Prevention: mRNA Vaccine

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The International AIDS Vaccine Initiative and Moderna have launched a Phase I study of HIV vaccines that use the same messenger RNA (mRNA) approach as highly effective COVID-19 vaccines. HIV mutates rapidly, which enables the virus to evade common antibodies. But most people have a small number of specialized B cells that can produce broadly neutralizing antibodies (bnAbs), which target hidden parts of the virus that don't change very much. An approach known as germline targeting aims to train immature B cells in a stepwise fashion to generate bnAbs. In an early study, 97% of people who received an experimental vaccine containing a cluster of engineered HIV envelope proteins produced these rare immune cells—the first step in the pathway for generating bnAbs. The new study will use mRNA technology to speed up the design and production of successive versions of the vaccine to further train B cells. The trial will enroll 56 healthy adults at low risk of acquiring HIV; results are expected in 2023.

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