COVID-19: The biopharmaceutical industry is leading the way in developing vaccines, treatments & diagnostics

As a science-driven industry that aims to address some of the world’s biggest healthcare challenges, the biopharmaceutical industry is uniquely positioned to respond rapidly to COVID-19. It has deep scientific knowledge gained from decades of experience working on developing solutions for combatting a range of infectious diseases such as MERS, SARS, Ebola and influenza, as well as experience working with health authorities and regulators to find a fast-tracked approach to bringing safe and effective medicines, vaccines and diagnostics to the market for patients.

The rapid spread of SARS-CoV-2 across the globe is a major public health threat for all, with profound health, social and economic impacts around the world. More than ever, we need effective international cooperation to ensure that no-one is left behind in the race to tackle the spread of COVID-19. This cooperation requires coordinated, multi-stakeholder action that includes the private sector as a critical partner. IFPMA members are fully committed to bringing their unique expertise in research, development and manufacturing of diagnostics, medicines and vaccines to the table.

IFPMA members are also committed to work in close collaboration with national regulatory agencies, academia and global health stakeholders to maintain access to existing medicines and vaccines for treatment and prevention of other conditions, while also

KEY FACTS & FIGURES

>20 COMPANIES INVOLVED IN R&D for therapeutics, vaccines and diagnostics
continuing clinical research into new options and treatments for serious, life-threatening diseases (Read our Regulatory Guiding Principles here).

IFPMA has joined the global public-private partnership, ACT Accelerator, as founding partner, and it is bringing to this partnership its knowledge and expertise in the discovery and development of medicines and vaccines, as well as its experience in building manufacturing capacity and distribution networks. IFPMA has published the Vaccines policy principles that will guide its work going forwards with the ACT Accelerator Vaccines Partnership (CoVax).

**REPURPOSE EXISTING & TEST NEW TREATMENTS**

Rapidly screen the industry’s vast libraries of medicines to identify potential treatments and undertake numerous clinical trials to test new and existing therapies.

The WHO Solidarity Trial has brought together over 100 countries working together to find effective therapeutics for COVID-19 as fast as possible. IFPMA members have also been reviewing their drug portfolios, which involves scientists searching for potentially useful assets that could help with the development of new or repurposed treatments to fight against the novel coronavirus. While the US FDA approved Emergency Use Authorization (EUA) for chloroquine/hydroxychloroquine on March 28 to facilitate the availability of these potential treatments during the COVID-19 pandemic, on 15 June, the US FDA revoked EUA for treating COVID-19 with chloroquine/hydroxychloroquine due to growing concerns regarding its effectiveness and potential side effects. Gilead’s remdesivir was approved as the first COVID-19 treatment by the European Medicines Agency (EMA) in June, and by the US FDA in May. On 24 July, the EMA started to review the results from the RECOVERY study arm for dexamethasone to treat adults with COVID-19 requiring respiratory support.

AbbVie partnered with global authorities to determine the effectiveness of HIV drugs lopinavir/ritonavir in treating COVID-19. WHO interim trial results showed that lopinavir/ritonavir produced little or no reduction in mortality of hospitalized COVID-19 patients, trials were interrupted with immediate effect.

AbbVie, Harbour BioM, Utrecht University and Erasmus Medical Center announced they have entered into a collaboration to develop a novel antibody therapeutic to prevent and treat COVID-19. The focus of the collaboration is on advancing the fully human, neutralizing antibody 47D11 discovered by UU, EMC and HBM. This antibody targets the conserved domain of the spike protein of SARS-CoV-2.

AbbVie, and partners of the COVID R&D Alliance, Amgen and Takeda, announced the start of the I-SPY COVID trial evaluating the efficacy of cenicriviroc, apremilast, and icatibant in hospitalized COVID-19 patients who require high-flow oxygen. Additional candidates from COVID R&D member companies will enter platform trials in coming weeks.

Amgen and Adaptive Biotechnologies (Seattle, USA) are partnering to combine expertise to discover and develop fully human neutralizing antibodies targeting SARS-CoV-2 to potentially prevent or treat COVID-19.

Amgen, and partners of the COVID R&D Alliance, AbbVie and Takeda, announced the start of the I-SPY COVID trial evaluating the efficacy of cenicriviroc, apremilast, and icatibant in hospitalized COVID-19 patients who require high-flow oxygen. Additional candidates from COVID R&D member companies will enter platform trials in coming weeks.
Astellas is providing compounds in response to a request from the Ministry of Health, Labour and Welfare and National Institute of Infectious Diseases to cooperate in the "Basic Screening Plan for Drugs for Coronavirus Disease". Astellas is also responding to requests from the European Federation of Pharmaceutical Industries Associations (EFPIA) and the Innovative Medicines Initiative (IMI) to cooperate in “Activities Aimed at Developing Drugs for the Novel Virus” and providing consultation on countermeasures.

AstraZeneca is mobilizing its R&D expertise in infectious disease and antibody discovery technology to discover novel coronavirus-neutralising antibodies as a potential preventative treatment. AstraZeneca’s R&D teams have identified monoclonal antibodies to progress towards clinical trial evaluation as a treatment to prevent COVID-19. AstraZeneca has licensed coronavirus-neutralising antibodies from Vanderbilt University, US, and plans to advance a pair of these mAbs into clinical development as a potential combination therapy for the prevention and treatment of COVID-19. This agreement builds on the Company’s collaboration agreement with Vanderbilt, announced in April 2020. AstraZeneca signed an interagency agreement with the Defense Advanced Research Projects Agency, part of the US Department of Defense, and the Biomedical Advanced Research and Development Authority, part of the Office of the Assistant Secretary for Preparedness and Response at the US Department of Health and Human Services, to support the company’s efforts to develop a mAb treatment against SARS-CoV-2, including a Phase I clinical trial and the manufacturing of the investigational product for testing in Phase I.

In ongoing trials supported by AstraZeneca, results published in Science Immunology showed that Calquence (acalabrutinib), a Bruton’s tyrosine kinase (BTK) inhibitor, reduced markers of inflammation and improved clinical outcomes of patients with severe COVID-19 disease.

Boehringer Ingelhein is searching for novel virus-neutralizing antibodies. It is also screening its entire molecule library for compounds that could target the virus. Boehringer Ingelhein is joining the COVID-19 Therapeutics Accelerator initiative, initiated by the Gates Foundation, Wellcome and Mastercard, to speed up the development of therapeutics, but also vaccines and diagnostics for COVID-19. Boehringer Ingelhein is contributing its ongoing COVID-19 projects and expertise to the Innovative Medicines Initiative (IMI) of the European Union.

Bristol-Myers Squibb is joining the COVID-19 Therapeutics Accelerator initiative, initiated by the Gates Foundation, Wellcome and Mastercard, to speed up the development of therapeutics, but also vaccines and diagnostics for COVID-19.

Chugai Pharmabody Research Pte. Ltd. and the Agency for Science, Technology and Research (A*STAR) in Singapore are jointly researching a therapeutic antibody to fight COVID-19 by applying Chugai’s proprietary antibody engineering technologies. Chugai and Eli Lilly are collaborating regarding the development of COVID-19 therapeutic antibodies, using Chugai’s antibody engineering technologies.

CSL Group is collaborating with Takeda, Biotest AG, Bio Products Laboratory, LFB and Octapharma to accelerate development of an unbranded anti-SARS-CoV-2 polyclonal hyperimmune immunoglobulin medicine to treat COVID-19 patients with serious complications. CSL Group is evaluating potential treatment candidates with SAB Therapeutics as part of its previously announced collaboration to investigate new therapies to treat infectious diseases as well as immunological and neurological conditions.
Daiichi Sankyo reached a basic agreement with The University of Tokyo, RIKEN and Nichi-Iko Pharmaceutical Co., Ltd. on collaborative R&D on a Nafamostat inhalation formulation for the treatment of novel corona virus infection (COVID-19). Daiichi Sankyo agreed to work on the Nafamostat inhalation formulation using technology gained in the development of its anti-influenza virus agent, Inavir®.

EFPIA, through the Innovative Medicines Initiative (IMI), with IMI Associated Partners and other organisations provided up to 45 million EUR to fund 8 COVID-19 R&D projects with 3 focusing on treatments.

Eli Lilly and AbCellera (Canadian biotech firm) agreed to co-develop antibody products for the treatment and prevention of COVID-19. Following this partnership, patients were dosed in the world’s first study of a potential antibody treatment designed to fight COVID-19.

Eli Lilly and Junshi Biosciences have partnered to co-develop antibody therapies for the prevention and treatment of COVID-19. Lilly would receive an exclusive license to conduct clinical development, manufacturing and distribution of products outside of Greater China. Junshi Biosciences would maintain all rights in Greater China. Lilly also announced the start of a Phase 1 study for its second potential COVID-19 antibody treatment. Junshi Biosciences is conducting its Phase 1 study in China with Lilly to work on its Phase 1 study in the United States.

Eli Lilly joined the COVID-19 Therapeutics Accelerator initiative, initiated by the Gates Foundation, Wellcome and Mastercard, to speed up the development of therapeutics, but also vaccines and diagnostics for COVID-19.

Eli Lilly announced that it was advancing its investigational selective monoclonal antibody LY3127804 against Angiopoietin 2 (Ang2) to Phase 2 testing in pneumonia patients hospitalized with COVID-19 who are at a high risk of progressing to acute respiratory distress syndrome (ARDS).

Eli Lilly is collaborating with Chugai on COVID-19 therapeutic antibodies, see Chugai for more details.

Eli Lilly announced that the start of a Phase 3 randomized, double-blind, placebo-controlled study to evaluate the efficacy and safety of baricitinib, an oral JAK1/JAK2 inhibitor licensed from Incyte, in hospitalized adults with COVID-19. The study would be conducted in the U.S., Europe and Latin America and would include patients hospitalized with SARS-CoV-2 infection who have at least one elevated marker of inflammation but do not require invasive mechanical ventilation at study entry.

Eisai joined the COVID-19 Therapeutics Accelerator initiative, initiated by the Gates Foundation, Wellcome and Mastercard, to speed up the development of therapeutics, but also vaccines and diagnostics for COVID-19.

Eisai, in collaboration with The Global Coalition for Adaptive Research (GCAR), and UPMC (University of Pittsburgh Medical Center), announced that Eisai agreed to join REMAP-COVID, a substudy of REMAP-CAP (A Randomized, Embedded, Multifactorial, Adaptive Platform trial for Community-Acquired Pneumonia) that tests multiple interventions for the treatment of patients hospitalized with COVID-19. Eritoran, an investigational TLR4 antagonist discovered and developed by Eisai, was selected as the first investigational immune modulation therapy to be evaluated in the moderate patient group of REMAP-COVID. The trial would be conducted in the multi-hospital UPMC health system along with other medical centers in the United States. Additional global sites across the trial network, including Japan, would follow.

