Can ‘remarkable’ mRNA technology used to develop Moderna and Pfizer COVID vaccines combat other diseases?

Harry Al-Wassiti, a bioengineer from Monash University, has been working with mRNA technology for several years, and he describes the pace and scale of mRNA manufacturing and distribution across 2020 as remarkable.

“Many of the innovations currently used by COVID-19 vaccines were developed throughout the past 12 years – but when COVID-19 hit, the best of those innovations and knowledge were put together,” [said] Al-Wassiti.

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Cancer is one application many mRNA researchers have been investigating for years, and the current acceleration in the field will certainly help speed up ongoing studies. Al-Wassiti says these mRNA cancer treatments can be called “therapeutic vaccines.”

“Those act in a similar fashion to the viral vaccine, to train the immune system to recognize ‘existing’ cancer by vaccinating against molecules present predominantly in cancer but not healthy cells,” explains Al-Wassiti. “Other approaches may use mRNA to make ‘antibodies’ that target cancer or stimulate the immune system to fight cancer.”

Viral vaccines and new cancer therapeutics are just the tip of the iceberg when it comes to the potential for mRNA therapies. Al-Wassiti says these targets are “low-hanging fruit,” with pre-existing research easily built upon. Auto-immune diseases, metabolic diseases, and respiratory inflammatory diseases all present novel opportunities for mRNA interventions.

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