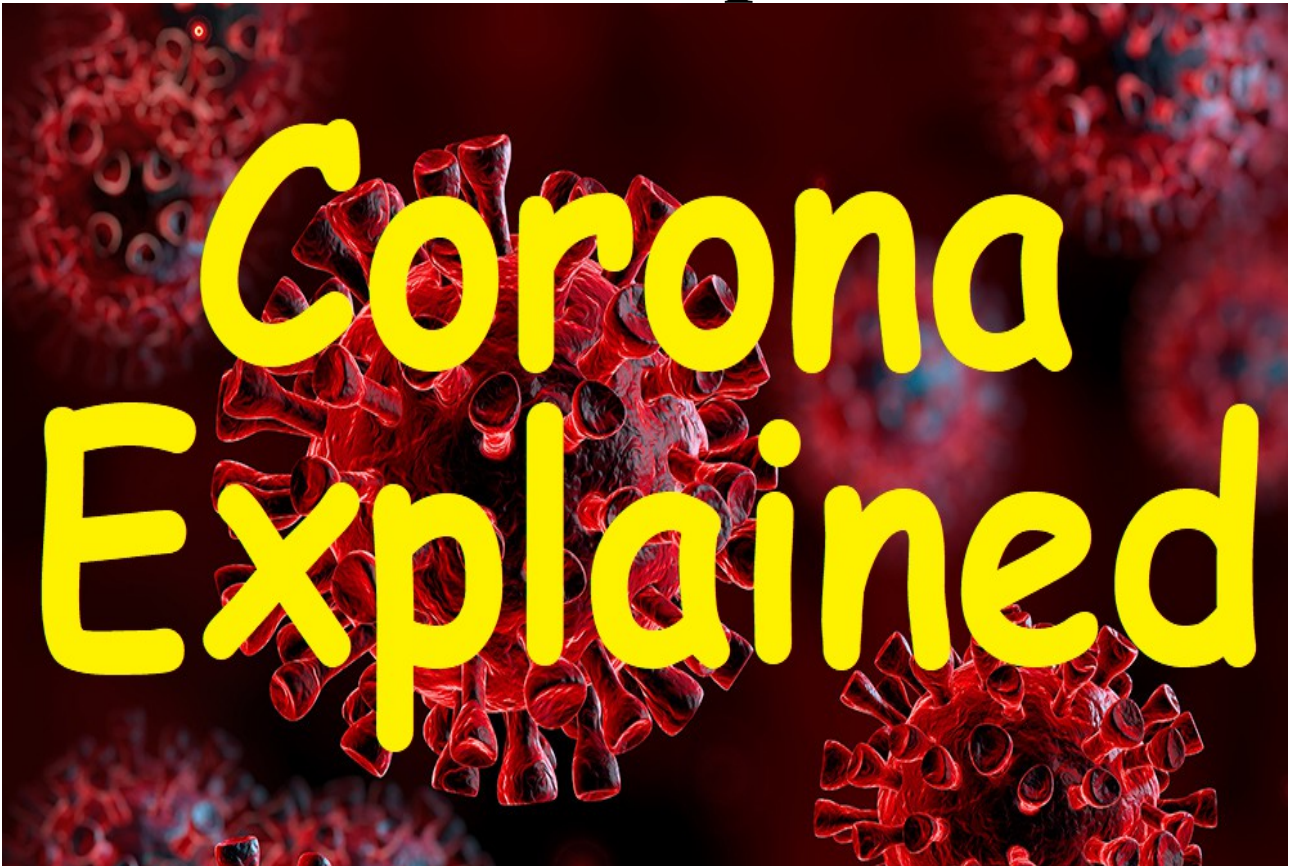


Corona Explained



I know many a day go here in the Netherlands and in other countries. But we have to stay strong, also for the elders to give them hope. We are their inheritance, so we are what they accomplished. So don't give up as then their life and suffering was in vain! We still have a lot of years ahead of us. Giving up is the easy way out.

We will stand up to that monster and beat the fecker to make the fallen proud of us!
So turn that fear to anger as anger gives strength and its strength we need to fight this devil.
There is much more to gain from our anger than from desperation.

I worry about my mom as well, but all I can do in this situation is being strong for her and making sure she has no reason to worry extra about me, as then I weaken her fighting spirit. Hope my way of dealing with this may inspire you to take the same or a similar stand while facing this.

So how do we face this virus ?

To face it, the most logical first step to look into is, its weakness.

So how can we beat it ?

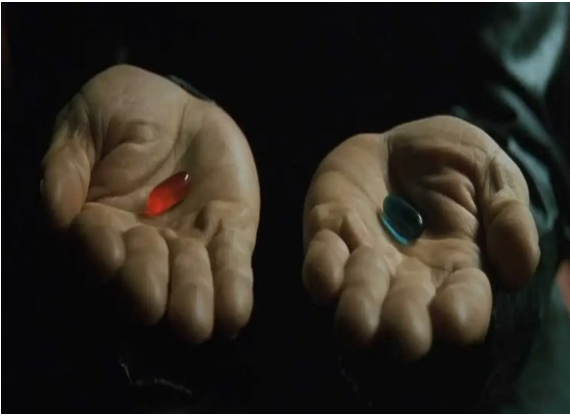
The foundation under the basics:

Step 1; Climatic influence on the virus, seasonal changes.

Step 2: The actual life-form status of a virus.

Step 3: Ways to destroy it

Step 4: Vaccines.



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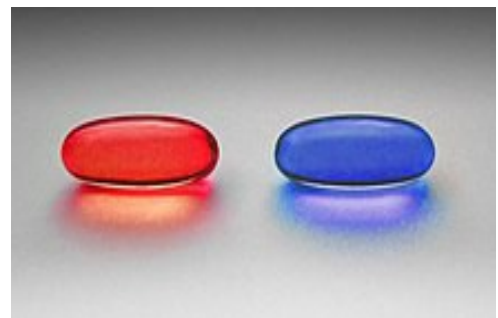
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Can Coronavirus Be Crushed By Warmer Weather



Elizabeth McGraw

"Coronaviruses tend to be associated with winter because of how they're spread," explains Elizabeth McGraw, who directs the Center for Infectious Disease Dynamics at Pennsylvania State University. For one thing, in winter months, people may cluster together more indoors, increasing the number of folks at risk of becoming infected by someone who's contagious.

In addition, there's the matter of transmission. **Viruses spread through respiratory droplets that are released when an infected person coughs or sneezes.** And the droplets are more likely to spread under certain conditions. **"What we know is that they [the droplets] are better at staying afloat when the air is cold and dry,"** says McGraw. **"When the air is humid and warm, [the droplets] fall to the ground more quickly, and it makes transmission harder."**

But he says COVID-19 seems more akin to the seasonal cold.

And up to a third of common colds are caused by corona viruses.

Adalja

"We've seen, basically, explosive spread inside China of person-to-person transmission, so — in that sense — it really is behaving like a common-cold causing corona virus," says Adalja.

For that reason, he says, **"I do think seasonality will play a role.** As this outbreak unfolds and we approach spring and summer, I do think we will see some tapering off of cases."

So as China and the rest of the Northern Hemisphere head into spring, the virus could begin to peter out or plateau. But the southern half of the globe is headed into fall and winter "so we may see this [virus] have increased transmission" in parts of the southern hemisphere, says Adalja — for example, in Australia. That's similar to what happens with the flu each year.

Dr. Anthony Fauci

"It's not unreasonable to make the assumption" that cases will die down come spring, Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, told NPR.

"We hope when the weather gets warmer it will diminish a bit," he says.

But he sounds a cautionary note:

"However, we don't know that about this [new] coronavirus.

We don't have [a] backlog of history."

Dr. Nancy Messonnier

Dr. Nancy Messonnier of the Centers for Disease Control and Prevention sounds a similar note when it comes to predicting a slowdown of cases with warmer weather. "I think it's premature to assume that," she said during a call with reporters on Wednesday. "We haven't been through even a single year with this pathogen."

Given the uncertainty, public health officials say they must plan for the unexpected and for the possibility that the outbreak drags on regardless of the weather.



[Will Warm Weather Slow Down the Coronavirus? Here's What Experts Think](#)

Unfortunately, no one knows for sure—and even experts can't seem to agree on whether or not warmer weather will slow down the coronavirus.

According to a new article in National Geographic, **viruses that cause influenza or milder coronaviruses (yes, there are seven in total that affect humans, some much less concerning than others)** often subside in warmer months due to a concept called "seasonality," or a predictable rise and fall depending on the time of year.

That seasonality also has to do with how certain viruses respond to heat and humidity, along with the fact that when the temperature rises, people spend less time inside where viruses can more easily spread.

[Coronavirus: why a warm spring could stop the virus in its tracks](#)

The virus is expected to peak in April and then die off, according to experts

[Will warm weather stop the spread of coronavirus?](#)

President Trump raised the possibility himself last month, suggesting that "a lot of people think it goes away in April with the heat" — though top federal health officials said it was too early to know what this virus would do.

Dr. Gregory Gray, of Duke University's Global Health Institute Division of Infectious Diseases, tells CBS News that the summer months may lead to a small decrease in transmission, but likely won't stop the spread of coronavirus completely.

[Will Warmer Weather Stop the Spread of the Coronavirus? Don't Count on It, Say Experts](#)

The points to consider:

And up to a third of common colds are caused by corona viruses.

According to a new article in National Geographic, **viruses that cause influenza or milder coronaviruses (yes, there are seven in total that affect humans, some much less concerning than others)**

Seasonality of virus ■

[Fauci Warns Coronavirus Could Become Seasonal Affliction-Bloomberg Markets and Finance 3:12](#)

Washington Post

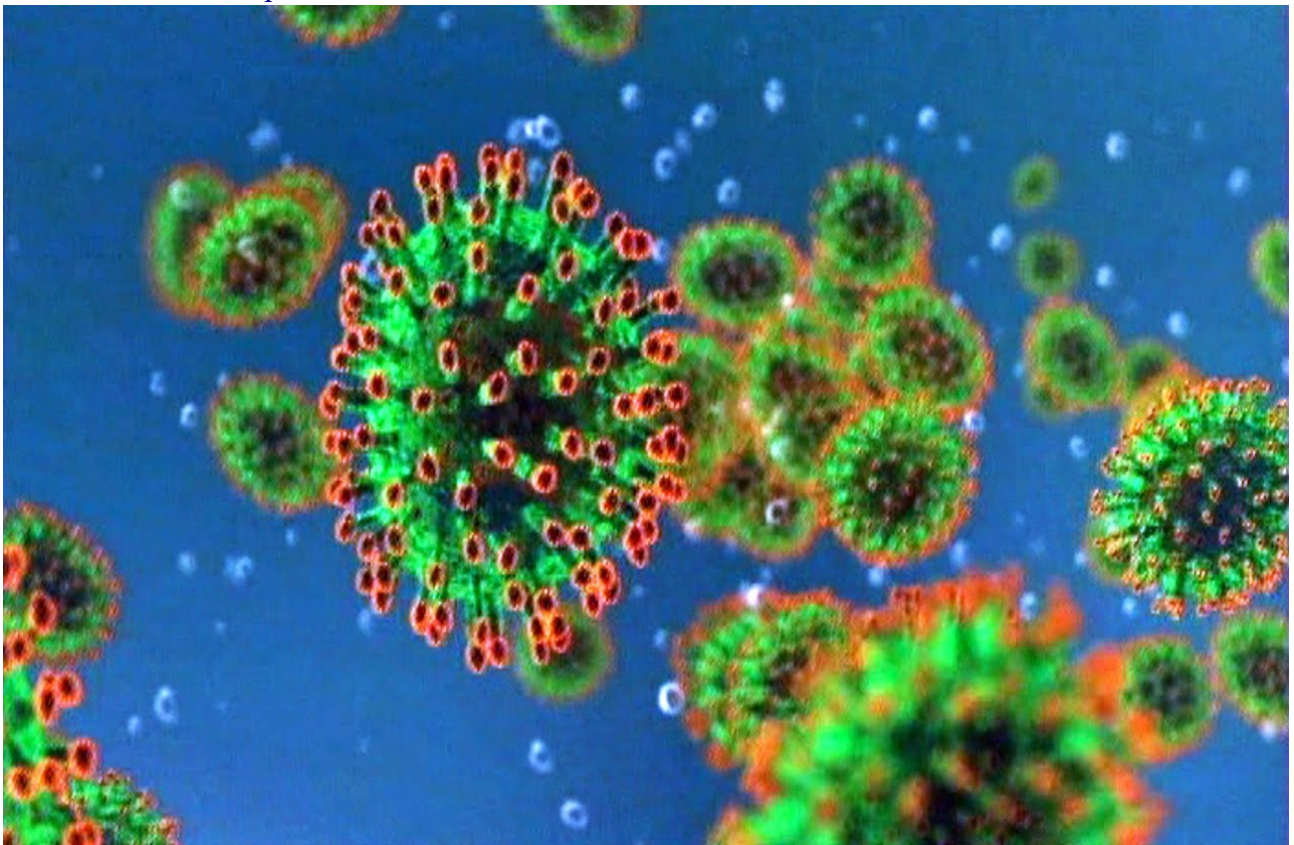
[Coronavirus and warm weather: Explaining the potential impact of seasonality 3:20](#)



Science Magazine

[How diseases rise and fall with the seasons—and what it could mean for coronavirus 4:05](#)

[Dr. Oz predicts COVID-19 will circulate like seasonal flu-Fox News 2:45](#)



The Various Coronaviruses

Coronaviruses: History of Infections

- **Severe Acute Respiratory Syndrome (SARS)** – 2002/2003

- Guangdong Province of China
- Betacoronavirus
- Transmitted from bats to civets to humans
- Began in February 2003 and outbreak lasted until July 2003
- More than 8000 total cases, 774 deaths, fatality rate of ~9.6%



- **Middle East Respiratory Syndrome (MERS)** - 2012

- Saudi Arabia
- Betacoronavirus
- Transmitted from camels to humans
- More than 2400 cases, 858 deaths, fatality rate of ~34.4%



- **2019 Novel CoronaVirus (2019-nCoV)** - 2019

- Wuhan, Hubei Province of China
- Seventh coronavirus found to cause illness in humans
- Novel betacoronavirus
- Transmitted from ?snakes, but more likely from ?bats
 - Animal market



Mutation by changing hosts, from animal to human

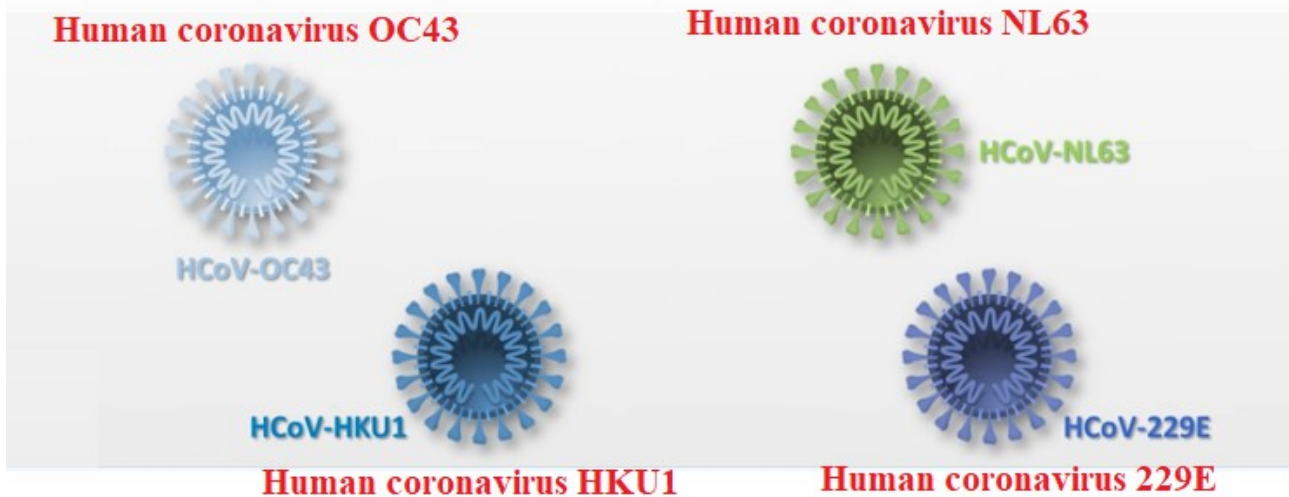
[Introduction to Coronaviruses \(SARS, MERS, COVID-19\): Hosts, Symptoms, History of SARS and MERS-JJ Medicine 7:20](#)



As you might know there are a number of other Corona viruses.

