Industry Partnerships on COVID-19 Vaccines, Therapeutics and Diagnostics

Vaccines

- **CureVac**
  - Celonic will manufacture at 100 million doses of CureVac’s vaccine at its plant in Heidelberg, Germany, providing bulk substance for 50 million doses by the end of 2021. ([press release](#))
  - Novartis will manufacture CureVac’s vaccine. ([press release](#))
  - GlaxoSmithKline plc and CureVac N.V. announced a new €150m collaboration, building on their existing relationship, to jointly develop next generation mRNA vaccines for COVID-19 with the potential for a multi-valent approach to address multiple emerging variants in one vaccine. ([press release](#))
  - Rentschler Biopharma SE will manufacture CureVac’s vaccine. ([press release](#))
  - Bayer will support the further development, supply and key territory operations of CureVac’s vaccine candidate. ([press release](#))
  - Fareva will dedicate a manufacturing plant in France to the fill and finish of CureVac’s vaccine. ([press release](#))
  - Wacker Chemie AG will manufacture CureVac’s vaccine candidate at its Amsterdam site. ([press release](#))
  - CureVac will collaborate with Tesla Grohmann Automation to develop an RNA printer that works like a mini-factory and can produce such drugs automatically. ([press release](#))

- **Moderna**
  - Rovi will produce bulk substance for Moderna’s COVID-19 vaccine, expanding an agreement between the companies. Rovi currently provides fill-finish for the vaccine, receiving substance from a Lonza plant in Switzerland. A new production line at Rovi’s plant in Granada, Spain, will make ingredients for up to 100 million vaccine doses a year. ([news release](#))
  - Moderna collaborates with Catalent for vial filling and packaging capacity ([press release](#))
  - Lonza’s site in Valais, Switzerland, will manufacture Moderna’s vaccine ([press release](#))
  - Recipharm will support formulation and fill-finish for Moderna’s vaccine at their site in France. ([press release](#))
  - Laboratorios Farmacéuticos Rovi will support large-scale, commercial fill-finish manufacturing of Moderna’s vaccine at their site in Madrid, Spain. ([press release](#))
  - CordenPharma will manufacture large-scale volumes of Moderna’s lipid excipients to be used in the manufacture of Moderna’s vaccine. ([press release](#))

- **Novavax**
  - Novavax partners with SK Boisience of South Korea to manufacture Novavax’s protein antigen, supply of Matrix MTM adjuvant, and support to SK Bioscience as needed to secure regulatory approval. ([press release](#))
  - Biologics Manufacturing Centre of Canada is partnered with Novavax to produce its vaccine. ([press release](#))
FUJIFILM Diosynth Biotechnologies will produce bulk drug substance of NVX-CoV2373, Novavax’ vaccine candidate. (press release)

Baxter International Inc will provide sterile manufacturing services for NVX-CoV2373, Novavax’ COVID-19 recombinant nanoparticle vaccine candidate with Matrix-M™ adjuvant. (press release)

Novavax collaborates with Takeda for local production and commercialization of Novavax’ vaccine in Japan (press release)

AGC Biologics is preparing to manufacture Matrix-M™, the adjuvant component of Novavax’ COVID-19 vaccine candidate, NVX-CoV2373 in its Copenhagen facility. (press release)

Novavax bought a Czech company (Praha Vaccines) to further expand COVID-19 manufacturing capacity (press release)

Novavax partnered with Serum Institute of India, increasing Novavax’ global production capacity to over 2 billion doses annually. Novavax committed 1 billion doses to COVAX made possible through their partnership with the Serum Institute of India. (press release)

Medicago
- Medicago has partnered with GSK to develop and evaluate a COVID-19 candidate vaccine combining Medicago’s recombinant Coronavirus Virus-Like Particles (CoVLP) with GSK’s pandemic adjuvant system. (press release)
- Medicago partnered with Dynavax to evaluate Medicago’s Coronavirus Virus-Like Particle (CoVLP) with Dynavax’s CpG 1018 adjuvant to support the rapid development of a COVID-19 vaccine candidate. (press release)

Tonix Pharmaceuticals - FUJIFILM Diosynth Biotechnologies to manufacture Tonix’s vaccine. Collaboration includes development of manufacturing processes and supply of clinical trial material to support Tonix’s development of TNX-1800 (press release)

