

COVID-19 Treatment and Vaccine Tracker

This document contains an aggregation of publicly available information from validated sources. It is not an endorsement of one approach or treatment over another but simply a list of all treatments and vaccines currently in development.

TREATMENTS

| Number | Type of Product - Treatment | FDA-Approved Indications (Treatments) | Clinical Trials Ongoing for Other Diseases | Developer/Researcher | Current Stage of Development | Funding Sources | Anticipated Timing and Results* | Sources |
|-------------------|---|--|--|---|------------------------------|--|--|---|
| ANTIBODIES | | | | | | | | |
| 1 | TAK-888, antibodies from recovered COVID-19 patients | N/A | | Takeda | Pre-clinical | | To patients between September 2020 and September 2021* | PhRMA Wall Street Journal |
| 2 | Antibodies from mice, REGN3048-3051, against the spike protein* | N/A | | Regeneron | Pre-clinical | Biomedical Advanced Research and Development Authority (BARDA) | Start Phase 1 June 2020* | Stat News MarketWatch Reuters Bloomberg News FierceBiotech* FiercePharma* |
| 3 | Antibodies from recovered COVID-19 patients | N/A | | Celltrion | Pre-clinical | | Start Phase 1 September 2020* | Korea Herald |
| 4 | Antibodies from recovered COVID-19 patients | N/A | | Kamada | Pre-clinical | | | BioSpace AbbVie |
| 5 | Antibodies from recovered COVID-19 patients | N/A | | Vir Biotech/WuXi Biologics/Biogen | Pre-clinical | | | Stat News Vir Biotech |
| 6 | Antibodies from recovered COVID-19 patients | N/A | | Lilly/Ab-Cellera (NIH Vaccines Research Center) | Pre-clinical | | Start Phase 1 in late July 2020 | Endpoints News |
| 7 | Avastin (bevacizumab), vascular endothelial growth factor inhibitor | FDA-approved since 2004, approved to treat certain types of cancer | | Numerous trials with Chinese research sponsors; Roche | Clinical | | | BioCentury ClinicalTrials.gov |
| 8 | PD-1 blocking antibody; Thymosin | Unknown | | Southeast University, China | Clinical | | Phase 2 primary trial ends April 30, 2020 | BioCentury ClinicalTrials.gov Seeking Alpha ClinicalTrials.gov ClinicalTrials.gov Gilead |

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|--------|--|---|---|--|------------------------------|-----------------|----------------------------------|--|
| 9 | leronlimab (PRO 140), a CCR5 antagonist | N/A | Treatment of HIV/AIDS, Graft versus Host Disease, Non-Alcoholic Steatohepatitis, and numerous cancers * | CytoDyn | Clinical | | | Clinical Trials Arena CytoDyn* CytoDyn CytoDyn* CytoDyn* |
| 10 | AiRuiKa (camrelizumab), anti-programmed cell death protein (PD-1) antibody | N/A | Treatment of certain cancers | Southeast University, China | Clinical | | Primary trial ends April 2020 | ClinicalTrials.gov Hengrui Medicine |
| 11 | Kevzara (sarilumab), interleukin-6 receptor antagonist | FDA-approved since 2017, approved to treat rheumatoid arthritis | | Sanofi/Regeneron | Clinical | | Started Phase 2/3 in March 2020* | FiercePharma Wall Street Journal Seeking Alpha |
| 12 | Actemra (tocilizumab), interleukin-6 receptor antagonist | FDA-approved since 2010, approved to treat various type of arthritis, including rheumatoid arthritis, and cytokine release syndrome | | Numerous trials with Chinese research sponsors; Roche* | Clinical | | Roche studies begin April 2020* | Wall Street Journal FiercePharma* Genentech* |
| 13* | Gimsilumab, anti-granulocyte-macrophage colony stimulating factor monoclonal* | N/A* | | Roivant Sciences* | Clinical* | | | Roivant* |
| 14* | TJM2 (TJ003234), anti-granulocyte-macrophage colony stimulating factor antibody* | N/A* | | I-Mab Biopharma* | Clinical* | | | i-Mab Biopharma* |
| 15* | Sylvant (siltuximab), interleukin-6 targeted monoclonal* | FDA-approved since 2014, approved to treat multicentric Castleman disease* | | EUSA Pharma/The Papa Giovanni XXII Hospital* | Clinical* | | Initial data March 2020* | EUSA Pharma** |
| 16 | Antibody* | Unknown* | | Swiftscale Biologics* | Pre-clinical* | | | Medium* |
| 17 | Antibody* | N/A* | | Erasmus MC/Utrecht University* | Pre-clinical* | | | Erasmus Magazine bioRxiv* |

