

Supplementary Table: Vaccine development [1].

Vaccine candidate	Vaccine platform	Developer	Dosage	Vaccination methods	Clinical stage
<b>Viral Vectored Vaccine</b>					
<b>ChAdOx1-S - (AZD1222)</b> <b>Covishield</b> <b>Vaxzevria</b>	Viral vector (Non-replicating)	AstraZeneca + University of Oxford	1-2 (Day0+28)	IM	4
<b>Recombinant novel coronavirus vaccine (Adenovirus type 5 vector) Ad5-nCoV</b>	Viral vector (Non-replicating)	CanSino Biological Inc./Beijing Institute of Biotechnology	1 (Day0)	IM	4
<b>Recombinant COVID-19 vaccine (adenovirus type 5 vector) for Inhalation (Ad5-nCoV-IH)</b>	Viral vector (Non-replicating)	CanSino Biological Inc./Beijing Institute of Biotechnology	1 (Day0)	IH	4
<b>Gam-COVID-Vac</b> <b>Adeno-based</b> <b>(rAd26-S+rAd5-S)</b> <b>Sputnik V COVID-19 vaccine</b>	Viral vector (Non-replicating)	Gamaleya Research Institute ; Health Ministry of the Russian Federation	2 (Day0+21)	IM	3
<b>Ad26.COV2.S</b>	Viral vector (Non-replicating)	Janssen Pharmaceutical	1-2 (Day0 or Day0+56)	IM	4
<b>GRAd-COV2 (Replication defective Simian Adenovirus (GRAd) encoding S)</b>	Viral vector (Non-replicating)	ReiThera + Leukocare + Univercells	1 (Day0)	IM	2/3
<b>VXA-CoV2-1 Ad5 adjuvanted Oral Vaccine platform</b>	Viral vector (Non-replicating)	Vaxart	2 (Day0+28)	Oral	2
<b>MVA-SARS-2-S</b>	Viral vector (Non-replicating)	University of Munich (Ludwig-Maximilians)	2 (Day0+28)	IM	1
<b>V591-001 - Measles-vector based (TMV-o38)</b>	Viral vector (Replicating)	Merck & Co. + Themis + Sharp & Dohme + Institute Pasteur + Univeristy of Pittsburgh	1-2 (Day0+28)	IM	1/2

<b>DelNS1-2019-nCoV-RBD-OPT1 (Intranasal flu-based-RBD )</b>	Viral vector (Replicating)	University of Hong Kong, Xiamen University and Beijing Wantai Biological Pharmacy	2 (Day0+28)	IN	3
<b>Covid-19/aAPC vaccine. The Covid-19/aAPC vaccine is prepared by applying lentivirus modification with immune modulatory genes and the viral minigenes to the artificial antigen presenting cells (aAPCs).</b>	Viral vector (Replicating) + APC	Shenzhen Geno-Immune Medical Institute*	3 (Day0+14+28)	SC	1
<b>LV-SMENP-DC vaccine. Dendritic cells are modified with lentivirus vectors expressing Covid-19 minigene SMENP and immune modulatory genes. CTLs are activated by LV-DC presenting Covid-19 specific antigens.</b>	Viral vector (Non-replicating) + APC	Shenzhen Geno-Immune Medical Institute*	1 (Day0)	SC & IV	1/2
<b>Human Adenovirus Type 5: hAd5 S+N vaccine (S-Fusion + N-ETSD). E2b-Deleted Adeno.</b>	Viral vector (Non-replicating)	ImmunityBio, Inc	1-2 (Day0+21)	SC	1/2
<b>COH04S1 (MVA-SARS-2-S) - Modified vaccinia ankara (sMVA) platform + synthetic SARS-CoV-2</b>	Viral vector (Non-replicating)	City of Hope Medical Center + National Cancer Institute	1-2 (Day0+28)	IM	2/3
<b>rVSV-SARS-CoV-2-S Vaccine</b>	Viral vector (Replicating)	Israel Institute for Biological Research	1 (Day0)	IM	2/3
<b>Dendritic cell vaccine AV-COVID-19. A vaccine consisting of autologous dendritic cells loaded</b>	Viral vector (Replicating) + APC	Aivita Biomedical, Inc.	1 (Day0)	IM	2
<b>AdCLD-CoV19 (adenovirus vector)</b>	Viral vector (Replicating)	Cellid Co.,Ltd.*	1 (Day0)	IM	2
<b>AdCOVID, Adenovirus-based platform expresses receptor-binding domain (RBD) of spike protein</b>	Viral vector (Non-replicating)	Altimmune, Inc.	1-2 (Day0)	IN	1

