

Kiadis collaborates with premier Dutch institutions to apply K-NK-cell technology for the development of a novel COVID-19 therapy

- ┆ Initiates new COVID-19 research and development program (K-NK-ID101)
- ┆ Expands the application of Kiadis' K-NK technology into infectious diseases
- ┆ Announces collaboration with five premier Dutch institutions: Viroclinics-DDL; Harbour BioMed Netherlands; Sanquin Bloedvoorziening; Erasmus Medical Center; and the Utrecht University, each contributing a unique strength in virology and COVID-19 research and know how
- ┆ Submitted grant application with US government

Amsterdam, The Netherlands, August 17, 2020 – Kiadis Pharma N.V. (“Kiadis” or the “Company”) (Euronext Amsterdam and Brussels: KDS), a clinical stage biopharmaceutical company developing innovative cell-based medicines for life-threatening diseases, announces a new research program, K-NK-ID101, that will focus on the development of K-NK cells as a treatment for COVID-19. This new program marks the start of broader application of Kiadis' K-NK technology platform as a potential treatment, not only for cancer, but also for infectious diseases.

In support of the K-NK-ID101 program, Kiadis has started collaborating with five premier Dutch institutions to study different anti-viral mechanisms of Kiadis' K-NK cell therapy platform against SARS-CoV-2, the virus that caused the COVID-19 pandemic. The collaboration will study NK-cell biology in COVID-19 patients, the elimination of SARS-CoV-2 virus and virally infected cells by K-NK cells, and synergies between monoclonal antibodies, vaccines and K-NK cells.

Natural killer (NK) cells are the human immune system's first line of defence against tumor cells and infectious disease. Activity of K-NK cells has been demonstrated against cytomegalovirus (CMV) and BK virus in the K-NK002 clinical trials, and against CNS and pulmonary fungal and bacterial agents in the K-NK003 clinical trials.

COVID-19 breaks down NK cell immunity, and severe COVID-19 patients lack functional NK cells. K-NK-ID101 cells potentially have enhanced anti-viral activity, while avoiding exacerbating needless inflammation, and therefore may be uniquely suited to repair this lack of functional NK cells. Since K-NK-ID101 cells can be manufactured at large scale and frozen down, they can be immediately and globally made available to patients. Also, the broad anti-viral activity of K-NK cells could potentially serve as a universal countermeasure to fight future viral pandemics; Kiadis will learn more about the potential of the platform through research conducted through these collaborations.

Robert Friesen, PhD, chief scientific officer of Kiadis, commented, “Our unique K-NK-cell technology platform is broadly applicable across a range of therapeutic areas. While our initial focus has been targeted towards blood cancers, we are now expanding our research into infectious diseases and have established relationships with anti-viral and COVID-19 academic and drug development experts, to develop our K-NK-cell therapeutics for the treatment of COVID-19. Significant data suggests that our K-NK-ID101 cell therapy could offer a unique and meaningful treatment of COVID-19. We look forward to working with this esteemed group to efficiently contribute to the fight against this pandemic.”

Arthur Lahr, chief executive officer of Kiadis, added, “We believe that medicines based on K-NK cells could be an important part of the armamentarium needed to fight this global pandemic, and offer a potential universal pandemic preparedness platform. To support the K-NK-ID101 program, we have applied for grants with the US government put in place in this global fight against COVID-19. This program demonstrates the breadth of application of our K-NK platform and marks the start of broader application of K-NK cells as a potential treatment, not only for cancer, but also for infectious diseases.”

Kiadis' collaborators include leaders in SARS-CoV-2 research from the Department of Viroscience of Erasmus Medical Center Rotterdam and the Division of Infectious Diseases of the Veterinary Faculty of Utrecht University. These two academic groups were the first to report a monoclonal antibody that prevents the SARS-CoV-2 virus from infecting cultured cells (Nature Com. 11 2215, 2020). Harbour BioMed Netherlands will bring the potent SARS-CoV-2 antibodies resulting from that research to Kiadis' program. Complementing the program is Viroclinics Xplore, which owns proprietary viral disease models, assays and animal models for SARS-CoV-2. Viroclinics-DDL is a renowned world class viral contract research organization, and has contributed significantly to viral research for previous pandemics, including SARS1 and pandemic flu. Sanquin will perform characterization of NK-cell presence and function in recovered COVID-19 patients, using its unique pool of donor material across the Dutch population.

