

Novel Coronavirus- DRAFT landscape of SARS-CoV candidate vaccines – 28 January 2020

Platform	Type of candidate vaccine	Developer	Status	Coronavirus target	Current stage of clinical evaluation/regulatory status- Coronavirus candidate	Vaccination schedule - Coronavirus Candidate
Non-Replicating Viral Vector	recombinant adenovirus expressing Truncated S protein (rADV-S) [106]	International Vaccine Institute (IVI)	Unknown	SARS	Pre-Clinical	0, 14, 28 days
Replicating Viral Vector	Recombinant measles virus Spike protein [50]	University Health Network, Canada; Center for Disease Control and Prevention (CDC)	Unknown	SARS	Pre-Clinical	
Replicating Viral Vector	MV-SARS recombinant measles virus vaccine expressing SARS CoV antigen [45]	Institut Pasteur	Active or on hold (not due to technical reason)	SARS	Pre-Clinical	0, 4 weeks
Protein Subunit	receptor binding domain (RBD) of the SARS- CoV spike (S) protein [48, 105]	Baylor College Medicine; Sabin; New York Blood Center (NYBC); University of Texas Medical Branch (UTMB); Walter Reed Army Institute of Research (WRAIR); National Institute of Allergy and Infectious Diseases (NIAID)	Active or on hold (not due to technical reason)	SARS	Pre-Clinical	0, 21, 42
Protein Subunit	SARS recombinant spike protein [49]	Vaxine Pty Ltd, Australia	Active or on hold (not due to technical reason)	SARS	Pre-Clinical	0, 21 days

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Virus-like Particle	SARS VLPs S protein and influenza M1 protein [47]	Novavax	Active or on hold (not due to technical reason)	SARS	Pre-Clinical	
Inactivated Virus	rSARSCoV-E* [46]	CNB-CSIC; University of Iowa	Active or on hold (not due to technical reason)	SARS	Pre-Clinical	
DNA	DNA prime–protein S437–459 and M1–20 [51]	Institute of ImmunoBiology, Shanghai Medical College of Fudan University, China	Unknown	SARS	Pre-Clinical	Prime + boost
DNA	SARS S DNA prime and HLA-A*0201 restricted peptides boost vaccine [52,53]	Sun Yat-sen University, China	Unknown	SARS	Pre-Clinical	Prime + boost
DNA	3a DNA vaccine [54]	State Key Laboratory of Virology; Graduate University of Chinese Academy of Sciences	Unknown	SARS	Pre-Clinical	Prime + boost
DNA	DNA vaccine VRC-SRSDNA015-00-VP ; Biojector used [71]	National Institute of Allergy and Infectious Diseases (NIAID)	Unknown	SARS	Phase I	3 vaccinations, 0, 28, 56
DNA	DNA S protein + DNA IL2 [72]	State Key Laboratory of Virology, University of Chinese Academy of Sciences	Unknown	SARS	Pre-Clinical	
DNA	DNA vaccine pIRES-ISS-S1 [73]	Jilin University; Academy of Military Medical Sciences	Unknown	SARS	Pre-Clinical	
DNA	M and N DNA vaccine [74]	National Hospital Organization Kinki-Chuo Chest Medical Center; Osaka Prefectural Institute of Public Health; Jichi Medical School; The	Unknown	SARS	Pre-Clinical	

