

Lonza to do the heavy lifting for Moderna's Covid-19 vaccine



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Moderna becomes the latest coronavirus vaccine player to act on the need for a major manufacturing push.

No matter how ingenious an approach is taken to developing a Covid-19 vaccine, a major investment must be made in manufacturing. Yesterday the UK University of Oxford's initiative got AstraZeneca on board, and today Moderna signed up Lonza to manufacture its highly touted mRNA-based approach.

These efforts come as big pharma is gradually taking a lead in bringing a coronavirus vaccine to market; the race now includes Johnson & Johnson and a tie-up between Sanofi and Glaxosmithkline, while Pfizer is backing Biontech's broad mRNA effort. Numerous other small biotechs working on vaccines will struggle without a similar big partner to do the heavy lifting.

In Moderna's case Lonza has committed to a 10-year agreement for large-scale manufacture. Just in case the coronavirus pandemic does not last that long, the terms call for the Swiss group to become involved in "additional Moderna products in the future".

Moderna's Covid-19 effort focuses on mRNA-1273, a vaccine aiming to raise an immune response against the virus's Sars-CoV-2 spike protein - a popular approach. It dosed its first phase I study subject on March 16, which Moderna points out was just 63 days after its target sequence was selected.

This shows the pace at which the effort has moved; last month Moderna fleshed out its development path, filing a US IND to start phase II in the current quarter. Before that it secured funding of up to \$483m from the US agency Barda, and this will contribute to setting up US production.

Yesterday the University of Oxford's effort to develop a coronavirus vaccine delivered using not mRNA but a chimp adenovirus vector got a massive boost when AstraZeneca signed on the dotted line ([AstraZeneca joins the Covid-19 vaccine push](#), April 30, 2020).

Selected Covid-19 vaccines with big company involvement

Company	Vaccine	Type	Target	Detail
Moderna/ Lonza	mRNA-1273	mRNA vaccine	Sars-CoV-2 spike protein	In ph1; IND filed for ph2
Uni of Oxford/ Astrazeneca	COV001	Chimp adenovirus vaccine	Sars-CoV-2 spike protein	Ph1 under way
Biontech/ Pfizer	BNT162a1, b1, b2 & c2	mRNA vaccine	Large spike sequence, or 2 smaller receptor-binding domains	Ph1 under way
Johnson & Johnson	?	Adenovirus type 26 vaccine	?	Ph1 starting by Sep 2020
Sanofi/ Glaxosmithkline	?	DNA vaccine	Sars-CoV-2 spike protein	Ph1 planned for H2 2020
Translate Bio/ Sanofi	?	mRNA vaccine	?	Deal signed

Source: EvaluatePharma & company statements.

One intriguing aspect of [today's Lonza deal](#) is that it anticipates the ultimately approved vaccine dose to be 50µg; it is on this basis that the partners claim eventually to be able to manufacture up to a billion doses a year.

This is interesting given that Moderna's phase I study tests three doses, 25µg, 100µg and 250µg, and no data from this have yet been made public. And phase II plans to evaluate 50µg and 250µg; either dose will be given twice, 28 days apart, to two 300-subject cohorts, one aged 18-55 and the other above 55.

Either way, dosing decisions remain some way off, and for now Moderna can celebrate a major manufacturing endorsement.

Covid-19 vaccines in clinical development by as yet unpartnered biotechs include those by Inovio, Arcturus and Altimune. Unless these too can get a big manufacturing partner on board their efforts will commercially amount to little.