www.daminaadvisors.com

China may yet win geopolitical race to find effective Covid 19 vaccine

October 26, 2020


In the ongoing tectonic struggle by the world's largest economies to find an effective vaccine for the Covid 19 pandemic, China is likely poised to ultimately produce the most efficacious, and widely distributed vaccine. China had 3-month head start in the Covid vaccine development race. Its large population, governed without any notions of democratic legal privacy rights allows the country to more easily fast-track the clinical trials necessary to get a covid vaccine. China will use the discovery of a vaccine to further enhance its 'soft power' diplomatic activities especially in Africa and Latin America, where countries will not be able to easily buy the western alternatives to the Chinese vaccine.

Beyond China, Russia is also racing ahead to make its debatable covid 19 vaccine widely accepted. Russia is firmly committed to the success of Sputnik V, a candidate coronavirus vaccine being developed by the Gamaleya Research Institute in outer Moscow. In these unprecedented times, critics may look beyond questions of data transparency and accept the limitations of comparing international methodologies. Scientific progress in Russia is intimately bound up with Russian state identity and remains central to Putin's political and economic agenda. Supporting the mission to bring a vaccine to market, Russia's National Wealth Fund has opened the door to international investors.

The official statistics provided by Russia's national coronavirus task force, which is headed by Deputy Prime Minister Tatiana Golikova, have undoubtedly aroused suspicion. Of particular note is the number of deaths per 1-million population, which stands at just 166 as of October 18. It is unsurprising to see the Moscow Times reporting that the real death count from COVID-19 in Russia may be more than double the latest published figure of 24,187. One of the first to challenge statistics locally was Alexei Raksha, the former demographer who was dismissed by Rosstat during the summer after suggesting that the 57,800 excess deaths recorded between May and July offer a more accurate reflection of the real death toll from the virus. Raksha is correct in his assessment that, in times of crisis, measuring excess mortality is useful: it shows us the number of deaths from all causes which occur above and beyond what public health bodies would expect under 'normal' conditions. In a recent interview with RFE/RL, Raksha alleged that the decision to remove him was most likely "an idea from above".

Sebastian Spio-Garbrah,
Chief Analyst
Ontario, Canada
+1 647 808 9671
Sebastian@daminaadvisors.com

Alex Wark,
Partner, Business Development
London, UK
+ 44 7779 656 878
Alex@daminaadvisors.com

William Seymour
Associate Director, Russia-CIS
London, UK
williams@daminaadvisors.com

The challenges of contrasting international datasets

Questions around data transparency from Russia must be considered within a wider debate surrounding the risks of drawing accurate international comparisons. Data discrepancies are particularly likely to arise as a result of inconsistencies in the recording of deaths. The official guidance of the World Health Organization states that a death due to coronavirus should be defined as "a death resulting from a clinically compatible illness, in a probable or confirmed COVID-19 case, unless there is a clear alternative cause of death that cannot be related to COVID disease (e.g. trauma)". Russian officials were quick to defend their methodology back in May as a Guardian Moscow report showed that "more than 60% of deaths of coronavirus patients in the capital were not tallied in the city's official death count from the disease because an autopsy showed they had died of other causes". Questions have also been raised over the 1.3 million tests completed in Russia since the outbreak of the virus. Indeed, this figure corresponds to the number of tests performed rather than people tested, which in theory allows for the same individuals to be tested multiple times over. However, the fact remains that such criticisms are equally applicable to the testing and recording methodologies adopted in the UK and USA, two countries that have struggled to control the spread of the virus and whose politicians have been under mounting pressure to meet ambitious testing targets. As Sarah Kliff of the New York Times explains, "in infectious outbreaks, public health experts say that under typical circumstances it takes months or years to compile data that is as accurate as possible".