About Kiadis' K-NK-Cell Therapies

Kiadis' K-NK-cell therapy research programs in immuno-oncology consist of off-the-shelf and haploidentical donor cell therapy products for the treatment of liquid and solid tumors as adjunctive and stand-alone therapies. Kiadis is also researching the use of its K-NK cell therapy platform for the treatment of infectious diseases, with the first potential application being the treatment of COVID-19.

The Company's PM21 particle technology enables improved *ex vivo* expansion and activation of anti-cancer cytotoxic K-NK-cells supporting multiple high-dose infusions. Kiadis' proprietary off-the-shelf K-NK-cell platform is based on NK-cells from unique universal donors. The Kiadis off-the-shelf K-NK platform can make NK-cell therapy product rapidly and economically available for a broad patient population across a potentially wide range of indications.

Kiadis is clinically developing K-NK003 for the treatment of relapse/refractory acute myeloid leukemia. The Company is also developing K-NK002, which is administered as an adjunctive immunotherapeutic on top of HSCT and provides functional, mature and potent NK-cells from a haploidentical family member. In addition, the Company has pre-clinical programs evaluating NK-cell therapy for the treatment of solid tumors.

About NK-cells and K-NK-cells in COVID-19

The scientific rationale for studying the infusion of natural killer (NK) cells to control COVID-19 disease is supported by literature. The vast majority of COVID-19 patients have lymphocytopenia, or a shortage of lymphocytes – a type of white blood cell that helps protect the body from infection. NK cells are lymphocytes and COVID-19 disease severity is correlated with a reduction in the number of NK cells, exhaustion of NK cells and the lack of certain mature, potent NK-cell phenotypes. The power of NK cells to fight various other viral infections, such as CMV, BKV, HBV and HCV, has been well described, with a durable change in the NK-cell profile towards those more mature and potent phenotypes in recovered patients.

Kiadis research is aimed at studying the properties of Kiadis K-NK cells and their suitability to fight SARS-CoV-2 and to be developed as pre-exposure prophylaxis and post-exposure pre-emptive therapy in high risk patients and healthcare workers. K-NK cells enhance multiple aspects of antiviral immunity. In immunocompromised transplant patients, K-NK cells have shown significant reduction of potentially lethal CMV reactivation and BKV infection. K-NK cells work synergistically with antibodies, immunoglobulins and vaccines.

K-NK cells are being studied regarding their anti-viral properties, safety profile and manufacturing scalability to potentially be widely deployed as an off-the-shelf global countermeasure against COVID-19 and future pandemic threats.

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Dutch Translation/Nederlandse vertaling

Kiadis Pharma N.V. (Euronext Amsterdam en Brussel: KDS) is een Nederlands beursgenoteerd biotechbedrijf dat nieuwe geneesmiddelen ontwikkelt tegen ernstige ziekten. Het maakt daarbij gebruik van Natural Killer-cellen (NK-cellen), grote witte bloedlichamen die de eerste verdedigingslinie in het menselijk afweersysteem vormen tegen kankercellen en infecties. Kiadis is met haar unieke Kiadis-NK-cellen (K-NK-cellen) een nieuw onderzoeksprogramma gestart genaamd K-NK-ID01, voor de behandeling van COVID-19, de ziekte die wordt veroorzaakt door het SARS-CoV-2 virus. Kiadis breidt hiermee de toepassing van K-NK-cellen uit naar behandeling van kanker en infectieziekten.

Kiadis gaat samen met Erasmus MC, Universiteit Utrecht, Sanquin Bloedvoorziening en de Nederlandse bedrijven Viroclinics en Harbour BioMed Netherlands, onderzoek doen naar de werking van de Kiadis' K-NK-cellen tegen het corona virus dat COVID-19 veroorzaakt. Daarbij zullen de partijen onder andere onderzoeken hoe de K-NK-cellen kunnen worden gecombineerd met al eerder door Erasmus MC, Harbour BioMed en Universiteit Utrecht-ontdekte antilichamen tegen het coronavirus.

