Current Agreements

Dealdoc

Collaboration and licensing agreement for GalXC RNAi technology platform to progress new drug targets

Eli Lilly
Dicerna Pharmaceuticals

Oct 29 2018

Collaboration and licensing agreement for GalXC RNAi technology platform to progress new drug targets

Companies:	Eli Lilly Dicerna Pharmaceuticals
Announcement date:	Oct 29 2018
Deal value, US$m:	3700 : sum of upfront, equity and milestone payments

Details

Announcement date:	Oct 29 2018
Start date:	Oct 25 2018
Industry sectors:	Bigpharma Pharmaceutical
Brand name:	GalXC
Exclusivity:	Exclusive
Asset type:	Technology
Therapy areas:	Cardiovascular Central Nervous System Central Nervous System » Pain Metabolic Psychiatry
Technology types:	Biological compounds RNA therapeutics
Deal components:	Collaborative R&D Licensing Research
Stages of development:	Discovery
Geographic focus:	Worldwide

Financials

Deal value, US$m:	3700 : sum of upfront, equity and milestone payments
Upfront, US$m:	100 : upfront payment
Milestones, US$m:	3500 : $350 million per target in development and commercialization milestones
Royalty rates, %:	n/d : tiered royalties ranging from mid-single to low-double digits on product sales
Semi-quant royalties:	Mid single digit High single digit Low teens
Equity, US$m:	100 : equity investment of $100 million at a premium

Termsheet

November 2021

Dicerna Pharmaceuticals announced that Eli Lilly has declared proof of principle for the first two targets in the companies' exclusive relationship in neurodegeneration and pain, under the companies' global research and licensing collaboration.

This milestone triggers two single-digit multimillion-dollar milestone payments to Dicerna, which the Company expects to receive in the fourth quarter of 2021.

October 2018

Eli Lilly and Dicerna Pharmaceuticals announced a global licensing and research collaboration focused on the discovery, development and commercialization of potential new medicines in the areas of cardio-metabolic disease, neurodegeneration and pain.

The companies will utilize Dicerna's proprietary GalXC RNAi technology platform to progress new drug targets toward clinical development and commercialization.

In addition, the partners will collaborate to move beyond the current technical paradigm in order to generate next-generation oligonucleotide therapeutic agents.

Dicerna will receive an upfront payment of $100 million, as well as an equity investment of $100 million at a premium.

Dicerna is also eligible to receive up to approximately $350 million per target in development and commercialization milestones, as well as tiered royalties ranging from the mid-single to low-double digits on product sales.

Dicerna will work exclusively with Lilly in the neurodegeneration and pain fields, and on select targets in cardio-metabolic diseases.

The two companies anticipate collaborating on more than ten targets.

Press Release

November 2021

Dicerna Announces Two Targets Meet Preclinical Proof of Principle Criteria in Neurodegeneration and Pain Under Global Research Collaboration and Licensing Agreement With Lilly

Nov. 12, 2021 13:10 UTC

Milestone Triggers Two Single-Digit Multimillion-Dollar Payments to Dicerna

LEXINGTON, Mass.--(BUSINESS WIRE)-- Dicerna Pharmaceuticals (Nasdaq: DRNA), a leading developer of investigational ribonucleic acid interference (RNAi) therapeutics, today announced that Eli Lilly and Company ("Lilly") has declared proof of principle for the first two targets in the companies' exclusive relationship in neurodegeneration and pain, under the companies' global research and licensing collaboration. This milestone triggers two single-digit multimillion-dollar milestone payments to Dicerna, which the Company expects to receive in the fourth quarter of 2021.

"We are very pleased to announce Lilly's selection of two extrahepatic targets for advancement to preclinical development and initiation of associated IND-enabling studies under our discovery, development and licensing agreement," said Bob D. Brown, Ph.D., Chief Scientific Officer and Executive Vice President of R&D at Dicerna. "These molecules represent the first targets under our collaboration with Lilly to address tissues outside the liver, highlighting the further expansion of our growing pipeline of RNAi therapeutics that address multiple tissues and cell types. With these nominations, we now have 18 core and collaborative pipeline programs in preclinical or clinical development, underscoring the breadth and productivity of our GalXCTM platform and discovery research capabilities."

In 2018, Dicerna and Lilly announced a global licensing and research collaboration focused on the discovery, development and commercialization of potential new therapies for cardiometabolic disease, neurodegenerative diseases and pain. Including these two targets, there are currently seven candidates in preclinical or clinical development under the agreement that are targeted to address cardiometabolic, neurodegenerative or pain indications.

"We are encouraged by this early progress in our collaborative efforts to expand RNAi beyond the liver into areas of high unmet need, such as pain and neurodegeneration," said Andrew C. Adams, Ph.D., Vice President for Novel Therapeutic Modalities at Lilly.

About RNAi

Ribonucleic acid interference, or RNAi, provides a unique advantage to other disease inhibitor technologies, like small-molecule pharmaceuticals or monoclonal antibodies. Instead of targeting proteins after they have been produced and released, RNAi silences the genes themselves via the specific destruction of the messenger RNA (mRNA) made from the gene. Rather than seeking to inhibit a protein, the RNAi approach can prevent a disease-causing protein's creation, directly impacting disease manifestation.

About Dicerna Pharmaceuticals, Inc.

Dicerna Pharmaceuticals, Inc. (Nasdaq: DRNA) is a biopharmaceutical company focused on discovering, developing and commercializing medicines that are designed to leverage ribonucleic acid interference (RNAi) to silence selectively genes that cause or contribute to disease. Using our proprietary GalXC™ and GalXC-Plus™ RNAi technologies, Dicerna is committed to developing RNAi-based therapies with the potential to treat both rare and more prevalent diseases. By silencing disease-causing genes, Dicerna's GalXC platform has the potential to address conditions that are difficult to treat with other modalities. Initially focused on disease-causing genes in the liver, Dicerna has continued to innovate and is exploring new applications of its RNAi technology with GalXC-Plus, which expands on the functionality and application of our flagship liver-targeted GalXC technology to tissues and cell types outside the liver, and has the potential to treat diseases across multiple therapeutic areas. In addition to our own pipeline of core discovery and clinical candidates, Dicerna has established collaborative relationships with some of the world's leading pharmaceutical companies, including Novo Nordisk A/S, Roche, Eli Lilly and Company, Alexion Pharmaceuticals, Inc., Boehringer Ingelheim International GmbH and Alnylam Pharmaceuticals, Inc. Between Dicerna and our collaborative partners, we currently have more than 20 active discovery, preclinical or clinical programs focused on cardiometabolic, viral, chronic liver and complement-mediated diseases, as well as neurodegenerative diseases and pain. At Dicerna, our mission is to interfere – to silence genes, to fight disease, to restore health. For more information, please visit www.dicerna.com.

October 2018

Lilly and Dicerna Announce RNAi Licensing and Research Collaboration

Companies will collaborate on RNAi research for cardio-metabolic, neurodegeneration and pain targets

Dicerna to receive an upfront payment of $100 million and an equity investment of $100 million

Dicerna eligible to receive up to approximately $350 million per target in development and commercialization milestones, plus royalties

INDIANAPOLIS and CAMBRIDGE, Mass., Oct. 29, 2018 /PRNewswire/ -- Eli Lilly and Company (NYSE: LLY) and Dicerna Pharmaceuticals (NASDAQ: DRNA) today announced a global licensing and research collaboration focused on the discovery, development and commercialization of potential new medicines in the areas of cardio-metabolic disease, neurodegeneration and pain. The companies will utilize Dicerna's proprietary GalXC™ RNAi technology platform to progress new drug targets toward clinical development and commercialization. In addition, the partners will collaborate to move beyond the current technical paradigm in order to generate next-generation oligonucleotide therapeutic agents.

RNA interference (RNAi) is an emerging new approach to drug discovery, focused on a biologic process in which certain RNA molecules inhibit the expression of disease-causing genes by destroying the messenger RNAs (mRNAs) of those genes. RNAi has the potential to treat diseases by silencing some of the most well-validated, yet previously inaccessible drug targets.

"At Lilly, we go to where breaking science meets unmet medical needs," said Daniel M. Skovronsky, M.D., Ph.D., Lilly senior vice president and chief scientific officer. "We are excited to collaborate with Dicerna and utilize their RNAi expertise to study targets that up until now have proven to be very technically challenging. RNAi has the potential to treat an array of diseases that are of strategic importance to Lilly. Together with Dicerna, we aim to employ this emerging modality for greater success in drug development."

"The collaboration with Lilly provides an exceptional opportunity to leverage our proprietary GalXC platform in order to generate new medicines for cardio-metabolic diseases, and to establish a presence in new fields including neurodegeneration and pain," said Douglas M. Fambrough, Ph.D., president and chief executive officer of Dicerna. "Lilly, with its demonstrated leadership in each of these fields, is an ideal partner for extending the range of Dicerna's proprietary GalXC technology, which is designed to silence the expression of disease-driving genes. We are eager and ready to expand and advance our pipeline of innovative GalXC-based therapies, including both proprietary and partnered programs."

Under the terms of the agreement, Dicerna will receive an upfront payment of $100 million, as well as an equity investment of $100 million at a premium. Dicerna is also eligible to receive up to approximately $350 million per target in development and commercialization milestones, as well as tiered royalties ranging from the mid-single to low-double digits on product sales. Dicerna will work exclusively with Lilly in the neurodegeneration and pain fields, and on select targets in cardio-metabolic diseases. The two companies anticipate collaborating on more than ten targets.

This transaction is subject to clearance under the Hart-Scott-Rodino Antitrust Improvements Act and other customary closing conditions. The transaction will be reflected in Lilly's reported results and financial guidance according to Generally Accepted Accounting Principles (GAAP). There will be no change to Lilly's 2018 non-GAAP earnings per share guidance as a result of this transaction.

About RNAi RNA interference (RNAi) is a biologic process in which certain double-stranded RNA molecules inhibit the expression of disease-causing genes by destroying the messenger RNAs (mRNAs) of those genes. It reflects a new approach in the development of specific and powerful therapies. Rather than targeting and binding to proteins to inhibit their activity, RNAi exerts its effects one step earlier in the gene silencing process by targeting the mRNA, the instruction set that directs the building of the protein. By attaching to this instruction set, RNAi is believed to have the ability to attack any target, including disease-causing genes that are beyond the reach of conventional antibody and small-molecule modalities. Additionally, RNAi-based therapeutic approaches hold the potential to offer more convenience for patients via

infrequent dosing and a long duration of effect.

About Dicerna's GalXC™ RNAi Technology Platform The proprietary RNAi technology platform called GalXC™, invented by Dicerna, aims to advance the development of next-generation RNAi-based therapies designed to silence disease-driving genes in the liver. GalXC-based therapies are processed by the Dicer enzyme, which is the natural initiation point for RNAi within the human cell. Using GalXC, Dicerna scientists attach N-acetylgalactosamine sugars directly to the extended region of the proprietary Dicer substrate short-interfering RNA (DsiRNA) molecules, yielding multiple conjugate delivery configurations that allow flexible and efficient conjugation to the targeting ligands while stabilizing the RNAi duplex. Dicerna believes this stabilization will enable subcutaneous delivery of RNAi therapies to hepatocytes in the liver, where they are designed to specifically bind to receptors on target cells, potentially leading to internalization and access to the RNAi machinery within the cells. By using the Dicer enzyme as the entry point into RNAi, the GalXC approach seeks to optimize the activity of the RNAi pathway so that it operates in the most specific and potent fashion. Compounds produced via GalXC are intended to be broadly applicable across multiple therapeutic areas, including rare diseases, viral infectious diseases, chronic liver diseases and cardiovascular diseases.

About Dicerna Pharmaceuticals, Inc. Dicerna Pharmaceuticals, Inc., is a biopharmaceutical company focused on the discovery and development of innovative, subcutaneously delivered RNAi-based therapeutics for the treatment of diseases involving the liver, including rare diseases, viral infectious diseases, chronic liver diseases, and cardiovascular diseases. Dicerna is leveraging its proprietary GalXC™ RNAi technology platform to build a broad pipeline in these core therapeutic areas, focusing on target genes where connections between target gene and diseases are well understood and documented. Dicerna intends to discover, develop and commercialize novel therapeutics either on its own or in collaboration with pharmaceutical partners. For more information, please visit www.dicerna.com.

About Eli Lilly and Company Lilly is a global healthcare leader that unites caring with discovery to make life better for people around the world. We were founded more than a century ago by a man committed to creating high-quality medicines that meet real needs, and today we remain true to that mission in all our work. Across the globe, Lilly employees work to discover and bring life-changing medicines to those who need them, improve the understanding and management of disease, and give back to communities through philanthropy and volunteerism. To learn more about Lilly, please visit us at www.lilly.com and http://newsroom.lilly.com/social-channels. C-LLY

Filing Data

Not available.

Contract

COLLABORATION AND LICENSE AGREEMENT

between

ELI LILLY AND COMPANY

and

DICERNA PHARMACEUTICALS INC.

together with

DICERNA CAYMAN

October 25, 2018

***Text Omitted and Filed Separately with the Securities and Exchange

Commission. Confidential Treatment Requested Under

17 C.F.R. Sections 200.80(b)(3) and 240.24b-2

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COLLABORATION AND LICENSE AGREEMENT

THIS COLLABORATION AND LICENSE AGREEMENT (the “Agreement”), effective as of October 25, 2018 (the “Effective Date”), is by and between ELI LILLY AND COMPANY, a corporation organized and existing under the laws of Indiana, with its principal business office located at Lilly Corporate Center, Indianapolis, Indiana 46285, U.S.A. (“Lilly”), on the one hand, and DICERNA PHARMACEUTICALS INC., a corporation organized and existing under the laws of Delaware, with its principal place of business at 87 Cambridgepark Drive, Cambridge, Massachusetts 02140, U.S.A. (“Dicerna US”), and DICERNA CAYMAN, an exempted company incorporated with limited liability under the laws of the Cayman Islands (“Dicerna Cayman” and, collectively with Dicerna US, “Dicerna”), on the other hand. Dicerna and Lilly are each referred to individually as a “Party” and together as the “Parties”.

BACKGROUND

A.Lilly is engaged in the research, development, manufacturing, marketing and distribution of pharmaceutical products for use in humans and animals.

B. Dicerna has developed a subcutaneous RNAi platform targeting hepatocytes in the liver using GalXC Molecules (as defined below) to silence mRNA molecules in hepatocyte targets, and using that platform has demonstrated initial knock-down in murine models. Dicerna also has available tool compounds for certain targets which are expected to have application in the treatment of cardiometabolic indications.

C. Dicerna’s platforms and know-how may also be useful in the development of other RNAi or oligonucleotide technologies with targeting mechanisms binding to or intended to bind to and induce an inhibition, disruption or modulation of mRNA in Non-Hepatocyte Targets (as defined below).

D. Lilly and Dicerna desire to enter into this Agreement to allow Lilly to access Dicerna’s GalXC Platform for certain hepatocyte targets and engage in a collaborative research program for the joint development of New Nucleic Acid Platforms to identify multiple lead candidate targets, designated by Lilly, from which a product could be selected, in each case, on terms set forth in this Agreement.

E. Lilly desires to obtain certain exclusive and nonexclusive licenses from Dicerna to support the activities conducted pursuant to the research program and to enable Lilly to commercialize certain products derived from or containing compounds developed pursuant to this Agreement, and

Dicerna is willing to grant such rights to Lilly subject to the terms and conditions as set forth below.

F. Concurrently with the entering into of this Agreement, Dicerna and Lilly are entering into that certain Share Issuance Agreement (the “Share Issuance Agreement”), pursuant to which Lilly is acquiring shares of Dicerna’s common stock on the terms and conditions set forth therein.

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NOW THEREFORE, in consideration of the mutual covenants and agreements contained herein, the sufficiency which is acknowledged by both Parties, the Parties agree as follows:

1.DEFINITIONS AND INTERPRETATIONS

Capitalized terms used in this Agreement shall have the meanings specified in this Article 1, or as defined elsewhere in this Agreement.

1.1 “Accounting Firm” has the meaning set forth in Section 9.5.1.

1.2 “Acquirer” has the meaning set forth in Section 1.20(a).

1.3 “Act” means, as applicable, the United States Federal Food, Drug and Cosmetic Act, 44 U.S.C. §§ 301 et seq., or the Public Health Service Act, 42 U.S.C. §§ 262 et seq., as such may be amended from time to time.

1.4 “Action” has the meaning set forth in Section 10.6.5.

1.5 “Affiliate” means with respect to either Party, any Person controlling, controlled by or under common control with such Party, for such time as such control exists. For purposes of this Section 1.5 only, “control” means: (a) direct or indirect ownership of fifty percent (50%) or more of the stock or shares having the right to vote for the election of directors or other governing entities of such corporate entity; or (b) the possession, directly or indirectly, of the power to direct, or cause the direction of, the management or policies of such entity, whether through the ownership of voting securities, by contract or otherwise.

1.6 “Agreement Payments” has the meaning set forth in Section 9.4.

1.7 “Alexion-Dicerna Agreement” has the meaning set forth in Section 1.15.

1.8 “Alliance Manager” has the meaning set forth in Section 6.2.

1.9 “Annual Budget Cap” has the meaning set forth in Section 4.3.1.

1.10 “Annual Net Sales” means, with respect to a particular Product and Calendar Year, all Net Sales of such Product throughout the Territory during such Calendar Year.

1.11 “Applicable Laws” means all federal, state, local, national and supra-national laws, statutes, rules and regulations, including any rules, regulations, guidelines or requirements of Regulatory Authorities, taxing authorities, national securities exchanges or securities listing organizations that may be in effect from time to time during the Term and applicable to a particular activity hereunder.

1.12 “Audited Party” has the meaning set forth in Section 9.5.1.

1.13 “Auditing Party” has the meaning set forth in Section 9.5.1.

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1.1 “BI-Dicerna Agreement” has the meaning set forth in Section 1.15.

1.2 “Blocked Target” means those Targets that [***]

1.3 “Blocked Target List” has the meaning set forth in Section 2.4.2.

1.4 “Business Day” means any day other than a Saturday, Sunday or any other day on which commercial banks in New York, New York, U.S.A. are authorized or required by Applicable Law to remain closed.

1.5 “Calendar Quarter” means any respective period of three (3) consecutive calendar months ending on March 31, June 30, September 30 and December 31 of any Calendar Year.

1.6 “Calendar Year” means each successive period of twelve (12) months commencing on January 1 and ending on December 31.

1.7 “Change of Control” means:

(a) with respect to either Party, (i) the acquisition by a Third Party, in one transaction or a series of related transactions, of direct or indirect beneficial ownership of more than fifty percent (50%) of the outstanding voting equity securities of such Party; (ii) a merger or consolidation involving such Party, as a result of which a Third Party acquires direct or indirect beneficial ownership of more than fifty percent (50%) of the voting power of the surviving entity immediately after such merger, reorganization or consolidation; or (iii) a sale of all or substantially all of the assets of such Party in one transaction or a series of related transactions to a Third Party, but in any event, excluding any consolidation or merger effected exclusively to change the domicile of a Party where the ultimate indirect share ownership of the Party as a result of such consolidation or merger does not change. The acquiring or combining Third Party in any of (i), (ii) or (iii), and any of such Third Party’s Affiliates (other than the acquired Party and its Affiliates as in existence prior to the applicable transaction) are referred to collectively herein as the “Acquirer”; or

(b) with respect to the acquisition of Dicerna by a Lilly Competitor (and Affiliates of such Lilly Competitor which are not subsidiaries of Dicerna), whether in one transaction or a series of related transactions, in addition to the items in (a) above, the acquisition of: (i) majority control of the board of directors or equivalent governing body of Dicerna; (ii) direct or indirect beneficial ownership of more than forty percent (40%) of the outstanding voting equity securities of Dicerna; or (iii) all or substantially all of the assets of Dicerna US or Dicerna Cayman related to the transactions contemplated by this Agreement; in which case such Lilly Competitor and its Affiliates (other than Dicerna and its Affiliates in existence prior to the applicable transaction) shall also be considered an Acquirer.

1.8 “Claims” has the meaning set forth in Section 17.1.

1.9 “Clinical-Phase Supply Agreement” has the meaning set forth in Section 5.3.1.

1.10 “Clinical Trial” means a Phase I Clinical Trial, Phase II Clinical Trial or Phase III Clinical Trial, or any post-approval human clinical trial, as applicable.

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1.11 “Code” has the meaning set forth in Section 15.5.

1.12 “Combination Product” has the meaning set forth in Section 1.110.

1.13 “Commercial Milestone Event” has the meaning set forth in Section 8.3.

1.14 “Commercial Milestone Payment” has the meaning set forth in Section 8.3.

1.15 “Commercialization” or “Commercialize” means any and all activities directed to the offering for sale and sale of a Compound, Product, or other compound, product or therapy including: (a) activities directed to storing, marketing, promoting, detailing, distributing, importing, exporting, selling and offering to sell that Compound, Product, or other compound, product or therapy; (b) conducting Clinical Trials after Marketing Authorization of a Compound, Product, or other compound, product or therapy with respect to such Compound, Product, or other compound, product or therapy; (c) interacting with Regulatory Authorities regarding the foregoing; and (d) seeking pricing approvals and reimbursement approvals (as applicable) for that Compound, Product, or other compound, product or therapy in the Field in the Territory. When used as a verb, “to Commercialize” and “Commercializing” means to engage in Commercialization and “Commercialized” has a corresponding meaning.

1.16 [***]

1.17 “Competing Product” has the meaning set forth in Section 8.4.4(c).

1.18 “Competing RNAi Product” has the meaning set forth in Section 10.6.1.

1.19 “Compound” means any compound, product or therapy utilizing, incorporating or based on the GalXC Platform or a New Nucleic Acid Platform, Directed To a Selected Target.

1.20 “Confidential Information” means all Know-How or other information or materials of a Party, in any form (written, oral, electronic, photographic, or otherwise) that is confidential or proprietary, including:

(a) all Know-How which is generated by or on behalf of a Party under this Agreement or which one Party or any of its Affiliates or representatives has provided or otherwise made available to the other Party, whether made available orally, in writing, or in electronic form, including such Know-How comprising or relating to concepts, discoveries, Inventions, data, designs or formulae arising from this Agreement;

(b) all such information or materials regarding or concerning any Selected Target, Compound, Product, or any other technical or business information;

(c) all communications between the Parties or information of whatever kind whether recorded or not and, if recorded, in whatever medium, relating to or arising out of this Agreement, whether disclosed prior to or after entering into this Agreement;

(d) any information that the Party indicates in writing is information of a confidential nature or which is marked “confidential”; and

(e) all copies and excerpts of the communications, information, notes, reports and documents in whatever form referred to in subclauses (a) through (d) of this definition.