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| 18 | Antibodies | Unknown | | ImmunoPrecise Antibodies | Pre-clinical | | | Clinical Trials Arena |
| 19* | Antibody | N/A* | | Harbour BioMed/Mount Sinai Health System* | Pre-clinical* | | | Mount Sinai and Harbour BioMed press release* |
| 20 | Antibodies | Unknown | | AstraZeneca | Pre-clinical | | | PhRMA |
| 21* | Antibody* | Unknown* | | Distributed Bio* | Pre-clinical* | | | Distributed Bio* |
| ANTIVIRALS | | | | | | | | |
| 22 | Favilavir/Favipiravir/T-705/Avigan, licensed in Japan to treat influenza | N/A | | Fujifilm Toyama Chemical/Zhejiang Hisun Pharmaceuticals/numerous trials with Chinese research sponsors | Clinical | | | World Health Organization Clinical Trials Arena Pharmaceutical Technology Chinese Clinical Trial Registry ClinicalTrials.gov BioCentury Guardian Chinese Clinical Trial Registry Chinese Clinical Trial Registry Chinese Clinical Trial Registry Chinese Clinical Trial Registry Chinese Clinical Trial Registry Chinese Clinical Trial Registry Chinese Clinical Trial Registry |
| 23 | Kaletra/Aluvia (lopinavir/ritonavir), HIV-1 protease inhibitor | FDA-approved since 2000, approved to treat HIV-1 infection | | Chinese hospital testing (AbbVie); World Health Organization SOLIDARITY trial (studying lopinavir ritonavir with and without interferon beta)* | Clinical | In a randomized, controlled, open-label study of 199 severe COVID-19 patients at Jin Yin-Tan Hospital, Wuhan, Hubei Province, China, lopinavir-ritonavir was not associated with a difference from standard of care (New England Journal of Medicine)* | | PhRMA Wall Street Journal Wall Street Journal Wall Street Journal Stat News* |
| 24 | remdesivir, nucleotide analog | N/A | Treatment of Ebola* | Gilead; World Health Organization SOLIDARITY trial* | Clinical and expanded access | | Gilead Phase 3 trial results expected April 2020 | PhRMA Wall Street Journal PhRMA post on LinkedIn Stat News* |

* Indicates updated or new field

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|--------|--|--|--|---|------------------------------|-----------------|-----------------------------------|---|
| 25 | Prezcobix (darunavir, HIV-1 protease inhibitor/cobicistat, CYP3A inhibitor) | FDA-approved since 2015, approved to treat HIV-1 infection | | Chinese hospital testing (Janssen) | Clinical | | Primary study ends August 2020 | World Health Organization Wall Street Journal Chinese Clinical Trial Registry ClinicalTrials.gov |
| 26 | galidesivir | N/A | Treatment of yellow fever | BioCryst Pharmaceuticals | Pre-clinical | | | Reuters BioCryst |
| 27 | Combination of ebastine, lopinavir, and interferon alpha | N/A | | Wuhan Red Cross Hospital | Clinical | | Primary trial ends March 31, 2020 | BioCentury Chinese Clinical Trial Registry |
| 28 | Ganovo (danoprevir), hepatitis C virus NS3 protease inhibitor; ritonavir; interferon, approved in China to treat Hepatitis C | N/A | | Ascletris/Numerous trials with Chinese research sponsors | Clinical | | | BioCentury ClinicalTrials.gov |
| 29 | ASC09, HIV protease inhibitor | N/A | Treatment of HIV/AIDS | Ascletris Pharma | Clinical | | Primary trial ends May 2020 | ClinicalTrials.gov Nature Biotechnology Ascletris Pharma |
| 30 | Truvada (emtricitabine and tenofovir, both HIV-1 nucleoside analog reverse transcriptase inhibitors) | FDA-approved since 2004, approved to treat and prevent HIV-1 infection | | Gilead/Sichuan Academy of Medical Sciences & Sichuan Provincial People's Hospital | Clinical | | | World Health Organization Chinese Clinical Trial Registry |
| 31 | Arbidol (umifenovir), licensed in Russia and China for treatment of respiratory viral infections | N/A | | Pharmstandard/numerous trials with Chinese research sponsors | Clinical | | | World Health Organization BioCentury ClinicalTrials.gov Chinese Clinical Trial Registry Chinese Clinical Trial Registry |
| 32 | Xofluza (baloxavir marboxil), polymerase acidic endonuclease inhibitor | FDA-approved since 2018, approved to treat influenza | | Roche/The First Affiliated Hospital of Zhejiang University Medical School | Clinical | | | World Health Organization Chinese Clinical Trial Registry |
| 33 | azvudine, reverse transcriptase inhibitor | N/A | | Numerous trials with Chinese research sponsors* | Clinical | | | World Health Organization Chinese Clinical Trial Registry* |
| 34 | ISR-50* | N/A* | | ISR Immune System Regulation* | Pre-clinical* | | | ISR Immune System Regulation* |
| 35 | Antiviral compounds* | N/A* | | Cocrystal Pharma* | Pre-clinical* | | | Cocrystal Pharma* |