Gilead is investigating the use of remdesivir (previously developed to treat Ebola, SARS and MERS).

Gilead announced that positive data was emerging from the National Institute of Allergy and Infectious Diseases’ (NIAID) study of the investigational antiviral remdesivir for the treatment of COVID-19.

Gilead received EUA from the FDA for its potential COVID-19 treatment remdesivir.


Gilead initiated a Phase 1a clinical study to evaluate the safety, tolerability and pharmacokinetics of an investigational,
inhaled solution of remdesivir in healthy volunteers, for potential outpatient treatment of COVID-19. Gilead received EUA from the EMA for remdesivir on 25 June.

GSK and Vir Biotechnology Inc are in a collaboration using GSK’s expertise in functional genomics and Vir’s proprietary monoclonal antibody platform technology to accelerate existing and identify new anti-viral antibodies for use in therapeutics or preventative treatments.

GSK announced the start of trials of an experimental rheumatoid arthritis drug (otilimab) on patients suffering from severe pulmonary COVID-19 related disease by the end of May.

GSK joined the COVID-19 Therapeutics Accelerator initiative, initiated by the Gates Foundation, Wellcome and Mastercard, to speed up the development of therapeutics, but also vaccines and diagnostics for COVID-19.

Johnson & Johnson, in partnership with the Rega Institute for Medical Research, University of Leuven (Belgium), are working to identify existing or new compounds with antiviral activity against COVID-19.

Johnson & Johnson joined the COVID-19 Therapeutics Accelerator initiative, initiated by the Gates Foundation, Wellcome and Mastercard, to speed up the development of therapeutics, but also vaccines and diagnostics for COVID-19.

LEO Pharma is participating in a pharma industry initiative supported by the European Commission to identify active compounds and compile a sample library for testing with the potential of reducing lead time for treatment development for COVID-19.

MSD is joining the COVID-19 Therapeutics Accelerator initiative, initiated by the Gates Foundation, Wellcome and Mastercard, to speed up the development of therapeutics, but also vaccines and diagnostics for COVID-19. MSD and Ridgeback Biotherapeutics LP entered into a collaboration agreement to develop EIDD-2801, an orally available antiviral candidate currently in early clinical development for the treatment of patients with COVID-19. The candidate antiviral, renamed to MK-4882, is currently in phase 2 clinical trials.

Merck joined the COVID-19 Therapeutics Accelerator initiative, initiated by the Gates Foundation, Wellcome and Mastercard, to speed up the development of therapeutics, but also vaccines and diagnostics for COVID-19.

Novartis is rapidly evaluating existing products to see if any could be utilized beyond their approved indications in response to the pandemic.

Novartis announced it would conduct a 450-person study in the US to determine if its malaria drug hydroxychloroquine can effectively treat COVID-19. Novartis discontinued the study due to feasibility of recruitment. It remains committed to ongoing R&D efforts for COVID-19.

Novartis announced plans to initiate a Phase III clinical trial to study canakinumab in patients with COVID-19 pneumonia. The company aims to rapidly enroll 450 patients at multiple medical centers across France, Germany, Italy, Spain, UK and the US.

Novartis is co-chairing the COVID-19 Therapeutics Accelerator initiative, initiated by the Gates Foundation, Wellcome and Mastercard, to speed of the development of therapeutics, but also vaccines and diagnostics for COVID-19.

Pfizer finalised a preliminary assessment of certain antiviral compounds that were previously in development and that inhibited the replication of coronaviruses.

Pfizer is working to revive a compound identified as potential treatment for the 2003 SARS-CoV-1 which inhibits a specific enzyme (a protease) produced by coronaviruses.

Pfizer joined the COVID-19 Therapeutics Accelerator initiative, initiated by the Gates Foundation, Wellcome and Mastercard, to speed up the development of therapeutics, but also vaccines and diagnostics for COVID-19.
Roche's Actemra® was approved by China on March 5 to treat COVID-19 patients with lung complications. Actemra has been on the European market since 2010 for treatment of several kinds of arthritis. Roche initiated phase III clinical trial of Actemra/RoActemra plus remdesivir in hospitalised patients with severe COVID-19 pneumonia. Roche announced that Actemra/RoActemra (also known as tocilizumab) did not meet its primary endpoint of improved clinical status in COVID-19 associated pneumonia, or the key secondary endpoint of reduced patient mortality.

Sanofi entered into a partnership with Regeneron Pharmaceuticals to start a clinical program evaluating Kevzara in patients hospitalized with severe COVID-19. Kevzara, a drug originally used to treat arthritis, is a interleukin-6 (IL-6) pathway inhibitor which might help in slowing the overactive inflammatory response in the lungs of COVID-19 patients. Sanofi and Regeneron Pharmaceuticals announced that the U.S. Phase 3 trial of Kevzara® (sarilumab) 400 mg in COVID-19 patients requiring mechanical ventilation did not meet its primary and key secondary endpoints when Kevzara was added to best supportive care compared to best supportive care alone (placebo). Based on the results, the U.S.-based trial has been stopped, including in a second cohort of patients who received a higher dose of Kevzara (800 mg). Detailed results will be submitted to a peer-reviewed publication later this year. Sanofi joined the COVID-19 Therapeutics Accelerator initiative, initiated by the Gates Foundation, Wellcome and Mastercard, to speed up the development of therapeutics, but also vaccines and diagnostics for COVID-19.

Shionogi and the Hokkaido University Research Center for Zoonosis Control were in early stages of identifying several promising lead compounds from internal in vitro studies. The two organizations were accelerating drug discovery efforts with the aim of starting clinical trials in FY2020.

Sumitomo Dainippon Pharma donated 10 million yen to the Kitasato Institute's Project for COVID-19 to identify clinical candidates for the treatment of COVID-19 through a large-scale screening of approved pharmaceuticals. It is further providing drug substances to the "Basic Screening Plan for Drugs for Coronavirus Disease 2019" at the Japanese National Institute of Infectious Diseases.

Takeda and CSL Group formed the CoVlg-19 Plasma Alliance with other leading global plasma companies, including Biotest, BPL and Octapharma, to develop a potential plasma-derived therapy for treating COVID-19. The Alliance aims at developing a medicine made from the plasma of individuals who have recovered from COVID-19 with the potential to treat those at risk of serious conditions form COVID-19. The CoVlg-19 Plasma Alliance expanded to comprise 10 companies and attracted the support of major companies and organizations. Takeda, and partners of the COVID R&D Alliance, AbbVie and Amgen, announced the start of the I-SPY COVID trial evaluating the efficacy of cenicriviroc, apremilast, and icatibant in hospitalized COVID-19 patients who require high-flow oxygen. Additional candidates from COVID R&D member companies will enter platform trials in coming weeks.

Teva announced it was actively looking through its range of products to determine if it could help provide any products that may be relevant in addressing acute and substantial need during the COVID-19 crisis.

SHARE REAL-TIME CLINICAL TRIAL DATA WITH GOVERNMENTS & OTHER COMPANIES

Share real-time clinical trial data with governments and other companies around the world to advance the development of additional therapies.
The rapid virus sequencing by the scientific community enabled researchers to characterize and begin to understand the new threat posed by COVID-19. "Open Access" data-sharing channels are the backbone to securing a response capacity and have proven their worth with influenza networks. The rapid pace with which researchers have been able to understand this novel strain of virus and get medicines into human clinical trials is a testament to the lessons learned from past public health emergencies. The Global Initiative on Sharing All Influenza Data or GISAID Initiative, an open access platform partly funded by the private sector, played a critical role in sharing the first genome sequences of the novel coronavirus and centralizing their collection. This has proven vital in speeding up the sharing of information among scientists as well as public health authorities. But there is still a lot to learn about the virus, both in terms of how it spreads as well as what existing treatments may be effective in helping patients who contract the disease.

**Abbvie** worked closely with European health authorities, US FDA, US CDC, US NIH, and US-based BARDA to coordinate efforts to research the effectiveness of lopinavir/ritonavir in clinical studies. Trials were interrupted immediately after no reduction in mortality of hospitalized COVID-19 patients was noticed.

**Amgen**'s subsidiary deCODE genetics and colleagues from Iceland's Directorate of Health and the National University Hospital published in the New England Journal of Medicine a population-based study of the early spread of SARS-Cov-2 (causing COVID-19 disease) in Iceland's population. Amgen, together with AstraZeneca, Eli Lilly, Roche's Genentech subsidiary, GSK and AbCellera, has been allowed to share manufacturing information that could help speed up coronavirus antibody production by the US Department of Justice, since 23 July.

**AstraZeneca** announced the start of a randomised, global clinical trial to assess the potential of Calquence (acalabrutinib) in the treatment of the exaggerated immune response (cytokine storm) associated with COVID-19 infection in severely ill patients. Calquence is approved for the treatment of adult patients with chronic lymphocytic leukaemia (CLL) in the US and a few other countries with an active global filing programme. AstraZeneca, together with Amgen, Eli Lilly, Roche's Genentech subsidiary, GSK and AbCellera, has been allowed to share manufacturing information that could help speed up coronavirus antibody production by the US Department of Justice, since 23 July. AstraZeneca and partner Oxford University are undertaking clinical trials in the US, UK, Brazil, and South Africa for their co-developed candidate COVID-19 vaccine AZD1222.

**Bayer** is supporting a French study conducted by medical experts to assess the effectiveness of a novel combination of molecules for the treatment of COVID-19 patients. Bayer Canada partnered with the Population Health Research Institute (PHRI) to launch a major clinical research program with two studies to evaluate the safety and efficacy of different combination therapies including Bayer's chloroquine and interferon beta-1b.

**Biogen**, Broad Institute of MIT and Harvard and Partners HealthCare announced a consortium to build and share a COVID-19 biobank that aims at helping scientists study a large collection of de-identified biological and medical data to advance knowledge and search for potential vaccines and treatments.

**Boehringer Ingelheim** supports scientists worldwide with its open innovation portal opnMe.com, which offers 6 anti-viral compounds out of 43 high quality pharmacological tool compounds at no cost for testing of research hypotheses.

