective Date by [*] prior written notice to Quark. If this Option Agreement is terminated by Novartis pursuant to this Section 7.2, then, except as set forth in Section 7.4, neither Novartis nor Quark shall have any further obligations or liabilities under this Option Agreement.

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7.3 Termination by Quark for Cause. If Novartis commits a material breach of this Option Agreement, Quark may give written notice to Novartis specifying the claimed particulars of such material breach, and in the event such material breach is not cured within [*] after such notice, Quark shall have the right thereafter to terminate this Option Agreement immediately by giving written notice to Novartis to such effect. Any such termination shall be without prejudice to any damages or other legal or equitable remedies to which Quark may be entitled from Novartis.

7.4 Survival. Expiration or termination of this Option Agreement or the License shall not relieve the Parties of any obligation accruing prior to such expiration or termination. The provisions of [*], and the provisions of Article 5 (Confidentiality) shall survive the termination or expiration of this Option Agreement for a period of [*], and the provisions of Article 6 (Intellectual Property, except for Sections 6.6, 6.7 and 6.8) shall survive the termination or expiration of this Option Agreement indefinitely. Notwithstanding the foregoing, in the event that Novartis exercises the Option before the end of the Option Period, to the extent that any surviving provision of this Option Agreement is inconsistent with the provisions of the License, it shall be superseded and replaced by the provisions of the License.

8. REPRESENTATIONS, WARRANTIES, COVENANTS AND INDEMNITIES

8.1 Representations, Warranties and Covenants by Each Party. Each Party represents, warrants, covenants and/or agrees (as applicable) to the other as of the Option Agreement Effective Date that:

- (a) it is a corporation duly organized, validly existing, and in good standing under the laws of its jurisdiction of formation;
- (b) it has all requisite corporate power and authority to execute, deliver, and perform this Option Agreement, and has taken all corporate action required by law and its organizational documents to authorize the execution and delivery of this Option Agreement and the consummation of the transactions contemplated by this Option Agreement;
- (c) the execution and delivery of this Option Agreement by such Party and the performance by it of its obligations hereunder have been duly and validly authorized by all necessary corporate action on the part of such Party;
- (d) this Option Agreement has been duly executed and delivered by such Party;
- (e) this Option Agreement constitutes a valid and binding agreement enforceable against it in accordance with its terms;
- (f) it will use all reasonable precaution to preserve the confidentiality of this Option Agreement (including any exhibits attached hereto) and the terms hereof;

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(g) except for any HSR or other merger clearance filings that may be required, all consents, approvals and authorizations from all governmental authorities or other Third Parties required to be obtained by such Party in connection with this Option Agreement, and the transactions contemplated hereby, have been obtained;

(h) the execution and delivery of this Option Agreement and all other instruments and documents required to be executed pursuant to this Option Agreement, and the consummation of the transactions contemplated hereby, do not and shall not (i) conflict with or result in a breach of any provision of its organizational documents, (ii) result in a breach of any other agreement to which it is a party; or (iii) violate any law; and

(i) neither it nor its respective stockholders, directors, officers or employees have retained any broker, finder, or investment banker in connection with this Option Agreement or the transactions contemplated hereby, nor, in the case of Quark, does or will it, or any of its directors, officers or employees owe any fee or other amount to any broker, finder, or investment banker in connection with the Option Agreement or the transactions contemplated hereby.

8.2 Representations and Warranties by Each Party Regarding License Agreement. Each Party represents and warrants to the other that, upon exercise by Novartis of the Option before the end of the Option Period, the terms and conditions set forth on Exhibit A to this Option Agreement

shall constitute a complete, valid and binding agreement enforceable against it in accordance with such terms.

8.3 Representations and Warranties by Quark. Quark represents and warrants to Novartis as of the Option Agreement Effective Date that:

(a) Quark has the right to grant to Novartis the rights that Quark purports to grant Novartis hereunder, including the right to grant exclusive licenses to the Quark Compounds and the Product under the Quark Patents and Quark Know-How;

(b) Quark has not granted to any Third Party, including any academic organization or agency, any rights to the Quark Compounds or Product;

(c) all of its employees, officers, and consultants involved or to be involved in the research or Development of the Quark Compound or Product have executed agreements or have existing obligations under applicable laws requiring assignment to Quark of all inventions made during the course of and as the result of their association with Quark and obligating the individual to maintain as confidential Quark's Confidential Information as well as confidential information of other parties (including Novartis and its Affiliates) which such individual may receive;

(d) Quark has not granted any Third Party rights that would otherwise interfere or be inconsistent with Novartis' rights hereunder in a material manner, and there are no license or option agreements or other arrangements to which Quark or any of its Affiliates is a party relating to the Product, Quark Compounds, Quark Patents, Quark Know-How or otherwise that would limit the rights granted to Novartis under this Option Agreement or that restrict or will result in a restriction on Novartis' ability to research, Develop, manufacture, register, use or Commercialize the Quark Compounds and the Product in the Territory;

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(e) [*] the research, Development, use and manufacture of the Quark Compounds and Products has been conducted by Quark without infringing or misappropriating the intellectual property rights of any Third Party;

(f) [*] neither Quark nor any of its Affiliate has committed any act which amounts to a material breach of any of Quark's obligations under any agreement under which it obtains rights to any of the Quark Technology;

(g) (i) neither Quark nor any employee, agent or subcontractor of Quark involved or to be involved in the research or Development of the Quark Compounds or the Product has been debarred under Subsection (a) or (b) of Section 306 of the Federal Food, Drug and Cosmetic Act (21 U.S.C. 335a); (ii) no Person who is debarred under Subsection (a) or (b) of Section 306 of said Act will be employed by Quark in the performance of any activities hereunder; and (iii) no Person on any of the FDA Clinical Investigator Enforcement Lists (including, but not limited to, the (1) Disqualified/Totally Restricted List, (2) Restricted List and (3) Adequate Assurances List) will participate in the performance of any activities hereunder.

(h) Notwithstanding anything to the contrary contained in this Option Agreement, Quark has [*] and [*] that would be [*] to [*] in connection with this Option Agreement. [*], the [*] provided to Novartis regarding the Quark Compounds and the Products are true and complete in all material respects.

8.4 Covenants of Quark. Quark covenants and agrees that during the term of this Option Agreement:

(a) neither it, nor any of its Affiliates, will grant any interest in the Quark Patents or Quark Know-How which is inconsistent with the terms and conditions of this Option Agreement, nor shall Quark assign its right, title or interest in or to the Quark Patents or Quark Know-How to any Third Party and will use all reasonable precautions to preserve the confidentiality of the Quark Know-How;

(b) neither it nor any of its Affiliates shall grant to any Third Party, including any academic organization or agency, any rights to the Quark Compounds or Product;

(c) it will not amend or modify the terms of any agreement under which it obtains rights to any of the Quark Technology in a way that materially affects Novartis' rights under this Option Agreement or the License without the prior written consent of Novartis;

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(d) it will not exercise any right to terminate any agreement under which it obtains rights to any of the Quark Technology without the prior written consent of Novartis;

(e) Quark and its Affiliates will comply with, perform and observe in all material respects all obligations under each agreement under which it obtains rights to any of the Quark Technology, and will not commit any act or fail to perform any obligation which would amount to a default or event of default or which, with the giving of notice, the lapse of time or the happening of any other event or condition would become a default or event of default thereunder or give rise to any right of the applicable counterparty to terminate any such agreement or any part thereof;

(f) it will use all reasonable precautions to preserve the confidentiality of this Option Agreement (including any exhibits attached hereto) and the terms hereof;

(g) if, at any time after execution of this Option Agreement, it, or any of its Affiliates, becomes aware that it or any of its Affiliates, or its or their employees, agents or subcontractors who participated, or is participating, in the performance of any activities hereunder is on, or is being added to the FDA Debarment List or any of the three (3) FDA Clinical Investigator Restriction Lists referenced in Section 8.3(g), it will provide written notice of this to Novartis within two (2) Business Days of its becoming aware of this fact; and

(h) it shall maintain insurance with respect to its activities and obligations under this Option Agreement in such amounts as are commercially reasonable in the industry for companies conducting similar business and shall require any of its Affiliates undertaking any activities under this Option Agreement to do the same.

8.5 No Other Warranties. EXCEPT AS EXPRESSLY STATED IN SECTIONS 8.1 – 8.4 OR IN EXHIBIT A, (A) NO REPRESENTATION, CONDITION OR WARRANTY WHATSOEVER IS MADE OR GIVEN BY OR ON BEHALF OF NOVARTIS OR QUARK; AND (B) ALL OTHER CONDITIONS AND WARRANTIES WHETHER ARISING BY OPERATION OF LAW OR OTHERWISE ARE HEREBY EXPRESSLY EXCLUDED, INCLUDING ANY CONDITIONS AND WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT.

8.6 Special, Indirect and Other Losses. NEITHER PARTY NOR ANY OF ITS AFFILIATES SHALL BE LIABLE IN CONTRACT, TORT, NEGLIGENCE BREACH OF STATUTORY DUTY OR OTHERWISE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR ANY ECONOMIC LOSS OR LOSS OF PROFITS SUFFERED BY THE OTHER PARTY [*].

8.7 No Exclusion. Neither Party excludes [*].

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9. PUBLICATIONS AND PUBLICITY

9.1 Publications. If Quark intends making any public disclosure relating to any Quark Compounds or Products, including in any scientific journals, publications or scientific presentations or otherwise, Quark shall provide Novartis with an advance copy of any such proposed publication or summary of any such proposed oral presentation prior to its submission for publication or disclosure in sufficient time to allow Novartis a reasonable opportunity to review and comment upon such publication or summary. Quark shall consider in good faith any such comments from Novartis.

9.2 Publicity.

(a) Neither Party shall use the name, symbol, trademark, trade name or logo of the other Party or its Affiliates in any press release, publication or other form of public disclosure without the prior written consent of the other Party in each instance (such consent not to be unreasonably withheld or delayed), except for (i) a press release in the form attached as Exhibit I and further disclosures of substantially the same information included therein and (ii) those disclosures for which consent has already been obtained.

(b) Except as permitted under Section 9.2(a), each Party agrees not to issue any press release or other public statement, whether oral or written, disclosing the existence of this Option Agreement, the terms hereof or any information relating to this Option Agreement without the prior written consent of the other Party. When seeking the consent of Novartis, Quark agrees to provide Novartis with at least [*] within which to grant or withhold its consent.

(c) Notwithstanding the foregoing, each Party may make any disclosures required of it to comply with any duty of disclosure it may have pursuant to law or governmental regulation or pursuant to the rules of any recognized stock exchange. In the event of a disclosure required by law, governmental regulation or the rules of any recognized stock exchange, the Parties shall coordinate with each other with respect to the timing, form and content of such required disclosure. If so requested by the other Party, the Party subject to such obligation shall use commercially reasonable efforts to obtain an order protecting to the maximum extent possible the confidentiality of such provisions (including, without limitation, financial terms) of this Option Agreement as reasonably requested by the other Party. If the Parties are unable to agree on the form or content of any required disclosure, such disclosure shall be limited to the minimum required as determined by the disclosing Party in consultation with its legal counsel. Without limiting the foregoing, each Party shall consult with the other Party on the provisions of this Option Agreement, together with exhibits or other attachments attached hereto, to be redacted in any filings made by Quark or Novartis with the

Securities and Exchange Commission (or other regulatory body) or as otherwise required by law.

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10. GENERAL PROVISIONS

10.1 Assignment. Neither Party may assign its rights and obligations under this Option Agreement [*], except that Novartis may without the consent of Quark (a) assign its rights and obligations under this Option Agreement or any part hereof to one or more of its Affiliates without the consent of Quark provided that Novartis shall remain primarily liable for any acts or omissions of its Affiliates under this Option Agreement; and (b) assign this Option Agreement in its entirety to a successor to all or substantially all of its business or assets to which this Option Agreement relates, and Quark may without the consent of Novartis assign this Option Agreement in its entirety to a successor to all or substantially all of its business or assets. The assigning Party shall provide the other Party with prompt written notice of any such assignment. Any permitted assignee shall assume all obligations of its assignor under this Option Agreement (or related to the assigned portion in case of a partial assignment to an Affiliate), and no permitted assignment shall relieve the assignor of liability hereunder. Any attempted assignment in contravention of the foregoing shall be void. Subject to the terms of this Option Agreement, this Option Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and permitted assigns.

10.2 Performance by Affiliates. Each Party shall have the right to perform its obligations under this Option Agreement through one or more of its Affiliates (provided that in the case of Quark, such Affiliates shall be limited to QBI Enterprises, Ltd., or any future Affiliates as to which Novartis grants its written consent). All applicable terms and provisions of this Option Agreement shall apply to any such Affiliate that is performing obligations under this Option Agreement to the same extent as such terms and provisions apply to such Party. Each Party shall remain primarily liable for any acts or omissions of its Affiliates.

10.3 Severability. Should one or more of the provisions of this Option Agreement become void or unenforceable as a matter of law, then this Option Agreement shall be construed as if such provision were not contained herein and the remainder of this Option Agreement shall be in full force and effect, and the Parties will use their commercially reasonable efforts to substitute for the invalid or unenforceable provision a valid and enforceable provision which conforms as nearly as possible with the original intent of the Parties.

10.4 Governing Law and Jurisdiction. This Option Agreement shall be governed by and construed under the laws of [*], without giving effect to the conflicts of laws provision thereof. Subject to Section 10.5, any dispute arising out of or relating to this Option Agreement shall be subject to the exclusive jurisdiction of the courts located in [*].

10.5 Dispute Resolution.

(a) In the event of a dispute under this Option Agreement, either Party may require that the Parties refer the dispute to the Joint Discussion Committee for discussion and resolution and decisions to resolve disputes shall be made by unanimous vote of the Joint Discussion Committee, with each Party's representative having one (1) vote. If the Parties are unable, through discussions at the Joint Discussion Committee, to resolve such a dispute within [*] of the dispute being referred to them, either Party may require that the Parties forward the matter to the Senior Officers (or designees with similar authority to resolve such dispute), who shall attempt in good faith to resolve such dispute. If the Senior Officers cannot resolve such dispute within [*] of the matter being referred to them, either Party shall be free to initiate the arbitration proceedings outlined in sub-Section (b) below.

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(b) Any unresolved disputes between the Parties relating to, arising out of or in any way connected with this Option Agreement or any term or condition hereof, or the performance by either Party of its obligations hereunder, whether before or after termination of this Option Agreement, shall be resolved by final and binding arbitration. Whenever a Party shall decide to institute arbitration proceedings, it shall give written notice to that effect to the other Party. Arbitration shall be held in New York, New York, according to the Rules of Arbitration of the International Chamber of Commerce ("ICC"). The arbitration will be conducted in English by a panel of arbitrators appointed in accordance with ICC rules; provided that each Party shall within [*] after the institution of the arbitration proceedings appoint an arbitrator, and such arbitrators shall together, within [*], select a third arbitrator as the chairman of the arbitration panel, each arbitrator shall have significant experience in the pharmaceutical business. If the two initial arbitrators are unable to select a third arbitrator within such [*] period, the third arbitrator shall be appointed in accordance with ICC rules. Discovery shall be governed by ICC rules, except that discovery shall be limited to: (i) the production of documents in the producing Party's possession, not otherwise available to the Party seeking the documents, that are [*] to [*] to the [*]; (ii) [*] per side of a maximum of [*] (provided, however, that for good cause shown, the arbitrators may authorize additional [*]); and (iii) [*] per side. In addition, requests for

production of documents shall contain a description of specific documents or classes of documents, along with [*]. The arbitrators may condition any exchange of documents subject to claims of commercial or technical confidentiality on appropriate measures to protect such confidentiality. When documents to be exchanged are maintained in electronic form, the Party in possession of such documents may make them available in the form (which may be paper copies) most convenient and economical for it, unless the arbitrators determine, on application and for good cause, that there is a compelling need for access to the documents in a different form. The Party seeking the production of documents shall ensure that [*] for [*] are [*] to make [*] as [*]. The arbitrators shall render their opinion within [*] of the final arbitration hearing. No arbitrator (nor the panel of arbitrators) shall have the power to award punitive damages under this Option Agreement and such award is expressly prohibited. Decisions of the panel of arbitrators shall be final and binding on the Parties. Judgment on the award so rendered may be entered in any court of competent jurisdiction. The losing Party to the arbitration (if any) as determined by the arbitrator shall pay the fees and costs of arbitration.

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10.6 Force Majeure. Neither Party shall be responsible to the other for any failure or delay in performing any of its obligations under this Option Agreement or for other nonperformance hereunder if such delay or nonperformance is caused by strike, stoppage of labor, lockout or other labor trouble, fire, flood, accident, war, act of terrorism, act of God or of the government of any country or of any local government, or by cause unavoidable or beyond the control of any Party hereto. In such event, the Party affected will use commercially reasonable efforts to resume performance of its obligations.

10.7 Waivers and Amendments. The failure of any Party to assert a right hereunder or to insist upon compliance with any term or condition of this Option Agreement shall not constitute a waiver of that right or excuse a similar subsequent failure to perform any such term or condition by the other Party. No waiver shall be effective unless it has been given in writing and signed by the Party giving such waiver. No provision of this Option Agreement may be amended or modified other than by a written document signed by authorized representatives of each Party.

10.8 Relationship of the Parties. Nothing contained in this Option Agreement shall be deemed to constitute a partnership, joint venture, or legal entity of any type between Quark and Novartis, or to constitute one as the agent of the other. Each Party shall act solely as an independent contractor, and nothing in this Option Agreement shall be construed to give any Party the power or authority to act for, bind, or commit the other.

10.9 Notices. All notices, consents, waivers, and other communications under this Option Agreement must be in writing and will be deemed to have been duly given when: (a) delivered by hand (with written confirmation of receipt); (b) sent by fax (with written confirmation of receipt), provided that a copy is immediately sent by an internationally recognized overnight delivery service (receipt requested); or (c) when received by the addressee, if sent by an internationally recognized overnight delivery service (receipt requested), in each case to the appropriate addresses and fax numbers set forth below (or to such other addresses and fax numbers as a Party may designate by notice):

If to Quark:

Quark Pharmaceuticals, Inc.

6501 Dumbarton Circle

Fremont, CA 94555

U.S.A.

Attn: Chief Executive Officer

Fax: (510) 402-4021

With a copy to:

Cooley LLP

Five Palo Alto Square

3000 El Camino Real

Palo Alto, CA 94306

U.S.A.

Attention: Robert. L. Jones

Fax: (650) 849-7400

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If to Novartis:

Novartis International Pharmaceutical Ltd.

131 Front Street

Hamilton

Bermuda HM 12

Attn: General Counsel

Fax: [*]

with a copy to:

Novartis Pharma AG

Lichtstrasse 35

CH - 4002 Basel

Switzerland

Attn: General Counsel

Fax: [*]

and

Novartis Pharma AG

Lichtstrasse 35

CH - 4002 Basel

Switzerland

Attn: Head, Business Development and Licensing

Fax: [*]

10.10 Further Assurances. Novartis and Quark hereby covenant and agree without the necessity of any further consideration, upon request of the other Party, to execute, acknowledge and deliver any and all such other documents and take any such other action as may be reasonably necessary to carry out the intent and purposes of this Option Agreement.

10.11 Compliance with Law. Each Party shall perform its obligations under this Option Agreement in accordance with all applicable laws. No Party shall, or shall be required to, undertake any activity under or in connection with this Option Agreement which violates, or which it believes, in good faith, may violate, any applicable law.

10.12 No Third Party Beneficiary Rights. Other than as provided in Section 10.2, the provisions of this Option Agreement are for the sole benefit of the Parties and their successors and permitted assigns, and they shall not be construed as conferring any rights to any Third Party (including any Third Party beneficiary rights).

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10.13 English Language. This Option Agreement is written and executed in the English language. Any translation into any other language shall not be an official version of this Option Agreement and in the event of any conflict in interpretation between the English version and such translation, the English version shall prevail.

10.14 Expenses. Except as otherwise expressly provided in this Option Agreement, each Party shall pay the fees and expenses of its respective lawyers and other experts and all other expenses and costs incurred by such Party incidental to the negotiation, preparation, execution and delivery of this Option Agreement.

10.15 Entire Agreement. This Option Agreement, together with its Exhibits, sets forth the entire agreement and understanding of the Parties as to the subject matter hereof and supersedes all proposals, oral or written, and all other prior communications between the Parties with respect to such subject matter.