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| CELL-BASED THERAPIES | | | | | | | | |
| 36 | PLX cell product, placenta-based cell therapy | Unknown | | Pluristem Therapeutics/BIH Center for Regenerative Therapy/Berlin Center for Advanced Therapies | Pre-clinical | | | Pharmaceutical Technology Pluristem Therapeutics |
| 37 | Mesenchymal stem cells | Unknown | | Numerous trials with Chinese research sponsors | Clinical | | | BioCentury Chinese Clinical Trial Registry |
| 38 | Ryoncil (remestemcel-L), allogenic mesenchymal stem cells | N/A | | Mesoblast | Pre-clinical | | | FierceBiotech |
| 39* | MultiStem, bone marrow stem cells* | | Acute Respiratory Distress Syndrome; Stroke* | Athersys* | Clinical* | | | BioSpace* |
| 40* | Allogeneic T-cell therapies* | N/A* | | AlloVir/Baylor College of Medicine* | Pre-clinical* | | | AlloVir* FierceBiotech* |
| RNA-BASED TREATMENTS | | | | | | | | |
| 41 | RNAi - testing 150 RNAis | N/A | | Sirnaomics | Pre-clinical | | | NPR |
| 42 | siRNA candidates | N/A | | Vir Biotech/Alnylam Pharmaceuticals | Pre-clinical | | | Clinical Trials Arena |
| 43 | Ampligen; (rintatolimod) | N/A | | AIM ImmunoTech/National Institute of Infectious Diseases in Japan | Pre-clinical | | | AIM Immunotech press release |
| 44 | OT-101, a TGF-Beta antisense drug candidate | N/A | Various cancers | Mateon Therapeutics | Pre-clinical | | | Clinical Trials Arena Mateon Therapeutics |
| SCANNING COMPOUNDS TO REPURPOSE | | | | | | | | |
| 45 | Scanning library of antiviral compounds | N/A | N/A | Janssen Pharmaceutical Companies | Pre-clinical | Biomedical Advanced Research and Development Authority (BARDA) | | Johnson & Johnson PhRMA |
| 46 | Scanning compounds to repurpose | N/A | N/A | Novartis | Pre-clinical | | | PhRMA |