Valneva – Dynavax to produce adjuvant for Valneva vaccine (press release)

Geovax – collaboration with BravoVax (Wuhan, China) on development of COVID vaccine (press release)

Inovio Inc.
- Inovio has partnered with Kaneka Eurogentec (Japan), Thermo Fisher Scientific (USA), Richter-Helm BioLogics (Hungary) and Ology Biosciences (USA) to help manufacture their vaccine candidate. (Kaneka press release) (Thermo Fischer press release) (Ology press release)
- Inovio collaborates with Beijing Advaccine (Chinese company) to facilitate clinical trial translations in China (press release)

AstraZeneca
- AstraZeneca reached a licensing and technology transfer agreement with Serum Institute of India to supply one billion doses to low and middle-income countries (press release)
- CSL Behring is manufacturing approximately 50 million doses of AstraZeneca’s vaccine in Australia for supply to the country. First doses were rolled out in March 2021. (press release)
Emergent BioSolutions, Daiichi Sankyo to expand manufacturing of AZ’s vaccine (Emergent BioSolutions press release) (Daiichi press release)

AstraZeneca also reached a $750m agreement with CEPI and Gavi to support the manufacturing, procurement and distribution of 300 million doses of the vaccine. (press release)

CSL Behring
- CSL Behring is manufacturing approximately 50 million doses of AstraZeneca’s vaccine in Australia for supply to the country. First doses were rolled out in March 2021. (press release)
- Seqirus, which is part of the CSL Group, has donated its well-established adjuvant technology – MF59® – to the vaccine efforts of multiple entities, including the University of Queensland vaccine development program. (press release)

Johnson & Johnson
- J&J partnered with Merk to manufacture their vaccine. (press release)
- J&J partnered with Aspen Institute, Emergent biosolutions in South Africa to manufacture their vaccine. (Aspen press release) (Emergent press release)

Pfizer - BioNTech co-developed COVID-19 vaccine (press release)
- Delpharm will start to manufacture Pfizer-BioNTech’s vaccine in Normandy, France. Delpharm will also produce Johnson and Johnson and Moderna’s vaccine. (news release)
- Thermo Fisher is working with Pfizer and BioNTech to manufacture their COVID-19 vaccine in Italy. (news release)
- In order to scale up manufacturing as quickly as possible, the companies have entered multiple manufacturing agreements with Sanofi, Novartis, and Fosun Pharma. (Sanofi press release) (Novartis press release) (Fosum press release)

Sanofi
- Sanofi will spend $476 million over the next five years to create a vaccine production plant in Singapore. The facility will have more flexibility than Sanofi’s current sites, with the capability to produce three to four different vaccines simultaneously. (press release)

Therapeutics/Diagnostics Partnerships
- Eli Lilly
  - Collaboration with Samsung BioLogics' to mass produce Lilly's COVID-19 antibody therapies. Lilly hopes to make up to 1 million doses this year and many more in 2021 (press release and here)
  - Manufacturing collaboration with Amgen for COVID-19 antibody therapies (press release)
- Avacta – BBI Solutions (based in South Wales, UK) to manufacture Avacta’s saliva-based rapid SARS-CoV-2 antigen test, that is being developed by Affimer® biotherapeutics and reagents developer Avacta Group plc in conjunction with Cytiva (press release)
- BeiGene – collaboration with Singlomics (China) and Peking University for the use of monoclonal antibodies (mAbs) against COVID-19 (press release; a more scientific, but good, article is available here)
- **Vir Biotechnology** - collaboration with GlaxoSmithKline (UK) on monoclonal antibody (mAbs) treatment for COVID-19 ([press release](#))

- **CSL Behring**
  - CSL Behring is partnering with SAB Biotherapeutics, a clinical-stage biopharmaceutical company, to advance and deliver a novel immunotherapy targeting COVID-19. The potential therapy would be produced without the need for blood plasma donations from recovered COVID-19 patients. ([press release](#))
  - CSL Behring has launched a clinical trial into the use of CSL312 (garadacimab, Factor Xlla antagonist monoclonal antibody) to treat patients suffering from severe respiratory distress, a leading cause of death in patients with COVID-19 related pneumonia. ([press release](#))