CNBC International TV

[Takeda says it's developing a plasma derived-therapy to treat virus patients | Street Signs Asia 3:45](#)



HCoV-OC43 = [Human coronavirus OC43](#)

Human coronavirus OC43 (HCoV-OC43) is a member of the species *Betacoronavirus 1* which infects humans and cattle. The infecting [coronavirus](#) is an [enveloped](#), [positive-sense](#), [single-stranded RNA virus](#) which enters its host cell by binding to the [N-acetyl-9-O-acetylneuraminic acid receptor](#). Along with [Human coronavirus 229E](#), it is one of the viruses responsible for the [common cold](#). It has, like other coronaviruses from genus *Betacoronavirus*, subgenus *Embecovirus*, an additional shorter spike-like surface protein called hemagglutinin esterase (HE).

HCoV-NL63 = [Human coronavirus NL63](#)

Human coronavirus NL63 (HCoV-NL63) is a species of [coronavirus](#) that was identified in late 2004 in a seven-month-old child with [bronchiolitis](#) in the Netherlands. The virus is an [enveloped](#), [positive-sense](#), [single-stranded RNA virus](#) which enters its host cell by the [ACE2 receptor](#). Infection with the virus has been confirmed worldwide, and has an association with many common symptoms and diseases. Associated diseases include mild to moderate [upper respiratory tract infections](#), severe [lower respiratory tract infection](#), [croup](#) and bronchiolitis.

The virus is found primarily in young children, the elderly, and [immunocompromised](#) patients with acute respiratory illness. It also has a seasonal association in [temperate climates](#). A study performed in Amsterdam estimated the presence of HCoV-NL63 in approximately 4.7% of common respiratory illnesses. The virus originated from infected [palm civets](#) and bats. **Estimates of its divergence from HCoV-229E are around 1000 years ago: it has likely circulated in humans for centuries.**

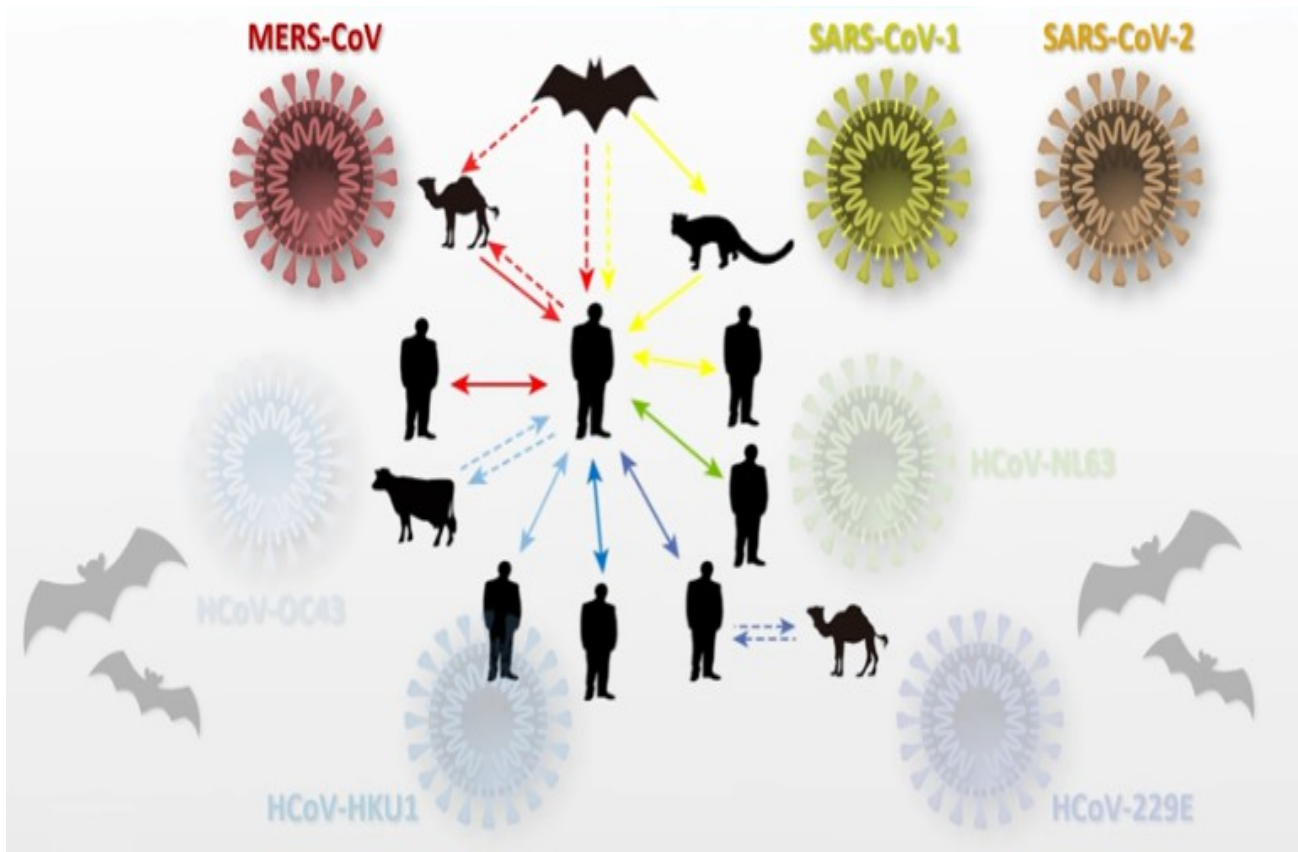
HCoV-NKU1 = [Human coronavirus HKU1](#)

Human coronavirus HKU1 (HCoV-HKU1) is a species of [coronavirus](#) which originated from infected mice. In humans, infection results in an upper respiratory disease with symptoms of the [common cold](#), but can advance to [pneumonia](#) and [bronchiolitis](#). It was first discovered in January 2005 in two patients in [Hong Kong](#). Subsequent research revealed it has global distribution and earlier genesis.

The virus is an [enveloped](#), [positive-sense](#), [single-stranded RNA virus](#) which enters its host cell by binding to the [N-acetyl-9-O-acetylneuraminic acid receptor](#). It has the [Hemagglutinin esterase](#) (HE) gene, which distinguishes it as a member of the genus *Betacoronavirus* and subgenus *Embecovirus*.

HCoV-229E = [Human coronavirus 229E](#)

Human coronavirus 229E (HCoV-229E) is a species of [coronavirus](#) which infects humans and bats. It is an [enveloped](#), [positive-sense](#), [single-stranded RNA virus](#) which enters its host cell by binding to the [APN receptor](#). Along with [Human coronavirus OC43](#), it is one of the viruses responsible for the [common cold](#). The species is a member of the genus *Alphacoronavirus* and subgenus *Duvinacovirus*.



HCoV-EMC/2012 - MERS-CoV = [Middle East respiratory syndrome-related coronavirus](#) **Middle East respiratory syndrome-related coronavirus (MERS-CoV)**, or **EMC/2012 (HCoV-EMC/2012)**, is a species of [coronavirus](#) which infects humans, bats, and camels. The infecting virus is an [enveloped, positive-sense, single-stranded RNA virus](#) which enters its host cell by binding to the [DPP4 receptor](#). The species is a member of the genus [Betacoronavirus](#) and subgenus [Merbecovirus](#). Initially called **2012 novel coronavirus** (2012-nCoV) or simply [novel coronavirus](#) (nCoV), it was first reported in 2012 after genome sequencing of a virus isolated from sputum samples from a person who fell ill in a 2012 [outbreak](#) of a new flu-like respiratory illness.

As of July 2015, MERS-CoV cases have been reported in over 21 countries, including Saudi Arabia, [Jordan](#), Qatar, Egypt, the United Arab Emirates, Kuwait, Turkey, Oman, Algeria, Bangladesh, Indonesia (none were confirmed), Austria, the United Kingdom, [South Korea](#), the United States, [Mainland China](#), Thailand, and the Philippines. **MERS-CoV is one of several viruses identified by WHO as a likely cause of a future epidemic.** They list it for urgent research and development.

SARS-CoV-1 = [Severe acute respiratory syndrome coronavirus](#)

Severe acute respiratory syndrome coronavirus (SARS-CoV or SARS-CoV-1) is a strain of [virus](#) that causes [severe acute respiratory syndrome](#) (SARS). It is an [enveloped, positive-sense, single-stranded RNA virus](#) which infects the [epithelial cells](#) within the lungs. The virus enters the host cell by binding to the [ACE2 receptor](#). It infects [humans](#), [bats](#), and [palm civets](#).

On 16 April 2003, following [the outbreak of SARS in Asia](#) and secondary cases elsewhere in the world, the [World Health Organization](#) (WHO) issued a press release stating that the [coronavirus](#) identified by a number of laboratories was the official cause of SARS. The [Centers for Disease Control and Prevention](#) (CDC) in the United States and [National Microbiology Laboratory](#) (NML) in Canada identified the SARS-CoV [genome](#) in April 2003. Scientists at [Erasmus University](#) in [Rotterdam](#), the Netherlands demonstrated that the SARS coronavirus fulfilled [Koch's postulates](#) thereby confirming it as the causative agent. In the experiments, [macaques](#) infected with the virus developed the same symptoms as human SARS victims.

SARS-CoV-2 = [Severe acute respiratory syndrome coronavirus 2](#)

Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), colloquially known as the **coronavirus** and previously known by the [provisional name 2019 novel coronavirus \(2019-nCoV\)](#), is a [positive-sense single-stranded RNA virus](#). It causes [coronavirus disease 2019 \(COVID-19\)](#), a [respiratory illness](#). SARS-CoV-2 is [contagious](#) in humans, and the [World Health Organization \(WHO\)](#) has designated [the ongoing pandemic](#) of COVID-19 a [Public Health Emergency of International Concern](#). The strain was first discovered in [Wuhan](#), China, so it is sometimes referred to as the "Wuhan virus" or "Wuhan coronavirus".

Because the WHO discourages the use of names based upon locations and to avoid confusion with the disease [SARS](#), it sometimes refers to SARS-CoV-2 as "the COVID-19 virus" in public health communications. The general public frequently calls both SARS-CoV-2 and the disease it causes "coronavirus", but scientists typically use more precise terminology.

[Taxonomically](#), SARS-CoV-2 is a [strain](#) of [Severe acute respiratory syndrome-related coronavirus \(SARSr-CoV\)](#). It is believed to have [zoonotic](#) origins and has close [genetic similarity](#) to bat [coronaviruses](#), suggesting it emerged from a [bat-borne virus](#). An intermediate [animal reservoir](#) such as a [pangolin](#) is also thought to be involved in its introduction to humans. The virus shows little genetic diversity, indicating that the [spillover event](#) introducing SARS-CoV-2 to humans is likely to have occurred in late 2019. [Epidemiological](#) studies estimate each infection results in 1.4 to 3.9 new ones when no members of the community are [immune](#) and no [preventive measures](#) taken. The virus is primarily spread between people through close contact and via [respiratory droplets](#) produced from coughs or sneezes. It mainly [enters](#) human cells by binding to the receptor [angiotensin converting enzyme 2 \(ACE2\)](#).

Bloomberg Markets and Finance,, SARS was also a corona virus
[Coronavirus Is 10 Times More Lethal Than Seasonal Flu, Fauci Says 1:56](#)



Coronavirus: Decoding Covid-19-South China Morning Post 3:09

[How the virus that causes COVID-19 differs from other coronaviruses-Mayo Clinic 1:14](#)

A: A novel coronavirus is a **new coronavirus** that has not been previously identified. 2019 novel coronavirus (2019-nCoV) is a **new virus never seen before in humans.**

2019-nCoV is **different** than other human coronaviruses that cause the common cold.

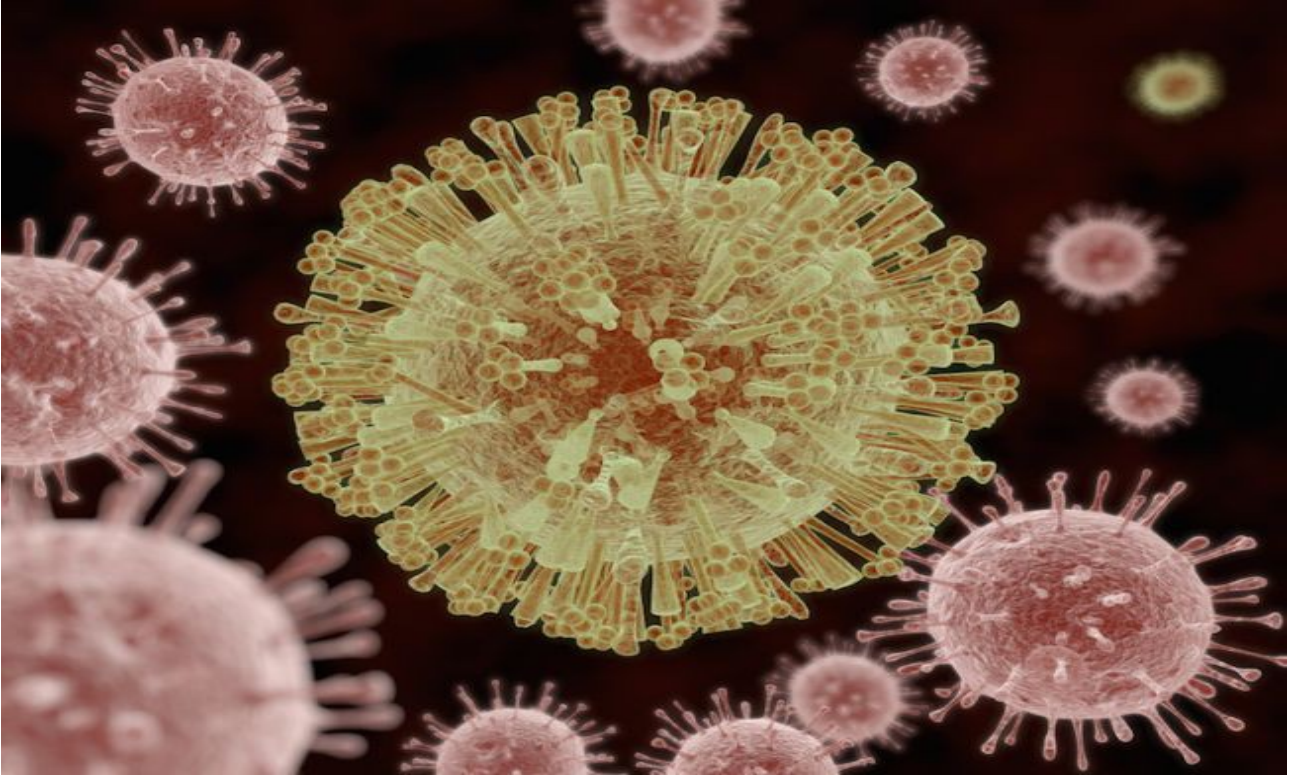


[COVID-19: different coronaviruses-Centers for Disease Control and Prevention \(CDC\) 0:32](#)

[PEP-talk prof. Eric Snijder over coronavirussen-Leids Universitair Medisch Centrum 21:56](#)

[80 % houd er een milde infectie aan over met weinig klachten.](#)

Is a virus a living organism ? ■



Are Viruses Alive? Live Science

Viruses are infectious, tiny and nasty. But are they alive?

