

## Europe's Largest Initiative Launches to Accelerate Therapy Development for COVID-19 and Future Coronavirus Threats

- CARE (Corona Accelerated R&D in Europe), supported by Europe's Innovative Medicines Initiative (IMI), is the largest undertaking of its kind dedicated to discovering and developing urgently needed treatment options for COVID-19.
- The initiative is committed to a long-term understanding of the disease and development of therapies for COVID-19 and future coronavirus threats in addition to urgent efforts to repurpose existing therapies as potential immediate response.
- The CARE consortium will accelerate COVID-19 R&D by bringing together the leading expertise and projects of 37 teams from academic and non-profit research institutions and pharmaceutical companies into a comprehensive drug discovery engine.

**Brussels, Belgium – 18 August 2020** – CARE (Corona Accelerated R&D in Europe) a new consortium supported by the Innovative Medicines Initiative (IMI) public-private partnership announced its launch today to accelerate the discovery and development of urgently needed medicines to treat SARS-CoV-2, the virus that causes COVID-19. With a grant totaling € 77.7 million, CARE is funded by cash contributions from the European Union (EU) and cash and in-kind contributions from eleven European Federation of Pharmaceutical Industries and Associations (EFPIA) companies and three IMI-Associated Partners. CARE is a five-year project bringing together 37 partners from Belgium, China, Denmark, France, Germany, the Netherlands, Poland, Spain, Switzerland, the UK and the US, and is led by VRI-Inserm (French National Institute of Health and Medical Research, Paris, France), Janssen Pharmaceutica NV, one of the Janssen Pharmaceutical Companies of Johnson & Johnson (Beerse, Belgium), and Takeda Pharmaceuticals International AG, (Zurich, Switzerland). It integrates partners' COVID-19 projects ongoing since February 2020.

“The COVID-19 pandemic has emerged as the largest global health threat to humanity in this century, requiring the global scientific community to join forces in unprecedented ways,” said Professor Yves Lévy, Executive Director of the VRI-Inserm and CARE coordinator. “Beyond the scientific excellence of the different teams involved in this very ambitious project, CARE is bringing together 37 partners in an alliance pooling their expertise and know-how around an ambitious five-year work plan to develop therapeutics against the current COVID-19 pandemic. We are very grateful for the financial support provided by the Innovative Medicine Initiative that will enable us to implement this plan.”

With no licensed vaccines and only limited therapy options against COVID-19, the pandemic is ongoing, counting more cases and deaths every day. Uniting some of the most innovative and experienced scientists from all relevant areas in a unique collaborative spirit CARE will maximize synergies and complementarities with other initiatives such as the Gates Foundation-supported COVID-19 Therapeutics Accelerator, MANCO<sup>1</sup>, SCORE<sup>2</sup>, and the ECRAID<sup>3</sup> network, to accelerate the path to providing solutions for the current COVID-19 pandemic as well as future coronavirus outbreaks. After testing in the laboratory, the project will advance the most promising drug candidates to clinical trials in humans.

<sup>1</sup> Monoclonal Antibodies against 2019-New Coronavirus

<sup>2</sup> Swift Coronavirus therapeutics Response

<sup>3</sup> European Clinical Research Alliance on Infectious Diseases

“We are very excited to launch the CARE consortium and collaborate with other leading experts to urgently identify new medicines against SARS-CoV-2 and other coronaviruses that may have the potential to cause epidemics,” added CARE project leader Marnix Van Look, Senior Scientific Director and R&D Lead of Emerging Pathogens, Global Public Health, Janssen Pharmaceutica NV. “As part of this initiative, we look forward to applying learnings from an ongoing collaboration on COVID-19 with the Rega Institute for Medical Research, part of KU Leuven, to screen a drug repurposing library of thousands of existing drug compounds.”

Kumar Saikatendu, Ph.D., Director, Global Research Externalization, Takeda said “It is humbling to see such a large collection of the best scientific minds in Europe come together to solve this complex problem with such urgency. COVID-19 is a once in a lifetime scientific challenge for our generation. CARE aims to create effective therapies with a positive safety profile for current and future coronaviral outbreaks. We hope to move fast and have a meaningful impact in a timely manner.”

### Comprehensive short- and long-term response to COVID-19

CARE aims to create effective therapies with a positive safety profile for the COVID-19 pandemic (drug repositioning), and develop new drugs and antibodies specially designed to tackle the SARS-CoV-2 virus.

The consortium builds on three pillars:

- Drug repositioning, by screening and profiling compound libraries contributed by partners with the aim of rapidly progressing molecules to advanced stages of clinical testing.
- Small-molecule drug discovery based on *in silico* screening and profiling of candidate compounds directed against SARS-CoV-2 and future coronavirus targets.
- Virus neutralizing antibody discovery using fully human phage and yeast display, immunisation of humanised animal models, patient B cells and *in silico* design.