COVID-19 vaccine candidates

Candidate	Mechanism	Sponsor	Trial Phase	Institution
AAVCOVID	Gene-based vaccine	Massachusetts Eye and Ear; Massachusetts General Hospital; University of Pennsylvania	Pre-clinical	
AdCOVID	Intranasal vaccine	Altimmune	Pre-clinical	University of Alabama at Birmingham
ChAd-SARS-CoV-2-S	Adenovirus-based vaccine	Washington University School of Medicine in St. Louis	Pre-clinical	Washington University School of Medicine in St. Louis
HaloVax	Self-assembling vaccine	Voltron Therapeutics, Inc.; Hoth Therapeutics, Inc.	Pre-clinical	MGH Vaccine and Immunotherapy Center
HDT-301	RNA vaccine	University of Washington; National Institutes of Health Rocky Mountain Laboratories; HDT Bio Corp	Pre-clinical	
LineaDNA	DNA vaccine	Takis Biotech	Pre-clinical	Takis Biotech
No name announced	Ii-Key peptide COVID-19 vaccine	Generex Biotechnology	Pre-clinical	Generex
No name announced	Protein subunit vaccine	University of Saskatchewan Vaccine and Infectious Disease Organization-International Vaccine Centre	Pre-clinical	University of Saskatchewan Vaccine and Infectious Disease Organization-International Vaccine Centre
MRT5500	Recombinant vaccine	Sanofi, Translate Bio	Pre-clinical	
No name announced	mRNA-based vaccine	Chulalongkorn University's Center of Excellence in Vaccine Research and Development	Pre-clinical	
No name announced	gp96-based vaccine	Heat Biologics	Pre-clinical	University of Miami Miller School of Medicine

No name announced	Inactivated vaccine	Shenzhen Kangtai Biological Products	Pre-clinical	
PittCoVacc	Recombinant protein subunit vaccine (delivered through microneedle array)	UPMC/University of Pittsburgh School of Medicine	Pre-clinical	University of Pittsburgh
T-COVIDTM	Intranasal vaccine	Altimmune	Pre-clinical	
Ad5-nCoV	Recombinant vaccine (adenovirus type 5 vector)	CanSino Biologics	Phase 3	Tongji Hospital; Wuhan, China
AZD1222	Replication-deficient viral vector vaccine (adenovirus from chimpanzees)	The University of Oxford; AstraZeneca; IQVIA; Serum Institute of India	Phase 3	The University of Oxford, the Jenner Institute
CoronaVac	Inactivated vaccine (formalin with alum adjuvant)	Sinovac	Phase 3	Sinovac Research and Development Co., Ltd.
JNJ-78436735 (formerly Ad26.COV2-S)	Non-replicating viral vector	Johnson & Johnson	Phase 3	Johnson & Johnson
mRNA-1273	mRNA-based vaccine	Moderna	Phase 3	Kaiser Permanente Washington Health Research Institute
No name announced	Inactivated vaccine	Wuhan Institute of Biological Products; China National Pharmaceutical Group (Sinopharm)	Phase 3	Henan Provincial Center for Disease Control and Prevention
NVX-CoV2373	Nanoparticle vaccine	Novavax	Phase 3	Novavax
Bacillus Calmette-Guerin (BCG) vaccine	Live-attenuated vaccine	University of Melbourne and Murdoch Children's Research Institute; Radboud University Medical Center; Faustman Lab at Massachusetts General Hospital	Phase 2/3	University of Melbourne and Murdoch Children's Research Institute; Radboud University Medical Center; Faustman Lab at Massachusetts General Hospital
BNT162	mRNA-based vaccine	Pfizer, BioNTech	Phase 2/3	Multiple study sites in Europe and North America
Covaxin	Inactivated vaccine	Bharat Biotech; National Institute of Virology	Phase 2	
No name announced	Recombinant vaccine	Anhui Zhifei Longcom Biopharmaceutical, Institute of Microbiology of the Chinese Academy of Sciences	Phase 2	
ZyCoV-D	DNA vaccine (plasmid)	Zydus Cadila	Phase 2	Zydus Cadila
AG0301-COVID19	DNA vaccine	AnGes, Inc.	Phase 1/2	AnGes, Inc.; Japan Agency for Medical Research and Development
BBIBP-CorV	Inactivated vaccine	Beijing Institute of Biological Products; China National Pharmaceutical Group (Sinopharm)	Phase 1/2	Henan Provincial Center for Disease Control and Prevention
EpiVacCorona	Peptide vaccine	Federal Budgetary Research Institution State Research Center of Virology and Biotechnology	Phase 1/2	Federal Budgetary Research Institution State Research Center of Virology and Biotechnology
GX-19	DNA vaccine	Genexine	Phase 1/2	
INO-4800	DNA vaccine (plasmid)	Inovio Pharmaceuticals	Phase 1/2	Center for Pharmaceutical Research, Kansas City. Mo.; University of Pennsylvania, Philadelphia
LNP-nCoVsaRNA	Self-amplifying RNA vaccine	Imperial College London	Phase 1/2	Imperial College London
LUNAR-COV19 (ARCT-021)	Self-replicating RNA vaccine	Arcturus Therapeutics and Duke-NUS Medical School	Phase 1/2	Duke-NUS Medical School, Singapore
No name announced	Protein subunit vaccine	Sanofi; GlaxoSmithKline	Phase 1/2	Various
No name announced	Inactivated vaccine	Chinese Academy of Medical Sciences, Institute of Medical Biology	Phase 1/2	West China Second University Hospital, Yunnan Center for Disease Control and Prevention