Not really, although it depends on what your definition of "alive" is, two infectious disease doctors told Live Science. Living beings, such as plants and animals, contain cellular machinery that allows them to self-replicate. In contrast, viruses are free forms of DNA or RNA that can't replicate on their own. [[What If We Eradicated All Infectious Disease?](#)]

Rather, **viruses need to invade a living organism to replicate**, said Dr. Otto Yang, a professor of medicine and microbiology, immunology and molecular genetics at the David Geffen School of Medicine at the University of California, Los Angeles.

"[Viruses are] packaged RNA or DNA," Yang told Live Science. "They make more copies of themselves by hijacking the machinery of cells to replicate themselves."

Is it alive?

Countless philosophers and scientists have debated how to define whether something is alive.

According to **the seven characteristics of life**, all living beings must be able to

- respond to stimuli;
- grow over time;
- produce offspring;
- maintain a stable body temperature;
- metabolize energy;
- consist of one or more cells;
- and adapt to their environment.

However, some life-forms don't fit every single characteristic. Most hybrid animals, such as mules (a cross between a donkey and a horse), can't reproduce because they are sterile. Moreover, rocks can grow, albeit in a passive way, with new material flowing over them. But this classification problem goes away when a simpler definition of "life" is used.

"Take a cat, a plant and a rock, and leave them in a room for days," said Amesh Adalja, an infectious disease physician and an affiliated scholar at the Johns Hopkins Center for Health Security in Baltimore. "Come back, and the cat and the plant will have changed, but the rock will essentially be the same," he said.

Like a rock, **most viruses would be fine if they were left indefinitely in a room**, Adalja said. In addition, he noted that living beings have self-generated and self-sustaining actions — meaning they can seek out sustenance and behave in self-preserving ways. In other words, "they're taking actions to further their lives, [such as] a plant sprouting its roots to find water or an animal looking for food," Adalja said.

Something that is not alive, such as a virus, does not have self-generated or self-sustaining actions, he said.

"I don't think viruses qualify as being alive.

They are, in essence, inert unless they come into contact with a living cell," Adalja said.

"There are some characteristics of viruses that put them on the borderline [of being alive] — they have genetic material: DNA or RNA. It's not the same thing as a rock, but it's clearly not the same thing as even bacteria, in terms of that self-sustaining and self-generated action." [[Could Humans Live Without Bacteria?](#)]

Are viruses alive?, askabiologist

Living things have cells. **Viruses do not have cells.** They have a protein coat that protects their genetic material (either DNA or RNA). But they do not have a cell membrane or other organelles (for example, ribosomes or mitochondria) that cells have.

More recently, scientists have discovered a new type of virus, called a mimivirus. These viruses do contain the tools for making a copy of its DNA. This suggests that certain types of viruses may actually be living.

Living things use energy. Outside of a host cell, viruses do not use any energy. They only become active when they come into contact with a host cell. Once activated, they use the host cell's energy and tools to make more viruses.

If viruses are not alive how can we kill them?

No matter what side of the debate you might be on, we know that viruses can be deactivated. Once they are inactive, they cannot infect a host cell.

There are two types of viruses, those with a lipid, or fatty outer shell and those that have a protein coating called a capsid. **For the viruses that have a lipid shell you can use common soap to basically tear apart the outer coating and deactivate the virus.** The remaining parts can then be washed down the sink and are harmless. The great thing about this is it only takes about 20 seconds of thorough hand washing with soap and water to do this. **The COVID virus has a lipid shell so it can be deactivated using soap.**

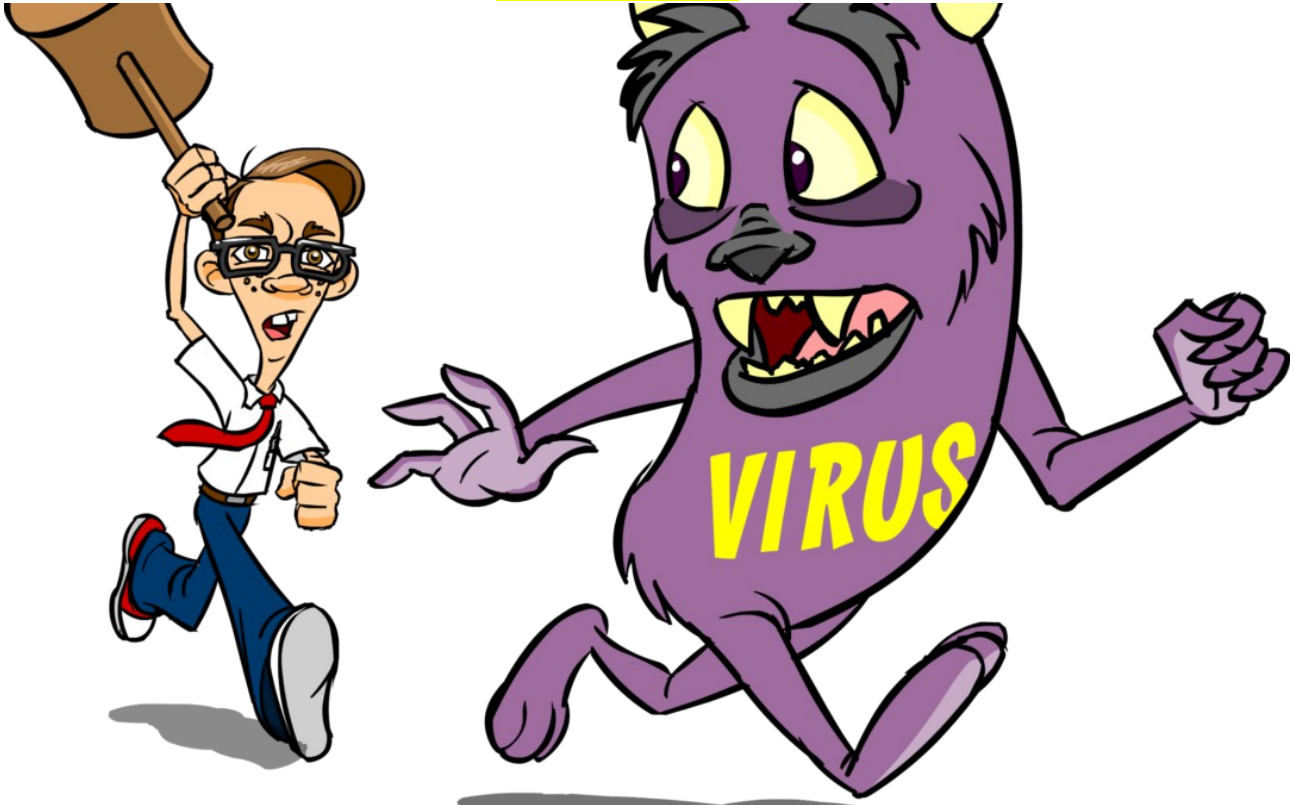
Viruses with protein coatings like the rhinoviruses and adenoviruses that cause the common cold are not deactivated by soap, but **are still dislodged from our skin and surfaces so that they can be washed down the sink.** **This is also why washing your hands with soap and water is better than using a hand sanitizer.** Hand sanitizers do not have the same effect of removing the viruses from our skin so they can be washed down the sink.

[Is a Virus a Living Creature?](#), medium

[Are Viruses Alive?](#), scientificamerican

[Are viruses alive?](#), microbiologysociety

Kill A Virus ■



Destroy they mean as its not alive

[Most Effective Way To Kill A Virus-The Infographics Show 11:35](#)

[Viruses are much more fragile then a bacteria](#)

[A virus can't survive without a host = should be a virus can't replicate without a host](#)

[I got my flu shot doctor how come i still got sick ?](#)

[How a vaccine works](#)

[HOW DO I KILL THE VIRUS, kill should be destroy or make it dormant, inactive](#)

[Damages the outer shell deactivating it.](#)

Remember is a virus alive? They explained that soap took that outer coating off and deactivated it.

So even a simple thing like soap can deactivate Corona according to that information. Course we can't just scrape soap of a bar of soap and eat it as i figure that would damage our intestines. But the fact that soap can already deactivate it should give hope to those hoping for a cure.

[What about the worries about a flu outbreak and such ? How it spreads](#)

[Vaccination in correlation to Herd immunity explained](#)

The government is first dealing with the weakest in our population, while in my opinion they should have done it the other way around. So lock up only those that are vulnerable to it. Let the healthy beat it, and then that herd immunity should kick in taking the risk of infecting the weak away.

Group Immunity explained well

[COVID-19 Update 6: Seasonality: will COVID-19 go away in the summer?-Medmastery 10:06](#)



Since we can't kill it, how do we get rid of it ? A vaccine ■

[Experts Hope Herd Immunity 'Flattens' The Coronavirus Curve | NBC News NOW 15:14](#)

You might be wondering what comes next NBC News technology correspondent Jacob Ward went to one of the nation's leading epidemiologist at UC Berkeley with exactly that question.

No containment, instead mitigation

Health officials agree that we are past the point of containment **we're not stopping this thing and instead we're into mitigation.**

flattening the curve

But one of the primary concepts there is what's called flattening the curve. Even if the same number of people get the disease, it's better that that happened over a prolonged period than all at once, because if you and I and everyone we know get it right now, that's going to create a peak of infection that's going to crash our healthcare system. If instead we have a long flat curve of new infections that's something that hospitals can deal with far more easily.

UC Berkeley epidemiologist dr. art Reingold specializes in who lives and who dies during epidemics involving respiratory infections. So if you go back to the polio epidemics of earlier days or the flu pandemic of 1918, there are a few examples of communities walling themselves off and basically nobody comes in from the outside who avoid the epidemic. If you will that's not so easy to do if you're in a city. There are a few complexities to walling yourself off, in terms of food and other necessities. But in China whole cities have been shut down cutting off transmission. Here in the United States there's almost no history of any epidemic being checked by that kind of action.

Herd immunity

D. Reingold is betting that herd immunity is how this will end if we're starting with a population where no one is immune to this virus, which is what we assumed, which will basically drive down transmission and prevent infection through at least two ways.

One is vaccination if and when we have a safe and effective vaccine.

The other is that basically much of the population is immune.

We call that herd immunity and basically you get reduced circulation because the virus.

vaccine , at least for 12 to 18 months

But a **vaccine is not gonna be here in time to allow us to do that, at least for 12 to 18 months** and even a 12 to 18 month time line is considered fast tracking of vaccine. CNBC's make trail reports on biotechnology and pharmaceuticals and has more on the pipeline of vaccines and other treatments. Well dr. Anthony Fauci called America's doctor by a member of Congress is leading the charge on vaccine development in the u.s., he said at least 10 vaccines are in development to try to prevent kovat 19 infection and his program at the National Institute of Allergy and Infectious Diseases has moved at a record pace getting it into Phase one in a matter of months, is the quickest that anyone has ever done literally in the history of X and ology. Made by biotech company moderna the first batch of the vaccine was delivered for human testing in just 42 days. But starting human trials is just the beginning, the first stage. **Phase 1 will take 3 months to determine safety Foudy said. Then another 8 or so months in phase 2 to determine the vaccine works to prevent the disease.**

So when you've heard me say we would not have a vaccine, that would even be ready to start to deploy for a year to a year and a half, that is the timeframe now. **Anyone who thinks they're going to go more quickly than that, I believe will be cutting corners that would be detrimental.** Why so long, because unlike a drug, a vaccine is given to healthy people. So the risk tolerance is lower than if a person is already sick and needs to be treated. **Drugs may move more quickly both for that reason and because some were already in testing or approved for other diseases.**

Among the most advanced an antiviral drug from biotech giant Gilead called REM de severe. It was used to treat the first patient in the US with kovat 19 with promising results, published in the New England Journal of Medicine. But experts note one patient is far too little data to draw conclusions about whether the drug works. It's now being tested in two clinical trials in China. Another run by the NIH in the US and an additional trials run by Gilead. We're gonna know probably by April whether that drug works or not, and that's important because that's a drug that can save lives.

If it works another biotech company Regeneron plans to test a drug for rheumatoid arthritis to see if it could help tamp down dangers immune system flare-ups that can happen to some patients with kovat 19. But it and others are also developing new drugs as well, where Jenner on aims to have hundreds of thousands of doses of a drug ready for human clinical trials by late summer. Its approach could both treat disease and potentially prevent it.

isolated antibodies from people who recovered

In San Francisco startup veer biotechnology has yet another approach. It's isolated antibodies from people who recovered from **SARS a disease caused by a different corona virus. The people who get infected with a virus or another infectious agent and recover, often do so because they make antibodies, which are proteins that circulate in the blood that bind to the pathogen and block its activity, or block its ability to infect cells.** Vir chooses the optimal antibodies and will test those for activity against the new corona virus. The company is also working with the NIH to identify antibodies from survivors of kovat 19. Vir CEO George skagos saying they hope to know within a few months whether they have an approach that could work.

But it would still need to be tested in clinical trials.

Dr. John thanks Meg the whole world may be watching and waiting for a vaccine or for any medicine to help treat coronavirus.

where kovat 19 actually came from

But there are researchers working just as hard to find out where kovat 19 actually came from, and here's NBC News chief foreign correspondent Richard Engel in Singapore, with the likely culprit.

Dr. Anderson took me to another part of the facility to show me where the virus came from that's that's gathered in China for food. A vet here captured one and didn't a containment cage. She showed it to me and why bats. How confident are you that the corona virus came from from bats ?

I'm probably 90% confident that that the new corona virus came from bats. The initial contamination she says likely happened here at a filthy animal market in Wuhan China. Someone there she believes butchered a bat came into contact with its blood **or urine** and then touched his or her mouth or nose. And answering the question of where Kovach 19 came from does more than just give you something to blame. Will also help scientists address this and other illnesses that make the jump from humans to animals.

Bats

Led get is an epidemiologist and a molecular biologist at New York University's School of global Public Health and this happens to be her specialty. So Elodie thanks for being here number one, but let's start off with, How do we know that it's actually the bats fault ?

Well if you look at the genetic information of the virus and that's what we do when we sequence so the genetic information has basically that's what the genome of the virus has, and this indicates what the provenance is from. So the genetic information is like a barcode. And if we compare other viruses that have been collected in bats, and the SARS from 2003 was a bat virus also. And it's very similar to our current SARS Coby. And looking at these these viruses and looking at their genetic information is like looking at a family tree. You can trace who resembles whom and that's what we're doing exactly with this with this virus. So they're able to look at the virus in humans and trace it all the way back and say this is where it started.

Camera these animals in this case bats that's right. So if you compare that information it's basically so say or that for that to happen randomly is practically impossible. So we know the ancestor of the virus in humans had to be about cars. People always talk about patient zero. About trying to get back to the first patient. Or I had that switch in a case like this is virtually impossible to do.

But why is it important to find out word originated what animal it started in. Okay so when you look at what we call zoonotic transmission, so basically it's from an animal to a human. What you often want to understand is what are the conditions that really lead to that kind of transmission.

So knowing where the virus comes from is important from an epidemiological standpoint. It's if it comes from bats, could we prevent such emergence by preventing the contact of human and animal or Wildlife in this case bats. So it's important to know where a virus comes from.

Is this virus going to mutate

One of the big questions I get from viewers is, is this mutating as this virus going to mutate and we're gonna have to do something. Like we do it's a flu or could it even be more deadly? Is that something to be scared of ?

Well a virus always mutates. Just by nature viruses mutate quite quickly and that's part of their adaptation to their new hosts and so it will mutate. **And it's very possible that it'll be like flu where the mutations will lead to new surface proteins and that's what our immune system recognizes.** Or basically the proteins on the surface of the virus and the virus. It's possible that corona virus will be like flu, where although now we're all susceptible and we will eventually you know.