10.16 Counterparts. This Option Agreement may be executed (a) in one or more partially or fully executed counterparts, each of which shall be deemed an original and shall bind the signatory, but all of which together shall constitute the same instrument, and (b) by facsimile or other electronic means, which facsimile or other electronic signatures shall be deemed an original and shall bind the signatory. The execution and delivery of a signature page in the form attached to this Option Agreement by any Party hereto who shall have been furnished the final form of this Option Agreement shall constitute the execution and delivery of this Option Agreement by such Party.

10.17 Cumulative Remedies. No remedy referred to in this Option Agreement is intended to be exclusive, but each shall be cumulative and in addition to any other remedy referred to in this Option Agreement or otherwise available under law.

IN WITNESS WHEREOF, the Parties intending to be bound have caused this Option Agreement to be executed by their duly authorized representatives.

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NOVARTIS INTERNATIONAL QUARK PHARMACEUTICALS, INC.

PHARMACEUTICAL LIMITED

By: /s/ H. S. Zivi By: /s/ D. Zurr

Name: H.S. Zivi Name: Daniel Zurr

Title: Director Title: President & CEO

Date: Date: August 17, 2010

By: /s/ Robert L. Thompson

Name: Robert L. Thompson

Title: Director

Date: August 17th, 2010

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EXHIBIT A

LICENSE AGREEMENT

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Execution Copy

CONFIDENTIAL

License Agreement

By And Between

Novartis International Pharmaceutical Ltd.

And

Quark Pharmaceuticals, Inc.

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LICENSE AGREEMENT

This LICENSE AGREEMENT ("Agreement") is made as of this ____ day of _____, 20__ ("Execution Date"), by and between Novartis International Pharmaceutical Ltd., a limited company organized and existing under the laws of Bermuda ("Novartis") and Quark Pharmaceuticals, Inc., a corporation company organized and existing under the laws of California, U.S.A. ("Quark"). Novartis and Quark are each referred to individually as a "Party" and together as the "Parties."

RECITALS

WHEREAS, Quark owns or controls the Quark Patents and Quark Know-How (each as defined below) relating to the Quark Compounds (as defined below);

WHEREAS, the Parties entered into an Option Agreement dated August 17, 2010 ("Option Agreement") under which Quark granted Novartis an Option (as defined in the Option Agreement) to obtain rights to the Quark Compounds in the Field (as defined below);

WHEREAS, Novartis has exercised the Option; and

WHEREAS, Novartis now has the right to develop and commercialize Products (as defined below) on a worldwide basis in the Field, subject to paying Quark the royalty and milestone payments set out herein.

NOW, THEREFORE, in consideration of the mutual covenants and agreements herein contained, the Parties agree as follows.

1. DEFINITIONS AND INTERPRETATION

1.1 Definitions. Unless the context otherwise requires, the terms in this Agreement with initial letters capitalized, shall have the meanings set forth below, or the meaning as designated in the indicated places throughout this Agreement.

"Accounting Standards" means, with respect to Quark, US GAAP (United States Generally Accepted Accounting Principles) and means, with respect to Novartis, the IFRS (International Financial Reporting Standards), in each case, as generally and consistently applied throughout the Party's organization.

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"Affiliate" means, with respect to a Party, any Person that controls, is controlled by, or is under common control with that Party. For the purpose of this definition, "control" shall mean, direct or indirect, ownership of fifty percent (50%) or more of the shares of stock entitled to vote for the election of directors, in the case of a corporation, or fifty percent (50%) or more of the equity interest in the case of any other type of legal entity, status as a general partner in any partnership, or any other arrangement whereby the entity or person controls or has the right to control the board of directors or equivalent governing body of a corporation or other entity, or the ability to cause the direction of the management or policies of a corporation or other entity. In the case of entities organized under the laws of certain countries, the maximum percentage ownership permitted by law for a foreign investor may be less than fifty percent (50%), and in such case such lower percentage shall be substituted in the preceding sentence, provided that such foreign investor has the power to direct the management and policies of such entity.

"AKI Final Report" has the meaning set forth in the Option Agreement.

"AKI First Interpretable Results" has the meaning set forth in the Option Agreement.

"AKI Indication" means the treatment and/or prevention of acute kidney injury following cardiac surgery.

"AKI Phase II Trial" has the meaning set forth in the Option Agreement.

"AKI Phase II Trial Protocol" has the meaning set forth in the Option Agreement; provided that, following the License Effective Date, any changes to the AKI Phase II Trial Protocol (as it exists at the License Effective Date) must be mutually agreed between the Parties.

"AKI Phase II Trial [*] Criteria" has the meaning set forth in the Option Agreement.

"Alliance Manager" shall have the meaning set forth in Section 3.1.

"Alynlyam License" means each (or, as the context requires, both) of the two (2) License Agreements between Quark and Alynlyam Pharmaceuticals, Inc., both dated September 26, 2006.

"Business Day" means any day other than a Saturday, a Sunday or a day on which commercial banks located in Basel, Switzerland, Hamilton, Bermuda or California, USA, are authorized or required by law to remain closed.

"Calendar Quarter" means the respective periods of three (3) consecutive calendar months ending on March 31, June 30, September 30 and December 31.

"Calendar Year" means a period of twelve (12) consecutive calendar months ending on December 31.

"cGCP" has the meaning set forth in the Option Agreement.

"cGLP" has the meaning set forth in the Option Agreement.

"cGMP" has the meaning set forth in the Option Agreement.

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"Change of Control" means any of the following events with respect to either Party: (a) any Third Party (or group of Third Parties acting in concert) becomes the beneficial owner, directly or indirectly, of more than fifty percent (50%) of the total voting power of the stock then outstanding of such Party normally entitled to vote in elections of directors; (b) such Party consolidates with or merges into another corporation or entity, or any corporation or entity consolidates with or merges into such Party, in either event pursuant to a transaction in which more than fifty percent (50%) of the total voting power of the stock outstanding of the surviving entity normally entitled to vote in elections of directors is not held by the parties holding at least fifty percent (50%) of the outstanding shares of such Party preceding such consolidation or merger; or (c) such Party conveys, transfers or leases all or substantially all of its assets to any Third Party.

"Claims" means all Third Party demands, claims, actions, proceedings and liability (whether criminal or civil, in contract, tort or otherwise) for losses, damages, reasonable legal costs and other reasonable expenses of any nature whatsoever.

"Combination Products" mean any pharmaceutical product (in any formulation) containing one or more active pharmaceutical ingredients in addition to the Quark Compound.

"Commencement of First Phase III Clinical Trial" means with respect to any indication, the first dosing of the first patient with Product in the first Phase III Clinical Trial of the first Product to be developed for such indication.

"Commercialize" means to market, promote, distribute, import, export, offer to sell and/or sell Product and/or conduct other Commercialization, and "Commercialization" means commercialization activities relating to Product, including activities relating to marketing, promoting, distributing, importing, exporting, offering for sale and/or selling Product.

"Commercially Reasonable Efforts" means the expenditure of those efforts and resources used [*] pursuing the development or commercialization of [*], or where [*] does not [*], the expenditure of such efforts and use of such resources [*]. For clarity, "Commercially Reasonable Efforts" shall be [*], accordingly, [*] with respect to [*] may [*] with respect to [*].

"Competing Product" means any product, other than any Product, comprising or including [*].

"Confidential Information" means all Know-How and other proprietary information and data of a financial, commercial or technical nature which the disclosing Party or any of its Affiliates has supplied or otherwise made available to the other Party or its Affiliates, whether made available orally, in writing or in electronic form, including information comprising or relating to concepts, discoveries, inventions, data, designs or formulae in relation to this Agreement.

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"Control" or "Controlled" means, with respect to any Know How, Patent Rights, other intellectual property rights, or any proprietary or trade secret information, the legal authority or right (whether by ownership, license or otherwise) of a Party to grant a license or a sublicense of or under such Know How, Patent Rights, or intellectual property rights to another Person, or to otherwise disclose such proprietary or trade secret information to another Person, without breaching the terms of any agreement with a Third Party, or misappropriating the proprietary or trade secret information of a Third Party.

"Develop" or "Development" means drug development activities, including, without limitation, test method development and stability testing, assay development and audit development, toxicology, formulation, quality assurance/quality control development, statistical analysis, clinical studies, packaging development, regulatory affairs, and the preparation, filing and prosecution of NDAs and MAAs.

"Development Costs" has the meaning set forth in the Option Agreement.

"DGF DMC Top Line Interim Report" has the meaning set forth in the Option Agreement.

"DGF Final Report" has the meaning set forth in the Option Agreement.

"DGF Indication" means the treatment and/or prevention of delayed graft function following renal transplantation.

"DGF Phase II Trial" has the meaning set forth in the Option Agreement.

"DGF Phase II Trial Protocol" has the meaning set forth in the Option Agreement; provided that, following the License Effective Date, any changes to the DGF Phase II Trial Protocol (as it exists at the License Effective Date) must be mutually agreed between the Parties.

"DGF Phase II Trial [*] Criteria" has the meaning set forth in the Option Agreement.

"DGF [*] Report" has the meaning set forth in the Option Agreement.

"Dharmacon License" means the Patent License Agreement between Quark and Dharmacon, Inc., dated January 29, 2010.

"EMA" means the European Medicines Agency or any successor entity thereto.

"Encumbrance" means any claim, charge, equitable interest, hypothecation, lien, mortgage, pledge, option, license, assignment, power of sale, retention of title, right of pre-emption, right of first refusal or security interest of any kind.

"EU Regulatory Approval" means (a) marketing authorization approval from the EMA and pricing and reimbursement approval [*] or (b) marketing authorization approval and pricing and reimbursement approval [*].

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"Execution Date" shall have the meaning set forth in the first paragraph of this Agreement.

"FDA" means the United States Food and Drug Administration or any successor entity thereto.

"Field" means the, diagnosis, prevention or treatment of diseases and other conditions in all indications in humans and animals.

"First Commercial Sale" means, with respect to any Product, the first arm's length sale to a Third Party for use or consumption of any such Product in a country.

"FTE Rate" means a rate of [*] US Dollars (\$[*]) per Calendar Year based on the yearly time for a full-time equivalent scientific person year (consisting of a total of [*] hours per Calendar Year) of work, to be pro-rated on a daily basis if necessary (per Calendar Year amount to be divided by [*] to produce the rate per whole day consisting of eight (8) hours); such rate to [*] and [*]. For the avoidance of doubt, such rate includes [*] for which [*]. The FTE Rate shall be [*] from the Option Agreement Effective Date.

"Fully-Burdened Manufacturing Cost" of Novartis means the cost of all resources and any and all operations (including packaging for shipment) carried out by or on behalf of Novartis or its Affiliates or subcontractors in order to manufacture and supply the Quark Compound and/or Product, established in accordance with Novartis' accounting procedures and Accounting Standards as consistently applied by Novartis.

"HSR Act" means the Hart-Scott-Rodino Antitrust Improvements Act of 1976, as amended, and the rules promulgated thereunder.

"HSR Filing Date" has the meaning set forth in the Option Agreement.

"IND" means an Investigational New Drug application in the US filed with the FDA or the corresponding application for the investigation of Products in any other country or group of countries, as defined in the applicable laws and regulations and filed with the Regulatory Authority of a given country or group of countries.

"Insolvency Event" means, in relation to either Party, any one of the following: (a) that Party becomes insolvent; (b) that Party is the subject of voluntary or involuntary bankruptcy proceedings instituted on behalf of or against such Party (except for involuntary bankruptcy proceedings which are dismissed within [*]); (c) an administrative receiver, receiver and manager, interim receiver, custodian, sequestrator or similar officer is appointed in respect of that Party; (d) a notice shall have been issued to convene a meeting for the purpose of passing a resolution to wind up that Party, or such a resolution shall have been passed other than a resolution for the solvent reconstruction or reorganization of that Party; or (e) a resolution shall have been passed by that Party or that Party's directors to make an application for an administration order or to appoint an administrator or (f) that Party suspends or threatens to suspend making payments (excluding payments subject to good faith dispute) to all or

some of that Party's creditors or makes a general assignment, composition or arrangement with or for the benefit of all or the majority of that Party's creditors.

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"Joint Know-How" means any Know-How which is jointly owned by Quark (or any of its Affiliates) and Novartis (or any of its Affiliates) as of the Execution Date or thereafter during the Term of this Agreement.

"Joint Patents" means any Patent Rights which are jointly owned by Quark (or any of its Affiliates) and Novartis (or any of its Affiliates) as of the Execution Date or thereafter during the Term of this Agreement.

"Joint Steering Committee" or "JSC" means the committee established as set forth in Section 3.2.

"Joint Technology" means the Joint Know-How and Joint Patents.

"Know-How" means all technical information, know-how and data, including inventions (whether patentable or not), discoveries, trade secrets, specifications, instructions, processes, formulae, materials, expertise and other technology applicable to compounds, formulations, compositions, products or to their manufacture, development, registration, use or commercialization or methods of assaying or testing them or processes for their manufacture, formulations containing them, compositions incorporating or comprising them and including all biological, chemical, pharmacological, biochemical, toxicological, pharmaceutical, physical and analytical, safety, quality control, manufacturing, preclinical and clinical data, instructions, processes, formulae, expertise and information, regulatory filings and copies thereof, relevant to the development, manufacture, use or commercialization of and/or which may be useful in studying, testing, development, production or formulation of products, or intermediates for the synthesis thereof.

"License Effective Date" has the meaning set forth in the Option Agreement.

"Loss of Market Exclusivity" means, with respect to any Product in any country, the following has occurred: (a) a Third Party Competitive Product is being marketed or sold in such country by a Third Party; and (b) the [*] of such Product in [*] in any [*] are [*] of the [*] of such Product in [*] in the [*] of such Third Party Competitive Product.

"MAA" means an application for the authorization to market a Product in any country or group of countries outside the United States, as defined in the applicable laws and regulations and filed with the Regulatory Authority of a given country or group of countries.

"Major Markets" means the [*].

"Milestones" means the milestones relating to the Products as set forth in Section 8.4.

"Milestone Payments" means the payments to be made by Novartis to Quark upon the achievement of the corresponding Milestones as set forth in Section 8.4.

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"NDA" means a New Drug Application in the United States for authorization to market a Product, as defined in the applicable laws and regulations and filed with the FDA.

"Net Sales" means the net sales recorded by Novartis or any of its Affiliates or sublicensees (other than distributors or wholesalers) for Product sold to Third Parties other than sublicensees in bona fide, arms-length transactions, [*], less [*]. The deductions [*] by Novartis and its Affiliates [*] to calculate the recorded net sales from gross sales shall be as follows:

(i) [*];

(ii) [*];

(iii) [*];

(iv) [*];

(v) [*];

(vi) [*];

(vii) [*]; and

(viii) [*].

With respect to the calculation of Net Sales:

(i) Net Sales only include [*] and [*] shall be disregarded for purposes of calculating Net Sales;

(ii) If a Product is delivered to a Third Party before being invoiced (or is not invoiced), Net Sales will be calculated at [*]; and

(iii) In the event the Product is sold as a Combination Product, Net Sales of the Product will be calculated by [*]. Regarding [*], if these are available for [*]. If the [*].

“[*] Patents” has the meaning set forth in Section 10.2(d).

“Option” has the meaning set forth in the Option Agreement.

“Option Agreement” has the meaning set forth in the recitals.

“Out-of-Pocket Costs” means direct project related expenses paid or payable to Third Parties and specifically identifiable and incurred to procure supplies of the Product in the Territory; such expenses to have been recorded [*] in accordance with the Quark’s Accounting Standards and for the avoidance of doubt, [*].

“p-53-directed siRNA” means any small interfering RNA molecule which interferes with the expression of the p53 gene in humans or animals [*].

“Patent Rights” means all patents and patent applications, including all divisionals, continuations, substitutions, continuations-in-part, re-examinations, reissues, additions, renewals, extensions, registrations, and supplemental protection certificates and the like of any of the foregoing.

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“Person” means any individual, partnership, limited liability company, firm, corporation, association, trust, unincorporated organization or other entity.

“Phase II Clinical Trial” means a controlled clinical study of a Product in patients designed to establish the dosing range for such Product and the safety and efficacy of such Product.

“Phase II Trial Reports” has the meaning set forth in the Option Agreement.

“Phase II/III Adaptive Design Clinical Study means for the purpose of Section [*] a clinical trial which combines Phase II and Phase III data into one single confirmatory clinical trial, where the selected dose is well established and further investigations in Phase II are performed in the same patient population and the same endpoints as are relevant in Phase III. The study design consists of two stages. The first stage aims [*] (learning stage corresponding to Phase II). An interim analysis is performed at the end of the first stage to select the most suited treatment for the second stage aimed at [*] selected at such interim analysis [*] (confirmatory stage corresponding to Phase III).

“Phase III Clinical Trial” means a pivotal clinical study of a Product in patients designed to establish efficacy and safety of such Product for the purpose of preparing and submitting a filing for NDA approval in the US or EU Regulatory Approval. Phase III Clinical Trial also includes any Phase II Clinical Trial that is extended with the intent of establishing efficacy and safety of a Product for the purpose of preparing and submitting a filing for NDA approval in the US or EU Regulatory Approval.

“Product” means a product developed under this Agreement incorporating or comprising one or more Quark Compounds in finished dosage pharmaceutical form, including, in each case, all formulations and modes of administration thereof, the manufacture, use, Development or Commercialization of which: (a) would, but for the license granted hereunder, infringe a Valid Claim; or (b) incorporates or embodies Quark Know-How or Joint Know-How.

“Quark Compounds” means all p53-directed siRNA owned or controlled by Quark, [*].

“Quark Development Plan” has the meaning set forth in the Option Agreement; provided that, following the License Effective Date, any changes to the Quark Development Plan (as it exists at the License Effective Date) [*].

“Quark Know-How” means any Know-How owned (whether solely or jointly with any Third Party) or Controlled by Quark or any of its Affiliates as of the Execution Date or thereafter during the term of this Agreement relating to the Quark Compounds and/or Product that is reasonably necessary or useful for the research, Development, manufacture, preparation, use or Commercialization of the Quark Compounds and/or Product in the Field. For the avoidance of doubt, “Quark Know-How” shall not include any Joint Know-How.

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“Quark Patents” means the Patent Rights identified in Exhibit A, and, any other Patent Rights owned (whether solely or jointly with any Third Party) or Controlled by Quark or any of its Affiliates as of the Execution Date or thereafter during the Term of this Agreement having claims covering the Quark Compounds and/or Product, their use, composition, formulation, preparation or manufacture or having claims that are reasonably necessary or useful for the research, Development, manufacture, preparation, use or Commercialization of the Quark Compounds and/or Product in the Field. For the avoidance of doubt, “Quark Patents” shall not include any Joint Patents or any [*] Patents.

“Quark Technology” means the Quark Know-How and Quark Patents.

“Regulatory Approval” means, with respect to a Product in any country or jurisdiction, any approval (including where required, pricing and reimbursement approvals), registration, license or authorization from a Regulatory Authority in a country or other jurisdiction that is necessary to market and sell such Product in such country or jurisdiction.

“Regulatory Authority” means any governmental agency or authority responsible for granting Regulatory Approvals for Products, including the FDA, EMA and any corresponding national or regional regulatory authorities.

“Regulatory Exclusivity” means, with respect a given country in the Territory, any regulatory exclusivity, beyond patent rights, granted by a Regulatory Authority in such country, which confers an exclusive Commercialization period during which: (i) Novartis has the exclusive right to market, price and sell a Product in such country through a regulatory exclusivity right such as a new chemical entity exclusivity, new use or indication exclusivity, new formulation exclusivity, orphan drug exclusivity and pediatric exclusivity, or any equivalent of the foregoing; and (ii) no Third Party Competitive Product is marketed in any such country by any Third Party.

“Regulatory Filings” means, with respect to the Quark Compounds or Product, any submission to a Regulatory Authority of any appropriate regulatory application, and shall include, without limitation, any submission to a regulatory advisory board, marketing authorization application, and any supplement or amendment thereto. For the avoidance of doubt, Regulatory Filings shall include any IND, NDA or the corresponding application in any other country or group of countries.