Patiënten met ernstige COVID-19 hebben een gebrek aan goed werkende NK-cellen. In eerdere Kiadis onderzoeksprogramma's is krachtige werking van Kiadis' K-NK-cellen aangetoond tegen diverse virale, schimmel- en bacteriële infecties in het bloed, de longen en het centrale zenuwstelsel van ernstig zieke patiënten met kanker die zelf geen goed functionerende NK cellen meer hebben. Kiadis' K-NK-ID101-cellen kunnen mogelijk ook het gebrek aan goed werkende NK-cellen bij COVID-19 patiënten herstellen.

K-NK-ID101 cellen kunnen in de toekomst op grote schaal worden geproduceerd en onmiddellijk voor patiënten beschikbaar worden gemaakt. De brede werking van NK-cellen tegen diverse virussen maakt K-NK-ID101-cellen daarmee mogelijk een universeel middel in de strijd tegen wereldwijde pandemieën.

Robert Friesen, Ph.D, Chief Scientific Officer van Kiadis, zegt:

"Ons unieke K-NK-cel-technologieplatform is breed toepasbaar voor meerdere ziekten. We hadden al diverse onderzoeksprogramma's voor de behandeling van kanker, en breiden onze activiteiten nu uit naar behandeling van infectieziekten. Onze K-NK-ID101-celtherapie kan mogelijk tot een unieke behandeling van COVID-19 leiden. We kijken er naar uit om samen met dit sterke netwerk van gerenommeerde Nederlandse onderzoeksgroepen een effectieve behandeling te ontwikkelen in de strijd tegen het coronavirus dat de COVID-19 pandemie veroorzaakt."

Arthur Lahr, chief executive officer van Kiadis, vult aan:

"K-NK-cellen kunnen in de toekomst op grote schaal geproduceerd worden en onmiddellijk beschikbaar komen bij behandeling van diverse virale infecties. Geneesmiddelen op basis van K-NK-cellen kunnen daarmee mogelijk een belangrijk wapen vormen tegen deze en toekomstige pandemieën. We hebben voor dit K-NK-ID101-programma subsidie aangevraagd bij de Amerikaanse overheid. Dit programma toont het brede potentieel van ons K-NK-platform, niet alleen als mogelijk medicijn tegen kanker, maar ook voor behandeling van infectieziekten."

Universitaire specialisten in SARS-CoV-2-onderzoek van de afdeling Viroscience van het Erasmus Medisch Centrum in Rotterdam en de afdeling Infectieziekten van de Veterinaire Faculteit van Universiteit Utrecht nemen deel aan de samenwerking. Deze academische groepen ontdekten als eerste monoklonale antilichamen die infectie met het SARS-CoV-2-virus tegengaan ([Nature Com. \(2020\)11: 2215](#)). Harbour BioMed Netherlands zal deze SARS-CoV-2-antilichamen in de samenwerking inbrengen. Viroclinics is een gerenommeerde contractonderzoeksorganisatie en heeft baanbrekend onderzoek gedaan bij eerdere pandemieën, waaronder SARS en pandemische griep. Viroclinics is eigenaar van gepatenteerde virale ziektemodellen, testen en diermodellen voor SARS-CoV-2. Sanquin Bloedvoorziening zal de aanwezigheid en functie van NK-cellen bij COVID-19 patiënten in kaart brengen, gebruik makend van donormateriaal van herstelde COVID-19 patiënten.

Dit persbericht vormt een vertaling van het gepubliceerde Engelstalige persbericht. Bij eventuele verschillen is de tekst van het Engelstalige persbericht altijd bepalend.

About Kiadis

Founded in 1997, Kiadis is building a fully integrated biopharmaceutical company committed to developing innovative cell-based medicines for patients with life-threatening diseases. With headquarters in Amsterdam, the Netherlands, and activities across the United States, Kiadis is reimagining medicine by leveraging the natural strengths of humanity and our collective immune system to source the best cells for life.

Kiadis is listed on the regulated market of Euronext Amsterdam and Euronext Brussels since July 2, 2015, under the symbol KDS. Learn more at www.kiadis.com.

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