<b>BBV154, Adenoviral vector COVID-19 vaccine</b>	Viral vector (Non-replicating)	Bharat Biotech International Limited	1 (Day0)	IN	3
<b>Modified Vaccinia Virus Ankara (MVA) vector expressing a stabilized SARS-CoV-2 spike protein</b>	Viral vector (Non-replicating)	German Center for Infection Research	2 (Day0+28)	IM	1/2
<b>Chimpanzee Adenovirus serotype 68 (ChAd) and self-amplifying mRNA (SAM) vectors expressing spike alone, or spike plus additional SARS-CoV-2 T cell epitopes.</b>	Viral vector (Non-replicating)	Gritstone Oncology	2-3 (Day 0+14+28 or 0+28+56 or 0+112)	IM	1
<b>COVIVAC. Newcastle Disease Virus (NDV) expressing membrane-anchored pre-fusion-stabilized</b>	Viral vector (replicating)	Institute of Vaccines and Medical Biologicals, Vietnam	2 (Day 0+28)	IM	1/2
<b>SC-Ad6-1, Adnevirial vector vaccine</b>	Viral vector (Non-replicating)	Tetherex Pharmaceuticals Corporation	1-2 (Day 0 +/- 21)	IM	2
<b>PIV5 vector that encodes the SARS-CoV-2 spike protein</b>	Viral vector (Non-replicating)	CyanVac LLC	1 (Day 0)	IN	2
<b>AZD2816; adenoviral vector ChAdOx platform and based on the Beta (B.1.351) variant</b>	Viral vector (Non-replicating)	AstraZeneca + University of Oxford	2 (Day0+28)	IM	2/3
<b>AAV5-RBD-S vaccine (BCD-250), A recombinant Adenovirus-Associated viral Vector (AAV-5) encoding spike protein</b>	Viral vector (Non-replicating)	Biocad	1 (Day0)	IM	1/2
<b>Ad5-triCoV/Mac or ChAd-triCoV/Mac, new experimental adenovirus-based vaccines expressing SARS-CoV-2 spike, nucleocapsid and RNA polymerase proteins</b>	Viral vector (Non-replicating)	McMaster University	1 (Day0)	AE	1
<b>Ad26.cov2.s+bcg vaccine. AD26-BCG</b>	Viral vector (Non-replicating)	Han Xu, M.D., Ph.D., FAPCR, Sponsor-Investigator, IRB Chai	1 (Day0)	ID	1

<b>NDV-HXP-S; A Live Recombinant Newcastle Disease Virus-vectored COVID-19 Vaccine</b>	Viral vector (Replicating)	Sean Liu, Icahn School of Medicine at Mount Sinai	1 (Day0)	IN	2/3
<b>MVA-SARS-2-ST Vaccine</b>	Viral vector (Non-replicating)	Hannover Medical School	1 (Day0)	IH	1
<b>Convidecia Vaccine (Ad5-nCoV). Bivalent Recombinant COVID-19 Vaccine (Adenovirus Type 5 Vector)</b>	Viral vector (Non-replicating)	CanSino Biologics Inc.	2 (Day 0+21)	IM	3
<b>CoVaxHGMix adenoviral vector vaccine</b>	Viral vector (Non-replicating)	Ankara City Hospital Bilkent	2 (Day 0+28)	IM	1
<b>H3N2 recombinant attenuated influenza vector with modified NS gene coding for the N protein fragment of SARS-CoV-2</b>	Viral vector (Non-replicating)	Research Institute of Influenza	2 (Day 0+21)	IN	1/2
<b>Recombinant COVID-19 Vaccine (Adenovirus Vector)</b>	Viral vector (Non-replicating)	Wuhan BravoVax	1 (Day0)	IN	1
<b>COVID19 Oral Vaccine Consisting of Bacillus Subtilis Spores</b>	BacAg-SpV -Bacterial antigen-spore expression vector	DreamTec Research Limited	3 (Day0+14+28)	Oral	NA
<b>DNA and RNA vaccine</b>					
<b>CVnCoV Vaccine</b>	RNA based vaccine	Curevac AG	2 (Day0+28)	IM	3
<b>mRNA-1273 (Spikevax )</b>	RNA based vaccine	Moderna + National Institute of Allergy and Infectious Diseases (NIAID)	2 (Day0+28)	IM	4
<b>BNT162b2 (3 LNP-mRNAs ), also known as "Comirnaty"</b>	RNA based vaccine	Pfizer/BioNTech + Fosun Pharma	2 (Day0+21)	IM	4
<b>INO-4800+electroporation</b>	DNA based vaccine	Inovio Pharmaceuticals + International Vaccine Institute + Advaccine	2 (Day0+28)	ID	3
<b>AG0301-COVID19</b>	DNA based vaccine	AnGes + Takara Bio + Osaka University	2 (Day0+14)	IM	2/3
<b>nCov vaccine</b>	DNA based vaccine	Zydus Cadila	3 (Day0+28+56)	ID	3
<b>GX-19</b>	DNA based vaccine	Genexine Consortium	2 (Day0+28)	IM	2/3