“Sales & Royalty Report” means a written report or reports, substantially in the form attached at Exhibit B, showing each of: (a) the Net Sales in US dollars of each Product in the Territory [*] during the reporting period by Novartis and its Affiliates and sublicensees; and (b) the royalties payable, in United States Dollars, which shall have accrued hereunder with respect to such Net Sales.

“Senior Officers” means, for Quark, its Chief Executive Officer, and for Novartis:

(a) [*] related to JSC decisions regarding Commercialization issues, the Global Head of Marketing and Sales, General Medicines, for Novartis Pharma AG;

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(b) [*] related to JSC decisions regarding Development issues, the Global Head of Development for Novartis Pharma AG;

(c) [*] related to JSC decisions regarding alliance management issues, the Global Head of Business Development and Licensing for Novartis Pharma AG; and

(d) with respect to any other matter, including any dispute under Section 17.5, the Global Head of Business and Development and Licensing for Novartis Pharma AG.

"Silence License" means the Option and License Agreement between Quark and Silence Therapeutics AG (formerly known as Atugen AG), dated April 19, 2005.

"Territory" means worldwide, subject to Quark's rights in Israel described Sections 5.4 and 7.2 below.

"Third Party" means any Person other than a Party or an Affiliate of a Party.

"Third Party Competitive Product" means, with respect to any Product being commercialized by or on behalf of Novartis in a particular country in the Field, any preparation in final form being commercialized by a Third Party (other than a sublicensee of Novartis [*] in such country in the Field, which contains either:

(a) any [*]; or

(b) any compound which is [*] to [*], where the [*] is [*] a [*] under [*], and [*].

"Third Qualifying Indication" means the first indication, other than the AKI Indication and the DGF Indication, for which the Product is developed and for which Novartis has, in good faith, [*].

"Transition Plan" has the meaning set forth in Section 4.2.

"Trial [*] Criteria" means the AKI Phase II Trial [*] Criteria and/or the DGF Phase II Trial [*] Criteria, each as defined in the Option Agreement.

"UIC License" means the Option and License Agreement between Quark and the Board of Trustees of the University of Illinois, dated September 3, 1999.

"United States" or "US" means the United States of America, its territories and possessions.

"USD" or "US\$" means the lawful currency of the United States.

"US Regulatory Approval" means final Regulatory Approval from the FDA and, if applicable, pricing and reimbursement approval in the US.

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"Valid Claim" means, with respect to any country, a claim of: (i) an issued patent included within the Quark Patents or Joint Patents in such country, which has not expired or been revoked, or held invalid or unenforceable by a patent office, court or other governmental agency of competent jurisdiction in a final and non-appealable judgment (or judgment from which no appeal was taken within the allowable time period), and which has not been admitted to be invalid or unenforceable through reissue, disclaimer or otherwise; and (ii) a patent application within the Quark Patents (not including any Joint Patents) which is being prosecuted in good faith, which has not been revoked, cancelled, withdrawn, held invalid or abandoned, and which has not been pending for more than [*] from its first priority filing date.

1.2 Interpretation. In this agreement unless otherwise specified:

(a) "includes" and "including" shall mean respectively includes and including without limitation;

(b) a Party includes its permitted assignees and/or the respective successors in title to substantially the whole of its undertaking, subject to the provisions of Sections 3.6 and 17.1;

(c) a statute or statutory instrument or any of their provisions is to be construed as a reference to that statute or statutory instrument or such provision as the same may have been or may from time to time hereafter be amended or re-enacted;

(d) words denoting the singular shall include the plural and vice versa and words denoting any gender shall include all genders;

(e) the Exhibits and other attachments form part of the operative provision of this Agreement and references to this Agreement shall, unless the context otherwise requires, include references to the Exhibits and attachments;

(f) the headings in this Agreement are for information only and shall not be considered in the interpretation of this Agreement;

(g) general words shall not be given a restrictive interpretation by reason of their being preceded or followed by words indicating a particular class of acts, matters or things; and

(h) the Parties agree that the terms and conditions of this Agreement are the result of negotiations between the Parties and that this Agreement shall not be construed in favor of or against any Party by reason of the extent to which any Party participated in the preparation of this

Agreement.

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2. LICENSE

2.1 License Grant. Subject to the terms and conditions of this Agreement, Quark hereby grants to Novartis an exclusive (even as to Quark), sub-licensable (pursuant to Section 2.2) license, under the Quark Technology and Quark's interest in any Joint Technology to research, Develop, make, use, import, offer for sale, sell and otherwise Commercialize, or to have any of the foregoing done on its behalf, the Quark Compounds and Product in the Field in the Territory, subject to Quark's retained rights in Israel as set forth in Section 5.4 and 7.2 below. For the avoidance of doubt, the foregoing license is exclusive to Novartis and Quark has no retained rights (and will not attempt to license any rights, directly or indirectly, to any Third Party) with respect to the Quark Compounds and Products in the Field in the Territory; except for activities undertaken pursuant to the terms of this Agreement. For further clarity, Quark retains all the rights in Quark Technology and Quark's interest in any Joint Technology outside the scope of the foregoing license. Exhibit A separately identifies those Quark Patents that also have utility outside of such foregoing license. Novartis acknowledges that Quark's licenses under the Silence License and the Alnylam License are non-exclusive, and accordingly, that Novartis' licenses under this Section 2.1 with respect to these two upstream licenses are non-exclusive.

2.2 Sublicense and Subcontract Rights.

(a) Novartis may exercise its rights and perform its obligations under this Agreement itself or through any of its Affiliates; provided that Novartis shall remain primarily liable for any acts or omissions of its Affiliates.

(b) Novartis may sublicense the rights granted to it by Quark under this Agreement to one or more Third Parties at any time at its sole discretion and without reference to Quark, provided that such sublicense shall comply with all applicable provision of this Agreement and [*]. In addition, Novartis may subcontract to Third Parties the performance of tasks and obligations with respect to the Development, manufacture and Commercialization of Products as Novartis deems appropriate. Novartis shall be responsible for the performance of its sublicensees and subcontractors.

2.3 Exclusivity.

(a) During the term of the Agreement, neither Quark nor any of its Affiliates will, directly or indirectly: (i) license, assign or otherwise dispose of any of its rights (also by way of granting an option similar to the Option) in the Quark Compounds, Product or p53-specific Quark Technology to any Third Party; (ii) enter into any collaboration or license agreement with any Third Party in connection with the development and/or commercialization of any Quark Compound, Product or Competing Product; or (iii) research (except as provided in the last sentence of this Section 2.3(a)) Develop, manufacture or Commercialize any Quark Compound, Product or Competing Product. Notwithstanding any other provision hereof, this Section shall not apply to activities conducted by Quark or its Affiliates pursuant to and in accordance with this Agreement. For clarity, this Section 2.3(a) shall not prevent Quark from performing [*] research relating to a Quark Compound, Product or Competing Product, provided that [*].

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(b) For the period from the License Effective Date until [*] after [*] in [*], neither [*] nor any [*] will, directly or indirectly, [*], other than for [*] in [*] in [*].

3. GOVERNANCE

3.1 Alliance Managers. Within [*] following the License Effective Date, each Party will appoint (and notify the other Party of the identity of) a senior representative having a general understanding of pharmaceutical development and commercialization issues to act as its alliance manager under this Agreement ("Alliance Manager"). The Alliance Managers will serve as the contact point between the Parties for the purpose of providing Quark with information on the progress of Novartis' Development and Commercialization of the Product(s) and will be primarily responsible for facilitating the flow of information and otherwise promoting communication, coordination and collaboration between the Parties; providing single point communication for seeking consensus both internally within the respective Party's organization and together regarding key global strategy and planning issues, as appropriate, including facilitating review of external corporate communications; and raising cross-Party and/or cross-functional disputes in a timely manner. Each Party may replace its Alliance Manager on written notice to the other Party.

3.2 Joint Steering Committee.

(a) The Parties will establish a Joint Steering Committee, composed of [*] senior personnel of Quark and [*] senior personnel of Novartis (one (1) of which will be the Party's Alliance Manager and which personnel for each Party, collectively, shall have a general understanding of drug manufacturing, development and commercialization issues).

(b) Within [*] following the License Effective Date, each Party will designate its initial members to serve on the JSC and notify the other Party of the dates of availability for the first meeting of the JSC. Each Party may replace its representatives on the JSC on written notice to the other Party.

(c) The JSC will: (i) oversee the Know-How and technology transfers contemplated in Sections 4.1, 4.2, 4.5 and 6.2 of this Agreement; (ii) review and discuss Development activities with respect to the Quark Compounds and the Product, including any activities of Quark in Israel under Section 5.4; (iii) discuss and approve the clinical trial protocols for the Product (other than the DGF Phase II Trial Protocol and the AKI Phase II Trial Protocol), including any material revisions thereto, in each indication; (iv) review and discuss Novartis' Commercialization strategies with respect to the Product, and, in the event that Quark distributes Products in Israel pursuant to Section 7.2, oversee such distribution activities; and (v) consider and act upon such other matters as specified in this Agreement.

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(d) The JSC also may, at any time it deems necessary or appropriate, establish additional joint committees and delegate such of its responsibilities as it determines appropriate to such joint committees.

3.3 Meetings of the Joint Steering Committee.

(a) The JSC shall meet [*] per Calendar Year and at such other times as the Parties may agree. The first meeting of the JSC shall be held as soon as reasonably practicable, but in no event later than [*] following the License Effective Date. Meetings shall be held at such place or places as are mutually agreed or by teleconference or videoconference; provided, however, that there shall be at least one face-to-face meeting per Calendar Year, unless the Parties otherwise agree.

(b) Each Party may from time to time invite a reasonable number of participants, in addition to its representatives, to attend JSC meetings in a non-voting capacity, with the consent of the other Party (which shall not be unreasonably withheld); provided, that that if Quark intends to have any Third Party (including any consultant) attend such a meeting, such Third Party will be subject to the prior approval of Novartis and must be bound by confidentiality obligations consistent with the terms of this Agreement.

(c) Novartis shall appoint one of its representatives on the JSC to act as chairperson of the JSC. The chairperson shall set agendas for JSC meetings, provided that the agendas will include any matter requested by either Party. The chairperson shall be responsible for recording, preparing and, within a reasonable time, issuing (i) draft minutes of each JSC meeting, which draft minutes shall be subject to review and approval by all JSC members, and (ii) final minutes following such approval.

3.4 Decision Making. Decisions of the JSC shall be made by unanimous vote, with each Party's representatives to the JSC collectively having one vote. In the event of a disagreement among the JSC with respect to any matter other than a matter related to [*], Novartis shall have a casting vote; provided, however, that, in the event that Novartis exercises such casting vote with respect to any issue which is [*], and in the event that Quark objects to such decision, Quark may, by notice in writing within [*] of Novartis' exercise of its casting vote, refer the matter to the Senior Officers who shall attempt in good faith to resolve such disagreement. If they cannot resolve such issue within [*] of the matter being referred to them, then the resolution and/or course of conduct shall be determined by [*]. However, in no event shall [*] have the right:

(a) to modify or amend the terms and conditions of this Agreement; or

(b) to determine any such issue in a manner that would conflict with the express terms and conditions of this Agreement; or

(c) to increase the performance obligations of [*] beyond those set forth herein.

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3.5 Costs of Governance. The Parties agree that the costs incurred by each Party in connection with its participation at any meetings under this Article 3 shall be borne solely by such Party.

3.6 Change of Control. In the event of a Change of Control of Quark, Novartis may provide written notice to Quark (or its successor entity) to [*] and upon such notice, [*] shall be [*], and [*] shall thereafter be [*].

3.7 Discontinuance of JSC Participation. Quark shall have the right to discontinue its participation in the JSC upon written notice to Novartis at any time during the Term. Once Quark has provided written notice to discontinue its participation in the JSC, [*] shall be deleted from this Agreement, and any decisions otherwise assigned to the JSC shall thereafter be [*].

4. DISCLOSURE OF QUARK KNOW-HOW & COOPERATION

4.1 Disclosure of Quark Know-How. Following the License Effective Date, Quark shall disclose the Quark Know-How to Novartis in accordance with Section 4.3 of the Option Agreement (without regard to the termination of the Option Agreement). Thereafter, on a continuing basis during the term of this Agreement, Quark, without additional consideration [*], shall disclose to Novartis or its designated Affiliate all additional Quark Know-How or Joint Know-How of which Quark becomes aware from time to time, to the extent reasonably relevant to Novartis' practice of the license granted under Section 2.1. Without limiting the foregoing, Quark will deliver to Novartis (or its designee) all manufacturing batch records, Development reports, analytical results, filings and correspondence with any Regulatory Authority (including notes or minutes of any meetings with any Regulatory Authority), raw material and excipient sourcing information, quality audit findings and any other relevant technical information relating to any Quark Compounds and/or Products.

4.2 Transition Plan. Within [*] of the License Effective Date, the Parties shall agree a plan ("Transition Plan") for the transfer to Novartis of all Development and manufacturing activities then being undertaken by Quark, taking into account Quark's obligations to complete the DGF Phase II Trial and/or the AKI Phase II Trial, and any other ongoing clinical or pre-clinical studies, as set forth in Section 5.1(a). Quark shall, without additional consideration, transition all such activities to Novartis in accordance with the Transition Plan.

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4.3 Assignment of Agreements. Quark shall cooperate and assist Novartis by assigning to Novartis or its designee any agreements which Quark may have entered into prior to the License Effective Date specifically relating to the development, manufacture or supply of any Quark Compound or Product which Novartis, in its sole discretion, deems useful or necessary to further its obligations under this Agreement, provided however that Quark shall not be obligated to assign to Novartis any intellectual property rights obtained under such agreements and Quark shall not be obligated to assign to Novartis any agreement relating solely to non-clinical research. If any such assignment requires the consent of the applicable counterparty, Quark shall not be obligated to make such assignment until such consent is obtained; provided, however, that Quark shall use commercially reasonable efforts to obtain such consent (it being understood that Quark shall in no event be obligated to make any payment to a counterparty to secure such consent). Quark shall stop any work related to Quark Compound or Product under any agreements not assigned to Novartis. In cases where Quark is unable to or elect not to assign such intellectual property rights obtained under such agreements, Quark shall ensure (at a minimum) that Novartis has an exclusive (where possible and if not possible, a non-exclusive), sub-licensable license under such intellectual property rights to research, Develop, make, use, import, export, offer for sale, sell and otherwise Commercialize, or have any of the foregoing done on its behalf, the Quark Compounds and Product in Field in the Territory.

4.4 Compound Transfer. Within [*] following the License Effective Date, Quark or its Affiliates, shall provide to Novartis or its designated Affiliate such quantities of the Quark Compounds and/or Product in Quark's possession as may be reasonably requested by Novartis for use by Novartis and its Affiliates in connection with its Development activities under this Agreement, which supplies shall be provided to Novartis at [*].

4.5 Cooperation. From time to time during the term of this Agreement at the request of Novartis, Quark will provide reasonable assistance to Novartis or its designated Affiliate in connection with understanding and using the Quark Know-How and Joint Know-How for purposes consistent with licenses and rights granted to Novartis hereunder, including by providing information to assist Novartis or its designated Affiliate in developing formulations of any Product and its related activities, provided that during the period of [*] from the License Effective date, such assistance (including travel to sites other than Quark facilities) shall be provided without charge to Novartis. After such [*] period such assistance shall, where provided at Quark facilities or by telephone, continue to be provided without charge, provided [*].

5. DEVELOPMENT

5.1 Completion of DGF Phase II Trial and AKI Phase II Trial.

(a) To the extent that either or both of the DGF Phase II Trial and/or the AKI Phase II Trial have not been completed as of the License Effective Date, Quark will be responsible for completing, and shall use Commercially Reasonable Efforts to complete, at its sole cost and expense and in accordance with the Quark Development Plan, such trial(s), including the preparation and finalization of all Phase II Trial Reports. The DGF Phase II Trial shall be completed in accordance with the DGF Phase II Trial Protocol and the AKI Phase II Trial shall be completed in accordance with the AKI Phase II Trial Protocol. Quark shall also be responsible for completing, and shall use Commercially Reasonable Efforts to complete, at its sole cost and expense and in accordance with the Quark Development Plan, any other clinical or pre-clinical studies that are ongoing as of the License Effective Date, including the preparation and finalization of complete, signed, detailed, data cleaned, statistically

analyzed, unbiased, unblended, unblinded and cGCP/cGLP audited and compliant final report(s) for any such studies. Notwithstanding the foregoing, if Quark is unable to [*] as specified in the [*] and/or the [*], as applicable, after [*], Quark [*], and the Parties shall negotiate in good faith as to how to proceed. Notwithstanding the foregoing, [*]. For clarity, in no event shall Quark be obligated to implement any changes to the Quark Development Plan, the DGF Phase II Trial Protocol, or the AKI Phase II Trial Protocol that would have the effect of increasing the cost of the DGF Phase II Trial and/or the AKI Phase II Trial.

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(b) No less than [*] prior to each scheduled meeting of the JSC, Quark will provide the Novartis members of the JSC with a written report on the status and progress of its activities under Section 5.1(a), which reports shall include information on progress versus plan, protocol deviations, notable safety and efficacy findings (including serious adverse events and events of interest from risk management perspective), audit findings, and summaries of all interactions, and copies of all correspondence, with Regulatory Authorities since the previous such report.

(c) Quark shall make available such information about any ongoing studies under Section 5.1(a) as may be reasonably requested by Novartis from time to time, including such information as may be reasonably required to facilitate scientific/medical publications regarding the Quark Compounds or Products; provided, however, that all such releases of information shall be subject to Novartis' approval in accordance with Section 16.3(a). In addition, and without limiting the foregoing, Quark will provide Novartis with (to the extent not previously disclosed under the Option Agreement):

(i) The DGF DMC Top Line Interim Report within [*] of the final dosing of the last patient for each interim analysis in the DGF Phase II Trial;

(ii) The DGF [*] Report within [*] of the final dosing of the last patient for the DGF Phase II Trial;

(iii) The DGF Final Report within [*] of the final dosing of the last patient for the DGF Phase II Trial;

(iv) The AKI First Interpretable Results within [*] of the final dosing of the last patient for the AKI Phase II Trial; and

(v) The AKI Final Report within [*] of the final dosing of the last patient for the AKI Phase II Trial.

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Each such report shall be deemed to have been accepted by Novartis [*] after it was first made available to Novartis in final and complete form; provided, that Novartis has not, during such [*] period, issued notice to Quark reasonably disputing whether the applicable report meets the requirements set forth in the definition of such report under the Option Agreement and stating a list of specific deficiencies that, if corrected, would cause the applicable report to meet such requirements. If Quark provides a corrected report that reasonably addresses such deficiencies, such report shall be deemed to have been accepted by Novartis [*] after it was first made available to Novartis in such revised final and complete form. If Novartis believes the report, as submitted by Quark in such revised final and complete form, did not reasonably address such deficiencies, it shall promptly advise Quark and the Parties shall seek to resolve such dispute. If the Parties do not reach agreement on such matter, either Party may submit the issue to an arbitration under Section 17.5. If the arbitration rules in favor of Quark, the applicable Phase II Trial Report shall be deemed to have been accepted by Novartis upon the issuance of such ruling but the applicable time period set forth in Section 8.2(a)(ii), 8.2(a)(iii), 8.2(a)(iv), 8.2(a)(v), 8.2(b)(i), 8.2(b)(ii), 8.2(c), 8.2(d)(i), 8.2(d)(ii) or 8.2(e) with respect to the election of discretionary payment after the acceptance of such report shall be [*] following receipt of the written decision of the arbitration. If the arbitration rules in favor of Novartis, then Quark shall revise the report in accordance with the ruling of the arbitrator and shall resubmit it to Novartis, and the applicable time period set forth in Section 8.2(a)(ii), 8.2(a)(iii), 8.2(a)(iv), 8.2(a)(v), 8.2(b)(i), 8.2(b)(ii), 8.2(c), 8.2(d)(i), 8.2(d)(ii) or 8.2(e) shall then commence.