**Bristol-Myers Squibb** (BMS) identified 1,000 compounds in its discovery library that they are making available to collaborators for screening for potential treatments for COVID-19. BMS is actively evaluating certain medicines in its
**Squibb** portfolio that could be included in near-term clinical trials with a focus on agents impacting the inflammatory immune response associated with COVID-19.

**CSL Group/ Seqirus** and its partners in the CoVlg-19 Plasma Alliance announced they are ready to start shipping vials of their blood plasma treatment for COVID-19 to study sites once the clinical trial design is approved by regulators in the US.

**Eli Lilly** has entered into an agreement with the National Institute of Allergy and Infectious Diseases (NIAID), part of the National Institutes of Health (NIH), to study baricitinib as a potential treatment for hospitalized patients diagnosed with COVID-19. Baricitinib is approved in more than 65 countries as a treatment for adults with moderately to severely active rheumatoid arthritis.

Eli Lilly is participating in the Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) partnership with the US National Institutes of Health (NIH) to speed up development of COVID-19 treatment options, streamline clinical trials, coordinate regulatory processes and/or leverage assets among all partners to rapidly respond to the COVID-19 and future pandemics.

Eli Lilly, together with Amgen, AstraZeneca, Roche’s Genentech subsidiary, GSK and AbCellera, has been allowed to share manufacturing information that could help speed up coronavirus antibody production by the US Department of Justice, since 23 July.

Eli Lilly and its partner AbCellera announced the initiation of BLAZE-2 in collaboration with the US National Institute of Allergy and Infectious Diseases (NIAID) and the COVID-19 Prevention Network (CoVPN), a phase 3 trial studying LY-CoV555 for the prevention of SARS-CoV-2 infection in resident and staff at long-term care facilities in the US.

**Gilead** initiated two Phase 3 clinical trials of remdesivir in countries with high prevalence of COVID-19. The company is also supporting two Phase 3 trials in China and a global Phase 2 trial led by the US National Institute of Allergy and Infectious Diseases.

Gilead reported on the New England Journal of Medicine (NEJM) publishing an analysis of the effects of their investigational medicine remdesivir on a small group of patients with severe COVID-19 symptoms.

Gilead announced topline results from Phase 3 SIMPLE trial. NIAID released positive interim findings from the Adaptive COVID-19 Treatment Trial (ACTT), and The Lancet published data and commentary from severe 2019-nCoV remdesivir clinical trial in China.

Gilead announced that findings from the NIAID trial of remdesivir in hospitalized patients with advanced COVID-19 have been published The New England Journal of Medicine (NEJM). These findings support the use of remdesivir in this population, with the largest benefit observed among individuals who required oxygen supplementation but were not mechanically ventilated.

Gilead also anticipates for results from their Phase 3 SIMPLE-Severe study to be available in the near future. Beyond the ongoing studies of remdesivir, Gilead is looking forward to the initiation of combination studies of remdesivir to understand whether the addition of other drugs may enhance patient outcomes.

Gilead announced results from phase 3 trial of Remdesivir in patients with moderate COVID-19. Study demonstrates 5-day treatment course of Remdesivir resulted in significantly greater clinical improvement versus treatment with standard of care alone. Data adds to body of evidence from prior studies demonstrating benefit of Remdesivir in hospitalized patients with COVID-19.

Gilead announced the launch of an open-label, single-arm Phase 2/3 clinical trial in coordination with the US FDA, that would evaluate safety, tolerability, pharmacokinetics and efficacy of remdesivir in treating pediatric patients with moderate-to-severe COVID-19. It would include 50 patients, including newborns through adolescents, across 30 sites in the US and Europe.

Gilead announced additional data on remdesivir, an investigational antiviral for the treatment of COVID-19, adding to the available body of knowledge on treatment outcomes with remdesivir. The data would be presented at the Virtual COVID-19 Conference as part of the 23rd International AIDS Conference (AIDS 2020: Virtual) and include a comparative
analysis of the Phase 3 SIMPLE-Severe trial and a real-world retrospective cohort of patients with severe COVID-19.

**GSK**
GSK, together with Amgen, AstraZeneca, Eli Lilly, Roche's Genentech subsidiary, GSK and AbCellera, has been allowed to share manufacturing information that could help speed up coronavirus antibody production by the [US Department of Justice](https://www.justice.gov), since 23 July.

**Ipsen**
Ipsen donated financial resources to the Institut Pasteur that has devoted a portion of its research, since January, to understanding SARS-CoV-2 in terms of epidemiology, biological characteristics and pathogenicity.

**Johnson & Johnson**
Johnson & Johnson’s candidate vaccine Ad26.COV2.S is in phase 1/2a first-in-human clinical trial, in collaboration with the US Biomedical Advanced Research and Development Authority (BARDA).

**Merck**
Merck donated a supply of interferon beta-1a (Rebif®) to the French Institut National de la Santé et de la Recherche Médicale (INSERM) following a request for use in a clinical trial to investigate it as a potential therapeutic for COVID-19.

**MSD**
MSD and the US Institute for Systems Biology (ISB) are collaborating to investigate and define the molecular mechanisms of SARS-CoV-2 and COVID-19 and identify targets for medicines and vaccines, in partnership with US BARDA. Findings generated from the study would be made available to the worldwide scientific and biomedical community.

**Novartis**
Novartis is contributing by making several compounds from its libraries available that are considered suitable for in vitro antiviral testing.

**Pfizer**
Pfizer announced its commitment to making the vital tools they develop available on an open source platform to the broader scientific community and to share data and learnings gained with other companies in real time to rapidly advance therapies and vaccines to patients.

**Pfizer** joined the Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) initiative.
Pfizer and BioNTech shared additional positive early data on Phase 1 safety and immunogenicity from their U.S. study of the BNT162 mRNA-based vaccine program against SARS-CoV-2, which has advanced into Phase 2/3 evaluation. The manuscript is available on an online preprint server and is concurrently undergoing scientific peer review for potential publication.

Roche announce it would be working with the US FDA to initiate a Phase III clinical trial to evaluate the safety and efficacy of Actemra in hospitalised adult patients with severe COVID-19 pneumonia. Roche (through its daughter company Chugai) announced it would initiate a randomized, double-blind, placebo-controlled Phase III clinical trial (COVACTA study) globally to evaluate the safety and efficacy of Actemra plus standard of care in hospitalized patients with severe COVID-19. Roche's Genentech subsidiary, together with Amgen, AstraZeneca, Eli Lilly, GSK and AbCellera, has been allowed to share manufacturing information that could help speed up coronavirus antibody production by the US Department of Justice, since 23 July.

Sanofi is collaborating with the Coalition for Epidemic Preparedness Innovations (CEPI) and sharing its vaccine R&D experience and expertise to advance vaccine solutions. Sanofi committed to donating hydroxychloroquine (Plaquenil®) to governments worldwide if ongoing clinical trials would demonstrate its safety and efficacy in COVID-19 patients.

Sumitomo Dainippon Pharma collaborates in the “COVID-19 Research Database” consortium to provide researchers with free access to the medical information database.

Takeda partnered with IMI in Europe to leverage collective expertise in the hope to develop inhibitors to help prevent future outbreaks. Takeda and the CoVlg-19 Plasma Alliance partnered with the US National Institute of Allergy and Infectious Diseases (NIAID) for a global study on the safety, tolerability and efficacy of the hyperimmune therapy in adult COVID-19 patients. Takeda and its partners in the CoVlg-19 Plasma Alliance announced they are ready to start shipping vials of their blood plasma treatment for COVID-19 to study sites once the clinical trial design is approved by regulators in the US.

UCB announced it would be working with the US-based Seattle Structural Genomics Center for Infectious Disease to identify crystal structures of SARS-CoV-2 proteins. It also partnered with UK-based Diamond Light Source and The University of Oxford to design inhibitors of SARS-CoV-2’s main protease for treatment of COVID-19 patients. It would also be working with government agencies and the healthcare community to determine if any of their therapies could be used effectively against COVID-19.

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SPEED UP R&D OF SAFE & EFFECTIVE VACCINES

Use our expertise and know-how to speed up the development of safe and effective vaccines to prevent COVID-19 in partnership with others.
As of 20 August 2020, the WHO reports there are currently 30 candidate vaccines in clinical evaluation and 139 candidate vaccines in preclinical evaluation. Several biopharmaceutical companies are researching vaccine candidates for the prevention of COVID-19 and collaborating in the sharing of existing technologies that can be leveraged to allow a rapid upscale of production once a vaccine candidate is identified. IFPMA members are also sharing technologies that act as an adjuvant which can boost the effectiveness of a potential vaccine.

Experts are hoping it will take as little as 12 to 18 months before there is a vaccine available. This is a best-case estimate that assumes one or two of the first few vaccines that enter development and complete three phases of clinical trials will be successful. Typically, only approximately one in ten experimental vaccines make it all the way through to regulatory approval. Therefore, the more companies taking different approaches to find a vaccine, the greater the chance of success.

IFPMA is a founding partner of Access to COVID-19 Tools (act) Accelerator, a global collaboration to accelerate the development, production and equitable access to new COVID-19 diagnostics, therapeutics and vaccines.

AstraZeneca and the University of Oxford joined forces for the global development and distribution of the University’s potential recombinant adenovirus vaccine aimed at preventing COVID-19 infection from SARS-CoV-2. AstraZeneca received support of more than $1bn from the US Biomedical Advanced Research and Development Authority (BARDA) for the development, production and delivery of the vaccine. The development programme would include a Phase III clinical trial with 30,000 participants and a paediatric trial. AstraZeneca and Oxford University announced the start of a Phase I/II vaccine clinical trial to assess safety, immunogenicity and efficacy in over 1,000 healthy volunteers aged 18 to 55 years across several trial centres in southern England. The two organizations disclosed interim results, published in The Lancet, from the Phase I/II COV001 trial, led by Oxford University, showed AZD1222 was tolerated and generated robust immune responses against the SARS-CoV-2 virus in all evaluated participants.

CSL Group/Seqirus provided scientific and technical expertise together with its established MF59® adjuvant technology to the University of Queensland in Australia to fast-track R&D of their CEPI-funded COVID-19 vaccine candidate, which uses novel molecular-clamp technology.

Daiichi Sankyo announced its decision to develop a genetic (mRNA) vaccine for the novel corona virus infection in Japan. In a pharmacological evaluation of a prototype mRNA vaccine using animal models, the study achieved an increase in antibody titers to the novel coronavirus.

Eli Lilly is participating in the Accelerating COVID-19 Therapeutic Interventions and Vaccines (ACTIV) partnership with the US National Institutes of Health (NIH) to speed up development of COVID-19 vaccine options, streamline clinical trials, coordinate regulatory processes and/or leverage assets among all partners to rapidly respond to the COVID-19 and future pandemics.