For purposes of the confidentiality obligations set forth herein and subject to Section 7.6: (i) Lilly Know-How shall be deemed Confidential Information of Lilly; (ii) Know-How owned or Controlled by Dicerna US or Dicerna Cayman shall be deemed Confidential Information of Dicerna US or Dicerna Cayman, as applicable; (iii) the terms and conditions of this Agreement shall be deemed Confidential Information of both Parties; and (iv) for purposes of the restriction on disclosure, Joint Know-How shall be deemed Confidential Information of both Parties and kept confidential per the terms of Article 11 by each of the Parties, unless subsequently assigned to the other Party as set forth in Article 10, in which case, such Know-How shall become the Confidential Information of the assignee. For clarity, nothing in the foregoing or in Article 11 shall restrict either Party from using Joint Know How (it being understood that this shall not limit Sections 3.1 through 3.6 and the exclusive licenses granted to Lilly pursuant to Section 7.1).

1.21 “Confidentiality Agreement” has the meaning set forth in Section 19.14.

1.22 “Confirmed Blocked Target” has the meaning set forth in Section 3.3.

1.23 “Control” or “Controlled” means, with respect to any Know-How, or intellectual property right (including any Patent Right), that a Party owns or purports to own, or has a license to, such Know-How or intellectual property right, in each case with the power to grant to the other Party access, a license, or a sublicense (as applicable) to the same on the terms and conditions set forth in this Agreement without violating any obligations of the granting Party owed to a Third Party or subjecting the granting Party to any additional fee or charge; provided that the Know-How or intellectual property right will be excluded from being considered “Controlled” by virtue of any such fee or charge only if the first Party notifies the other Party of the fee or charge and the other Party does not agree to reimburse the first Party for or otherwise bear the fee or charge. Notwithstanding anything in this Agreement to the contrary, in the event of a Change of Control of a Party, the Party shall be deemed to not Control any intellectual property right that is owned or controlled by the Acquirer except as expressly set forth in Section 19.2.3 and 19.2.4.

1.24 “Covered” or “Cover” means, with respect to a Product in a particular country and a particular Patent Right, that the manufacture, use, sale or importation of such Product in such country would, but for the licenses granted herein, infringe an Effective Patent Claim in such Patent Right.

1.25 “CRO” has the meaning set forth in Section 4.5.2.

1.26 “Development” or “Develop” means, with respect to a Compound, Product, or other compound, product or therapy, any non-clinical and clinical drug development activities that are necessary for or used to obtain Marketing Authorization for such Compound, Product, or other compound, product or therapy, including completions of Clinical Trials and the preparation and

filing of regulatory filings and all regulatory affairs related to the foregoing. When used as a verb, “Developing” means to engage in Development and “Developed” has a corresponding meaning. For clarity, “Development” shall not include any Commercialization activities.

1.27 “Development Milestone Event” has the meaning set forth in Section 8.2.2.

1.28 “Development Milestone Payment” has the meaning set forth in Section 8.2.2.

1.29 “Dicerna Background IP” has the meaning set forth in Section 10.3.

1.30 “Dicerna Indemnified Party” has the meaning set forth in Section 17.2.

1.31 “Dicerna Reserved Orphan Neurodegeneration or Pain Target” has the meaning set forth in Section 3.4.

1.32 “Diligence Period” has the meaning set forth in Section 4.4.

1.33 “Directed To” means, with regard to an RNAi or oligonucleotide product and Target, [***] For clarity, if the defined term “Directed To” is separated, such as when required grammatically (e.g., when discussing Targets “To which a product is Directed”), such separated term shall maintain the same meaning set forth in the previous sentence.

1.34 “Discontinuation Election” has the meaning set forth in Section 19.2.2(a).

1.35 “Discontinued Target” means a Target with [***] pursuant to Sections 2.2.3, 2.3.3, 4.4, 5.4 or 15.2.1, or as to which Lilly has exercised a right of termination under Section 14.2. In case of termination of this Agreement in its entirety by Lilly under Section 14.2 or by Dicerna for cause under Section 14.3 then all Selected Targets shall be considered Discontinued Targets.

1.36 “Dispute” has the meaning set forth in Section 19.6.1.

1.37 “DOJ” has the meaning set forth in Section 13.1.

1.38 “Dollar” means the US dollar, and “$” and “USD” will be interpreted accordingly.

1.39 “Effective Patent Claim” means any claim of: (a) an issued and unexpired patent; or (b) a pending patent application; in each case claiming the method of use of a Compound or Product for an approved use of such Product or the composition of matter of a Compound or Product and included within the Licensed Patent Rights (including Product-Specific Patents); in each case which has not been held to be invalid by a Governmental Authority of competent jurisdiction from which no further appeal can be taken.

1.40 “Eli Lilly and Company Animal Care and Use Requirement for Animal Researchers and Suppliers” has the meaning set forth in Section 4.8.

1.41 “Eli Lilly and Company Good Research Practices” has the meaning set forth in Section 4.8.

1.42 “Excluded Claim” has the meaning set forth in Section 19.6.5.

1.43 “Existing Patents” has the meaning set forth in Section 16.2.3(a).

1.44 “Expenses and Payments” has the meaning set forth in Section 9.5.1.

1.45 “FDA” means the United States Food and Drug Administration and any successor thereto.

1.46 “FFDCA” has the meaning set forth in Section 16.1.5.

1.47 “Field” means any and all uses and purposes, including diagnostic, therapeutic or prophylactic uses in humans or animals for any use, including any use for cardiometabolic indications, Neurodegeneration or Pain Indications, and those indications arising out of the Research Program.

1.48 “First Commercial Sale” means the first sale of a Product by Lilly, or one of its Affiliates or their sublicensees, to an unaffiliated third party after receipt of all Marketing Authorizations required to market and sell the Product have been obtained in the country in which such Product is sold. Sales for purposes of testing the Product and sample purposes shall not be deemed a First Commercial Sale. Furthermore, for purposes of clarity, the term “First Commercial Sale” as used in this Agreement shall not include: (i) any distribution or other sale solely for so-called treatment investigational new drug sales, named patient sales, compassionate or emergency use sales or pre-license sales, in each case

provided that such Product is distributed without charge or sold at or below cost; (ii) intercompany transfers to Affiliates of Lilly or between such entities and a sublicensee of Lilly or an Affiliate, provided a subsequent sale to an unaffiliated Third Party by such Affiliate of Lilly or sublicensee is not considered an intercompany transfer; nor (iii) other similar non-commercial sales.

1.49 “FTC” has the meaning set forth in Section 13.1.

1.50 “FTE” means, with respect to a person, the equivalent of the work of one (1) employee full time for one (1) year (consisting of at least [***] per year (with no further reductions for vacations and holidays)). Overtime, and work on weekends, holidays and the like will not be counted with any multiplier (e.g., time-and-a-half or double time) toward the number of hours that are used to calculate the FTE contribution. The portion or multiple of an FTE billable by Dicerna for one (1) individual during a given accounting period shall be determined by dividing the number of hours worked by said individual on the work to be conducted under the Agreement during such accounting period and the number of FTE hours applicable for such accounting period based on [***] per calendar year, applied consistently throughout the calendar year. For clarity, no individual person can ever constitute more than a single FTE.

1.51 “FTE Rate” means, for the period commencing on the Effective Date until such time as the Parties agree otherwise, [***] per year, subject to annual increases beginning on January 1, 2020 to reflect percentage increase in the Consumer Price Index for the US City Average (all times) for 2019 and similarly calculated year to year increases each subsequent Calendar Year. The

FTE Rate shall include costs of salaries, benefits, supplies, other employee costs, and supporting overhead and general and administration allocations.

1.52 “GalXC Molecule” means an extended RNAi molecule conjugated to one or more GalNAc ligands.

1.53 “GalXC Patents” has the meaning set forth in Section 10.6.1.

1.54 “GalXC Platform” means the RNAi technology platform, Controlled by Dicerna, which targets hepatocytes in the liver using GalXC Molecules to silence mRNA molecules in hepatocyte targets.

1.55 “Gatekeeper” has the meaning set forth in Section 2.4.1.

1.56 “Good Clinical Practices” or “GCP” means all applicable current Good Clinical Practice standards for the design, conduct, performance, monitoring, auditing, recording, analyses and reporting of Clinical Trials, including, as applicable, (a) as set forth in the International Conference on Harmonization of Technical Requirements for Registration of Pharmaceuticals for Human Use (“ICH”) Harmonized Tripartite Guideline for Good Clinical Practice (CPMP/ICH/135/95) and any other guidelines for good clinical practice for trials on medicinal products in the Territory, (b) the Declaration of Helsinki (2004) as last amended at the 52nd World Medical Association in October 2000 and any further amendments or clarifications thereto, (c) US Code of Federal Regulations Title 21, Parts 50 (Protection of Human Subjects), 56 (Institutional Review Boards) and 312 (Investigational New Drug Application), as may be amended from time to time, and (d) the equivalent Applicable Laws in any relevant country, each as may be amended and applicable from time to time.

1.57 “Good Laboratory Practices” or “GLPs” means all applicable Good Laboratory Practice standards, including, as applicable: (a) as set forth in the then-current good laboratory practice standards promulgated or endorsed by the FDA as defined in 44 C.F.R. Part 58; and (b) the equivalent Applicable Laws in any relevant country, each as may be amended and applicable from time to time.

1.58 “Good Manufacturing Practices” or “GMPs” means all applicable Good Manufacturing Practices including, as applicable: (a) the principles detailed in the US Current Good Manufacturing Practices, 21 C.F.R. Parts 4, 210, 211, 601, 610 and 820; (b) European Directive 2003/94/EC and Eudralex 4; (c) the principles detailed in the WHO TRS 986 Annex 2, TRS 961 Annex 6 and TRS 957 Annex 2; (d) ICH Q7 guidelines and (e) the equivalent Applicable Laws in any relevant country, each as may be amended and applicable from time to time.

1.59 “Good Research Practices” or “GRP” means research practices consistent with (a) the research quality standards defining how Lilly’s research laboratories conduct good science for non-regulated work as set forth in Exhibit A of this Agreement; and (b) the Research Quality Association (RQA), 2014 Quality in Research Guidelines for Working in Non-Regulated Research.

17 C.F.R. Sections 200.80(b)(3) and 240.24b-2

1.60 “Governmental Authority” means any court, commission, authority, department, ministry, official or other instrumentality of, or being vested with public authority under any law of, any country, state or local authority or any political subdivision thereof, or any association of countries.

1.61 “Government Official” has the meaning set forth in Section 18.5.

1.62 “Hepatocyte Cardiometabolic Targets” means, individually or collectively, the Initially Named Targets and the Other Hepatocyte Cardiometabolic Targets.

1.63 “Hepatocyte Royalty” has the meaning set forth in Section 8.4.1.

1.64 “HSR Act” has the meaning set forth in Section 13.1.

1.65 “HSR Clearance Date” has the meaning set forth in Section 13.1.

1.66 “ICC” has the meaning set forth in Section 19.6.1.

1.67 “Improvement” means any (a) modification, enhancement or change to the Patent Rights or Know-How Controlled by a Party and existing as of or before the Effective Date, (b) Patent Rights claiming the Know-How described in subclause (a), or (c) Patent Rights claiming priority to the Patent Rights included in the Dicerna Background IP, with respect to Dicerna, or the Lilly Background IP, with respect to Lilly.

1.68 “Initial Blocked Targets” has the meaning set forth in Section 1.15.

1.69 “Initial Party” has the meaning set forth in Section 10.6.6.

1.70 “Initial Research Collaboration Term” has the meaning set forth in Section 4.1.2.

1.71 “IND” means an investigational new drug application filed with the FDA with respect to a Compound, Product or other compound, product or therapy, or an equivalent application filed with a Regulatory Authority in a country other than the United States required to commence clinical trials of a pharmaceutical product.

1.72 “IND Approval” of a Product means that an IND for such Product has been submitted to the FDA or equivalent Regulatory Authority and not rejected (including placed on clinical hold) by the FDA or equivalent Regulatory Authority within [***] days after such submission.

1.73 “Indemnified Party” has the meaning set forth in Section 17.3.1.

1.74 “Indemnifying Party” has the meaning set forth in Section 17.3.1.

1.75 “Initially Named Targets” means the targets [***]

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1.76 “Invention” means any invention and/or any Know-How, composition of matter, article of manufacture, method of manufacture, method of use or other subject matter, whether patentable or not.

1.77 “Internal Compliance Codes” means a Party’s internal policies and procedures intended to ensure that a Party complies with Applicable Laws, Party Specific Regulations, and such Party’s internal ethical, medical and similar standards.

1.78 “Joint Inventions” has the meaning set forth in Section 10.4.1.

1.79 “Joint Know-How” has the meaning set forth in Section 10.4.1.

1.80 “Joint Patent Rights” has the meaning set forth in Section 10.4.1.

1.81 “JSC” has the meaning set forth in Section 6.4.1.

1.82 “JSC Chair” has the meaning set forth in Section 6.4.1.

1.83 “Know-How” means all technical, scientific, and other information, know-how, data, inventions, discoveries, trade secrets, specifications, instructions, techniques, processes, designs, drawings, formulae, methods, practices, protocols, expertise and other information and technology

applicable to formulations, compositions or products or to their manufacture, development, registration, use, marketing or sale or to methods of assaying or testing them, and all biological, chemical, pharmacological, biochemical, toxicological, pharmaceutical, physical and analytical, safety, quality control, manufacturing, preclinical and clinical data relevant to any of the foregoing. For clarity, Know-How includes any such information comprised or embodied in any applicable physical materials, and excludes Patent Rights.

1.84 “Lead Product” has the meaning Set forth in Section 4.2.2.

1.85 “Lead Product Non-Clinical and Manufacturing Activities” has the meaning set forth in Section 4.2.3.

1.86 “Licensed Know-How” means all Know-How that is Controlled by Dicerna (or one of its Affiliates) and that is: (a) existing as of the Effective Date, and Improvements thereto, that are necessary or reasonably useful for the Research, Development, registration, manufacture (including formulation), use or Commercialization of a Product in the Field (which would include all Know-How relating to the GalXC Platform); or (b) conceived, developed, created, made or reduced to practice in the course of performing the Research Program during the Term, including Dicerna’s rights in any Joint Know-How and any Improvements to the foregoing Know-How described in subclause (b).

1.87 “Licensed Patent Rights” means any and all Patent Rights that are Controlled by Dicerna (or one of its Affiliates) and that are: (a) listed in Exhibit E, (b) existing as of the Effective Date, and Improvements thereto, that are necessary or reasonably useful for the Research, Development, registration, manufacture (including formulation), use or Commercialization of a Product in the Field (which would include all Patents directed to the GalXC Platform), or (c) directed

to Know-How described in subclause (b) of the definition of “Licensed Know-How,” including Dicerna’s rights in any Joint Patent Rights and New Platform Patents.

1.88 “Licensed Technology” means, individually or collectively, the Licensed Patent Rights and the Licensed Know-How.

1.89 “Lilly Background IP” has the meaning set forth in Section 10.2.

1.90 “Lilly Competitor” means a [***]

1.91 “Lilly Indemnified Party” has the meaning set forth in Section 17.1.

1.92 “Lilly Intellectual Property” means, individually or collectively, Lilly Background IP, Lilly Patents and Lilly Know-How.

1.93 “Lilly Know-How” means any and all Know-How Controlled by Lilly (or one of its Affiliates) that is: (a) existing as of the Effective Date or generated or acquired outside the scope of the Research Program and this Agreement, including any Improvements to any of the foregoing that is necessary or reasonably useful for the Research, Development, registration, manufacture (including formulation), use or Commercialization of a Product in the Field; or (b) conceived, developed, created, made or reduced to practice in the course of performing the Research Program during the Term, including Lilly’s rights in any Joint Know-How.

1.94 “Lilly Patents” means any and all Patents Controlled by Lilly (or one of its Affiliates) that is: (a) existing as of the Effective Date or generated or acquired outside the scope of the Research Program and this Agreement, including any improvements to any of the foregoing that is necessary or reasonably useful for the Research, Development, registration, manufacture (including formulation), use or Commercialization of a Product in the Field; or (b) directed to Know-How described in subclause (b) of the definition of “Lilly Know-How,” including Lilly’s rights in any Joint Patent Rights.

1.95 “Losses” has the meaning set forth in Section 17.1.

1.96 “Marketing Authorization” means, collectively, all Regulatory Approvals (including any pricing, reimbursement or access approvals) from the relevant Regulatory Authority necessary to initiate marketing and selling a Product in any country or jurisdiction.

1.97 “Net Sales” [***]

(a) [***]

(b) [***]

(c) [***]

(d) [***]

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(e) [***]

(f) [***]

(g) [***]

(h) [***]

[***]

[***]

[***]

[***]

[***]

[***]

[***]

[***]

1.98 “Neurodegeneration or Pain Indication” means an indication for which the Compound is designed to [***].

1.99 “Neurodegeneration or Pain Response Notice” has the meaning set forth in Section 3.3.

1.100 “New Nucleic Acid Platform” means any new RNAi or oligonucleotide technology platform, [***]. As used in this Agreement, “New Nucleic Acid Platform” includes and may individually or collectively refer to a “New Platform for Non-Hepatocyte Cardiometabolic Targets” or a “New Platform for Non-Hepatocyte Neurodegeneration/Pain Targets,” as applicable.

1.101 “New Platform for Non-Hepatocyte Cardiometabolic Targets” means an RNAi or oligonucleotide technology platform developed by either Lilly or Dicerna (or both) pursuant to this Agreement and the Research Plan, intended to be used in the Development of Compounds Directed To Non-Hepatocyte Cardiometabolic Targets.

1.102 “New Platform for Non-Hepatocyte Neurodegeneration/Pain Targets” means an RNAi or oligonucleotide technology platform developed by Lilly or Dicerna (or both) pursuant to this Agreement and the Research Plan, intended to be used in the Development of Compounds Directed To Non-Hepatocyte Neurodegeneration/Pain Targets.

1.103 “New Platform Negotiation Expiration Date” has the meaning set forth in Section 3.6.1(a).

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1.104 “New Platform Patents” has the meaning set forth in Section 10.6.2.

1.105 “Non-Hepatocyte Cardiometabolic Targets” has the meaning set forth in Section 2.1.1(b).

1.106 “Non-Hepatocyte Neurodegeneration/Pain Targets” has the meaning set forth in Section 2.1.1(c).

1.107 “Non-Hepatocyte Royalty” has the meaning set forth in Section 8.4.2.

1.108 “Non-Hepatocyte Targets” has the meaning set forth in Section 2.1.1(c).

1.109 “Notice of Dispute” has the meaning set forth in Section 19.6.1.

1.110 “Orphan Indication” means an indication for use of a drug to treat a rare disease or condition where the number of people affected by the disease or condition is less than 200,000 persons or where the indication for use otherwise meets the criteria for orphan drug designation under section 526(a) of the Federal Food, Drug, and Cosmetic Act and 21 C.F.R. 316.21.

1.111 “Other Hepatocyte Cardiometabolic Targets” has the meaning set forth in Section 2.1.1(a).

1.112 “Party Specific Regulations” means all judgments, decrees, orders or similar decisions issued by any Governmental Authority specific to a Party, and all consent decrees, corporate integrity agreements, or other agreements or undertakings of any kind by a Party with any Governmental Authority, in each case as the same may be in effect from time to time and applicable to a Party’s activities contemplated by this Agreement.

1.113 “Patent Rights” means the rights and interests in and to issued patents and pending patent applications (which, for purposes of this Agreement, include certificates of invention, applications for certificates of invention and priority rights) in any country or region, including all provisional applications, substitutions, continuations, continuations-in-part, continued prosecution applications including requests for continued examination, divisional applications and renewals, and all letters patent or certificates of invention granted thereon, and all reissues, reexaminations, extensions (including pediatric exclusivity patent extensions), term restorations, renewals, substitutions, confirmations, registrations, revalidations, revisions and additions of or to any of the foregoing, and all foreign counterparts of any of the foregoing.

1.114 “Payee” has the meaning set forth in Section 9.4.

1.115 “Payor” has the meaning set forth in Section 9.4.

1.116 “Permitted Subcontractors” has the meaning set forth in Section 4.9.

1.117 “Person” means any individual, corporation, partnership, association, joint-stock company, trust, unincorporated organization or government or political subdivision thereof.

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1.118 “Phase I Clinical Trial” means a clinical trial of a Product generally consistent with 21 C.F.R. §312.21(a) or equivalent trial outside of the United States.

1.119 “Phase II Clinical Trial” means a clinical trial of a Product generally consistent with 21 C.F.R. §312.21(b) or equivalent trial outside of the United States.

1.120 “Phase III Clinical Trial” means a clinical trial of a Product generally consistent with 21 C.F.R. §312.21(c) or equivalent trial outside of the United States.

1.121 “POP Data Package” has the meaning set forth in Section 2.3.4.

1.122 “Product” means any Compound selected by Lilly pursuant to Section 4.2.2 or Section 4.3.3 for subsequent Development after Proof of Principle.

1.123 “Product Payment Amounts” has the meaning set forth in Section 3.6.1(a).

1.124 “Product-Specific Patents” has the meaning set forth in Section 10.6.3.

1.125 “Program Inventions” has the meaning set forth in Section 10.1.

1.126 “Project Leader” has the meaning set forth in Section 6.1.

1.127 “Proof of Principle” means: [***]

1.128 “Records” has the meaning set forth in Section 4.7.1.

1.129 “Regulatory Approval” means, collectively, any and all approvals (including supplements, amendments, pre- and post-approvals, pricing and reimbursement approvals), licenses, registrations or authorizations (including marketing and labeling authorizations) of any Regulatory

Authority that are necessary for the Research, Development, registration, manufacture (including formulation), distribution, importation, exportation, use, and Commercialization of a pharmaceutical product (including a Compound or Product) in a given jurisdiction.

1.130 “Regulatory Authority” means the FDA or any counterpart of the FDA outside the United States, or other Governmental Authority with authority over the Research, Development, registration, manufacture (including formulation), and Commercialization of a pharmaceutical product (including a Compound or Product), which may include the authority to grant the required reimbursement and pricing approvals for such sale.

1.131 “Regulatory Documentation” has the meaning set forth in Section 16.2.7.

1.132 “Research” means all activities related to the research, identification, generation, formatting, screening, testing (including in vitro and animal models, but not in human subjects), stability testing, toxicology and formulation of compounds, products or therapies.

1.133 “Research Collaboration Term” has the meaning set forth in Section 4.1.2.

1.134 “Research Plan” has the meaning set forth in Section 4.1.3.

1.135 “Research Program” has the meaning set forth in Section 4.1.1.

1.136 “Reserved Targets” has the meaning set forth in Section 2.1.1.