(d) Until completion of the DGF Phase II Trial and the AKI Phase II Trial:

(i) Quark will be responsible for, and will use diligent efforts in, obtaining and maintaining all Regulatory Approvals necessary for the conduct of the applicable trial;

(ii) Quark will provide to Novartis copies of all substantive written communications received by Quark (or its Affiliates) from any Regulatory Authority related to the applicable trial or otherwise relevant to any Quark Compound or Product;

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(iii) While Quark is conducting the DGF Phase II Trial and/or the AKI Phase II Trial, Quark will, where possible, advise Novartis not less than [*] in advance of entering into any correspondence or substantive discussion with any Regulatory Authority related to the applicable trial or otherwise relevant to any Quark Compound or Product, and will provide to Novartis copies of all substantive written communication to and from such Regulatory Authority. Novartis' approval shall be required for Quark to enter into such correspondence or discussion, except as may be required by applicable laws or regulations. After Quark has completed both the DGF Phase II Trial and AKI Phase II Trial, Quark will not enter into any correspondence or discussion with any Regulatory Authority related to the applicable trial or otherwise relevant to any Quark Compound or Product, except as may be required by applicable laws or regulations and except that Quark may send to Regulatory Authorities correspondence which relates to the DGF Phase II Trial or the AKI Phase II Trial (as applicable) and which has been previously approved by Novartis;

(iv) At Novartis' request, Quark will request and seek to arrange meetings and consultations with Regulatory Authorities to the extent required for the DGF Phase II Trial and/or the AKI Phase II Trial or for any other purpose related to Novartis' ongoing or planned Development activities with respect to any Product; and

(v) Novartis shall have the right to have representatives of Novartis attend and participate in all meetings between Quark (or its Affiliates) and any Regulatory Authority relating to the DGF Phase II Trial and/or the AKI Phase II Trial, except to the extent prohibited by applicable laws or regulations.

(e) Upon the latter of closure of the [*] database for the DGF Phase II Trial and (ii) closure of the [*] database for the AKI Phase II Trial, all Regulatory Filings with any Regulatory Authority relating to the Quark Compounds and/or the Products which Quark was required to retain in order to complete the DGF Phase II Trial and/or the AKI Phase II Trial, shall be deemed assigned and transferred by Quark to Novartis, and upon request by Novartis, Quark shall deliver notices of such assignment and transfer to applicable Regulatory Authorities.

5.2 Development. Subject to Sections 5.1, 5.3 and 5.4, with effect from the License Effective Date, Novartis will be responsible for conducting, at its sole expense, such research and preclinical, clinical and other Development of the Quark Compounds and/or Product as it determines appropriate in its sole discretion.

5.3 Development Diligence. Novartis shall itself, or through its Affiliates or sublicensees, use Commercially Reasonable Efforts to Develop at least one Product in the Field. Subject to compliance with the foregoing, the Development of the Products shall be in Novartis' sole discretion.

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5.4 Quark Development Activities In Israel. Novartis shall notify Quark in writing the planned commencement date for the first Phase III Clinical Trial for the Product. Quark shall have the right, exercisable by notice in writing to Novartis no later than [*] prior to such planned commencement for the first Phase III Clinical Trial for the Product (or, if later, not more than [*] after receipt of the foregoing Novartis notice), to conduct (itself or through one of its Affiliates) a portion of each Phase III Clinical Trial of any Product in Israel in accordance with the protocols and other governing documents developed by, and under the oversight of, the JSC. Novartis shall pay a [*] to Quark for any clinical trial activities conducted by Quark in Israel consistent with [*] that [*] for [*] for the [*], and the Parties shall execute a customary agreement covering Quark's performance of such clinical trials, it being understood and agreed that Quark shall conduct all such activities: (i) at Novartis' direction and in accordance with Novartis' development plan and protocols for the applicable trial and the agreed budget; and (ii) in accordance with all applicable laws and regulations regarding the conduct of clinical trials, including but not limited to compliance with cGLP, cGMP, cGCP and if appropriate ICH guidance or if higher, Novartis standards as communicated to Quark. For each Product, the JSC shall agree [*] in [*] for each [*]; provided however, if Novartis reasonably determines that the indication being studied is [*] in the [*], Quark's right to [*] in [*] shall not apply to any Product in such indication. [*]

5.5 Regulatory.

(a) Promptly after the License Effective Date, Quark will assign or transfer to Novartis the ownership of all existing Regulatory Filings for the Products in the Territory, other than any Regulatory Filing which Quark is required to retain in order to complete its activities under Section 5.1(a), which Regulatory Filings shall be assigned or transferred to Novartis as set forth in Section 5.1(e). Other than as expressly set forth in Section 5.1 above, Novartis will own all Regulatory Filings and Regulatory Approvals for the Product in the Territory, and for clarity, Novartis will (i) determine the regulatory plans and strategies for the Quark Compounds and/or Product, (ii) make all Regulatory Filings with respect to the Product and (iii) will be responsible for obtaining and maintaining Regulatory Approvals throughout the Territory in the name of Novartis or its Affiliates or sublicensees.

(b) Quark shall fully cooperate with and provide assistance to Novartis in connection with filings to any Regulatory Authority relating to the Quark Compounds and/or Product(s), including by executing any required documents, providing access to personnel and providing Novartis with copies of all reasonably required documentation.

(c) To the extent requested by Novartis, Quark shall grant or use commercially reasonable efforts to cause to be granted to Novartis and its Affiliates or sublicensees cross-reference rights to any relevant drug master files and other filings submitted by Quark or its Affiliates with any Regulatory Authority.

(d) Novartis shall have the right to disclose the existence of, and the results from, any clinical trials conducted under this Agreement in accordance with Section 16.3(b) of this Agreement.

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5.6 Compliance. Each Party agrees that in performing its obligations under this Agreement (a) it shall comply with all applicable current international regulatory standards, including cGMP, cGLP, cGCP and other rules, regulations and requirements and (b) it will not employ or use any person that has been debarred under Section 306(a) or 306(b) of the U.S. Federal Food, Drug and Cosmetic Act.

6. MANUFACTURING

6.1 Manufacturing.

(a) Quark shall be solely responsible for procuring such quantities of any Quark Compounds and Products as may be required to complete the DGF Phase II Trial and the AKI Phase II Trial, and any other pre-clinical and other clinical studies to be completed by Quark under Section 5.1.

(b) Upon request by Novartis in its sole discretion, Quark shall also procure such quantities of any Quark Compounds and Products as may be required by Novartis, its Affiliates or sublicensees for Phase III Clinical Trials for the AKI Indication and the DGF Indication, and any pre-clinical and other clinical studies planned as of the License Effective Date, subject to the terms and conditions of any existing Third Party manufacturing agreement. Quark shall supply Novartis with all such requirements at a price equal to [*].

(c) Other than as set forth in Sections 6.1(a) and (b), with effect from the License Effective Date, Novartis or its designated sublicensee(s) will be solely responsible for the manufacture and supply of the Quark Compounds and Products being Developed or Commercialized under this Agreement.

6.2 Manufacturing Know-How and Assistance.

(a) Without limiting the provisions of Sections 4.1 and 4.5, during the period from the License Effective Date until the First Commercial Sale of the Quark Compounds and/or Products under this Agreement, Quark shall:

(i) fully cooperate with and provide assistance to Novartis or its designee, through documentation, consultation, training and face-to-face meetings, to enable Novartis or its designee in an efficient and timely manner to proceed with Development and manufacturing of the Quark Compounds and/or Product and to obtain all appropriate Regulatory Approvals for manufacturing (including qualification by the applicable Regulatory Authority of manufacturing sites); and

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(ii) make appropriate personnel available to assist Novartis or its designee at any time and from time to time as reasonably requested by Novartis, and shall provide the appropriate personnel of Novartis or its designee with access to the personnel and manufacturing and other operations of Quark (or its Third Party supplier(s)) for such periods of time and in such manner as is reasonable in order to familiarize the personnel of Novartis or its designee with Quark Know-How and Joint Know-How relating to the Development and manufacture of the Quark Compounds and/or Products and the application of the same. At Novartis' request, such assistance shall also be furnished at the manufacturing facilities of Novartis or its designee.

During the period of [*] from the License Effective Date, such assistance (including travel to sites other than Quark facilities) shall be provided without charge to Novartis. After such [*] period such assistance shall, where provided at Quark facilities or by telephone, continue to be provided without charge, provided that [*].

(b) Quark shall fully cooperate with Novartis in complying with requirements of 35 U.S.C. §200 through 212, including requesting waivers where appropriate.

7. COMMERCIALIZATION

7.1 Commercialization. Other than as set forth in Section 7.2, Novartis will be solely responsible for all aspects of Commercialization of the Product in the Territory, including planning and implementation, distribution, booking of sales, pricing and reimbursement. Novartis shall itself, or through its Affiliates or sublicensees, use Commercially Reasonable Efforts [*]. Notwithstanding the foregoing, Novartis' application of Commercially Reasonable Efforts shall not require Novartis to commercialize a Product in any country or territory in which Novartis determines it is not commercially reasonable to do so for such Product. Subject to compliance with the foregoing, the Commercialization of the Products shall be in Novartis' sole discretion.

7.2 Quark Distribution Activities In Israel. Quark shall have the right, exercisable by notice in writing to Novartis no later than [*] following the date on which Novartis advises Quark of Novartis' first submission of an application for Regulatory Approval of a Product anywhere in the Territory, to be appointed (itself or through one of its Affiliates) as the [*] distributor for Products in Israel. In the event that Quark exercises such right, the Parties shall negotiate in good faith a separate agreement with respect to such distribution arrangement on commercially reasonable terms.

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7.3 Pharmacovigilance.

(a) Until completion of the DGF Phase II Trial and the AKI Phase II Trial, Quark will be responsible for maintaining a unified global adverse event database for the Product and for performing all pharmacovigilance-related activities in accordance with laws (including current Eudralex volume 9A and current ICH E2 guidelines) applicable to a clinical trial sponsor.

(b) Following completion of the DGF Phase II Trial and the AKI Phase II Trial, Novartis will be responsible for maintaining a unified global adverse event database for the Product and for performing all pharmacovigilance-related activities in countries where the Product is being Developed or Commercialized by Novartis, its Affiliates or sublicensees in accordance with laws (including current Eudralex volume 9A and current ICH E2 guidelines) applicable to a marketing authorization holder or to a clinical trial sponsor, as applicable. Such activities for which Novartis will be responsible include in particular the maintenance of a pharmacovigilance system for the timely reporting of product quality complaints, adverse events and product safety data related to the Product to the relevant Regulatory Authorities in the Territory, and for responding to safety issues and to all requests of Regulatory Authorities in the Territory.

(c) Within [*] following the License Effective Date, the Parties shall agree upon and implement a procedure for the mutual exchange of adverse event reports and safety information associated with the Products. Details of the operating procedure respecting such adverse event reports and safety information exchange shall be the subject of a mutually-agreed written pharmacovigilance agreement between the Parties which shall be entered into within such [*] period and in any event entered into prior to transfer of any IND or corresponding application in any other country or group of countries to Novartis.

8. FINANCIAL PROVISIONS

8.1 Upfront Payment. In partial consideration of the licenses and rights granted to Novartis hereunder, Novartis shall pay to Quark a one-time, non-refundable, non-creditable [*] upfront payment in the amount specified in the applicable subsection below. For clarity, only a single payment shall be due under this Section 8.1, depending on the circumstances under which Novartis exercises the Option. However, also depending on the circumstances of the Option exercise and the occurrence of later events, discretionary license fee payments may also arise under Section 8.2, in addition to milestones and royalties.

(a) If either [*] or [*], and the Option is exercised before the termination of the Option pursuant to Section [*] of the Option Agreement, then the upfront payment shall be [*] USD (US\$ [*]);

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(b) If both [*] and [*], or [*] pursuant to Section [*] of the Option Agreement, then, subject to Section 8.1(c) below,

(i) If [*] and

(A) If [*], and the Option is exercised prior to the termination of the Option pursuant to Section [*] of the Option Agreement, then the upfront payment shall be [*] USD (US\$ [*]);

(B) If [*], and if [*], and the Option is exercised prior to the termination of the Option pursuant to Section [*] of the Option Agreement, then the upfront payment shall be [*] USD (US\$ [*]);

(ii) If [*] and

(A) If [*], and the Option is exercised prior to the termination of the Option pursuant to Section [*] of the Option Agreement, then the upfront payment shall be [*] USD (US\$ [*]);

(B) If [*], and if [*], and the Option is exercised prior to the termination of the Option pursuant to Section [*] of the Option Agreement, then the upfront payment shall be [*] USD (US\$ [*]).

(c) Notwithstanding Section 8.1(b) above, if the Parties agree that Quark continues the DGF Phase II Trial as set forth in [*], and the Option is exercised pursuant to [*], then no upfront payment shall be payable and Novartis shall [*] any discretionary payments which may become payable under the License Agreement in accordance with Section [*];

(d) Notwithstanding Sections 8.1(a), 8.1(b) and 8.1(c) above, Novartis may, at its sole discretion, exercise the Option at any time prior to termination of the Option pursuant to Section 4.1(b) of the Option Agreement and pay Quark an upfront payment of [*] USD (US\$ [*]), provided that if the Option is exercised pursuant to this Section 8.1(d), the provisions of Section 8.2 shall not apply.

(e) Any amounts payable under this Section 8.1 shall be made within [*] after receipt by Novartis of an invoice in the form of Exhibit C, which invoice shall be issued no earlier than the License Effective Date.

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8.2 Discretionary License Payments. In order to maintain the licenses and rights granted to it hereunder, Novartis may elect to make certain discretionary payments, as follows:

(a) If Novartis' exercise of the Option gave rise to a payment under Section [*], then

(i) Novartis may [*] either a payment made under Section [*], a payment made under Section [*], or a payment made under Section [*], whichever is paid first;

(ii) If [*], Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable, non-creditable payment to Quark of [*] USD (US\$ [*]), provided such election is made no later than [*] after the date on which [*] was accepted by Novartis pursuant to Section 5.1(c);

(iii) If [*], Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable, non-creditable payment to Quark of [*] USD (US\$ [*]), provided such election is made no later than [*] after the date on which [*] was accepted by Novartis pursuant to Section 5.1(c);

(iv) If Novartis has made the payment set forth in Section [*] above, and [*], Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable payment to Quark of [*] USD (US\$ [*]), provided such election is made no later than [*] after the date on which [*] have been accepted by Novartis pursuant to Section 5.1(c); and

(v) If Novartis has made the payment set forth in Section [*] above, and [*], Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable payment to Quark of [*] USD (US\$ [*]), provided such election is made no later than [*] after the date on which [*] have been accepted by Novartis pursuant to Section 5.1(c).

For clarity, the election by Novartis under each clause above is distinct from (and in addition to) its election under any other clause.

(b) If Novartis' exercise of the Option gave rise to a payment under Section [*], then

(i) If [*], then Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable, non-creditable payment to Quark of [*] USD (US\$ [*]), provided such election is made no later than [*] after the date on which [*] was accepted by Novartis pursuant to Section 5.1(c); and

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(ii) If [*], then Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable payment to Quark of [*] USD (US\$ [*]), provided such election is made no later than [*] after the date on which [*] was accepted by Novartis pursuant to Section 5.1(c).

(c) If Novartis' exercise of the Option gave rise to a payment under Section [*], then Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable payment to Quark of [*] USD (US\$ [*]), provided such election is made no later than [*] after the date on which [*] was accepted by Novartis pursuant to Section 5.1(c).

(d) If Novartis' exercise of the Option gave rise to a payment under Section [*], then

(i) If [*], then Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable, non-creditable payment to Quark of [*] USD (US\$ [*]), provided such election is made no later than [*] after the date on which [*] was accepted by Novartis pursuant to Section 5.1(c); and

(ii) If [*], then Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable payment to Quark of [*] USD (US\$ [*]), provided such election is made no later than [*] after the date on which [*] was accepted by Novartis pursuant to Section 5.1(c).

(e) If Novartis' exercise of the Option gave rise to a payment under Section [*], then Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable payment to Quark of [*] USD (US\$ [*]), provided such election is made no later than [*] after the date on which [*] was accepted by Novartis pursuant to Section 5.1(c).

(f) If Novartis exercised the Option (A) pursuant to Section [*] or (B) because either [*] or [*] (as applicable), but [*] or [*] (as applicable), then, subject to [*], Novartis may make the following discretionary payments-

(i) Where Novartis [*] for the [*], Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable payment to Quark of [*] USD (US\$ [*]) provided that such election is made no later than [*] after the date on which [*] by Novartis, or an Affiliate or sublicensee.

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(ii) Where such [*] in Section 8.2(f)(i) above has been [*] and [*] for [*] then Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable payment to Quark of [*] USD US\$ [*] provided that such election is made no later than [*] after the date on which [*] by Novartis or an Affiliate or sublicensee.

(iii) Where Novartis [*] for the [*], Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable payment to Quark of [*] USD US\$ [*] provided that such election is made no later than [*] after the date on which [*] by Novartis, or an Affiliate or sublicensee.

(iv) Where such [*] in Section 8.2(f)(iii) above has been [*] and [*] for [*] then Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable payment to Quark of [*] USD US\$ [*] provided that such election is made no later than [*] after the date on which [*] by Novartis or an Affiliate or sublicensee.

(v) Upon [*] for the [*] by Novartis (and Sections [*] and [*] do not apply), Novartis may elect in its sole discretion, but subject to Section 8.2(h), to make a one-time, non-refundable payment to Quark of [*] USD (US\$ [*]) provided that such election is made no later than [*] after the date [*] by Novartis, or an Affiliate or sublicensee.

(vi) Upon [*] for the [*] by Novartis (and Sections [*] and [*] do not apply), Novartis may elect in its sole discretion, but subject to Section 8.2(g), to make a one-time, non-refundable payment to Quark of [*] USD (US\$ [*]) provided that such election is made no later than [*] after the date [*] by Novartis, or an Affiliate or sublicensee.

(vii) For clarity, any payment due under this Section 8.2(f) is in addition to the payments due under Section 8.4.

(g) Novartis shall issue written notice to Quark as to whether or not Novartis intends making the applicable discretionary payments under Section 8.2(a)(ii), 8.2(a)(iii), 8.2(a)(iv), 8.2(a)(v), 8.2(b)(i), 8.2(b)(ii), 8.2(c), 8.2(d)(i), 8.2(d)(ii), 8.2(e), 8.2(f)(i), 8.2(f)(ii), 8.2(f)(iii), 8.2(f)(iv), 8.2(f)(v) or 8.2(f)(vi), as applicable, by the deadline set forth therein. Quark may treat any failure by Novartis to issue written notice to Quark by the applicable deadline as notice that Novartis does not intend to make such discretionary payment (subject to a [*] cure period). In the event that Novartis issues timely notice that it intends making any such payment, such payment shall be made within [*] after receipt by Novartis of an invoice in the form of Exhibit C (subject to a [*] cure period), which invoice shall be issued no earlier than the date of Novartis' notice that it

intends making the applicable payment.

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(h) If Novartis does not elect to make the payments described in Section 8.2(a)(ii), 8.2(a)(iii), 8.2(a)(iv), 8.2(a)(v), 8.2(b)(i), 8.2(b)(ii), 8.2(c), 8.2(d)(i), 8.2(d)(ii), 8.2(e), 8.2(f)(i), 8.2(f)(ii), 8.2(f)(iii), 8.2(f)(iv), 8.2(f)(v) or 8.2(f)(vi), as applicable, then (subject to a [*] cure period) Quark shall have the right to terminate this Agreement in its entirety, as set forth in Section 12.5.

8.3 Financial Terms Following Option Acceleration. Notwithstanding anything to the contrary herein, if the Option is exercised by Novartis pursuant Section 3.4 of the Option Agreement, then the upfront payment and the discretionary license payments set forth above in Sections 8.1 and 8.2 shall be adjusted as follows:

(a) No upfront or discretionary payments contained in Sections 8.1 and 8.2 shall be due;

(b) Novartis shall pay to Quark a one-time, non-refundable payment to Quark of [*] USD (US\$[*]), which amount shall be made within [*] after receipt by Novartis of an invoice in the form of Exhibit C. For clarity, such [*] USD (US\$[*]) is in addition to the ten million USD (US\$10,000,000) paid under Section 2.2 of the Option Agreement;

(c) The amount of any Milestone Payments shall be reduced by [*];

(d) The amount of any royalties applicable to Net Sales of Product shall be reduced by [*] at each applicable royalty tier; and

(e) If Quark believes that Novartis' determination that an Insolvency Event has or is likely to occur in connection with Quark was not reasonable, then Quark may submit such dispute to binding arbitration pursuant to Section 17.5(b). If the arbitration determines that Novartis's determination that an Insolvency Event has or is likely to occur in connection with Quark was not reasonable, then the following shall apply: (i) Sections 8.3(a), (c) and (d) shall have no effect; (ii) Novartis shall be deemed to have exercised its Option under Section [*] of this Agreement, the [*] USD (\$[*]) payment made by Novartis shall remain non-refundable, the [*] USD (US\$ [*]) payment under Section [*] shall be deemed to have been paid, and Novartis may credit [*] USD (\$[*]) against any discretionary payments under Section 8.2; and (iii) [*]. In any event, if Quark actually experiences an Insolvency Event prior to the fulfillment of its obligations to deliver the DGF Final Report and the AKI Final Report (e.g., actually becomes insolvent), then the Novartis determination shall be deemed to have been reasonable.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

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8.4 Milestone Payments.