GSK is collaborating with multiple companies and research groups on promising COVID-19 vaccine candidates through the use of its vaccine adjuvant technology, of particular importance in a pandemic situation since it may reduce the amount of vaccine protein required per dose, allowing more vaccine doses to be produced and therefore contributing to protecting more people. GSK entered into a collaboration with Sanofi to develop an adjuvanted vaccine for COVID-19, using innovative
technologies from both companies. The vaccine is expected to enter clinical trials in second half 2020. GSK is collaborating with the University of Queensland, Clover Biopharmaceuticals and Xiamen Innovax Biotech Co. GSK believes that more than one vaccine will be needed and is hoping that there will be a number of successful vaccines developed with its pandemic adjuvant technology. GSK’s scientific collaboration with Clover Pharmaceuticals to develop an adjuvanted COVID-19 vaccine entered into human clinical trials. GSK and Medicago are collaborating to develop and evaluate a COVID-19 candidate vaccine combining Medicago’s recombinant Coronavirus Virus-Like Particles (CoVLP) with GSK’s pandemic adjuvant system.

Johnson & Johnson expanded its collaboration with the Biomedical Advanced Research and Development Authority (BARDA) and established a new collaboration with Beth Israel Deaconess Medical Center (BIDMC). Johnson & Johnson and partners announced the selection of a lead COVID-19 vaccine candidate from constructs it had been working on since January 2020. The Company had already begun preparations for clinical vaccine production at its facility in Leiden, the Netherlands. Johnson & Johnson announced that its lead vaccine candidate showed robust protection against SARS-CoV-2 in pre-clinical studies.

MSD MSD and IAVI, a nonprofit scientific research organization dedicated to addressing urgent, unmet global health challenges, partnered to advance the development and global clinical evaluation of a SARS-CoV-2 vaccine candidate. This vaccine candidate would use the recombinant vesicular stomatitis virus (rVSV) technology that is the basis for MSD’s Ebola Zaire virus vaccine, ERVEBO®. MSD announced its acquisition of the Vienna-based biotech company Themis. The confirmed acquisition is expected to accelerate the development of Themis’ COVID-19 vaccine candidate.

Novartis Novartis’ AveXis division partnered with Massachusetts Eye and Ear and Massachusetts General Hospital, members of Mass General Brigham, entering into a manufacturing agreement to contribute to the development and production of their novel genetic vaccine.

Pfizer Pfizer and BioNTech entered into a partnership to jointly develop BioNTech’s mRNA-based vaccine candidate BNT162 to prevent COVID-19 infection. The two companies announced early positive data from the most advanced of four investigational vaccine candidates from their BNT162 mRNA-based vaccine program, Project Lightspeed, against SARS-CoV-2. Overall, the preliminary data demonstrated that BNT162b1 could be administered in a dose that was well tolerated and generated dose dependent immunogenicity. Pfizer and BioNTech obtained an FDA fast track label as they looked to start a Phase 2b/3 trial, 30,000-patient COVID-19 vaccine test, after the regulatory approval. Pfizer and BioNTech released initial data from their ongoing German Phase 1/2, open-label, non-randomized, non-placebo-controlled, dose-escalation trial, that is part of the global mRNA-based vaccine program against SARS-CoV-2. The data were made available on an online preprint server at medrxiv and were undergoing scientific peer-review for potential publication. Pfizer and partner BioNTech have commenced the phase 3 clinical trials for their lead COVID-19 vaccine on Tuesday, 28 July. Pfizer and BioNTech received a Fast Track designation from the US FDA for their BNT162b2 vaccine candidate against SARS-CoV-2 and is currently under Phase 2/3 clinical trials at 120 sites worldwide.

Sanofi Sanofi announced a collaboration with the Biomedical Advanced Research and Development Authority (BARDA) to advance a novel COVID-19 vaccine candidate. Work is underway to leverage previous development efforts of a SARS vaccine candidate using Sanofi’s recombinant DNA technology. Sanofi, and Translate Bio, a clinical-stage messenger RNA (mRNA) therapeutics company, partnered to develop a novel mRNA vaccine for COVID-19. This collaboration leverages an existing agreement from 2018 between the two
companies to develop mRNA vaccines for infectious diseases, which was expanded in 2020. Sanofi joined forces with GSK, sharing innovative technologies from both companies. For more details see GSK. Shionogi made the decision to develop a prophylactic vaccine for COVID-19. Shionogi’s subsidiary UMN Pharma Inc. would be pursuing the discovery and development of a recombinant protein vaccine using the unique Baculovirus Expression Vector System (BEVS) in a project supported by the Japan Agency for Medical Research and Development (AMED). Shionogi reports that in parallel and in collaboration with the Japanese National Institute of Infectious Diseases (NIID) an immunogenicity testing of protein antigens and adjuvant candidates added to vaccine formulations had been initiated.

**UCB** is collaborating with The University of Oxford on a vaccine development.

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**DEVELOP DIAGNOSTIC TESTING & SECURE CONTINUOUS SUPPLY**

Develop and scale up the capacity of diagnostics testing for COVID-19 patients as much as possible and secure the continuous supply of diagnostic test kits to countries around the world.

Rolling out diagnostics to detect whether patients are genuinely infected with the new coronavirus is a key step in preventing or slowing its spread. However, the rapid spread of COVID-19 has drastically increased the demand for testing kits around the world and governments are trying to ramp up their testing capacities. The biopharmaceutical industry is therefore pushing the boundaries, uniting and collaborating to increase and secure the production and development of diagnostics for COVID-19.

**AstraZeneca** is making the development of its diagnostic testing capabilities to scale-up screening and is also working in partnership with governments on existing screening programmes to supplement testing. AstraZeneca is collaborating with GSK and Cambridge University by setting up a new testing laboratory at the University’s facilities for high throughput screening for COVID-19 testing. It will also explore the use of alternative chemical reagents for test kits to help overcome current supply shortages.

**Bayer** is making more than 40 virus diagnostics devices available from its research operations to scale up Germany’s COVID-19 analysis by several thousand tests daily. It is also freeing up specially trained personnel for this purpose.

**EFPIA** through the Innovative Medicines Initiative (IMI), with IMI Associated Partners and other organisations has provided up to 45 million EUR to fund 8 COVID-19 R&D projects with 5 focusing on diagnostics.

**GSK** is partnering with AstraZeneca and Cambridge University to create a state-of-the-art, high-throughput testing laboratory in Cambridge, which is introducing state-of-the-art robotics, automation and other diagnostic innovations to optimise COVID-19 testing. In the long-term, these innovations will inform and strengthen the UK’s diagnostics capability. For more details see AstraZeneca. GSK is also conducting large-scale testing at its facility in Rixensart, Belgium.

**GSK – GSK Consumer Healthcare is teaming up with Mammoth Biosciences to develop an accurate, easy-to-use, fully disposable, rapid and handheld test that consumers and healthcare providers in clinics can use to detect active SARS-CoV-2. The companies are aiming to have a device submitted for FDA Emergency Use Authorization (EUA) review before**
Johnson & Johnson entered into a research collaboration with Alveo Technologies to advance Alveo’s be.well™ platform of analyzers, nasal swabs and cartridges for the detection of viral infectious diseases, including potentially SARS-CoV-2. J&J will provide Alveo with financial support as well as technical and regulatory counsel.

Menarini Diagnostics and Credo Diagnostics Biomedical entered into an exclusive distribution agreement for the VitaPCR™ SARS-CoV-2 assay kit.

Novo Nordisk scientists are working in R&D laboratories to boost Denmark's COVID-19 testing capacity.

Otsuka and Denka Company, Limited (Denka) announced to co-market the rapid-diagnostic test kit QuickNavi™- COVID-19 Ag to medical institutions across Japan. The kit, manufactured domestically by Denka, would be co-marketed by Otsuka as the latest product in Otsuka’s QuickNavi™ series of in vitro diagnostics.

Roche received Emergency Use Authorization (EUA) from the US FDA for its diagnostic kit cobas® SARS-CoV-2 Test. Roche is committed to delivering as many tests as possible and is going to the limits of production capacity. Roche announced the development and upcoming launch of its Elecsys® Anti-SARS-CoV-2 serology test to detect antibodies in people who have been exposed to SARS-CoV-2. Roche received EUA from the US FDA for its COVID-19 antibody test. Roche has already started shipping the new antibody test to leading laboratories globally and will ramp up production capacity to high double-digit millions per month to serve healthcare systems in countries accepting the CE mark as well as the U.S. Roche is doing everything possible to ensure an adequate supply of their tests. It calls upon governments to work with the industry to keep global manufacturing and supplies running.

Sanofi joined forces with Luminostics to develop a COVID-19 smartphone-based self-testing solution. Luminostics would contribute its proprietary technology for consumer-diagnostics for COVID-19 testing while Sanofi would bring its clinical research testing experience and capabilities.

Shionogi and Micro Blood Science (MBS) entered into a partnership to develop COVID-19 antibody-test kits using MBS' original technology, including unique trace-blood collection devices. Shionogi is undertaking performance testing to demonstrate its suitability for practical use in Japan and are collecting clinical data for regulatory approval. Shionogi entered a partnership with MBS and Vazyme Biotech to support delivery of their COVID-19 antibody-test kits to medical institutions, testing facilities, research laboratories, etc. Shionogi has agreed with Nihon University, Gunma University, and Tokyo Medical University on a license agreement regarding a new rapid diagnostic method for viruses including the novel coronavirus (SARS-CoV-2). The Joint Research Team, consisting of Nihon University, Gunma University, and Tokyo Medical University, has succeeded in developing a unprecedented innovative viral rapid diagnostic method using signal amplification by ternary initiation complexes method (SATIC method). Shionogi launched its IgG/IgM Antibody-test Kit for COVID-19 for epidemiological surveillance and studies of SARS-CoV-2/COVID-19 aiming to determine the number of individuals previously infected with SARS-CoV-2.

Takeda is partnering with public entities and other pharmaceutical companies through the Innovative Medicines Initiative (IMI) in Europe to leverage collective expertise in the hope of developing diagnostics for COVID-19.

