

To my valued patients and colleagues

Coincidence?

Many of you may be familiar with the history of the Black Death or Bubonic Plague. Did you know that it is believed that the Black Death began in Hubei Province in China? Nearly 80% of the population died from this disease, including in the town of Wuchang within Hubei Province. From Hubei Province, the Black Death spread westward into India and Europe. If you do not recognize the name of the historical city of Wuchang, you will possibly recognize its present-day name, Wuhan.



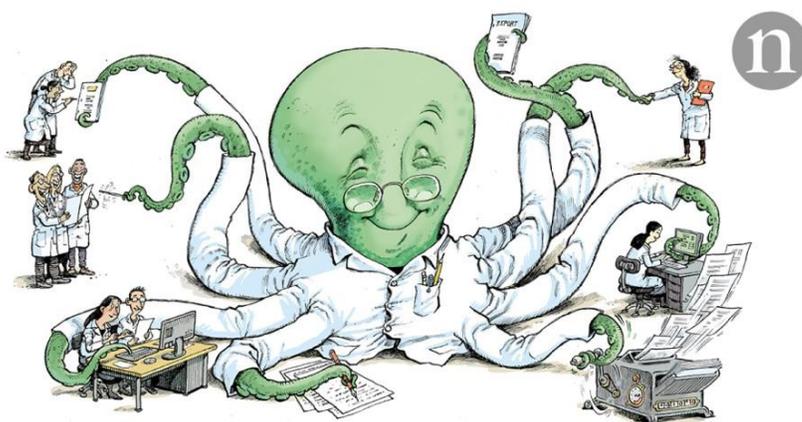
Super quick hit

You may have heard in the news questions about the Abbott rapid virus test (15 minute) and false negatives. This a test to see if you have active virus. Rest assured this is NOT a test we do in our office and is NOT the Abbott antibody test which has been shown to be amazingly accurate.

A flood of scientific papers

There are so many scientific papers flooding professional journals that it is almost impossible for researchers and scientists to keep up. There have been about 23,000 papers since January on COVID-19 and this number appears to be doubling every 20 days. How can anyone survey so many articles for important information? All COVID research is supposed to be free to the world to allow collaboration. But about 20% of the information remains behind pay walls and this percentage is expected to grow.

ILLUSTRATION BY DAVID PARKINS



Yet another problem is the quality of the work that is going to pre-publishing sources and publishing sources. Scientists are people and people tend to oversell and write papers with data that do not support their conclusions. Attention grabbing journal titles draw eyes just as they do in newspapers and on the web. Therefore, one cannot just scour journal titles to see what may be pertinent; the articles need to be read very carefully. But how can thousands of articles be scrutinized? There are hundreds of teams trying to clean up this mess.

The White House Office of Science and Technology has helped and has worked with publishers and tech firms to launch the CORD-19 data set. This is the largest single collection of data to date. Google, Chan Zuckerberg Initiative, and the Allen Institute for AI are collaborating with the NIH and other groups to collect and organize papers. If you are interested here is the link:

<https://www.semanticscholar.org/cord19>

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CORD-19: A New Machine Readable COVID-19 Literature Dataset

Another team has created the 2019 Novel Coronavirus Research Compendium. Forty scientists combed through the literature and selected 80 papers on 8 topics that met standards of excellence, writing summaries of each of these papers. You can find references from the 2019 Novel Coronavirus Research Compendium here: <https://ncrc.jhsph.edu/>.

Below are several other collaboration sites that you may find interesting.

<https://www.kaggle.com/allen-institute-for-ai/CORD-19-research-challenge/tasks>

<https://www.kaggle.com/covid-19-contributions>

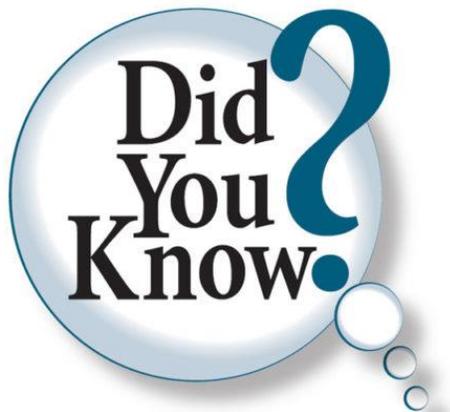
<https://scisight.apps.allenai.org/>

<https://medium.com/ai2-blog/exploring-the-covid-19-network-of-scientific-research-with-scisight-f75373320a8c>

<https://cord-19.apps.allenai.org/>

The outpouring of research is amazing, but the gathering of data into usable forms is just as important. If the information is not organized, there might as well be no information at all. The good news is that we are seeing the evolution of science on steroids, and we have expert groups trying to organize the information in a way that will benefit the world.

Did you know



- that a 113-year-old woman in Spain survived the coronavirus. She only had mild symptoms.
- that Yellowstone National Park will be reopening May 18.
- that front line workers in NY City are testing positive for coronavirus antibodies at lower rates than the general population. Around 20% of NY City has antibodies compared to 12.2% of healthcare workers. That means PPE, gloves and masks work if you are in close proximity to a coronavirus patient.
- that there is a video by LA County Sheriff showing inmates at North County Correctional Facility in LA County drinking from the same bottle and breathing into same mask, trying to infect themselves, trying to raise their temperatures and generally hoping to get sick so they will be released.