(a) DGF Indication Milestones. In further consideration of the licenses and rights granted to Novartis hereunder, upon first achievement of each of the Milestones set forth below by Novartis, its Affiliates or sublicensees with respect to the first Product developed for the DGF Indication,

(i) Novartis shall pay to Quark the corresponding one-time non-refundable non-creditable Milestone Payments set forth below under the column heading "Milestone Payment (USD)"; and

(ii) If Novartis has made the discretionary payment set forth in Section [*], and Novartis nonetheless continue the Development of Products for the DGF Indication such that one or more Milestones set forth below are achieved, Novartis shall pay to Quark the corresponding one-time non-refundable non-creditable Milestone Payments set forth below under the column heading "Additional Milestone Payment (USD)", which represents [*] associated with the DGF Indication, provided however, that [*] i.e. [*].

Milestone Milestone

Payment (USD) Additional Milestone

Payment (USD)

[*] Milestones [*]

[*] for the DGF Indication by Novartis, its Affiliates or sublicensees US\$[*] US\$[*]

[*] Milestones

[*] by Novartis, its Affiliates or sublicensees for the use of the Product for the DGF Indication [*] US\$[*] US\$[*]

[*] by Novartis, its Affiliates or sublicensees for the use of the Product for the DGF Indication [*] US\$[*] US\$[*]

[*] by Novartis, its Affiliates or sublicensees [*] for the use of the Product for the DGF Indication [*] US\$[*] US\$[*]

[*] by Novartis, its Affiliates or sublicensees [*] for the use of the Product for the DGF Indication [*] US\$[*] US\$[*]

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(b) AKI Indication Milestones. In further consideration of the licenses and rights granted to Novartis hereunder, upon first achievement of each of the Milestones set forth below by Novartis, its Affiliates or sublicensees with respect to the first Product developed for the AKI Indication,

(i) Novartis shall pay to Quark the corresponding one-time non-refundable, non-creditable Milestone Payments set forth below under the column heading "Milestone Payment (USD)"; and

(ii) If Novartis has made the discretionary payment set forth in Section [*], and Novartis nonetheless continue the Development of Products for the AKI Indication such that one or more Milestones set forth below are achieved, Novartis shall pay to Quark the corresponding one-time non-refundable non-creditable Milestone Payments set forth below under the column heading "Additional Milestone Payment (USD)", which represents [*], provided however, that [*] i.e. [*].

Milestone Milestone

Payment (USD) Additional Milestone

Payment (USD)

[*] Milestones [*]

[*] for the AKI Indication by Novartis, its Affiliates or sublicensees US\$[*] US\$[*]

[*] Milestones

[*] by Novartis, its Affiliates or sublicensees for the use of the Product for the AKI Indication [*] US\$[*] US\$[*]

[*] by Novartis, its Affiliates or sublicensees for the use of the Product for the AKI Indication [*] US\$[*] US\$[*]

[*] by Novartis, its Affiliates or sublicensees [*] for the use of the Product for the AKI Indication [*] US\$[*] US\$[*]

[*] by Novartis, its Affiliates or sublicensees [*] for the use of the Product for the AKI Indication [*] US\$[*] US\$[*]

(c) Milestones for Third Qualifying Indication. In further consideration of the licenses and rights granted to Novartis hereunder, upon first achievement of each of the Milestones set forth below by Novartis, its Affiliates or sublicensees, the corresponding one-time non-refundable non-creditable Milestone Payments shall be payable by Novartis to Quark with respect to the first Product developed for the Third Qualifying Indication:

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Milestone Milestone Payment (USD)

[*] Milestones

[*] for the Third Qualifying Indication by Novartis, its Affiliates or sublicensees US\$[*]

[*] Milestones

[*] by Novartis, its Affiliates or sublicensees for the use of the Product for the Third Qualifying Indication [*] US\$[*]

[*] by Novartis, its Affiliates or sublicensees for the use of the Product for the Third Qualifying Indication [*] US\$[*]

[*] by Novartis, its Affiliates or sublicensees [*] for the use of the Product for the Third Qualifying Indication [*] US\$[*]

[*]t by Novartis, its Affiliates or sublicensees [*] for the use of the Product for the Third Qualifying Indication [*] US\$[*]

(d) Commercial Milestones. In further consideration of the licenses and rights granted to Novartis hereunder, upon first achievement of each of the Milestones set forth below by Novartis, its Affiliates or sublicensees, the corresponding one-time non-refundable non-creditable Milestone Payments shall be payable by Novartis to Quark:

Milestone Milestone Payment (USD)

Commercial Milestones

First Calendar Year in which worldwide annual Net Sales for any given Product exceed US[*] US\$[*]

First Calendar Year in which worldwide annual Net Sales for any given Product exceed US[*] US\$[*]

First Calendar Year in which worldwide annual Net Sales for any given Product exceed US[*] US\$[*]

First Calendar Year in which worldwide annual Net Sales for any given Product exceed US\$[*] US\$[*]

First Calendar Year in which worldwide annual Net Sales for any given Product exceed US\$[*] US\$[*]

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

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(e) Each Milestone Payment shall be deemed earned as of the first achievement of the corresponding Milestone by any of the Products, and shall be notified by Novartis to Quark within [*] after achievement of the Milestone, or in the case of the Commercial Milestones, in the Sales and Royalty Report for the Calendar Quarter in which such Commercial Milestone is achieved. For the avoidance of doubt: (i) each Milestone Payment shall be payable only on the first occurrence of the Milestone; (ii) none of the Milestone Payments shall be payable more than once; and (iii) other than as expressly set forth above, no additional Milestone Payments shall be due for Milestones completed for the Development and Commercialization of additional Products or of Products for any additional indications or for any different Quark Compounds or Combination Products.

8.5 Royalty Payments.

(a) In consideration of the licenses and rights to Novartis hereunder, during the applicable Royalty Term, Novartis will make royalty payments to Quark, on a Product-by-Product basis, based on Net Sales of the applicable Product in the Territory by Novartis, its Affiliates and sublicensees, at the applicable rates set forth below.

Aggregate Net Sales of Applicable Product

throughout the Territory in any Calendar

Year by Novartis, its Affiliates or

Sublicensees Royalty Rate

Portion of annual Net Sales of the applicable Product which are less than or equal to US\$[*] [*]%

Portion of annual Net Sales of the applicable Product which are greater than US\$[*] and less than or equal to US\$[*] [*]%

Portion of annual Net Sales of the applicable Product which are greater than US\$[*] and less than or equal to US\$[*] [*]%

Portion of annual Net Sales of the applicable Product which are greater than US\$[*] and less than or equal to US\$[*] [*]%

Portion of annual Net Sales of the applicable Product which are greater than US\$[*] [*]%

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(b) For example, if Net Sales of a given Product in a calendar year are \$[*], the royalty on such Net Sales shall be equal to \$[*]

(c) Notwithstanding the provisions of Section 8.9(a), for each Calendar Quarter in which there has been any sale of a Product by Novartis, its Affiliates or sublicensees, which, but for the licenses granted under the [*] (and the sub-licenses thereto granted under this Agreement) would infringe an issued patent within the [*] Patent Rights which has not expired or been revoked, or held invalid or unenforceable, and which has not been admitted to be invalid or unenforceable through reissue, disclaimer or otherwise, Novartis shall pay to Quark an additional amount [*] with respect to such sale of such Product under the [*], which shall [*] of Net Sales of such Product in such Calendar Quarter.

(d) Unless otherwise provided in this Agreement, Royalties will be payable on a Product-by-Product and country-by-country basis from First Commercial Sale of such Product in such country until the later of (i) the expiration of the last to expire Valid Claim covering the Compound, claiming the Product or claiming the use for which the Product is being sold in such country; (ii) [*]; and (iii) ten (10) years from the First Commercial Sale of such Product in such country ("Royalty Term"). Following the Royalty Term on a Product-by-Product and country-by-country basis, the licenses granted to Novartis with respect to the Product shall continue in effect, but become fully paid-up, sub-licensable, royalty-free, transferable, perpetual and irrevocable with respect to such Product and such country, [*].

(e) For the avoidance of doubt, royalties shall be payable only once with respect to the same unit of Product.

8.6 Royalty Step-Downs.

(a) On a Product-by-Product and country-by-country basis, for any period during the Royalty Term but after the expiration of:

(i) the last to expire Valid Claim of a [*] covering the Compound, claiming the Product or claiming the use for which the Product is being sold in such country;

(ii) [*]; and

(iii) ten (10) years from the First Commercial Sale of such Product in such country,

in which the sale of the Product in such country would, but for the license granted hereunder, infringe a Valid Claim of a [*] in such country such that there is no [*] being [*] in such country, the royalty applicable to Net Sales of such Product in such country for the remainder of the Royalty Term shall be equal to [*] of the weighted average royalty rate otherwise applicable to worldwide Net Sales.

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(b) On a Product-by-Product and country-by-country basis, for any period during the Royalty Term, but after ten (10) years from the First Commercial Sale of such Product in such country, in which the sale of a Product in any country is covered by a Valid Claim and such Valid Claim is [*] and there is a [*] in such country, then [*] in such country for the remainder for the Royalty Term, except that [*] and the provisions of Section [*] and Section [*] shall not apply.

(c) For any period during the Royalty Term in which the sale of a Product in any country is not covered by a Valid Claim or any Regulatory Exclusivity, the royalty applicable to Net Sales of such Product in such country during such period shall be equal to [*] of the weighted average royalty rate otherwise applicable to worldwide Net Sales. The reduction set forth in this Section 8.6(c) shall be [*] under this Agreement. This Section 8.6(c) shall not apply if Section [*] applies or Section [*] applies.

(d) By way of illustration of the Section 8.6(c) above, if Net Sales in a country not covered by a Valid Claim were \$[*] and total Net Sales for that year were \$[*], the following will apply. [*]

8.7 Loss of Market Exclusivity. In the event of a Loss of Market Exclusivity in any country, for the remainder of the Royalty Term, the royalty applicable to Net Sales of such Product in such country shall be equal to [*] of the weighted average royalty rate described above on worldwide Net Sales. The reduction set forth in this Section 8.7 shall be [*] under this Agreement. This Section 8.7 shall not apply if Section [*] or Section [*] applies or Section [*] applies.

8.8 No Valid Claim or Regulatory Exclusivity and Loss of Market Exclusivity. For any period during the Royalty Term in which the sale of a Product in any country is not covered by a Valid Claim [*] and there is a Loss of Market Exclusivity in such country, the royalty applicable to Net Sales of such Product in such country during such period shall be equal to [*] of the weighted average royalty rate otherwise applicable to worldwide Net Sales. The reduction set forth in this Section 8.8 shall be [*] under this Agreement. This Section 8.8 shall not apply if Section [*] applies.

8.9 Third Party Obligations.

(a) Notwithstanding the provisions of this Section 8.9, Quark shall remain responsible for the payment of royalty, milestone and other payment obligations, if any, due to Third Parties under any Quark Patents or Quark Know-How which have been licensed to Quark and are sublicensed to Novartis under this Agreement, including under the Alnylam License, the Silence License, the UIC License and the Dharmacon License. All such payments shall be made promptly by Quark in accordance with the terms of the applicable license agreement(s).

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(b) In the event that Novartis reasonably determines that rights to intellectual property related to p53 or siRNA owned or controlled by a Third Party are required to research, Develop, manufacture, use, or Commercialize any Product under this Agreement (in addition to the Quark Technology and outside the intellectual property falling under the scope of sub-Section 8.9(a)), Novartis shall have the right to negotiate to and acquire such rights through a license or otherwise and to deduct from the royalty payments due to Quark [*] of the royalties paid by Novartis to such Third Party; provided, however, that in no event shall the royalty amounts due to Quark from Novartis be reduced by more than [*] in any Calendar Quarter through this sub-Section 8.9(b). [*] Quark agrees to fully cooperate with Novartis to acquire such rights.

8.10 Royalty Floor. Notwithstanding anything to the contrary in this Agreement, the application of Sections [*], individually or in combination, shall not during the Royalty Term reduce the royalty payment due to Quark below, on a country-by-country basis, an amount equal to [*], provided, however, that in any countries in which Loss of Market Exclusivity has occurred or if the sale of a Product is not covered by a Valid Claim, such [*] shall be [*] of the Net Sales. [*]

8.11 No Projections. Quark and Novartis acknowledge and agree that nothing in this Agreement shall be construed as representing an estimate or projection of anticipated sales of any Product, and that the Milestones and Net Sales levels set forth above or elsewhere in this Agreement or that have otherwise been discussed by the Parties are merely intended to define the Milestone Payments and royalty obligations to Quark in the event such Milestones or Net Sales levels are achieved. NEITHER QUARK NOR NOVARTIS MAKES ANY REPRESENTATION OR WARRANTY, EITHER EXPRESS OR IMPLIED, THAT NOVARTIS, ITS AFFILIATES OR SUBLICENSEES WILL BE ABLE TO SUCCESSFULLY DEVELOP OR COMMERCIALIZE ANY PRODUCT OR, IF COMMERCIALIZED, THAT ANY PARTICULAR NET SALES LEVEL OF SUCH PRODUCT WILL BE ACHIEVED.

9. REPORTS AND PAYMENT TERMS

9.1 Payment Terms.

(a) Novartis shall provide Quark with written notice of the achievement of each clinical or regulatory Milestone within [*] after such Milestone is achieved. After receipt of such notice, Quark shall submit an invoice to Novartis substantially in the form of Exhibit C for the corresponding Milestone Payment, provided that no such invoice shall be submitted prior to the License Effective Date. Novartis shall make the corresponding Milestone Payment within [*] after receipt of such invoice. Within [*] after each Calendar Quarter during the term of this Agreement, Quark shall submit an invoice to Novartis substantially in the form of Exhibit C for the costs incurred during such Calendar Quarter providing the assistance under Sections 4.3(a), 4.3(c) and 4.3(d) of the Option Agreement and Sections 4.5 and 6.2(a)(ii) of this Agreement. Novartis shall pay such invoiced amount within [*] after receipt of such invoice.

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(b) Within [*] after each Calendar Quarter during the term of this Agreement following the First Commercial Sale of a Product, Novartis will provide to Quark a Sales & Royalty Report in the form of Exhibit B. Such Sales and Royalty Report will also inform Quark of the achievement of any commercial Milestone. If requested by Quark, Novartis shall provide to Quark additional information as reasonably necessary for Quark to fulfill its reporting obligations to its upstream licensors. After receipt of such report, Quark shall submit an invoice to Novartis substantially in the form of Exhibit C with respect to the royalty amount or Milestone Payment shown therein. Novartis shall pay such royalty amount or Milestone Payment within [*] after receipt of such invoice.

(c) All payments from Novartis to Quark shall be made by wire transfer in US Dollars to the credit of such bank account as may be designated by Quark in this Agreement or in writing to Novartis. Any payment which falls due on a date which is not a Business Day may be made on the next succeeding Business Day.

(d) For the avoidance of doubt, no payments shall become due and payable and neither Party will be obligated to reimburse the other Party for any costs incurred by the other Party under or in connection with this Agreement until the License Effective Date.

9.2 Currency. All payments under this Agreement shall be payable in US dollars. When conversion of payments from any foreign currency is required to be undertaken by Novartis, the USD equivalent shall be calculated using Novartis' then-current standard exchange rate methodology as applied in its external reporting.

9.3 Taxes.

(a) If any taxes are required to be withheld by Novartis from a payment made to Quark pursuant to this Agreement, Novartis will: (i) deduct such taxes from the payment made to Quark; (ii) timely pay the taxes to the proper taxing authority for the account of Quark; (iii) send proof of payment to Quark; and (iv) reasonably assist Quark in its efforts to obtain a credit for such tax payment. Each Party agrees to reasonably assist the other Party in lawfully claiming exemptions from and/or minimizing such deductions or withholdings under an applicable tax treaty and any applicable law.

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(b) If Novartis, its Affiliates, successors or sublicensees make payments under this Agreement that are subject to withholding tax and such withholding tax is in excess of the tax that would have been imposed on or deducted from such payment had it been made by [*] to [*] eligible to claim benefits under [*] between [*] and [*] (if any) in force at the time of the payment, the applicable payor shall increase its payment to the extent necessary so that after the deduction and withholding of the tax, Quark receives the amount that it would have received had such payment been made by [*] to [*] eligible to claim benefits under [*] between [*] and [*]. In the event Novartis exercises its rights or performs its obligations under this Agreement pursuant to the authority granted in Section 2.2 in a manner that would increase the tax burden on Quark in a manner other than withholding taxes provided for in this Section 9.3(b), Novartis shall compensate Quark for such additional tax burden.

9.4 Late Payment. All payments under this Agreement which is not paid on the date due shall bear interest from the date due until paid at a rate equal to [*] per annum, effective for the date that payment was due, as published by [*].

9.5 Records and Audit Rights.

(a) Each Party shall, and Novartis shall ensure that its sublicensees hereunder, keep complete, true and accurate books and records in accordance with its Accounting Standards in relation to this Agreement, including, with respect to Novartis and its sublicensees, in relation to Net Sales and royalties. Each Party will keep such books and records for at least [*] following the Calendar Quarter to which they pertain, provided that if [*] in accordance with Section 9.5(b) below, such [*] retention period for books and records by Novartis shall be [*].

(b) Quark shall have the right for a period of [*] after receiving any Sales & Royalty Report to appoint an internationally-recognized independent accounting firm (which is reasonably acceptable to Novartis) (the "Auditor") to inspect the relevant records of Novartis or its Affiliates to verify such reports, statements, records or books of accounts, as applicable. In the sole event [*] exercises its rights under the [*] to conduct an audit of Quark, Quark shall have the right, for a period of [*] after receiving any Sales & Royalty Report to appoint an Auditor to inspect the relevant records of Novartis or its Affiliates to the extent required or necessary under the [*]. In the event Novartis exercises the Option, [*]. Before beginning its audit, the Auditor shall execute an undertaking acceptable to Novartis pursuant to which the Auditor shall keep confidential all information reviewed during such audit. The Auditor shall have the right to disclose to Quark only its conclusions regarding any payments owed under this Agreement.

(c) Novartis and its Affiliates shall make their records available for inspection by such Auditor during regular business hours at such place or places where such records are customarily kept, upon receipt of reasonable advance notice from Quark, solely to verify the accuracy of the Sales & Royalty Reports. Such inspection right shall not be exercised more than [*] and not more [*]. Quark agrees to hold in strict confidence all information received and all information learned in the course of any audit or inspection, except to the extent necessary to enforce its rights under this Agreement or if disclosure is required by law, regulation or judicial order.

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(d) The audit report and basis for any determination by an Auditor shall be made available for review and comment by Novartis following Novartis' request, and Novartis shall have the right, at its expense, to request a further determination by such Auditor as to matters which Novartis disputes within [*] following receipt of such report. Novartis will provide Quark and the Auditor with a reasonably detailed statement of

the grounds upon which it disputes any findings in the audit report and the Auditor shall undertake to complete such further determination within [*] after the dispute notice is provided by Novartis, which determination shall be limited to the disputed matters. If the Parties disagree as to results of such further determination, the dispute shall be subject to the dispute resolution procedure specified in Section 17.5.

(e) Unless disputed, if an audit discloses any underpayment by Novartis, Novartis shall promptly pay to Quark the amount of any such underpayment, together with interest calculated pursuant to Section 9.4, within [*] of receiving the final audit report establishing such obligation. Quark shall pay for such audits, as well as its own expenses associated with such audit, except that in the event there is any upward adjustment in aggregate amounts payable for any year shown by such audit of more than [*] of the amount paid, Novartis shall pay for such audit.