UCB is working closely with the Belgian government to scale up COVID-19 testing capabilities. It is looking at similar possibilities in the UK.
IFPMA and its member companies are monitoring the impact the SARS-CoV2 outbreak and measures put in place by governments to prevent the spread of the virus (e.g. restrictions on travel, movement, border closures or measures on supply chain). Member companies are committed to ensure the continued supply of essential supplies for medicines and vaccines, for patients that suffer from chronic illnesses or other health conditions. Member companies are not aware of any near-term impacts on the availability of medicines and vaccines. They are continuously monitoring and proactively handling the situation as it develops, and are working to prevent and mitigate any potential shortages through close coordination with national regulatory authorities and other global stakeholders, including the World Health Organization.

There is an increase in the threat of falsified medicines, targeting existing products but also new potential treatments against COVID-19. On April 9, the WHO issued an alert warning that between 31 March and 2 April 2020, the WHO global surveillance and monitoring system on substandard and falsified (SF) medical products received nine reports of confirmed falsified chloroquine products from three countries. IFPMA and its members continue their commitment to tackling the global public health threat posed by falsified medical products, as a member of the Fight the Fakes campaign, IFPMA supports the campaign’s activities (Statement).

**AbbVie** AbbVie is not anticipating disruption to the medicine supply for HIV patients as a result of the investigation of the effectiveness of HIV medicines against COVID-19.

**Almirall** Almirall would continue production of all its essential products and increased production of specific medicines, such as paracetamol.

**Astellas** At Astellas was able to maintain an adequate inventory level of raw materials and finished products, by closely cooperating with outsourcing manufacturers and suppliers of raw materials taking into account the continuation of business and the stable supply of products.

**Bayer** Bayer continued the production of medicines and health care products at their plant in Garbagnate, Italy for both the Italian and global market.

**Biogen** Biogen also took the vital role it plays in ensuring an uninterrupted supply of their medicines to patients very seriously. It would not anticipate any interruptions but could not exclude the possibility that COVID-19 might have an impact on manufacturing capabilities in the future.

**Boehringer Ingelheim** Boehringer Ingelheim ensured further discovery, development, production and supply of highly innovative medicines that are needed by patients around the globe.

**Bristol-Myers** Clinical and commercial supply chain teams at Bristol Myers Squib have proactively made sure raw materials and products reach their markets and clinical sites. It has not seen any disruption in its clinical or commercial supply chain.
Squibb due to the pandemic.

Chiesi Chiesi Group would continue the production of all medicines without interruption at sites in Italy and abroad at the same high-quality standards. It was able to deliver medicines under normal production and distribution channels from all production plants in Italy, Brazil and France.

CSL Seqirus has enacted its business continuity plans across the globe to minimise disruption to the manufacture and on-time supply of its influenza vaccines.

Daiichi-Sankyo announced it had not any shortage of its medicines. Its Supply Chain team was monitoring the evolving situation very carefully to maintain supply and delivery of these medicines. Daiichi-Sankyo announced its agreement to proceed with discussions with AstraZeneca for the stable supply in Japan of a potential novel corona virus vaccine being developed by AstraZeneca and Oxford University.

Eisai Eisai maintained necessary stocks for the stable supply of medicines in addition to the stable production of medicines.

Eli Lilly Eli Lilly launched the Lilly Insulin Value Program in the US allowing anyone with commercial insurance and those without insurance to fill their monthly prescription of Lilly insulin for $35.

Gilead Gilead has no manufacturing concerns or supply shortages with any Gilead products, including those in the HIV and hepatitis portfolios. Gilead’s global commercial supply chain is robust and resilient with the right processes in place, geographic diversity in the supply chain and enough of the materials required to make medicines. Gilead does not anticipate shortages of Gilead marketed products, including HIV treatment or prevention medicines, in the foreseeable future. The supply network provides both flexibility and redundancy, and inventory levels are robust, with no immediate or foreseeable risk to its supply chain. Gilead and Pfizer are teaming up to scale up manufacturing and supply of Gilead’s investigational antiviral remdesivir that is under clinical trials for treatment of COVID-19.

Grünenthal is not experiencing any significant supply shortages. If its team detects any severe supply shortages that might potentially disrupt the supply of their products, affected partners will be informed as soon as possible.

GSK GSK increased production of high demand products (e.g. multi-vitamins, respiratory medicines and antibiotics) and donated more than 660,000 GSK products to more than 24 countries in Asia, Americas and EU. GSK and Sanofi agreed with the UK government to supply up to 60 million doses of COVID-19 vaccine. GSK and Sanofi have been selected for the US Operation Warp Speed program, to supply the US Government with 100 million doses of COVID-19 vaccine.

Ipsen is closely working with national and international supplies to monitor the provision of goods and services, with the goal of continuing operations as seamlessly as possible. It does not anticipate any supply shortages.

Johnson & Johnson has announced an agreement with the US Government for 100 million doses of investigational COVID-19 vaccine with the option to purchase an additional 200 million. The vaccine will be provided at a global not-for-profit basis for emergency pandemic use.

LEO Pharma activated business continuity plans to uninterruptedly supply patients with the medicines they need. LEO Pharma is taking additional measures to avoid any shortages of medicines or raw materials and to mitigate any
Lundbeck has been extremely busy with taking precautions to provide treatments to the millions of people relying on them. Its supply chain remains intact and it has not experienced any supply disruptions.

Merck and The Jenner Institute announced they laid the foundation for large-scale production of The Jenner Institute’s COVID-19 vaccine candidate, ChAdOx1 nCoV-19. Their joint team reduced process development time to two months from a year.

MSD Recognizing the changing needs of patients during the COVID-19 pandemic, MSD announced it was taking a number of new steps to support patients in the United States who may have lost their jobs and insurance coverage.

Novartis, the Novartis generics and biosimilars division, was maintaining prices on a basket of essential medicines that may help in the treatment of COVID-19. Novartis encouraged industry, governments and international institutions to work together to ensure adequate global access of medications to treat COVID-19 patients.

Novo Nordisk is ensuring the supply of their lifesaving medicines to people with serious chronic diseases across the globe. Novo Nordisk is applying its experience with Chinese lockdown measures around the globe to assure continuity of their supply chain.

Pfizer and BioNTech announced that they reached an agreement with the Japanese Ministry of Health, Labour and Welfare (MHLW) to secure the supply of 120 million doses of their candidate vaccine against SARS-CoV-2, beginning in 2021. Pfizer, and partner BioNTech, agreed to supply the Government of Canada with their BNT162 mRNA-based vaccine candidate against SARS-CoV-2. Pfizer and BioNTech have provided an expression of interest to possibly supply to the COVAX Facility. Pfizer and Gilead are teaming up to scale up manufacturing and supply of Gilead’s investigational antiviral remdesivir that is under clinical trials for treatment of COVID-19.

Roche is doing everything possible to ensure an adequate supply of its medicines. It called upon governments to work with the industry to keep global manufacturing and supplies running by ensuring the free flow of vital goods across national borders, consider pragmatic temporary adjustments to regulations on packaging, reviews, customs etc. and to work together across governments internationally.

Sanofi to provide hydroxychloroquine (Plaquenil®) wherever possible and would secure appropriate supply levels of current approved indications. Sanofi and GSK agreed with the UK government to supply up to 60 million doses of COVID-19 vaccine. Sanofi and GSK have been selected for the US Operation Warp Speed program, to supply the US Government with 100 million doses of COVID-19 vaccine.

Servier put its best efforts forward to ensure the continuity of its production in order for its medicines to remain available to patients who rely on them. It therefore brought its expertise to the multi-stakeholder partnership “Health Innovation Coalition – Health Crisis” in France.

Sumitomo Dainippon Pharma was striving to ensure a stable supply of products and business continuity.

Takeda is not experiencing any potential supply disruption due to the Coronavirus outbreak. The company is tracking the
situation as it evolves and will take all necessary actions in an effort to ensure supply continuity for patients. **Teva** is prepared for various scenarios and has inventory and redundancy plans in place to address potential shortfalls, if necessary. The supply chain for their key products, brand, generics and APIs remained largely uninterrupted with adequate inventory of products.

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**INCREASE & SHARE MANUFACTURING CAPACITY FOR MEDICINES & VACCINES**

Increase our manufacturing capabilities and share available capacity to ramp up production once a successful vaccine or treatment is developed.

Biopharmaceutical companies are part of a wider research community which is collaborating to fast-track the development of therapeutics and new vaccines. Collaborating in this way could speed up development of resources to tackle this outbreak. It creates networks of centres of excellence that can deliver a real impact and a preparedness infrastructure which can be mobilized for future outbreaks. Companies are entering in partnerships with manufacturers and other biopharmaceutical companies to scale-up at-risk production capacity. IFPMA is also a founding partner of the Access to COVID-19 Tools (act) Accelerator, a global collaboration to boost development, production and equitable access to new COVID-19 diagnostics, therapeutics and vaccines.

**AstraZeneca** and the University of Oxford joined forces to be responsible for the development, worldwide manufacturing and distribution of the vaccine, developed by the Jenner Institute and Oxford Vaccine Group, at the University of Oxford, if clinical trials prove successful. **AstraZeneca** will make 30 million doses of coronavirus vaccine available to the U.K. by September and has committed to scale-up production to 100 million doses this year. **Astrazeneca** has concluded the first agreements for at least 400 million doses of its vaccine candidate (being developed in collaboration with the University of Oxford) and has secured total manufacturing capacity for one billion doses so far and will begin first deliveries in September 2020. AstraZeneca is also in discussions with governments around the world to increase access. Furthermore, AstraZeneca is in discussions with the Serum Institute of India and other potential partners to increase production and distribution. **AstraZeneca** reached a $750m agreement with CEPI and Gavi to support the manufacturing, procurement and distribution of 300 million doses of the vaccine, with delivery starting by the end of the year. In addition, AstraZeneca reached a licensing agreement with Serum Institute of India (SII) to supply one billion doses for low and middle-income countries, with a commitment to provide 400 million before the end of 2020. **AstraZeneca** has reached an agreement with Europe's Inclusive Vaccines Alliance (IVA), spearheaded by Germany, France, Italy and the Netherlands, to supply up to 400 million doses of the University of Oxford's COVID-19 vaccine, with deliveries starting by the end of 2020. **AstraZeneca and Oxford University** will collaborate with at least 10 suppliers/manufacturers to provide vial filling and packaging capacity and to prepare for a large-scale commercial supply of Oxford University's adenovirus vector-based COVID-19 vaccine candidate, AZD1222. Partners include **Catalent Biologics** in Italy, the aforementioned **Serum Institute of India (SII)**, **Symbiosis Pharmaceutical Services** in the UK, and more. **AstraZeneca** and Emergent BioSolutions are partnering to expand manufacturing of the candidate COVID-19 vaccine.
AstraZeneca and BioKangtai are collaborating to increase Chinese manufacturing capacity for its COVID-19 vaccine candidate, developed in collaboration with Oxford University, to 100 million doses in 2020 and 200 million in 2021; AstraZeneca and R-Pharm have signed a licensing deal to increase Russian manufacturing capacity of COVID-19 vaccine candidate AZD1222, developed in collaboration with Oxford University.