Closely integrated with these pillars are work streams focusing on the refinement of candidate compounds through a comprehensive medicinal chemistry campaign, systems biology research and pre-clinical and clinical evaluation of molecules from all three pillars. The systems biology work package will investigate the viral pathophysiology to increase our understanding of the interplay between virus infection stages and human immune responses. It will identify disease markers, to inform therapy development and improve clinical trial design and monitoring of Phase 1 and 2 trials investigating new therapeutics developed by CARE.

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### About CARE

CARE is a new public-private partnership bringing together scientists from academia, research centers, Small Medium Enterprises (SMEs), European Federation of Pharmaceutical Industries and Associations (EFPIA) member companies and IMI Associated Partners. In total, it comprises 37 different partner organizations. Professor Yves Lévy from VRI-Inserm is the academic coordinator, Marnix Van Look from the Janssen Pharmaceutical Companies of Johnson & Johnson is the EFPIA project leader and Kumar Saikatendu from Takeda is the project co-leader. The project partners are 11 academic institutions (KUL, GUF, AMU, UZL UU, EDI-IVI, UHAM, UEDIN, TiHo, JU, LUMC), five public research organisations (Inserm, CHUV, CEA, HZI, SERMAS) and 7 SMEs (IT, EVF, EXSCI, NUVISAN, SCIFEON, ENYO, AIB), together with eleven EFPIA members (Janssen,

Takeda, Pfizer, ABBV, BI, Merck KgA, BAG, Novartis, Astellas, Servier and AiCuris), and three IMI2 Associated Partners (BMGF, UNIVDUN, GHDDI).\*

### About the IMI

The [IMI](#) is Europe's largest public-private initiative aiming to speed up the development of better and safer medicines for patients. IMI supports collaborative research projects and builds networks of industrial and academic experts in order to boost pharmaceutical innovation in Europe. IMI is a joint undertaking between the European Union and the European Federation of Pharmaceutical Industries and Associations (EFPIA).

[Insert IMI, EU and EFPIA and AP logos here]

For further details please visit: <http://imi.europa.eu/>

### Acknowledgement

This project has received funding from the Innovative Medicines Initiative 2 Joint Undertaking (JU) under grant agreement No 101005077. The JU receives support from the European Union's Horizon 2020 research and innovation programme, EFPIA, BILL & MELINDA GATES FOUNDATION, GLOBAL HEALTH DRUG DISCOVERY INSTITUTE, UNIVERSITY OF DUNDEE.

### \*List of partners

- 1 (Coordinator) VRI-Institut National de la Santé et de la Recherche Médicale (Inserm) FR
- 2 (Project Leader) Janssen Pharmaceutica NV (Janssen) BE
- 3 (Project co-Leader) Takeda Pharmaceuticals International AG (Takeda) CH
- 4 Commissariat à l'énergie atomique et aux énergies alternatives (CEA) FR
- 5 Centre Hospitalier Universitaire Vaudois (CHUV) CH
- 6 Eurovacc Foundation (EVF) CH
- 7 Exscientia Limited (EXSCI) UK
- 8 Johann Wolfgang Goethe University Frankfurt am Main (GUF) DE
- 9 Helmholtz-Zentrum für Infektionsforschung GmbH (HZI) DE
- 10 Uniwersytet Jagiellonski (JU) PL
- 11 Katholieke Universiteit Leuven (KUL) BE
- 12 Academisch Ziekenhuis Leiden (LUMC) NL
- 13 Servicio Madrileño De Salud (SERMAS) ES
- 14 Nuvisan ICB GmbH (NUVISAN) DE
- 15 Scifeon ApS (SCIFEON) DK
- 16 Université d'Aix Marseille (AMU) FR
- 17 The University of Edinburgh (UEDIN) UK
- 18 University of Hamburg (UHAM) DE
- 19 Universitaet zu Luebeck (UzL) DE
- 20 Universiteit Utrecht (UU) NL
- 21 Eidgenoessisches Departement des Innern (EDI-IVI) CH
- 22 Inserm Transfert SA (IT) FR
- 23 AbbVie Inc. (ABBV) US
- 24 Astellas Pharma Europe BV (ASTELLAS) NL
- 25 Bayer AG (BAG) DE
- 26 Boehringer Ingelheim (BI) DE
- 27 University of Dundee (UNIVDUN) UK
- 28 Enyo Pharma SA (ENYO) FR
- 29 Bill & Melinda Gates Foundation (BMGF) US

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- 30 Global Health Drug Discovery Institute (GHDDI) CN  
31 Novartis Pharma AG (NOVARTIS) CH  
32 Pfizer  
33 Merck KGaA (Merck) DE  
34 University of Veterinary Medicine Hannover (TiHo) DE  
35 Ai-biopharma (AIB) FR  
36 AiCuris Anti-infective Cures GmbH (AiCuris) DE  
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### Partner contributions

#### **1 VRI-Institut National de la Santé et de la Recherche Médicale (Inserm) FR**

VRI-Inserm is the coordinator of the CARE project and will govern the monitoring of the immunological, inflammatory, and genomics (transcriptomic) profiles of COVID-19 patients. It will also participate as a clinical trial center in France for CARE clinical trials.