<b>ARCT-021</b>	RNA based vaccine	Arcturus Therapeutics	NR	IM	2
<b>LNP-nCoVsaRNA</b>	RNA based vaccine	Imperial College London	NR	IM	1
<b>SARS-CoV-2 mRNA vaccine (ARCoV)</b>	RNA based vaccine	Academy of Military Science (AMS), Walvax Biotechnology and Suzhou Abogen Biosciences	2 (Day0+14) Or (Day0+28)	IM	3
<b>Covigenix VAX-001 - DNA vaccines + PLV formulation</b>	DNA based vaccine	Entos Pharmaceuticals Inc.	2 (Day0+14)	IM	1
<b>CORVax - S Protein Plasmid DNA Vaccine</b>	DNA based vaccine	OncoSec Immunotherapies; Providence Health & Services	2 (Day0+14)	ID	1
<b>bacTRL-Spike oral DNA vaccine</b>	DNA based vaccine	Symvivo Corporation	1 (Day0)	Oral	1
<b>GLS-5310</b>	DNA based vaccine	GeneOne Life Science, Inc.*	2 (Day0+56) Or (Day0+84)	ID	1/2
<b>COVIGEN</b>	DNA based vaccine	University of Sydney, Bionet Co., Ltd	2 (Day0+28)	ID	1
<b>COVID-eVax, a candidate plasmid DNA vaccine of the Spike protein</b>	DNA based vaccine	Takis + Rottapharm Biotech	2 ( Day0+28)	IM	1/2
<b>EXG-5003; a temperature-sensitive self-replicating RNA vaccine expressing the receptor binding domain of the SARS-CoV-2 spike protein.</b>	RNA based vaccine	Elixirgen Therapeutics, Inc	1 (Day0)	ID	1/2
<b>LNP-nCOV saRNA-02 vaccine; Self-amplifying RNA (saRNA) encapsulated in lipid nanoparticles (LNP)</b>	RNA based vaccine	MRC/UVRI and LSHTM Uganda Research Unit	2 ( Day0+28)	IM	1
<b>AG0302-COVID19</b>	DNA based vaccine	AnGes, Inc	2-3 (Day0+14+28)	IM	1/2

<b>Plasmid DNA vaccine SCOVI + SCOVI2. COVIDITY</b>	DNA based vaccine	Scancell Ltd	2 ( Day0+28)	ID	1
<b>VB10.2129, a DNA plasmid vaccine, encoding the receptor binding domain (RBD)</b>	DNA based vaccine	Vaccibody AS	1-2 ( Day0+21)	IM	1/2
<b>VB10.2210, DNA plasmid vaccine, encodes multiple immunogenic and conserved T cell epitopes spanning multiple antigens across the SARS-CoV-2 genome</b>	DNA based vaccine	Vaccibody AS	1-2 ( Day0+21)	IM	1/2
<b>SARS-CoV-2 DNA vaccine (delivered IM followed by electroporation)</b>	DNA based vaccine	The University of Hong Kong; Immuno Cure 3 Limited	2 ( Day0+21)	IM	1
<b>Prophylactic pDNA Vaccine Candidate Against COVID-19</b>	DNA based vaccine	Imam Abdulrahman Bin Faisal University	3 (Day 0+21+42)	IM	1
<b>Booster DNA vaccine delivered by in vivo "EPS Gun" from IGEA optimized for Electro Gene Transfer (EGT) vaccination</b>	DNA based vaccine	Matti Sällberg, Karolinska Institutet	1 (Day 0)	IM	1
<b>SARS-CoV-2 mRNA vaccine (ARCoV)</b>	RNA based vaccine	AMS, Walvax Biotechnology and Suzhou Abogen Biosciences	2 (Day0+14) Or (Day0+28)	IM	3
<b>mRNA-1273.529 - Booster</b>	RNA based vaccine	ModernaTX, Inc.	1 (Day 0)	IM	2/3
<b>CV2CoV, mRNA vaccine</b>	RNA based vaccine	CureVac AG	1 (Day 0)	IM	1
<b>mRNA vaccine (MIPSCo-mRNA-RBD-1)</b>	RNA based vaccine	University of Melbourne	1 (Day 0)	IM	1
<b>A Lyophilized COVID-19 mRNA Vaccine</b>	RNA based vaccine	Jiangsu Rec-Biotechnology Co., Ltd.	1 (Day 0)	IM	1
<b>COVID-19 mRNA Vaccine (SYS6006)</b>	RNA based vaccine	CSPC ZhongQi Pharmaceutical Technology Co., Ltd.	2 (Day 0+ 21)	IM	2
<b>mRNA GEMCOVAC-19 (COVID-19 vaccine)</b>	RNA based vaccine	Gennova Biopharmaceuticals Limited	2 (Day 0+ 28)	IM	2/3
<b>Lyophilized COVID-19 mRNA Vaccine</b>	RNA based vaccine	Wuhan Recogen Biotechnology Co., Ltd.	1	IM	1