Daiichi Sankyo was selected by the Ministry of Health, Labour and Welfare of Japan to be a provider for the Japanese Government’s “Emergent Initiative to Build Production Capacity for COVID-19 Vaccines (First Round)” with respect to Daiichi Sankyo’s genetic (mRNA) vaccine for the novel corona virus infection.

Eli Lilly and AbCellera collaborate on AbCellera’s rapid pandemic response platform, developed under the DARPA Pandemic Prevention Platform Program, and Lilly’s global capabilities for rapid development, manufacturing and distribution of therapeutic antibodies.

GSK confirmed its intention to manufacture 1 billion doses of its pandemic vaccine adjuvant system, in 2021, to support the development of multiple adjuvanted COVID-19 vaccine candidates. GSK will manufacture, fill and finish adjuvant for use in COVID-19 vaccines at sites in the UK, US, Canada and Europe.

Gilead has accelerated manufacturing of remdesivir at risk, in anticipation of potential future supply needs. Gilead has proactively scaled up manufacturing of remdesivir to increase available supply as rapidly as possible in anticipation of potential future supply needs. Gilead has increased supply nearly 30-fold since January and aims to produce more than 1 million treatment courses by year-end and several million in 2021, if required. These goals were based on a 10-day treatment course. The SIMPLE study results in patients with severe disease may enable significantly increasing the number of treatment courses using existing remdesivir supply.

To further expand global supply, Gilead is in discussions with leading chemical and pharmaceutical manufacturing companies about their ability, under voluntary licenses, to produce remdesivir for Europe, Asia and the developing world at least through 2022. For the developing world, Gilead has negotiated long-term voluntary licenses with several generic drugmakers and is in active discussions with the Medicines Patent Pool to license remdesivir and with UNICEF to deliver the drug using its established distribution networks.

Gilead plans to increase manufacturing capacity to produce more than 2 million treatment courses of remdesivir by the end of the year, with further increases of manufacturing capacity planned in 2021.

Johnson & Johnson announced a collaboration Emergent BioSolutions, Inc. to support the manufacturing of its lead investigational COVID-19 vaccine candidate. Johnson & Johnson has committed to rapidly produce and supply more than one billion doses of a safe and effective vaccine globally on a not-for-profit basis for emergency pandemic use.

Emergent BioSolutions Inc. announced a five-year manufacturing services agreement with Janssen Pharmaceuticals, Inc., one of the Janssen Pharmaceutical Companies of Johnson & Johnson, for large-scale drug substance manufacturing for Johnson & Johnson’s investigational SARS-CoV-2 vaccine, Ad26.COV2-S, recombinant based on the AdVac® technology. Emergent will provide contract development and manufacturing (CDMO) services to produce drug substance at large scale over five years, valued at approximately $480 million for the first two years.

Johnson & Johnson signed a deal with Catalent to accelerate rapid scale-up of segregated manufacturing capacity over the coming months to support dedicated production of Johnson & Johnson’s investigational vaccine candidate. Catalent plans to hire approximately 300 additional employees at the site for this program starting in July 2020 to meet

Pfizer and BioNTech are jointly developing a COVID-19 vaccine, to be produced initially in the US and Europe. Manufacturing capacity will be scaled-up to support global supply. Pfizer will contribute its leading global vaccine clinical R&D, regulatory, manufacturing and distribution infrastructure and capabilities. Pfizer and BioNTech announced an agreement with the United Kingdom to supply 30 million doses of their BNT162 mRNA-based vaccine candidate against SARS-CoV-2, subject to clinical success and regulatory approval. Pfizer and BioNTech announced the execution of an agreement with the U.S. Department of Health and Human Services and the Department of Defense to meet the U.S. government’s Operation Warp Speed program goal to begin delivering 300 million doses of a vaccine for COVID-19 in 2021. Under the agreement, the U.S. government will receive 100 million doses of BNT162, the COVID-19 vaccine candidate jointly developed by Pfizer and BioNTech, after Pfizer successfully manufacturers and obtains approval or emergency use authorization from U.S. Food and Drug Administration (FDA). The U.S. government will pay the companies $1.95 billion upon the receipt of the first 100 million doses, following FDA authorization or approval. The U.S. government also can acquire up to an additional 500 million doses. Pfizer is committed to use any excess manufacturing capacity and to potentially shift production to support others in rapidly getting life-saving breakthroughs into the hands of patients as quickly as possible. Pfizer and BioNTech plan to supply up to 100 million doses worldwide by the end of 2020 of their lead vaccine candidate BNT162b2 against SARS-CoV-2 and approximately 1.3 billion doses by the end of 2021. Pfizer announced a multi-year agreement with Gilead to manufacture and supply Gilead's investigational antiviral remdesivir, as one of multiple external manufacturing organizations supporting efforts to scale up supply of the investigational treatment for COVID-19.

Roche and Regeneron announced that they are joining forces in the fight against COVID-19 to develop, manufacture and distribute REGN-COV2, Regeneron’s investigational antiviral antibody combination, to people around the globe. REGN-COV2 could provide a much-needed treatment option for people already experiencing symptoms of COVID-19, and also has the potential to prevent infection in people exposed to the virus, thus slowing the spread of the global pandemic. This collaboration is expected to increase supply of REGN-COV2 to at least three and a half times the current capacity, with the potential for even further expansion.

Sanofi increased production capacity of hydroxychloroquine (Plaquenil®) by 50% and is on track to further increase production over the coming months. Under Sanofi and GSK vaccine development collaboration, both companies commit to create and supply sufficient quantities of vaccines that will help stop this virus. See GSK for more details. Sanofi will invest €610 million to create a new production site and research center in France, both dedicated to increase its vaccines research and production capacities. This way it will also contribute in responding to future pandemic risks.

Seqirus – CSL partners with CEPI and the University of Queensland to advance the university's Covid-19 vaccine. If trials are successful, initial large-scale production of the vaccine will happen at CSL’s biotech manufacturing headquarters in Melbourne. The company estimates that the scale-up can help generate up to 100 million doses by the end of next year.
Shionogi is making preparations to offer its vaccine to 10 million people as early as possible by collaboration with Api Co., Ltd. and its group company UNIGEN Inc. It also applied for the “Grant to Promote the Domestic Investment Project to Combat the Supply Chain” publicly established by the Japanese Ministry of Economy, Trade and Industry and three companies. It has begun preparing commercial production in advance of the Ministry's review of the application.

Takeda, Novavax and the Japanese Ministry of Health, Labour and Welfare are partnering to increase manufacturing capacity of Novavax's COVID-19 vaccine candidate NVX-CoV2373 in Japan. Takeda anticipates the capacity to manufacture over 250 million doses of the COVID-19 vaccine per year.

Teva is assessing additional production of hydroxychloroquine sulfate tablets with materials that are being sent to Teva from its ingredient supplier. Teva's global manufacturing network has been working tirelessly on securing and scaling production of both API and finished doses for potential treatments that my prove essential in treating COVID-19 everywhere Teva does business.

UCB is assuring a reliable supply of medicines in every market it has a commercial presence in. It has not experienced shortages for any of our products due to this epidemic.

SUPPORT GLOBAL HEALTHCARE SYSTEMS

Use our medical expertise to support global healthcare systems to manage the unprecedented increase in the pressure they are experiencing.

IFPMA member companies are committed to support health care system capacities and protect health care workers, particularly in the most hard-hit countries and vulnerable countries which are ill prepared to cope with an accelerating outbreak of COVID-19. When the novel coronavirus first emerged in Wuhan, China, IFPMA and its member companies started working with their teams on the ground, and with the Chinese authorities to ensure people can get access to necessary health care services.

Given the spread of the virus to other regions across the world, IFPMA member companies have stepped up these efforts and are donating personal protective equipment and financial resources to ease the burden on health care systems worldwide.

Support to the most affected countries worldwide (on-going)

AbbVie announced a donation of $35 million to support COVID-19 relief efforts. In the US, AbbVie's funds will be used to support healthcare capacity for hospitals as well as protect vulnerable populations by enabling access to food and essential supplies. In Europe, the donation will provide critical equipment and supplies to patients and front-line healthcare workers in the hardest-hit countries.

AbbVie announced donations to 26 nonprofit organizations totaling $5 million to support immediate COVID-19 relief
efforts. Through support from the newly created AbbVie COVID-19 Community Resilience Fund, these organizations will help front-line healthcare workers and vulnerable populations in hard-hit communities.

**AFIDRO** (Colombian Association of Pharmaceutical Research and Development Laboratories), donated medical equipment to the Central Military Hospital of Bogota (Colombia) to strengthen its capacity to respond to patients requiring high-level care as a result of the COVID-19 pandemic.

**Almirall** has donated topical cream to healthcare professionals in Spain and the UK. It has also repurposed production facilities in Germany to manufacture antibacterial gels. It also donated protective equipment to healthcare workers in Spain.

**Amgen** and the Amgen Foundation announced an initial commitment of up to $12.5 million to support US and global relief efforts to address critical needs in communities impacted by COVID-19. The funds will be used to support emergency response efforts in Amgen’s US and international organizations that are mounting their own response efforts, and international relief efforts by Direct Relief and International Medical Corps. To help support the cardiovascular community during this time, Amgen has donated $1 million to support the AHA’s COVID-19 rapid response efforts. Amgen’s donation will support a number of COVID-19-related initiatives, including the formation of the AHA COVID-19 patient registry, which will help improve the scientific community’s understanding of how the virus impacts cardiovascular health and better manage patients for improved health outcomes.

**APCRG** (Association of Pharmaceutical Companies Representatives in Georgia) donated 35,000 Georgian lari to the STOPCOV fund (State Treasury Fund) created by the Government of Georgia to fight COVID-19.

**APIFARMA** (Portuguese Pharmaceutical Industry Association) and its associated pharmaceutical companies have implemented a series of measures to support the fight against the COVID-19 pandemic and have donated more than €3 million euros to various Portuguese organisations and institutions.