##### *About VRI and INSERM*

The Vaccine Research Institute (VRI), Laboratory of excellence, was established by Inserm (French National Institute of Health and Medical Research) and the University of Paris-Est Créteil (UPEC) to conduct research to accelerate the development of effective vaccines against HIV/AIDS and (re)-emerging infectious diseases. The VRI's structure strengthens the links between basic research and translational research, patients associations and the socio-economic world. The VRI extends a network of internationally renowned scientists and research teams with multidisciplinary expertise in system biology and clinical immunology, a network of clinical centres, shared platforms.

Founded in 1964, Inserm is a public scientific and technological institute dedicated to biomedical research and human health, and is involved in the entire range of activities from the laboratory to the patient's bedside. It also partners with the most prestigious research institutions in the world that are committed to scientific challenges and progress in these fields.

### 7 Exscientia Limited (EXSCI) UK

Exscientia will lead the small molecule drug design activities in the CARE consortium, using the power of Artificial Intelligence (AI) to accelerate the pre-clinical phase of drug discovery. Exscientia will apply its full-stack AI-platform to generate and optimize the design of new medicines and the CARE chemical starting points from phenotypic, target-based and in silico screens to deliver candidates into clinical trials. Exscientia will also provide its own chemical starting points to CARE, discovered from the company's ongoing COVID-19 screening and research.

Professor Andrew Hopkins, Exscientia's CEO said: "The CARE consortium has ambitious goals to deliver pan-coronaviral therapeutics that can be useful in the current and future viral pandemics. We are taking a comprehensive approach to developing multiple agents against multiple coronavirus drug targets. Exscientia is proud to be at the heart of this joint research effort, as the primary drug design centre. We intend to bring the demonstrated speed and power of our cutting-edge AI-platform to CARE to accelerate the delivery of anti-coronavirus drug candidates to the clinic to meet the urgent needs of patients."

#### *About Exscientia*

Exscientia is a world-leading pharmatech company and the first company to use artificial intelligence to design a novel drug that has entered into human clinical trials. Exscientia has developed a full-stack AI-driven drug discovery platform from target identification to drug design and optimisation of novel drug candidates. Fusing the power of the original AI-design with the experience of seasoned drug hunters, Exscientia's Centaur Chemist® platform enables the discovery of exquisitely optimised molecules with breakthrough productivity. In tandem, Exscientia's Centaur Biologist® platform drives the flexible analysis and prioritisation of discovery targets across all pharmaceutically relevant disease space.

For more information visit us on [www.exscientia.ai](http://www.exscientia.ai) or follow us on Twitter @exscientiaLtd.

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### 8 Johann Wolfgang Goethe University Frankfurt am Main (GUF) DE

As a member of the CARE consortium, Goethe University Frankfurt (GUF) will be involved into the screening of potential drug candidates as well as in the coordination of the clinical trials conducted within CARE.

Prof. Ciesek, the Head of the Institute of Virology at GUF explained: "Based on our longterm experience we established a cell culture model for SARS-CoV-2 already in February and have further developed it since



then. From this model we have gained deeper knowledge on the viral metabolism. Therefore, we are optimally prepared to perform the screening of potential drug candidates within the CARE consortium. This is really the great thing about CARE; every partner can contribute his specific strength to the project." Prof. Maria Vehreschild, Head of Infectious Diseases at GUF said: „I am looking forward to the exciting challenge of coordinating these multinational trials involving industry and academia. The partners of CARE will be able to rely on already existing research networks, for example the German Center of Infection Research (Deutsches Zentrum für Infektionsforschung, DZIF)."

#### *About Johann Wolfgang Goethe University Frankfurt am Main (GUF)*

The University Hospital Frankfurt (UHF) at the Goethe University Frankfurt (GUF) is located in the Rhine-Main agglomeration and covers a population of approximately 4.4 million inhabitants, representing about 80 different nationalities. The Frankfurt International Airport is one of the ten biggest airports worldwide and serves as the most relevant entrance point for imported infectious diseases into Germany. The increased threat from infectious diseases in the Rhine-Main agglomeration has been known for long: hemorrhagic fever patients were first treated in Frankfurt, SARS (severe acute respiratory syndrome), the H1N1v pandemics and most recently, 2019-nCoV were imported by air-travelling passengers. The Institute of Medical Virology, Goethe-University Frankfurt is one of the pioneering institutes in the field of isolating and developing cell culture systems for emerging viruses. We were among the first worldwide to develop cell culture techniques that enabled propagation of SARS-CoV in vitro from patients admitted to the University Hospital Frankfurt during the 2003 outbreak. We have decades of experience with detection and characterization of antiviral drugs for coronaviruses and other viruses. The Infectious Diseases Department has a longstanding clinical research tradition. After successful treatment of the first patients suffering from Marburg hemorrhagic fever and AIDS, Frankfurt became a leader in clinical research in the area of HIV infections and subsequent emerging infectious diseases. To this aim, the department integrates a specialized Clinical Trials Center with access to a phase I unit, thus facilitating design and conduct of phase I-III clinical trials.