1.137 “Returned Compounds and Products” has the meaning set forth in Section 15.2.1.

1.138 “Royalty” has the meaning set forth in Section 8.4.2.

1.139 “Royalty Term” has the meaning set forth in Section 8.4.3.

1.140 “Selected Target(s)” means Targets selected by Lilly for inclusion in the Research Program pursuant to Section 2.2, including both Initially Named Targets and Substitute Targets, but specifically excluding Discontinued Targets.

1.141 The “Selection Period” during which Lilly may select Selected Targets means: [***]

1.142 “Shared Development Milestone Event” has the meaning set forth in Section 8.2.2.

1.143 “Substitute Target(s)” has the meaning set forth in Section 2.3.3.

1.144 “Target” means: [***]

1.145 “Taxes” has the meaning set forth in Section 9.4.

1.146 “Term” has the meaning set forth in Section 14.1.

1.147 “Territory” means all of the countries and territories in the world.

1.148 “Third Party” means any Person other than Lilly or Dicerna or an Affiliate of Lilly or Dicerna.

1.149 “United States” or “US” means the United States of America and its territories and possessions.

1.150 “Upfront Cash Payment” has the meaning set forth in Section 8.1.1.

1.151 “US GAAP” has the meaning set forth in Section 1.110(h).

1.152 “Working Group” has the meaning set forth in Section 6.3.

2. TARGET RESERVATION AND SELECTION

2.1 Target Reservation.

2.1.1 Reserved Targets. Promptly after the Effective Date, but in no event later than [***] after the Effective Date, the Parties shall enter into an agreement with the initial Gatekeeper that meets the criteria under Section 2.4.1. Dicerna shall promptly thereafter provide such Gatekeeper a list of all of its Blocked Targets, which may be modified from time to time pursuant to Section 2.4.2. During the Research and Collaboration Term, Lilly may identify to the Gatekeeper up to the following number of Targets that Lilly wishes to reserve for potential selection for further Development pursuant to the Research Program (such Targets individually and collectively referred to as "Reserved Targets"), subject to Section 2.1.3:

(a) up to [***] potential hepatocyte Targets, other than the Initially Named Targets, expected to have applications in the treatment of cardiometabolic indications ("Other Hepatocyte Cardiometabolic Targets");

(b) up to [***] non-hepatocyte Targets expected to have applications in the treatment of cardiometabolic indications ("Non-Hepatocyte Cardiometabolic Targets"); and

(c) such other non-hepatocyte targets [***] selected by Lilly expected to have applications in the treatment of Neurodegeneration or Pain Indications ("Non-Hepatocyte Neurodegeneration/Pain Targets" and, together with the Non-Hepatocyte Cardiometabolic Targets, the "Non-Hepatocyte Targets").

Lilly shall submit its initial list of Reserved Targets within [***] after the Effective Date, and thereafter may, in its discretion, substitute another Target for any Reserved Target provided that at the time of such substitution such substituted Target is not a Blocked Target.

2.1.2 Increases to Non-Hepatocyte Cardiometabolic Reserved Targets. Notwithstanding the numbers of Reserved Targets set forth in Section 2.1.1, Lilly shall also have the right, in its sole discretion and by written notice to Dicerna, at any time during the applicable Selection Period, to increase the number of Non-Hepatocyte Cardiometabolic Targets it reserves as Reserved Targets, up to a maximum of [***] Non-Hepatocyte Cardiometabolic Targets, provided that: (a) any increase to the number of Non-Hepatocyte Cardiometabolic Targets that Lilly may reserve as a Reserved Target shall simultaneously decrease the number of Other Hepatocyte Cardiometabolic Targets that Lilly may reserve as a Reserved Target by an equal number (for example, an increase in Non-Hepatocyte Cardiometabolic Targets by [***], would result in a decrease in the number of Other Hepatocyte Cardiometabolic Targets by [***]) and (b) selection of any Target would be subject to Section 2.1.3 and the Gatekeeper process described in Section 2.4.

2.1.3 Any Targets submitted by Lilly after the Effective Date to be included as a Reserved Target will be subject to confirmation of their availability by Dicerna through the Gatekeeper process described in Section 2.4.

2.2 Target Selection.

2.2.1 Selected Targets. During the applicable Selection Period, Lilly shall have the right to select from the Reserved Targets:

(a) up to [***] Other Hepatocyte Cardiometabolic Targets;

(b) up to [***] Non-Hepatocyte Cardiometabolic Targets; and

(c) such initial Non-Hepatocyte Neurodegeneration/Pain Targets as may be selected by Lilly, plus such additional Targets as may be recommended by Lilly and accepted by the JSC.

2.2.2 Increases to Non-Hepatocyte Cardiometabolic Selected Targets. Notwithstanding the numbers of Selected Targets set forth in Section 2.2.1, during the applicable Selection Period, Lilly shall also have the right, in its sole discretion and by written notice to Dicerna, to increase the number of Non-Hepatocyte Cardiometabolic Targets it may select from the Reserved Targets, up to a maximum of [***] Non-Hepatocyte Cardiometabolic Targets; provided that: (a) any increase to the number of Non-Hepatocyte Cardiometabolic Targets that Lilly may select from the Reserved Targets shall simultaneously decrease the number of Other Hepatocyte Cardiometabolic Targets it may select by an equal number (for example, an increase in Non-Hepatocyte Cardiometabolic Targets by [***] would result in a decrease in the number of Other Hepatocyte Cardiometabolic Targets by [***]) and (b) selection of any Target that is not on the Reserved Target list at the time of such requested increase would be subject to the Gatekeeper process described in Section 2.4.

2.2.3 Non-Selected Targets. Upon the expiration of the Selection Period with respect to a particular category of Target (i.e., Other Hepatocyte Cardiometabolic Target, Non-Hepatocyte Cardiometabolic Target or Non-Hepatocyte Neurodegeneration/Pain Target), the remaining Targets in

that category that are not Selected Targets shall become Discontinued Targets, subject to Section 15.2, but remaining subject to Section 3.3.

2.3 Target Substitution.

2.3.1 Substitute Targets. If, at any point during the applicable Research Collaboration Term, Lilly determines, after consultation with the JSC, that it wishes to substitute a Target, whether from the Reserved Target list or otherwise, for a Selected Target, Lilly shall have the right to make such Target substitution within [***] following such determination by providing written notice to Dicerna of such substitution; provided that Lilly's foregoing right to substitute a Target for a Selected Target shall not exceed [***] substitutions in total for cardiometabolic Selected Targets (i.e., that are Initially Named

Targets, Hepatocyte Cardiometabolic Targets or Non-Hepatocyte Cardiometabolic Targets), and up to [***] substitutions in total for Non-Hepatocyte Neurodegeneration/Pain Targets.

2.3.2 Confirmation of Availability of Substitute Target. Any Target which Lilly would like to substitute for existing Targets as described in this Section 2.3 will be subject to confirmation of their availability by Dicerna through the Gatekeeper process described in Section 2.4. For avoidance of doubt, if a Target that Lilly seeks to reserve is a Blocked Target at the time Lilly seeks reservation, Lilly may designate a different Target in its place and such designation shall not be considered a substitution subject to this Section 2.3.

2.3.3 Effects of Target Substitution. If any Targets are substituted for a Selected Target in accordance with the foregoing (each, a "Substitute Target") such Substitute Target shall be automatically deemed a Selected Target under this Agreement, and the Selected Target that such Target substituted shall be deemed a Discontinued Target and subject to the provisions of Section 15.2. In addition, the Parties shall update the Research Plan as necessary to reflect such substitution of the Substitute Target for the Discontinued Target.

2.3.4 Costs Relating to Target Substitutions. [***]

2.4 Gatekeeper Process.

2.4.1 Gatekeeper. The Parties will agree on an independent attorney nominated by Lilly and reasonably acceptable to Dicerna to act as an information gatekeeper (the "Gatekeeper") through which Lilly may inquire as to whether any Target that Lilly intends to designate as a Selected Target (whether pursuant to Section 2.2.1 or Section 2.3.1) is a Blocked Target at that time; and through which Dicerna may inquire as to whether any Target with respect to which Dicerna intends to engage in activities that may be restricted under Section 3.1 is a Reserved Target at that time. Dicerna and Lilly will cause the Gatekeeper to enter into a customary confidentiality agreement that includes confidentiality obligations at least as stringent as the provisions set forth in Article 11 and prohibits the Gatekeeper from disclosing to Dicerna the identity of a Target that was the subject of any inquiry and the list of Reserved Targets. Nothing in this Section 2.4.1 will preclude Lilly from contacting Dicerna directly regarding the availability of Targets or otherwise, to which Dicerna will respond in its discretion or Dicerna from contacting Lilly directly regarding whether a particular Target is a Reserved Target. The initial Gatekeeper will be [***]., whom the Parties have acknowledged and agreed is independent and which law firm shall enter into an agreement regarding the continued independence of such Gatekeeper.

2.4.2 Gatekeeper Procedures. At the Effective Date Dicerna shall provide to the Gatekeeper the list of Initial Blocked Targets and from time to time thereafter (including at least once per Calendar Quarter, including in response to inquiries hereunder), (a) Dicerna will provide the Gatekeeper with a current list of all Blocked Targets, together with any applicable rights Dicerna can still grant hereunder with respect to such Blocked Targets, and any associated restrictions (such list of Blocked Targets, together with the Initial Blocked

Targets, the "Blocked Target List"), and (b) Lilly will be entitled to, at its discretion submit inquiries to the Gatekeeper. Upon receipt of an inquiry, the Gatekeeper will notify Dicerna of such inquiry by Lilly without disclosing the subject Target, after which Dicerna will have [***] to provide the Gatekeeper with any updates to the Blocked Target List. The Gatekeeper will inform Lilly in writing whether the subject Target is a Blocked Target within [***] of receipt of the associated inquiry and, if the Target is a Target as to which Dicerna can still grant rights to Lilly, the Gatekeeper will inform Lilly of the availability of such Target and what rights Dicerna can grant and any associated restrictions. If the Gatekeeper notifies Lilly in response to an inquiry (or Dicerna notifies Lilly, in the case of direct contact between the Parties) that a Target is a Blocked Target, Lilly will not have exhausted any of its rights to reserve or select Targets as a result of the inquiry, and if the status of any Blocked Target

changes and it is no longer a Blocked Target, Dicerna shall promptly notify the Gatekeeper; and if such a change relates to a Target which was previously submitted by Lilly and rejected by the Gatekeeper, the Gatekeeper shall be under an obligation to notify Lilly of such change as soon as practicable. Dicerna may from time to time inquire as to whether any Target with respect to which Dicerna intends to engage in activities that may be restricted under Section 3.1 is a Reserved Target. Upon receipt of such an inquiry from Dicerna, the Gatekeeper will inform Dicerna in writing whether the subject Target is a Reserved Target within [***] of receipt of the associated inquiry.

3. EXCLUSIVITY

3.1 Reserved Target Exclusivity – [***], with respect to each Reserved Target, Dicerna and its Affiliates shall be exclusive to and work exclusively with Lilly on each such Reserved Target. In connection with the foregoing, other than as may be incidental to research activities for Targets other than Reserved Targets, and except as may be permitted under Section 19.1 or as Dicerna may be permitted to delegate its obligations to a Third Party subcontractor pursuant to Section 4.9, Dicerna shall not (by itself nor with any Third Party) and shall cause its Affiliates not to (by themselves nor with any Third Party):

(a) carry out Research, Development or Commercialization with respect to such Reserved Targets (or compounds, products or therapies that are Directed To such Reserved Target); or

(b) sell, assign, transfer, convey, license, sublicense, covenant not to assert or otherwise grant or transfer, to any Third Party, any rights or immunities to or under any Licensed Technology to carry out such Research, Development or Commercialization (described in (a) above) on any Reserved Target;

in each case, until such time, if any, that the Reserved Target becomes a Discontinued Target.

In addition, during the Selection Period, with respect to each Reserved Target, Dicerna shall not enter into any agreement or take any action that would preclude its ability to extend Lilly the rights granted hereunder and otherwise perform should Lilly select such Reserved Target (which has not become a Discontinued Target) as a Selected Target.

3.2 Selected Target Exclusivity – Term of Agreement. During the Term of this Agreement, with respect to each Selected Target, Dicerna shall be exclusive to and work exclusively with Lilly on each such Selected Target. In connection with the foregoing, other than as may be incidental to research activities for Targets other than Reserved Targets, and except as may be permitted under Section 19.1 or as Dicerna may be permitted to delegate its obligations to a Third Party subcontractor pursuant to Section 4.9, Dicerna shall not (by itself nor with any Third Party) and shall cause its Affiliates not to (by themselves nor with any Third Party):

(a) carry out Research, Development or Commercialization with respect to the Selected Targets (or compounds, products or therapies that are Directed To such Selected Targets); or

(b) sell, assign, transfer, convey, license, sublicense, covenant not to assert or otherwise grant or transfer, to any Third Party, any rights or immunities to or under any Licensed Technology to carry out such Research, Development or Commercialization (described in (a) above) on any Selected Target;

in each case, until, with respect to a particular Selected Target, such time, if any, that the Selected Target becomes a Discontinued Target.

3.3 Exclusivity for Compounds, Products or Therapies in Neurodegeneration or Pain Indications. [***]

3.4 [***]

3.5 No Exclusivity to Lilly. For avoidance of doubt, nothing in this Agreement shall restrict the ability of Lilly or its Affiliates to Research, Develop or Commercialize any compounds, products or therapies, it being understood that this Section 3.5 shall not be deemed to expand the scope of any licenses to Licensed Technology granted hereunder. Notwithstanding the foregoing, if Lilly wishes to Research, Develop or Commercialize, through itself or any Affiliate or Third Party, any RNAi or oligonucleotide product based on the GalXC Platform, such Research, Development or Commercialization shall be done in collaboration with Dicerna under this Agreement.

3.6 Limitations on Use of New Nucleic Acid Platform. Without limiting Sections 3.1 through 3.4 and the exclusive licenses granted to Lilly pursuant to Section 7.1:

3.6.1 If Lilly or its Affiliate wishes to Develop or Commercialize with a Third Party licensor or collaboration partner (not including, for avoidance of doubt, any subcontractor performing services for Lilly), at any time within the first [***] following the end of the Research Collaboration Term, any RNAi or oligonucleotide product based on a New Nucleic Acid Platform directed to a Non-Hepatocyte Neurodegeneration/Pain Target or a

Non-Hepatocyte Cardiometabolic Target (a “New Platform Third Party Collaboration”), the following shall apply:

(a) Prior to Lilly entering into a New Platform Third Party Collaboration, Lilly shall discuss in good faith with Dicerna the possibility of entering into a collaboration with Lilly for such Development or Commercialization,

with such product [***] If the Parties are unable to reach an agreement with respect to such collaboration within [***] following Lilly’s request (the “New Platform Negotiation Expiration Date”), Lilly shall be free to carry out such Development or Commercialization with any Third Party, subject to Section 3.6.1(b).

(b) If Lilly or its Affiliate is conducting such Development or Commercialization pursuant to a New Platform Third Party Collaboration and (i) if GLP toxicology studies have been initiated for the subject product of Lilly or its Affiliate within the first [***] following the end of the Research Collaboration Term, then Lilly shall pay to Dicerna [***] of the Product Payment Amounts for such product and (ii) if such GLP toxicology studies have been initiated within the period beginning the day following the end of the [***] after the end of the Research Collaboration Term but prior to the end of the [***] after the end of the Research Collaboration Term, then Lilly shall pay to Dicerna [***] of the Product Payment Amounts for such product. If no such GLP toxicology studies have been initiated prior to the end of the [***] after the end of the Research Collaboration Term no such payments shall be due from Lilly to Dicerna.

3.6.2 If Lilly or its Affiliate Develops or Commercializes without a New Platform Third Party Collaboration, at any time within the [***] following the end of the Research Collaboration Term, any RNAi or oligonucleotide product based on a New Nucleic Acid Platform directed to a Non-Hepatocyte Neurodegeneration/Pain Target or a Non-Hepatocyte Cardiometabolic Target, and (i) if GLP toxicology studies have been initiated for the subject product of Lilly or its Affiliate within the first [***] following the end of the Research Collaboration Term, then Lilly shall pay to Dicerna [***] of the Product Payment Amounts for such product and (ii) if such GLP toxicology studies have been initiated within the period beginning the day following the end of the [***] but prior to the end of the [***] after the end of the Research Collaboration Term, then Lilly shall pay to Dicerna [***] of the Product Payment Amounts for such product. If no such GLP toxicology studies have been initiated prior to the end of the [***] after the end of the Research Collaboration Term no such payments shall be due from Lilly to Dicerna.

For purposes of Sections 3.6.1(b) and 3.6.2 only, the Product Payment Amounts relating to the Development Milestone Events for [***] shall be combined and the specified percentage of such Product Payment Amount shall be due if and only if the Development Milestone Event for the [***] occurs.

3.7 No Further Restrictions. Without limiting Sections 3.1 through 3.6 and the exclusive licenses granted to Lilly pursuant to Section 7.1, each Party shall otherwise be free to exploit each New Nucleic Acid Platform. For example, (i) if the New Nucleic Acid Platform has applications outside of Non-Hepatocyte Neurodegeneration/Pain Targets or Non-Hepatocyte Cardiometabolic Targets, both Parties, subject to Sections 3.1 through 3.6 and the exclusive licenses granted to Lilly pursuant to Section 7.1, shall be free to exploit such New Nucleic Acid Platform for such purposes; and (ii) both Parties, subject to Sections 3.1 through 3.4 and the exclusive licenses granted to Lilly pursuant to Section 7.1, shall be unrestricted with respect to each New Nucleic

Acid Platform from and after [***] following the end of the Research Collaboration Term. Each of the Parties acknowledges the contributions the other Party is making to the development of the New Nucleic Acid Platform and, from time to time, each Party may discuss, in its sole discretion, with the other Party the possibility of entering into a collaboration for Development and Commercialization of a product based on a New Nucleic Acid Platform outside of a Neurodegeneration or Pain Indication or cardiometabolic indication.

4. RESEARCH PROGRAM

4.1 Research Program.

4.1.1 Purpose. During the Research Collaboration Term, Lilly and Dicerna shall engage in a collaborative research development program with the goal of Researching and Developing multiple lead candidates Directed To each of the Selected Targets from which one or more Compounds or Products could be selected, and the development of an RNAi or oligonucleotide technology platform targeting Non-Hepatocyte Cardiometabolic Targets or Non-Hepatocyte Neurodegeneration/Pain Targets, as applicable; in each case based on the specified activities,

timelines, budget and criteria set forth in an applicable Research Plan (the “Research Program”).

4.1.2 Research Collaboration Term. The Research Program shall be conducted over a term commencing on the Effective Date and continuing for a period of [***] thereafter (the “Initial Research Collaboration Term”), provided that: (a) with respect to any particular Selected Target that is the subject of active development at the end of the Initial Research Collaboration Term, the term shall be extended until achievement of Proof of Principle for a Compound Directed To that Selected Target or, in the case of the Lead Product, through [***] subject, in case of Non-Hepatocyte Targets, to Sections 4.3 and 4.5.1; and (b) with respect to Non-Hepatocyte Targets, Lilly may extend the term at its option, following consultation with the JSC, for up to [***] consecutive [***] periods to facilitate the continued development of the New Platform for Non-Hepatocyte Cardiometabolic Targets and New Platform for Non-Hepatocyte Neurodegeneration/Pain Targets, respectively (the Initial Research Collaboration Term plus any such extensions, the “Research Collaboration Term”).

4.1.3 Research Plan. All Research and pre-clinical Development activities of each Party occurring during the Research Collaboration Term and the timelines for all Targets and budgets therefor shall be set forth in one or more mutually agreed upon Research Plans, with the initial Research Plan for the Initially Named Targets attached hereto on Exhibit B and as may be amended from time to time in accordance with the terms of this Agreement (each, a “Research Plan”). For clarity, the budgets to be set forth in the Research Plan(s) shall be construed only as guidelines and shall not in any way limit Dicerna’s obligation to use Commercially Reasonable Efforts to perform its activities specified in the Research Plan, subject to Dicerna’s rights of reimbursement and limitations of Dicerna’s responsibilities expressly set forth in this Article 4.

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4.2 Hepatocyte Targets – Compound and Product Development.

4.2.1 Development through Proof of Principle. For Selected Targets that are Initially Named Targets or Other Hepatocyte Cardiometabolic Targets, Dicerna shall use Commercially Reasonable Efforts to conduct activities specified in the Research Plan directed toward establishing, up through Proof of Principle, Compound and Product candidates suitable for advancement into human Clinical Trials. Lilly shall not be required to conduct any Research or Development efforts with respect to Compounds Directed To Initially Named Targets or Other Hepatocyte Cardiometabolic Targets prior to Proof of Principle.

4.2.2 Selection of Lead Product and Designation of other Products. Lilly shall be entitled to select one “Lead Product” that is a Compound achieving Proof of Principle that is Directed To an Initially Named Target and designate one or more other Compounds achieving Proof of Principle as “Products” to be further Developed hereunder. Lilly may make such selection or designation at any time by written notice to Dicerna. For a period of up to [***] following the first Compound achieving Proof of Principle, Dicerna shall continue, at Dicerna’s expense, development of each Compound achieving Proof of Principle while Lilly determines which (if any) Compound Lilly wishes to select as the Lead Product.

4.2.3 Further Development of Lead Product. Following achievement of Proof of Principle for the Lead Product and selection of the Lead Product by Lilly, Dicerna shall, as further described in the Research Plan, also use Commercially Reasonable Efforts to manage the toxicology program and manufacturing of clinical supply through IND Approval and the initial Phase 1 Clinical Trial for the Lead Product (“Lead Product Non-Clinical and Manufacturing Activities”), at Dicerna’s cost, based on the responsibilities, specific activities, budget and timelines as agreed in the Research Plan unless the JSC determines that IND Approval will, more likely than not, be unavailable or that obtaining IND Approval would require efforts on behalf of Dicerna that are beyond Commercially Reasonable Efforts. Except as expressly provided and agreed otherwise in the Research Plan for the Lead Product, Lilly shall not be required to conduct any Research or Development efforts for the Lead Product that are included in the Lead Product Non-Clinical or Manufacturing Activities prior to IND Approval, provided that that Lilly shall be responsible to prepare and submit the IND filing and seek IND Approval as further described in Section 4.6.

4.2.4 Further Development of Other Products. For all Products Directed To Initially Named Targets or Other Hepatocyte Cardiometabolic Targets other than the Lead Product, the JSC shall develop a Research Plan including activities beyond Proof of Principle through IND Approval and shall determine the allocation of responsibilities between Dicerna and Lilly for each Product, provided that, subject to Section 4.2.3, such activities beyond Proof of Principle through IND Approval shall be at Lilly’s cost and in no case shall Dicerna’s responsibilities exceed those for the Lead Product unless agreed upon by the Parties and set forth in a Research Plan.

