

# DRAFT landscape of COVID-19 candidate vaccines – 27 July 2020

25 candidate vaccines in clinical evaluation

COVID-19 Vaccine developer/manufacturer	Vaccine platform	Type of candidate vaccine	Number of doses	Timing of doses	Route of Administration	Clinical Stage			
						Phase 1	Phase 1/2	Phase 2	Phase 3
University of Oxford/AstraZeneca	Non-Replicating Viral Vector	ChAdOx1-S	1		IM		<a href="https://www.clinicaltrials.gov/ct2/show/study/PACTR202006922165132">PACTR202006922165132</a> <a href="https://www.clinicaltrials.gov/ct2/show/study/2020-001072-15">2020-001072-15</a>	<a href="https://www.clinicaltrials.gov/ct2/show/study/2020-001228-32">2020-001228-32</a>	<a href="https://www.clinicaltrials.gov/ct2/show/study/ISRCTN89951424">ISRCTN89951424</a>
Sinovac	Inactivated	Inactivated	2	0, 14 days	IM		<a href="https://www.clinicaltrials.gov/ct2/show/study/NCT04383574">NCT04383574</a> <a href="https://www.clinicaltrials.gov/ct2/show/study/NCT04352608">NCT04352608</a>		<a href="https://www.clinicaltrials.gov/ct2/show/study/NCT04456595">NCT04456595</a>
Wuhan Institute of Biological Products/Sinopharm	Inactivated	Inactivated	2	0,14 or 0,21 days	IM		<a href="https://www.clinicaltrials.gov/ct2/show/study/ChiCTR2000031809">ChiCTR2000031809</a>		<a href="https://www.clinicaltrials.gov/ct2/show/study/ChiCTR2000034780">ChiCTR2000034780</a>
Beijing Institute of Biological Products/Sinopharm	Inactivated	Inactivated	2	0,14 or 0,21 days	IM		<a href="https://www.clinicaltrials.gov/ct2/show/study/ChiCTR2000032459">ChiCTR2000032459</a>		<a href="https://www.clinicaltrials.gov/ct2/show/study/ChiCTR2000034780">ChiCTR2000034780</a>
Moderna/NIAID	RNA	LNP-encapsulated mRNA	2	0, 28 days	IM	<a href="https://www.clinicaltrials.gov/ct2/show/study/NCT04283461">NCT04283461</a>		<a href="https://www.clinicaltrials.gov/ct2/show/study/NCT04405076">NCT04405076</a>	<a href="https://www.clinicaltrials.gov/ct2/show/study/NCT04470427">NCT04470427</a>
CanSino Biological Inc./Beijing Institute of Biotechnology	Non-Replicating Viral Vector	Adenovirus Type 5 Vector	1		IM	<a href="https://www.clinicaltrials.gov/ct2/show/study/ChiCTR2000030906">ChiCTR2000030906</a>		<a href="https://www.clinicaltrials.gov/ct2/show/study/ChiCTR2000031781">ChiCTR2000031781</a>	
Anhui Zhifei Longcom Biopharmaceutical/Institute of Microbiology, Chinese Academy of Sciences	Protein Subunit	Adjuvanted recombinant protein (RBD-Dimer)	2 or 3	0,28 or 0,28,56 days	IM	<a href="https://www.clinicaltrials.gov/ct2/show/study/NCT04445194">NCT04445194</a>		<a href="https://www.clinicaltrials.gov/ct2/show/study/NCT04466085">NCT04466085</a>	
Institute of Medical Biology, Chinese Academy of Medical Sciences	Inactivated	Inactivated	2	0, 28 days	IM	<a href="https://www.clinicaltrials.gov/ct2/show/study/NCT04412538">NCT04412538</a>	<a href="https://www.clinicaltrials.gov/ct2/show/study/NCT04470609">NCT04470609</a>		