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#### **9 Helmholtz-Zentrum für Infektionsforschung GmbH (HZI) DE**

As a member of the CARE consortium, HZI will contribute its expertise in pharmacology of anti-infective compounds. We will be engaged to transition leads to candidates and finally to the patient.

Dr. Katharina Rox, head of the PK/PD unit at the HZI said: "We are looking forward to this unique opportunity and are proud to be part of this strong public-private partnership. We aim to deliver treatment options against SARS-CoV-2 and other coronaviruses to ultimately serve patients."

#### *About Helmholtz-Zentrum für Infektionsforschung GmbH*

Scientists at the Helmholtz Centre for Infection Research (HZI) in Braunschweig and its other sites in Germany are engaged in the study of bacterial and viral infections and the body's defence mechanisms. They have a profound expertise in natural compound research and its exploitation as a valuable source for novel anti-infectives. As member of the Helmholtz Association and the German Center for Infection Research (DZIF) the HZI performs translational research laying the ground for the development of new treatments and vaccines against infectious diseases. [www.helmholtz-hzi.de/en](http://www.helmholtz-hzi.de/en)

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## 12 Academisch Ziekenhuis Leiden (LUMC) NL

The LUMC is a very active member in almost all activities of the CARE consortium, involving the complete antiviral drug developmental pipeline from screening of compound libraries for the identification and optimization of SARS-CoV-2 drugs, extensive studies on the interactions in humans during the viral infection cycle, followed by preclinical development and finally the clinical testing of candidate drugs.

Prof. Eric Snijder of the Department of Medical Microbiology (Leiden University Center of Infectious Diseases; LU-CID): "CARE will hopefully deliver a handful of antiviral drugs that can still be used to treat COVID-19 patients. More generally, we want to counter any future threats to human health posed by additional emerging coronaviruses, by developing drugs that will inhibit a broad spectrum of coronavirus family members."

### *About Academisch Ziekenhuis Leiden*

Leiden University was founded in 1575, and is the oldest University in The Netherlands with 6700 staff and 30.000 students. The academic hospital and faculty of medicine merged into the LUMC (Leiden University Medical Center), which allowed the successful combining of patient care, research and training. The Virology research team of the LUMC Department of Medical Microbiology forms the foundation from which we contribute to the CARE consortium, based on its 30-year track record of groundbreaking multidisciplinary research on coronaviruses.

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## 14 Nuvisan ICB GmbH (NUVISAN) DE

As a member of the CARE consortium, INNOVATION CAMPUS BERLIN - NUVISAN will contribute medicinal chemistry and DMPK expertise. We will lead a chemistry team with members from different partner organizations working on hit-to-lead and lead optimization projects to generate future treatment options and we will provide DMPK characterization for promising new compounds.

Anke Mueller-Fahrnow, PhD, Vice President and Senior Scientific Advisor for INNOVATION CAMPUS BERLIN - NUVISAN, said: "We are excited to be part of this strong global public-private partnership. We will contribute our expertise and resources to identify treatment options against SARS-CoV-2 and other coronaviruses."

### *About INNOVATION CAMPUS BERLIN / NUVISAN ICB GmbH*

The Innovation Campus Berlin INNOVATION CAMPUS BERLIN (NUVISAN ICB GmbH) is a newly founded dynamic contract research institute with about 400 employees founded by the acquisition of a complete research unit from Bayer. Decades of experience and top-notch expertise in the field of early pharmaceutical research combined with the spirit of a medium-sized, family owned company create an innovative campus of excellence for early Pharma research.

The INNOVATION CAMPUS BERLIN is part of the NUVISAN Pharma Services Group. The NUVISAN group generates sales of approx. € 55 million with currently about 550 highly qualified employees. It originated from LAB GmbH over 40 years ago and has been operating under the name NUVISAN with its headquarters

in Neu-Ulm since 2010. The NUVISAN group as a Clinical Research Organization (CRO) and Contract Manufacturing Organization (CDMO) has six sites in Germany and France (Neu-Ulm, Berlin, Grafing, Gauting, Waltrop and Sophia-Antipolis) in addition to monitoring activities with offices in Argentina, Peru and Brazil as well as in the USA. After integration of the ICB, which was completed on 1.7.2020, the NUVISAN Group now employs more than 1.000 people.

Further information:

[www.InnovationCampusBerlin.Com](http://www.InnovationCampusBerlin.Com)

[www.nuvisan.com](http://www.nuvisan.com)

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#### **19 Universität zu Lübeck (UzL) DE**

As a member of the CARE consortium, the University of Lübeck (UzL) will contribute its 20-year expertise in structural biology of coronaviruses. We will provide highly purified samples of coronavirus proteins for testing candidate inhibitors discovered by the project partners and determine three-dimensional structures for drug design.

Professor Rolf Hilgenfeld, PhD, Head of the coronavirus group within UzL's Institute of Molecular Medicine: "We have worked on coronaviruses even before the SARS-1 outbreak of 2003. The coronavirus research community was quite small then and grew only slowly over the years. We are happy that within the CARE consortium, collaboration with many highly qualified colleagues from both academia and pharmaceutical industry will help accelerate the fight against these viruses."