**Astellas** announced Astellas Pharma US, Inc. and the Astellas Global Health Foundation are each expanding support for global and local communities fighting COVID-19 by providing up to $2 million of new financial assistance, in aggregate, to meet the urgent demand for resources to help patients, health care workers, and first responders. In Italy, Astellas Pharma S.p.A., has decided on a donation worth 150,000 euros for the necessary supply of goods to public medical institutions and NPOs. In Spain, Astellas Pharma S.A., has decided on a donation worth 200,000 euros to its country’s health ministry for the necessary supply of goods to medical institutions. Furthermore, to assist health care systems coping with increasing demands by government or non-profit organizations presented by the escalation of COVID-19 around the world, Astellas will authorize a maximum of 4 weeks of paid leave (in accordance with each country’s provision) to employees who are medically qualified and wishes to contribute in volunteer activities within their community.

**AstraZeneca** is donating 9 million face masks to support healthcare workers around the world. It has partnered with the World Economic Forum’s COVID Action Platform, created with the support of the WHO, to identify countries in greatest need. Italy will receive the first shipments with other countries to follow. AstraZeneca and GSK are collaborating to provide process optimisation support to various UK national testing centres for COVID-19 to expand testing capacity.

**Bayer** made financial donations to an aid fund of the regional authorities in Lombardy, Italy to help procure urgently needed equipment for intensive care units in hospitals with the greatest needs. Bayer started producing hand sanitizers in Cimanggis, Indonesia based on their expertise from their plants in
Wuppertal and Bergkamen, Germany. Bayer is also supplying German hospitals with ventilators from their pharmacology labs and health care workers with masks. It also supports employees from the Pharmaceutical Division with a medical background to support the local health care system by offering them paid leave for 4 weeks. It is also providing the German Army with 600,000 chloroquine tablets.

Bayer made a donation of one million products to support the health of underserved US communities, including 3 million chloroquine tablets.

Bayer made a donation of €1 million (R$ 5.7 million) to combat COVID-19 in Brazil: €490,000 (R$ 2.8 million) is being contributed to the Brazilian government’s “Solidaric Fundraising” campaign, €350,000 (R$ 2 million) will go to UNICEF in Brazil to support children, youth projects and underprivileged communities and €160,000 (R$ 900,000) will enable the national health system to purchase personal protective equipment for hospitals (PPE).

Bayer made a donation of €1 million to France to support the “All united against the virus” alliance set up by the Fondation de France, the Assistance Publique – Hôpitaux de Paris (AP-HP) hospital network and the Pasteur Institute. Bayer already donated PPE, dermatological products and meals in the Lyon region.

Bayer is donating approximately one million chloroquine tablets for COVID-19 treatment in Italy.

Biogen The Biogen Foundation has committed $10 million to support global response efforts and communities around the world. Biogen employees have also donated more than $300,000 to non-profit organizations and are volunteering in their communities.

Boehringer Ingelheim Boehringer Ingelheim contributes €5.8 million from their Global Support Program donations fund, provides paid leave for its 51,000 employees to volunteer for COVID-19 relief and established a €580,000 relief fund for social entrepreneurs and their communities in Kenya and India via its Making More Health program. Boehringer Ingelheim has also made a number of financial contributions totaling over $1 million to protect health care professionals in the critical services they are providing to patients.

Bristol-Myers Squibb Bristol-Myers Squibb (BMS) Company and the BMS Foundation donated more than $22 million in financial support and necessary products (e.g. PPE and medical equipment) to relief efforts in 40 countries. Licensed healthcare professionals employed by BMS are supported to volunteer in local hospitals and will continue to receive pay. Through Skills2Give, an ongoing BMS volunteer program, colleagues in the US, UK and Australia have the option to select from virtual volunteer opportunities with thousands of nonprofit organizations. Over 3,000 employees are registered with the program.

The BMS Foundation has contributed to more than 40 patient advocacy groups and professional societies on the frontlines of patient care, and BMS is engaging with more than 250 patient and professional organizations to support research, education, patient psychosocial support and basic human needs. The BMS Foundation contributed a $7 million grant to Team Rubicon’s and Patient Advocate Foundation’s COVID-19 Emergency Food Assistance Program, which is providing assistance to immunocompromised patients whose ability to access or afford food and other nutritional needs is at risk. BMS also partnered with GRYT Health to develop the COVID Advocacy Exchange, a virtual platform to unite patient advocacy organizations, patients, policy makers, healthcare practitioners and industry in the exchange of information.

Chiesi Chiesi Group commits €3 million for donations to support the ongoing emergency in Italy. It donated 50,000 units of sanitizing hand gel to public transport operators and personal protective equipment to hospitals. It collaborates with associations of general practitioners on advice and guidance, providing support for the purchase of respiratory equipment in hospitals that support COVID-19 patients.
Chugai announced that it decided to make a financial donation of JPY 50 million to support healthcare professionals fighting the coronavirus disease 2019 (COVID-19) in Japan.

Daiichi-Sankyo will make a donation of $1 million to the WHO’s COVID-19 Solidarity Response Fund through the Japan Center for International Exchange in support of relief efforts for countermeasures against COVID-19.

Eisai In the US, Eisai has provided $250,000 in funding to non-profit patient organizations, in addition to providing Personal Protection Equipment to local healthcare providers. In Europe, Eisai has provided €945,000 in funding to professional organizations such as the WHO, as well as to support healthcare providers and vulnerable communities in the UK, Italy, Germany, Spain, Belgium, France, Portugal, and Slovakia. In Asian countries outside of China, Eisai has donated 11.8 million rupees to federal emergency funding in India, and is planning donations of funding and supplies in Indonesia, Thailand, the Philippines, Malaysia, and Vietnam. Eisai announced that it has committed the equivalent of 1 million USD in aid towards various activities in response to the spread of the novel coronavirus infection in Africa. Through this support Eisai will contribute to mitigating the spread of the novel coronavirus infection in Africa as well as preventing delays in efforts for the elimination of Neglected Tropical Diseases (NTDs).

Eli Lilly is deploying its medical professionals to staff a free drive-through COVID-19 testing facility at its corporate headquarters in Indianapolis. The testing facility serves active frontline health care workers and first responders, as a service to the community and in an effort to protect people working on the front lines of this pandemic. Eli Lilly and Company Foundation has contributed $500,000 to the Central Indiana COVID-19 Community Economic Relief Fund.

Farmindustria and its member companies have donated over €9.4 million worth of medicines to Italian hospitals; €21.8 million of financial and material donations, such as respiratory personal protective equipment, and disinfectant gels, and four companies have modified their production lines in order to meet health needs during this pandemic.

Gilead has provided remdesivir to physicians for compassionate use to treat several hundred severely ill patients with confirmed COVID-19. Gilead announced that their existing supply, including finished product ready for distribution as well as materials in the final stages of production, amounts to 1.5 million individual doses of remdesivir. This presents 140,000 treatment courses based on a 10-day treatment duration, all of which Gilead has committed for donation. Gilead announced a $20 Million Philanthropic Fund called Gilead CARES (COVID-19 Acute Relief and Emergency Support) Grantee Fund to support nonprofit organizations impacted by the COVID-19 Crisis. Organizations may be eligible to receive up to $100,000 in emergency assistance. Gilead will also make two significant community donations: $1 million to the San Mateo County Strong Fund and $1 million to the Mayor’s Fund for Los Angeles. Gilead is partnering with US-based Satcher Health Leadership Institute at Morehouse School of Medicine to study racial health inequities associated with COVID-19, funding the creation of a data map to systematically address the impact of the disease on Black and minority communities.

GSK is donating $10 million to the COVID-19 Solidarity Response Fund, created by the UN Foundation and WHO, to enable distribution of essential supplies such as personal protective equipment (PPE) to frontline health workers. GSK is donating lab equipment, instruments, and scientific kits to support government testing and has donated over 700,000 PPE units to protect frontline health workers in 29 countries. GSK joined forces with AstraZeneca to help expand UK testing capabilities. For more info see AstraZeneca.
HKAPI delivered 17,000 surgical face masks to patient organizations together with the continued support of their member companies in sourcing PPE.

Johnson & Johnson announced a $50 million commitment to support frontline health workers, especially doctors, nurses, midwives and community health workers who are working tirelessly to treat COVID-19 patients around the world.

Johnson & Johnson is encouraging medically trained employees to donate their time and expertise by joining the local health workforce in combating COVID-19. Medically trained employees worldwide can take a paid leave for up to 14 weeks through March 31, 2021. Any Johnson & Johnson employee or retiree who donates to the Covid-19 Solidarity Response Fund or the CDC Foundation’s All of Us Campaign will be matched by the company, dollar for dollar, up to a total match of $1 million for each organization.

LEO Pharma has made donations to support local hospitals and communities in Northern Italy, Spain and the US states of New Jersey in their fight against COVID-19.

Lundbeck is supporting local communities and societies with for example monetary and medicine donations to Wuhan, fundraising activities in Italy, donations of protective equipment in France and in the US, together with support for local patient organizations. Lundbeck North America has committed $1 million in support of COVID-19 relief efforts and is donating to COVID Response Funds in regions where the company is present.

Medicines Australia joins forces with 15 healthcare organisations to highlight continuity of care. The Continuity of Care Collaboration (CCC) is an Australian-first national communication collaboration of 15 Peak Bodies, Industry and Healthcare Organisations coming together to stress the importance for people to continue monitoring their health and maintaining their regular medical care.

Menarini converted a topical pharmaceutical producing plant in Florence into a plant producing antibacterial gels, fully used for donations across Italy. Menarini has increased its production from 20 to 100 tonnes per month.

MSD has contributed or committed more than $30 million to COVID-19 relief efforts. Support includes donations of medicines, protective personal equipment (PPE) donations for health care providers and funding to relief organizations. A $10 million commitment will support COVID-19 relief efforts to help disparately impacted patients and communities in the US and globally. A $3 million commitment, through MSD for Mothers, will help health systems better address critical maternal health needs during COVID-19. MSD also is enabling its medically trained employees to volunteer their time to aid their communities while maintaining their base pay.

Merck donated 150,000 liters of disinfectant to the German state of Hesse.

Novartis commits to donate up to 130 million doses of hydroxychloroquine to support the global COVID-19 pandemic response. The Novartis COVID-19 Response Fund will provide $20 million to support communities around the world most impacted by the coronavirus pandemic.

Novartis and the Novartis US Foundation established a USD 5 million US COVID-19 Community Response Fund. Novartis Canada and Sandoz Canada announced a donation of $500,000 to community and patient groups as part of the companies’ newly created Community Strong COVID-19 response program.

Novartis contributes $1 million to the International Rescue Committee to support the COVID-19 response in East Africa.