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Inovio Pharmaceuticals/ International Vaccine Institute	DNA	DNA plasmid vaccine with electroporation	2	0, 28 days	ID		<a href="#">NCT04447781</a> <a href="#">NCT04336410</a>		
Osaka University/ AnGes/ Takara Bio	DNA	DNA plasmid vaccine + Adjuvant	2	0, 14 days	IM		<a href="#">NCT04463472</a>		
Cadila Healthcare Limited	DNA	DNA plasmid vaccine	3	0, 28, 56 days	ID		<a href="#">CTRI/2020/07/026352</a>		
Genexine Consortium	DNA	DNA Vaccine (GX-19)	2	0, 28 days	IM		<a href="#">NCT04445389</a>		
Bharat Biotech	Inactivated	Whole-Virion Inactivated	2	0, 14 days	IM				
Novavax	Protein Subunit	Full length recombinant SARS CoV-2 glycoprotein nanoparticle vaccine adjuvanted with Matrix M	2	0, 21 days	IM		<a href="#">NCT04368988</a>		
Kentucky Bioprocessing, Inc	Protein Subunit	RBD-based	2	0, 21 days	IM		<a href="#">NCT04473690</a>		
BioNTech/Fosun Pharma/Pfizer	RNA	3 LNP-mRNAs	1 or 2		IM		<a href="#">2020-001038-36</a> <a href="#">NCT04368728</a> <a href="#">ChiCTR2000034825</a>		
Arcturus/Duke-NUS	RNA	mRNA			IM		<a href="#">NCT04480957</a>		
Gamaleya Research Institute	Non-Replicating Viral Vector	Adeno-based	1		IM		<a href="#">NCT04436471</a> <a href="#">NCT04437875</a>		
Clover Biopharmaceuticals Inc./GSK/Dynavax	Protein Subunit	Native like Trimeric subunit Spike Protein vaccine	2	0, 21 days	IM		<a href="#">NCT04405908</a>		
Vaxine Pty Ltd/Medytox	Protein Subunit	Recombinant spike protein with Advax™ adjuvant	1		IM		<a href="#">NCT04453852</a>		
University of Queensland/CSL/Seqirus	Protein Subunit	Molecular clamp stabilized Spike protein with MF59 adjuvant	2	0, 28 days	IM		<a href="#">ACTRN12620000674932p</a>		
Imperial College London	RNA	LNP-nCoVsaRNA	2		IM		<a href="#">ISRCTN17072692</a>		
Curevac	RNA	mRNA	2	0, 28 days	IM		<a href="#">NCT04449276</a>		

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People's Liberation Army (PLA) Academy of Military Sciences/Walvax Biotech.	RNA	mRNA	2	0, 14 or 0, 28 days	IM	<a href="#">ChiCTR2000034112</a>			
Medicago Inc.	VLP	Plant-derived VLP adjuvanted with GSK or Dynavax adjs.	2	0, 21 days	IM	<a href="#">NCT04450004</a>			
Medigen Vaccine Biologics Corporation/NIAID/Dynavax	Protein Subunit	S-2P protein + CpG 1018	2	0 28 days	IM	<a href="#">NCT04487210</a> (not yet recruiting)			

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139 candidate vaccines in preclinical evaluation