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| 47 | Scanning antiviral compounds previously in development | N/A | N/A | Pfizer | Pre-clinical | | Screening completed March 2020, start Phase 1 by end of 2020 | Pfizer PhRMA |
| 48 | Scanning compounds to repurpose | N/A | N/A | Merck | Pre-clinical | | | Wall Street Journal |
| 49 | Repurposing antiviral drug candidates | N/A | N/A | Materia Medica/Cyclica | Pre-clinical | | | Cyclica press release |
| 50 | Screening new drugs + library of antiviral compounds | N/A | N/A | Enanta Pharmaceuticals | Pre-clinical | | | FierceBiotech Enanta Pharmaceuticals |
| 51 | Screening drug compounds | N/A | N/A | Southwest Research Institute | Pre-clinical | | | Clinical Trials Arena |
| 52 | Scanning compounds to repurpose | N/A | N/A | Takeda | Pre-clinical | | | PhRMA |
| OTHERS | | | | | | | | |
| 53 | Washed microbiota transplantation | Unknown | | The Second Hospital of Nanjing Medical University | Clinical | | Primary trial ends April 2, 2020 | BioCentury ClinicalTrials.gov |
| 54 | Methylprednisolone / corticosteroids* | FDA-approved since at least the 1950s, approved to treat many diseases, including anti-inflammatory conditions and some cancers | | Peking Union Medical College Hospital; Tongji Hospital* | Clinical | | Primary study ends April 2020 (Peking) / June 2020 (Tongji)* | World Health Organization ClinicalTrials.gov ClinicalTrials.gov* |
| 55 | Chloroquine/ Hydroxychloroquine, antimalarial | FDA-approved since 1949, approved to treat malaria (chloroquine), FDA-approved since at least 1955, approved to treat malaria, rheumatoid arthritis, and lupus (hydroxychloroquine)* | | Numerous trials with research sponsors in China; University of Minnesota; University of Oxford; IHU-Méditerranée Infection and others; World Health Organization SOLIDARITY trial (chloroquine)* | Clinical | | Open label non-randomized 20-patient trial of hydroxychloroquine in France found hydroxychloroquine treatment is significantly associated with viral load reduction/disappearance in COVID-19 patients and its effect is reinforced by azithromycin (IHU-Méditerranée Infection)* | World Health Organization ClinicalTrials.gov BioCentury Endpoints News ClinicalTrials.gov Google Doc* Stat News* ClinicalTrials.gov* |
| 56 | Camostat mesylate, transmembrane protease serine 2 (TMPRSS2) inhibitor, approved in Japan to treat multiple conditions including pancreatitis | N/A | | Leibniz Institute for Primate Research/University Göttingen and others | Pre-clinical | | | Nature Biotechnology bioRxiv Thailand Medical News Cell |

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| 57 | Jakafi/jakavi (ruxolitinib) | FDA-approved since 2011, approved to treat myelofibrosis, polycythemia vera, and acute graft-versus-host disease | | Department of Hematology, Tongji Hospital, Tongji Medical College, Huazhong University of Science and Technology/Incyte Corp | Clinical | | | World Health Organization Chinese Clinical Trial Registry |
| 58 | PegIntron, Sylatron, IntronA (peginterferon alfa-2b) | PegIntron - FDA-approved since 2001, approved to treat Hepatitis C; Sylatron - FDA-approved since 2001, approved for the adjuvant treatment of melanoma; Intron A - FDA-approved since 1986, approved to treat Hepatitis C and certain cancers | | Wuhan Jinyintan Hospital (Wuhan Infectious Diseases Hospital) (Schering) | Clinical | | | World Health Organization Chinese Clinical Trial Registry |
| 59 | Novaferon, Nova, interferon, licensed in China for Hepatitis B | N/A | | The First Affiliated Hospital of Zhejiang University Medical School | Clinical | | | World Health Organization Chinese Clinical Trial Registry Chinese Clinical Trial Registry |
| 60 | Recombinant ACE2 (angiotensin-converting enzyme 2) | Unknown | | The First Affiliated Hospital of Guangzhou Medical University | Clinical | | Primary trial ends April 1, 2020 | BioCentury ClinicalTrials.gov |
| 61 | Cerocal (ifenprodil), NP-120, an NDMA receptor glutamate receptor antagonist targeting Glu2NB | N/A | Idiopathic Pulmonary Fibrosis | Algernon Pharmaceuticals | Pre-clinical | | | Clinical Trials Arena Algernon Pharmaceuticals |
| 62 | APN01; recombinant soluble human Angiotensin Converting Enzyme 2 | N/A | Acute lung injury, Acute respiratory distress syndrome, Pulmonary arterial hypertension | University of British Columbia/ Apeiron Biologics | Clinical | | In Phase 1 pilot in China | Clinical Trials Arena Apeiron Biologics ClinicalTrials.gov |
| 63 | Brilacidin, a defensin mimetic | N/A | Oral Mucositis; Ulcerative Proctitis/Ulcerative Proctosigmoiditis; Acute Bacterial Skin and Skin Structure Infection | Innovation Pharmaceuticals | Pre-clinical | | | Clinical Trials Arena Innovation Pharmaceuticals |
| 64 | BXT-25; glycoprotein | N/A | | Bioxytran | Pre-clinical | | | Clinical Trials Arena |
| 65 | Peptides | Unknown | | CEL-SCI | Pre-clinical | | | Clinical Trials Arena CEL-SCI Corporation press release |

