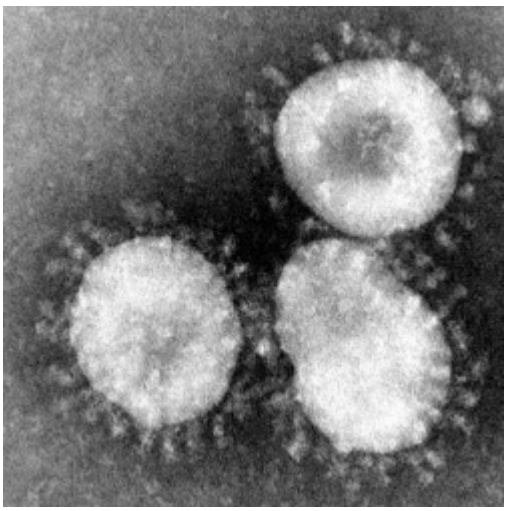
Published on *American Council on Science and Health* (https://www.acsh.org)

Common Cold Vaccine? Amazon Should Research Antivirals Instead

By Alex Berezow, PhD — March 10, 2020

All told, there are probably a couple of hundred different causes of the common cold. Amazon's attempt to create a common cold vaccine is, therefore, a foolish waste of money. Instead, the asset-rich company should spend it on antiviral research.



Credit: CDC / Dr. Fred Murphy / Wikipedia [1]

The common cold is one of the banes of our existence. No matter how healthy you are, how many vegetables you eat, and how much you exercise, you will not avoid the common cold.

The reason is there are so many different things that cause it. The commonly cited statistic -- the origin of which is unknown (to me, anyway) but perhaps roughly accurate -- is that some 200 different viruses [2] are responsible. Though viruses cause the vast majority of colds, they aren't the only microbes to blame. Some bacteria can cause the common cold as well.

In 1998, researchers in Finland examined 200 students who came down with symptoms of the common cold. Their mission was to identify all the causes. What did they find? Everything. From the abstract [3]:

> *Viral etiology was established for 138 of the 200 patients (69%).* ***Rhinoviruses*** *were detected in 105 patients,* ***coronavirus OC43 or 229E*** *infection was detected in 17,* ***influenza A or B*** *virus was detected in 12, and single infections with* ***parainfluenza virus, respiratory syncytial virus, adenovirus, and enterovirus*** *were found in 14 patients. Evidence for bacterial infection was found in seven patients. Four patients had a rise in antibodies against* ***Chlamydia pneumoniae****, one had a rise in antibodies against* ***Haemophilus influenzae****, one had a rise in antibodies against* ***Streptococcus pneumoniae****, and one had immunoglobulin M antibodies against* ***Mycoplasma pneumoniae****.* ***[Emphasis added]***

Just in this tiny sample of 200 people, the researchers detected at least 13 different etiological agents. (Notice that some strains of the coronavirus cause the common cold, too.) It gets even trickier when you consider that there are probably 100 immunologically distinct types of rhinovirus [4] (known as "serotypes") and at least 60 serotypes of adenovirus [5]. Though adults get fewer colds per year than children [4] (probably due to acquiring some immunity to cold viruses), it's unknown if the immunity is long-lasting.

Thus, the sheer diversity of common cold-causing microbes and the uncertainty about long-term immunity have presented major obstacles to vaccine development. So does the fact that the common cold is rarely serious. Sure, you might feel like you're going to die, but you aren't going to die. Taken together, that's why there is no common cold vaccine, and it's why relatively few researchers have ever tried to pursue one.

The Amazon Cometh

Step aside everyone, says Amazon. CNBC [6] reports that the tech giant has a highly secretive R&D group called Grand Challenge that is working on a common cold vaccine. The company that can deliver hand sanitizer to your front door in under 12 hours has a boatload of money and isn't afraid to waste it, which is precisely what they'll be doing.

Instead of a vaccine, Amazon should be focused on broad spectrum antivirals, which will probably have a better chance of yielding a useful product. One such antiviral [7] shows activity against MERS coronavirus and influenza. That seems rather relevant, at the moment.

Links

[1] https://en.wikipedia.org/wiki/Common_cold#/media/File:Coronaviruses_004_lores.jpg
[2] https://www.nih.gov/news-events/nih-research-matters/understanding-common-cold-virus
[3] https://jcm.asm.org/content/36/2/539.full
[4] https://www.sciencedirect.com/science/article/pii/B9780123737410500064

[5] https://www.uptodate.com/contents/pathogenesis-epidemiology-and-clinical-manifestations-of-adenovirus-infection
[6] https://www.cnbc.com/2020/03/06/amazon-is-secretly-working-on-a-cure-for-the-common-cold.html
[7] https://www.nature.com/articles/s41467-018-08015-x