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4.3 Non-Hepatocyte Targets – Platform, Compound and Product Development.

4.3.1 For Non-Hepatocyte Targets, the Parties shall work together through the JSC to create a Research Plan during the Initial Research Collaboration Term to develop the New Platform for Non-Hepatocyte Cardiometabolic Targets or the New Platform for Non-Hepatocyte Neurodegeneration/Pain Targets, as applicable, based on the activities, timelines, budget and criteria specified and as set forth in the Research Plan, and provided that the total expenses for such activities to be performed by Dicerna shall not exceed [***] per calendar year for the first [***] of Initial Research Collaboration Term (the "Annual Budget Cap"), with the understanding that if such expenses in any given calendar year are below that year's Annual Budget Cap, the difference shall be carried forward to the following year and added to the following year's Annual Budget Cap (with any shortfall in the [***] calendar year of the Initial Research Collaboration Term being carried forward and recoupable by Lilly against expenses for which Lilly would otherwise be required to reimburse Dicerna for activities covered by the Research Plan in the [***] calendar year of the Initial Research Collaboration Term) and if such expenses in any given calendar year are above that year's Annual Budget Cap, the difference shall reduce the following year's Annual Budget Cap by the amount of such difference. The parties shall discuss in good faith the treatment of any expenses of Dicerna in any given year of the Initial Research Collaboration Term above the Annual Budget Cap.

4.3.2 Once Lilly has selected one or more Non-Hepatocyte Targets as Selected Targets, the Parties shall agree to a Research Plan for each such Non-Hepatocyte Target and the Parties shall use Commercially Reasonable Efforts to conduct the specified activities through Proof of Principle based on the responsibilities, specific activities, budget and timelines as agreed in the Research Plan, with the anticipation that Dicerna shall be responsible for conducting all activities through Proof of Principle (subject to Section 4.5) and Lilly shall not be required to conduct any Research or Development efforts with respect to Compounds Directed To such Targets prior to achievement of Proof of Principle. Such Research Plan shall also include activities beyond Proof of Principle until IND Approval and the JSC shall determine the allocation of responsibilities between Dicerna and Lilly for each Product, but such activities shall be at Lilly's cost, and in no case shall Dicerna's responsibilities exceed those for the Lead Product unless agreed upon by the Parties.

4.3.3 Following the achievement of Proof of Principle for a Compound Directed To a Non-Hepatocyte Cardiometabolic Target or Non-Hepatocyte Neurodegeneration/Pain Target, Lilly may (but is not required to) designate the Compound as a "Product" and if Lilly does so, the JSC shall develop a Research Plan including activities beyond Proof of Principle through IND Approval and shall determine the allocation of responsibilities between Dicerna and Lilly for each Product, but such activities beyond Proof of Principle through IND Approval shall be at Lilly's cost, and in no case shall Dicerna's responsibilities exceed those for the Lead Product unless agreed upon by the Parties.

4.4 Clinical Development Diligence Obligations. Lilly shall use Commercially Reasonable Efforts to conduct all Development activities from IND Approval through Marketing

Authorization for one Product (the "Diligence Period"). If, prior to the expiration of the Diligence Period, [***] for more than [***] consecutive months[***]. Under such circumstances, if [***] it shall notify Lilly, and if Lilly disputes [***] days of its receipt of such notice, the dispute shall be resolved pursuant to Section 19.6, provided that Lilly shall be deemed to have [***] if, within [***] days following a determination that it had abandoned the Selected Target, Lilly resumes such engagement. If Lilly fails to respond to a notice from [***] within such [***] day period, or is determined pursuant to Section 19.6 [***] within [***] days following such determination, such Selected Target shall become a Discontinued Target and any Compounds or Products directed to such Discontinued Target shall become Returned Compounds and Products, without any requirement to terminate pursuant to Section 14.3.1. In no event, however, will Lilly be deemed pursuant to this Section 4.4 to have abandoned any Initially Named Targets.

4.5 Costs of Performance.

4.5.1 Responsibilities of Parties. Except as otherwise expressly set forth in this Agreement or in a Research Plan, and subject to Dicerna's Annual Budget Cap, during the Initial Research Collaboration Term, Dicerna and Lilly shall each respectively bear all expenses it incurs in performance of its own activities under this Agreement and the Research Plan. Dicerna shall also be responsible for the cost of all activities through Proof of Principle for the initial Non-Hepatocyte Neurodegeneration/Pain Targets. Notwithstanding the foregoing, Lilly shall be responsible for the cost of any activities conducted by Dicerna as a result of extensions by Lilly of the Initial Research Collaboration Term and the cost of activities for Targets selected in addition to the initial Non-Hepatocyte Neurodegeneration/Pain Targets.

4.5.2 Cost Calculation Mechanism. Where this Agreement requires that Lilly reimburse or be responsible for Dicerna's costs, such costs shall be calculated in accordance with the following mechanism: Lilly shall compensate Dicerna for FTEs performing activities under and in accordance with the Research Plan at the FTE Rate, provided that the nature and scope of the work performed by Dicerna has been approved in advance in writing by Lilly. In addition to the FTE Rates, Lilly shall compensate any out of pocket expenses incurred by Dicerna in accordance with the Research Plan or upon written instruction of Lilly. The compensation is to be paid by Lilly to Dicerna on a quarterly basis with respect to each Calendar Quarter. Payment shall be made in arrears and within [***] after receipt of an invoice, with supportive documentation detailing the FTE costs and out of pocket expenses applicable to Dicerna's efforts for such applicable Calendar Quarter period, such information to include the work packages of the Research Plan items worked on, the number of FTEs assigned to each work package and the out-of-pocket expenses. Notwithstanding the foregoing, contract research organization ("CRO") costs incurred by Dicerna in accordance with the Research Plan shall be

invoiced separately by Dicerna upon Dicerna's receipt of such CRO's invoice, and irrespective of whether such payments are made in advance or in arrears, such invoice to be due and payable within [***] upon receipt of such invoice by Lilly; provided, that, if Lilly reimburses Dicerna for advance payments made by Dicerna to CROs, Dicerna shall provide the final actual cost per invoiced period and a true up of actual cost compared to advance payment (planned cost) to Lilly. If the

advance payment(s) turn out to be higher than the actual cost incurred by Dicerna, Dicerna shall credit the respective amount of the advance payment to the next invoice or invoices payable by Lilly, and in the event there are no further invoices anticipated, reimburse Lilly within [***] of such true up. As long as Dicerna provides Development support to Lilly and for a period [***] thereafter, Dicerna shall maintain complete and accurate books and records regarding the FTEs and all out-of-pocket expenses (including CRO costs) invoiced to Lilly and Lilly shall have the right to have an Accounting Firm inspect Dicerna's records solely for purposes of determining the accuracy of the FTEs passed through to Lilly in accordance with Section 9.5 of this Agreement applied mutatis mutandis (subject only to replacing references to "Lilly" with references to "Dicerna," and vice versa, and other analogous changes, including changes related to the subject matter of the audit).

4.6 IND Filing; Reconciliation of Defects. For all Products Developed under Section 4.2 or Section 4.3 subject to an IND filing, Lilly shall be responsible for the preparation and submission of the IND filing and for seeking IND Approval and shall have control over all interactions with the applicable Regulatory Authority. Lilly shall own all Regulatory Approvals and be responsible for all decisions in connection therewith for Regulatory Approvals of Products in the Field; provided, that Dicerna shall reasonably cooperate in these efforts as reasonably requested by Lilly. If, in the course of pursuing the IND, the applicable Regulatory Authority identifies deficiencies in particular components of the submission, rectifying the deficiencies shall be the responsibility of the Party that was responsible for the applicable components in the course of conducting the Research Plan.

4.7 Records, Reports and Audits.

4.7.1 Dicerna Records of Activities under Research Program. Dicerna shall maintain records (paper and/or electronic) for so long as necessary to comply with Applicable Laws, or reasonably necessary to support the prosecution, maintenance and enforcement of intellectual property rights (including Patent Rights), regarding its conduct of the Research Program after the applicable activity, in sufficient detail and in good scientific manner appropriate for patent and regulatory purposes, which shall fully and properly reflect the work done and results achieved by Dicerna in the performance of the Research Program; and sufficient to confirm the accuracy and contents of the Blocked Target List (the "Records").

4.7.2 Copies and Inspection of Records. [***]

4.8 Certain Standards Applicable to Work. All Research and Development done by either Party for non-regulated work under this Agreement will be conducted in accordance with the Research Plan, Eli Lilly and Company Good Research Practices, Eli Lilly and Company Animal Care and Use Requirement for Animal Researchers and Suppliers, all applicable data privacy and security laws and regulations and other Applicable Laws. For purposes of this Agreement, "Eli Lilly and Company Good Research Practices" means the compiled set of shared research quality standards defining how Lilly's research laboratories conduct good science for non-regulated work as set forth in Exhibit A. For purposes of this Agreement, "Eli Lilly and Company Animal Care

and Use Requirement for Animal Researchers and Suppliers" means the guidelines relating to animal care and use for research done on behalf of Lilly as set forth in Exhibit C. [***]

4.9 Dicerna Right to Subcontract. Subject to the terms of this Section 4.9, Dicerna shall have the right to engage permitted Third Party contractors working on its behalf (the "Permitted Subcontractors") to perform such portions of its Research obligations under this Agreement that it customarily engages for its other similar research activities except that under no circumstance can such Permitted Subcontractor be debarred or disqualified by a regulatory authority. Furthermore, notwithstanding the foregoing, Dicerna shall be responsible for ensuring that, prior to engaging any Permitted Subcontractor that such Permitted Subcontractor is subject to written agreements containing terms and conditions: (i) consistent with the relevant terms and conditions of this Agreement protecting the rights of the Parties under this Agreement including imposing obligations of confidentiality on each such Permitted Subcontractor; (ii) that vests ownership of any and all Product-specific or Compound-specific inventions developed by such Permitted Subcontractor to the extent relating to Compound or Product in the course of

performing such subcontracted work in Dicerna; (iii) that does not under any circumstance impose any payment obligations or liability on Lilly, and (iv) that is otherwise consistent with the terms of this Agreement. Dicerna shall remain directly responsible for all of its obligations under this Agreement that have been delegated, subcontracted or sublicensed to any Permitted Subcontractor.

5. MANUFACTURING AND COMMERCIALIZATION

5.1 Compound and Product Manufacturing Generally.

5.1.1 Generally. Dicerna has the right and obligation to perform Lead Product Non-Clinical and Manufacturing Activities through IND Approval and for the initial Phase 1 Clinical Trial, subject to the terms and conditions of this Agreement and the Clinical-Phase Supply Agreement (and related quality agreement). Lilly shall be responsible for all other supply and manufacture of the Products under this Agreement. The Parties will specify in the relevant Research Plan the source of manufacture and supply of all other pre-clinical and clinical Products.

5.1.2 Manufacturing Standards. Without limiting the foregoing, but subject to the terms and conditions of this Agreement and the Clinical-Phase Supply Agreement, Lilly has the sole decision authority related to Product supply. Dicerna will manufacture the Lead Product under GMP; provided, however, that if Dicerna uses a contract manufacturer or other subcontracted element of the supply chain, Lilly will have the right to audit and approve (or reject) such contract manufacturer in advance, provided that such approval shall not be unreasonably withheld, delayed or conditioned. The Parties agree that the manufacturer shall be listed in the Research Plan as determined by the JSC.

5.1.3 Visits to Facilities. Lilly may conduct ongoing and routine audits of Dicerna or its subcontractors in accordance with Section 4.7.2 to ensure compliance with applicable GMPs during normal business hours no more than once annually and upon reasonable advance notice by Lilly and the mutual agreement of the Parties as to the specific

date and time for such audit. Provided, however, that in the case of audits for cause, Lilly will have the right to conduct, or cause Dicerna to conduct, GMP compliance audits more than once annually at the time of the event giving rise to a for cause audit, upon at least [***] advance written notice, provided that such audit does not unreasonably interfere with Dicerna's operations. All such audits shall be done at Lilly's cost and expense.

5.1.4 Notice of Inspections. If legally permissible, Dicerna shall provide notice to Lilly within [***] of becoming aware of any requested or commenced governmental or regulatory review, audit or inspection of its or its contractor's facility, processes, Compounds or Products that directly relate to this Agreement. Dicerna shall provide Lilly with the results of any such review, audit or inspection. Lilly shall be given the opportunity to provide assistance to Dicerna in responding to any such review, audit or inspection.

5.2 Product Quality Generally. The relevant quality agreement will determine, in accordance with applicable regulatory requirements, all Product quality standards for Product to be used in clinical trials including: stability; process validation and pre-approval inspection preparation; specifications; assay methodology and storage conditions. Lilly will, subject to the Clinical-Phase Supply Agreement and related quality agreements, determine in accordance with applicable regulatory requirements such Product quality standards that must be included in any manufacturing requirements for Product and Lilly will in all circumstances have the sole right to make the final release determinations for the Products, as the Parties shall set forth in greater detail in the applicable quality agreement.

5.3 Manufacturing and Quality Agreements.

5.3.1 Clinical-Phase Supply Agreement. The Parties shall negotiate in good faith and enter into a supply agreement ("Clinical-Phase Supply Agreement"), and related quality agreement, within [***] prior to the date on which the JSC determines the delivery of GLP toxicology materials shall occur, or as otherwise mutually agreed by the Parties in writing, covering the supply of the Lead Product through IND Approval, including, if applicable, Dicerna's provision of clinical trial materials, and subject to Lilly's audit of Dicerna and its supply chain. Under the Clinical-Phase Supply Agreement, Lilly shall be responsible for covering the costs for the manufacture of the Products at Dicerna's fully loaded costs, except that Dicerna shall be responsible to cover the costs for the manufacture of the Lead Product through the initial Phase 1 Clinical Trial.

5.3.2 Quality Agreements. Any quality agreement entered in connection with the Clinical-Phase Supply Agreement shall set forth the quality expectations, responsibilities, rights (including, as applicable and agreed upon, audit requirements) and requirements relating to the manufacture and supply of the Products, including allocations of responsibility for quality elements and provisions addressing sub-contractors and suppliers, change control and corresponding regulatory amendments, out-of-specification results, deviations and investigations, Product recalls, withdrawals, product complaints and a list of key quality contacts.

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5.4 Commercialization by Lilly. Lilly shall have the sole right and be responsible for Commercialization of the Products, and shall use Commercially Reasonable Efforts to achieve a First Commercial Sale of one Product in the United States. Upon Lilly launching at least one Product in the United States, Lilly's obligation to use Commercially Reasonable Efforts to Commercialize Products would cease.

6. GOVERNANCE AND JOINT STEERING COMMITTEE

6.1 Project Leader. Within [***] of the Effective Date, Lilly and Dicerna shall [***] to serve as the primary point of contact between the Parties with respect to each Target being prosecuted under the Research Program (each, a "Project Leader"). The Project Leaders shall regularly communicate with each other to address Research Program-related issues, needs and updates and facilitate communications and organization of Working Groups associated with each active Research Plan with respect to each Target. Either Party, upon prior notice to the other Party, may change its Project Leader. Additionally, the Parties may assign different Project Leaders for different Projects. Except for those Disputes that are subject to the purview of the JSC, prior to submitting any Dispute to the dispute resolution mechanism set forth in Section 19.6, the Project Leaders shall attempt, for a period of [***], to resolve such Dispute.

6.2 Alliance Manager. Within [***] of the Effective Date, each Party shall also appoint an individual to act as the Alliance Manager for such Party (each, an "Alliance Manager"). Each Alliance Manager shall thereafter be permitted to attend meetings of the JSC and any sub-committee as a nonvoting observer. The Alliance Managers shall be the primary point of contact for the Parties regarding the collaboration activities contemplated by this Agreement (other than the activities/responsibilities of the Project Leader outlined in Section 6.1) and shall help facilitate all such activities hereunder. For avoidance of doubt, the individual appointed by a Party to act as an Alliance Manager may, but need not, be the same individual appointed by such Party as a Project Leader.

6.3 Working Groups. The Parties shall establish working groups (each, a "Working Group") to oversee the activities of each Research Plan. In addition, from time to time, the Parties may establish a Working Group to oversee particular additional projects or activities. Each Working Group shall undertake the activities delegated to it by the JSC. During the process of establishing each Working Group, such Working Group and the JSC shall agree regarding which matters such Working Group will resolve on its own and which matters such Working Group will advise the JSC regarding (and with respect to which such advice-specific matters the JSC will resolve). In addition to the Target-specific Working Groups overseen by the respective Project Leaders, the Parties shall, at a minimum, establish three (3) additional Working Groups to oversee, respectively, (i) technology transfer pursuant to Section 7.4, (ii) the manufacturing supply chain for the Products, and (iii) the strategy for prosecution and maintenance of Joint Inventions.

6.4 Joint Steering Committee.

6.4.1 Establishment. As soon as practicable after the Effective Date, the Parties shall establish a Joint Steering Committee (the "JSC") to oversee and coordinate the activities of the Parties under the Research Program. The JSC shall be comprised of

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[***] from Lilly and [***] from Dicerna. Subject to the foregoing, each Party shall appoint its respective representatives to the JSC from time to time, and may change its representatives, in its sole discretion, effective upon notice to the other Party designating such change. Representatives from each Party shall have appropriate technical credentials, experience and knowledge pertaining to and ongoing familiarity with the Research Program. One (1) of the members of the JSC appointed by [***] shall be designated the JSC Chair (the "JSC Chair"). The JSC Chair will be responsible for calling meetings of the JSC, circulating agendas and performing administrative tasks required to assure efficient operation of the JSC but shall not have any extra or additional vote. The JSC shall be promptly disbanded upon completion of the Research Program.

6.4.2 JSC Meetings. The JSC shall meet in accordance with a schedule established by mutual written agreement of the Parties, and no less frequently than once every Calendar Quarter until expiration of the Research Collaboration Term. The JSC may meet by means of teleconference, videoconference or other similar means. As appropriate, additional employees or consultants may from time to time attend the JSC meetings as nonvoting observers, provided that any such consultant shall agree in writing to comply with the confidentiality obligations under this Agreement; and provided further that no Third Party personnel may attend unless otherwise agreed by both Parties. Each Party shall bear its own expenses related to the attendance of the JSC meetings by its representatives. Each Party may also call for special meetings to resolve particular matters requested by such Party. The JSC Chair or his/her designee shall keep minutes of each JSC meeting that records in writing all decisions made, action items assigned or completed and other appropriate matters. Lilly shall send meeting minutes to all members of

the JSC promptly after a meeting for review. Each member shall have [***] from receipt in which to comment on and to approve/provide comments to the minutes (such approval not to be unreasonably withheld, conditioned or delayed). If a member, within such time period, does not notify Lilly that s/he does not approve of the minutes, the minutes shall be deemed to have been approved by such member.

6.4.3 JSC Functions. The JSC's responsibilities with respect to the Research Program are as follows:

(a) Overseeing and coordinating the activities of the Parties under the Research Program;

(b) Establishing acceptable murine pharmacologic activity for Non-Hepatocyte Targets;

(c) Facilitating the exchange of Know-How and materials as required hereunder;

(d) Periodically reviewing the progress of the Research Program; and

(e) Suggesting an update or modification of each Research Plan. For clarification, any update or modification to the Research Plan prior to Proof of Principle with respect to the relevant Compound shall require the consent of each Party and is subject to reaching an agreement between the Parties with regards to corresponding update of the Project Funding and any other potential implications, such as delays or other effects of such modification or update.

6.4.4 JSC Disputes; Authority. The JSC will endeavor to make decisions by consensus, with each of Lilly and Dicerna having one vote. If consensus is not reached by the Parties' representatives pursuant to such vote, then the matter may be escalated by either Party to designated officers of both Lilly and Dicerna with appropriate decision making authority. In the event the designated officers are unable to resolve the issue within thirty (30) days, then: [***]

6.4.5 Rights and Powers. For clarity and notwithstanding the creation of the JSC, each Party shall retain the rights, powers and discretion granted to it hereunder, and the JSC shall not be delegated or vested with such rights, powers or discretion unless such delegation or vesting is expressly provided herein, or the Parties expressly so agree in writing. The JSC shall not have the power to amend, waive or modify any term of this Agreement, and no decision of the JSC shall be in contravention of any terms and conditions of this Agreement. It is understood and agreed that issues to be formally decided by the JSC are limited to those specific issues that are expressly provided in this Agreement to be decided by the JSC.

7. LICENSES

7.1 License Grant to Lilly. Subject to the terms and conditions of this Agreement, each of Dicerna US and Dicerna Cayman hereby grants to Lilly: (a) an exclusive (even as to Dicerna US and Dicerna Cayman), royalty bearing, sub-licensable (through multiple tiers) (subject to Section 7.2), worldwide, license under the Licensed Technology to Research, Develop, register, make (including formulate), have made, use, and Commercialize Compounds and Products in the Field; and (b) a non-exclusive, non-royalty bearing, fully paid-up, sub-licensable (through multiple tiers) (subject to Section 7.2), worldwide license under Licensed Technology to carry out Lilly's obligations under the Research Program, including Research and Development work required to select Targets and related Compounds and Products for purposes of this Agreement.

7.2 Sublicenses. Subject to the terms and conditions of this Agreement, Lilly shall have the right to sublicense: (a) any and all rights licensed to Lilly under Section 7.1 to its Affiliates; and (b) any and all rights licensed to Lilly under Section 7.1 to any Third Party.

7.3 License Grants to Dicerna. Lilly hereby grants to Dicerna during the Term a non-exclusive, non-royalty bearing, fully paid-up, non-sub-licensable (except to Affiliates and Third Party subcontractors of Dicerna solely as needed to perform services for Dicerna under this Agreement), worldwide license under Lilly Intellectual Property, solely to the extent necessary for Dicerna to perform its duties and obligations according to the Research Program.

7.4 Know-How Transfer; Availability of Employees. Within [***] following Lilly's assumption of responsibility for Development or Commercialization of a Product under Article 4 or the Clinical-Phase Supply Agreement (and from time to time during the Term if new Know-How

comes to be Controlled by Dicerna US or Dicerna Cayman), or Lilly's termination of this Agreement under Section 14.3 followed by an election to retain license rights hereunder, Dicerna shall disclose and/or deliver to Lilly, to the extent not previously provided, copies of all data and information in Dicerna US's or Dicerna Cayman's possession relating to the Licensed Know-How which is reasonably necessary for Lilly's Development or Commercialization of such Product (including for regulatory purposes). Upon Lilly's reasonable request, Dicerna will: (a) provide reasonable technical assistance to Lilly during such disclosure or delivery set forth in the preceding sentence; and (b) make its employees and non-employee consultants reasonably available at their respective places of employment to consult with Lilly on issues arising in the course of Lilly's Research, Development or Commercialization and in connection with any request related to a Product from any Regulatory Agency, including regulatory, scientific, technical and clinical testing issues. The technology transfer to be undertaken under this Section 7.4 shall be overseen by a Working Group established for such purposes, which Working Group may put in place a technology transfer plan expressly identifying Know-How owned or Controlled by Dicerna US or Dicerna Cayman to be transferred and the timing for such transfer.