			(Day 0)		
<b>A self-amplifying RNA (saRNA) boost vaccines (AAHI-SC2 and AAHI-SC3)</b>	RNA based vaccine	ImmunityBio, Inc.	1 (Day 0)	IM	1/2
<b>RQ3013: SARS-CoV-2 mRNA Chimera Vaccine</b>	RNA based vaccine	Walvax Biotechnology; Shanghai RNACure Biopharma	1 (Day 0)	IM	
<b>mRNA-1273.214 (Booster)</b>	RNA based vaccine	ModernaTX	2 (Day0+55)	IM	3
<b>mRNA-1073; (COVID-19/Influenza) Vaccine</b>	RNA based vaccine	ModernaTX	2 (Day 0)	IM	1/2
<b>RVM-V001</b>	RNA based vaccine	RVAC Medicines	1 (Day 0)	IM	1
<b>ABO1009-DP (COVID-19 Omicron) mRNA Vaccine</b>	RNA based vaccine	Suzhou Abogen Biosciences Co., Ltd.	1 (Day 0)	IM	1
<b>Self-Amplifying Messenger Ribonucleic Acid (samRNA) Vaccines</b>	RNA based vaccine	Gritstone bio, Inc.	2 (Day0+28)	IM	1
<b>Investigational CV0501 mRNA COVID-19 Vaccine</b>	RNA based vaccine	GlaxoSmithKline	1 (Day 0)	IM	1
<b>GLB-COV2-043, an mRNA booster vaccine candidate</b>	RNA based vaccine	GreenLight Biosciences, Inc.	1 (Day 0)	IM	1/2
<b>mRNA-based COVID-19 vaccine (COReNAPCIN)</b>	RNA based vaccine	ReNAP Technology	1 (Day 0)	IM	1
<b>JCXH-221, an mRNA-based</b>	RNA based vaccine	Immorna Biotherapeutics, Inc.	1 (Day 0)	IM	1/2
<b>HDT-301 vaccine</b>	RNA based vaccine	HDT Bio	2 (Day 0 ± 56)	IM	1
<b>EG-COVID vaccine</b>	RNA based vaccine	EyeGene Inc.	3 (Day 0+21+42)	IM	1/2
<b>Coronavirus mRNA vaccine (LVRNA009)</b>	RNA based vaccine	AIM Vaccine and Liverna Therapeutics	2 (Day0+28)	IM	3
<b>VLPCOV-01, self-amplifying RNA vaccine against the coronavirus</b>	RNA based vaccine	VLP Therapeutics Japan GK	2 NR	IM	1
<b>ChulaCov19 mRNA vaccine</b>	RNA based vaccine	Chulalongkorn University	2	IM	2

			(Day0+21)		
<b>PTX-COVID19-B, mRNA vaccine</b>	RNA based vaccine	Providence Therapeutics	2 (Day0+28)	IM	3
<b>CoV2 SAM (LNP) vaccine. A self-amplifying mRNA (SAM) lipid nanoparticle (LNP) platform + Spike antigen</b>	RNA based vaccine	GlaxoSmithKline	2 (Day0+30)	IM	1
<b>mRNA-1273.351.</b>	RNA based vaccine	Moderna + National Institute of Allergy and Infectious Diseases (NIAID)	3 (Day 0 or Day 0 + 28 or Day 56)	IM	4
<b>MRT5500, an mRNA vaccine candidate</b>	RNA based vaccine	Sanofi Pasteur and Translate Bio	2 (Day0+21)	IM	2
<b>DS-5670a,coronavirus-modified uridine RNA vaccine (SARS-CoV-2)</b>	RNA based vaccine	Daiichi Sankyo Co., Ltd.	2 NR	IM	2/3
<b>HDT-301: Self-replicating mRNA vaccine formulated as a lipid nanoparticle. NA MCTI CIMATEC HDT</b>	RNA based vaccine	SENAI CIMATEC	2 (Day0+28)	IM	2/3
<b>mRNA-1283</b>	RNA based vaccine	ModernaTX, Inc.	2 (Day0+28)	IM	1
<b>mRNA COVID-19 vaccine (SW-BIC-213)</b>	RNA based vaccine	Shanghai East Hospital and Stemirna Therapeutics	2 TBD	IM	1
<b>mRNA-1273.211. A multivalent booster candidate combining mRNA-1273 plus mRNA-1273.351.</b>	RNA based vaccine	ModernaTX, Inc.	1 ( Day 0 )	IM	2/3
<b>ARCT-154 mRNA Vaccine</b>	RNA based vaccine	Arcturus Therapeutics, Inc.	2 (Day0+28)	IM	3
<b>ARCT-165 mRNA Vaccine</b>	RNA based vaccine	Arcturus Therapeutics, Inc.	2 (Day0+29)	IM	1/2
<b>ARCT-021 mRNA Vaccine</b>	RNA based vaccine	Arcturus Therapeutics, Inc.	2 (Day0+30)	IM	1/2
<b>VLP vaccines</b>					
<b>RBD SARS-CoV-2 HBsAg VLP vaccine</b>	VLP	Serum Institute of India + Accelagen Pty + SpyBiotech	2 (Day0+28)	IM	1/2