Platform	Type of candidate vaccine	Developer	Coronavirus target	Current stage of clinical evaluation/regulatory status- Coronavirus candidate	Same platform for non-Coronavirus candidates
DNA	DNA vaccine	Ege University	SARS-CoV2	Pre-Clinical	
DNA	DNA plasmid vaccine RBD&N	Scancell/University of Nottingham/ Nottingham Trent University	SARS-CoV2	Pre-Clinical	
DNA	DNA plasmid vaccine S,S1,S2,RBD &N	National Research Centre, Egypt	SARS-CoV2	Pre-Clinical	
DNA	DNA with electroporation	Karolinska Institute / Cobra Biologics (OPENCORONA Project)	SARS-CoV2	Pre-Clinical	
DNA	DNA with electroporation	Chula Vaccine Research Center	SARS-CoV2	Pre-Clinical	
DNA	DNA	Takis/Applied DNA Sciences/Evvivax	SARS-CoV2	Pre-Clinical	
DNA	Plasmid DNA, Needle-Free Delivery	Immunomic Therapeutics, Inc./EpiVax, Inc./PharmaJet	SARS-CoV2	Pre-Clinical	SARS
DNA	DNA vaccine	BioNet Asia	SARS-CoV2	Pre-Clinical	
DNA	msDNA vaccine	Mediphage Bioceuticals/University of Waterloo	SARS-CoV2	Pre-Clinical	
DNA	DNA vaccine	Entos Pharmaceuticals	SARS-CoV2	Pre-Clinical	
DNA	bacTRL-Spike	Symvivo	SARS-CoV2	Pre-Clinical	
Inactivated	Inactivated + alum	KM Biologics	SARS-CoV2	Pre-Clinical	JE, Zika
Inactivated	Inactivated	Selcuk University	SARS-CoV2	Pre-Clinical	
Inactivated	Inactivated	Erciyes University	SARS-CoV2	Pre-Clinical	
Inactivated	Inactivated whole virus	National Research Centre, Egypt	SARS-CoV2	Pre-Clinical	
Inactivated	Inactivated	Beijing Minhai Biotechnology Co., Ltd.	SARS-CoV2	Pre-Clinical	
Inactivated	TBD	Osaka University/ BIKEN/ NIBIOHN	SARS-CoV2	Pre-Clinical	
Inactivated	Inactivated + CpG 1018	Sinovac/Dynavax	SARS-CoV2	Pre-Clinical	
Inactivated	Inactivated + CpG 1018	Valneva/Dynavax	SARS-CoV2	Pre-Clinical	
Inactivated	Inactivated	Research Institute for Biological Safety Problems, Rep of Kazakhstan	SARS-CoV2	Pre-Clinical	
Live Attenuated Virus	Codon deoptimized live attenuated vaccines	Mehmet Ali Aydinlar University / Acibadem Labmed Health Services A.S.	SARS-CoV2	Pre-Clinical	

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Live Attenuated Virus	Codon deoptimized live attenuated vaccines	Codagenix/Serum Institute of India	SARS-CoV2	Pre-Clinical	HAV, InfA, ZIKV, FMD, SIV, RSV, DENV
Live Attenuated Virus	Codon deoptimized live attenuated vaccines	Indian Immunologicals Ltd/Griffith University	SARS-CoV2	Pre-Clinical	
Non-Replicating Viral Vector	Sendai virus vector	ID Pharma	SARS-CoV2	Pre-Clinical	
Non-Replicating Viral Vector	Adenovirus-based	Ankara University	SARS-CoV2	Pre-Clinical	
Non-Replicating Viral Vector	Adeno-associated virus vector (AAVCOVID)	Massachusetts Eye and Ear/Massachusetts General Hospital/AveXis	SARS-CoV2	Pre-Clinical	
Non-Replicating Viral Vector	MVA encoded VLP	GeoVax/BravoVax	SARS-CoV2	Pre-Clinical	LASV, EBOV, MARV, HIV
Non-Replicating Viral Vector	Ad26	Janssen Pharmaceutical Companies	SARS-CoV2	Pre-Clinical	Ebola, HIV, RSV
Non-Replicating Viral Vector	Replication defective Simian Adenovirus (GRAd) encoding SARS-CoV-2 S	ReiThera/LEUKOCARE/Univercells	SARS-CoV2	Pre-Clinical	
Non-replicating viral vector	MVA-S encoded	DZIF – German Center for Infection Research/IDT Biologika GmbH	SARS-CoV2	Pre-clinical	Many
Non-replicating viral vector	MVA-S	IDIBAPS-Hospital Clinic, Spain	SARS-CoV2	Pre-clinical	
Non-Replicating Viral Vector	adenovirus-based NasoVAX expressing SARS2-CoV spike protein	Altimune	SARS-CoV2	Pre-Clinical	influenza
Non-Replicating Viral Vector	Adeno5-based	Erciyas University	SARS-CoV2	Pre-Clinical	
Non-Replicating Viral Vector	2nd Gen E2b- Ad5 Spike, RBD, Nucleocapsid Subcutaneous&Oral	ImmunityBio, Inc. & NantKwest, Inc.	SARS-CoV2	Pre-Clinical	flu, Chik, Zika, EBOV, LASV, HIV/SIV,Cancer
Non-Replicating Viral Vector	Ad5 S (GREVAX™ platform)	Greffex	SARS-CoV2	Pre-Clinical	MERS
Non-Replicating Viral Vector	Oral Ad5 S	Stabilitech Biopharma Ltd	SARS-CoV2	Pre-Clinical	Zika, VZV, HSV-2 and Norovirus
Non-Replicating Viral Vector	adenovirus-based + HLA-matched peptides	Valo Therapeutics Ltd	Pan-Corona	Pre-Clinical	
Non-Replicating Viral Vector	Oral Vaccine platform	Vaxart	SARS-CoV2	Pre-Clinical	InfA, CHIKV, LASV, NORV; EBOV, RVF, HBV, VEE
Non-Replicating Viral Vector	MVA expressing structural proteins	Centro Nacional Biotecnología (CNB-CSIC), Spain	SARS-CoV2	Pre-Clinical	Multiple candidates
Non-Replicating Viral Vector	Dendritic cell-based vaccine	University of Manitoba	SARS-CoV2	Pre-Clinical	
Non-Replicating Viral Vector	parainfluenza virus 5 (PIV5)-based vaccine expressing the spike protein	University of Georgia/University of Iowa	SARS-CoV2	Pre-Clinical	MERS
Non-Replicating Viral Vector	Recombinant deactivated rabies virus containing S1	Bharat Biotech/Thomas Jefferson University	SARS-CoV2	Pre-Clinical	HeV, NiV, EBOV, LASSA, CCHFV, MERS
Non-Replicating Viral Vector	Influenza A H1N1 vector	National Research Centre, Egypt	SARS-CoV2	Pre-Clinical	
Non-Replicating Viral Vector	Inactivated Flu-based SARS-CoV2 vaccine + Adjuvant	National Center for Genetic Engineering and Biotechnology (BIOTEC) /GPO, Thailand	SARS-CoV2	Pre-Clinical	
Protein Subunit	RBD-protein	Mynvax	SARS-CoV2	Pre-Clinical	