7.5 Covenants. Each of Dicerna US and Dicerna Cayman covenants that it will not: (a) take any action that (i) would impose or result in a lien, charge or encumbrance of the Licensed Technology that would prevent or limit Lilly's exercise of its license rights to such Licensed Technology, or (ii) adversely affects the license rights granted to Lilly under this Agreement; or (b) assign, transfer, convey or otherwise grant to any Person any rights to any Licensed Technology, New Platform Patents, Joint Know-How or Joint Patent Rights or any Compounds or Products, in any manner that conflicts with the exclusive licenses granted to Lilly pursuant to Section 7.1.

7.6 Freedom to Operate. Subject to and without limiting any other license rights or exclusivity granted to Lilly under this Agreement, Lilly (and its Affiliates) and Dicerna (and its Affiliates) will also have the right to use any Confidential Information disclosed by the other Party in connection with the Research Program and retained in the unaided memories of its employees after having access to such Confidential Information (without reference to tangible copies of such information), provided that this right to use does not constitute a license under any Licensed Patent Rights. An individual's memory will be considered to be unaided if [***]

7.7 No Implied Licenses. Except as expressly set forth in this Agreement, neither Lilly, on the one hand, or Dicerna US or Dicerna Cayman, on the other hand, by virtue of this Agreement, shall acquire any license or other interest, by implication or otherwise, in any materials, Know-How, Patent Rights or other intellectual property rights Controlled by the other Party or its Affiliates not expressly granted under this Agreement. Furthermore, notwithstanding anything to the contrary in this Agreement, by entering into this Agreement with Dicerna US and Dicerna Cayman, Lilly is not forfeiting any rights that Lilly may have, including its rights to perform research activities in compliance with 35 U.S.C. § 271(e)(1) or any experimental or research use exemption that may apply in any country.

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7.8 Third Party License Agreements.

7.8.1 If, after the Effective Date, Dicerna US or Dicerna Cayman enters into any license agreement with a Third Party and Controls Patent Rights or Know-How under such license agreement that would be necessary or reasonably useful for developing a New Platform for Non-Hepatocyte Cardiometabolic Targets or a New Platform for Non-Hepatocyte Neurodegeneration/Pain Targets, then Dicerna shall so notify Lilly and the rights and licenses granted to Lilly under this Agreement with respect to such Third Party agreement shall be subject to Lilly (a) agreeing to be bound by the terms of any such Third Party agreement applicable to a sublicensee thereunder, and (b) reimbursing Dicerna US or Dicerna Cayman for any amounts that become owing to such Third Party by reason of the grant to, or exercise by or under the authority of, Lilly of such rights; provided, that, any amounts owing to such Third Party cannot be disproportionately allocated to the Selected Targets, Products or Lilly's rights hereunder (e.g., the royalty for Product sales cannot be greater than the royalty due for any other product under the agreement). Upon request by Lilly, Dicerna shall disclose to Lilly a true and correct written description of the payment and other relevant obligations, and Lilly's obligation to reimburse such amounts following such request shall be limited to those payment obligations as so disclosed by Dicerna. In the event Lilly does not agree in writing to reimburse Dicerna for such amounts upon request, and to be bound by the terms of such Third Party agreement applicable to a sublicensee thereunder, then the rights licensed under such Third Party agreement shall thereafter be deemed excluded from the Licensed Patent Rights and/or Licensed Know-How, as applicable, hereunder.

7.8.2 If, after the Effective Date, Dicerna identifies Patent Rights or Know-How covering or relating to RNAi or oligonucleotide platform technologies owned or Controlled by a Third Party that would be necessary or reasonably useful for targeting mechanisms that bind to or are intended to bind to and induce an inhibition, disruption or modulation of mRNA in Hepatocyte Cardiometabolic Targets or Non-Hepatocyte Targets, then Dicerna shall so notify Lilly and the Parties shall coordinate in good faith the negotiation of one (1) or more agreements in order to facilitate Lilly having access to such technology, which may be through an agreement directly between Lilly and such Third Party.

8. FINANCIAL PROVISIONS

8.1 Upfront Payments.

8.1.1 In consideration for the rights granted to Lilly pursuant to this Agreement, Lilly shall pay to Dicerna a one-time, non-refundable, non-creditable upfront payment of one hundred million Dollars (USD $100,000,000) by no later than thirty (30) days following the Effective Date (the “Upfront Cash Payment”).

8.1.2 As of the date of execution of this Agreement, the Parties have entered into a Share Issuance Agreement, pursuant to which Lilly will purchase one hundred million Dollars (USD $100,000,000) of Dicerna US’s Common Stock at a twenty-five percent (25%)

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premium to Dicerna US’s volume weighted average stock price for the thirty (30) day period ending on the last trading day before the date of execution of this Agreement.

8.2 Development Milestones.

8.2.1 On a Selected Target-by-Selected Target basis, within [***] after the first Product hereunder Directed To a Selected Target that is a Non-Hepatocyte Target achieves Proof of Principle, Lilly shall pay Dicerna US Five Million US Dollars (USD $5,000,000), which shall be non-refundable and non-creditable. Such payment shall not be due for any such Products Directed To a Selected Target after the first Product Directed To that Selected Target achieves Proof of Principle nor, for avoidance of doubt, will it be due for any Selected Target that becomes a Discontinued Target prior to the payment of such amounts.

8.2.2 On a Product-by-Product basis, within [***] after first achievement of each milestone set forth in the table below by Lilly, its Affiliate or its sublicensee of Lilly's rights in the Product (each, a “Development Milestone Event”), Lilly shall notify Dicerna US and make the corresponding milestone payment to Dicerna US (each, a “Development Milestone Payment”). Such payment shall be non-refundable and non-creditable and [***]

Development Milestone Events	Milestone Payments
1. [***]	USD [***]
2. [***]	USD [***]
3. [***]	USD [***]
4. [***]	USD [***]
5. [***]	USD [***]
Total Possible Development Milestone Payments per Product	

USD [***]

8.3 Commercialization Milestones. On a Product-by-Product basis, within [***] after the end of the Calendar Quarter in which each milestone event set forth in the table below is first achieved by Lilly, its Affiliate or its sublicensee (unless Dicerna or its Affiliate is the sublicensee) of Lilly's rights in the Product (each, a “Commercial Milestone Event”), Lilly shall notify Dicerna US and make the corresponding, non-refundable, non-creditable milestone payment to Dicerna US (each, a “Commercial Milestone Payment”):

Commercial Milestone Events

Commercial Milestone Payments

1.

First time Annual Net Sales of the Product exceed [***] Dollars (USD [***])

USD [***]

2.

First time Annual Net Sales of a Product exceed [***] Dollars (USD [***])

USD [***]

4.

First time Annual Net Sales of a Product exceed [***] Dollars (USD [***])

USD [***]

Total Possible Commercial Milestone Payments per Product

USD [***]

8.4 Royalties.

8.4.1 Royalty Payments – Hepatocyte Cardiometabolic Targets. During the Royalty Term for each Product, Lilly shall pay Dicerna US a royalty on only that portion of Net Sales of a Product Directed to a Hepatocyte Cardiometabolic Target as designated below and at the rates set forth below (each such royalty payment, a “Hepatocyte Royalty”):

Annual Worldwide Net Sales on a Product-by-Product basis

Royalty Rate

USD $0 up to USD $[***]

[***]

From USD [***] up to USD [***]

[***]

From USD [***] up to USD [***]

[***]

From USD [***] up to USD [***]

[***]

From USD [***] and up

[***]

8.4.2 Royalty Payments – Non-Hepatocyte Targets. During the Royalty Term for each Product, Lilly shall pay Dicerna US a royalty on only that portion of Net Sales of a Product Directed To a Non-Hepatocyte Target as designated below and at the rates set forth below (each such royalty payment, a “Non-Hepatocyte Royalty”, and together with the Hepatocyte Royalty, a “Royalty”):

Annual Worldwide Net Sales on a Product-by-Product basis

Royalty Rate

From USD $0 up to USD [***]

[***]

From USD [***] up to USD [***]

[***]

From USD [***] up to USD [***]

[***]

From USD [***] and up

[***]

8.4.3 Royalty Term. The Royalty will be payable on a country-by-country and Product-by-Product basis from First Commercial Sale of the Product in such country and shall terminate upon the latest of: (a) such Product no longer being Covered by an Effective Patent Claim in such country; (b) expiration of all data or regulatory exclusivity

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periods for such Product in such country; and (c) [***] after the First Commercial Sale of such Product in such country (the “Royalty Term”), in each case subject to Section 8.4.4.

8.4.4 Royalty Step-Downs. The Royalties under Section 8.4.1 and Section 8.4.2 shall be reduced by the following step-down provisions:

(a) No Effective Patent Claim. Notwithstanding Section 8.4.1 and Section 8.4.2, on a country-by-country and Product-by-Product basis, if at the time of or after the First Commercial Sale of a particular Product in a country or anytime thereafter, such Product is not Covered by one or more Effective Patent Claims in such country, then the Royalty rate at which Lilly is required to pay during the Royalty Term to Dicerna US on the Net Sales of such Product in such country shall be reduced to [***] of the Royalty rate set forth in Section 8.4.1 or Section 8.4.2, as applicable for the rest of the Royalty Term.

(b) Third Party Royalties – Anti-Stacking. If Lilly determines that Lilly and/or its Affiliates or sublicensees need to obtain a license from a Third Party (including an Acquirer) in order to Research, Develop or Commercialize a Product in a particular country, Lilly shall have the right to deduct [***] percent [***] of all upfront, milestone, royalty or other payments due from Lilly and/or its Affiliates or sublicensees under such license with the Third Party from the Royalty owing to Dicerna US during the applicable period for the such Product under Section 8.4.1 and Section 8.4.2, as applicable, subject to the Royalty reduction floor as set forth in Section 8.4.4(e); provided, that any credit not applied because of such Royalty reduction floor may be carried forward to future Calendar Quarters.

(c) Competing Products – Initial Reduction. On a country-by-country and Product-by-Product basis, Lilly’s obligation to pay Royalties to Dicerna US for a particular Product in a country shall be reduced to [***] percent [***] of the Royalty rate set forth in Section 8.4.1 and Section 8.4.2, as applicable, upon the first sale of Competing Product(s) of such Product by a Third Party or Third Parties in such country. A “Competing Product” of a Product means a product whose sale is not authorized by Lilly or its Affiliates or sublicensees, that is [***].

(d) Competing Products – Royalty Elimination. On a country-by-country and Product-by-Product basis, Lilly’s obligation to pay Royalties to Dicerna US for a particular Product in a country under Section 8.4.1 or Section 8.4.2, as applicable, shall expire and be of no further effect from and after the first Calendar Quarter in which a Competing Product to the Product has a market share of [***] percent [***] or more in a given country (measured in local currency, over the Calendar Quarter, as reported by [***], at which point the Royalty Term for that Product shall also be considered terminated in that country.

(e) Limit on Royalty Reductions. In no event shall the Royalties owed under Sections 8.4.1 or Section 8.4.2, as applicable, with respect to a Product in a country be reduced by operation of Sections 8.4.4(a), 8.4.4(b) or 8.4.4(c) by

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more than an aggregate of [***] percent [***] of what would otherwise be owed under the tables set forth in Sections 8.4.1 or Section 8.4.2, as applicable with respect to such Product in such country, it being understood that this restriction will not apply to Section 8.4.4(d).

9. REPORTS AND PAYMENT TERMS

9.1 Net Sales Reports and Royalties Due. During the Royalty Term, Lilly shall furnish to Dicerna US a written report for each Calendar Quarter showing the global Net Sales by Product sold by Lilly, its Affiliate or sublicensee during the reporting Calendar Quarter, the Royalties payable under this Agreement and whether a Commercial Milestone Event has been achieved in sufficient detail to allow Dicerna US to verify the amount of Royalties or Commercial Milestone Payments paid by Lilly with respect to such Calendar Quarter, including on a Product-by-Product basis, the Net Sales of each Product, and the Royalties (in USD) payable and in total for all Products. Reports shall be due no later than [***] following the end of each Calendar Quarter. Royalties shown to have accrued by each report provided under this Section 9.1 and any Commercial Milestone Payment achieved in such Calendar Quarter shall be due and payable on the date such report is due.

9.2 [***].

9.3 Payment Currency / Exchange Rate. All payments to be made by Lilly to Dicerna US under this Agreement shall be made in USD. Payments to Dicerna US shall be made by electronic wire transfer of immediately available funds to the account of Dicerna US, as designated in writing to Lilly. If any currency conversion is required in connection with the calculation of amounts payable hereunder, such conversion shall be [***]

9.4 Taxes. Each Party shall be responsible for its own tax liabilities arising under this Agreement. Subject to this Section 9.4, Dicerna US shall be liable for all income and other taxes (including interest) (“Taxes”) imposed upon any payments made by Lilly to Dicerna US under this Agreement (“Agreement Payments”). If Applicable Laws require the withholding of Taxes by either Party or its Affiliates, such Taxes shall be retained by the Party making such payment (the “Payor”) as required by such Applicable Law from such remittable royalty or other payment and shall be timely remitted by the Payor to the proper tax authorities on behalf of the Party with respect to which such deduction and withholding was made (the “Payee”); provided, however, that notwithstanding anything in this Agreement to the contrary, if Lilly’s assignment of this Agreement to an entity outside the United States leads to the imposition of withholding Tax liability on Dicerna US that would not have been imposed in the absence of such action or in an increase in such liability above the liability that would have been imposed in the absence of such action, Lilly will indemnify and hold harmless Dicerna US from any such additional or increased withholding Tax liability (except to the extent that Dicerna US or any of its Affiliates can reclaim it, provided that Dicerna US will be reimbursed for any reasonable out of pocket costs incurred in the reclaim). The Payor shall promptly (as available) submit to the Payee appropriate proof of payment of the withheld Taxes as well as the official receipts sufficient to enable the Payee to claim such payments of Taxes. To the extent that a Party is required to deduct and withhold Taxes on any such payment pursuant to this Section 9.4, such Party will provide the Payee with written notice of the required withholding

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as promptly as reasonably practical (and in any event, no later than fifteen (15) Business Days) prior to making such payment, and the Parties shall cooperate and exercise their reasonable best efforts to ensure that any such withholding Taxes are reduced as far as possible under the provisions of any Applicable Law, and shall provide Payee reasonable assistance in order to allow Payee to obtain the benefit of any present or future treaty against double taxation or refund or reduction in Taxes which may apply to the Agreement Payments.

9.5 Audit Rights (Financial).

9.5.1 Each Party (the “Auditing Party”) shall have the right to appoint at its expense an independent certified public accountant of nationally recognized standing (the “Accounting Firm”) reasonably acceptable to the other Party to inspect or audit the relevant records of the other Party (the “Audited Party”) in order to verify that the amount of such expenses and payments (“Expenses and Payments”) were correctly determined. Prior to commencing the implementation of such audit the Auditing Party shall submit an audit plan, including audit scope, to the other Audited Party for approval, which shall not be unreasonably withheld. The Audited Party shall each make its records available for inspection or audit by the Accounting Firm during regular business hours at such place or places where such records are customarily kept, upon reasonable notice

from the Auditing Party, solely to verify the expenses and payments hereunder were correctly determined. Such inspection or audit right shall not be exercised by the Auditing Party more than once in any Calendar Year and may cover a period [***] All records made available for inspection or audit shall be deemed to be Confidential Information of the Audited Party. The results of each inspection or audit, if any, shall be binding on both Parties. The Auditing Party shall bear the full cost of such audit unless such audit discloses at least a [***] shortfall [***], in which case the Audited Party will bear all reasonable costs and expenses of the audit. The Auditing Party will be entitled to recover any shortfall in payments as determined by such audit. Similarly, if the audit reveals an overpayment, the Auditing Party will be entitled to recover such overpayment as determined by such audit as actually received by the Audited Party. Any underpayment or overpayment as determined under this Section 9.5.1 shall be promptly (but in any event no later than [***] after the Auditing Party's receipt of the Accounting Firm's report so concluding) paid to the Party entitled to payment hereunder.

9.5.2 [***].

10. INTELLECTUAL PROPERTY RIGHTS

10.1 Disclosure of Inventions. [***]

10.2 Lilly Background IP. As between the Parties, Lilly shall own and Control all right, title and interest in and to all Patent Rights or Know-How owned or Controlled by Lilly and existing as of or before the Effective Date, or generated or acquired outside the scope of the Research Program and this Agreement, and shall own any Improvements to any of the foregoing, regardless of whether such Improvements are made by or on behalf of Lilly or Dicerna (or an Affiliate of Lilly or Dicerna, as applicable) ("Lilly Background IP"). Dicerna hereby assigns and agrees to assign to Lilly all

right, title and interest in and to any such Improvements within the Lilly Background IP that are discovered, conceived or otherwise generated by Dicerna in connection with the Research Program or otherwise.

10.3 Dicerna Background IP. As between the Parties, Dicerna shall own and Control all right, title and interest in and to all Patent Rights or Know-How owned or Controlled by Dicerna and existing as of or before the Effective Date (including any Patent Rights and Know-How Controlled by Dicerna directed to the GalXC Platform), or generated or acquired outside the scope of the Research Program and this Agreement, and shall own any Improvements to any of the foregoing, regardless of whether such Improvements are made by Dicerna or Lilly ("Dicerna Background IP"). Lilly hereby assigns and agrees to assign to Dicerna all right, title and interest in and to any such Improvements within the Dicerna Background IP that are discovered, conceived or otherwise generated by Lilly in connection with the Research Program or otherwise. If the Parties determine by mutual agreement that any Lilly Know-How shall necessarily be contributed to the development of the GalXC Platform, the Parties shall develop a mutually acceptable strategy for prosecution of any Patent Rights directed to such Lilly Know-How through a joint patent process via a Working Group pursuant to Section 6.3, prior to contributing such Lilly Know-How to the GalXC Platform.

10.4 Joint Inventions.

10.4.1 [***].

10.4.2 Exploitation. [***]

10.4.3 Assignment and Transfer of Interests in Joint Inventions. [***]

10.5 Cooperation. Each Party represents and covenants that all of such Party's employee(s), contractor(s) and agent(s) are or will be obligated under a binding written agreement or otherwise to assign to such Party all Inventions made or conceived by such employee(s), contractor(s) or other agent(s) in connection with this Agreement.

10.6 Filing, Prosecution, Enforcement and Defense.

10.6.1 GalXC Patents and Dicerna Background IP. As between the Parties, Dicerna shall, at its sole cost, be responsible for the filing, prosecution, enforcement and defense of any Licensed Patent Rights directed to the GalXC Platform ("GalXC Patents") and Dicerna Background IP, other than any Product-Specific Patents; provided, that Lilly shall have the first right, but not the obligation, at its sole cost, to enforce the GalXC Patents to the extent such enforcement action is solely directed against an RNAi product Directed To a Selected Target being Researched, Developed, used, made (including formulated) or Commercialized by a Third Party ("Competing RNAi Product").

10.6.2 New Platform Patents and Other Joint Patent Rights. The Parties will share, in equal amount, the out-of-pocket expenses incurred in connection with such preparation, filing, prosecution and maintenance of the Licensed Patent Rights directed to

a New Nucleic Acid Platform ("New Platform Patents") and other Joint Patent Rights (other than Product-Specific Patents) through a joint patent process via a Working Group pursuant to Section 6.3, and using a mutually agreed counsel (which may be in-house counsel), and shall equally share the costs of such filing and prosecution activities, unless a Party opts to abandon its interest in a Joint Patent Right by notice to the other Party, in which case Section 10.6.4 shall apply. Each Party shall reimburse the other for its share of such expenses following receipt of an invoice from the Party incurring such expenses (including reasonable documentation of such expenses if requested). Each Party shall keep the other reasonably informed of, and consult with the other Party with respect to the status and prosecution of all patent applications and patents included in such Joint Patent Rights, including providing in a timely manner the other Party with copies of all material correspondence with the applicable patent regulatory authority and the opportunity to review and comment on any papers, responses or other filings prepared for submissions to said authorities in advance of their filing. Each Party at its own discretion shall have the opportunity to separately enforce and defend the New Platform Patents and other Joint Patent Rights following good faith consultation with the other Party, keeping the other Party regularly informed throughout the proceeding and considering in good faith such other Party's comments (other than Product-Specific Patents, which shall be subject to Section 10.6.3) except that: (i) Lilly shall have the first right but not the obligation to enforce the New Platform Patents and Joint Patent Rights (other than Product-Specific Patents), at Lilly's cost, to the extent such action is solely directed against a Competing RNAi Product; and (ii) Dicerna shall have the first right but not the obligation to enforce the New Platform Patents and Joint Patent Rights (other than Product-Specific Patents), at Dicerna's cost, to the extent such enforcement action is solely directed to a product competitive to a product being Researched, Developed or Commercialized by Dicerna or its licensees.

10.6.3 Product-Specific Patents. Lilly shall be responsible for the prosecution, maintenance, defense, and enforcement of all Joint Patent Rights and Licensed Patent Rights directed to the Product or Selected Target ("Product-Specific Patents"), at Lilly's cost.

10.6.4 Abandonment of Patent Rights. If Dicerna or Lilly elects to cease the filing, prosecution, maintenance and/or defense of a Patent Right for which Dicerna or Lilly, as applicable, is in control of the filing, prosecution, maintenance and/or defense pursuant to Section 10.6.2 or 10.6.3 in any country of the Territory, Dicerna or Lilly, as applicable, shall provide the other Party with notice promptly following its decision to abandon the filing, prosecution, maintenance and/or defense of such Patent Right, but in no event later than sixty (60) days before the next relevant deadline relating to or any public disclosure of the relevant Patent Right. In such event, the abandoning Party shall permit the other Party, at such other Party's sole discretion, to take over or continue, as the case may be, the filing, prosecution, maintenance and defense of such abandoned Patent Right on behalf of and in the name of the abandoning Party, but at the other Party's own expense. If such other Party elects to take over and continue such filing, prosecution, maintenance or defense, the abandoning Party shall execute such documents and perform such acts, at the other Party's expense, as may be reasonably necessary to permit such other Party to take

over and continue the filing, prosecution, maintenance and/or defense of such abandoned Patent Right on behalf and in the name of the abandoning Party and at the other Party's own expense. For the avoidance of doubt, the abandoning Party shall remain the owner of the abandoned Patent Right(s) but shall have no further say in the filing, prosecution, maintenance and defense of such abandoned Patent Right(s); provided, however, that the non-abandoning Party shall timely inform the abandoning Party if it too decides to finally abandon the respective Patent Right, in which event the other Party shall have the right to re-assume sole responsibility for ongoing prosecution, maintenance and defense of such abandoned Patent Right in accordance with this Section 10.6.4. Notwithstanding the foregoing, (a) if Lilly determines, in its reasonable discretion following good faith discussions with Dicerna, that any such abandonment is necessary to avoid detrimental effect to any Product-Specific Patent, then Dicerna shall have no right pursuant to this Section 10.6.4 to elect to take over and continue the filing, prosecution, maintenance or defense of such Product-Specific Patent.

