

An African covid-19 vaccine , despite foot-dragging by drug companies

Only about one in six persons in Africa had been vaccinated against covid-19 as of early 2022, whereas the coverage rate on other continents was four to five times higher (1). This is a powerful reason to try to produce an affordable, high-quality covid-19 vaccine in Africa.

In 2021, the World Health Organization (WHO) set up a technology transfer hub aimed at building production capacity for covid-19 messenger RNA vaccines in low- and middle-income countries (2). This hub, located in South Africa, is supported by several international organisations, governments, including the French, Belgian and German governments, and many scientists from around the world (2-4).

In January 2022, as part of this initiative, the South African biotech company Afrigen succeeded in producing a small quantity of a copy of Moderna's covid-19 vaccine *elasomeran* (Spikevax^o) (1,3). Since then, Afrigen has been working on the development and large-scale production of formulations that would be cheaper and less heat-sensitive than the original vaccine, to facilitate its use in Africa (1,4).

Afrigen developed its vaccine using the messenger RNA sequence made publicly available by Stanford University (5). Afrigen hoped to reach an agreement with Moderna, which had stated that it would not enforce its industrial property rights during the pandemic (4,5). But Moderna refused, as did Pfizer-BioNTech, to provide technical assistance to Afrigen, which means that it will take 3 years rather than 1 year for the vaccine to be ready for mass production (1).

Meanwhile, Moderna is being sued by two Canadian companies who contend that the manufacture of Moderna's vaccine infringes their patents (6,7). Moderna has responded by asking the US authorities to recognise its right to ignore these patents and hence to benefit from a compulsory licence, even though pharmaceutical companies generally cry out against this mechanism when lower income countries seek to use it (6). In mid-2022, the World Trade Organization (WTO) finally approved a watered-down agreement that makes the use of compulsory licences for covid-19 vaccines slightly easier for certain countries, although it will change nothing for the South African project (8).

Messenger RNA vaccine technology has demonstrated its value in covid-19 and could have applications in other medical fields. The battle over the industrial property rights to this technology is intense and undoubtedly explains why certain parties consider the South African model a dangerous precedent as far as their own financial interests are concerned (1). It seems to matter little to them that their actions may severely delay vaccination efforts in Africa.

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References **1-** Davies M "Covid-19: WHO efforts to bring vaccine manufacturing to Africa are undermined by the drug industry, documents show" *BMJ* 2022; 376:o304: 6 pages. **2-** WHO "The mRNA vaccine technology transfer hub". www.who.int accessed 12 May 2022: 2 pages. **3-** WHO "South Africa's mRNA hub progress is foundation for self-reliance" 11 February 2022. www.who.int accessed 18 May 2022: 4 pages. **4-** Maxmen A "South African scientists copy Moderna's Covid vaccine" *Nature* 3 February 2022. www.nature.com accessed 12 May 2022: 6 pages. **5-** Stark V "Africa's first mRNA covid-19 vaccine produced" 4 February 2022. www.voanews.com accessed 18 May 2022: 3 pages. **6-** Ardizzone K "Moderna claims compulsory license from U.S. Government to use third party patents in its Covid-19 vaccine" 10 May 2022. www.keionline.org accessed 17 May 2022: 4 pages. **7-** Herder M and Gold ER "A South African company addresses vaccine supply inequity, despite Canada's lack of support" 28 February 2022. www.theconversation.com accessed 18 May 2022: 4 pages. **8-** Medicines Law and Policy "WTO Covid-19 TRIPS decision: some observations" 17 June 2022. www.medicineslawandpolicy.org accessed 30 June 2022: 4 pages.