(f) If Novartis discovers, whether by audit or otherwise that it has made an overpayment, it will deduct such overpayment in the Sales and Royalty Report for the next Calendar Quarter. To the extent that any overpayment cannot be fully deducted from the royalty payment for such Calendar Quarter, Novartis may deduct such amount from subsequent amounts due to Quark until the full amount that Novartis was entitled to receive is deducted. If the full amount cannot be deducted from subsequent amounts, Quark shall promptly pay to Novartis the amount of any such overpayment within [*] of receiving an invoice from Novartis.

(g) Quark shall keep all books and records relating to any Development Costs required to be reimbursed by Novartis pursuant to the Option Agreement and/or this Agreement. Novartis shall have the right for the period of [*] following the Calendar Quarter to which they pertain to appoint an internationally-recognized independent accounting firm (which is reasonably acceptable to Quark) to inspect the relevant records of Quark or its Affiliates to verify such reports and statements, or books of account, as applicable. Before beginning the audit, the Auditor shall execute an undertaking acceptable to Quark pursuant to which the Auditor will keep confidential all information reviewed during such audit. The Auditor shall have the right to disclose to Novartis only its conclusions regarding any payment owed under this Agreement. Quark and its Affiliates shall make their records available for inspection by such Auditor during regular business hours at such place or places where such records are customarily kept, upon receipt of reasonable advance notice from Novartis. The provisions of Section 9.5(d) and Novartis rights and obligations contained therein shall apply mutatis mutandis to Quark in respect of any such audit report. Unless disputed, if an audit discloses any overpayment by Novartis, Quark shall promptly pay to Novartis the amount of any such overpayment, together with interest calculated pursuant to Section 9.4, within [*] of receiving the final audit report establishing such obligation.

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10. INTELLECTUAL PROPERTY RIGHTS

10.1 Ownership of Inventions.

(a) All Know-How arising from the Parties' activities under this Agreement, including any Patent Rights covering such inventions, made solely by employees or consultants of a Party shall be owned by such Party.

(b) All such Know-How arising from the Parties' activities under this Agreement, including any Patent Rights covering such inventions, made jointly by employees or consultants of both Parties shall be owned jointly by the Parties as contemplated under US patent laws, including 35 U.S.C. § 262. Quark acknowledges and agrees that Quark's rights in any such Know-How and Patent Rights are exclusively licensed to Novartis for the Quark Compounds and Products in the Field. Each Party may use, or license to any Third Party, any Joint Know-How and Joint Patents for any other purpose outside Quark Compounds and Products without accounting to or obtaining the approval of the other Party's prior written consent. However, neither Party shall assign to any Third Party its interest in any Joint Patent without the other Party's prior written consent (not to be unreasonably withheld).

(c) Determination of inventorship shall be made in accordance with US patent laws and any Patent Rights with a named inventor that is an employee or consultant of each Party will be jointly owned by the Parties.

10.2 Patent Prosecution.

(a) Quark will be responsible for filing, prosecuting and maintaining the Quark Patents and any Joint Patents at its own cost and expense, through a Third Party law firm mutually agreed between the Parties. Novartis will fully cooperate with Quark in connection with the filing, prosecution and maintenance of the Quark Patents and any Joint Patents, including by providing access to relevant persons and executing all documentation reasonably requested by Quark. Quark will consult with Novartis and keep Novartis reasonably informed of the status of such Quark Patents and Joint Patents, it being understood and agreed that Quark shall make all decisions relating thereto.

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(b) Quark will notify Novartis of its decision as to the countries of the world in which it elects to file, prosecute and maintain each Quark Patent and Joint Patent, and shall notify Novartis as to any decision to cease prosecution and/or maintenance of, or not to continue to pay the expenses of prosecution and/or maintenance of, any such Quark Patent or Joint Patent in any country in which it was filed. Quark will provide such notices at least [*] prior to any filing or payment due date, or any other due date that requires action, in connection with such Patent Right. In the event that Novartis wants to file patent applications in countries beyond those in which Quark decided to seek patent protection, or if Novartis wants to prosecute and maintain such Quark Patents or Joint Patents in countries where Quark has elected not to continue such prosecution or maintenance, Quark shall permit Novartis, at its sole discretion and expense but in the name of Quark (for Quark Patents) and in the name of Quark and Novartis jointly (for Joint Patents), to file or to continue prosecution or maintenance of such Quark Patent or Joint Patent.

(c) In the event that any patent or patent application included in Quark Patents or Joint Patents is challenged by a Third Party, including opposition or reexamination, the Parties agree to cooperate with each other in the defense of such patent or patent application, with each of Quark and Novartis responsible for [*] of the cost associated with such defense. Notwithstanding the foregoing, the defense of any patent challenges filed (e.g. as a counterclaim) in connection with an infringement action brought under Section 10.3 shall be controlled by the Party bringing such infringement action. In the event Novartis is controlling the defense of a challenge to a Quark Patent by reason of this Section 10.2(c), Novartis shall meet and confer with Quark on a periodic basis to discuss such defense and shall consider in good faith any issues raised by Quark.

(d) The Parties acknowledge that Quark shall have the right to separate any claims of a Quark Patent that are specific to the [*] of a Quark Patent and to file such claims in a separate patent application [*], including without limitation through the filing of one or more divisional applications at the request of Novartis pursuant to Section 6.8 of the Option Agreement. For the avoidance of doubt, any patent applications resulting from the foregoing process that do not claim any [*] ("[*] Patents") shall be excluded from the definition of Quark Patents and Quark Technology for purposes of this Agreement and the Option Agreement. Quark shall keep Novartis reasonably informed of the status of such [*] Patents, it being understood and agreed that Quark shall make all decisions relating thereto.

10.3 Patent Infringement.

(a) Each Party will promptly notify the other of any infringement by a Third Party of any of the Quark Technology or Joint Technology in the Field in the Territory of which it becomes aware, including any "patent certification" filed in the United States under 21 U.S.C. §355(b)(2) or 21 U.S.C. §355(j)(2) or similar provisions in other jurisdictions and of any declaratory judgment, opposition, or similar action alleging the invalidity, unenforceability or non-infringement of any of the Quark Patents or Joint Patents which relates to Products or Competing Products (collectively "Third Party Infringement").

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(b) Novartis will have the first right to bring and control any legal action in connection with the Third Party Infringement at its own expense as it reasonably determines appropriate, and Quark shall have the right, at its own expense, to be represented in any such action by counsel of its own choice. If Novartis fails to either (i) bring an action or proceeding with respect to, or (ii) otherwise terminate, infringement of any Quark Patent or Joint Patent (A) within [*] following the notice of alleged infringement or (B) prior to [*] before the time limit, if any, set forth in the appropriate laws and regulations for the filing of such actions, whichever comes first, Quark shall have the right, upon written notice to Novartis, to bring and control any such action at its own expense and by counsel of its own choice, and Novartis shall have the right, at its own expense, to be represented in any such action by counsel of its own choice; provided, however, that if Novartis notifies Quark in writing prior to [*] before such time limit for the filing of any such action that Novartis intends to file such action before the time limit, then Novartis shall be obligated to file such action before the time limit, and Quark will not have the right to bring and control such action.

(c) At the request of the enforcing Party, the other Party shall provide reasonable assistance in connection therewith, including by executing reasonably appropriate documents, cooperating in discovery and joining as a party to the action if required.

(d) In connection with any such proceeding, Novartis shall not enter into any settlement admitting the invalidity of, or otherwise impairing Quark's rights in, the Quark Patents without the prior written consent of Quark, which will not be unreasonably withheld or delayed.

(e) Any recoveries resulting from such an action relating to a claim of Third Party Infringement shall be first applied against payment of each Party's costs and expenses in connection therewith. In the event that Novartis brought such action, any remainder will be retained by (or if received by Quark, paid to) Novartis; provided, however, that any portion of such remainder that is attributable to lost profits with respect to the applicable Product(s) shall be [*]. In the event that Quark brought such action, any remainder shall be [*].

(f) Notwithstanding the foregoing, Novartis acknowledges that as the Silence License and the Alynham License are non-exclusive, Novartis has no right to take actions against Third Party Infringement with respect to the Patent Rights covered by these two upstream licenses.

(g) Quark shall retain the exclusive right, at its own expense, to control the enforcement of Quark Technology for Third Party activities which do not relate to Products or Competing Products, provided, however, that, in the event that not all of the [*] claims in a particular Quark Patent have been separated into new application(s) (as described in Section 10.2(d)), Quark shall [*] in advance of commencing an enforcement action for such Quark Patent for Third Party activities that do not relate to Products or Competing Products, [*]. The parties agree that [*].

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(h) Quark shall also retain the exclusive right, at its own expense, to control the enforcement of the [*] Patents.

10.4 Trademarks. Novartis shall have the right to brand the Products using Novartis related trademarks and any other trademarks and trade names it determines appropriate for the Products, which may vary by country or within a country ("Product Marks"). Novartis shall own all rights in the Product Marks and register and maintain the Product Marks in the countries and regions it determines reasonably necessary.

10.5 Patent extensions.

(a) If requested by Novartis, Quark shall cooperate in obtaining patent term restoration (under but not limited to Drug Price Competition and Patent Term Restoration Act), supplemental protection certificates or their equivalents, and patent term extensions with respect to the Quark Patents and/or Joint Patents in any country and/or region where applicable. Quark shall provide all reasonable assistance requested by Novartis, including permitting Novartis to proceed with applications for such in the name of Quark, if deemed appropriate by Novartis, and executing documents and providing any relevant information to Novartis.

(b) [*] shall in [*] determine which, if any, Quark Patents and/or Joint Patents it will apply to extend.

10.6 [*]. The Parties acknowledge and agree that, for any given Product, [*], depending on a number of factors. As result, Quark may, in its discretion but subject to the remainder of this Section 10.6, decide on a Product-by-Product and country-by-country basis, whether [*] and may, in its discretion but subject to the remainder of this Section 10.6, decide to [*]. In the event that Novartis disagrees with any such decision by Quark in good faith, and the Parties are unable to resolve such dispute within a reasonable time period, then Parties agree to submit to a mutually agreed, independent [*] having relevant experience in the field of siRNA technology the question of whether [*] with respect to the applicable country(-ies) and Product(s). The decision of such [*] shall be binding on the Parties. The Parties shall share equally the fees and costs of such [*].

10.7 UIC License. Novartis acknowledges that the UIC License contains a provision whereby [*].

10.8 Patent Marking. Novartis agrees to mark the Product sold in the US with all applicable United States patent numbers which are required pursuant to the terms of the [*]. All Products shipped or sold in other countries shall be marked in such a manner as to conform with patent laws and practices of the country of manufacture or sale. Immediately after the License Effective Date, Quark [*].

10.9 No Patent Challenge. Quark may [*], to the extent it relates to the Quark Patents in the territory [*], at any time on [*] written notice to Novartis (subject to the [*] cure period in Section 12.2) if Novartis its Affiliates and sublicensees, [*].

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11. CONFIDENTIALITY

11.1 Duty of Confidence.

(a) Subject to the other provisions of this Article 11, all Confidential Information disclosed by a Party or its Affiliates under this Agreement and/or the Option Agreement will be maintained in confidence and otherwise safeguarded by the recipient Party and its Affiliates. The recipient Party may only use any such Confidential Information for the purposes of this Agreement and pursuant to the rights granted to the recipient Party under this Agreement. Subject to the other provisions of this Article 11, the recipient Party and its Affiliates shall hold as confidential such Confidential Information of the other Party or its Affiliates in the same manner and with the same protection (in no case less than reasonable care) as such recipient Party maintains its own confidential information. Subject to the other provisions of this Article 11, a recipient Party may only disclose Confidential Information of the other Party to: (i) its Affiliates and sublicensees; and (ii) employees, agents, contractors, consultants and advisers of the Party and its Affiliates and sublicensees, in each case to the extent reasonably necessary for the purposes of, and for those matters undertaken pursuant to, this Agreement, and, in the case of Quark, pursuant to Quark's retained rights hereunder; provided that such Persons are bound to maintain the confidentiality of the Confidential Information in a manner consistent with the confidentiality provisions of this

Agreement.

(b) With respect to Quark's obligations under this Article 11, all Quark Know-How and Joint Know-How shall be considered Confidential Information of Novartis and Quark shall maintain in confidence and otherwise safeguard such Quark Know-How and Joint Know-How as such in accordance with this Article 11 (it being understood that the exceptions in sub-Sections 11.2(b) and (c) shall not apply to Quark with respect to Quark Know-How or Joint Know-How), provided that Quark may use Quark Know-How and Joint Know-How for those matters undertaken pursuant to its retained rights hereunder.

11.2 Exceptions. The obligations under this Article 11 shall not apply to any information to the extent the recipient Party can demonstrate by competent evidence that such information:

(a) is (at the time of disclosure) or becomes (after the time of disclosure) known to the public or part of the public domain through no breach of this Agreement by the recipient Party or its Affiliates;

(b) was known to, or was otherwise in the possession of, the recipient Party or its Affiliates prior to the time of disclosure by the disclosing Party or any of its Affiliates;

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(c) is disclosed to the recipient Party or an Affiliate on a non-confidential basis by a Third Party who is entitled to disclose it without breaching any confidentiality obligation to the disclosing Party or any of its Affiliates; or

(d) is independently developed by or on behalf of the recipient Party or its Affiliates, as evidenced by written records, without access or reference to the Confidential Information disclosed by the disclosing Party or its Affiliates under this Agreement.

Specific aspects or details of Confidential Information shall not be deemed to be within the public domain or in the possession of the recipient Party merely because the Confidential Information is embraced by more general information in the public domain or in the possession of the recipient Party. Further, any combination of Confidential Information shall not be considered in the public domain or in the possession of the recipient Party merely because individual elements of such Confidential Information are in the public domain or in the possession of the recipient Party unless the combination and its principles are in the public domain or in the possession of the recipient Party.

11.3 Authorized Disclosures.

(a) In addition to disclosures allowed under Section 11.2, each Party, its Affiliates and sublicensees may disclose the other Party's Confidential Information to the extent such disclosure is necessary in the following instances: (i) filing or prosecuting Patent Rights as contemplated by this Agreement; (ii) in connection with Regulatory Filings for Products; (iii) prosecuting or defending litigation as contemplated by this Agreement; (iv) complying with applicable court orders or governmental regulations; or (v) to the extent otherwise necessary or appropriate in order to fulfill its obligations or exercise its rights hereunder.

(b) In addition, Novartis and its Affiliates and sublicensees may disclose Confidential Information of Quark to Third Parties as may be necessary or useful in connection with the research, Development, manufacture or Commercialization of the Quark Compounds and/or Product(s) as contemplated by this Agreement, including in connection with sublicensing and subcontracting transactions, provided that such disclosee are bound by obligations of confidentiality and non-use at least as equivalent in scope as those set forth in this Article 11 prior to such disclosure.

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(c) (A) Quark and its Affiliates may disclose Confidential Information of Novartis to any bona fide potential or actual investor other than (i) any potential investor that is (or is an Affiliate of) a healthcare company and (ii) any potential investor in which the sole limited partner is a healthcare company, subject to entering into the confidentiality obligations described below. (B) Quark may disclose the terms of this Agreement (excluding financial terms) to potential acquirors, subject to entering into the confidentiality obligations described below provided that (i) any such potential acquirors have been formally accepted by Quark in writing to conduct full due diligence for the purpose of the potential acquisition; (ii) such due diligence in connection with the terms of this Agreement shall be conducted at the offices of an internationally-recognized law firm acceptable to Novartis and (iii) Quark has notified Novartis in writing of the disclosure for the purpose of the conduct of the due diligence by the potential acquiror without obligation to identify such potential acquiror(s). In the case of a potential acquiror and provided Quark has fulfilled the conditions described above under (B)(i), (ii) and (iii) above, Quark may disclose the financial terms of this Agreement to a Third Party advisor to such

potential acquiror, subject to entering into the confidentiality obligations described below. Such advisor may not disclose the financial terms of this Agreement to the potential acquiror but shall be permitted to review the valuation assumptions of the potential acquiror and advise the potential acquiror only whether the financial value of this transaction to Quark, taken as a whole, is materially consistent with the assumptions made by the potential acquiror or is materially superior to, or materially inferior to, such assumptions. Any disclosure made by Quark pursuant to this Section 11.3(c) may only be made to persons who have, prior to any disclosure, agreed in writing to be bound by confidentiality obligations no less strict than those set forth herein, including without limitation, obligations to use the confidential information so disclosed for the sole purpose of assessing a potential investment and/or acquisition of Quark as described under this Section 11.3(c).

(d) In the event the recipient Party is required to disclose Confidential Information of the disclosing Party by law or in connection with bona fide legal process, such disclosure shall not be a breach of this Agreement; provided that the recipient Party (i) informs the disclosing Party as soon as reasonably practicable of the required disclosure; (ii) limits the disclosure to the required purpose; and (iii) at the disclosing Party's request and expense, assists in an attempt to object to or limit the required disclosure.

11.4 Ongoing Obligation for Confidentiality. Upon early termination of this Agreement for any reason, each Party and its Affiliates shall immediately return to the other Party or destroy any Confidential Information disclosed by the other Party, except for one copy which may be retained in its confidential files for archive purposes.

12. TERM AND TERMINATION

12.1 Term. The term of this Agreement will commence upon the License Effective Date and continue, on a Product-by-Product and country-by-country basis, until the expiration of the royalty obligations of Novartis with respect to the applicable Product, unless earlier terminated as permitted by this Agreement. Upon expiration of the term of this Agreement, on a Product-by-Product and country-by-country basis, the licenses granted to Novartis hereunder shall continue in effect, as fully paid-up (except as set forth in the last sentence in Section 8.5(d)), sub-licensable, royalty-free, transferable, perpetual and irrevocable with respect to such Product and such country.

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12.2 Termination for Cause. If either Novartis or Quark is in material breach of any material obligation hereunder, the non-breaching Party may give written notice to the breaching Party specifying the claimed particulars of such breach, and in the event such material breach is not cured within [*] after such notice, the non-breaching Party shall have the right thereafter to terminate this Agreement immediately by giving written notice to the breaching Party to such effect; provided, however, that if such breach is capable of being cured but cannot be cured within such [*] period and the breaching Party initiates actions to cure such breach within such period and thereafter diligently pursues such actions, the breaching Party shall have such additional period as is reasonable in the circumstances to cure such breach. In the event that arbitration is commenced with respect to any alleged breach hereunder, no purported termination of this Agreement pursuant to this Section 12.2 shall take effect until the resolution of such arbitration. Any termination by any Party under this Section 12.2 and the effects of termination provided herein shall be without prejudice to any damages or other legal or equitable remedies to which it may be entitled from the other Party.

12.3 Termination for Insolvency. Either Quark or Novartis may terminate this Agreement without notice if an Insolvency Event occurs in relation to the other Party. In any event when a Party first becomes aware of the likely occurrence of any Insolvency Event in regard to that Party, it shall promptly so notify the other Party in sufficient time to give the other Party sufficient notice to protect its interests under this Agreement.

12.4 Termination by Novartis Without Cause. Novartis may terminate this Agreement without cause at any time after the License Effective Date in its entirety or on a Product-by-Product or country-by-country basis at any time on [*] prior written notice.

12.5 Termination by Quark. In the event that Novartis does not elect to make the payment described in Section 8.2(a)(ii), 8.2(a)(iii), 8.2(a)(iv), 8.2(a)(v), 8.2(b)(i), 8.2(b)(ii), 8.2(c), 8.2(d)(i), 8.2(d)(ii), 8.2(e), 8.2(f)(i), 8.2(f)(ii), 8.2(f)(iii), 8.2(f)(iv), 8.2(f)(v) or 8.2(f)(vi), as applicable, then Quark shall have the right to terminate this Agreement in its entirety, by notice in writing within [*] after the [*] period after the date on which [*] have been accepted by Novartis as set forth in Section 5.1(c).