10.6.5 Notification of Infringement. Lilly and Dicerna shall each promptly notify the other in writing of any alleged or threatened infringement of the Licensed Patent Rights or Joint Patent Rights of which they become aware (each, an "Action"), and the prosecution and enforcement of such alleged or threatened infringement of the Joint Patent Rights shall be done in accordance with this Section 10.6.

10.6.6 Control of Enforcement Actions. The Party specified in this Section 10.6 as having control over enforcement of particular Patent Rights alleged or threatened to be infringed in an Action (the "Initial Party") may, at its expense, commence litigation with respect to the alleged or threatened infringement at its own expense or otherwise seek to handle such Action. If the Initial Party elects, in its sole discretion, to handle such an Action, the Initial Party shall control such Action, and the Initial Party may enter into settlements, stipulated judgments or other arrangements respecting such infringement; provided, however, the Initial Party shall not take any action, including legal action, settle or make

any agreement that adversely affects the other Party's rights or interests, including any settlement or agreement which admits or concedes that any aspect of any of the Lilly Intellectual Property or Licensed Technology is invalid or unenforceable or which adversely affects the scope of any of the Lilly Intellectual Property (in case where Dicerna is the Initial Party) or Licensed Technology (in case where Lilly is the Initial Party), without the prior written consent of the other Party. The Initial Party shall keep the other Party reasonably apprised of the progress of any such Action. The other Party may, at its option and sole expense, be represented by counsel of its choice, but all other costs associated with any such Action shall be at the sole expense of the Initial Party. In the event that the Initial Party does not commence litigation or otherwise address an Action within thirty (30) Business Days following the date on which Lilly or Dicerna (as applicable) notifies the other Party of any alleged or threatened infringement of the Licensed Patent Rights, New Platform Patents or Joint Patent Rights of which they become aware pursuant to Section 10.6.5, the other Party may do so, at the other Party's expense; provided, however, that in the event the initial Party in good faith objects to the other Party pursuing such Action on the grounds that pursuit of such Action is not in the long term best interest of the Products, the GalXC

Platform or the New Nucleic Acid Platforms, the matter shall be presented to the JSC for discussion pursuant to Section 6.4.4, and the other Party shall not initiate such Action until review by the JSC is complete in accordance with Section 6.4.4. In any Action, (a) the Party not in control of enforcing such Action will reasonably cooperate with the enforcing Party, including, if required to bring such action, the furnishing of a power of attorney, and (b) any damages or other recovery, including compensatory and other non-compensatory damages or recovery actually received from a Third Party, shall first be used to reimburse the Parties for their respective reasonable costs and expenses incurred in connection with such Action. Any remaining recovery shall be deemed to be Net Sales of a Product directed to a Non-Hepatocyte Target or in the case of any product with a Neurodegeneration or Pain Indication, or Net Sales of a Product directed to a Hepatocyte Cardiometabolic Target, in case of any other accused product, in each case for purposes of Royalties due hereunder, but for no other purposes.

10.6.7 Patent Term Extension. The Parties shall consult with and cooperate and coordinate with each other in obtaining patent term extensions or supplemental protection certificates and the like with respect to the New Platform Patents, Joint Patent Rights and Product-Specific Patent Rights, in each country and region where it is possible to do so. Lilly will elect whether to pursue patent term extensions or supplemental protection certificates for Product-Specific Patent Rights and Dicerna agrees to abide by such election. Dicerna shall provide prompt and reasonable assistance, as requested by Lilly, at Lilly's reasonable, pre-approved expense, including by taking such action as may be required of the patent holder under any Applicable Laws to obtain such patent extension or supplementary protection certificate.

10.7 Management of Background Patents. Lilly shall have sole responsibility for and control over the filing, prosecution, maintenance and enforcement of the Lilly Patents (other than the Joint Patent Rights and New Platform Patents), at Lilly's sole expense.

10.8 Product Infringement. [***]

10.9 Product Trademarks. Lilly will be free, in its sole discretion, to use and to register in any trademark office in the Territory any trademark for use with a Product; provided, that nothing herein shall grant Lilly any right to use any trademark Controlled by Dicerna and/or its Affiliates. Subject to the foregoing, Lilly shall have the right to select, and shall own all right, title and interest in and to, any such trademark relating to a Product that it selects during and after the Term. Upon Dicerna's request, Lilly shall recognize Dicerna in a press release associated with the Regulatory Approval of any Product.

11. CONFIDENTIALITY

11.1 Duty of Confidence. During the Term and for [***] thereafter, all Confidential Information disclosed by one Party to the other Party hereunder shall be maintained in confidence by the receiving Party and shall not be disclosed to any Third Party or used for any purpose, except as set forth herein, without the prior written consent of the disclosing Party. The recipient Party

may only use Confidential Information of the other Party for purposes of exercising its rights and fulfilling its obligations under this Agreement and may disclose Confidential Information of the other Party and its Affiliates to employees, agents, contractors, consultants and advisers of the recipient Party and its Affiliates, licensees and sublicensees to the extent reasonably necessary for such purposes; provided that such persons and entities are bound by confidentiality and non-use of the Confidential Information consistent with the confidentiality provisions of this Agreement as they apply to the recipient Party.

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:

11.2.1 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;

11.2.2 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;

11.2.3 is disclosed to the recipient Party or an Affiliate by a Third Party on a non-confidential basis that is entitled to disclose it without breaching any confidentiality obligation with respect to such information; or

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

11.3 Authorized Disclosures. Subject to this Section 11.3, the recipient Party may disclose Confidential Information (including the Agreement) belonging to the other Party:

11.3.1 if such disclosure is deemed necessary by counsel to the recipient Party to be disclosed to such Party's attorneys, independent accountants or financial advisors for the sole purpose of enabling such attorneys, independent accountants or financial advisors to provide advice to the receiving Party, on the condition that such attorneys, independent accountants and financial advisors are bound by confidentiality and non-use obligations consistent with the confidentiality provisions of this Agreement as they apply to the recipient Party.

11.3.2 to governmental or other regulatory agencies in order to obtain and maintain Patent Rights consistent with Article 10, but provided that such disclosure may be only to the extent reasonably necessary to obtain and maintain Patent Rights.

11.3.3 to governmental or other regulatory agencies by (a) Lilly or a Lilly Affiliate, licensee or sublicensee to gain or maintain approval to conduct Clinical Trials for a Product, to obtain and maintain Marketing Authorization or to otherwise Research, Develop and Commercialize Products, or (b) Dicerna or a Dicerna Affiliate, licensee or

sublicensee to gain or maintain approval to conduct Clinical Trials for a Returned Compound or Product, to obtain and maintain Marketing Authorization or to otherwise Research Develop and Commercialize Returned Compounds and Products, but provided, in each case, that such disclosure may be only to the extent reasonably necessary to obtain or maintain Marketing Authorizations.

11.3.4 to the extent required in connection with any judicial or administrative process relating to or arising from this Agreement (including any enforcement hereof) or to comply with applicable court orders or governmental regulations.

11.3.5 if the recipient Party is required by judicial or administrative process to disclose Confidential Information that is subject to the non-disclosure provisions of this Article 11, in which case such Party shall promptly inform the other Party of the disclosure that is being sought in order to provide the other Party an opportunity to challenge or limit the disclosure obligations. Confidential Information that is disclosed as permitted by this Section 11.3 shall remain otherwise subject to the confidentiality and non-use provisions of this Article 11, and the Party disclosing Confidential Information as permitted by this Section 11.3 shall take all steps reasonably necessary, including obtaining an order of confidentiality and otherwise cooperating with the other Party, to ensure the continued confidential treatment of such Confidential Information. For matters subject to this Section 11.3.5 and Section 11.5, Section 11.5 shall control.

11.3.6 if the recipient Party is required to make a disclosure by Law, regulation or legal process, including by the rules or regulations of any tax authority, the United States Securities and Exchange Commission, or any other similar regulatory agencies in a country other than the United States or of any stock exchange or other securities trading institution. In such event, a Party disclosing Confidential Information of the other Party under this Section 11.3.6 shall disclose only such Confidential Information of such other Party as is required to be disclosed.

11.4 Regulatory Approvals. The Parties expressly agree that Lilly may submit Confidential Information of Dicerna to any Regulatory Authority to the extent necessary for obtaining Regulatory Approvals for Products in the Field. The Parties expressly agree that Dicerna may submit Confidential Information of Lilly to any Regulatory Authority to the extent necessary for obtaining Regulatory Approvals for Returned Compounds and Products in the Field.

11.5 Disclosure of Agreement. This Agreement and the terms herein shall be considered the Confidential Information of each of the Parties and shall be treated confidentially by each of the Parties, except that either Party or its Affiliates may disclose the terms of this Agreement (a) to the extent required or advisable to comply with the rules and regulations promulgated by the United States Securities and Exchange Commission or

any equivalent governmental agency in any country in the Territory, provided that such Party shall submit a confidential treatment request in connection with such disclosure and shall submit with such confidential treatment request only such redacted form of this Agreement as may be mutually agreed in writing by the Parties; (b) to external counsel to bona fide prospective Acquirers who would only have access on a need-to-know basis, in a secure data room (which would contain documents that are water-marked and accessible on a time-stamped

basis) following agreement on all material terms of the prospective transaction and would be restricted from sharing the terms with such counsel's client, provided that, either Party may disclose an unredacted form of this Agreement (including the foregoing information regarding Targets and payments) to the senior management of such prospective Acquirers, but only at such time as (x) the Party wishing to so disclose such information certifies in writing to the other Party that such Party reasonably and in good faith believes, that it has reached agreement on all substantial economic terms and that it will execute a definitive agreement with respect to the proposed transaction within the following [***] Business Days and (y) the prospective Acquirer has executed a non-disclosure agreement restricting it to use such terms solely for purposes of evaluating the potential acquisition, restricting access to such individuals as may need to know the information for such evaluation, and strictly prohibiting disclosure of such terms by the prospective Acquirer; (c) upon request from a Governmental Authority (such as tax authorities), provided the disclosing Party uses reasonable efforts to ensure the Governmental Authority maintains such terms as confidential; (d) to applicable licensors, to the extent necessary to comply with the terms of any Third Party license agreement, the rights under which are sublicensed to the other Party under this Agreement; and (e) to the extent necessary to perform obligations or exercise rights under this Agreement, any sublicensee, collaborator or potential sublicensee or potential collaborator of such Party, provided that any sublicensee, collaborator or potential sublicensee or collaborator agree in writing to be bound by obligations of confidentiality and non-use no less protective of the Disclosing Party than those set forth in this Agreement.

12. PUBLICATIONS AND PUBLICITY

12.1 Publications. Notwithstanding anything to the contrary in this Agreement, Lilly shall have the right to publish the results of the Research Program with respect to the Products, provided that any such publication shall be subject to the prior review of Dicerna and shall be provided at least [***] Business Days prior to its submission for publication. Dicerna will use diligent efforts to complete its review at least [***] Business Days prior to the intended publication date. Lilly shall (a) delete from such publication any of Dicerna's Confidential Information, or (b) upon a determination that such publication includes patentable material, delay the submission of such publication or presentation for an additional period of up to [***] Business Days in order to allow the appropriate Party to pursue patent protection.

12.2 Publicity. The Parties have mutually approved a press release attached hereto as Exhibit D. with respect to this Agreement and either Party may make subsequent public disclosure of the contents of such press release. Subject to the foregoing, each Party agrees not to issue any press release or other public statement, whether oral or written, disclosing the terms hereof or any of the activities under the Research Program conducted hereunder without the prior written consent of the other Party; provided however, that neither Party will be prevented from complying with any duty of disclosure it may have pursuant to Applicable Laws or pursuant to the rules of any recognized stock exchange or quotation system subject to the restrictions set forth in Sections 11.3 and 11.5. In the event that Dicerna desires to make a public announcement regarding the achievement of any milestone event under Section 8.2 or Section 8.3, to the extent reasonably practicable, Dicerna will

provide Lilly with no less than [***] Business Days in which to review and approve such announcement, such approval not to be unreasonably withheld, conditioned or delayed.

13. HSR FILINGS AND CLOSING

13.1 HSR Filings. If required by Applicable Laws, promptly after the execution of this Agreement, both Parties shall file the appropriate notices with respect to the transactions contemplated hereby as promptly as reasonably practicable with the United States Federal Trade Commission ("FTC") and Department of Justice ("DOJ") under the Hart Scott Rodino Antitrust Improvements Act of 1976, as amended ("HSR Act"). Each of the Parties shall promptly supply the other with any information that may reasonably be required in order to effectuate the filings under the HSR Act. Each of the Parties shall notify the other promptly upon receipt from the FTC or DOJ in connection with any filing made under the HSR Act and of any request for amendments or supplements to any such filings or of any communications with, and any other inquiries or requests for additional information from, the FTC and DOJ. Each Party shall comply promptly, in accordance with advice received from counsel, as

appropriate, with any such inquiry or request, provided, however, that neither Party shall be required to consent to the divestiture or other disposition of any of its assets or the assets of its Affiliates or to consent to any other structural or conduct remedy, and each Party and its Affiliates shall have no obligation to contest, administratively or in court, any ruling, order or other action of the FTC or DOJ or any Third Party with respect to the transactions contemplated by this Agreement. Each Party shall be responsible for paying its own costs and expenses (including legal and consultants' fees) incurred in connection with obtaining clearance of the transactions contemplated hereby from the FTC and the DOJ, except that Lilly will pay the filing fees incurred by both Parties in connection with the filings required pursuant to the HSR Act. In the event the Parties determine that HSR filings are required, the Effective Date shall not be deemed to have occurred and this Agreement (other than this Article 13) shall not be binding until the HSR Clearance Date. As used herein, the "HSR Clearance Date" means the earlier of (i) the date on which the FTC or DOJ shall notify the Parties of early termination of the waiting period under the HSR Act or (ii) the date on which the applicable waiting period under the HSR Act expires; provided, however, that if the FTC or DOJ commences any investigation by means of a second request or otherwise, HSR Clearance Date means the date on which any investigation opened by the FTC or DOJ has been terminated, without action to prevent the Parties from implementing the transactions contemplated by this Agreement with respect to the United States. Notwithstanding any other provisions of this Agreement to the contrary, either Party may terminate this Agreement effective upon Notice to the other Party if the HSR Clearance Date has not occurred on or before the date that is [***] days after the Parties make their respective HSR filings.

13.2 Conduct Pending HSR Clearance Date. If the Parties determine that HSR filings are required, between the date of execution of this Agreement and the earlier of the Effective Date or the date of termination, each Party shall conduct its business with respect to the intellectual property rights granted hereunder in the ordinary course, and it will refrain from taking any action or omitting to take any action that would have the effect of restricting or impairing the rights to be granted to either Party hereunder or preventing either Party's ability to perform its obligations under this Agreement.

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14. TERM AND TERMINATION

14.1 Term. Subject to Article 13, the term of this Agreement (the "Term") will commence on the Effective Date and (subject to earlier termination in accordance with Section 14.2 or Section 14.3) will expire on a Product-by-Product basis upon the expiration of the Royalty Term for such Product. Upon expiration of this Agreement (but not termination), the licenses granted to Lilly under this Agreement shall become royalty-free, fully paid-up, perpetual and irrevocable licenses.

14.2 Voluntary Termination by Lilly. Lilly has the right to terminate the Agreement in its entirety or on a Selected Target-by-Selected Target, Compound-by-Compound or Product-by Product basis, without cause and in its sole discretion upon ninety (90) days' prior written notice to Dicerna.

14.3 Termination for Cause.

14.3.1 If a Party materially breaches this Agreement, the non-breaching Party may provide the breaching Party with a written notice specifying the nature of the breach, and stating its intention to terminate this Agreement if such breach is not cured. If the material breach is not cured by the allegedly breaching Party within [***] days (or ninety [***] days in the event of an undisputed payment default) after the receipt of such notice or if such other breach is curable but cannot be cured within the [***] day period (which inability shall not apply to undisputed payment defaults) and the allegedly breaching Party fails to use diligent efforts to promptly cure such breach, or the allegedly breaching Party fails to dispute the alleged breach, within such [***] day period, then in each case the non-breaching Party shall be entitled, without prejudice to any of its other rights under this Agreement, and in addition to any other remedies available to it by law or in equity, to terminate this Agreement by providing written notice to the other Party. If the allegedly breaching Party in good faith disputes such material breach or the failure to cure or remedy such material breach such Party shall, within [***] days of receipt of written notice from the other Party of its intention to terminate (x) provide written notice of that dispute putting forward in reasonable detail the rationale for disputing the alleged breach to the notifying Party and (y) initiate expedited arbitration procedures in accordance with Section 19.6, in which case, such termination shall not be effective until [***] days after the arbitration award determining that the conditions for termination of this Section 14.3 are met; provided further that the breach is not cured within such [***] day period. During the pendency of any such arbitration the Parties shall continue performing their respective obligations, and exercising their respective rights, under this Agreement. The Parties hereby agree to take such steps as may be reasonably necessary to complete such arbitration process as expeditiously as possible given the circumstances.

14.3.2 In the event that Dicerna or any of its Affiliates commences a declaratory judgment action, inter partes review, post-grant review, opposition or similar proceeding to challenge the validity or enforceability of any Product-Specific Patents, other than in response to a threat of an infringement claim or as necessary to secure allowance of a Lilly-owned patent claim, Lilly shall be entitled to terminate this Agreement with immediate effect upon written notice to Dicerna US with respect to the challenged Product-

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Specific Patent and such Patent Right shall no longer be a royalty-bearing Product-Specific Patent.

14.3.3 In the event that Lilly or any of its Affiliates commences a declaratory judgment action, inter partes review, post-grant review, opposition or similar proceeding to challenge the validity or enforceability of any Licensed Patent Right, other than in response to a threat of an infringement claim or as necessary to secure allowance of a Dicerna-owned patent claim, Dicerna US shall be entitled to terminate this Agreement with immediate effect upon written notice to Lilly with respect to the challenged Licensed Patent Right and such Patent Right shall not longer be a Licensed Patent Right.

15. EFFECTS OF TERMINATION

15.1 Termination of Agreement.

15.1.1 If this Agreement terminates for any reason other than expiration, then no later than [***] days after the effective date of such termination, Lilly shall pay all amounts then due and owing (except that Lilly shall have the right to offset any undisputed monies owed to Lilly by Dicerna, if any) as of the termination date and each Party shall return or cause to be returned to the other Party, or destroy, all Confidential Information received from the other Party and all copies thereof; provided, however, that each Party may keep one (1) copy of Confidential Information received from the other Party in its confidential files for record purposes and such copy shall remain subject to Article 11 of this Agreement. In the event of termination of this Agreement, except as expressly set forth otherwise in this Agreement (including under the surviving provisions set forth in Section 15.3), the rights and obligations (including the licenses granted under Article 7, except for the freedom to operate rights granted to either Party under Section 7.6 which shall survive) of the Parties hereunder shall terminate as of the date of such termination.

15.1.2 Notwithstanding anything to the contrary under this Agreement, Lilly shall have the right. in lieu of exercising its right to terminate this Agreement under Section 14.3, to instead, by way of written notice to Dicerna, to continue this Agreement in accordance with its terms subject to reducing all payments due from Lilly to Dicerna US following the date of termination pursuant to Section 8.2, Section 8.3 and Section 8.4 by [***] percent [***] For clarity, in the case that a particular election is not a termination of the Agreement in its entirety but instead on a Selected Target-by-Selected Target, Compound-by-Compound or Product-by-Product or basis, then such foregoing terms will only apply to the Compounds, Product(s) and/or Selected Target(s) that could have been terminated.

15.2 Target/Product Return.

15.2.1 Upon any Selected Target becoming a Discontinued Target, voluntary termination of this Agreement in its entirety or with respect to particular Compounds, Products or Selected Targets by Lilly under Section 14.2, or termination of this Agreement for cause by Dicerna under Section 14.3, any license rights granted by Dicerna US and/or

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Dicerna Cayman to Lilly to the Discontinued Target or affected Products, as applicable, (or rights to all Reserved Targets and Selected Targets in the event of the termination of this Agreement as a whole) shall cease and revert to Dicerna subject, however, in the event a partial termination, to the exclusivity terms set forth in Sections 3.3, 3.4 and 3.6. For purposes of this Section 15.2, “Returned Compounds and Products” shall mean the following: (a) in the case of a Reserved Target or Selected Target becoming a Discontinued Target, all Product(s) (or products, if no Compound was selected) and Compound(s) then being Researched and Developed under this Agreement that are Directed To the Discontinued Target(s), but not other Products and Compounds; (b) in the case of voluntary termination by Lilly on a Compound-by-Compound or Product-by-Product basis, the Product(s) and Compound(s) that are the subject of the termination, but not other Products and Compounds; and (c) in the case of voluntary termination by Lilly in its entirety, or by Dicerna US or Dicerna Cayman for cause, all Products and Compounds then being Researched, Developed or Commercialized under this Agreement. If this Agreement is terminated by either Party pursuant to Section 13.1, the Parties acknowledge and agree that (a) no Target shall ever have been deemed to be a Reserved Target or a Selected Target, (b) the licenses herein shall be deemed to have never granted and (c) neither Party shall have been subject to any exclusivity obligations.

15.2.2 Lilly shall, at Dicerna’s request, transfer to Dicerna the following items with respect to Returned Compounds and Products, to the extent necessary or reasonably useful for the Development, registration, manufacture (including formulation), use, or Commercialization of the Returned Compounds and Products: all clinical and regulatory correspondence; all Regulatory Approvals held by Lilly or its Affiliates; all data and results arising from Lilly’s Development or Commercialization of the Compounds and Products corresponding to the Returned Compounds

and Products, including the trial master file, the clinical database and the safety database; and marketing reports, reimbursement studies and promotional materials solely related to the Compounds and Products that are transferable by Lilly or its Affiliates to Dicerna; provided, however, that Lilly shall have the right to retain copies of the foregoing information and documentation.