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		University of Hong Kong; National Taiwan University College of Medicine; National Institute of Infectious Diseases; Central Institute for Experimental Animals; Pharmaceutical Frontier Laboratory				
Non-Replicating Viral Vector	MVA S alone, or MVA-S prime and Ad5-S boost [107, 108]	The Rockefeller University	Unknown	SARS	Pre-Clinical	0, 28 days
Non-Replicating Viral Vector	NC protein add-mixed with MALP-2 by intranasal route and boosting with MVA-NC by intramuscular route[62]	Helmholtz Centre for Infection Research; Technical University Munich; German Center for Environmental Health	Unknown	SARS	Pre-Clinical	Prime + boost
Non-Replicating Viral Vector	Heterologous Adenoviral prime boost AdHu5 s AdC7-nS [63]	University of Manitoba; University of Pennsylvania School of Medicine; Southern Research Institute; Fox Chase Cancer Institute	Unknown	SARS	Pre-Clinical	Prime + boost
Non-Replicating Viral Vector	VEEV replicon particles expressing the SARS-CoV S [28]	University of North Carolina at Chapel Hill, USA	Unknown	SARS	Pre-Clinical	Prime + boost
Non-Replicating Viral Vector	Recombinant DI expressing S protein [66]	National Institute of Infectious Diseases, Japan	Unknown	SARS	Pre-Clinical	
Protein Subunit	Recombinant truncated S-N fusion protein [60]	Beijing Institute of Genomics, China	Unknown	SARS	Pre-Clinical	prime boost

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Protein Subunit	Recombinant peptide N223 on liposomes [61]	Saitama Medical University; Josai University; Nippon Oil and Fat Corporation; National Institute of Infectious Diseases, Japan	Unknown	SARS	Pre-Clinical	
Protein Subunit	Recombinant TM-truncated S protein [64]	Chinese Center for Disease Control and Prevention; Canadian Science Centre for Human and Animal Health	Unknown	SARS	Pre-Clinical	prime boost
Protein Subunit	Trimeric Spike protein [65]	HKU-Pasteur Research Centre; The University of Hong Kong; National Institutes of Health; Centers for Disease Control and Prevention; CombinatorX	Unknown	SARS	Pre-Clinical	days 0,16 and 32
Virus-like Particle	Chimeric VLP (S protein SARS plus E, M and N proteins of mouse hepatitis virus)[55]	University of Texas Medical Branch (UTMB)	Unknown	SARS	Pre-Clinical	0, 4
Virus-like Particle	Recombinant trimeric S protein [56]	The John Hopkins University School of Medicine, USA	Unknown	SARS	Pre-Clinical	0, 14, 28
Inactivated Virus	purified inactivated Vero-cell SARS vaccine [57]	Institute of Microbiology and Epidemiology, National Vaccine and Serum Institute; Beijing Genomics Institute (BGI);	Unknown	SARS	Pre-Clinical	prime boost (protection NHPs)

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		Harbin Institute of Veterinary Medicine				
Inactivated Virus	Formalin- and UV inactivated virus vaccine [58]	Baxter Vaccines, Austria	Unknown	SARS	Pre-Clinical	prime boost
Inactivated Virus	β -propiolactone inactivated virus vaccine [59]	National Institute of Allergy and Infectious Diseases (NIAID); University of Virginia	Unknown	SARS	Pre-Clinical	0, 3 weeks
Live Attenuated Virus	Live attenuated vaccine Nsp16 mutant lacking 2'-OMTase [75]	University of North Carolina	Unknown	SARS	Pre-Clinical	Single dose
Live Attenuated Virus	Live attenuated SARS-CoV MA- Δ ExoN [76]	University of North Carolina	Unknown	SARS	Pre-Clinical	Single dose
Inactivated Virus	ISCV [81]	Sinovac Biotech Ltd (/Beijing Kexing Bio-product), Chinese Centre for Disease Control and Prevention; Chinese Academy of Medical Sciences	Unknown	SARS	Phase I	0, 28 days; two dose groups plus placebo
DNA	DNA plasmid vaccine Electroporation device [12-15]	Inovio Pharmaceuticals; Laval University; Rocky Mountain Labs; Wistar Institute	Active or on hold (not due to technical reason)	SARS	Pre-Clinical	2 doses, 2, 4 (8) weeks in between, boost annually if needed
Inactivated Viral Vector	RABV-SARS [17]	Thomas Jefferson University	Active or on hold (not due to technical reason)	SARS	Pre-Clinical	Two doses - 28 days apart

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