12.6 Rights in Bankruptcy.

(a) All licenses granted under or pursuant to this Agreement are, and will otherwise be deemed to be, for purposes of Section 365(n) of the US Bankruptcy Code (the "Code") and any similar laws in any other country in the Territory, licenses of rights to "intellectual property" as defined under Section 101 of the Code. The Parties agree that Novartis, as licensee of such rights under this Agreement, will retain and may fully exercise all of its protections, rights and elections under the Code and any similar laws in any other country in the Territory. The Parties further agree that, in the event of the commencement of a bankruptcy proceeding by or against any Quark under the Code and any similar laws in any other country in the Territory, Novartis will be entitled to a complete duplicate of (or complete access to, as appropriate) any such intellectual property and all embodiments of such intellectual property, and the same, if not already in its possession, will be promptly delivered to it (i) upon any such commencement of a bankruptcy proceeding upon its written request therefor, unless Quark elects to continue to perform all of its obligations under this Agreement, or (ii) if not delivered under (i) above, upon written request therefor by Novartis following the rejection of this

Agreement by or on behalf of Quark.

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(b) All rights, powers and remedies of Novartis provided for in this Section 12.6 are in addition to and not in substitution for any and all other rights, powers and remedies now or hereafter existing at law or in equity (including, without limitation, under the Code and any similar laws in any other country in the Territory). In the event of the Bankruptcy of Quark, Novartis, in addition to the rights, power and remedies expressly provided herein, shall be entitled to exercise all other such rights and powers and resort to all other such remedies as may now or hereafter exist at law or in equity (including, without limitation, under the Code and any similar laws in any other country in the Territory). The Parties agree that they intend the following Novartis rights to extend to the maximum extent permitted by law, including, without limitation, for purposes of the Code and any similar laws in any other country in the Territory: (i) the right of access to any intellectual property (including all embodiments thereof) of Quark, or any Third Party with whom Quark contracts to perform an obligation of Quark under this Agreement which is necessary for the Development, registration, manufacture and/or Commercialization of Products in the Territory; (ii) the right to contract directly with any Third Party described in (i) to complete the contracted work, and (iii) the right to cure any breach of or default under any such agreement with a Third Party and set off the costs thereof against amounts payable to Quark under this Agreement.

13. EFFECT OF TERMINATION

13.1 Termination by Novartis for Cause. Upon termination of this Agreement by Novartis pursuant to Sections 12.2 or 12.3:

(a) the licenses and other rights granted by Quark to Novartis under the Quark Technology and Quark's interest in any Joint Technology will remain in effect in accordance with their respective terms; provided, however, that

(i) the license granted to Novartis in Section 2.1 shall become a perpetual and irrevocable license;

(ii) Novartis shall continue to make all Milestone Payments and royalty payments in accordance with the terms of this Agreement, except that solely with respect to a termination under Section 12.2 for a material breach by Quark that [*], the amount of any future Milestone Payments and royalties applicable to future Net Sales of Product shall be reduced by [*], provided that such reduction in royalties shall in no event reduce the royalty payment due to Quark to an amount less than [*]. Such reduction in Milestone Payments and royalties shall be credited against any monetary damages obtained by Novartis in a final judgment or arbitration award as a result of Quark's breach. [*]

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(iii) Novartis shall have the right to offset the full amount of any remaining monetary damages (i.e. in excess of the reduction set forth in subsection (ii) above) against any Milestone Payments and/or royalties;

(b) Quark and Novartis shall continue to have the right to prosecute, maintain, enforce and defend the Quark Patents and Joint Patents as specified in Section 10.2;

(c) Section 2.3 shall survive with respect to Quark in accordance with its terms on a Product-by-Product and country-by-country basis until the expiration of the royalty obligations of Novartis; and

(d) Except as set forth in this Section 13.1 and in Section 13.3, the rights and obligations of the Parties hereunder shall terminate as of the date of such termination.

In the event that this Agreement is terminated with respect to only certain Product(s) or certain country(ies), the provisions of this Section 13.1 shall apply only with respect to the terminated Product(s) or country(ies), as applicable.

13.2 Termination by Quark for Cause or by Novartis Without Cause. Upon termination of this Agreement by Quark pursuant to Sections 12.2, 12.3 or 12.5 or by Novartis pursuant to Section 12.4:

(a) Any licenses and other rights granted by either Party to the other will terminate and revert to the granting Party;

(b) Novartis will grant Quark a right of first negotiation, exercisable by written notice to Novartis at any time within [*] to obtain an exclusive worldwide, royalty-bearing license, with the right to sublicense, under any Patent Rights of Novartis, including Novartis' interest in Joint Patents, to develop, make, have made, use, sell, have sold, offer for sale and import such Products as are then being marketed or developed by Novartis

on commercially reasonable royalty terms to be negotiated in good faith by the Parties for up to an additional [*] following exercise of such right of first negotiation;

(c) any exclusive license granted to Quark as described in the preceding sub-Section (b) will include the right to use clinical and regulatory data and information generated by Novartis for regulatory purposes relating to the applicable Products;

(d) any exclusive license agreement entered into as described in sub-Section (b) will provide for Novartis to transfer and assign to Quark all of its right, title and interest in and to all US and foreign regulatory submissions and Regulatory Approvals with respect to the applicable Products and all drug master files and drug dossiers with respect to the applicable Products (other than those related to Novartis' manufacturing facilities);

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(e) Quark shall have the right, but not the obligation, to purchase from Novartis some or all of the Quark Compound and/or Product then in Novartis' inventory at a price equal to [*]. Quark shall notify Novartis whether Quark elects to exercise such purchase right within [*] after the grant of a license to Quark pursuant to Section 13.2(b), or, where no such negotiation takes place within [*] after the date of such termination;

(f) If this Agreement is terminated by Novartis on a country-by-country basis, then Novartis covenants that Novartis shall cease (and not restart) Development and Commercialization of the Quark Compounds and/or Products in any country where this Agreement has been terminated; and

(g) Except as set forth in this Section 13.2 and in Section 13.3, the rights and obligations of the Parties hereunder shall terminate as of the date of such termination.

In the event that this Agreement is terminated with respect to only certain Product(s) or certain country(ies), the provisions of this Section 13.2 shall apply only with respect to the terminated Product(s) or country(ies), as applicable.

13.3 Survival. Expiration or termination of this Agreement shall not relieve the Parties of any obligation accruing prior to such expiration or termination. Without limiting the foregoing, the provisions of Sections 1, 9.1 – 9.3 (to the extent that Novartis continues to be obligated to pay Milestone Payments and/or royalties to Quark pursuant to the applicable provisions of Article 13), 9.5, 10.1, 10.3 – 10.5 (to the extent that the licenses granted to Novartis survive pursuant to the applicable provisions of Article 13), 10.8 – 10.9 (to the extent that the licenses granted to Novartis survive pursuant to the applicable provisions of Article 13 and the relevant upstream licenses are still in effect), 11, 13, 15, 16 and 17 shall survive expiration or termination of this Agreement; provided, however, that in the event of termination of this Agreement in its entirety by Quark pursuant to Section 12.2, 12.3 or 12.5, or by Novartis in its entirety pursuant to Section 12.4, Sections 11.1(b), 11.3(b) and 16.3, as well as the proviso in the first sentence of Section 16.2 and the entire second sentence of Section 16.2, shall not survive. The provisions of Article 11 (Confidentiality) shall survive the termination or expiration of this Agreement for a period of [*].

13.4 Termination Not Sole Remedy. Termination is not the sole remedy under this Agreement and, whether or not termination is effected and notwithstanding anything contained in this Agreement to the contrary, all other remedies will remain available except as agreed to otherwise herein.

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14. REPRESENTATIONS, WARRANTIES AND COVENANTS

14.1 Representations and Warranties by Each Party. Each Party represents and warrants to the other as of the Execution Date that:

(a) it is a corporation duly organized, validly existing, and in good standing under the laws of its jurisdiction of formation;

(b) it has full corporate power and authority to execute, deliver, and perform this Agreement, and has taken all corporate action required by law and its organizational documents to authorize the execution and delivery of this Agreement and the consummation of the transactions contemplated by this Agreement;

(c) this Agreement constitutes a valid and binding agreement enforceable against it in accordance with its terms;

(d) other than compliance with the HSR Act, all consents, approvals and authorizations from all governmental authorities or other Third Parties required to be obtained by such Party in connection with this Agreement have been obtained; and

(e) the execution and delivery of this Agreement and all other instruments and documents required to be executed pursuant to this Agreement, and the consummation of the transactions contemplated hereby and thereby do not and shall not (i) conflict with or result in a breach of any provision of its organizational documents, (ii) result in a breach of any agreement to which it is a party; or (iii) violate any law.

14.2 Representations and Warranties by Quark. Quark represents and warrants to Novartis as of the Execution Date that:

(a) Exhibit A sets forth a complete and accurate list of (i) all Quark Patents in existence as of the Execution Date, indicating the owner, Quark and/or co-owner(s) thereof if any such Quark Patent is not solely owned by Quark and (ii) all agreements that are in force as of the Execution Date under which any of the Quark Patents are licensed to Quark;

(b) Quark is the sole and exclusive owner, or exclusive licensee of all of the Quark Patents (other than the Patent Rights licensed under the Silence License and Alnylam License) existing on the Execution Date free from Encumbrances and is listed in the records of the appropriate governmental agencies as the sole and exclusive owner of record of each registration, grant and application included in the Quark Patents that is owned by Quark;

(c) all of its employees, officers, and consultants involved or to be involved in the research or Development of the Quark Compound or Product have executed agreements or have existing obligations under applicable laws requiring assignment to Quark of all inventions made during the course of and as the result of their association with Quark and obligating the individual to maintain as confidential Quark's Confidential Information as well as confidential information of other parties (including Novartis and its Affiliates) which such individual may receive, to the extent required to support Quark's obligations under this Agreement;

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(d) Quark has the right to grant to Novartis the licenses under the Quark Patents and Quark Know-How that it purports to grant hereunder;

(e) Quark has the right to use and disclose and to enable Novartis to use and disclose (in each case under appropriate conditions of confidentiality) the Quark Know-How within the scope of the license(s) granted to Novartis hereunder, free from Encumbrances;

(f) [*], there are no claims, challenges, oppositions, interference or other proceedings pending or threatened against the Quark Patents, and Quark has filed and prosecuted patent applications within the Quark Patents in good faith and complied with all duties of disclosure with respect thereto;

(g) [*], there are no claims, challenges or other proceedings pending or threatened against any of the Quark Know-How;

(h) [*], Quark has not committed any act, or omitted to commit any act, that is reasonably likely to cause the Quark Patents to expire prematurely or be declared invalid or unenforceable;

(i) all application, registration, maintenance and renewal fees in respect of the Quark Patents as of the Execution Date have been paid (to the extent due) and all necessary documents and certificates have been filed with the relevant agencies for the purpose of maintaining the Quark Patents;

(j) Quark has not granted to any Third Party, including any academic organization or agency, any rights to Commercialize the Quark Compounds or Product and has disclosed any agreement with a Third Party pursuant to which such Third Party has been granted rights to research or Develop the Quark Compounds or Product ;

(k) As of the License Effective Date, Quark is not aware, after reasonable inquiry, of any Third Party rights or technology not included in the Quark Technology that is necessary and/or used for the Development of the Quark Compounds and/or Products as they exist as of the License Effective Date;

(l) [*] the research, Development, registration, manufacture, use or Commercialization of the Quark Compounds or Product as they exist as of the License Effective Date do not infringe the Patent rights of any Third Party and the research, Development, use and manufacture of the Quark Compounds and Product has been conducted by Quark without infringing the Patent Rights or misappropriating the Know-How of any Third Party, and Quark has not received any written notice alleging such infringement or misappropriation;

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- (m) Quark has not initiated or been involved in any proceedings or claims in which it alleges that any Third Party is or was infringing or misappropriating any Quark Technology, nor have any such proceedings been threatened by Quark, nor does Quark know of any valid basis for any such proceedings;
- (n) no officer or employee of Quark is subject to any agreement with any other Third Party which requires such officer or employee to assign any interest in any Quark Technology relating to the Quark Compounds or Product to any Third Party;
- (o) Quark has taken all reasonable precautions to preserve the confidentiality of the Quark Know-How, to the extent such Quark Know-How is not generally known in the relevant technical field;
- (p) Quark has not entered into a government funding relationship that would result in rights to any Quark Compounds or Product residing in the US Government, National Institutes of Health, National Institute for Drug Abuse or other agency, and the licenses granted hereunder are not subject to overriding obligations to the US Government as set forth in Public Law 96-517 (35 U.S.C. 200-204), as amended, or any similar obligations under the laws of any other country;
- (q) Quark has not granted any Third Party rights that would otherwise interfere or be inconsistent with Novartis' rights hereunder in a material manner, and there are no agreements or arrangements to which Quark or any of its Affiliates is a party relating to the Products, Quark Compounds, Quark Patents, or Quark Know-How that limit or are reasonably likely to limit the rights granted to Novartis under this Agreement or that restrict or are reasonably likely to result in a restriction on Novartis' ability to Develop, manufacture, register, use or Commercialize the Quark Compounds and the Products in the Territory;
- (r) Quark has provided Novartis with a redacted copy of each agreement under which it obtains rights to any of the Quark Patents, which copy sets forth all of Quark's rights and obligations with regard to such agreement;
- (s) [*], neither Quark nor any of its Affiliates has committed any act which amounts to a material breach of any of Quark's obligations under any agreement under which it obtains rights to any of the Quark Technology;
- (t) neither Quark nor, to the knowledge of Quark, any employee, agent or subcontractor of Quark involved in the research and Development of the Quark Compounds or the Products has been debarred under Subsection (a) or (b) of Section 306 of the Federal Food, Drug and Cosmetic Act (21 U.S.C. 335a); and
- (u) Notwithstanding anything to the contrary contained in this Agreement, Quark has [*] and [*] that would be [*] to [*] in connection with this Agreement or the transactions contemplated herein. [*], [*] provided by Quark to Novartis regarding the Quark Compounds and Product as part of Novartis' due diligence under the Option Agreement are true and complete in all material respects.

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

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14.3 Covenants.

(a) Quark covenants and agrees that:

- (i) it will not grant any interest in the Quark Technology or Joint Technology which is inconsistent with the terms and conditions of this Agreement, nor shall Quark assign its right, title or interest in or to the Quark Technology or Joint Technology to any Third Party and will use all reasonable precautions to preserve the confidentiality of the Quark Know-How and the Joint Know-How;
- (ii) it will not grant any Third Party, including any academic organization or agency, any rights to the Quark Compounds or Product (other than research rights with the prior approval of the JSC);
- (iii) it will not amend or modify the terms of any agreement under which it obtains rights to any of the Quark Technology in a way that materially affects Novartis' rights under this Agreement without the prior written consent of Novartis;
- (iv) it will not exercise any right to terminate any agreement under which it obtains rights to any of the Quark Technology, provided such rights fall with the scope of the license(s) granted to Novartis hereunder, without the prior written consent of Novartis, except as provided in Section 10.6;
- (v) Quark and its Affiliates will comply with, perform and observe in all material respects all obligations under each agreement under which it obtains rights to any of the Quark Technology, and will not commit any act or fail to perform any obligation which would amount to a default or event of default or which, with the giving of notice, the lapse of time or the happening of any other event or condition would become a default or event of default thereunder or give rise to any right of the applicable counterparty to terminate any such agreement or any part thereof;

(vi) if, at any time after execution of this Agreement, it becomes aware that it or any employee, agent or subcontractor of Quark who participated, or is participating, in the performance of any activities hereunder is on, or is being added to the FDA Debarment List or any of the three (3) FDA Clinical Investigator Restriction Lists referenced in Section 14.3(b), it will provide written notice of this to Novartis within two (2) business days of its becoming aware of this fact; and

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(vii) it shall maintain insurance with respect to its activities and obligations under this Agreement in such amounts as are commercially reasonable in the industry for companies conducting similar business and shall require any of its Affiliates undertaking activities under this Agreement to do the same.

(b) Each Party covenants that (i) neither such Party nor, to the actual knowledge of such Party, any employee, agent or subcontractor of such Party to be involved in the Development of the Quark Compounds or the Products, has been debarred under Subsection (a) or (b) of Section 306 of the Federal Food, Drug and Cosmetic Act (21 U.S.C. 335a); (ii) no Person who is known by such Party to have been debarred under Subsection (a) or (b) of Section 306 of said Act will be employed by such Party in the performance of any activities hereunder; and (iii) to the actual knowledge of such Party, no Person on any of the FDA clinical investigator enforcement lists (including, but not limited to, the (1) Disqualified/Totally Restricted List, (2) Restricted List and (3) Adequate Assurances List) will participate in the performance of any activities hereunder.

14.4 No Other Warranties. EXCEPT AS EXPRESSLY STATED IN THIS ARTICLE 14, (A) NO REPRESENTATION, CONDITION OR WARRANTY WHATSOEVER IS MADE OR GIVEN BY OR ON BEHALF OF NOVARTIS OR QUARK; AND (B) ALL OTHER CONDITIONS AND WARRANTIES WHETHER ARISING BY OPERATION OF LAW OR OTHERWISE ARE HEREBY EXPRESSLY EXCLUDED, INCLUDING ANY CONDITIONS AND WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT.

15. INDEMNIFICATION; LIABILITY

15.1 Indemnification by Quark. Quark shall indemnify and hold Novartis, its Affiliates and sublicensees, and their respective officers, directors and employees ("Novartis Indemnitees") harmless from and against any Claims against them [*] from:

(a) [*];

(b) [*]; or

(c) [*];

provided, however, that Quark [*].

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

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15.2 Indemnification by Novartis. Novartis shall indemnify and hold Quark, its Affiliates, and their respective officers, directors and employees ("Quark Indemnitees") harmless from and against any Claims against them [*] from:

(a) [*];

(b) [*]; or

(c) [*];

provided, however, that Novartis [*].

15.3 Indemnification Procedure.

(a) For the avoidance of doubt, all indemnification claims in respect of a Novartis Indemnitee or Quark Indemnitee shall be made solely by Novartis or Quark, respectively.

(b) A Party seeking indemnification hereunder ("Indemnified Party") shall notify the other Party ("Indemnifying Party") in writing reasonably promptly after the assertion against the Indemnified Party of any Claim or fact in respect of which the Indemnified Party intends to base a claim for indemnification hereunder ("Indemnification Claim Notice"), but the failure or delay to so notify the Indemnifying Party shall not relieve the Indemnifying Party of any obligation or liability that it may have to the Indemnified Party, except to the extent that the Indemnifying Party demonstrates that its ability to defend or resolve such Claim is adversely affected thereby. The Indemnification Claim Notice shall contain a description of the claim and the nature and amount of the Claim (to the extent that the nature and amount of such Claim is known at such time). Upon the request of the Indemnifying Party, the Indemnified Party shall furnish promptly to the Indemnifying Party copies of all correspondence, communications and official documents (including court documents) received or sent in respect of such Claim.

(c) Subject to the provisions of sub-Sections (d) and (e) below, the Indemnifying Party shall have the right, upon written notice given to the Indemnified Party within [*] after receipt of the Indemnification Claim Notice to assume the defense and handling of such Claim, at the Indemnifying Party's sole expense, in which case the provisions of sub-Section (d) below shall govern. The assumption of the defense of a Claim by the Indemnifying Party [*]. In the event that it is [*]. If the Indemnifying Party does not give written notice to the Indemnified Party, within [*] after receipt of the Indemnification Claim Notice, of the Indemnifying Party's election to assume the defense and handling of such Claim, the provisions of sub-Section (e) below shall govern.

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(d) Upon assumption of the defense of a Claim by the Indemnifying Party: (i) the Indemnifying Party shall have the right to and shall assume [*] control and responsibility for dealing with the Claim; (ii) the Indemnifying Party may, at its own cost, appoint as counsel in connection with conducting the defense and handling of such Claim any law firm or counsel reasonably selected by [*]; (iii) the Indemnifying Party shall keep the Indemnified Party informed of the status of such Claim; and (iv) the Indemnifying Party shall have the right to [*]. The Indemnified Party [*] and shall be [*]. In particular, the Indemnified Party shall furnish such records, information and testimony, provide witnesses and attend such conferences, discovery proceedings, hearings, trials and appeals as may be reasonably requested in connection therewith. Such cooperation shall include access during normal business hours by the Indemnifying Party to, and reasonable retention by the Indemnified Party of, records and information that are reasonably relevant to such Claim, and making the Indemnified Party, the indemnitees and its and their employees and agents available on a mutually convenient basis to provide additional information and explanation of any records or information provided.