<b>CoVLP</b>	VLP	Medicago Inc.	2 (Day0+21)	IM	3
<b>VBI-2902a. An enveloped virus-like particle (eVLP) of SARS-CoV-2 spike (S)</b>	VLP	VBI Vaccines Inc.	2 (Day0+28)	IM	1/2
<b>SARS-CoV-2 VLP Vaccine</b>	VLP	The Scientific and Technological Research Council of Turkey	2 Day 0	SC	2
<b>ABNCoV2 capsid virus-like particle (cVLP) +/- adjuvant MF59</b>	VLP	Radboud University	2 (Day0+28)	IM	3
<b>SARS-CoV-2 Vaccine LYB001, a receptor-binding domain (RBD) from SARS-CoV-2 and virus-like particle (VLP)</b>	VLP	Yantai Patronus Biotech Co., Ltd.	3 (Day0+28+56)	IM	3
<b>VBI-2901e. The trivalent vaccine composed of virus-like particles (eVLPs) to express the spike proteins of three</b>	VLP	VBI Vaccines Inc.	2 (Day0+28)	IM	1
<b>Whole-Virus Vaccines</b>					
<b>CoronaVac; inactivated SARS-CoV-2 vaccine (vero cell)</b>	Inactivated virus	Sinovac Research and Development Co., Ltd	2 (Day0+14)	IM	4
<b>Inactivated SARS-CoV-2 vaccine (Vero cell)</b>	Inactivated virus	Sinopharm	2 (Day0+21)	IM	4
<b>Inactivated SARS-CoV-2 vaccine (Vero cell), vaccine name BBIBP-CorV</b>	Inactivated virus	Sinopharm	2 (Day0+21)	IM	4
<b>SARS-CoV-2 vaccine (vero cells)</b>	Inactivated virus	Institute of Medical Biology + Chinese Academy of Medical Sciences	2 (Day0+28)	IM	3
<b>QazCovid-in® - COVID-19 inactivated vaccine</b>	Inactivated virus	Research Institute for Biological Safety Problems, Rep of Kazakhstan	2 (Day0+21)	IM	3
<b>BBV152 vaccine</b>	Inactivated virus	Bharat Biotech International Limited	2 (Day0+14)	IM	3
<b>Covi Vax, inactivated coronavirus vaccine</b>	Inactivated virus	National Research Centre, Egypt	2 (Day0+28)	IM	1

<b>Inactivated SARS-CoV-2 vaccine (Vero cell)</b>	Inactivated virus	Shenzhen Kangtai Biological Products Co., Ltd.	2 (Day 0+28)	IM	3
<b>COVI-VAC</b>	Live attenuated virus	Codagenix/Serum Institute of India	1-2 (Day0 or Day0+28)	IN	3
<b>VLA2001</b>	Inactivated Virus	Valneva, National Institute for Health Research, United Kingdom*	2 (Day0+21)	IM	3
<b>TURKOVAC, inactivated virus</b>	Inactivated Virus	Erciyes University and the Health Institutes of Turkey (TUSEB)	2 (Day0+21)	IM	3
<b>COVID-19 inactivated vaccine, (CovIran-Barkat)</b>	Inactivated Virus	Shifa Pharmed Industrial Co	2 (Day0+14)	IM	2/3
<b>Inactivated (NDV-based) chimeric vaccine with or without the adjuvant CpG 1018</b>	Inactivated Virus	The Government Pharmaceutical Organization (GPO); PATH; Dynavax	2 (Day0+28)	IM	1/2
<b>Inactivated SARS-CoV-2 vaccine FAKHRAVAC (MIVAC)</b>	Inactivated Virus	Organization of Defensive Innovation and Research	2 (Day 0 + 14 +/- 21)	IM	1
<b>MV-014-212, a live attenuated vaccine that expresses the spike (S) protein of SARS-CoV-2</b>	Live attenuated virus	Meissa Vaccines, Inc.	1 (Day 0 )	IN	1
<b>Koçak-19 Inactivated adjuvant COVID-19 viral vaccine (TURKOVAC)</b>	Inactivated Virus	Kocak Farma	2 (Day0+21)	IM	1
<b>Adjuvanted inactivated vaccine against SARS-CoV-2</b>	Inactivated Virus	The Scientific and Technological Research Council of Turkey (TÜBİTAK)	2 (Day0+21)	SC	1
<b>Inactivated COVID-19 vaccine</b>	Inactivated Virus	KM Biologics Co., Ltd.	2 (Day0+28)	IM	3