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| 66 | Gilenya (fingolimod), sphingosine 1-phosphate receptor modulator* | FDA-approved since 2010, approved to treat multiple sclerosis* | | The First Affiliated Hospital of Fujian Medical University/Novartis | Clinical | | Primary trial ends July 2020* | ClinicalTrials.gov |
| 67* | WP1122, glucose decoy prodrug (and related drug candidates)* | N/A* | | Moleculin Biotech/University of Texas Medical Branch* | Pre-clinical* | | | FierceBiotech* Moleculin* |
| 68* | Rebif (interferon beta-1a)* | FDA-approved since 2002, approved to treat multiple sclerosis* | | Institut National de la Sante et de la Recherche Medicale (Merck KGaA)* | Clinical* | | | Merck KGaA press release* |
| 69* | nafamostat, approved in Japan to treat pancreatitis and other diseases* | N/A* | | University of Tokyo/ National Center for Global Health and Medicine* | Pre-clinical* | | Trial starts April 2020* | Bloomberg News* |
| 70 | A number of synthesized nanoviricide drug candidates | N/A | | NanoViricides | Pre-clinical | | | Clinical Trials Arena NanoViricides Inc. |
| 71* | losartan* | FDA-approved since 1995, approved to treat hypertension and diabetic nephropathy* | | University of Minnesota* | Clinical* | | | ClinicalTrials.gov* KARE TV |

COVID-19 Treatment and Vaccine Tracker

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VACCINES

| Number | Type of Vaccine | Related Use/Platform | Developer/Researcher | Current Stage of Development | Funding Sources | Anticipated Timing | Sources |
|--------|--|--|--|------------------------------|--|--|--|
| 1 | DNA plasmid; INO-4800 | Same platform as vaccine candidates for Lassa, Nipah, HIV, Filovirus, HPV, cancer indications, Zika, and Hepatitis B | Inovio Pharmaceuticals/Beijing Advaccine Biotechnology | Pre-clinical | Coalition for Epidemic Preparedness (CEPI) | Start Phase 1 in April 2020 | World Health Organization MarketWatch |
| 2 | DNA | | Takis/Applied DNA Sciences/Evvivax | Pre-clinical | | | World Health Organization |
| 3 | DNA plasmid | | Zyus Cadila | Pre-clinical | | | World Health Organization |
| 4 | Inactivated (formaldehyde-inactivated + alum) | Same platform as vaccine candidates for SARS* | Sinovac | Pre-clinical | | | World Health Organization |
| 5 | Deoptimized live attenuated virus | Same platform as vaccine candidates for HAV, InfA, ZIKV, FMD, SIV, RSV, DENV | Codagenix/Serum Institute of India | Pre-clinical | | Animal data in summer 2020 | World Health Organization Indian Express |
| 6* | Live attenuated* | Same platform as vaccine candidates for MERS* | The University of Hong Kong* | Pre-clinical* | Coalition for Epidemic Preparedness (CEPI)* | | World Health Organization* Coalition for Epidemic Preparedness* |
| 7 | Non-replicating viral vector; MVA encoded VLP | Same platform as vaccine candidates for LASV, EBOV, MARV, HIV | GeoVax/BravoVax | Pre-clinical | | | World Health Organization |
| 8 | Non-replicating viral vector; Ad26 (alone or with MVA boost) | Same platform as vaccine candidates for Ebola, HIV, RSV | Janssen Pharmaceutical Companies/ Beth Israel Deaconess Medical Center | Pre-clinical | Biomedical Advanced Research and Development Authority (BARDA) | Start Phase 1 in November 2020* | World Health Organization Johnson & Johnson Johnson & Johnson FierceBiotech |
| 9 | Non-replicating viral vector; ChAdOx1 | Same platform as vaccine candidates for influenza, TB, Chikungunya, Zika, MenB, plague | University of Oxford | Pre-clinical | Coalition for Epidemic Preparedness (CEPI) | Animal trials begin March 2020, Phase 1 begins April 2020* | World Health Organization Guardian* |