(e) If the Indemnifying Party does not give written notice to the Indemnified Party as set forth in sub-Section (c) or fails to conduct the defense and handling of any Claim in good faith after having assumed such, the Indemnified Party may, at the Indemnifying Party's expense, [*]. In such event, the Indemnified Party shall keep the Indemnifying Party timely apprised of the status of such Claim [*]. If the Indemnified Party defends or handles such Claim, the Indemnifying Party [*], and shall be [*].

15.4 Mitigation of Loss. Each Indemnified Party will take and will procure that its Affiliates take all such reasonable steps and action as are necessary or as the Indemnifying Party may reasonably require in order to mitigate any Claims (or potential losses or damages) under this Article 15. Nothing in this Agreement shall or shall be deemed to relieve any Party of any common law or other duty to mitigate any losses incurred by it.

15.5 Special, Indirect and Other Losses. NEITHER PARTY NOR ANY OF ITS AFFILIATES SHALL BE LIABLE IN CONTRACT, TORT, NEGLIGENCE BREACH OF STATUTORY DUTY OR OTHERWISE FOR ANY SPECIAL, INDIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR ANY ECONOMIC LOSS OR LOSS OF PROFITS SUFFERED BY THE OTHER PARTY[*].

15.6 No Exclusion. Neither Party excludes any [*].

16. PUBLICATIONS AND PUBLICITY

16.1 Use of Names. Neither Party shall use the name, symbol, trademark, trade name or logo of the other Party or its Affiliates in any press release, publication or other form of public disclosure without the prior written consent of the other Party in each instance (such consent not to be unreasonably withheld or delayed), except for those disclosures for which consent has already been obtained. Notwithstanding the foregoing, Novartis shall be entitled to use the name of Quark to the extent necessary or useful in connection with the Development or Commercialization of Products, including in connection with sublicensing and subcontracting transactions.

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16.2 Press Releases and Publicity Related to this Agreement. Each Party agrees not to issue any press release or other public statement, whether oral or written, disclosing the existence of this Agreement, the terms hereof or any information relating to this Agreement without the prior written consent of the other Party; provided, however, that Novartis may issue press releases and other public statements as it deems appropriate in connection with the Development and Commercialization of Products under this Agreement, and that Quark may (with the prior written consent of Novartis) issue press releases and other public statements upon exercise of the Option by Novartis including the applicable upfront payment described in Section 8.1 (without disclosing any other financial amounts). When seeking the consent of Novartis, Quark agrees to provide Novartis with at least [*] within which to grant or withhold its consent. Novartis agree to consider in good faith Quark's interest in seeing that significant development or commercial events under this Agreement are promptly disclosed.

16.3 Public Disclosures and Publications Related to Quark Compounds or Products.

(a) Any proposed public disclosure (whether written, electronic, oral or otherwise) by Quark relating to any Quark Compounds or Product shall require the prior written consent of Novartis; provided, that the foregoing shall not apply to information which is in the public domain.

(b) For the avoidance of doubt, Novartis or any of its Affiliates may, without any required consents from Quark (i) issue press releases and other public statements as it deems appropriate in connection with the Development and Commercialization of Products under this Agreement; and (ii) publish or have published information about clinical trials related to any Product, including the results of such clinical trials.

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16.4 Disclosures Required By Law. Notwithstanding the provisions of Sections 16.2 and 16.3, each Party may make any disclosures required of it to comply with any duty of disclosure it may have pursuant to law or governmental regulation or pursuant to the rules of any recognized stock exchange. In the event of a disclosure required by law, governmental regulation or the rules of any recognized stock exchange, the Parties shall coordinate with each other with respect to the timing, form and content of such required disclosure. If so requested by the other Party, the Party subject to such obligation shall use commercially reasonable efforts to obtain an order protecting to the maximum extent possible the confidentiality of such provisions (including, without limitation, financial terms) of this Agreement as reasonably requested by the other Party. If the Parties are unable to agree on the form or content of any required disclosure, such disclosure shall be limited to the minimum required as determined by the disclosing Party in consultation with its legal counsel. Without limiting the foregoing, each Party shall consult with the other Party on the provisions of this Agreement, together with exhibits or other attachments attached hereto, to be redacted in any filings made by Quark or Novartis with the Securities and Exchange Commission (or other regulatory body) or as otherwise required by law.

16.5 No Liability for Public Disclosures by Other Party. Nothing in this Agreement shall be construed to impose upon either Party any liability or other obligation (either to the other Party or to any other Person) with respect to any press release, publication or other form of public disclosure or statement of the other Party.

17. GENERAL PROVISIONS

17.1 Assignment. Neither Party may assign its rights and obligations under this Agreement without the other Party's [*], except that Novartis may without the consent of Quark (a) assign its rights and obligations under this Agreement or any part thereof to one or more of its Affiliates and (b) assign this Agreement in its entirety to a successor to all or substantially all of its business or assets to which this Agreement relates, and Quark may without the consent of Novartis assign this Agreement in its entirety to a successor to all or substantially all of its business or assets. The assigning Party shall provide the other Party with prompt written notice of any such assignment. Any permitted assignee shall assume all obligations of its assignor under this Agreement (or related to the assigned portion in case of a partial assignment to an Affiliate), and no permitted assignment shall relieve the assignor of liability hereunder. Any attempted assignment in contravention of the foregoing shall be void. Subject to the terms of this Agreement, this Agreement shall be binding upon and inure to the benefit of the Parties hereto and their respective successors and permitted assigns. Notwithstanding anything to the contrary herein, in the event that Quark is acquired by a Third Party, then the intellectual property held, owned, controlled, or developed by such Third Party prior to or as of such acquisition shall be excluded from Quark Technology.

17.2 Extension to Affiliates. Each Party shall have the right to extend the rights, immunities and obligations granted in this Agreement to one or more of its Affiliates (provided that in the case of Quark, such Affiliates shall be limited to QBI Enterprises, Ltd., or any future Affiliates as to which Novartis grants its written consent). All applicable terms and provisions of this Agreement shall apply to any such Affiliate to which this Agreement has been extended to the same extent as such terms and provisions apply to such Party. Each Party shall remain primarily liable for any acts or omissions of its Affiliates.

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17.3 Severability. Should one or more of the provisions of this Agreement become void or unenforceable as a matter of law, then this Agreement shall be construed as if such provision were not contained herein and the remainder of this Agreement shall continue in full force and effect. The Parties will use their commercially reasonable efforts to substitute for the invalid or unenforceable provision a valid and enforceable provision which conforms as nearly as possible to the original intent of the Parties.

17.4 Governing Law and Jurisdiction. This Agreement shall be governed by and construed under the laws of [*], without giving effect to the conflicts of laws provision thereof. Subject to Section 17.5, any dispute arising out of or relating to this Agreement shall be subject to the exclusive jurisdiction of the courts located in [*].

17.5 Dispute Resolution.

(a) In the event of a dispute under this Agreement, either Party may require that the Parties refer the dispute to the Alliance Managers for discussion and resolution. If the Alliance Managers are unable to resolve any such dispute within [*] of the dispute being referred to them, either Party may require that the Parties forward the matter to the Senior Officers (or designees with similar authority to resolve such dispute), who shall attempt in good faith to resolve such dispute. If the Senior Officers cannot resolve such dispute within [*] of the matter being referred to them, either Party shall be free to initiate the arbitration proceedings outlined in sub-Section (b) below.

(b) Any unresolved disputes between the Parties relating to, arising out of or in any way connected with this Agreement or any term or condition hereof, or the performance by either Party of its obligations hereunder, whether before or after termination of this Agreement, shall be resolved by final and binding arbitration. Whenever a Party shall decide to institute arbitration proceedings, it shall give written notice to that effect to the other Party. Arbitration shall be held in New York, New York, according to the Rules of Arbitration of the International Chamber of Commerce ("ICC"). The arbitration will be conducted in English by a panel of three arbitrators appointed in accordance with ICC rules; provided that each Party shall, within [*] after the institution of the arbitration proceedings, appoint an arbitrator, and such arbitrators shall together, within [*], select a third arbitrator as the chairman of the arbitration panel. Each arbitrator shall have significant experience in the pharmaceutical business. If the two initial arbitrators are unable to select a third arbitrator within such [*] period, the third arbitrator shall be appointed in accordance with ICC rules. Discovery shall be governed by ICC rules, except that discovery shall be limited to: (i) the production of documents in the producing Party's possession, not otherwise available to the Party seeking the documents, that are [*] to [*] to the [*]; (ii) [*] per side of a maximum of [*] (provided, however, that for good cause shown, the arbitrators may authorize additional [*]); and (iii) [*] per side. In addition, requests for production of documents shall contain a description of specific documents or classes of documents, along with [*]. The arbitrators may condition any exchange of documents subject to claims of commercial or technical confidentiality on appropriate measures to protect such confidentiality. When documents to be exchanged are maintained in electronic form, the Party in possession of such documents may make them available in the form (which may be paper copies) most convenient and economical for it, unless the arbitrators determine, on application and for good cause, that there is a compelling need for access to the documents in a different form. The Party seeking the production of documents shall ensure that [*] for [*] are [*] to make [*] as [*]. The Parties shall request that the arbitrators render their opinion within [*] of the final arbitration hearing. No arbitrator (nor the panel of arbitrators) shall have the power to award punitive damages under this Agreement and such award is expressly prohibited. Decisions of the panel of arbitrators shall be final and binding on the Parties. Judgment on the award so rendered may be entered in any court of competent jurisdiction. The losing Party to the arbitration (if any) as determined by the arbitrator shall pay the fees and costs of arbitration.

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17.6 Force Majeure. Neither Party shall be responsible to the other for any failure or delay in performing any of its obligations under this Agreement, or for other nonperformance hereunder, if such delay or nonperformance is caused by strike, stoppage of labor, lockout or other labor trouble, fire, flood, accident, war, act of terrorism, act of God or of the government of any country or of any local government, or by cause unavoidable or beyond the control of any Party hereto. In such event, the Party affected will use commercially reasonable efforts to resume performance of its obligations.

17.7 Waivers and Amendments. The failure of any Party to assert a right hereunder or to insist upon compliance with any term or condition of this Agreement shall not constitute a waiver of that right or excuse a similar subsequent failure to perform any such term or condition by the other Party. No waiver shall be effective unless it has been given in writing and signed by the Party giving such waiver. No provision of this Agreement may be amended or modified other than by a written document signed by authorized representatives of each Party.

17.8 Relationship of the Parties. Nothing contained in this Agreement shall be deemed to constitute a partnership, joint venture, or legal entity of any type between Quark and Novartis, or to constitute one as the agent of the other. Moreover, each Party agrees not to construe this Agreement, or any of the transactions contemplated hereby, as a partnership for any tax purposes. Each Party shall act solely as an independent contractor, and nothing in this Agreement shall be construed to give any Party the power or authority to act for, bind, or commit the other.

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17.9 Notices. All notices, consents, waivers, and other communications under this Agreement must be in writing and will be deemed to have been duly given when: (a) delivered by hand (with written confirmation of receipt); (b) sent by fax (with written confirmation of receipt), provided that a copy is immediately sent by an internationally recognized overnight delivery service (receipt requested); or (c) when received by the addressee, if sent by an internationally recognized overnight delivery service (receipt requested), in each case to the appropriate addresses and fax numbers set forth below (or to such other addresses and fax numbers as a Party may designate by notice):

If to Quark:

Quark Pharmaceuticals, Inc.

6501 Dumbarton Circle

Fremont, CA 94555

U.S.A.

Attn: Chief Executive Officer

Fax: (510) 402-4021

With a copy to:

Cooley LLP

Five Palo Alto Square

3000 El Camino Real

Palo Alto, CA 94306

U.S.A.

Attention: Robert. L. Jones

Fax: (650) 849-7400

If to Novartis:

Novartis International Pharmaceutical Ltd.

131 Front Street

Hamilton

Bermuda HM 12

Attn: General Counsel

Fax: [*]

with a copy to:

Novartis Pharma AG

P.O. Box

CH - 4002 Basel

Switzerland

Attn: Head, Legal Department

Fax: [*]

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and

Novartis Pharma AG

P.O. Box

CH - 4002 Basel

Switzerland

Attn: Head, Business Development and Licensing

Fax: [*]

17.10 Further Assurances. Novartis and Quark hereby covenant and agree without the necessity of any further consideration, to execute, acknowledge and deliver any and all such other documents and take any such other action as may be reasonably necessary to carry out the intent and purposes of this Agreement.

17.11 Compliance with Law. Each Party shall perform its obligations under this Agreement in accordance with all applicable laws. No Party shall, or shall be required to, undertake any activity under or in connection with this Agreement which violates, or which it believes, in good faith, may violate, any applicable law.

17.12 No Third Party Beneficiary Rights. The provisions of this Agreement are for the sole benefit of the Parties and their successors and permitted assigns, and they shall not be construed as conferring any rights to any Third Party (including any third party beneficiary rights).

17.13 English Language. This Agreement is written and executed in the English language. Any translation into any other language shall not be an official version of this Agreement and in the event of any conflict in interpretation between the English version and such translation, the English version shall prevail.

17.14 Expenses. Except as otherwise expressly provided in this Agreement, each Party shall pay the fees and expenses of its respective lawyers and other experts and all other expenses and costs incurred by such Party incidental to the negotiation, preparation, execution and delivery of this Agreement.

17.15 Entire Agreement. This Agreement, together with its Exhibits, sets forth the entire agreement and understanding of the Parties as to the subject matter hereof and supersedes all proposals, oral or written, and all other prior communications between the Parties with respect to such subject matter. In the event of any conflict between a substantive provision of this Agreement and any Exhibit hereto, the substantive provisions of this Agreement shall prevail.

17.16 Counterparts. This Agreement may be executed in two or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

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17.17 Antitrust Filings.

(a) The provisions of Section 4.2 of the Option Agreement shall apply to this Agreement as if set forth in full in this Agreement.

(b) Other than the provisions of this Section and Sections 1, 11, 16, 17.4, 17.5, 17.7-17.11, and 17.13-17.16, the rights and obligations of the Parties under this Agreement shall not become effective until the waiting period provided by the HSR Act shall have terminated or expired without any action by any government agency or challenge to the transaction or any other timeline required by another relevant agency or authority (the date of such termination or expiration shall be the "License Effective Date" of this Agreement). Upon the occurrence of the License Effective Date, all provisions of this Agreement shall become effective automatically without the need for further action by the Parties.

(c) In the event that antitrust clearance from the FTC, Antitrust Division of the Department of Justice or any other required agency or authority is not obtained within [*] after the Execution Date, or such other date as the Parties may mutually agree, this Agreement may be terminated by either Party on written notice to the other. In the event a provision of this Agreement needs to be deleted or substantially revised in order to obtain regulatory clearance of this transaction, the Parties will negotiate in good faith in accordance with Section 17.3.

17.18 Cumulative Remedies. No remedy referred to in this Agreement is intended to be exclusive, but each shall be cumulative and in addition to any other remedy referred to in this Agreement or otherwise available under law.

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IN WITNESS WHEREOF, the Parties intending to be bound have caused this Agreement to be executed by their duly authorized representatives.

NOVARTIS INTERNATIONAL

PHARMACEUTICAL LTD. QUARK PHARMACEUTICALS, INC.

By: By:

Name: Name:

Title: Title:

By: By:

Name: Name:

Title: Title:

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EXHIBIT A

QUARK PATENTS

[*]

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EXHIBIT B

Form of Sales & Royalty Report

[*]

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EXHIBIT C

SAMPLE INVOICE

[*]

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EXHIBIT B

DECISION TREE FOR ILLUSTRATIVE PURPOSE ONLY

[*]

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EXHIBIT C

AKI PHASE II TRIAL PROTOCOL

[*]

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EXHIBIT D

[*]

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EXHIBIT E

DGF PHASE II TRIAL PROTOCOL

[*]

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EXHIBIT F

[*]

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EXHIBIT G

QUARK DEVELOPMENT PLAN

[*]

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EXHIBIT H

SAMPLE INVOICE

[*]

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EXHIBIT I

PRESS RELEASE

FOR IMMEDIATE RELEASE

Quark Pharmaceuticals, Inc.

Juliana Friedman

+972 89 30 5111

jfriedman@quarkpharma.com The Ruth Group (investors / media)

Sara Pellegrino / Jason Rando

(646) 536-7002 / 7025

spellegrino@theruthgroup.com

jrando@theruthgroup.com

Quark Pharmaceuticals and Major Pharmaceutical Company Enter into Licensing Option Agreement for the p53 Suppressor Drug QPI-1002, the First siRNA Administered Systemically in Human

Fremont, CA August ____, 2010, — Quark Pharmaceuticals, Inc., a world leader in the discovery and development of RNAi-based therapeutics, today announced that it has granted Novartis an option to obtain an exclusive worldwide license to develop and commercialize its p53 temporary inhibitor siRNA drug QPI-1002, currently the subject of a Phase II clinical trial.

Quark will receive initially a non-refundable fee of 10 million USD. In the event that Novartis exercises the option, Quark would receive option exercise fees and milestone payments that could potentially total 670 million USD. In addition Quark would be entitled to potential royalties on sales of licensed products. Dr. Daniel Zurr, Quark's Chief Executive Officer, stated, "We are very pleased to have reached this agreement with Novartis. We believe that Novartis represents an outstanding partner for Quark. With its world-leading expertise in transplantation and acute care Novartis will provide invaluable support to the global development of QPI-1002, in development for the prevention of acute kidney injury (AKI) in

patients undergoing cardiac surgery and for delayed graft function (DGF) in kidney transplant patients. The gene target of QPI-1002, p53, is a major player in apoptotic cell death; its temporary suppression rescues cells, prevents them from dying in conditions of severe stress such as ischemia, potentially opening opportunities for Novartis to novel treatments in additional indications.”

About QPI-1002

QPI-1002 is designed to temporarily inhibit expression of the stress-response gene, p53 and is the first synthetic siRNA to be administered systemically to humans. QPI-1002 is being developed for the prevention of acute kidney injury (AKI) in patients undergoing major cardiovascular surgery, and for the prophylaxis of delayed graft function (DGF) in patients receiving deceased donor kidney transplants. QPI 1002 completed Phase I studies in these patient populations and an independent Data Safety Monitoring Board recommended continuation of QPI-1002 clinical development in both diseases. QPI-1002 was granted Orphan designation by the US Food and Drug Administration (FDA) and the European Medicines Agency (EMA) for the prophylaxis of delayed graft function in kidney transplant patients.

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About Quark Pharmaceuticals, Inc.

Quark Pharmaceuticals, Inc., a world leader in novel RNAi discovery and development, has the largest clinical-stage siRNA pipeline in the industry. The Company's fully integrated drug development platform spans therapeutic target identification to drug development. Quark's approach to delivery allows targeting of tissues and organs including the eye, kidney, ear, lung, spinal cord and brain.

In addition to QPI-1002, Quark's pipeline includes PF-655, currently in two Phase II clinical trials for the treatment of wet age-related macular degeneration (AMD) and diabetic macular edema (DME). The siRNA therapeutic candidate PF-655 is licensed to Pfizer, who is conducting both trials in collaboration with Quark. PF-655 targets Quark's proprietary gene, RTP801, discovered using its BiFAR™ target discovery platform that identifies clinically relevant critical genes and proteins that reverse the disease phenotype when inhibited. The Company owns a family of patents covering the RTP801 gene, its RNA and protein product sequences, specific antibodies, and gene inhibition across different pathologies. For the structure of these products, Quark has obtained licenses from Silence Therapeutics and from Alnylam Pharmaceuticals.

Quark is currently conducting clinical trials of QPI-1007, its proprietary synthetic siRNA drug candidate for ocular neuroprotection. QPI-1007 utilizes a proprietary structure developed in collaboration with BioSpring GmbH that provides Quark with freedom to operate in the siRNA intellectual property arena and chemical modifications that are designed to preserve RNAi activity while ameliorating potential off-target and immunostimulatory effects of siRNAs.

Quark is also committed to leveraging a broad research pipeline of siRNA drug candidates and novel siRNA structures to develop additional RNAi drug candidates.

Quark is headquartered in Fremont, California and operates research and development facilities in Boulder, Colorado and Ness-Ziona, Israel. Additional information is available at www.quarkpharma.com

[*] = Certain confidential information contained in this document, marked by brackets, has been omitted and filed separately with the Securities and Exchange Commission pursuant to Rule 406 of the Securities Act of 1933, as amended.

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EXHIBIT J

TEMPLATE FOR AKI FIRST INTERPRETABLE RESULTS

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