70 to 80 percent of us will catch it

We suspect maybe 70 to 80 percent of us will catch it. That means we will have some resistance against that version of the virus. **And it's possible that it becomes a seasonal karna virus like we see in the human population. We have human karna viruses that come back every year. And it's possible that Tsarskoe v will be becoming one of those seasonal epidemics.** We just don't know at this point.

And the vaccine would have to be a dated every year, just like the flu. And up until a couple weeks ago is called novel coronavirus. That novel meaning it's new. And so what you're saying is,

since it's new and our bodies haven't found us before,

we don't really have much protection against it.

But that protection might build up over time.

All flu seasonal flu that we see today were pandemics decades ago

Correct that's right and that's what happens with the flu. **All flu seasonal flu that we see today were pandemics decades ago,** So the 1918 flu that we always talk about as the worst pandemic we've seen in our in our history, actually is now a seasonal flu, or became a seasonal flu. Until we had another pandemic in 2009. And this one also has become a seasonal flu excellent. So hopefully it gets to that point where this corona virus turns seasonal - and and isn't affecting as many people as fast.

Conclusion

We can't wait a year for that vaccine, then the weak are no longer with us.

And the explanation that every flu started as a pandemic and that Corona will probably just come back every year. That it will mutate, and that the vaccine will not even work the following year. So I think vaccines are really not a solution. We don't have time in these situations.

Group immunity is also explained a bit better so that people can see that we are not at home to avoid being infected, but to prevent the peak so that care can handle it. They expect a large part of the population to get it. So that lock down doesn't stop corona. That's why I focus on preparing for battle and collecting plasma as soon as possible, to catch those that fall !

[Here confirmation from the NOS Dutch about that year waiting.](#) So antibodies are the way, Vaccines will not work in a year, after the virus has mutated. Antibodies grow along with the mutation.



sciencealerte Trending

HEALTH

Here's Why It's Taking So Long to Develop a Vaccine For The New Coronavirus

ROB GRENFELL & TREVOR DREW, THE CONVERSATION 17 FEBRUARY 2020

The World Health Organisation said this week it may be 18 months before a vaccine against the coronavirus is publicly available.

Let's explore why, even with global efforts, it might take this long.

[Here's Why It's Taking So Long to Develop a Vaccine For The New Coronavirus](#)

The World Health Organisation said this week it may be **18 months before a vaccine against the coronavirus is publicly available.**



[Vaccine Testing and the Approval Process - CDC](#)

Development of New Vaccines

The general stages of the development cycle of a vaccine are:

- Exploratory stage
- Pre-clinical stage
- Clinical development
- Regulatory review and approval
- Manufacturing
- Quality control

Clinical development is a three-phase process. During Phase I, small groups of people receive the trial vaccine. In Phase II, the clinical study is expanded and vaccine is given to people who have characteristics (such as age and physical health) similar to those for whom the new vaccine is intended. In Phase III, the vaccine is given to thousands of people and tested for efficacy and safety.

Many vaccines undergo Phase IV formal, ongoing studies after the vaccine is approved and licensed.

[The Journey of Your Child's Vaccine-Centers for Disease Control and Prevention \(CDC\) 5:39](#)

[Vaccine Product Approval Process-FDA](#)

[How Long Will It Take to Develop a Vaccine for Coronavirus? Healthline](#)

Medication ■

Drug treatment options in patients with COVID-19 (infections with SARS-CoV-2)



In vitro data are available for various agents that demonstrate antiviral activity against SARS-CoV-2, the causative agent of COVID-19. Based on safety, additional data from animal or human studies and availability, 3 agents are currently the most eligible: chloroquine, hydroxychloroquine and remdesivir. Pending the results of prospective randomized studies, it may now be considered to add chloroquine, hydroxychloroquine or remdesivir to optimal *supportive care* if available in a serious infection. Administration of off-label drug therapy should preferably be conducted in a research setting or through a data recording with standardized recording of patient characteristics and outcomes (eg ISARIC) in order to obtain more evidence for effectiveness and safety.

Dutch Working Party on Antibiotic Policy (SWAB)

The major goal of the Dutch Working Party on Antibiotic Policy (Dutch acronym is SWAB) is to contribute to the containment of the development of antimicrobial resistance and of the expanding costs of the use of antibiotics. This is achieved by optimizing the use of antibiotics by means of guideline development, education and antibiotic resistance surveillance.

3 agents are currently the most eligible: chloroquine, hydroxychloroquine and remdesivir.

Waarom er nog altijd geen medicijn tegen corona is-Een Vandaag 2:27 Dutch

Chloroquine is a medication primarily used to prevent and treat malaria in areas where malaria remains sensitive to its effects. Certain types of malaria, resistant strains, and complicated cases typically require different or additional medication. **Chloroquine** is also occasionally used for amebiasis that is occurring outside the intestines, rheumatoid arthritis, and lupus erythematosus.

While it has not been formally studied in pregnancy, it appears safe. It is also being studied to treat COVID-19 as of 2020. It is taken by mouth.

Common side effects include muscle problems, loss of appetite, diarrhea, and skin rash. Serious side effects include problems with vision, muscle damage, seizures, and low blood cell levels. Chloroquine is a member of the drug class 4-aminoquinoline. As an antimalarial, it works against the asexual form of the malaria parasite in the stage of its life cycle within the red blood cell. How it works in rheumatoid arthritis and lupus erythematosus is unclear.

Chloroquine was discovered in 1934 by Hans Andersag. It is on the World Health Organization's List of Essential Medicines, the safest and most effective medicines needed in a health system. It is available as a generic medication. The wholesale cost in the developing world is about US\$0.04. In the United States, it costs about US\$5.30 per dose.

Zink blocks viral reproduction, chloroquine multiplies the Zink further
COVID-19 Update 8: Zinc and chloroquine for the treatment of COVID-19? 9:02

Remdesivir (development code GS-5734) is a novel [antiviral drug](#) in the class of [nucleotide analogs](#). **Remdesivir** is an [adenosine](#) analogue, which incorporates into nascent viral RNA chains and causes their pre-mature termination. It was developed by [Gilead Sciences](#) as a treatment for [Ebola virus disease](#) and [Marburg virus](#) infections, though it subsequently was found to show antiviral activity against other single stranded RNA viruses such as [respiratory syncytial virus](#), [Junin virus](#), [Lassa fever virus](#), [Nipah virus](#), [Hendra virus](#), and the [coronaviruses](#) (including [MERS](#) and [SARS viruses](#)). It is being studied for [SARS-CoV-2](#) and [Henipavirus](#) infections. **Based on success against other coronavirus infections**, Gilead provided remdesivir to physicians who treated an American patient in [Snohomish County, Washington](#) in 2020, who was infected with [SARS-CoV-2](#), and is providing the compound to China to conduct a pair of trials in infected individuals with and without severe symptoms.

Hydroxychloroquine (HCQ), sold under the brand name **Plaquenil** among others, is a medication used to prevent and treat [malaria](#) in areas where [malaria](#) remains sensitive to [chloroquine](#). Other uses include treatment of [rheumatoid arthritis](#), [lupus](#), and [porphyria cutanea tarda](#). It is taken by mouth. It is also being studied as an experimental treatment for [coronavirus disease 2019](#) (COVID-19).

Common side effects include [vomiting](#), [headache](#), changes in vision, and muscle weakness. Severe side effects may include [allergic reactions](#). Although all risk cannot be excluded, it remains a treatment for [rheumatic disease](#) during pregnancy. **Hydroxychloroquine** is in the [antimalarial](#) and [4-aminoquinoline](#) families of medication.

Hydroxychloroquine was approved for medical use in the United States in 1955. It is on the [World Health Organization's List of Essential Medicines](#), the safest and most effective medicines needed in a [health system](#). In 2017, it was the 128th-most-prescribed medication in the United States, with more than five million prescriptions.

Prof. Didier Raoult

Didier Raoult (born March 13, 1952 in Dakar, Senegal) is a French [physician](#) and [microbiologist](#). He holds [M.D.](#) and [Ph.D.](#) degrees and specializes in infectious diseases. In 1984, Raoult created the [Rickettsia](#) Unit at [Aix-Marseille University](#) (AMU). He also teaches infectious diseases in the Faculty of Medicine of Aix-Marseille University, and since 1982 has supervised many M.D. and Ph.D. degrees.

Since 2008, Raoult has been the director of the Unité de Recherche sur les Maladies Infectieuses et Tropicales Emergentes (URMITE; in English, Research Unit in Infectious and Tropical Emergent Diseases), collaborating with [CNRS](#) (National Center for the Scientific Research), [IRD](#) (Research for the Development Institute), [INSERM](#) (National Institute of Health and Medical Research) and the [Aix Marseille University](#), in [Marseille](#). His laboratory employs more than 200 people, including 86 researchers who publish between 250 and 350 papers per year and have produced more than 50 patents. Raoult has also been involved in the creation of eight startups.

COVID-19 See also: [2020 coronavirus pandemic in France](#)

On 17 March 2020, Raoult announced that a trial involving 36 patients from the south east of France supported the claim that [Hydroxychloroquine](#) and [Azithromycin](#) were effective in treating for COVID-19. The French Health Minister, [Olivier Véran](#), was reported as announcing that "new tests will now go ahead in order to evaluate the results by Professor Raoult, in an attempt to independently replicate the trials and ensure the findings are scientifically robust enough, before any possible decision might be made to roll any treatment out to the wider public".

In direct reference to the study conducted by Raoult and the possible health ramifications, Véran went on to state: "Dr. Raoult's study involves 24 people. What kind of health minister would I be if, on the basis of a single study conducted on 24 people, I told French people to take a medicine that could lead to cardiac complications in some people?" The French media also reported that the French pharmaceutical company Sanofi had offered French authorities millions of doses of the drug for use against COVID-19.

Feb 28, 2020

[Chloroquine : pourquoi les Chinois se tromperaient-ils ?- IHU Méditerranée-Infection 6:59](#)

[Prof. Didier Raoult Discusses Coronavirus and Chloroquine](#)

Mar 9 ,2020

[A first clinical test on 24 coronavirus patients in Marseille](#)

Mar 18, 2020

[Report: This French researcher says there was a successful COVID-19 drug trial](#)

“At this moment in time there is no proven effective treatment for COVID-19 so that is clear at this moment in time. However there are ongoing clinical trials being done in China at this moment as well. The two that we’ve already discussed are testing the priority therapeutics that were prioritized by the WHO R&D blueprints and that includes **lopinavir and ritonavir as well as remdesivir**. For chloroquine there is no proof that that is an effective treatment at this time. We recommend that therapeutics be tested under ethically approved clinical trials to show efficacy and safety.”

Mar 19, 2020 1:37

[Trump touts chloroquine, old malaria drug that doctors say may help treat coronavirus | ABC News](#)

Mar 22, 2020

[Chloroquine and Hydroxychloroquine for Coronavirus: Does it Work?-CardioGauge 4:12](#)

Mar 27, 2020

Italy and France now prescribing hydroxychloroquine for coronavirus despite fact its effectiveness is unknown

[Vital drug for people with lupus running out after unproven Covid-19 link](#)

Mar 30, 2020

[Hydroxychloroquine and Coronavirus Update: New Study from France-CardioGauge 9:01](#)

Apr 5, 2020

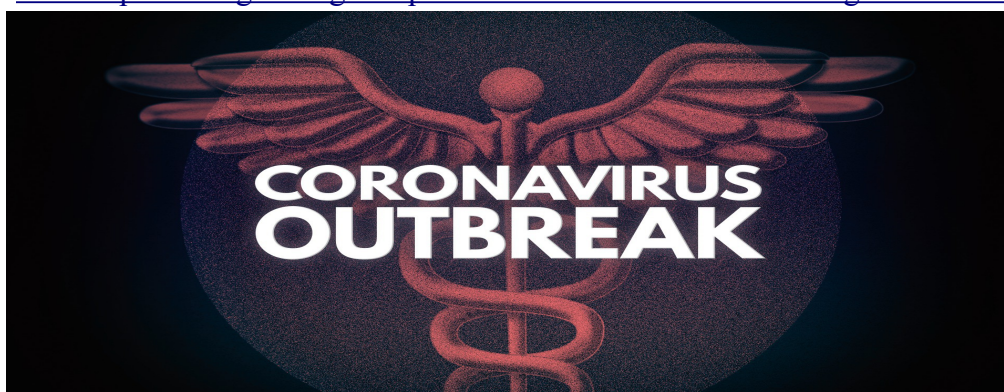
[Hydroxychloroquine and Coronavirus Update... and What is Long QT?-CardioGauge 6:18](#)

And off course Soap, as we already learned.

There are two types of viruses, those with a lipid, or fatty outer shell and those that have a protein coating called a capsid. For the viruses that have a lipid shell you can use common soap to basically tear apart the outer coating and deactivate the virus. The remaining parts can then be washed down the sink and are harmless. The great thing about this is it only takes about 20 seconds of thorough hand washing with soap and water to do this. The COVID virus has a lipid shell so it can be deactivated using soap.

Mar 2, 2020

[Coronavirus lab tests at CDC may be contaminated as Trump challenges drug companies to combat out-CBS Evening News 1:42](#)



H1N1 – How a pandemic evolves. ■



**Deadliest
plague of the
20th century**

**Spanish Flu
of 1918**

1918 Spanish Flu historical documentary | Swine Flu Pandemic | Deadly plague of 1918 [40:01](#)

The pandemic that is most feared:

1) [“Spanish flu” or H1N1 influenza virus](#) = wiki

The Spanish flu was the first of two pandemics caused by the H1N1 influenza virus; the second was [the swine flu in 2009](#).

Now we have the name of that pandemic **H1N1**:

2) [Influenza A virus subtype H1N1](#) = wiki

Influenza A virus subtype H1N1 (A/H1N1) is the subtype of influenza A virus that was the most common cause of human influenza (flu) in 2009, and is associated with the 1918 Spanish flu.

[Influenza Milestones 1917 – 2009 Timeline CDC](#)

1919

Third wave of pandemic flu activity occurs. Pandemic subsides, but virus (H1N1) continues to circulate seasonally for 38 years.

1957

H2N2 flu virus emerges to trigger a pandemic, replacing the 1918 H1N1 pandemic virus.

1968 MUTATION

H3N2 flu virus emerges to trigger a pandemic, replacing H2N2 virus.

2009

H1N1 viruses distantly related to the 1918 virus emerge to trigger a pandemic.

So, How did they beat that ? They didn't.

3) [Spanish Flu Pandemic Ends](#) = history 1918-flu-pandemic

By the summer of 1919, the flu pandemic came to an end, as those that were infected either died or developed immunity.

So is it still active now ? [RIVM translated to english](#)

4) In the period from September 30, 2019 to March 29, 658 influenza viruses were received by the Erasmus MC Erasmus Medical Center: 648 times type A (of which 176 subtype A (H3N2) and **121 subtype A (H1N1) pdm09**) and 10 times type B (of which 4 Victoria line).

Summary flu epidemic 2018/2019

The flu epidemic in 2018/2019 in the Netherlands lasted 14 weeks, from December 10, 2018 to March 17, 2019. This is longer than the average of 9 weeks in the past 25 years. At the beginning of the epidemic, samples taken from patients with flu-like complaints who went to their GP mainly found RSV and rhinoviruses. The proportion of influenza virus increased in early 2019. This winter mainly influenza A viruses and little influenza B virus occurred, while the previous 2017/2018 season was mainly an influenza B season. Of all influenza viruses found so far in patients with flu-like complaints at the GP,

52% were influenza virus type A (H1N1) pdm09,

46% were type A (H3N2) and 1% were type B.