Sputnik V	Non-replicating viral vector	Gamaleya Research Institute, Acellena Contract Drug Research and Development	Phase 1/2	Various
AdimrSC-2f	Protein subunit vaccine	Adimmune	Phase 1	Adimmune
COVAX-19	Monovalent recombinant protein vaccine	Vaxine Pty Ltd.	Phase 1	Royal Adelaide Hospital
CVnCoV	mRNA-based vaccine	CureVac	Phase 1	CureVac
DelNS1-2019-nCoV-RBD-OPT1	Replicating viral vector	Xiamen University, Beijing Wantai Biological Pharmacy	Phase 1	Jiangsu Provincial Centre For Disease Control and Prevention
GRAd-COV2	Adenovirus-based vaccine	ReiThera; Leukocare; Univercells	Phase 1	Lazzaro Spallanzani National Institute for Infectious Diseases
No name announced	Plant-based adjuvant vaccine	Medicago; GSK; Dynavax	Phase 1	Medicago
No name announced	Protein subunit vaccine	CSL; The University of Queensland	Phase 1	
SCB-2019	Protein subunit vaccine	GlaxoSmithKline, Sanofi, Clover Biopharmaceuticals, Dynavax and Xiamen Innovax	Phase 1	Linear Clinical Research (Australia)
UB-612	Multitope peptide-based vaccine	COVAXX	Phase 1	United Biomedical Inc. (UBI)
V590	Recombinant vaccine (vesicular stomatitis virus)	Merck; IAVI	Phase 1	
V591	Measles vector vaccine	University of Pittsburgh's Center for Vaccine Research	Phase 1	University of Pittsburgh; Themis Biosciences; Institut Pasteur
VXA-CoV2-1	Recombinant vaccine (adenovirus type 5 vector)	Vaxart	Phase 1	Vaxart
bacTRL-Spike	Monovalent oral vaccine (bifidobacteria)	Symvivo	Phase 1	Symvivo Corporation
No name announced	Adenovirus-based vaccine	ImmunityBio; NantKwest	Phase 1	
No name announced	mRNA lipid nanoparticle (mRNA-LNP) vaccine	CanSino Biologics, Precision NanoSystems	Early research	

Source: WHO

Science and technology in the modern Russian State

One of the vital challenges facing international regulators will come in the decision-making process on whether to give market approval to a Russian vaccine against COVID-19. It was Putin himself, in early August, who announced the emergency approval of Russia's "world first" vaccine. Gam-COVID-Vac, which is trade-named Sputnik V, revives the Soviet triumph in launching the first artificial satellite in 1957, an assertion of dominance over the United States that gave rise to the 20th-century Space Race. However, western media outlets have been far too quick in their moves to deride this, with a foreign correspondent of the Washington Post branding it "an exercise in the science of state-run spin". The reality is that the 21st-century drive for scientific and technological innovation in Russia is not simply a hangover from Cold War politics nor is it a lasting function of Marxist-Leninist ideology. Russia's long line of preeminent scientists owes part of its success to Peter the Great, whose sweeping reforms in the 18th century gave Russia its status as a major European power. It is particularly important to understand that its leading academic institutions – from the Russian Academy of Sciences to the state universities of Moscow and Saint Petersburg - were founded on a Western European model and have borrowed particularly from the higher education structures of England, the Netherlands and Germany. These institutions played a key role in driving Russia's modernization and producing world-leading scientists, such as Dmitri Ivanovsky, who was

credited with the discovery of viruses in 1892. However, they began to falter after the fall of the Soviet Union as the economic turbulence of the 1990s under Yeltsin drove scientists out of Russia in pursuit of better opportunities. This is key to understanding how important the development of a successful vaccine is to Putin, who oversaw an economic recovery between 2000 and 2008 that cemented his approval ratings and went some way to restoring Russia's status as an economic world power.

