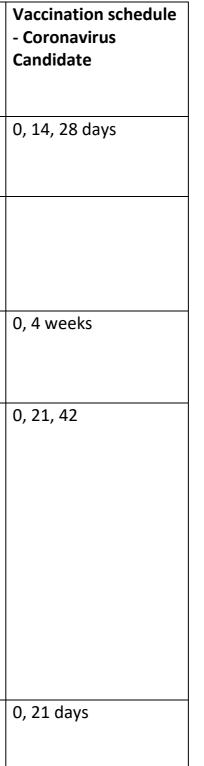
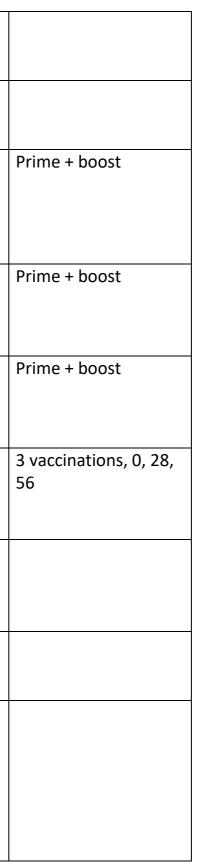
## Novel Coronavirus- DRAFT landscape of SARS-CoV candidate vaccines – 28 January 2020

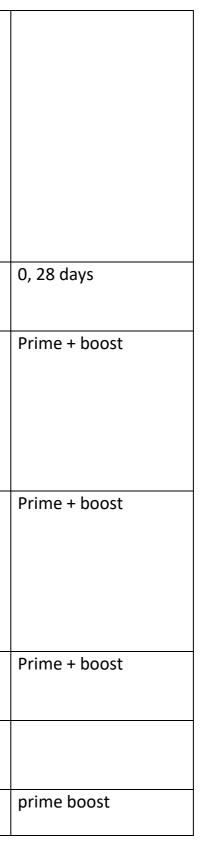
Platform Non-Replicating Viral	Type of candidate vaccine recombinant adenovirus	Developer	<b>Status</b> Unknown	Coronavirus target SARS	Current stage of clinical evaluation/regulatory status- Coronavirus candidate Pre-Clinical
Vector	expressing Trunctuated S protein (rADV-S) [106]	Institute (IVI)		5413	
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
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
Protein Subunit	SARS recombinant spike protein [49]	Vaxine Pty Ltd, Australia	Active or on hold (not due to technical reason)	SARS	Pre-Clinical



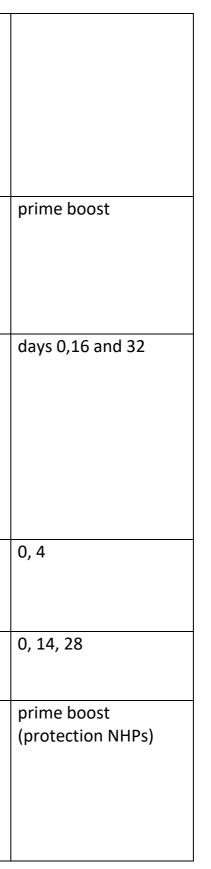
Virus-like Particle	SARS VLPs S protein and influenza M1 protein [47]	Novavax	Active or on hold (not due to technical reason)	SARS	Pre-Clinical
Inactivated Virus	rSARSCoV-E* [46]	CNB-CSIC; University of Iowa	Active or on hold (not due to technical reason)	SARS	Pre-Clinical
DNA	DNA prime–protein S437– 459 and M1–20 [51]	Institute of ImmunoBiology, Shanghai Medical College of Fudan University, China	Unknown	SARS	Pre-Clinical
DNA	SARS S DNA prime and HLA-A*0201 restricted peptides boost vaccine [52,53]	Sun Yat-sen University, China	Unknown	SARS	Pre-Clinical
DNA	3a DNA vaccine [54]	State Key Laboratory of Virology; Graduate University of Chinese Academy of Sciences	Unknown	SARS	Pre-Clinical
DNA	DNA vaccine VRC- SRSDNA015-00-VP ; Biojector used [71]	National Institute of Allergy and Infectious Diseases (NIAID)	Unknown	SARS	Phase I
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



					1
		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
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
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
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
Non-Replicating Viral Vector	Recombinant DI expressing S protein [66]	National Institute of Infectious Diseases, Japan	Unknown	SARS	Pre-Clinical
Protein Subunit	Recombinant trunctuated S-N fusion protein [60]	Beijing Institute of Genomics, China	Unknown	SARS	Pre-Clinical



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



		Harbin Institute of Veterinary Medicine			
Inactivated Virus	Formalin- and UV inactivated virus vaccine [58]	Baxter Vaccines, Austria	Unknown	SARS	Pre-Clinical
Inactivated Virus	β-propiolactone inactivated virus vaccine [59]	National Institute of Allergy and Infectious Diseases (NIAID); University of Virginia	Unknown	SARS	Pre-Clinical
Live Attenuated Virus	Live attenuated vaccine Nsp16 mutant lacking 2'- OMTase [75]	University of North Carolina	Unknown	SARS	Pre-Clinical
Live Attenuated Virus	Live attenuated SARS-CoV MA-ΔExoN [76]	University of North Carolina	Unknown	SARS	Pre-Clinical
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
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
Inactivated Viral Vector	RABV-SARS [17]	Thomas Jefferson University	Active or on hold (not due to technical reason)	SARS	Pre-Clinical