15.2.3 [***] license [***]of the Returned Compounds and Products [***] The Parties will agree in good faith regarding a technology transfer plan to facilitate Dicerna US's and/or Dicerna Cayman's practice of the foregoing license, which plan will provide for reasonable reimbursement to Lilly for Lilly's actual costs and expenses, except that in the event Lilly terminates pursuant to Section 14.2 or Dicerna terminates pursuant to Section 14.3, the costs and expenses of such transfer shall be borne by Lilly. Any sublicense granted by Lilly or its Affiliate to a Third Party under the license granted under Section 7.1 shall survive the termination of this Agreement, provided that, in the case where termination of this Agreement for Lilly's uncured material breach pursuant to Section 14.3, such sublicensee did not cause such uncured material breach. If permitted under such a surviving sublicense, effective upon termination of this Agreement, such sublicense shall become a direct license from Dicerna US and Dicerna Cayman to such sublicensee; provided, that, if assignment of the sublicense or such conversion of the sublicense to a direct license is not permitted under the applicable sublicense, Lilly shall be entitled to retain its right to payment

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thereunder and shall remain liable for Royalties under Section 8.4 of this Agreement with respect to sales by such sublicensee.

15.2.4 [***]

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15.2.5 For clarity, with the exception of applicable obligations under this Section 15.2 and without limiting Section 15.3 and unless expressly agreed otherwise, all obligations of the Parties with respect to the Research, Development and Commercialization of the Selected Targets, the Compounds, the Products and the New Nucleic Acid Platforms shall terminate on the date of notice of termination of this Agreement.

15.3 Survival. Termination or expiration of this Agreement shall not relieve Lilly, Dicerna US or Dicerna Cayman of any obligation accruing prior to such termination/expiration, nor affect in any way the survival of any other right, duty or obligation of the Lilly, Dicerna US or Dicerna Cayman which is expressly stated elsewhere in this Agreement to survive such termination. Without limiting the foregoing and except as expressly set forth otherwise in this Agreement, Article 1 (for interpretation purposes only), Article 8 (to the extent that any amounts payable accrued prior to the effective date of such expiration/termination and remain unpaid), Article 10 (but only to the extent and with respect to intellectual property generated/developed prior to the effective date of such termination), Article 11, Article 15 and Article 17 (to the extent and with respect to claims accruing prior to the effective date of such termination) and Section 2.4 (but only with respect to information disclosed prior to the effective date of such termination), Section 8.4 (but only applicable with respect to sublicenses surviving termination (not an expiration) as described in Section 15.2.3 and further, only to the extent such sublicensee continues to Develop or Commercialize a Product that triggers such payment obligations during the Royalty Term), Section 14.1 (but only with respect to the license granted therein upon expiration), Sections 7.6, 7.7, 16.5 and 16.6 shall survive termination, and Sections 19.3 through 19.10, 19.12 through 19.21 shall survive to the extent applicable. Except as otherwise expressly provided herein, all other rights and obligations of the Parties under this Agreement shall terminate upon termination/expiration of this Agreement.

15.4 Termination Not Sole Remedy. Termination of this Agreement is not the sole remedy under this Agreement and, whether or not termination is effected, all other remedies will remain available (except as Lilly, Dicerna US and/or Dicerna Cayman have expressly agreed to otherwise

herein) and such termination shall not preclude Lilly, Dicerna US or Dicerna Cayman from claiming any other damages, compensation or relief that it may be entitled to upon such termination.

15.5 Bankruptcy Code. If this Agreement is rejected by a Party as a debtor under Section 365 of the United States Bankruptcy Code or similar provision in the bankruptcy laws of another

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jurisdiction (the "Code"), then, notwithstanding anything else in this Agreement to the contrary, all licenses and rights to licenses granted under or pursuant to this Agreement by the Party in bankruptcy to the other Party are, and shall otherwise be deemed to be, for purposes of Section 365(n) of the Code (or similar provision in the bankruptcy laws of the jurisdiction), licenses of rights to "intellectual property" as defined under Section 101(35A) of the Code (or similar provision in the bankruptcy laws of another applicable jurisdiction). The Parties agree that a Party that is a licensee of rights under this Agreement shall retain and may fully exercise all of its rights and elections under the Code, and that upon commencement of a bankruptcy proceeding by or against a Party under the Code, the other Party shall be entitled to a complete duplicate of, or complete access to (as such other Party deems appropriate), any such intellectual property and all embodiments of such intellectual property, if not already in such other Party's possession, shall be promptly delivered to such other Party (a) upon any such commencement of a bankruptcy proceeding upon written request therefor by such other Party, unless the bankrupt Party elects to continue to perform all of its obligations under this Agreement or (b) if not delivered under the foregoing subclause (a), upon the rejection of this Agreement by or on behalf of the bankrupt Party upon written request therefor by the other Party. The foregoing provisions of this Section 15.5 are without prejudice to any rights a Party may have arising under the Code.

16. REPRESENTATIONS AND WARRANTIES

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

16.1.1 Good Standing. It is a corporation duly organized, validly existing under the laws of the jurisdiction of its incorporation, and in good standing under the laws of its jurisdiction of formation;

16.1.2 Authority and Capabilities. It has (a) full corporate power and authority to execute, deliver, and perform this Agreement, and (b) taken all corporate action(s) required by Applicable Laws and its organizational documents to authorize the execution and delivery of this Agreement, and the consummation of the transactions and performance of its obligations contemplated by this Agreement, and (c) sufficient facilities, experienced personnel or other capabilities (including via Affiliates and/or Third Parties) to enable it to perform its obligations under this Agreement;

16.1.3 Valid and Binding. This Agreement constitutes a legal, valid and binding agreement enforceable against it in accordance with its terms (except as the enforceability thereof may be limited by bankruptcy, bank moratorium or similar laws affecting creditors' rights generally and laws restricting the availability of equitable remedies and may be subject to general principles of equity whether or not such enforceability is considered in a proceeding at law or in equity);

16.1.4 No Conflict. 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 do not and shall not: (a) conflict

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with or result in a breach of any provision of its organizational documents; (b) result in a breach of any agreement to which it is a party; or (c) violate any Applicable Laws;

16.1.5 Absence of Debarment. Neither Party, its officers, employees, agents, consultants or any other person used by such Party in the performance of the respective Research and Development activities under the Research Program has been or is: (a) debarred, convicted, or is subject to a pending debarment or conviction, pursuant to section 306 of the United States Federal Food, Drug, and Cosmetic Act ("FFDCA"), 44 U.S.C. § 335a; (b) listed by any government or regulatory agencies as ineligible to participate in any government healthcare programs or government procurement or non-procurement programs (as that term is defined in 42 U.S.C. 1320a-7b(f)), or excluded, debarred, suspended or otherwise made ineligible to participate in any such program; or (c) convicted of a criminal offense related to the provision of healthcare items or services, or is subject to any such pending action. A Party agrees to inform the other Party in writing promptly if a Party or any person who is

performing activities under the Research Program is subject to the foregoing, or if any action, suit, claim, investigation, or proceeding relating to the foregoing is pending, or to the best of such Party's knowledge, is threatened.

16.2 Representations, Warranties and Covenants by Dicerna. Dicerna US and Dicerna Cayman collectively represent, warrant and, as applicable, covenant, to Lilly as follows:

16.2.1 No Targets Encumbered. As of the Effective Date, there are no Blocked Targets other than the Initial Blocked Targets.

16.2.2 No Grants that Conflict with this Agreement. Neither Dicerna US nor Dicerna Cayman, nor their Affiliates has granted, nor will Dicerna US or Dicerna Cayman or their Affiliates grant during the Term, any rights (or other encumbrances) to any Third Party to Licensed Technology that conflict with the rights assigned and/or granted to Lilly hereunder. Dicerna US and Dicerna Cayman collectively have Control over all Know-How and Patent Rights owned by them or their Affiliates as of the Effective Date that are necessary or reasonably useful to the Research, Development, registration, manufacturing (including formulation) or Commercialization of the Compounds and Products as known to be contemplated by this Agreement as of the Effective Date. Dicerna US and Dicerna Cayman shall ensure that: (a) all Know-How relating to, and Patent Rights directed to, (i) the GalXC Platform and New RNAi Platform or (ii) Compounds and Products Directed To Selected Targets and necessary or reasonably useful to Research, Develop, register, manufacture (including formulate), use or Commercialize Products in the Field in the Territory; and (b) all Improvements to Licensed Technology; in each case of (a) and (b) solely conceived, developed, created, made or reduced to practice by Dicerna or its Affiliates and not subject to Third Party rights under the BI-Dicerna Agreement, the Alexion-Dicerna Agreement or other agreements for the Blocked Targets consistent with this Section 16.2.2, are upon creation and remain thereafter Controlled by Dicerna US, Dicerna Cayman or both. Neither Dicerna US nor Dicerna Cayman, nor any of their Affiliates, will enter into any agreement after the date of execution of this Agreement conflicting with the foregoing.

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16.2.3 Existing Patent Rights.

(a) All Patent Rights contained in the Licensed Technology existing as of the Effective Date that are issued or subject to a pending application for issuance (the "Existing Patents") are listed on Exhibit E and all such Existing Patents are, as of the Effective Date: (i) to the extent issued (unless otherwise indicated on Exhibit E), subsisting and, to Dicerna's knowledge, not invalid or unenforceable; (ii) except for the Blocked Targets or as may be otherwise set forth in the Blocked Target List, solely and exclusively owned or exclusively licensed to Dicerna US or Dicerna Cayman in the Field in the Territory, free of any encumbrance, lien or claim of ownership by any Third Party; (iii) to the extent subject to a pending application for issuance, being prosecuted in the respective patent offices in which such applications have been filed in accordance with Applicable Law and Dicerna's ordinary patent prosecution practices and Dicerna and its Affiliates have presented all relevant references, documents and information of which it and the inventors are aware and which is advisable based on advice from patent counsel to the relevant patent examiner at the relevant patent office; and (iv) filed and maintained properly and all applicable fees applicable thereto have been paid on or before the due date for payment.

(b) As of the Effective Date, neither Dicerna nor any of its Affiliates have taken any action that would render any Invention claimed in the issued Existing Patents unpatentable.

(c) The Existing Patents represent all Patent Rights owned or Controlled by Dicerna US or Dicerna Cayman or their Affiliates as of the Effective Date that are necessary or reasonably useful to the Research, Development, manufacture (including to formulate) or Commercialization of the Compounds and Products as known to be contemplated by this Agreement as of the Effective Date. To Dicerna's knowledge, as of the Effective Date, no rights or licenses are required under any Patent Rights or Know-How for Lilly to Research, Develop, manufacture (including to formulate) or Commercialize the Products as contemplated herein as of the Effective Date other than those granted under Section 7.1.

(d) Except to the extent related to the Blocked Targets, there are no licenses or other rights granted to Third Parties regarding any Licensed Technology (or that would cause Patent Rights or Know-How to fail to be Licensed Technology by depriving Dicerna of Control) in the Field, to which Dicerna or its Affiliate is a party.

16.2.4 Litigation and Actions Relating to Intellectual Property. As of the Effective Date: (a) Dicerna has not received any written notice of any threatened claims or litigation seeking to invalidate or otherwise challenge the Licensed Technology, including the Licensed Patent Rights, or Dicerna's or its Affiliates' rights, therein; and (b) Dicerna is not aware of any pending or threatened action, suit, proceeding or claim by a Third Party asserting that Dicerna or its Affiliates is infringing or has misappropriated or otherwise is

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violating any Patent Right, trade secret or other proprietary right of any Third Party as would reasonably be expected to impair in any material respect the ability of it or its Affiliates to fulfill any of its obligations under this Agreement.

16.2.5 Other Material Claims and Actions. As of the Effective Date, there are no claims, actions, or proceedings pending or, to Dicerna's of its Affiliates' knowledge, threatened; nor, to Dicerna's or its Affiliates' knowledge, are there any formal inquiries initiated or written notices received for any such legal proceedings, in each case (or in aggregate) against Dicerna or its Affiliates or their properties, assets or businesses, which if adversely decided, would, individually or in the aggregate, have a material adverse effect on, or prevent Dicerna's or its Affiliates' ability to conduct the Research Program or to grant the licenses or rights granted under this Agreement.

16.2.6 No Government Funding. The Inventions claimed by the Existing Patents as of the Effective Date: (i) were not conceived, discovered, developed or otherwise made in connection with any research activities funded, in whole or in part, by the federal government of the United States of America or any agency thereof and (ii) are not a "subject invention" as that term is described in 35 U.S.C. Section 201(e) and (iii) are not otherwise subject to the provisions of the Patent and Trademark Law Amendments Act of 1980, as amended, codified at 35 U.S.C. §§ 200-212, as amended, as well as any regulations promulgated pursuant thereto, including in 37 C.F.R. Part 401.

16.2.7 Regulatory Documentation. With respect to the Lead Product, Dicerna and its Affiliates shall generate, prepare, maintain and retain all Regulatory Documentation that is required to be maintained or retained pursuant to and in accordance with, to the extent applicable, good laboratory and clinical practice and Applicable Law and all such information shall be true, complete and correct in all material respects and what it purports to be. "Regulatory Documentation" means: all (i) applications (including all INDs and applications for Regulatory Approval), registrations, licenses, authorizations and approvals (including Regulatory Approvals); (ii) correspondence and reports submitted to or received from Regulatory Authorities (including minutes and official contact reports relating to any communications with any Regulatory Authority) and all supporting documents with respect thereto, including all adverse event files and complaint files; (iii) supplements or changes to any of the foregoing following Regulatory Approval; and (iv) clinical and other data, including Clinical Trial data, contained or relied upon in any of the foregoing; in each case ((i), (ii), (iii) and (iv)) relating to the Lead Product Directed To an Initially Named Target.

16.2.8 Ownership of Dicerna Cayman. Dicerna US and Dicerna Cayman covenant that, throughout the Term, Dicerna Cayman and Dicerna US shall remain under common Control. Dicerna US and Dicerna Cayman shall be jointly and severally liable for all obligations of "Dicerna" hereunder.

16.3 Assignment by Employees, Agents and Consultants. All employees and agents of, and consultants to, each Party or its Affiliates are obligated to assign to such Party or its Affiliate

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their rights in and to any inventions arising out of their work at such Party or its Affiliate either pursuant to written agreement or by operation of law.

16.4 Actions Regarding Regulatory Authorities. Neither Party nor any of its Affiliates, nor any of its or their respective officers, employees or agents has: (i) committed (or after the Effective Date, will commit) an act, (ii) made (or after the Effective Date, will make) a statement or (iii) failed (or after the Effective Date, will fail) to act or make a statement that, in any case ((i), (ii) (iii)), that (x) would be or create an untrue statement of material fact or fraudulent statement to the FDA or any other Regulatory Authority with respect to the Commercialization of Products or (y) could reasonably be expected to provide a basis for the FDA to invoke its policy respecting "Fraud, Untrue Statements of Material Facts, Bribery and Illegal Gratuities", set forth in 56 Fed. Reg. 46191 (September 10, 1991) and any amendments thereto or any analogous laws or policies in the Territory, with respect the Commercialization of Compounds or Products.

16.5 Limitation. Neither Party nor its Affiliates makes any representation or warranty, either express or implied, that any of the Research Program, Research, Development and/or Commercialization efforts with regard to any Compound or Product will be successful.

16.6 No Other Warranties. Except as otherwise expressly set forth in this Agreement, each Party and its Affiliates expressly disclaim any and all representations or warranties of any kind with respect to the subject matter of this Agreement, whether express or implied, including any warranties of non■infringement, merchantability or fitness for a particular purpose.

17. INDEMNIFICATION AND LIABILITY

17.1 Indemnification by Dicerna. Dicerna shall indemnify, defend and hold Lilly and its Affiliates, and their respective officers, directors, employees, contractors, agents and assigns (each, a “Lilly Indemnified Party”), harmless from and against losses, damages and liability, including reasonable legal expense and attorneys’ fees, (collectively, “Losses”) to which any Lilly Indemnified Party may become subject as a result of any Third Party demands, claims or actions (“Claims”) against any Lilly Indemnified Party (including product liability claims) arising or resulting from: (a) the Research, Development, manufacture (including formulation), Commercialization or other exploitation of the Returned Compounds and Products pursuant to this Agreement by or on behalf of Dicerna or its Affiliates; (b) the negligence or willful misconduct of Dicerna or its Affiliates pursuant to this Agreement; (c) the material breach of any term in or the covenants, warranties, representations made by Dicerna US and/or Dicerna Cayman to Lilly under this Agreement; or (d) misappropriation of a Third Party’s Know-How to the extent such misappropriation arises from Lilly’s, its Affiliate’s or its or their sublicensees’ activities hereunder from materials provided by Dicerna for the use as to which misappropriation is asserted. Dicerna is only obliged to so indemnify and hold the Lilly Indemnified Parties harmless to the extent that such Claims do not arise from the material breach of this Agreement by or the negligence or willful misconduct of a Lilly Indemnified Party.

17.2 Indemnification by Lilly. Lilly shall indemnify, defend and hold Dicerna and its Affiliates, and their respective officers, directors, employees, contractors, agents and assigns (each, a “Dicerna Indemnified Party”), harmless from and against Losses incurred by any Dicerna Indemnified Party as a result of any Third Party Claims against any Dicerna Indemnified Party (including product liability claims) arising or resulting from: (a) the Research, Development, manufacture (including formulation), Commercialization or other exploitation of the Compounds and Products pursuant to this Agreement by or on behalf of Lilly or its Affiliates (other than to the extent Dicerna or its Affiliates are carrying out work on behalf of Lilly, but subject to subclause (d)), (b) the negligence or willful misconduct of Lilly or its Affiliates pursuant to this Agreement; (c) the material breach of any term in or the covenants, warranties, representations made by Lilly to Dicerna US and/or Dicerna Cayman under this Agreement or (d) misappropriation of a Third Party’s Know-How to the extent such misappropriation arises from Dicerna’s, its Affiliate’s or its or their sublicensees’ activities hereunder from materials provided by Lilly for the use as to which misappropriation is asserted. Lilly is only obliged to so indemnify and hold the Dicerna Indemnified Parties harmless to the extent that such Claims do not arise from the material breach of this Agreement or the negligence or willful misconduct of a Dicerna Indemnified Party.

17.3 Indemnification Procedure.

17.3.1 Any Lilly Indemnified Party or Dicerna Indemnified Party seeking indemnification hereunder (“Indemnified Party”) shall notify the Party against whom indemnification is sought (“Indemnifying Party”) in writing reasonably promptly after the assertion against the Indemnified Party of any Claim in respect of which the Indemnified Party intends to base a claim for indemnification hereunder, but the failure or delay so to 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.

17.3.2 Subject to the provisions of Section 17.3.3, the Indemnifying Party shall have the right, upon providing notice to the Indemnified Party of its intent to do so within [***] days after receipt of the notice from the Indemnified Party of any Claim, to assume the defense and handling of such Claim, at the Indemnifying Party’s sole expense.

17.3.3 The Indemnifying Party shall select competent counsel in connection with conducting the defense and handling of such Claim, and the Indemnifying Party shall defend or handle the same in consultation with the Indemnified Party, and shall keep the Indemnified Party timely apprised of the status of such Claim. The Indemnifying Party shall not, without the prior written consent of the Indemnified Party, agree to a settlement of any Claim which could lead to liability or create any financial or other obligation on the part of the Indemnified Party for which the Indemnified Party is not entitled to indemnification hereunder, or would involve any admission of wrongdoing on the part of the Indemnified Party. The Indemnified Party shall cooperate with the Indemnifying Party, at the request and expense of the Indemnifying Party, and shall be entitled to participate in the defense and handling of such Claim with its own counsel and at its own expense.

17.4 Special, Indirect and Other Losses. Neither Party nor any of its Affiliates shall be liable under this Agreement for special, indirect, incidental, punitive or consequential damages, including loss of profits suffered by the other party, except for: (a) liability for breach of Article 7; (b) punitive or exemplary damages required to be paid to (i) a Third Party pursuant to a non-appealable order of a court of competent jurisdiction in connection with a Third Party claim for which the indemnified party is entitled to indemnification hereunder or (ii) a party pursuant to a non-appealable order of a court of competent jurisdiction in connection with a violation of Patent Rights or other intellectual property rights; (c)

such damages arising out of any breach of Article 3 or Article 11 of this Agreement by a Party, its Affiliates or sublicensees; or (d) such damages arising out of the gross negligence or willful misconduct of the liable Party. Except for liability for breach of Article 3 or Article 11, in no event shall either Party's liability hereunder exceed the amount actually received by Dicerna US under this Agreement.

17.5 Dicerna's Insurance. [***]

18. COMPLIANCE

18.1 Compliance with this Agreement. Each of the Parties shall, and shall cause their respective Affiliates to, comply in all material respects with the terms of this Agreement.

18.2 Compliance with Party Specific Regulations. In carrying out their respective obligations under this Agreement, the Parties agree to cooperate with each other as may reasonably be required to help ensure that each is able to fully meet its obligations with respect to the Party Specific Regulations applicable to it. Neither Party shall be obligated to pursue any course of conduct that would result in such Party being in material breach of any Party Specific Regulation applicable to it; provided that in the event that a Party refuses to fulfill its obligations under this Agreement in any material respect on such basis, the other Party shall have the right to terminate this Agreement in accordance with Section 14.3; however, under such circumstances, such termination shall be the sole remedy for such terminating Party and such terminating Party shall not be entitled to any other remedy under law or equity. All Party Specific Regulations are binding only in accordance with their terms and only upon the Party to which they relate.

18.3 Compliance with Internal Compliance Codes. All Internal Compliance Codes shall apply only to the Party to which they relate. The Parties agree to cooperate with each other to help insure that each Party is able to comply with the substance of its respective Internal Compliance Codes and, to the extent practicable, each Party shall operate in a manner consistent with its Internal Compliance Codes applicable to its performance under this Agreement.

18.4 Compliance with Anti-Corruption Laws. In connection with this Agreement, the Parties shall comply with all applicable local, national, and international laws, regulations, and industry codes dealing with government procurement, conflicts of interest, corruption or bribery, including, if applicable, the US Foreign Corrupt Practices Act of 1977, as amended, and any laws enacted to implement the Organisation of Economic Cooperation and Development Convention on Combating Bribery of Foreign Officials in International Business Transactions.