#### *About Universität zu Lübeck (UzL)*

The University of Lübeck (UzL) is a modern teaching and research university focusing on medicine and life sciences. In international rankings, the university commonly receives excellent positions. Researchers at UzL's Institute of Molecular Medicine are specialized in RNA technologies and structural virology.

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## 20 Universiteit Utrecht (UU) NL

As a member of the CARE consortium, Utrecht University will contribute its long-standing expertise in coronavirus research to the identification and development of (broad-protective) antiviral compounds and protective antibodies against SARS-CoV-2 and other coronaviruses.

Prof. Frank van Kuppeveld, PhD, head of the Virology group of Utrecht University: "The CARE consortium is a unique opportunity to translate our long-standing experience in coronavirus research in important therapeutic applications to treat COVID-19 patients and to prepare against future pandemics caused by newly emerging coronaviruses".

### *About Universiteit Utrecht*

Founded in 1636, Utrecht University is one of the largest research universities of Europe, with over thirty thousand students and a staff of more than six thousand. We invest in creating the leaders of the future through innovative education of the highest quality, as reflected by the University's consistently high position in international rankings. Dedicated to performing groundbreaking research aimed at resolving large global issues, our culture of cooperation is a breeding ground for innovation, new insights and social impact. [www.uu.nl](http://www.uu.nl).

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## 21 Eidgenössisches Departement des Innern (EDI-IVI) CH

As a member of the CARE consortium the Institute of Virology and Immunology (IVI) will contribute its long-standing expertise in emerging viral diseases, coronavirus research, and animal models of viral diseases.

Prof. Volker Thiel, head division of Virology at the IVI: The IVI has been at the forefront of early SARS-CoV-2 research and is proud to be able as a member of the CARE consortium to make valuable contributions towards COVID19 treatment.

### *About Eidgenössisches Departement des Innern*

The Institute of Virology and Immunology (IVI), with sites in Mithelhäusern and Bern, is a research institute under the aegis of the Swiss Federal Food Safety and Veterinary Office (FSVO). It is the only high-security laboratory in Switzerland with the capacity to diagnose and research highly contagious animal diseases (such as foot-and-mouth disease or swine fever). The Swiss Rabies Centre in Bern is affiliated to the IVI. The mission of the IVI is to perform basic and applied research as an important basis for the control of animal diseases and zoonoses and for education and training.

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## 25 Bayer AG (BAG) DE

As a member of the CARE consortium, Bayer will screen physically and virtually compound libraries against a COVID-19 protease target in order to identify hit compounds for further development.

Stefan Jaroch, PhD, Head of Public Private Partnerships, R&D Open Innovation: “Collaboration accelerates innovation and combining expertise to identify treatment options for COVID-19. Because we are stronger together, Bayer is engaging in pre-competitive collaboration like the CARE consortium to improve health by speeding up the development of, and ultimately patient access to, innovative treatments against COVID-19.”

### *About Bayer*

Bayer is a global enterprise with core competencies in the life science fields of health care and nutrition. Its products and services are designed to benefit people by supporting efforts to overcome the major challenges presented by a growing and aging global population. At the same time, the Group aims to increase its earning power and create value through innovation and growth. Bayer is committed to the principles of sustainable development, and the Bayer brand stands for trust, reliability and quality throughout the world. In fiscal 2019, the Group employed around 104,000 people and had sales of 43.5 billion euros. Capital expenditures amounted to 2.9 billion euros, R&D expenses to 5.3 billion euros. For more information, go to [www.bayer.com](http://www.bayer.com).

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## 26 Boehringer Ingelheim (BI) DE

As a member of the CARE consortium, Boehringer Ingelheim will be leading the work stream of the consortium focusing on the development of virus neutralizing antibodies. Furthermore the company will provide antiviral molecules from its legacy HIV and HCV portfolio and small molecule candidates from a complete screen of its molecule library.

Clive R. Wood, Ph.D., Corporate Senior Vice President and Global Head of Discovery Research at Boehringer Ingelheim said, “The CARE consortium aims to unleash the power of open science and collaboration in the service of society. We will work quickly and decisively in an unprecedented spirit of co-operation with our partners in academia and industry to defeat the unprecedented menace of COVID-19 and other serious coronavirus diseases”

### *About Boehringer Ingelheim*

Making new and better medicines for humans and animals is at the heart of what we do. Our mission is to create breakthrough therapies that change lives. Since its founding in 1885, Boehringer Ingelheim is independent and family-owned. We have the freedom to pursue our long-term vision, looking ahead to identify the health challenges of the future and targeting those areas of need where we can do the most good.

As a world-leading, research-driven pharmaceutical company, more than 51,000 employees create value through innovation daily for our three business areas: Human Pharma, Animal Health, and Biopharmaceutical Contract Manufacturing. In 2019, Boehringer Ingelheim achieved net sales of 19 billion euros. Our significant investment of almost 3.5 billion euros in R&D drives innovation, enabling the next generation of medicines that save lives and improve quality of life.