Novartis launched not-for-profit portfolio of medicines for symptomatic treatment of COVID-19. The portfolio includes 15 medicines from its Sandoz division for gastro-intestinal illness, acute respiratory symptoms, pneumonia as well as septic shock. The medicines were chosen based on clinical relevance and availability to ensure demand can be met globally. The medicines would be made available to governments, Non-Governmental Organizations (NGOs) and other
Institutional customers in up to 79 eligible countries at zero-profit to support financially-strained healthcare systems.

**Novo Nordisk** is donating essential equipment including masks and gloves and provided 20 tonnes of alcohol to replenish stocks of hand sanitiser in hospitals. Novo Nordisk Foundation also made a donation of more than $7 million to fight COVID-19 in Denmark.

**Pfizer** created a new Global COVID-19 Medical Service Program that empowers medical colleagues to provide diagnostic, treatment, and public health support. **Pfizer and the Pfizer Foundation** announced a $40 million commitment in medical and charitable cash grants to help combat the COVID-19 pandemic. The donation addresses the urgent needs of partners who are working to slow the spread of the virus and strengthen vulnerable healthcare systems against future public health threats.

**Roche**'s subsidiary, Genentech and the Genentech Foundation are announcing charitable commitments of $42 million to help address the devastating impact of the COVID-19 pandemic. This support includes emergency response grants as well as funds for longer-term recovery efforts to mitigate ongoing challenges posed by the breadth and depth of this global health crisis.

**Sanofi** announced it will make a charitable gift of 100 million euros to help tackle the coronavirus crisis in France, with the money going to hospitals, care homes and other initiatives. **Sanofi** will donate 100 million doses of hydroxychloroquine across 50 countries.

**Servier** actively contributes by providing personal protection equipment to hospitals in affected countries, as well as making donations to foundations and NGOs (e.g.: Chinese Red Cross and APHP Foundation). In addition, tens of healthcare professionals employed by Servier have volunteered and have been made available to French health authorities to join medical staff on the front line against SARS-CoV-2.

**Sumitomo Dainippon Pharma** has planned to manufacture 20,000 face shields and procure personal protective equipment through its Chinese subsidiary for use in the worst affected Japanese prefectures.

**North American subsidiary Sunovion Pharmaceuticals** provided a monetary donation to the US Center for Disaster Philanthropy (CDP) COVID-19 Response Fund, donated medical protective equipment and provided food donations and further financial support to several organizations. In Canada it joined forces with Innovative Medicines Canada to set up a COVID-19 fund. In the UK, subsidiary Sunovion Pharmaceuticals Europe delivered food donations to a food bank and sent out volunteers to support the activities of the National Health Service (NHS).

**Takeda** is in total donating $6.25 million to the American Red Cross, the city of Cambridge, and the town of Lexington to fight COVID-19. The Red Cross will receive $4 million to make sure the organization can maintain a sufficient blood supply during the health crisis. Takeda is donating $2 million to the Cambridge Mayor’s Relief Fund and $250,000 to the Lexington Emergency Assistance Fund to help families affected by the epidemic.

**Teva** donated more than 10 million hydroxychloroquine doses to hospitals and refocused their Mount Sinai partnership. In Israel, it donated 2 million hydroxychloroquine units to the Israeli Ministry of Health, supported government-led programs and supported the National Aid Society. In India, it provided personal personal protective equipment (PPE), kits and food to populations in need. To Spain, it donated hydroxychloroquine and PPE. In the UK, its employees are able to volunteer with the National Health Service (NHS) without having to use unpaid leave.

**UCB** is donating hydro-alcoholic solutions to the Belgian and Swiss authorities which it started producing at its own major manufacturing sites. It is further supporting healthcare professionals in its company that wish to volunteer in
line with local government needs and guidance. It also donated masks and goggles to Belgian healthcare authorities and local hospitals.

Support to China during the start of the outbreak (Jan/Feb 2020)

**AbbVie** donated older antiviral drugs upon request from the Chinese government as an experimental option to support the growing public health crisis.

**Astellas Pharma China, Inc.** donated one million yuan to the Red Cross Society of China for purchasing personal protective equipment (PPE) and procuring medical treatment equipment, next to a donation of 300,000 yuan worth of PPE, all for healthcare professionals serving at hospitals in Wuhan, China.

**Bayer** made substantial financial contributions as well as donations of several medicines to the Chinese Red Cross.

**Boehringer Ingelheim** (BI) made financial donations to the Chinese Red Cross to purchase medical protective equipment and also made donations of medicines.

**Bristol-Myers Squibb** are committed to supporting communities deeply affected by COVID-19. More than $5 million in financial support and needed products (i.e., personal protection equipment) has been provided to relief efforts in affected areas around the world, including Wuhan city and Hubei province (China).

**CSL Limited** donation of 1 million RMB to the China Red Cross in support of efforts to combat the pandemic.

**Eisai** has donated 1 million yuan to the Wuhan Charity Federation NPO and provided local healthcare providers with medicines and medical relief supplies.

**Johnson & Johnson** provided drug-screening for antiviral properties against the novel coronavirus to assist with laboratory-based investigations to the Chinese Centre for Disease and Prevention and donated 300 boxes of HIV medication to the Shanghai Public Health Clinical Centre and Zhongnan Hospital of Wuhan University.

**Lilly China** made a cash donation of one million yuan (approximately $150,000) to the Red Cross, and the Lilly Foundation donated an additional $100,000 to Direct Relief, a US non-profit organization. In addition, the Lilly Foundation made a $150,000 donation to Project HOPE to help with their efforts in response to the Coronavirus.

**MSD** compiled a 1 million RMB donation for the Chinese Red Cross Foundation and supported the construction of a second specialty hospital (Leishenshan Hospital) to treat COVID-19 patients in Wuhan. Their team in China also launched online campaigns to educate the public about respiratory disease and helped provide up-to-date articles on treatment guidelines for health care professionals.

**Otsuka China** donated medical supplies to the Hubei Charity Federation. Supportive nutritional products were sent to support medical staff, the Tianjin Red Cross and designated hospitals in Beijing. ZOP donated 1 million RMB to Red Cross located in Jinnan Community Hangzhou Lin’an Area to buy medical supplies and personal protective equipment. LOP donated 500,000 RMB to the Sichuan Red Cross to support the local epidemic response.

**Pfizer** has made cash contributions to its global NGO partners who have shipped supplies to hospitals in China. Pfizer Foundation has provided $500,000 in grants to support the provision of urgently needed aid and supplies to front-line healthcare workers. This grant funding supports urgent assistance by Direct Relief and Project HOPE, who are working with local partners on the ground to provide supplies and other support to healthcare workers and
Roche donated diagnostics tests, medical supplies and financial support. Genentech, a member of the Roche Group, is working with Chinese health authorities and the government to help provide screening and health care, including supporting local health officials and hospitals in the Hubei Province. Roche donated nearly $2m-worth of Actemra to China to help manage the COVID-19 outbreak.

Sumitomo Dainippon Pharma
Chinese subsidiary Sumitomo Pharmaceuticals donated RMB 1 million (approximately JPY 15 million) to the Chinese Red Cross Foundation for prevention and containment efforts.

Teva donated 9,600 packs of azithromycin to 15 hospitals in Hubei.

Videos

Global Biopharma CEO/Top Executives
COVID-19 Media Briefing - 28 May 2020
May 28, 2020

IFPMA President David Ricks on Global Pledge Committing to Work Together to Beat COVID-19
May 5, 2020

Global Biopharma CEO/Top Executives
Virtual Press Briefing - 30 April 2020
April 30, 2020

The value of the Ethos in the context of COVID-19
April 17, 2020
News Releases

The biopharmaceutical industry commitments to tackle the coronavirus pandemic (Video playlist)
March 24, 2020

Pharma CEO/Top Executives Global Response to COVID-19 - Virtual Press Briefing - 19 March 2020 (Video)
March 19, 2020
Pharma partners in efforts to give coronavirus vaccine for everyone
May 28, 2020

Pharma industry updates advice on engaging with healthcare professionals as countries emerge from COVID-19 lockdown
May 28, 2020

Pharma and other innovative health groups tell World Health Assembly it stands united with governments and global health stakeholders worldwide to combat COVID-19
May 19, 2020

Pharma Joins Global Pledge Committing to Work Together to Beat COVID-19
May 4, 2020

Global Pharma update on unprecedented efforts to collaborate in speeding up the search for safe and effective COVID-19 therapies
April 30, 2020
Pharma industry body joins as founding partner a new global collaboration to accelerate the development, production and equitable access to new COVID-19 tools

April 24, 2020

Global Biopharmaceutical Industry pull out all the stops to address Coronavirus public health crisis

March 19, 2020

IFPMA Statement on the “Solidarity Call to Action to realize equitable global access to COVID-19 health technologies through pooling of knowledge, intellectual property and data”

May 28, 2020

Joint Statement - Innovative Health Industries @ WHA73

May 18, 2020

Pharma Statement for The Coronavirus Global Response Pledging Marathon

May 4, 2020

IFPMA Statement on the launch of a new global collaboration to accelerate the development, production and equitable access to new COVID-19 tools

April 24, 2020

Innovative health industries united in welcoming United Nations General Assembly Resolution on “International Cooperation to ensure global access to medicines, vaccines and medical equipment to face COVID-19”

April 21, 2020

IFPMA remarks on intellectual property management and the global response to COVID-19

April 6, 2020

Global Biopharmaceutical Industry Commitment to Address Coronavirus Public Health Crisis

March 19, 2020
Publications

IFPMA Policy Principles on COVID-19
Vaccines Initiative

May 28, 2020
WHO LINKS

WHO - COVID-19 situation dashboard
WHO - WHO R&D Blueprint
WHO - Coronavirus Diseases (COVID-19) Outbreak
WHO - Coronavirus Diseases (COVID-19) Situation Reports
WHO - Q&A on the Coronavirus
WHO - A Coordinated Global Research Roadmap: 2019 Novel Coronavirus
WHO - Draft landscape of COVID 19 candidate vaccines
Access to COVID-19 Tools (act) Accelerator
Act-Accelerator update

OTHER LINKS

International Clinical Trials Registry Platform
Policy Cures Research - COVID-19 R&D Tracker
COVID-19 NMA - a living mapping of ongoing research.
Global Coronavirus COVID-19 Clinical Trial Tracker
FDA - Emergency Use Authorization (EUA) information, and list of all current EUAs
COVID-19 Therapeutic Development Tracker
FasterCures (center of the Milken Institute) Tracker