<b>Live recombinant Newcastle Disease Virus (rNDV) vector vaccine</b>	Inactivated Virus	Laboratorio Avi-Mex	2 (Day0+21)	IM	2/3
<b>Inactivated Whole Virion Concentrated Purified Vaccine (CoviVac)</b>	Inactivated Virus	Chumakov Federal Scientific Center for Research and Development of Immune-and-Biological Products	2 (Day0+14)	IM	3
<b>Osvid-19 inactivated vaccine for Covid-19</b>	Inactivated Virus	Osve Pharmaceutical Company	2 (Day0+28)	IM	1
<b>EgyVax Inactivated SARS-CoV-2 vaccine candidate</b>	Inactivated Virus	Eva Pharma	2 (Day0+14)	IM	1
<b>UNAIR Inactivated COVID-19 Vaccine</b>	Inactivated Virus	Airlangga University, Indonesia	2 (Day0)	IM	3
<b>Omicron COVID-19 inactivated Vaccine (Vero Cell)</b>	Inactivated Virus	China National Biotec Group Company Limited	2 (Day0+28)	IM	3

#### **Protein Subunit Vaccine**

<b>SARS-CoV-2 rS/Matrix M1-Adjuvant (Full length recombinant SARS CoV-2 glycoprotein nanoparticle vaccine adjuvanted with Matrix M)</b>	Protein subunit	Novavax	2 (Day0+21)	IM	3
<b>Recombinant SARS-CoV-2 vaccine (CHO Cell)</b>	Protein subunit	Anhui Zhifei Longcom Biopharmaceutical + Institute of Microbiology, Chinese Academy of Sciences	2-3 (Day0+28) Or (Day0+28+56)	IM	3
<b>KBP-COVID-19 (RBD-based)</b>	Protein subunit	Kentucky Bioprocessing Inc.	2 (Day0+21)	IM	1/2
<b>VAT00002: SARS-CoV-2 S protein with adjuvant</b>	Protein subunit	Sanofi Pasteur + GSK	2 (Day0+21)	IM	3

<b>CpG1018/Alum-adjuvanted Recombinant SARS-CoV-2 Trimeric S-protein Subunit Vaccine (SCB-2019)</b>	Protein subunit	Clover Biopharmaceuticals Inc./Dynavax	2 (Day0+21)	IM	3
<b>COVAX-19® Recombinant spike protein + adjuvant SPIKOGEN®</b>	Protein subunit	Vaxine Pty Ltd./CinnaGen Co.	2 (Day0+21)	IM	3
<b>MVC-COV1901 (S-2P protein + adjuvant CpG 1018)</b>	Protein subunit	Medigen Vaccine Biologics + Dynavax + NIAID	2 (Day0+28)	IM	4
<b>FINLAY-FR anti-SARS-CoV-2 Vaccine (RBD + adjuvant)</b>	Protein subunit	Instituto Finlay de Vacunas *	2 (Day0+28)	IM	2
<b>FINLAY-FR-2 anti-SARS-CoV-2 Vaccine (RBD chemically conjugated to tetanus toxoid plus adjuvant)</b>	Protein subunit	Instituto Finlay de Vacunas	2 (Day0+28)	IM	3
<b>EpiVacCorona (EpiVacCorona vaccine based on peptide antigens for the prevention of COVID-19)</b>	Protein subunit	Federal Budgetary Research Institution State Research Center of Virology and Biotechnology "Vector"	2 (Day0+21)	IM	3
<b>RBD (baculovirus production expressed in Sf9 cells) Recombinant SARS-CoV-2 vaccine (Sf9 Cell)</b>	Protein subunit	West China Hospital + Sichuan University	2 (Day0+28)	IM	3
<b>IMP CoVac-1 (SARS-CoV-2 HLA-DR peptides)</b>	Protein subunit	University Hospital Tuebingen	1 (Day0)	SC	1/2

<b>UB-612 (Multitope peptide based S1-RBD-protein based vaccine)</b>	Protein subunit	Vaxxinity	2 (Day0+28)	IM	3
<b>AdimrSC-2f (recombinant RBD +/- Aluminium)</b>	Protein subunit	Adimmune Corporation *	NR	NR	1
<b>CIGB-669 (RBD+AgnHB)</b>	Protein subunit	CIGB *	3 (Day0+14+28) Or (Day0+28+56)	IN	1/2
<b>CIGB-66 (RBD+aluminium hydroxide)</b>	Protein subunit	CIGB *	3 (Day0+14+28) Or (Day0+28+56)	IM	3
<b>BECOV2</b>	Protein subunit	Biological ELimited	2 (Day0+28)	IM	3
<b>Recombinant Sars-CoV-2 Spike protein, Aluminum adjuvanted (Nanocovax)</b>	Protein subunit	Nanogen Pharmaceutical Biotechnology*	2 (Day0+21)	IM	3
<b>Recombinant protein vaccine S-268019 (using Baculovirus expression vector system)</b>	Protein subunit	Shionogi	2 (Day0+21)	IM	3