We realize more scientific opportunities by embracing the power of partnership and diversity of experts across the life-science community. By working together, we accelerate the delivery of the next medical

breakthrough that will transform the lives of patients now, and in generations to come. More information about Boehringer Ingelheim can be found at [www.boehringer-ingelheim.com](http://www.boehringer-ingelheim.com) or in our annual report <http://annualreport.boehringer-ingelheim.com>.

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#### **27 University of Dundee (UNIVDUN) UK**

The University of Dundee's world-leading expertise in drug discovery will be deployed in the quest to find antiviral treatments for Covid-19 and future coronaviruses. Using individual compounds identified by other members of the CARE Consortium partnership, Dundee's Drug Discovery Unit (DDU) will work to develop candidate drugs they hope will inhibit the development of the disease.

Professor Paul Wyatt, Head of the University of Dundee's DDU, said, "We are in the early stage of what will be a long-term fight. The virus that causes Covid-19 can only replicate by taking over the machinery of a host cell. In doing so it prevents the host cell from working properly, causing organ damage. We are therefore looking for candidate drugs that can stop Covid-19 from infecting new cells or replicating once it has infected the cell. Because we know there are only a small number of host proteins that are essential for Covid-19 to successfully replicate, we can focus our work to hopefully make rapid progress."

#### *About University of Dundee*

The University of Dundee's Drug Discovery Unit (DDU) was established in 2006 to translate world-class biology research into novel drug targets and candidate drugs. The group works across multiple disease areas and collaborates with global partners to address unmet medical needs.

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#### **28 Enyo Pharma SA (ENYO) FR**

At ENYO Pharma we have developed a comprehensive knowledge of how viral proteins interact with

human proteins and how that could benefit a drug discovery effort. As a member of the CARE consortium, we are contributing our unique library of compounds which are targeting the human protein network involved in the replication of viruses. This library has already shown an incredible hit rate against many viruses including some RNA viruses close to the Coronaviruses. We will also bring our know-how by building and characterizing a comprehensive view of Coronavirus and Human protein interactions. We will thus participate in the understanding of the physiopathology of the infection as well as the target and the mechanism of action of the selected compounds.

Dr Jacky Vonderscher, ENYO Pharma's CEO said : « COVID-19 is a kind of wake-up call for the humanity. Thanks to IMI public-private partnership, the CARE consortium is a unique opportunity for a company like ENYO to contribute with our drugs and our knowledge to the fight against this virus and future ones potentially even more dangerous. »

#### *About Enyo Pharma*

ENYO Pharma is a privately held, clinical stage biopharmaceutical company incorporated in January 2014 and headquartered in Lyon, France. The Company's most advanced compound, EYP001, is a small molecule (non-Bile Acid FXR agonist) therapeutic in Phase II clinical development for the treatment of Chronic Hepatitis B and NASH. EYP001 and the Company's discovery programs are based on a proprietary technology platform that uses a virus bio-mimetism approach to enable the rapid discovery of first-in-class drug candidates with good safety profiles. ENYO's founders are a mix of virus-host protein interactions experts from the French Infectiology Research Center in Lyon and pharmaceutical industry executives with an impressive track record in drug development. For more information on ENYO and EYP001, please visit <http://www.enyopharma.com/>.

#### **29 Bill & Melinda Gates Foundation (BMGF) US**

The Bill & Melinda Gates Foundation, as a member of the CARE consortium, will contribute its scientific expertise in-kind to multiple workstreams across drug repurposing and novel drug identification, translation and development. The foundation will also coordinate to ensure alignment and complementarity with the COVID-19 Therapeutics Accelerator to avoid duplication of efforts.

#### *About the Bill & Melinda Gates Foundation*

Guided by the belief that every life has equal value, the Bill & Melinda Gates Foundation works to help all people lead healthy, productive lives. In developing countries, it focuses on improving people's health and giving them the chance to lift themselves out of hunger and extreme poverty. In the United States, it seeks to ensure that all people—especially those with the fewest resources—have access to the opportunities they need to succeed in school and life. Based in Seattle, Washington, the foundation is led by CEO Mark Suzman and Co-chair William H. Gates Sr., under the direction of Bill and Melinda Gates and Warren Buffett.

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#### **30 Global Health Drug Discovery Institute (GHDDI) CN**

GHDDI (Global Health Drug Discovery Institute) will work together with Dundee University and other partners in the hit-to-lead effort (WP3) and contribute our expertise in medicinal chemistry once any hits are generated from WP1 or WP2. Additionally, GHDDI would like to leverage internal findings to help consortium projects whenever necessary – since the COVID-19 outbreak in January we have initiated a series of efforts in drug repurposing, AI-based data minding, model generation and virtual screening as well

as discovery projects of anti-viral small molecules, neutralizing antibodies and vaccines.