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Protein Subunit	Recombinant S protein	Izmir Biomedicine and Genome Center	SARS-CoV2	Pre-Clinical	
Protein Subunit	Peptide + novel adjuvant	Bogazici University	SARS-CoV2	Pre-Clinical	
Protein Subunit	S subunit intranasal liposomal formulation with GLA/3M052 adjs.	University of Virginia	SARS-CoV2	Pre-Clinical	
Protein Subunit	S-Protein (Subunit) + Adjuvant, E coli based Expression	Helix Biogen Consult, Ogbomoso & Trinity Immono-efficient Laboratory, Ogbomoso, Oyo State, Nigeria.	SARS-CoV2	Pre-Clinical	
Protein Subunit	Protein Subunit S,N,M&S1 protein	National Research Centre, Egypt	SARS-CoV2	Pre-Clinical	
Protein Subunit	Protein Subunit	University of San Martin and CONICET, Argentina	SARS-CoV2	Pre-Clinical	
Protein Subunit	RBD protein fused with Fc of IgG + Adj.	Chulalongkorn University/GPO, Thailand	SARS-CoV2	Pre-Clinical	
Protein Subunit	Capsid-like Particle	AdaptVac (PREVENT-nCoV consortium)	SARS-CoV2	Pre-Clinical	
Protein Subunit	Drosophila S2 insect cell expression system VLPs	Expres2ion	SARS-CoV2	Pre-Clinical	
Protein Subunit	Peptide antigens formulated in LNP	IMV Inc	SARS-CoV2	Pre-Clinical	
Protein Subunit	S protein	WRAIR/USAMRIID	SARS-CoV2	Pre-Clinical	
Protein Subunit	S protein +Adjuvant	National Institute of Infectious Disease, Japan/Shionogi/UMN Pharma	SARS-CoV2	Pre-Clinical	Influenza
Protein Subunit	VLP-recombinant protein + Adjuvant	Osaka University/ BIKEN/ National Institutes of Biomedical Innovation, Japan	SARS-CoV2	Pre-Clinical	
Protein Subunit	microneedle arrays S1 subunit	Univ. of Pittsburgh	SARS-CoV2	Pre-Clinical	MERS
Protein Subunit	Peptide	Vaxil Bio	SARS-CoV2	Pre-Clinical	
Protein Subunit	Adjuvanted protein subunit (RBD)	Biological E Ltd	SARS-CoV2	Pre-Clinical	
Protein Subunit	Peptide	Flow Pharma Inc	SARS-CoV2	Pre-Clinical	Ebola, Marburg, HIV, Zika, Influenza, HPV therapeutic vaccine, BreastCA vaccine
Protein Subunit	S protein	AJ Vaccines	SARS-CoV2	Pre-Clinical	
Protein Subunit	li-Key peptide	Generex/EpiVax	SARS-CoV2	Pre-Clinical	Influenza, HIV, SARS-CoV
Protein Subunit	S protein	EpiVax/Univ. of Georgia	SARS-CoV2	Pre-Clinical	H7N9
Protein Subunit	Protein Subunit EPV-CoV-19	EpiVax	SARS-CoV2	Pre-Clinical	
Protein Subunit	S protein (baculovirus production)	Sanofi Pasteur/GSK	SARS-CoV2	Pre-Clinical	Influenza, SARS-CoV
Protein Subunit	gp-96 backbone	Heat Biologics/Univ. Of Miami	SARS-CoV2	Pre-Clinical	NSCLC, HIV, malaria, Zika
Protein Subunit	Peptide vaccine	FBRI SRC VB VECTOR, Rospotrebnadzor, Koltsovo	SARS-CoV2	Pre-Clinical	Ebola
Protein Subunit	Subunit vaccine	FBRI SRC VB VECTOR, Rospotrebnadzor, Koltsovo	SARS-CoV2	Pre-Clinical	
Protein Subunit	S1 or RBD protein	Baylor College of Medicine	SARS-CoV2	Pre-Clinical	SARS