<b>SARS-CoV-2-RBD-Fc fusion protein (AKS-452)</b>	Protein subunit	University Medical Center Groningen + Akston Biosciences Inc.	NR	SC or IM	2
<b>COVAC-1 and COVAC-2 sub-unit vaccine (spike protein) + SWE adjuvant</b>	Protein subunit	University of Saskatchewan	2 (Day0+28)	IM	2
<b>GBP510, a recombinant surface protein vaccine with adjuvant AS03 (aluminium hydroxide)</b>	Protein subunit	SK Bioscience Co., Ltd. and CEPI	2 (Day0+28)	IM	3
<b>Razi Cov Pars, recombinant spike protein</b>	Protein subunit	Razi Vaccine and Serum Research Institute	3 (Day 0 + 21 +51)	IM	3
<b>MF59 adjuvanted SARS-CoV-2 Sclamp vaccine</b>	Protein subunit	The University of Queensland	2 (Day0+28)	IM	1
<b>SK SARS-CoV-2 recombinant surface antigen protein subunit (NBP2001) + adjuvanted with alum.</b>	Protein subunit	SK Bioscience Co., Ltd.	2 (Day0+28)	IM	1
<b>SpFN (spike ferritin nanoparticle) uses spike proteins with a liposomal formulation QS21 (ALFQ) adjuvant.</b>	Protein subunit	Walter Reed Army Institute of Research (WRAIR)	2-3 (Day 0 + 28 + 180)	IM	1
<b>EuCorVac-19; A spike protein using the recombinant protein technology and with an adjuvant.</b>	Protein subunit	POP Biotechnologies and EuBiologics Co.,Ltd	2 (Day0+21)	IM	3
<b>ReCOV: Recombinant two-component spike and RBD protein COVID-19 vaccine (CHO cell).</b>	Protein subunit	Jiangsu Rec-Biotechnology	2 (Day0+21)	IM	3

<b>Recombinant SARS-CoV-2 Fusion Protein Vaccine (V-01)</b>	Protein subunit	Livzon Pharmaceutical	2 (Day0+21)	IM	3
<b>Recombinant SARS-CoV-2 Vaccine (CHO cell)</b>	Protein subunit	National Vaccine and Serum Institute, China; Beijing Zhong Sheng Heng Yi	2 (Day 0)	IM	3
<b>CoVepiT vaccine: SARS-CoV-2 multi-target peptide vaccine (targeting Spike, M, N, and several non-structural proteins)</b>	Protein subunit	OSE Immunotherapeutics	1-2 (Day 0+-21)	SC	1
<b>CoV2-OGEN1, protein-based vaccine</b>	Protein subunit	USSF/Vaxform	1-2 (Day 0±14)	Oral	1
<b>QazCoVac-P - COVID-19 Subunit Vaccine</b>	Protein subunit	Research Institute for Biological Safety Problems	1-2 (Day 0+21)	IM	1/2
<b>RBD protein recombinant SARS-CoV-2 vaccine (Noora Vaccine)</b>	Protein subunit	Bagheiat-allah University of Medical Sciences	3 (Day0+21+35)	IM	3
<b>Baiya SARS-CoV-2 VAX1, a plant-based subunit vaccine (RBD-Fc + adjuvant)</b>	Protein subunit	Baiya Phytopharm Co., Ltd.	2 (Day 0+21)	IM	1
<b>SCB-2020S, an adjuvanted recombinant SARS-CoV-2 trimeric S-protein (from B.1.351 variant)</b>	Protein subunit	Clover Biopharmaceuticals AUS Pty Ltd	2 (Day 0+21)	IM	2
<b>202-CoV; SARS-CoV-2 spike trimer protein + adjuvant, CpG7909.</b>	Protein subunit	Shanghai Zerun Biotechnology + Walvax Biotechnology + CEPI	2 (Day 0+28)	IM	1/2