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18.5 Prohibited Conduct. Without limiting the other obligations of the Parties set forth in this Article 18, in connection with any activities of the Parties under this Agreement, the Parties confirm that they have not made, offered, given, promised to give, or authorized, and will not make, offer, give, promise to give, or authorize, any bribe, kickback, payment or transfer of anything of value, directly or indirectly, to any person or to any Government Official for the purpose of: (i) improperly influencing any act or decision of the person or Government Official; (ii) inducing the person or Government Official to do or omit to do an act in violation of a lawful or otherwise required duty; (iii) securing any improper advantage; or (iv) inducing the person or Government Official to improperly influence the act or decision of any organization, including any government or government instrumentality, to assist any Party in obtaining or retaining business. For the purposes of this Section "Government Official" means: (i) any officer or employee of: (a) a government, or any department or agency thereof; (b) a government-owned or controlled company, institution, or other entity, including a government-owned hospital or university; or (c) a public international organization (such as the United Nations, the International Monetary Fund, the International Committee of the Red Cross, and the World Health Organization), or any department or agency thereof; (ii) any political party or party official or candidate for public or political party office; and (iii) any person acting in an official capacity on behalf of any of the foregoing.

19. GENERAL PROVISIONS

19.1 Assignment. Except as provided in this Section 19.1, this Agreement may not be assigned or otherwise transferred, nor may any right or obligation hereunder be assigned or transferred, by either Party without the consent of the other Party; provided, however, that (and notwithstanding anything elsewhere in this Agreement to the contrary) either Party may, without such consent, assign this Agreement and its rights and obligations hereunder in whole or in part to an Affiliate of such Party so long as such Party remains primarily liable for any acts or omissions of such Affiliate, provided further that, either Party may, without the written consent of the other Party, assign this Agreement and its rights and obligations hereunder (or under a transaction under which this Agreement is assumed) to the Acquirer in connection with a Change of Control (and shall so assign in connection with a sale of all or substantially all of the assets of such Party as further described in Sections 1.20(a)(iii) or 1.20(b)(iii)), except that Dicerna may not make any such assignment (in whole or in part) in connection with a Change of Control of Dicerna by a Lilly Competitor, in which case Section 19.2.2 shall apply. Any attempted assignment not in accordance with this Section 19.1 shall be void. Any such permitted assignee shall assume in writing all assigned obligations of its assignor under this Agreement.

19.2 Dicerna Change of Control.

19.2.1 Dicerna shall provide Lilly with [***] written notice of any Change of Control of Dicerna, which notice shall [***]

19.2.2 If Dicerna undergoes a Change of Control involving a Lilly Competitor, then:

(a) [***]

(b) [***].

19.2.3 Acquirer with RNAi Technology. Following any Change of Control of Dicerna to an Acquirer that Controls any Patent Rights directed to RNAi technology. Dicerna shall [***]:

19.2.4 Acquirer Use or Incorporation of Dicerna Technology. Following any Change of Control of Dicerna, if Dicerna's business as it relates to Dicerna's performance hereunder, the GalXC Platform or a New Nucleic Acid Platform is used or incorporated with that of the Acquirer, then Dicerna shall [***]

19.3 Extension to Affiliates. Except as expressly set forth otherwise in this Agreement, each Party shall have the right to extend the rights and immunities granted in this Agreement to one or more of its Affiliates. All applicable terms and provisions of this Agreement, except this right to extend, shall apply to any such Affiliate to which this Agreement has been extended to the same extent as such terms and provisions apply to the Party extending such rights and immunities. For clarity, Lilly extending the rights and immunities granted hereunder shall remain primarily liable for any acts or omissions of its Affiliates.

19.4 Severability. Should one or more of the provisions of this Agreement become void or unenforceable, or be determined to be void or unenforceable, as a matter of Applicable Laws, then this Agreement shall be construed as if such provision were not contained herein and the remainder of this Agreement shall be in full force and effect, and the Parties will use their best 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.

19.5 Governing Law; English Language. This Agreement shall be governed by and construed in accordance with the laws of the State of New York and the patent laws of the United States without giving effect to any law that would result in the application of a different body of law than as set forth in this Section 19.5. This Agreement was prepared in the English language, which language shall govern the interpretation of, and any dispute regarding, the terms of this Agreement.

19.6 Dispute Resolution.

19.6.1 If any dispute, claim or controversy of any nature arising out of or relating to this Agreement, including any action or claim based on tort, contract or statute, or concerning the interpretation, effect, termination, validity, performance or breach of this Agreement (each, a "Dispute"), arises between the Parties and the Parties cannot resolve such Dispute through their respective Project Leaders or JSC, if and as applicable, within [***] days of a written request by either Party to the other Party ("Notice of Dispute"), and such Dispute is not one for which a Party has final decision-making as expressly set forth in Section 6.4.4 of this Agreement, either Party may refer the Dispute to senior representatives of each Party for resolution. Each Party, within [***] Business Days after a Party has received such written request from the other Party to so refer such Dispute, shall notify the other Party in writing of the senior representative to whom such dispute is referred.

If, after an additional [***] days after the Notice of Dispute, such representatives have not succeeded in negotiating a resolution of the Dispute, and a Party wishes to pursue the matter, each such Dispute, controversy or claim that is not an "Excluded Claim" (defined in Section 19.6.5) shall be finally resolved by binding arbitration administered by the Expedited Procedures under the Rules of Arbitration of the International Chamber of Commerce ("ICC") pursuant to its rules in effect at the time such dispute arises, and judgment on the arbitration award may be entered in any court having jurisdiction thereof. The obligation to arbitrate under this Section 19.6 shall extend to any claims by or against the Parties and their respective Affiliates and any agents, principals, officers, directors, or employees of either of the Parties or their respective Affiliates.

19.6.2 The arbitration shall be conducted by [***] experienced in the business of pharmaceuticals. If the issues in dispute involve scientific, technical or commercial matters, the arbitrators chosen hereunder shall engage experts that have educational training or industry experience sufficient to demonstrate a reasonable level of relevant scientific, medical and industry knowledge, as necessary to resolve the dispute. Within [***] days after initiation of arbitration, the Parties shall select the arbitrator. If the Parties are unable or fail to agree upon the arbitrators within such [***] day period, the arbitrators shall be appointed by ICC. The place of arbitration shall be [***], and all proceedings and communications shall be in English.

19.6.3 Prior to the arbitrators being selected, either Party, without waiving any remedy under this Agreement, may seek from any court having jurisdiction any temporary injunctive or provisional relief necessary to protect the rights or property of that Party until final resolution of the issue by the arbitrators or other resolution of the controversy between the Parties. Once the arbitrators are in place, either Party may apply to the arbitrators for interim injunctive relief until the arbitration award is rendered or the controversy is otherwise resolved, and either Party may apply to a court of competent jurisdiction to enforce interim injunctive relief granted by the arbitrators. Any final award by the arbitrators may be entered by either Party in any court having appropriate jurisdiction for a judicial recognition of the decision and applicable orders of enforcement. The arbitrators may render early or summary disposition of some or all issues, after the Parties have had a reasonable opportunity to make submissions on those issues. The arbitrators shall have no authority to award punitive or any other type of damages not measured by a Party's compensatory damages. Each Party shall bear its own costs and expenses and attorneys' fees and an equal share of the arbitrators' fees and any administrative fees of arbitration, unless the arbitrators agree otherwise.

19.6.4 Except to the extent necessary to confirm an award or as may be required by law, neither a Party nor an arbitrator may disclose the existence, content, or results of an arbitration without the prior written consent of both Parties. In no event shall an arbitration be initiated after the date when commencement of a legal or equitable proceeding based on the dispute, controversy or claim would be barred by the applicable New York statute of limitations.

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19.6.5 As used in this Section 19.6, the term "Excluded Claim" means any dispute, controversy or claim that concerns: (a) the validity, enforceability or infringement of any patent, trademark or copyright; or (b) any antitrust, anti-monopoly or competition law or regulation, whether or not statutory. Any Excluded Claim may be submitted by either Party to any court of competent jurisdiction over such Excluded Claim.

19.7 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 (excluding, in each case, the obligation to make payments when due) if such delay or nonperformance is caused by strike, fire, flood, earthquake, accident, war, act of terrorism, act of God or of the government of any country or of any local government, or by any other cause unavoidable or beyond the control of any Party hereto. In such event, such affected Party shall use Commercially Reasonable Efforts to resume performance of its obligations and will keep the other Party informed of actions related thereto.

19.8 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.

19.9 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 Dicerna and Lilly, or to constitute one as the agent of the other. 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.

19.10 Notices. All notices, consents or waivers under this Agreement shall be in writing and will be deemed to have been duly given when: (a) scanned and converted into a portable document format file (i.e., pdf file), and sent as an attachment to an e-mail message, where, when such message is received, a read receipt e-mail is received by the sender (and such read receipt e-mail is preserved by the Party sending the notice), provided further that a copy is promptly sent by an internationally recognized overnight delivery service (receipt requested) (although the sending of the e-mail message shall be when the notice is deemed to have been given); or (b) the earlier of when received by the addressee or five (5) days after it was sent, if sent by registered letter or overnight courier by an internationally recognized overnight delivery service (receipt requested), in each case to the appropriate addresses and e-mail addresses set forth below (or to such other addresses and e-mail addresses as a Party may designate by notice):

If to Dicerna US or Dicerna Cayman:

Dicerna Pharmaceuticals, Inc.

87 Cambridgepark Drive

Cambridge, Massachusetts 02140

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Attention: President and Chief Executive Officer

Fax: (617) 612-6298

[***]

and

Dicerna Pharmaceuticals, Inc.

87 Cambridgepark Drive

Cambridge, Massachusetts 02140

Attention: Legal Department

and

If to Lilly:

Eli Lilly and Company

Lilly Corporate Center

Indianapolis, Indiana 46285

Attention: Senior Vice President, Corporate Business Development

Fax (317) 651-3051

and

Eli Lilly and Company

Lilly Corporate Center

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Indianapolis, IN 46285

Attention: General Counsel

Fax (317) 433-3000

Dicerna shall also provide a copy of any notice (via e-mail if available) to Lilly's Project Leader.

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

19.12 Compliance with Law. Each Party shall, or shall cause its Affiliates, sublicensees or Third Party contractors to, perform its obligations under this Agreement in accordance with all Applicable Laws, including any GCPs, GLPs, GMPs or GRPs and Internal Compliance Codes, as

applicable. 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 Laws.

19.13 No Third Party Beneficiary Rights. This Agreement is not intended to and shall not be construed to give any Third Party any interest or rights (including any Third Party beneficiary rights) with respect to or in connection with any agreement or provision contained herein or contemplated hereby, except as otherwise expressly provided for in this Agreement.

19.14 Entire Agreement. This Agreement 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 communications between the Parties with respect to such subject matter. The Parties acknowledge and agree that, as of the Effective Date, all Confidential Information disclosed pursuant to the Confidentiality Agreement by a Party or its Affiliates shall be included in the Confidential Information subject to this Agreement and the Confidentiality Agreement is hereby superseded in its entirety; provided, that the foregoing shall not relieve any Person of any right or obligation accruing under the Confidentiality Agreement prior to the Effective Date. “Confidentiality Agreement” means the Mutual Non-Disclosure Agreement between Dicerna and Lilly dated March 14th, 2018.

19.15 Counterparts. This Agreement may be executed in two (2) or more counterparts, each of which shall be deemed an original, but all of which together shall constitute one and the same instrument.

19.16 Expenses. Each Party shall pay its own costs, charges and expenses incurred in connection with the negotiation, preparation and execution of this Agreement.

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19.17 Binding Effect. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective legal representatives, successors and permitted assigns.

19.18 Construction. The Parties hereto acknowledge and agree that: (a) each Party and its counsel reviewed and negotiated the terms and provisions of this Agreement and have contributed to its revision; (b) the rule of construction to the effect that any ambiguities are resolved against the drafting Party shall not be employed in the interpretation of this Agreement; and (c) the terms and provisions of this Agreement shall be construed fairly as to all Parties hereto and not in a favor of or against any Party, regardless of which Party was generally responsible for the preparation of this Agreement.

19.19 Interpretation. The captions and headings to this Agreement are for convenience only, and are to be of no force or effect in construing or interpreting any of the provisions of this Agreement. Unless specified to the contrary, references to Articles, Sections, Schedules or Exhibits mean the particular Articles, Sections, Schedules or Exhibits to this Agreement and references to this Agreement include all Exhibits hereto. In the event of any conflict between the main body of this Agreement and any Exhibit hereto, the main body of this Agreement shall prevail. Unless context otherwise clearly requires, whenever used in this Agreement: (a) the words “include” or “including” shall be construed as incorporating, also, “but not limited to” or “without limitation”; (b) the word “day” or “year” means a calendar day or year unless otherwise specified; (c) the word “notice” shall mean notice in writing (whether or not specifically stated) and shall include notices, consents, approvals and other written communications contemplated under this Agreement; (d) the words “hereof,” “herein,” “hereby” and derivative or similar words refer to this Agreement as a whole and not merely to the particular provision in which such words appear; (e) the words “shall” and “will” have interchangeable meanings for purposes of this Agreement; (f) provisions that require that a Party, the Parties or a committee hereunder “agree,” “consent” or “approve” or the like shall require that such agreement, consent or approval be specific and in writing, whether by written agreement, letter, approved minutes or otherwise; (g) words of any gender include the other gender; (h) words using the singular or plural number also include the plural or singular number, respectively; (i) references to any specific law, rule or regulation, or article, section or other division thereof, shall be deemed to include the then-current amendments thereto or any replacement law, rule or regulation thereof; (j) the phrase “non-refundable” shall not prohibit, limit or restrict either Party’s right to obtain damages in connection with a breach of this Agreement; and (k) neither Party shall be deemed to be acting on behalf of the other Party.

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

19.21 Export. Each Party acknowledges that the laws and regulations of the United States restrict the export and re-export of commodities and technical data of United States origin. Each Party agrees that it will not export or re-export restricted commodities or the technical data of the other Party in any form without appropriate United States and foreign government licenses.

[Remainder of page left blank intentionally; signature page follows.]

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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.

DICERNA PHARMACEUTICALS INC.

By: /s/ Douglas Fambrough

Name: Douglas Fambrough

Title: Chief Executive Officer

DICERNA CAYMAN

By: /s/ Douglas Fambrough

Name: Douglas Fambrough

Title: Chairman

ELI LILLY AND COMPANY

By: /s/ David A. Ricks

Name: David A. Ricks

Title: Chairman & CEO

[Signature Page to Collaboration and License Agreement]

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Exhibit A

Eli Lilly and Company Good Research Practices

[***]

A - 1

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Exhibit B

Research Plan

[***]

C - 1

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C - 3

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Exhibit C

Eli Lilly and Company Animal Care and Use Requirements

for Animal Researchers and Suppliers

[***]

C - 4

lillycollabagmt2018image1.giflillycollabagmt2018image2.gifExhibit D

Press Release

October XX, 2018

For Release: Immediately

Refer to:

Mark Taylor; mark.taylor@lilly.com; (317) 276-5795 (Lilly Media)

Kevin Hern; hern_kevin_r@lilly.com; (317) 277-1838 (Lilly Investors)

Alex Van Rees; alex.vanrees@smithsolve.com; (973) 442-1555 ext. 11 (Dicerna Media)

Paula Schwartz; pschwartz@rxir.com; (917) 322-2216 (Dicerna Investors)

Lilly and Dicerna Announce RNAi Licensing and Research Collaboration

•

Companies will collaborate on RNAi research for cardio-metabolic, neurodegeneration and pain targets

•

Dicerna to receive an upfront payment of $100 million and an equity investment of $100 million

•

Dicerna eligible to receive up to approximately $350 million per target in development and commercialization milestones, plus royalties

INDIANAPOLIS, IN, CAMBRIDGE, MA — Eli Lilly and Company (NYSE: LLY) and Dicerna Pharmaceuticals (NASDAQ: DRNA) today announced a global licensing and research collaboration focused on the discovery, development and commercialization of potential new medicines in the areas of cardio-metabolic disease, neurodegeneration and pain. The companies will utilize Dicerna’s proprietary GalXC™ RNAi technology platform to progress new drug targets toward clinical development and commercialization. In addition, the partners will collaborate to move beyond the current technical paradigm in order to generate next-generation oligonucleotide therapeutic agents.

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RNA interference (RNAi) is an emerging new approach to drug discovery, focused on a biologic process in which certain RNA molecules inhibit the expression of disease-causing genes by destroying the messenger RNAs (mRNAs) of those genes. RNAi has the potential to treat diseases by silencing some of the most well-validated, yet previously inaccessible drug targets.

“At Lilly, we go to where breaking science meets unmet medical needs,” said Daniel M. Skovronsky, M.D., Ph.D., Lilly senior vice president and chief scientific officer. “We are excited to collaborate with Dicerna and utilize their RNAi expertise to study targets that up until now have proven to be very technically challenging. RNAi has the potential to treat an array of diseases that are of strategic importance to Lilly. Together with Dicerna, we aim to employ this emerging modality for greater success in drug development.”

“The collaboration with Lilly provides an exceptional opportunity to leverage our proprietary GalXC platform in order to generate new medicines for cardio-metabolic diseases, and to establish a presence in new fields including neurodegeneration and pain,” said Douglas M. Fambrough, Ph.D., President and Chief Executive Officer of Dicerna. “Lilly, with its demonstrated leadership in each of these fields, is an ideal partner for extending the range of Dicerna’s proprietary GalXC technology, which is designed to silence the expression of disease-driving genes. We are eager and ready to expand and advance our pipeline of innovative GalXC-based therapies, including both proprietary and partnered programs.”

Under the terms of the agreement, Dicerna will receive an upfront payment of $100 million, as well as an equity investment of $100 million at a premium. Dicerna is also eligible to receive up to approximately $350 million per target in development and commercialization milestones, as well as tiered royalties ranging from the mid-single to low-double digits on product sales. Dicerna will work exclusively with Lilly in the neurodegeneration and pain fields, and on select targets in cardio-metabolic diseases. The two companies anticipate collaborating on more than ten targets.

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This transaction is subject to clearance under the Hart-Scott-Rodino Antitrust Improvements Act and other customary closing conditions. The transaction will be reflected in Lilly’s reported results and financial guidance according to Generally Accepted Accounting Principles (GAAP). There will be no change to Lilly’s 2018 non-GAAP earnings per share guidance as a result of this transaction.

About RNAi

RNA interference (RNAi) is a biologic process in which certain double-stranded RNA molecules inhibit the expression of disease-causing genes by destroying the messenger RNAs (mRNAs) of those genes. It reflects a new approach in the development of specific and powerful therapies. Rather than targeting and binding to proteins to inhibit their activity, RNAi exerts its effects one step earlier in the gene silencing process by targeting the mRNA, the instruction set that directs the building of the protein. By attaching to this instruction set, RNAi is believed to have the ability to attack any target, including disease-causing genes that are beyond the reach of conventional antibody and small-molecule modalities. Additionally, RNAi-based therapeutic approaches hold the potential to offer more convenience for patients via infrequent dosing and a long duration of effect.

About Dicerna’s GalXC™ RNAi Technology Platform

The proprietary RNAi technology platform called GalXC™, invented by Dicerna, aims to advance the development of next-generation RNAi-based therapies designed to silence disease-driving genes in the liver. GalXC-based therapies are processed by the Dicer enzyme, which is the natural initiation point for RNAi within the human cell. Using GalXC, Dicerna scientists attach N-acetylgalactosamine sugars directly to the extended region of the proprietary Dicer substrate short-interfering RNA (DsiRNA) molecules, yielding multiple conjugate delivery configurations that allow flexible and efficient conjugation to the targeting ligands while stabilizing the RNAi duplex. Dicerna believes this stabilization will enable subcutaneous delivery of RNAi therapies to hepatocytes in the liver, where they are designed to specifically bind to receptors on target cells, potentially leading to internalization and access to the RNAi machinery within the cells. By using the Dicer enzyme as the entry point into RNAi, the GalXC

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approach seeks to optimize the activity of the RNAi pathway so that it operates in the most specific and potent fashion. Compounds produced via GalXC are intended to be broadly applicable across multiple therapeutic areas, including rare diseases, viral infectious diseases, chronic liver diseases and cardiovascular diseases.

About Eli Lilly and Company

Lilly is a global healthcare leader that unites caring with discovery to make life better for people around the world. We were founded more than a century ago by a man committed to creating high-quality medicines that meet real needs, and today we remain true to that mission in all our work. Across the globe, Lilly employees work to discover and bring life-changing medicines to those who need them, improve the understanding and management of disease, and give back to communities through philanthropy and volunteerism. To learn more about Lilly, please visit us at www.lilly.com and http://newsroom.lilly.com/social-channels. C-LLY

About Dicerna Pharmaceuticals, Inc.

Dicerna Pharmaceuticals, Inc., is a biopharmaceutical company focused on the discovery and development of innovative, subcutaneously delivered RNAi-based therapeutics for the treatment of diseases involving the liver, including rare diseases, viral infectious diseases, chronic liver diseases, and cardiovascular diseases. Dicerna is leveraging its proprietary GalXC™ RNAi technology platform to build a broad pipeline in these core therapeutic areas, focusing on target genes where connections between target gene and diseases are well understood and documented. Dicerna intends to discover, develop and commercialize novel therapeutics either on its own or in collaboration with pharmaceutical partners. For more information, please visit www.dicerna.com.

Dicerna Forward-Looking Statement

This press release includes forward-looking statements. Such forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from those expressed or implied in such statements. Examples of forward-looking statements include, among others, statements we make regarding: (i) the therapeutic and commercial potential of GalXC™; (ii) research and development plans related to GalXC; (iii) the potential of RNAi therapies for the treatment of complement-mediated diseases; and (iv) the potential for the collaboration

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between Lilly and Dicerna. The process by which an early stage platform such as GalXC could potentially lead to an approved product is long and subject to highly significant risks, particularly with respect to a preclinical research collaboration. Applicable risks and uncertainties include those relating to preclinical research and other risks identified under the heading “Risk Factors” included in Dicerna’s most recent Form 10-Q filings and in other future filings with the SEC. The forward-looking statements contained in this press release reflect Dicerna’s current views with respect to future events, and Dicerna does not undertake and specifically disclaims any obligation to update any forward-looking statements, except as required by law.

Lilly Forward-Looking Statement

This press release contains forward-looking statements (as that term is defined in the Private Securities Litigation Reform Act of 1995) about the benefits of a collaboration between Lilly and Dicerna, and reflects Lilly's current beliefs. However, as with any such undertaking, there are substantial risks and uncertainties in the process of drug development and commercialization. Among other things, there can be no guarantee that Lilly will realize the expected benefits of the collaboration, or that the collaboration will yield commercially successful products. For a further discussion of these and other risks and uncertainties that could cause actual results to differ from Lilly's expectations, please see Lilly's most recent Forms 10-K and 10-Q filed with the U.S. Securities and Exchange Commission. Lilly undertakes no duty to update forward-looking statements.

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Exhibit E

Existing Patents

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Dicerna Cardiometabolic Target Patent Families

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