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Protein Subunit	Subunit protein, plant produced	iBio/CC-Pharming	SARS-CoV2	Pre-Clinical	
Protein Subunit	Recombinant protein, nanoparticles (based on S-protein and other epitopes)	Saint-Petersburg scientific research institute of vaccines and serums	SARS-CoV2	Pre-Clinical	
Protein Subunit	COVID-19 XWG-03 truncated S (spike) proteins	Innovax/Xiamen Univ./GSK	SARS-CoV2	Pre-Clinical	HPV
Protein Subunit	Adjuvanted microsphere peptide	VIDO-InterVac, University of Saskatchewan	SARS-CoV2	Pre-Clinical	
Protein Subunit	Synthetic Long Peptide Vaccine candidate for S and M proteins	OncoGen	SARS-CoV2	Pre-Clinical	
Protein Subunit	Oral E. coli-based protein expression system of S and N proteins	MIGAL Galilee Research Institute	SARS-CoV2	Pre-Clinical	
Protein Subunit	Nanoparticle vaccine	LakePharma, Inc.	SARS-CoV2	Pre-Clinical	
Protein Subunit	Plant-based subunit (RBD-Fc + Adjuvant)	Baiya Phytopharm/ Chula Vaccine Research Center	SARS-CoV2	Pre-Clinical	
Protein Subunit	OMV-based vaccine	Quadram Institute Biosciences	SARS-CoV2	Pre-Clinical	Flu A, plague
Protein Subunit	OMV-based vaccine	BiOMViS Srl/Univ. of Trento	SARS-CoV2	Pre-Clinical	
Protein subunit	structurally modified spherical particles of the tobacco mosaic virus (TMV)	Lomonosov Moscow State University	SARS-CoV2	Pre-Clinical	rubella, rotavirus
Protein Subunit	Spike-based	University of Alberta	SARS-CoV2	Pre-Clinical	Hepatitis C
Protein Subunit	Recombinant S1-Fc fusion protein	AnyGo Technology	SARS-CoV2	Pre-Clinical	
Protein Subunit	Recombinant protein	Yisheng Biopharma	SARS-CoV2	Pre-Clinical	
Protein Subunit	Recombinant S protein in IC-BEVS	Vabiotech	SARS-CoV2	Pre-Clinical	
Protein Subunit	Orally delivered, heat stable subunit	Applied Biotechnology Institute, Inc.	SARS-CoV2	Pre-Clinical	
Protein Subunit	Peptides derived from Spike protein	Axon Neuroscience SE	SARS-CoV2	Pre-Clinical	
Protein Subunit	Protein Subunit	MOGAM Institute for Biomedical Research, GC Pharma	SARS-CoV2	Pre-Clinical	
Protein Subunit	RBD-based	Neovii/Tel Aviv University	SARS-CoV2	Pre-Clinical	
Protein Subunit	Outer Membrane Vesicle (OMV)-subunit	Intravacc/Epivax	SARS-CoV2	Pre-Clinical	
Protein Subunit	Outer Membrane Vesicle(OMV)-peptide	Intravacc/Epivax	SARS-CoV2	Pre-Clinical	
Protein Subunit	Spike-based (epitope screening)	ImmunoPrecise/LiteVax BV	SARS-CoV2	Pre-Clinical	
Replicating Viral Vector	YF17D Vector	KU Leuven	SARS-CoV2	Pre-Clinical	
Replicating Viral Vector	Measles Vector	Cadila Healthcare Limited	SARS-CoV2	Pre-Clinical	
Replicating Viral Vector	Measles Vector	Institute Pasteur/Themis/Univ. of Pittsburg Center for Vaccine Research/Merck	SARS-CoV2	Pre-Clinical	West Nile, Chik, Ebola, Lassa, Zika
Replicating Viral Vector	Measles Vector	FBRI SRC VB VECTOR, Rospotrebnadzor, Koltsovo	SARS-CoV2	Pre-Clinical	
Replicating Viral Vector	Measles Virus (S, N targets)	DZIF – German Center for Infection Research/CanVirex AG	SARS-CoV2	Pre-clinical	Zika, H7N9, CHIKV
Replicating Viral Vector	Horsepox vector expressing S protein	Tonix Pharma/Southern Research	SARS-CoV2	Pre-Clinical	Smallpox, monkeypox