LEGEND

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|---|---|--|--|
| CCHF = Crimean-Congo Haemorrhagic Fever | HIV = Human Immunodeficiency Virus | NIPV = Nipah Virus | TB = Tuberculosis |
| CHIKV = Chikungunya Virus | HPV = Human Papilloma Virus | NORV = Norovirus | VEE = Venezuelan Equine Encephalitis Virus |
| DengV = Dengue Virus | Inf = Influenza | RABV = Rabies Virus | VZV = Varicella Vaccine (Chickenpox) |
| FMD = Foot and Mouth Disease | LASV = Lassa Fever Virus | RSV = Respiratory Syncytial Virus | YFV = Yellow Fever Virus |
| EBOV = Ebola Virus | MARV = Marburg Virus | RVF = Rift Valley Fever | ZIKV = Zika Virus |
| HAV = Hepatitis A Virus | MenB = Meningitis B | SARS = Severe Acute Respiratory Syndrome | |
| HBV = Hepatitis B Virus | MERS = Middle East Respiratory Syndrome | SIV = Simian Immunodeficiency Virus | |

* Indicates updated or new field

Updated March 24, 2020, at 11:30a.m.

| Number | Type of Vaccine | Related Use/Platform | Developer/Researcher | Current Stage of Development | Funding Sources | Anticipated Timing | Sources |
|--------|--|--|---|------------------------------|--|-----------------------------|--|
| 10 | Non-replicating viral vector; adenovirus-based NasoVAX expressing spike protein* | Same platform as vaccine candidates for influenza | Altimmune | Pre-clinical | | | World Health Organization |
| 11 | Non-replicating viral vector; Ad5 S (GREVAX™ platform) | Same platform as vaccine candidates for MERS | Greffex | Pre-clinical | | | World Health Organization |
| 12 | Non-replicating viral vector; Oral Vaccine platform | Same platform as vaccine candidates for InfA, CHIKV, LASV, NORV, EBOV, RVF, HBV, VEE | Vaxart | Pre-clinical | | | World Health Organization Vaxart press release |
| 13 | Non-replicating viral vector; Adenovirus Type 5 vector (Ad5-nCoV)* | Same platform as vaccine candidates for EBOV* | CanSino Biologics/Beijing Institute of Biotechnology* | Clinical* | | Phase 1 ends December 2020* | World Health Organization Chinese Clinical Trial Registry FiercePharma ClinicalTrials.gov * |
| 14 | Protein subunit; Drosophila S2 insect cell expression system VLPs | | ExpreS2ion | Pre-clinical | | | World Health Organization |
| 15 | Protein subunit; S protein | | WRAIR/USAMRIID | Pre-clinical | | | World Health Organization |
| 16 | Protein subunit; S trimer | Same platform as vaccine candidates for HIV, RSV, Influenza | Clover Biopharmaceuticals Inc./GSK | Pre-clinical | | | World Health Organization |
| 17 | Protein subunit; peptide | | Vaxil Bio | Pre-clinical | | | World Health Organization |
| 18* | Protein subunit; S protein* | | AJ Vaccines* | Pre-clinical* | | | World Health Organization * |
| 19 | Protein subunit; li-Key peptide | Same platform as vaccine candidates for HIV, SARS-CoV, Influenza | Generex/EpiVax | Pre-clinical | | | World Health Organization |
| 20 | Protein subunit; S protein | Same platform as vaccine candidates for Inf H7N9 | EpiVax/University of Georgia | Pre-clinical | | | World Health Organization |
| 21 | Protein subunit; S protein, baculovirus production | Same platform as vaccine candidates for Influenza, SARS-CoV (FDA-approved vaccine) | Sanofi Pasteur | Pre-clinical | Biomedical Advanced Research and Development Authority (BARDA) | Start Phase 1 March 2021 | World Health Organization Sanofi Stat News MarketWatch |
| 22 | Protein subunit; Full length S trimers/nanoparticle + Matrix M | Same platform as vaccine candidates for RSV, CCHF, HPV, VZV, EBOV | Novavax | Pre-clinical | Coalition for Epidemic Preparedness (CEPI) | | World Health Organization |
| 23 | Protein subunit (gp-96 backbone) | Same platform as vaccine candidates for cancer (NSCLC), HIV, malaria, Zika* | Heat Biologics/University of Miami | Pre-clinical | | | World Health Organization Clinical Trials Arena |