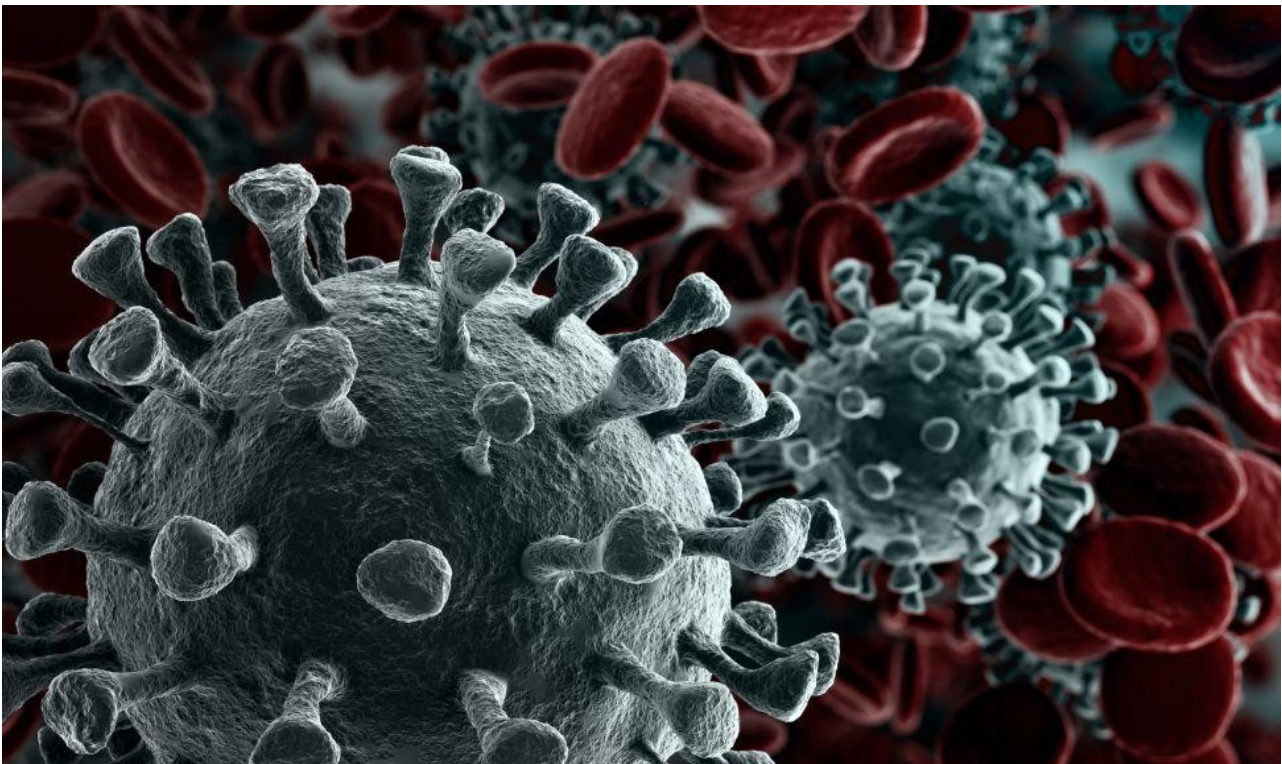
In the early influenza season, influenza was type A (H1N1) pdm09 found, towards the end of the season mainly type A (H3N2) was found. In other European countries, influenza A and low influenza B occurred mainly during this flu season.

The composition of the vaccine for the 2019/2020 season:

- A / Brisbane / 02/2018 (**H1N1**) pdm09-like virus;
- A / Kansas / 14/2017 (H3N2) -like virus;
- B / Colorado / 06/2017-like virus (B / Victoria / 2/87 line);
- B / Phuket / 3073/2013-like virus (B / Yamagata / 16/88 line)

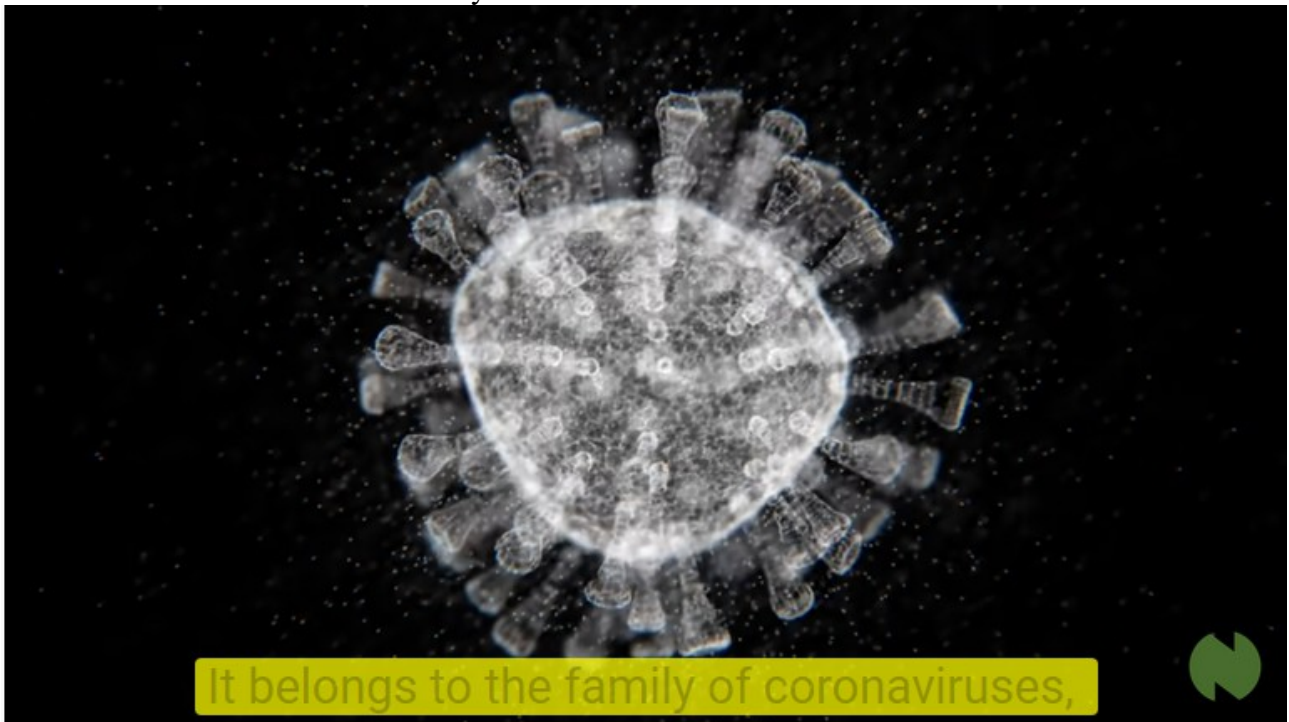
All flu seasonal flu that we see today were pandemics decades ago.

**So as you see humanity adapts to a virus,
But we do not kill it,
As one can not kill that which is not alive !**



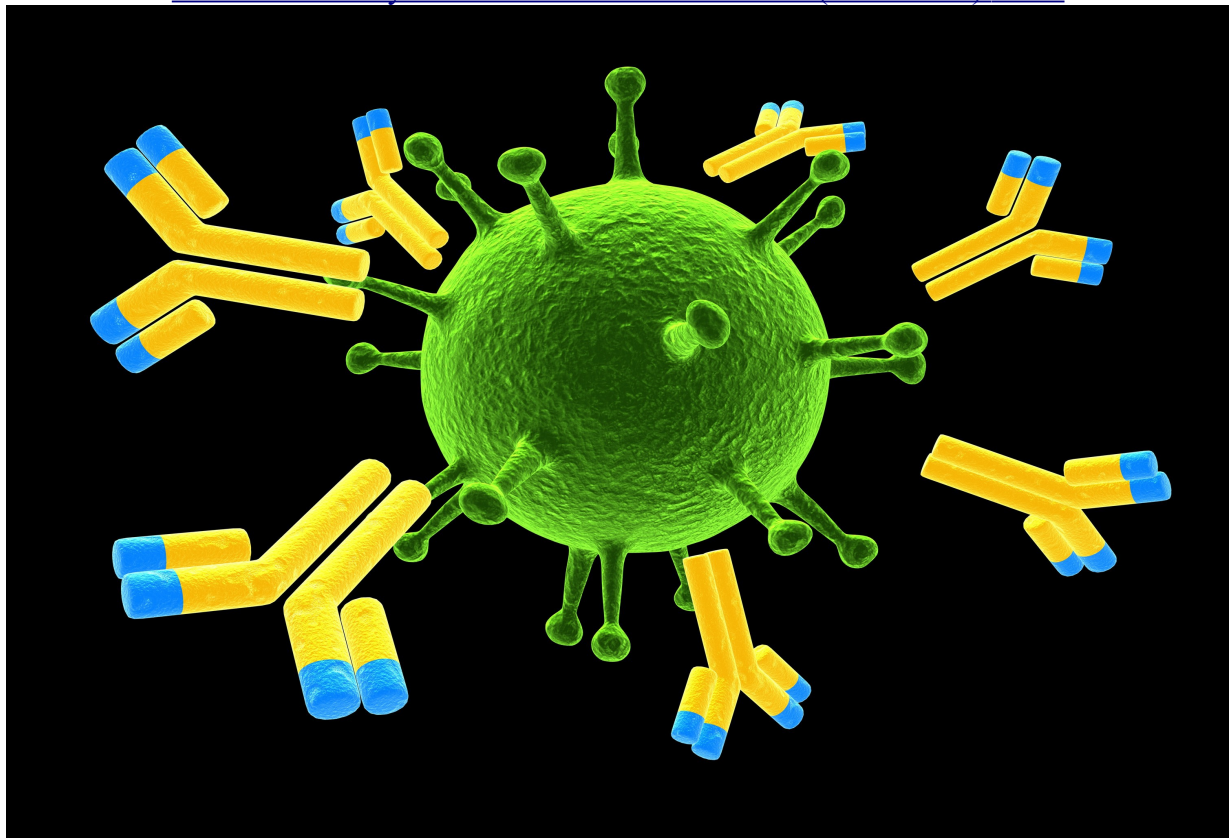
What It's Actually Like To Have The Coronavirus ■

Okay that was phase one to know the about basics and to check where the weakness lies in that which we want to get rid of. There still are many victims so the medications I showed are not working as we would want them to work. So now let's see how it affects us and if there is any weakness in it to be found in that way.



[COVID-19 Animation: What Happens If You Get Coronavirus?-Nucleus Medical Media 7:27](#)

[What It's Actually Like To Have The Coronavirus \(COVID-19\) 10:41](#)



Italian Doctor Corona Experiences



[Italian doctor on how virus 'exploded', having coronavirus & how to fight it 13:26](#)

Before this point we learned that A NURSE brought the virus into a nursing home. THAT is why i was amazed to learn that nurses are not tested. Nurses should be tested every day before they go into the nursing house where those in the risk factor are locked. Else locking the nursing house down also doesn't make sense. I know that in Ireland visitors are not allowed into nursing houses hope Dutch do the same. But corona can still be brought in by nurses. So that simply should be the first priority for governments. [Test these frontline workers well](#). Their doing great work those heroes, but they need support on this ASAP.

[She was one of the first that got it](#), so this doctor is actually one of the survivors. And she as well explains that some doctors had light symptoms. We only get to see the worst cases.

[Next to the hospital they have a nursing home](#), and they don't even send the elderly to IC ones above 80 years of age. In the Netherlands the 50+ political party also asked questions about this as [elderly got letters asking if they wanted to be resuscitated or not](#). In Italy their already that overstretched that they chose to only help the younger if i understand well. And that is hurting the nurses as they obviously want to save lives no matter the age of the patient.



**A vaccine takes too much time, medication not efficient enough, we can't kill it.
So what about adapting to it, by use of antibodies to become immune ?**

How infectious is Corona and is there immunity ? ■



We're learning a lot about the coronavirus. It will help us assess risk

March 6, 2020, Maria Van Kerkhove, head WHO's emerging diseases and zoonoses unit.

People can shed virus for weeks after they have recovered. But that doesn't mean they are infectious. There have been a number of studies that suggest Covid-19 patients may shed virus in stool or from their throats for some time after they've recovered. That naturally raises concerns about whether they are still infectious. It's too soon to draw that conclusion.

Testing for these viruses is based on what's known as PCR — polymerase chain reaction. It's a process that looks for tiny snippets of the genetic code of the virus in sputum from a throat or nasal swab, or in stool.

Finding that recovered patients are emitting virus fragments does not mean they are shedding whole viruses capable of infecting others. To determine if they are, scientists need to try to grow viruses from the sputum or stool of recovered Covid-19 patients, Van Kerkhove said.

The report from the WHO mission that traveled to China concluded that viable — i.e. potentially infectious — virus has been isolated from stool in some cases, but it questions whether that means much for spread of a virus that attacks the respiratory tract. Those mainly spread by coughs and sneezes.

People probably aren't being re-infected after recovery, Maria Van Kerkhove, head WHO's emerging diseases and zoonoses unit.

There has been concern on social media about reports of people getting infected, recovering, and then later developing symptoms again. Some scientists from China have suggested the virus is able to re-infect people after a very short time.

Van Kerkhove said this probably is not what is happening. In fact, it would be unusual if an immune system that had just fought off a viral invader would forget how to recognize it and fend it off within a period of days or a few weeks.

What more likely, Van Kerkhove said is this: In order for hospitalized Covid-19 patients to be released after an infection they have to test negative for the virus twice, in tests conducted 24 hours apart. In some cases, people have had the two negative tests — but then tested positive again later.

Van Kerkhove said those results likely reflect more about the way the tests were conducted than about the status of the patient — how a throat swab was taken, for instance. "I don't think that they're actually truly negative and then they get re-infected again. It's likely that they're still positive for some time."

Can you be immune to coronavirus?

In the same way the flu can mutate, it is possible COVID-19 could do the same, meaning someone could contract it twice. Dr Stephen Gluckman, an infectious diseases physician at Penn Medicine said it is likely getting the virus once results in immunity for most people, just like other corona viruses. He said: "Coronaviruses aren't new, they've been around for a long, long time and many species not just humans get them." So we know a fair amount about coronaviruses in general. For the most part, the feeling is once you've had a specific coronavirus, you are immune.

How do viruses jump from animals to humans? - Ben Longdon-TED-Ed 5:04

Immunity ■



Why do you think we're home now? Indeed so that the hospitals are not overcrowded. But in the meantime, there are singles with corona who really just get their own groceries. coughing on the packaging, you take the product, the fruit fly flies into your eye, you scratch it and you have it. And the government knows that, which is why they are talking about Group immunity. Like I explained a virus is not alive, therefore they are also afraid of a virus from under the ice, millions of years old.

How can that still live?, indeed it does not live, so does not know death either. Understanding that, what do you want to do washing the whole country with soap? That does not work, there are already so many infections that the infected have already left traces everywhere. Sit on top of or touch, and we are infected. Governments knows that 60% infection is needed for immunity.

Population Netherlands 17,126,325 [171 263,25 = 1%]
Infected cases Netherlands...20 549
 $20\ 549 / 171\ 263,25 = 0,1199848770825031 \%$

So you understand the scale we are talking about, We are not even at 1%

But that large part is not those who are now in the hospital, it is us who will soon be released and then get sick. Then we are going to build that group immunity. That is simply unavoidable now that so many have been infected, and it has spread this far. But many of us already had it, yet hardly noticed we had it. And it's that group hopefully the great majority that does not show up in statistics.

[Elder recovered says flu is worse,](#)

So how can we figure out how many in that unseen part of the population already had it ?

IgM/IgG, Antibodies explained. ■



Antibodies

After the basics various antibody tests from various different companies that all basically create the same test. This is not a new experimental method as this test has been used for a while so was only made easier to use and faster in giving results 3 up to 15 min time to get results. After that an example of a normal Corona test. That test will take longer before giving results and is more expensive and that can't see if the patient has antibodies or not.

[Video 15 Ig Antibodies and Immunoglobulin Function 2:39](#)

- First the body creates IgM, More rapid production, Sprinters
- Followed by IgG, Slow production, Long Distance Runners
- As the disease progresses IgM gradually disappear after efficient medical treatment
- IgG antibodies persist for a long time

[Immunoglobulin M \(IgM\)](#) is one of several isotypes of antibody (also known as immunoglobulin) that are produced by vertebrates. IgM is the largest antibody, and it is the first antibody to appear in the response to initial exposure to an antigen. In the case of humans and other mammals that have been studied, the spleen, where plasmablasts responsible for antibody production reside, is the major site of specific IgM production.