Chinese hack attack

It is a shame when countries try to steal technology from other countries. Particularly in these times, hacking into research and pharmaceutical companies would seem to be “beyond the pale”. We have already mentioned Iran’s attempts to hack into US facilities, previously. Now, US federal agencies are on high alert for cyberattacks out of China targeting our research and pharmaceutical companies. The FBI and Cybersecurity and Infrastructure Security Agency (CISA) recommended that research institutions patch all systems for critical vulnerabilities. They want all research facilities to scan for unauthorized access, modifications, and anomalous activities. Officials are warning they have seen a growing wave of cyberattacks on US government agencies and medical institutions leading the pandemic response.



Cyber espionage from China against the US has increased in the months since the outbreak of the virus according to the leading cybersecurity group FireEye. The group reported that China’s group APT41 carried out “one of the broadest campaigns by a Chinese cyber espionage actor we have observed in recent years” against US companies.

The US is the heart of research and development and it is truly a shame that when we do research for the world, bad actors try to steal this information. This is especially true when such actors are known to be the source of the infection.

Where we stand

Here is a very brief summary on where we stand today on treatment of coronavirus

Antivirals

Remdesivir

Most of you have heard of remdesivir. This drug has been issued emergency use status. It is currently in use in US hospitals. It is an intravenous medication.



Kaletra

This drug has seen mixed results. It is a combination of lopinavir and ritonavir. In the most recent study, it was found that people who were given lopinavir/ritonavir along with two other drugs — ribavirin and interferon beta-1b — took less time to clear the virus from their body.

Favipiravir

This drug is approved in some countries outside the United States to treat influenza. Some reports from China suggest it may work as a treatment for COVID-19. These results, though, have not been published yet. Japan, where the medication is made, is sending the drug to 43 countries for clinical trial testing in people with mild or moderate COVID-19. I have not heard of its use in the US.

Arbidol

This antiviral was tested along with the drug lopinavir/ritonavir as a treatment for COVID-19. Researchers reported in mid-April that the two drugs did not improve the clinical outcomes for people hospitalized with mild to moderate cases of COVID-19.

Other drugs

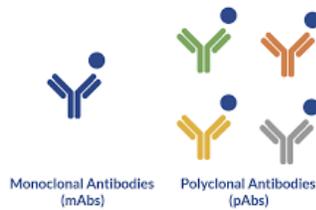
Hydroxychloroquine and chloroquine

These drugs received emergency use authorization from the FDA at the end of March. Clinical results, though, have been mixed. This drug is still part of first line treatment in the US.



Monoclonal antibodies

These drugs trigger the immune system to attack the virus. Several labs are isolating antibodies which appear to work in vitro (in the test tube) but are now going to enter human studies.



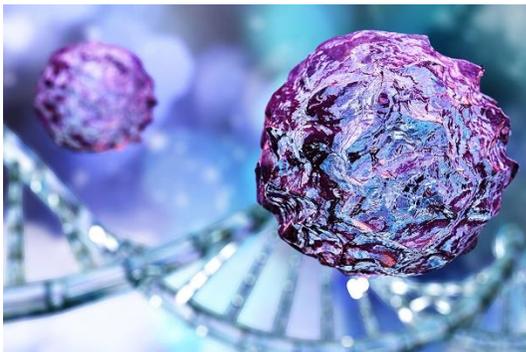
Blood plasma transfers

The FDA announced a process for medical facilities to conduct trials on an experimental treatment that uses blood plasma from people who have recovered from COVID-19. The theory is that the plasma contains antibodies that will attack this coronavirus. In late March, the New York Blood Center began collecting plasma from people who have recovered from COVID-19.



Stem cells

We are at the level of phase II/III clinical trial that will examine whether stem cell treatment could potentially benefit people with acute respiratory distress syndrome (ARDS). This condition occurs in some people with severe COVID-19.



Immune suppressants

In some people with COVID-19, the immune system goes into overdrive, releasing large amounts of small proteins called cytokines. Several immune suppressants are being tested in clinical trials to see whether the drugs can quell the cytokine storm and reduce the severity of ARDS.



Food for thought

Los Angeles County has 10 million residents, we have had 2934 deaths to date. This number is probably lower since just about every death is counted as coronavirus. Therefore, there is a population death rate of 0.029%. **Or a "live rate" of 99.971%.** Think about this statistic when you feel most fearful.



Music and medicine

Wolfgang Amadeus Mozart is still regarded as one of the most brilliant composers but his death at the age of 35 is still a mystery. Evidently, when he arrived in 1791 in Prague to supervise his new opera, he

was very ill. He returned to Vienna later that year and his condition worsened, although he was well enough to complete his Clarinet Concerto and conduct the premiere of *The Magic Flute*. For a while, Mozart got better but his symptoms returned, and he died a few weeks later. In his parish register, Mozart's cause of death is listed as severe miliary fever (miliary means the appearance of small millet sized bumps on the skin). He had had several diseases in his life including smallpox, tonsillitis, typhoid, and rheumatism. Maybe one of these played a factor in his early demise. Hypotheses about his death abound. There are articles that claim he was murdered, others suggest subdural hematoma, rheumatic fever, and staph infection with acute nephritic syndrome.



Be that as it may, Mozart was quite prolific. Here are a few choices of pieces you may have heard but never knew what they were.

Please be aware, this is purely my taste.

Piano Concerto No. 21 Andante

<https://www.youtube.com/watch?v=df-eLzao63I>

Symphony No. 25 in G minor

https://www.youtube.com/watch?v=7IC1IRz5Z_s

Sonata No. 16 C major K545

<https://www.youtube.com/watch?v=1vDxInJVvW8>

Piano Concerto No. 21 Allegro maestoso

<https://www.youtube.com/watch?v=lzRVF7vcnUI>