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| 24 | Protein subunit; S protein clamp | Same platform as vaccine candidates for Nipah, influenza, Ebola, Lassa | University of Queensland/GSK/Dynavax* | Pre-clinical | Coalition for Epidemic Preparedness (CEPI)/ Queensland Government/ Federal Government (Australia)/Paul Ramsay Foundation* | | World Health Organization ABC News Australia * Dynavax * |
| 25 | Protein subunit; S1 or RBD protein | Same platform as vaccine candidates for SARS | Baylor College of Medicine | Pre-clinical | | | World Health Organization |
| 26 | Protein subunit; Subunit protein, plant produced | | iBio/CC-Pharming | Pre-clinical | | | World Health Organization |
| 27* | Protein subunit* | | VIDO-InterVac, University of Saskatchewan* | Pre-clinical* | | | World Health Organization * |
| 28* | Protein subunit, adjuvanted microsphere peptide* | | University of Saskatchewan* | Pre-clinical* | | | World Health Organization * |
| 29 | Replicating viral vector; measles vector | | Zyudus Cadila | Pre-clinical | | | World Health Organization |
| 30 | Replicating viral vector; measles vector | Same platform as vaccine candidates for West Nile, CHIKV, Ebola, Lassa, Zika, MERS* | Institut Pasteur/Themis/University of Pittsburgh* | Pre-clinical | Coalition for Epidemic Preparedness (CEPI)* | Start animal testing in April 2020* | World Health Organization University of Pittsburgh Medical Center * Coalition for Epidemic Preparedness * |
| 31 | Replicating viral vector; horsepox vector; TNX-1800 | Same platform as vaccine candidates for smallpox, monkeypox | Tonix Pharma/Southern Research | Pre-clinical | | | World Health Organization Tonix Pharmaceuticals press release |
| 32 | RNA; LNP-encapsulated mRNA cocktail encoding VLP | | Fudan University/Shanghai JiaoTong University/RNACure Biopharma | Pre-clinical | | | World Health Organization |
| 33 | RNA; LNP-encapsulated mRNA cocktail encoding RBD | | Fudan University/Shanghai JiaoTong University/RNACure Biopharma | Pre-clinical | | | World Health Organization |
| 34 | RNA; mRNA | | China CDC/Tongji University/Stermina | Pre-clinical | | | World Health Organization |
| 35 | RNA; LNP-encapsulated mRNA (mRNA 1273) | Same platform as vaccine candidates for multiple candidates | Moderna/NIAID | Clinical | Coalition for Epidemic Preparedness (CEPI) | Phase 1 started March 2020, study ends June 2021* | World Health Organization Wall Street Journal MarketWatch ClinicalTrials.gov * |
| 36 | RNA; mRNA | Same platform as vaccine candidates for multiple candidates | Arcturus/Duke-NUS | Pre-clinical | | | World Health Organization Arcturus Therapeutics |
| 37 | RNA; saRNA | Same platform as vaccine candidates for EBOV, LASV, MARV, Inf (H7N9), RABV | Imperial College London | Pre-clinical | | | World Health Organization |

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|--------|---|---|--|------------------------------|--|---|---|
| 38 | RNA; mRNA | Same platform as vaccine candidates for RABV, LASV, YFV, MERS, InfA, ZIKV, DengV, NIPV | CureVac | Pre-clinical | Coalition for Epidemic Preparedness (CEPI); European Commission* | Start Phase 1 in June 2020* | World Health Organization Labiotech.eu* |
| 39 | RNA; BNT162 | | BioNTech/Fosun Pharma/Pfizer | Pre-clinical | | Start Phase 1 late April 2020 | FierceBiotech Endpoints News World Health Organization* |
| 40* | RNA; mRNA* | Same platform as vaccine candidates for cancer* | BIOCAD* | Pre-clinical* | | Animal studies begin in April 2020* | BIOCAD* |
| 41* | VLP; plant-derived VLP* | Same platform as vaccine candidates for flu, rotavirus, norovirus, West Nile virus, and cancer* | Medicago Inc.* | Pre-clinical* | | | World Health Organization* |
| 42 | Gene-encoded antibody vaccine, non-viral nanoparticle delivery* | | SmartPharm Therapeutics/Sorrento Therapeutics* | Pre-clinical* | | | SmartPharm Therapeutics* |
| 43 | ISR-50* | | ISR Immune System Regulation* | Pre-clinical* | | Animal study results expected in Q2 2020, Phase 1 begins Q4 2020* | ISR Immune System Regulation* |
| 44 | Unknown | | ImmunoPrecise | Pre-clinical | | | World Health Organization |
| 45 | Unknown | | MIGAL Galilee Research Institute | Pre-clinical | | | World Health Organization |
| 46 | Unknown | | Doherty Institute | Pre-clinical | | | World Health Organization |
| 47 | Unknown | | Tulane University | Pre-clinical | | | World Health Organization Clinical Trials Arena |