[Immunoglobulin G \(IgG\)](#) is a type of antibody. Representing approximately 75% of serum antibodies in humans, IgG is the most common type of antibody found in blood circulation. IgG molecules are created and released by plasma B cells. Each IgG has two antigen binding sites.

MedCram - Medical Lectures Explained CLEARLY

[Coronavirus Pandemic Update 42: Immunity to COVID-19 and is Reinfection Possible? 18:33](#)

[IgG had immunity long ago Vs IgM recently infected](#)

[Antibody](#)

There has recently been an increased interest in the development and deliverance of an antibody test, which may be able to help prevent further spread of the virus.

Serological test ■

Serology is the scientific study of [serum](#) and other [body fluids](#). In practice, the term usually refers to the [diagnostic](#) identification of [antibodies](#) in the serum. Such antibodies are formed in response to an infection (against a given [microorganism](#)), or other foreign proteins (in response, for example, to a [mismatched blood transfusion](#)), or to one's own proteins (in instances of [autoimmune disease](#)).

Serological tests may be performed for diagnostic purposes when an [infection](#) is suspected, in rheumatic illnesses, and in many other situations, such as checking an individual's [blood type](#). Serology blood tests help to diagnose patients with certain immune deficiencies associated with the lack of [antibodies](#), such as [X-linked agammaglobulinemia](#). In such cases, tests for antibodies will be consistently negative.

Serological methods are diagnostic methods that are used to identify antibodies and antigens in patients sample which is serum and plasma. There are some classical serological methods like Agglutination and Precipitation that are used to identify infectious diseases and human blood grouping typing.

There are several serology techniques that can be used depending on the antibodies being studied. These include: [ELISA](#), [agglutination](#), [precipitation](#), [complement-fixation](#), and [fluorescent antibodies](#) and more recently chemiluminescence.

Some serological tests are not limited to blood serum, but can also be performed on other bodily fluids such as [semen](#) and [saliva](#), and cerebrospinal fluid (CSF) which may contain antibodies.

Serological tests may also be used in [forensic serology](#), specifically for a piece of evidence (e.g., linking a rapist to a semen sample).

Serological surveys

Serological surveys are often used by [epidemiologists](#) to determine the prevalence of a disease in a population. Such surveys are sometimes performed by random, anonymous sampling from samples taken for other medical tests or to assess the prevalence of antibodies of a specific organism or protective titre of antibodies in a population. Serological surveys are usually used to quantify the proportion of people or animals in a population positive for a specific antibody or the titre or concentrations of an antibody. These surveys are potentially the most direct and informative technique available to infer the dynamics of a population's susceptibility and level of immunity.

Can I get a home testing kit for coronavirus in the UK?

It was recently reported that home testing kits for coronavirus could become available in a “couple of weeks”. Professor Yvonne Doyle, medical director at PHE, stated that plans were in place for “a million tests that people can do themselves”.

“In other words, members of the public will be able to take a blood test and send it back in the post and get that analysed,” she told the health and social care committee on Thursday 26 March. “That is an antibody test that tells you if you have had the condition.

“We expect that to come within a couple of weeks but I wouldn’t want to over promise on that, and I think the chief medical officer has been absolutely clear on it being right before it is put out.”

The government has launched a new partnership with several companies, including Amazon, Boots and the Wellcome Trust to help increase testing for frontline NHS staff.

On the government’s website, it states that it is “[urgently analysing the reliability of home testing kits that do not need labs](#)”.

“These could be a game-changer — if they are reliable,” it adds.

Singapore claims first use of antibody test to track coronavirus infections, sciencemag

Feb. 27, 2020



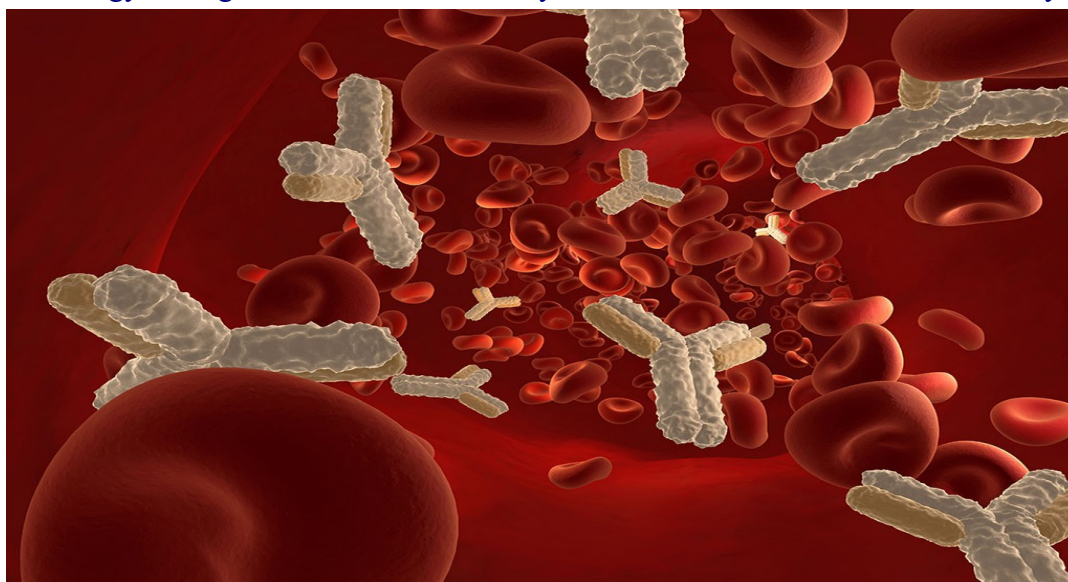
Singapore First to Test Out COVID-19 Serological Assay in Outbreak Contact Tracing

28 Feb 2020



New blood tests for antibodies could show true scale of coronavirus pandemic, sciencemag

Serology testing for COVID-19 February 28, 2020-PDF, centerforhealthsecurity



[CDC developing serologic tests that could reveal full scope of U.S. coronavirus outbreak](#)

March 11, 2020, Maria Van Kerkhove.



CDC developing **serologic tests** that could reveal full scope of U.S. coronavirus outbreak
Researchers in China and Singapore have also developed serologic tests and have initiated these types of studies, according to the World Health Organization. **The agency has called on all countries with cases to conduct this kind of epidemiological work.**

“These types of studies should be conducted now,” Maria Van Kerkhove, who heads WHO’s emerging diseases and zoonoses unit, recently told STAT. “This is one of the major things that needs to be done now. And everywhere. Not just in China. In the U.S., in Italy, in Iran — that would give us a better understanding of where this virus is and if we’re truly missing a large number of cases.”

She added: “Until we have population-based sero-surveys, we really don’t truly know.”

At a press briefing in Geneva Wednesday, Van Kerkhove called for the public sharing of the results from serologic studies and said the WHO hopes to have some data in the coming weeks from China.

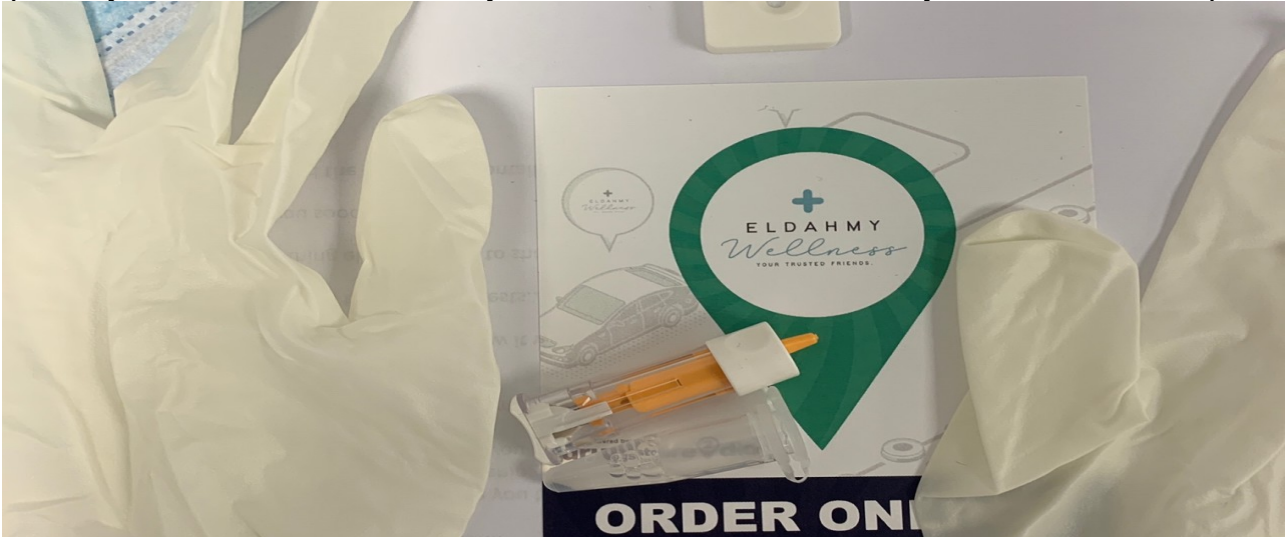
“It will take some time,” she said. “We do need to give them the time to run these sero-epi investigations.”



IgM-IgG, Antibody tests ■

Blood transfusion to cure Corona

A couple of test kits to see their available and the testing method explained. Nurses in nursing houses are first to be testing these, as they need to have these antibodies to do their job. But this probably becomes available to healthy civilians as well. So the cure may be closer then we expect.



COVID-19 Antibody Test Reliability-Newsy 3:40

- 1) Alcohol tissue to clean skin surface**
- 2) Make sure the alcohol dried, else you mess up the test**
- 3) Prick the finger and wipe first blood drop off**
- 4) Suck off the drop of blood, intill you have enough in the tool**
- 5) Put blood drop into the well of the cassette**
- 6) Put 2 drops of the fluid into the well**
- 7) Start the timer**
- 8) Results are there in 10-15 min, values read after 20 min are invalid**

Before Corona showing its not experimental

Jan 19, 2015 - LumiQuick
[Dengue Antibody IgG / IgM Test 1:40](#)

Aug 16, 2017 - Microhub Plus
[Leptospira IgM and IgG test 0:31](#)

Serological test, 6 pond per test, [Sure Screen](#)

Rapid finger-prick test for coronavirus, [alphabiolabs](#)
Identify COVID-19 infection before symptoms appear
Screen workforce and isolate carriers immediately
Four simple steps with results in under 15 minutes
Each kit screens one person. Single use
CE Marked and certified for professional / business use only

Corona Rapid Test Kit - COVID-19 IgM/IgG

[CoronaCheck](#) tests detect IgM and IgG antibodies to SARS-CoV-2 using a blood specimen.

COVID-19 IgG IgM Tests

- ✓ Feb 24, 2020 - Bioeasy, looks great many options in results
[BIOEASY COVID-19 IgG IgM GICA Rapid Test Kit 0:52](#)
- Feb 24, 2020 - [Xiamen Biotime](#)
[SARS CoV-2 IgG/IgM Rapid Test is used to detect COVID-19 0:49](#)
- Mar 5, 2020 - Zhejiang Orient Gene Biotech - Gates Foundation
[Coronavirus/COVID 19 IgG IgM Test Cassette - Zhejiang Orient Gene Biotech 4:28](#)
- Mar 11, 2020 - SAFECARE BIOTECH(HANGZHOU)CO.,LTD
[How to use the SAFECARE COVID-19 Antibody IgG/IgM rapid test? 0:43](#)
- Mar 17, 2020 - Confirm BioSciences 3 minute test
[Coronavirus \(COVID-19\) Rapid Test Kit 1:25](#)
- Mar 19, 2020 - Genkord Kordon Kanı ve Kök Hücre Bankası
[Covid-19 Rapid Combo Test IgG/M 2:19](#)
- Mar 20, 2020 - Artron Lab
[Artron One Step COVID-19 Antibody Rapid Test Kit 3:31](#)
- Mar 21, 2020 - Ringbio
[COVID-19 IgM/IgG Rapid Test Kit 2:09](#)
- Mar 24, 2020 - Genrui Biotech Inc
[Novel Coronavirus \(2019-nCoV\) IgG/IgM Test Kit 3:01](#)
- Mar 25, 2020 - Hardy Diagnostics
[Demonstration of NEW COVID-19 Test Anti-SARS-CoV-2 Rapid Test 2:46](#)
- Mar 25, 2020 - Wilburn Medical USA
[COVID 19 Rapid Test Kits for Healthcare Professionals Coronavirus Testing 1:14](#)
- Mar 26, 2020 - Sign-in-China
[One Step Test for Novel Coronavirus \(2019-nCoV\) IgM/IgG Antibody \(colloidal gold\) 0:38](#)
- Apr 2, 2020 - MedLevensohn [Brazil]
[MedLevensohn® | MedTeste Coronavirus \(COVID-19\) IgG/IgM 4:09](#)
- Apr 2, 2020 - [Sugentech](#)
[How to test COVID-19 with fingertip blood using SGTi-flex COVID-19 IgM/IgG 2:13](#)
- ✓ Apr 3, 2020 - Assurance AB Benefits - 2 sampling wells, each its own well !
[How to: Assurance AB™ COVID-19 IgM/IgG Rapid Antibody Test 1:42](#)
- Apr 3, 2020 - Aidian
[How to perform the Acro 2019 nCoV IgG:IgM Rapid Test final 2:27](#)
- Mar 19, 2020 - Civilian doing test himself - ZimmerPeacock
[Testing my blood for antibodies associated with COVID-19 7:27](#)

Normal Corona Test

- Mar 28, 2020 - AMBOSS: Medical Knowledge Distilled
[COVID-19 Diagnostics: Performing a Nasopharyngeal and Oropharyngeal Swab 3:54](#)
- Mar 29, 2020 - CepheidNews
[How Cepheid's SARS-CoV-2 Test Cartridge \(COVID-19\) is Made & How it Works 2:02](#)

Blood Test

Icahn School of Medicine at Mount Sinai

Researchers at the Icahn School of Medicine at Mount Sinai have developed an antibody test for the coronavirus and shared the directions online for how to make it so labs around the globe can duplicate it, according to a report. [Mount Sinai researchers develop test for coronavirus antibodies](#)

[Coronavirus \(COVID-19\) Facts and Resources](#)

[Mount Sinai-US scientists develop crucial blood test for coronavirus antibodies](#)

[Coronavirus: UK developing new blood test which could reveal undetected spread](#)

[New York scientists develop first US blood test that can detect who has already had coronavirus and is immune](#)

[Serology Test for COVID-19, CDC USA](#)

CDC is working to develop a new laboratory test to assist with efforts to determine how much of the U.S. population has been exposed to severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19.

The serology test will look for the presence of antibodies, which are specific proteins made in response to infections. Antibodies can be found in the blood and in other tissues of those who are tested after infection. The antibodies detected by this test indicate that a person had an immune response to SARS-CoV-2, whether symptoms developed from infection or the infection was asymptomatic. Antibody test results are important in detecting infections with few or no symptoms.

Initial work to develop a serology test for SARS-CoV-2 is underway at CDC. In order to develop the test, CDC needs blood samples from people who had COVID-19 at least 21 days after their symptoms first started. Researchers are currently working to develop the basic parameters for the test, which will be refined as more samples become available. Once the test is developed, CDC will need additional samples to evaluate whether the test works as intended.