Sheng Ding, Ph.D., Institute Director of Global Health Drug Discovery Institute (GHDDI) said, “In this trying moment for all mankind, GHDDI is proud to join this global collaborative effort to gather and integrate resources from dedicated partners to accelerate drug discovery towards COVID-19 and future coronavirus threats. It is important to work together and invest beforehand so that we can be more prepared when similar diseases hit again.”

#### *About Global Health Drug Discovery Institute*

The Global Health Drug Discovery Institute (GHDDI) was jointly founded by the Bill & Melinda Gates Foundation, Tsinghua University and Beijing Municipal Government in 2016. As a not-for-profit and first-of-its-kind research organization in China, GHDDI is committed to transforming the lives of individuals and families who suffer from untreated illness with innovative therapeutics.

At GHDDI, we focus on translational research – from the bench to the bedside. Our scientists strive to discover new drugs and develop technologies to tackle global disease challenges that threaten populations in need. Our focus areas include tuberculosis, malaria, helminth infections, EED, HBV and COVID-19 etc. For more information about GHDDI, please visit [www.ghddi.org](http://www.ghddi.org).

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### **31 Novartis Pharma AG (NOVARTIS) CH**

Novartis will contribute a carefully curated library of approximately 1,300 small molecules with antiviral activity to the CARE Project. These will be screened against SARS-CoV-2. In addition, Novartis is contributing expertise in-kind to the pharmacokinetic and preclinical safety work packages.

"Novartis has a long history in antiviral discovery and development. We are delighted to participate in the CARE consortium's efforts by contributing a rationally selected library of antiviral compounds for screening as well as preclinical development expertise to support progression of suitable development candidates." Jennifer Leeds, Executive Director, Business Development & Licensing, Novartis Institutes for BioMedical Research

#### *About Novartis*

Novartis is reimagining medicine to improve and extend people's lives. As a leading global medicines company, we use innovative science and digital technologies to create transformative treatments in areas of great medical need. In our quest to find new medicines, we consistently rank among the world's top companies investing in research and development. Novartis products reach nearly 800 million people globally and we are finding innovative ways to expand access to our latest treatments. About 109,000 people of more than 140 nationalities work at Novartis around the world. Find out more at <https://www.novartis.com>.

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### 32 Pfizer

As one of the world's leading biopharmaceutical companies with an established heritage in antiviral and antibiotic development, Pfizer is bringing its scientific expertise to this collaboration, as well as the potential of providing compounds from the company's compound library.

"In the week WHO declared a pandemic, Pfizer outlined its commitment to collaborate across the innovation ecosystem to tackle COVID-19. Through initiatives like IMI CARE, which bring together an impressive combination of scientific expertise, technical skills and development capabilities, we can be more confident than ever that science will win," said Rienk Pypstra, MD, MBA, Vice President and Head of Clinical Development, Hospital Portfolio, Pfizer.

#### *About Pfizer: Breakthroughs That Change Patients' Lives*

At Pfizer, we apply science and our global resources to bring therapies to people that extend and significantly improve their lives. We strive to set the standard for quality, safety and value in the discovery, development and manufacture of health care products, including innovative medicines and vaccines. Every day, Pfizer colleagues work across developed and emerging markets to advance wellness, prevention, treatments and cures that challenge the most feared diseases of our time. Consistent with our responsibility as one of the world's premier innovative biopharmaceutical companies, we collaborate with health care providers, governments and local communities to support and expand access to reliable, affordable health care around the world. For more than 150 years, we have worked to make a difference for all who rely on us. We routinely post information that may be important to investors on our website at [www.Pfizer.com](http://www.Pfizer.com). In addition, to learn more, please visit us on [www.Pfizer.com](http://www.Pfizer.com) and follow us on Twitter at @Pfizer and @Pfizer News, LinkedIn, YouTube and like us on Facebook at [Facebook.com/Pfizer](https://Facebook.com/Pfizer)

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### 33 Merck KGaA (Merck) DE

Merck will be involved in different workstreams, repositioning existing medications for the current pandemic and providing drug discovery expertise to the consortium to help with development of novel anti-viral compounds for potential future Coronavirus outbreaks by contributing compound libraries and optimization capabilities.

Joern-Peter Halle, Head of Research at Healthcare Business of Merck, says: "We are delighted to be part of the consortium and sharing our expertise with partners in the fight against the current and future Coronavirus outbreaks."

#### *About Merck*

Merck, a leading science and technology company, operates across healthcare, life science and performance materials. Around 57,000 employees work to make a positive difference to millions of people's lives every day by creating more joyful and sustainable ways to live. From advancing gene editing technologies and discovering unique ways to treat the most challenging diseases to enabling the intelligence of devices – the company is everywhere. In 2019, Merck generated sales of € 16.2 billion in 66 countries.



Scientific exploration and responsible entrepreneurship have been key to Merck's technological and scientific advances. This is how Merck has thrived since its founding in 1668. The founding family remains the majority owner of the publicly listed company. Merck holds the global rights to the Merck name and brand. The only exceptions are the United States and Canada, where the business sectors of Merck operate as EMD Serono in healthcare, MilliporeSigma in life science, and EMD Performance Materials.