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Replicating Viral Vector	Live viral vectored vaccine based on attenuated influenza virus backbone (intranasal)	BiOCAD and IEM	SARS-CoV2	Pre-Clinical	Influenza
Replicating Viral Vector	Recombinant vaccine based on Influenza A virus, for the prevention of COVID-19 (intranasal)	FBRI SRC VB VECTOR, Rospotrebnadzor, Koltsovo	SARS-CoV2	Pre-Clinical	Influenza
Replicating Viral Vector	Attenuated Influenza expressing an antigenic portion of the Spike protein	Fundação Oswaldo Cruz and Instituto Buntantan	SARS-CoV2	Pre-Clinical	Influenza
Replicating Viral Vector	Influenza vector expressing RBD	University of Hong Kong	SARS-CoV2	Pre-Clinical	
Replicating Viral Vector	Replication-competent VSV chimeric virus technology (VSVΔG) delivering the SARS-CoV-2 Spike (S) glycoprotein.	IAVI/Merck	SARS-CoV2	Pre-Clinical	Ebola, Marburg, Lassa
Replicating Viral Vector	VSV-S	University of Western Ontario	SARS-CoV2	Pre-Clinical	HIV, MERS
Replicating Viral Vector	VSV-S	Aurobindo	SARS-CoV2	Pre-Clinical	
Replicating Viral Vector	VSV vector	FBRI SRC VB VECTOR, Rospotrebnadzor, Koltsovo	SARS-CoV2	Pre-Clinical	
Replicating Viral Vector	VSV-S	Israel Institute for Biological Research/Weizmann Institute of Science	SARS-CoV2	Pre-Clinical	
Replicating Viral Vector	M2-deficient single replication (M2SR) influenza vector	UW–Madison/FluGen/Bharat Biotech	SARS-CoV2	Pre-Clinical	influenza
Replicating Viral Vector	Newcastle disease virus vector (NDV-SARS-CoV-2/Spike)	Intravacc/ Wageningen Bioveterinary Research/Utrecht Univ.	SARS-CoV2	Pre-Clinical	
Replicating Viral Vector	Avian paramyxovirus vector (APMV)	The Lancaster University, UK	SARS-CoV2	Pre-Clinical	
RNA	Self-amplifying RNA	Genova	SARS-CoV2	Pre-Clinical	
RNA	mRNA	Selcuk University	SARS-CoV2	Pre-Clinical	
RNA	LNP-mRNA	Translate Bio/Sanofi Pasteur	SARS-CoV2	Pre-Clinical	
RNA	LNP-mRNA	CanSino Biologics/Precision NanoSystems	SARS-CoV2	Pre-Clinical	
RNA	LNP-encapsulated mRNA cocktail encoding VLP	Fudan University/ Shanghai JiaoTong University/RNACure Biopharma	SARS-CoV2	Pre-Clinical	
RNA	LNP-encapsulated mRNA encoding RBD	Fudan University/ Shanghai JiaoTong University/RNACure Biopharma	SARS-CoV2	Pre-Clinical	
RNA	Replicating Defective SARS-CoV-2 derived RNAs	Centro Nacional Biotecnología (CNB-CSIC), Spain	SARS-CoV2	Pre-Clinical	
RNA	LNP-encapsulated mRNA	University of Tokyo/ Daiichi-Sankyo	SARS-CoV2	Pre-Clinical	MERS
RNA	Liposome-encapsulated mRNA	BiOCAD	SARS-CoV2	Pre-Clinical	