March 14, 2020

[Fake coronavirus testing kits seized at Los Angeles airport](#)

March 29, 2020

[Dr. Jon LaPook on the value of antibody tests for past coronavirus infection](#)

Mar 29, 2020

[Dr. Jon LaPook on the value of antibody tests-CBS Sunday Morning 2:21](#)

Apr 1, 2020

[U of M developing antibody test to detect asymptomatic COVID-19 cases-KARE 11 1:43](#)

Apr 3, 2020

[FDA authorizes first coronavirus blood test-CBS This Morning 3:44](#)

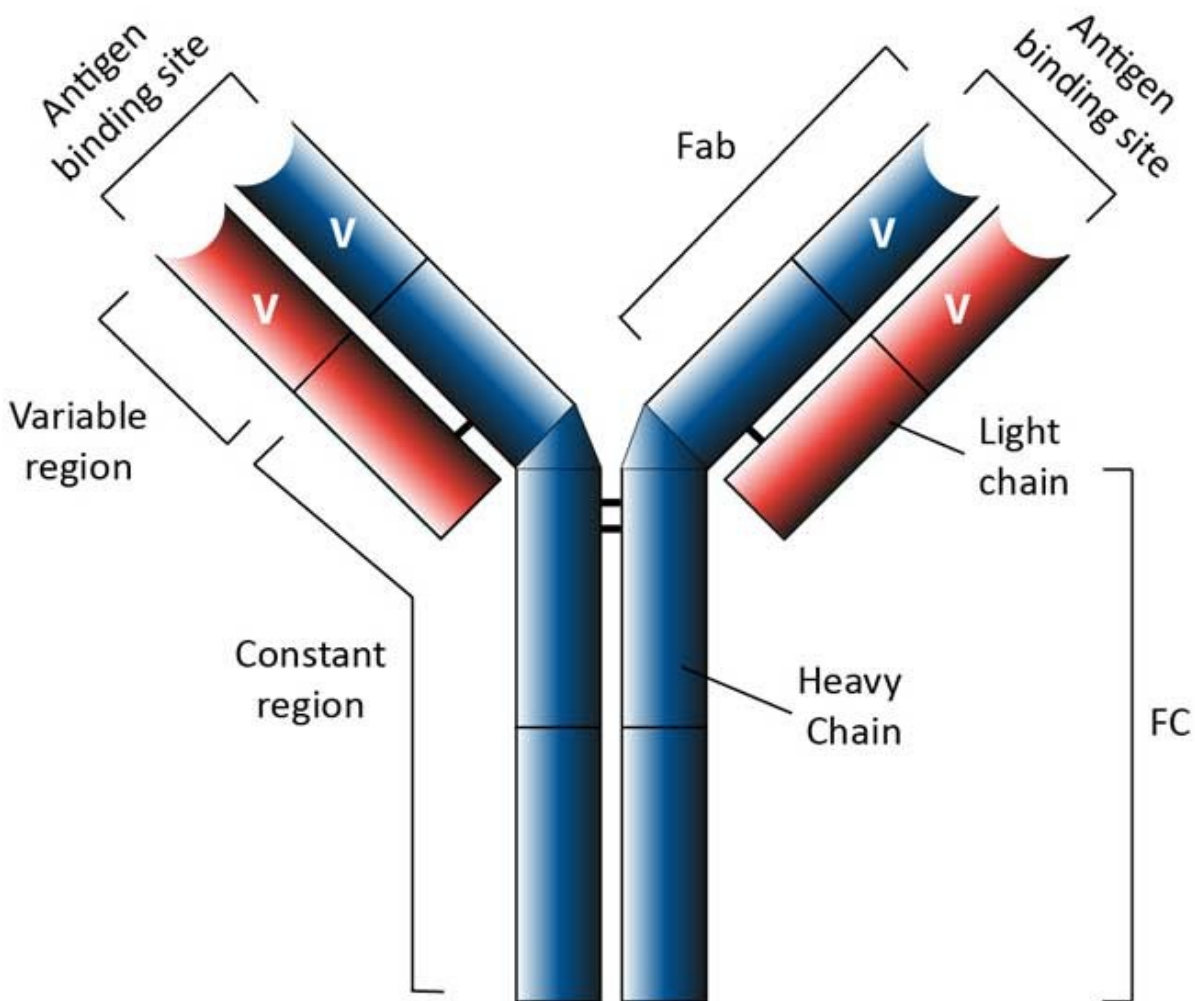
Apr 03, 2020

[San Diego pharmacy receives testing strips that can detect signs of COVID-19 in blood](#)

Apr 3, 2020, Mayo Clinic 0:44

[The crucial test to identify those who have recovered from COVID-19 and have active immunity](#)

COVID-19 testing - Detection of antibodies



Part of the immune response to infection is the production of antibodies including IgM and IgG. These can be used to detect infection in individuals starting 7 days or so after the onset of symptoms, to determine immunity, and in population surveillance.

Assays can be performed in central laboratories (CLT) or by point-of-care testing (PoCT). The high-throughput automated systems in many clinical laboratories will be able to perform these assays but their availability will depend on the rate of production for each system. For CLT a single specimen of peripheral blood is commonly used, although serial specimens can be used to follow the immune response. For PoCT a single specimen of blood is usually obtained by skin puncture. Unlike PCR methods an extraction step is not needed before assay.

On March 26, 2020, the FDA named 29 entities that provided notification to the agency as required and are now therefore able to distribute their antibody tests. One test recently approved by the FDA can give a result in 15 minutes. It has a 91% clinical specificity rate and a 99% clinical sensitivity rate, according to a news release. A highly sensitive test rarely overlooks an actual positive. A highly specific test rarely registers a positive classification for anything that is not the target of testing.

In late March 2020, Euroimmun Medical Laboratory Diagnostics and Epitope Diagnostics received European approvals for their test kits, which can detect IgG and IgA antibodies against the virus in blood samples. The testing capacity is several hundred samples within hours and therefore much faster than the conventional PCR assay of viral RNA. The antibodies are usually detectable 14 days after the onset of the infection.

Antibody test Media reports

Mar 12, 2020 New China TV

[China approves new antibody test kit for coronavirus](#)

14 MAR 2020 mirror

[Doctor claims coronavirus survivors' blood could save others from killer bug](#)

14 MAR 2020 nbcnews

[Doctors push for treatment of coronavirus with blood from recovered patients](#)

March 15, 2020 nypost

[Doctors want to treat coronavirus with blood from recovered patients](#)

Mar 23, 2020 CBS This Morning

[Why an antibody test for coronavirus is important](#)

Mar 24, 2020 ABC 10 News

[Scripps Researchers screen for Covid-19 antibodies](#)

Mar 26, 2020 CBS New York

[Coronavirus Patients Wanted For Antibodies Treatment](#)

Mar 27, 2020 FOX 13 News Utah

[Antibody test could be a game-changer in COVID-19 battle](#)

Mar 29, 2020 CBS Sunday Morning

[Dr. Jon LaPook on the value of antibody tests](#)

Mar 31, 2020 Sky News

[Antibody test could become vital weapon against coronavirus](#)

Mar 31, 2020 TLDR News

[How do Coronavirus Tests Work? \(Genetic & Antibody\) - TLDR News 12:46](#)

Mar 31, 2020 WCCO - CBS Minnesota

[Antibody Tests Could Be Key In COVID-19 Fight](#)



And these tests have a purpose for healing and making health workers immune

Convalescent Plasma History

Before Vaccines, Doctors 'Borrowed' Antibodies from Recovered Patients to Save Lives

Doctors first tried injecting patients with blood plasma in the early 1900s. The method has been used against diphtheria, the 1918 flu pandemic, measles and Ebola.

How 'Convalescent Plasma' Treatment Works



obel Prize winning German bacteriologist and physiologist Emil Adolf von Behring, right, uses a syringe to inject a guinea pig held by lab assistant, circa 1890. Stock Montage/Getty Images

Von Behring's antitoxin wasn't a vaccine, but the earliest example of a treatment method called "convalescent plasma" that's being resurrected as [a potential treatment for COVID-19](#).

Convalescent plasma is blood plasma extracted from an animal or human patient who has "convalesced" or recovered from infection with a particular disease.

"Convalescent plasma has been used throughout history when confronting an infectious disease where you have people who recover and there's no other therapy available," says Warner Greene, director of the Center for HIV Cure Research at the Gladstone Institutes. "There must be something in their plasma—i.e. an antibody—that helped them recover."

Convalescent plasma interacts differently with the immune system than a vaccine. When a person is treated with a vaccine, their immune system actively produces its own antibodies that will kill off any future encounters with the target pathogen. That's called active immunity.

Convalescent plasma offers what's called "passive immunity." **The body doesn't create its own antibodies, but instead "borrows" them from another person or animal who has successfully fought off the disease.** Unlike a vaccine, the protection doesn't last a lifetime, but the borrowed antibodies can greatly reduce recovery times and even be the difference-maker between life and death.

"Convalescent plasma is the crudest of the immunotherapies, but it can be effective," says Greene.

Plasma Treatments Cut Spanish Flu Fatalities in Half

After von Behring's antitoxin was distributed worldwide to treat diphtheria in 1895, doctors experimented with the same passive immunity technique for curing measles, mumps, polio and influenza.

During the pandemic influenza outbreak of 1918 known as the "[Spanish flu](#)," fatality rates were cut in half for patients who were treated with blood plasma compared to those who weren't. The method seemed particularly effective when patients received the antibodies in the early days of their infection, before their own immune systems had a chance to overreact and damage vital organs. In the 1930s, doctors like Gallagher used convalescent plasma effectively against measles.

Korean War Troops Were Saved by Plasma Treatments



A US Army chaplain prays while wounded soldiers get dressings and plasma at a medical station on the war front, Korea, August 10, 1950. Underwood Archives/Getty Images

By the 1940s and 1950s, antibiotics and vaccines began to replace the use of convalescent plasma for treating many infectious disease outbreaks, but the old-fashioned method came in handy yet again during the [Korean War](#) when thousands of [United Nations](#) troops were stricken with something called Korean hemorrhagic fever, also known as Hantavirus. With no other treatment available, field doctors transfused convalescent plasma to sickened patients and saved untold numbers of lives.

Greene says that convalescent plasma was even deployed against 21st century outbreaks of MERS, [SARS](#) and [Ebola](#), all novel viruses that spread through communities with no natural immunity, no vaccine and no effective antiviral treatment. Today, the best treatment for Ebola is still a pair of “monoclonal antibodies,” individual antibodies isolated from convalescent plasma and then cloned artificially in a lab.

Fighting COVID-19 With Convalescent Plasma

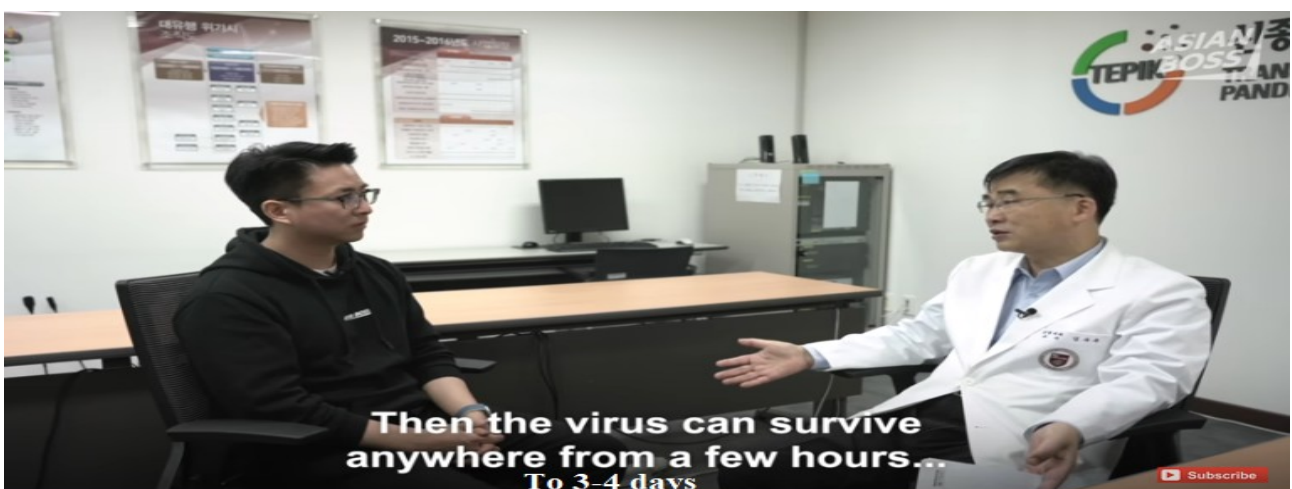
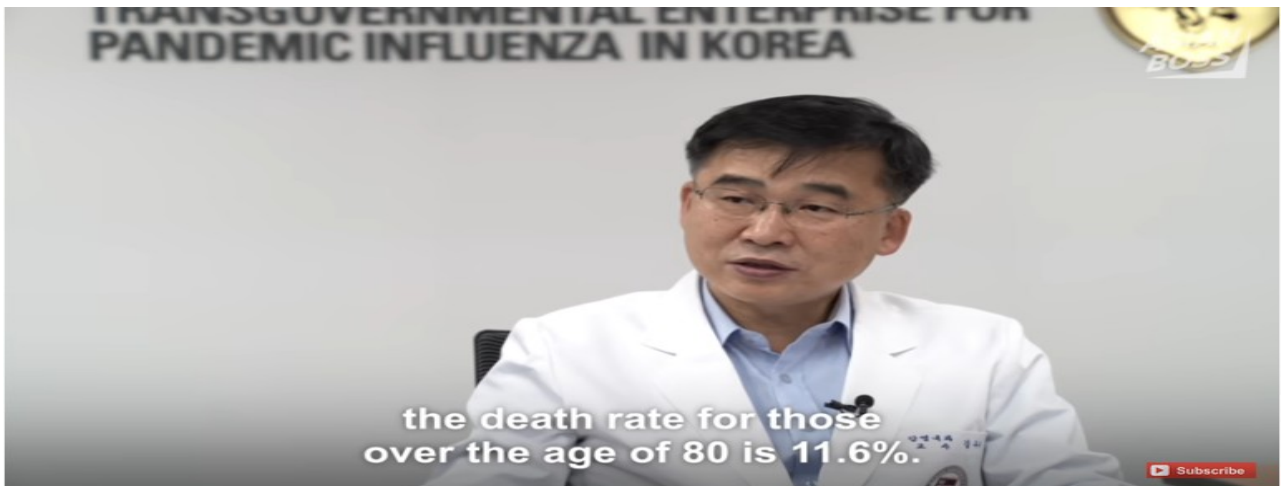


Dr. Kong Yuefeng, a recovered COVID-19 patient who has passed his 14-day quarantine, donates plasma in the city's blood center in Wuhan, China on February 18, 2020. Barcroft Media/Getty

One of the best-known modern uses of convalescent plasma is for the production of antivenom to treat deadly snake bites. Antivenom is made by injecting small amounts of snake venom into horses and allowing the horse's immune system to produce antibodies that neutralize the poison. Those equine antibodies are isolated, purified and distributed to hospitals as antivenom.

In March 2020, doctors at Johns Hopkins University began testing convalescent plasma as a promising stop-gap treatment for COVID-19 while the search continued for a permanent vaccine. The advantage of convalescent plasma is that it can be drawn from recovered patients using the same plasma separation technology used at blood banks.

"It's all doable," [says](#) immunologist Arturo Casadevall, lead researcher on the COVID-19 study, "but to get it done it requires effort, organization, resources... and people who have recovered from the disease who can donate the blood."