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### **35 Ai-biopharma (AIB) FR**

As an SME member of the consortium, Ai-biopharma will bring its viral polymerase inhibitor expertise and will provide for screening a focused small molecule antiviral library.

"We are delighted to be part of such a strong scientific team within the CARE consortium and aiming to deliver a new drug against SARS-CoV-2 and other coronaviruses." said Ai-biopharma CEO Cyril B. Dousson, Ph.D. "Like other RNA viruses our scientific team has tackled over the years, the virus polymerase is a target of choice and finding an active site therapeutic molecule against SARS-CoV-2 polymerase has also a stronger potential for a broader coverage of other future coronaviruses."

#### *About Ai-biopharma*

Ai-biopharma is a private biotech company that was founded in 2018 with the mission to become a leader in the treatment of viral infections and liver diseases. Ai-biopharma is focused on the discovery and development of a liver targeted combination therapy for chronic hepatitis B (CHB) and the discovery of Coronavirus polymerase inhibitors. Ai-biopharma's strategy is to combine its deep expertise and decades of drug discovery experience its scientific team has acquired in viral disease, particularly viral hepatitis and HIV, with its Artificial Intelligence and Chemoinformatic Platform to rapidly advance its pipeline of best-in-class small molecules. [www.ai-biopharma.com](http://www.ai-biopharma.com)

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### **36 AiCuris Anti-infective Cures GmbH (AiCuris) DE**

As a leading company in anti-infective drug development, AiCuris brings over 50 compounds from previous antiviral projects for biological screening. In addition, AiCuris will provide expert personnel for virtual screening approaches as well as for structure-based, AI-driven design of novel compounds. Should a compound be successfully identified as a promising candidate, AiCuris will conduct and support preclinical

ADME and PK studies for these selected compounds.

"We are extremely proud to be among the 37 partners of the CARE consortium that aims to deliver treatments for COVID-19 and future coronavirus outbreaks," said Dr. Holger Zimmermann, CEO of AiCuris Anti-infective Cures. "The need to be prepared for future health care emergencies is what the current COVID-19 pandemic has taught us. As a proven expert in anti-infective drug development, we are highly committed to engaging in this scientific exchange to collectively find solutions to fight current and future pandemics."

#### *About AiCuris Anti-infective Cures GmbH*

AiCuris was founded in 2006 as a spin-off from Bayer and focuses on the discovery and development of drugs targeting infectious diseases. SANTO Holding is the Company's majority investor. PREVYMIS® (Letemovir), a first-in-class non-nucleoside cytomegalovirus (CMV) inhibitor acting via a novel mechanism of action, was licensed to MSD in 2012 and is approved in the EU, the USA, Japan and other parts of the world for use in bone marrow transplants for the prevention of HCMV infections in adults who receive an allogeneic hematopoietic stem cell transplant. The Company is developing drugs for the treatment of viruses such as human CMV, herpes simplex virus (HSV), hepatitis B virus (HBV), and adenoviruses. In the field of antibacterials, AiCuris seeks to develop innovative treatment options for life-threatening, multidrug-resistant, hospital-treated pathogens.

In 2018 Prof. Dr. Helga Rübsamen-Schaeff, Founding CEO, and Dr. Holger Zimmermann, CEO of AiCuris, were awarded the German Future Prize 2018 (German President's Award for Innovation in Science and Technology) for the development of Letemovir and their project, ""Protection in the Absence of the Immune System - a Life-Saving Innovation against Dangerous Viruses"" (original title: "Schutz bei fehlendem Immunsystem - die lebensrettende Innovation gegen gefährliche Viren").

For more information, please visit [www.aicuris.com](http://www.aicuris.com).  
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#### **37 Institut de Recherches Internationales Servier (Servier) FR**

Servier is providing pre-clinical and clinical ready compounds to contribute to the development of an emergency response against COVID-19 and a diversity set of small molecule candidates from its libraries as part of the long term strategy against coronaviruses. Servier also bring lead optimisation and preclinical expertise.

"Being committed to therapeutic progress to serve patient needs, we are proud to be part of the CARE consortium launched by the Innovative Medicine Initiative aimed at delivering new treatments for patients suffering from COVID-19 and from coronaviruses." said Antoine Brill, PharmD, PhD, Servier Scientific Director Public Affairs.

#### *About Institut de Recherches Internationales Servier*

Servier is an international pharmaceutical company governed by a non-profit foundation, with its headquarters in France (Suresnes). With a strong international presence in 149 countries and a total

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revenue of 4.6 billion euros in 2019, Servier employs 22,000 people worldwide. Entirely independent, the Group invests on average 25% of its total revenue (excluding generics) every year in research and development and uses all its profits for its development. Corporate growth is driven by Servier's constant search for innovation in five areas of excellence: cardiovascular, immune-inflammatory, and neurodegenerative diseases, cancer and diabetes, as well as by its activities in high-quality generic drugs. Servier also offers eHealth solutions beyond drug development. More information about Servier can be found at [www.servier.com](http://www.servier.com)

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