'Pharma 2020' and the growth of national industry

The 'Pharma 2020" program introduced by President Medvedev in 2009 was intended to reduce Russia's reliance on Europe for medicine imports through the growth of its domestic pharmaceutical industry. Pharmaceutical production has enjoyed a decade of double-digit growth since then, with the volume of the Russian market now exceeding 1.6 trillion rubles ($25 billion) according to the Ministry of Industry and Trade. However, efforts to shrink the pharmaceutical trade deficit have been counteracted by the devaluation of the ruble in the 2014-2015 Russian financial crisis. The flipside to this is that the weakness of the Russian ruble also makes its goods more price-competitive in export markets. And with the Federal Antimonopoly Service (FAS) now indicating a maximum price of $13 per dose for a Russian vaccine, well below the costs currently anticipated by western powerhouses, such as Moderna and Pfizer, Gam-COVID-Vac could represent the most affordable option for emerging and frontier markets.

Gamaleya taking shortcuts to clinical protocol

In its efforts to develop a coronavirus vaccine, Russia is clearly bypassing certain stages of clinical evaluation. However, it is also maximising its chances of releasing an effective treatment before the end of the year. Back in April, the Russian Health Ministry enacted a law that enabled the Gamaleya Research Institute, which is developing Gam-COVID-Vac, to carry out clinical trials using the candidate vaccine without the need for Phase III testing. Leaders from across the scientific community have voiced their concerns with typically anti-Russian sentiment. Alexander Gintsburg, Director of the Gamaleya Research Institute, has firmly rejected claims that his team is acting under Putin's instruction. "We do not have direct communication with the Kremlin", he said in a recent interview, "it does not give any orders to us". Gamaleya is a state institution, operating under the purview of the Ministry of Health, which is run by Mikhail Murashko, a close political aide to Putin, It has attracted previous publicity for the development of Gam-Evac-Combi, a candidate Ebola vaccine that received an emergency license for domestic use but never gained WHO approval. Gintsburg himself has an impressive research record within Russia. He sits on the editorial boards of leading virology journals and has been Director of Gamaleya since 1982.

Investment partnerships essential to Russia's go-to-market strategy

Given that Gamaleya has already agreed a partnership with the Russian National Wealth Fund (RDIF) to oversee the mass-distribution of Sputnik V on an international scale, future steps are likely to prove irksome for international regulators.

The main issue concerning Russia's efforts towards this cause lies in Gamaleya's reluctance to share further data behind its Phase 1/2 clinical trial results published in The Lancet. Results of the study indicate a vaccine that is "highly immunogenic and induces strong…immune responses in 100% of adult volunteers". With Health Minister Mikhail Murashko suggesting that the vaccine could be on the market by the end of October, Russia would have the advantages of both timing and pricing. And if steps towards a go-to-market strategy are met with hostility in the West, it must be noted that Russia is already in partnership talks with China and South Korea. According to its CEO Kirill Dimitriev, the RDIF, which has provided the funding Gam-COVID-Vac, envisions that China "may complete the technological transfer and start producing Sputnik V vaccine as soon as November". As a state tool for foreign direct investment, the RDIF reserves over $10 billion of capital under management and has secured a number of strategic partnerships with investment funds in China, France, Italy and across the Middle East. Sources for Aljazeera have identified close links between Putin and Dimitriev, and the latter has focused on an international PR strategy on the idea that "many people have misperceptions about Russia", as he articulated in an interview with CNBC: "they feel risk is greater than it really is". The RDIF's next steps should be followed closely, both from a geopolitical and investment standpoint, particularly given the resilience of US and European pharmaceutical equities. In an ongoing period of international emergency, the clinical promise of the RDIF-financed vaccine developed by Gamaleya must not be ruled out.

Contact DaMina for a more detailed briefing by our risk analysts:

Alex Wark,
Partner, Business Development
London, UK
+ 44 7779 656 878
+1 647 808 9671

TO UNSUBSCRIBE, PLEASE SEND AN EMAIL TO:

Alex@daminaadvisors.com
research@daminaadvisors.com

DaMina Advisors is a preeminent Africa-Asia focused independent frontier markets political risk research, due diligence, M&A transactions consulting and strategic geopolitical risks advisory firm. DaMina Advisors is legally registered and has offices in Canada, The UK and Ghana. DaMina is headquartered in Toronto.

www.daminaadvisors.com

On Twitter @DaMina_Advisors