<b>Recombinant protein RBD fusion dimer adjuvanted vaccine (COVID-19 Vaccine Hipra)</b>	Protein subunit	Laboratorios Hipra, S.A.	2 (Day 0+21)	IM	3
<b>Versamune-CoV-2FC vaccine, recombinant S1 antigen</b>	Protein subunit	Hospital do Coracao	3 (Day0+28)	NR	1/2
<b>SII B.1.351 + Matrix-M1 adjuvant, a monovalent SII SARS-CoV-2 B.1.351 (Beta) variant vaccine</b>	Protein subunit	Novavax	2 (Day0+21)	IM	1/2
<b>SII Bivalent + Matrix-M1 adjuvant, a bivalent SII vaccine containing antigen for both the ancestral strain and B.1.351 (Beta) variant of SARS-CoV-2</b>	Protein subunit	Novavax	1 (Day0)	IM	1/2
<b>SII B.1.617.2 + Matrix-M1 adjuvant, a monovalent SII SARS-CoV-2 B.1.617.2 (Delta) variant vaccine</b>	Protein subunit	Novavax	1-2 (Day 0 +/- 21)	IM	1/2
<b>SCTV01C. A Bivalent Recombinant Trimeric S Protein vaccine against SARS-CoV-2 Variants</b>	Protein subunit	Sinocelltech Ltd.	1 (Day0)	IM	3
<b>SARS-CoV-2 Protein Subunit Recombinant Vaccine</b>	Protein subunit	Bio Farma	2 (Day 0+ 28)	IM	2/3
<b>PIKA-Adjuvanted Recombinant SARS-CoV-2 Spike (S) Protein Subunit Vaccine</b>	Protein subunit	Yisheng Biopharma	2 (Day 0+ 7)	IM	2/3



<b>PepGNP-SARSCoV2, A CD8 T-cell priming adaptive vaccine composed of a Coronaviruses specific peptides mounted on a gold nanoparticle</b>	Protein subunit	Emergex Vaccines Holding Limited	2 (Day 0+ 21)	ID	1/2
<b>SARS-CoV-2 Vaccine (IN-B009)</b>	Protein subunit	HK inno.N Corporation	2 (Day 0+ 21)	IM	1
<b>SARS-CoV-2 Protein Subunit Recombinant Vaccine adjuvanted With Alum+CpG 1018</b>	Protein subunit	PT Bio Farma	2 (Day 0+ 28)	IM	3
<b>Adjuvanted SARS-CoV-2 (COVID-19) Beta Variant RBD Recombinant Protein (DoCo-Pro-RBD-1 + MF59)</b>	Protein subunit	University of Melbourne	1 (Day 0)	IM	1
<b>V-01-351/V-01D Bivalence Vaccine (Omicron) or V-01D-351</b>	Protein subunit	Livzon Pharmaceutical Group Inc.	1 (Day 0)	IM	2
<b>Betuvax-CoV-2 COVID-19 vaccine</b>	Protein subunit	Human Stem Cell Institute, Russia	2 (Day 0+ 28)	IM	1/2
<b>VXS-1223U Microarray patch (HD-MAP) vaccine composed of ARS-CoV-2 spike protein (HexaPro)</b>	Protein subunit	Vaxxas Pty Ltd	1 (Day 0)	ID	1
<b>PRIME-2-CoV_Beta, Orf Virus Expressing SARS-CoV_2 Spike and Nucleocapsid Proteins</b>	Protein subunit	Speransa Therapeutics	2 (Day 0+ 28)	IM	1

<b>ACM-SARS-CoV-2-beta ACM-CpG vaccine candidate (ACM-001)</b>	Protein subunit	ACM Biolabs	2 (Day 0+ 28)	IN	1
<b>Recombinant spike (rS) (SARS-CoV-2 rS) nanoparticle and quadrivalent hemagglutinin (HA) nanoparticle influenza vaccine (qNIV) combination vaccine with Matrix-M™ adjuvant</b>	Non covid vaccine+protein subunit	Novavax	1 (Day 0)	IM	2
<b>A subunit OMV-linked HexaPro spike vaccine. The vaccine platform is based on outer</b>	Protein subunit	Intravacc B.V.	1 (Day 0)	IN	1
<b>ARVAC-CG vaccine (recombinant protein vaccine against SARS-CoV-2)</b>	Protein subunit	Laboratorio Pablo Cassara S.R.L.	2 (Day 0+ 28)	IM	2/3
<b>Recombinant SARS-CoV-2 S-Trimer Vaccine (CHO Cell) booster</b>	Protein subunit	Binhui Biopharmaceutical Co., Ltd.	1 (Day 0)	IM	1
<b>Subunit recombinant vaccine; Convacell</b>	Protein subunit	St. Petersburg Research Institute of Vaccines and Sera	2 (Day 0+ 21)	IM	2/3

SARS-COV2, severe acute respiratory syndrome coronavirus; NIAID, National Institute of Allergy and Infectious Diseases; AMS, Academy of Military Science; IN, intranasal; IM, Intramuscular; SC, Subcutaneous; IV, Intravenous; IH, Inhaled; AE, Aerosol; RBD, receptor-binding domain; S, spike; Ad, adenovirus; GM-CSF, Granulocyte-macrophage colony-stimulating factor; ;\* Development has been suspended and the candidate vaccine has been removed from the landscape summary analysis. VLP, Virus-Like Particles; CoVLP, Coronavirus-Like Particle COVID-19; VFI, Vaccine Formulation Institute; VIDO, Vaccine and Infectious Disease Organization; CIGB, Center for Genetic Engineering and Biotechnology;