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RNA	Several mRNA candidates	RNAimmune, Inc.	SARS-CoV2	Pre-Clinical	
RNA	mRNA	FBRI SRC VB VECTOR, Rospotrebnadzor, Koltsovo	SARS-CoV2	Pre-Clinical	
RNA	mRNA	China CDC/Tongji University/Stermina	SARS-CoV2	Pre-Clinical	
RNA	LNP-mRNA	Chula Vaccine Research Center/University of Pennsylvania	SARS-CoV2	Pre-Clinical	
RNA	mRNA in an intranasal delivery system	eTheRNA	SARS-CoV2	Pre-Clinical	
RNA	mRNA	Greenlight Biosciences	SARS-CoV2	Pre-Clinical	
RNA	mRNA	IDIBAPS-Hospital Clinic, Spain	SARS-CoV2	Pre-Clinical	
VLP	VLP	Bezmialem Vakif University	SARS-CoV2	Pre-Clinical	
VLP	VLP	Middle East Technical University	SARS-CoV2	Pre-Clinical	
VLP	Enveloped Virus-Like Particle (eVLP)	VBI Vaccines Inc.	SARS-CoV-2, SARS-CoV, & MERS-CoV	Pre-Clinical	CMV, GBM, Zika
VLP	S protein integrated in HIV VLPs	IrsiCaixa AIDS Research/IRTA-CReSA/Barcelona Supercomputing Centre/Grifols	SARS-CoV2	Pre-Clinical	
VLP	VLP + Adjuvant	Mahidol University/ The Government Pharmaceutical Organization (GPO)/Siriraj Hospital	SARS-CoV2	Pre-Clinical	
VLP	Virus-like particles, lentivirus and baculovirus vehicles	Navarrabiomed, Oncoimmunology group	SARS-CoV2	Pre-Clinical	
VLP	Virus-like particle, based on RBD displayed on virus-like particles	Saiba GmbH	SARS-CoV2	Pre-Clinical	
VLP	ADDomer™ multiepitope display	Imophoron Ltd and Bristol University's Max Planck Centre	SARS-CoV2	Pre-Clinical	
VLP	Unknown	Doherty Institute	SARS-CoV2	Pre-Clinical	
VLP	VLP	OSIVAX	SARS-CoV1 SARS-CoV2	Pre-Clinical	
VLP	eVLP	ARTES Biotechnology	SARS-CoV2	Pre-Clinical	malaria
VLP	VLPs peptides/whole virus	Univ. of Sao Paulo	SARS-CoV2	Pre-Clinical	

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