Asia Plasma Threatment ■



Feb 14, 2020

[Cured patients asked to donate blood-TRT World 2:04](#)

Feb 15, 2020

[Plasma from the novel coronavirus pneumonia survivors used as treatment in China-CGTN 2:22](#)

Feb 17, 2020

[Cured coronavirus patients donate plasma to save more-New China TV 1:33](#)

Feb 18, 2020

[Zhong Nanshan: Blood plasma is safe and effective in treating coronavirus-CGTN 1:06](#)

Feb 18, 2020

[Shanghai prepares plasma therapy for coronavirus patients-UNTV News and Rescue 4:06](#)

Feb 19, 2020 South China Morning Post

[China urges recovered patients to donate plasma as Covid-19 death toll rises above 2,000 3:08](#)

Feb 26, 2020-ARIRANG NEWS

[Coronavirus to infect 70% of humanity and become new seasonal disease: Expert 2:23](#)



Mar 28, 2020 **Very informative *****

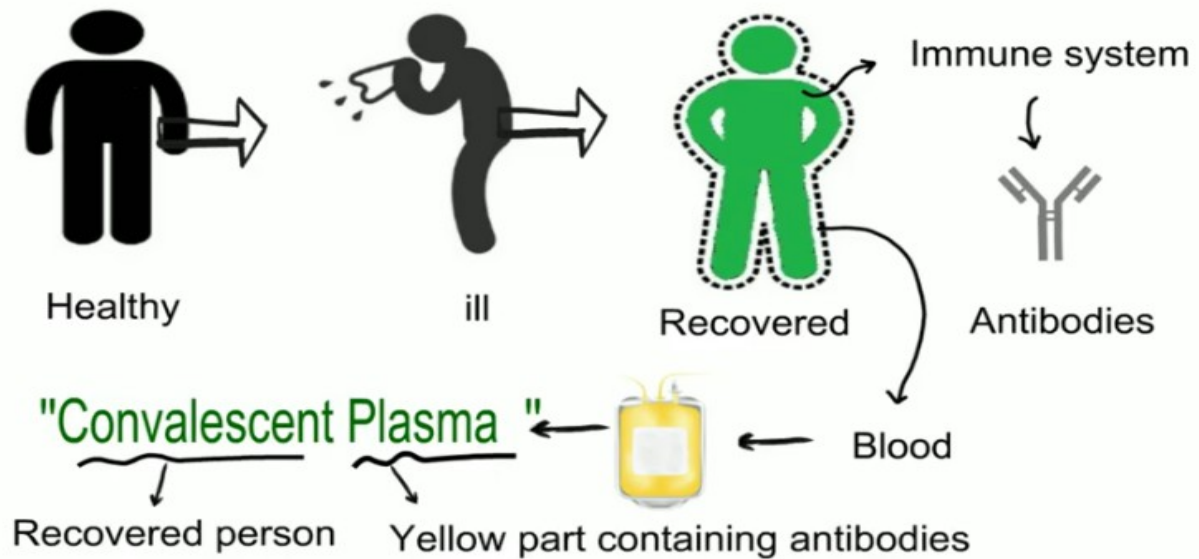
[You Need To Listen To This Leading COVID-19 Expert From South Korea | ASIAN BOSS 36:55](#)

Mar 31, 2020

[Looking for coronavirus cure: COVID-19 patients are being treated with blood plasma-AnswerBank Ep. 4-CGTN 4:04](#)

Convalescent Plasma Western Information

Mr. Sajid Shaikh
Asst. Professor



Serum is the fluid and solute component of **blood** which does not play a role in **clotting**. It may be defined as **blood plasma** without **fibrinogens**. Serum includes all **proteins** not used in **blood clotting**; all **electrolytes**, **antibodies**, **antigens**, **hormones**; and any **exogenous** substances (e.g., **drugs** or **microorganisms**). Serum does not contain white blood cells (**leukocytes**), red blood cells (**erythrocytes**), **platelets**, or **clotting factors**.

The study of serum is **serology**. Serum is used in numerous **diagnostic tests** as well as **blood typing**. Measuring the concentration of various molecules can be useful for many applications, such as determining the **therapeutic index** of a **drug candidate** in a **clinical trial**.

To obtain serum, a **blood** sample is allowed to clot (**coagulation**). The sample is then **centrifuged** to remove the clot and blood cells, and the resulting liquid **supernatant** is serum.

Serum is an essential factor for the self-renewal of **embryonic stem cells** in combination with the cytokine **leukemia inhibitory factor**.

Clinical and laboratory uses

The serum of **convalescent** patients successfully recovering (or already recovered) from an **infectious disease** can be used as a **biopharmaceutical** in the treatment of other people with that disease, because the **antibodies** generated by the successful recovery are potent fighters of the **pathogen**. Such **convalescent serum** (**antiserum**) is a form of **immunotherapy**.

Serum is also used in **protein electrophoresis**, due to the lack of **fibrinogen** which can cause false results.

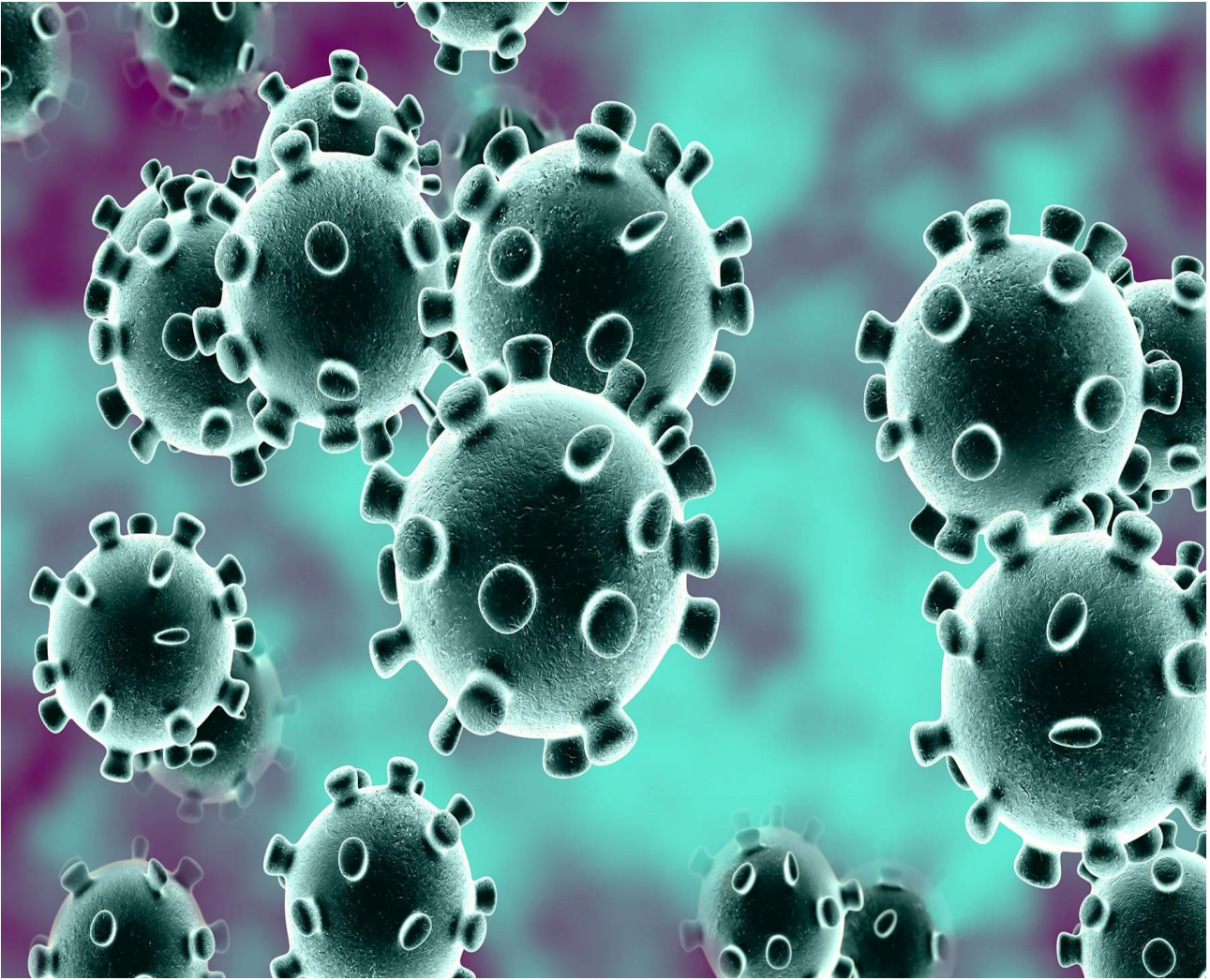
Purification strategies

Blood serum and plasma are some of the largest sources of **biomarkers**, whether for diagnostics or therapeutics. Its vast dynamic range, further complicated by the presence of lipids, salts, and post-translational modifications, as well multiple mechanisms of degradation, presents challenges in analytical reproducibility, sensitivity, resolution, and potential efficacy. For analysis of biomarkers in blood serum samples, it is possible to do a pre-separation by **free-flow electrophoresis** that usually consists of a depletion of serum **albumin** protein. This method enables greater penetration of the proteome via separation of a wide variety of charged or chargeable analytes, ranging from small molecules to cells.

Immunoglobulin therapy

Human immunoglobulin is made from human blood plasma.
It contains antibodies against many viruses.

Plasmapheresis ■

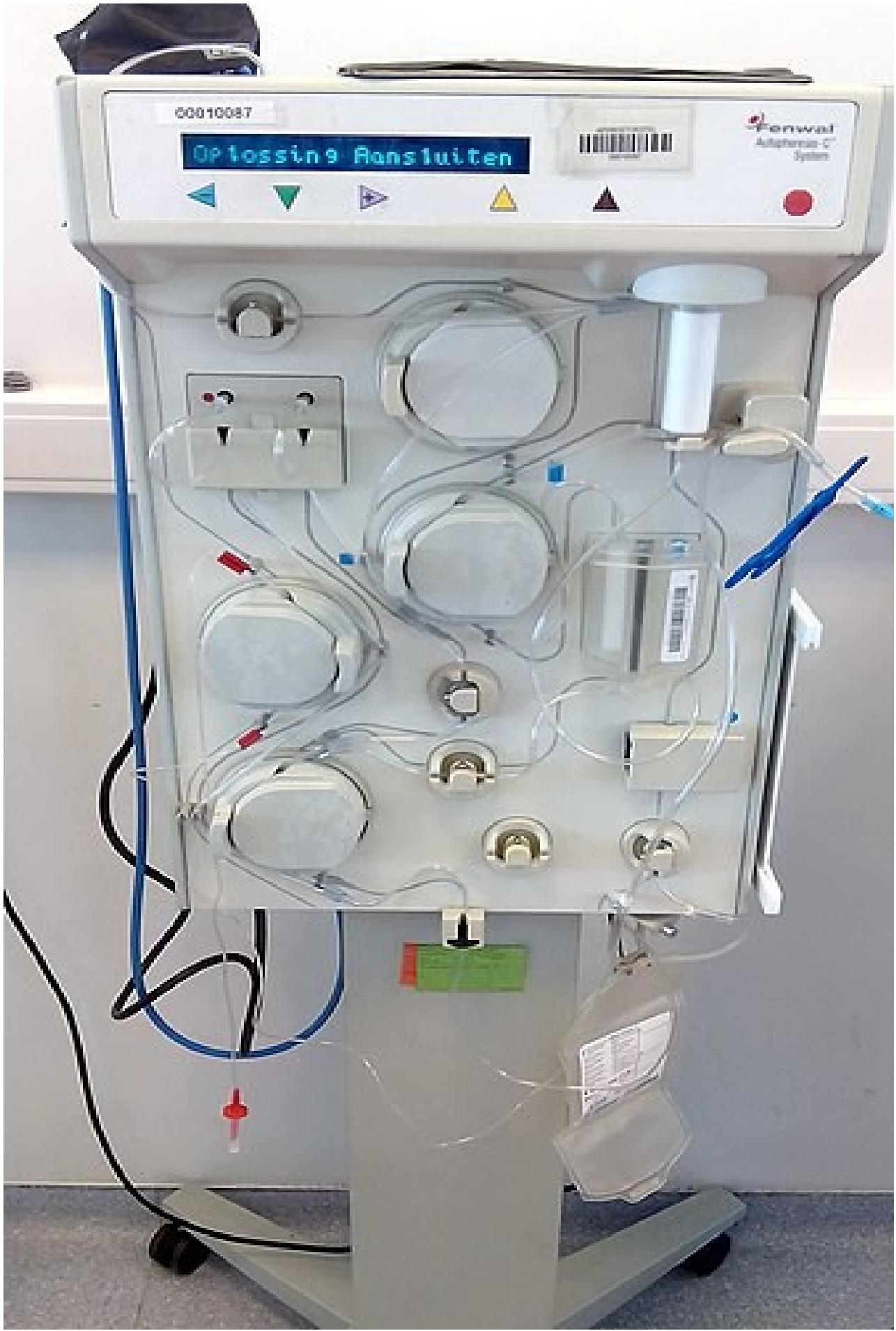


[Plasmapheresis](#) is the removal, treatment, and return or exchange of [blood plasma](#) or components thereof from and to the [blood circulation](#). It is thus an [extracorporeal therapy](#) (a medical procedure performed outside the body).

Three general types of plasmapheresis can be distinguished:

- *Autologous*, removing blood plasma, treating it in some way, and returning it to the same person, as a therapy.
- *Exchange*, removing blood plasma and exchanging it with [blood products](#) to be donated to the recipient. This type is called **plasma exchange (PE, PLEX, or PEX)** or **plasma exchange therapy (PET)**. The removed plasma is discarded and the patient receives replacement donor plasma, [albumin](#), or a combination of albumin and [saline](#) (usually 70% albumin and 30% saline).
- *Donation*, removing blood plasma, separating its components, and returning some of them to the same person while holding out others to become [blood products](#) donated by the donor. In such a [plasma donation](#) procedure, blood is removed from the body, [blood cells](#) and plasma are separated, and the blood cells are returned while the plasma is collected and frozen to preserve it for eventual use as [fresh frozen plasma](#) or as an ingredient in the manufacture of a variety of medications.

Plasmapheresis of the autologous and exchange types is used to treat a variety of disorders, including those of the [immune system](#), such as [Goodpasture's syndrome](#), [Guillain–Barré syndrome](#), [lupus](#), [myasthenia gravis](#), and [thrombotic thrombocytopenic purpura](#).

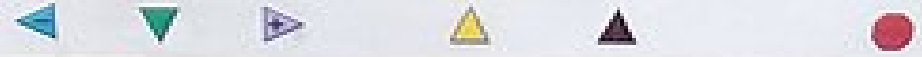


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Oplossing aansluiten



Fenwal
Adaptive-C
System



Doctors push for treatment of coronavirus with blood from recovered patients – NBC
March 13, 2020 Johns Hopkins Bloomberg School of Public Health



Medical personnel secure a sample from a person at a drive-thru COVID-19 testing station at a Kaiser Permanente facility in San Francisco on March 12.

In the absence of vaccines or antiviral drugs, researchers at Johns Hopkins University in Baltimore say the key to slowing and treating the [coronavirus](#) might be hidden in the blood of those who've already recovered from the disease.

The method of using “[convalescent serum](#)” essentially harvesting virus-fighting antibodies from the blood of previously infected patients dates back more than a century, but has not been used widely in the United States in decades.

During the Spanish flu epidemic of 1918, [scientists reported](#) that transfusions of blood products obtained from survivors led to a 50 percent drop in deaths among severely ill patients. A similar strategy was used to treat and slow the spread of polio and measles outbreaks decades ago, but the technique fell out of favor in the 1950s with the innovation of modern vaccine science and antiviral drugs, said Dr. Arturo Casadevall, chair of the molecular microbiology and immunology department at the Johns Hopkins Bloomberg School of Public Health.

When Casadevall learned in December that a new coronavirus was spreading rapidly in China, he started telling colleagues that it might be time to revive the antiquated treatment.

“I’m an infectious disease doctor who is interested in history,” Casadevall said. “I knew the history of what was done in the early 20th century with epidemics. [They didn’t have vaccines then, they didn’t have any drugs then — just like the situation we face now.](#) But physicians then knew that, for certain conditions, you could take the blood of the immune and use it to prevent disease or treat those who became ill.”

In a paper [published Friday in the Journal of Clinical Investigation](#), Casadevall and a colleague, Dr. Liise-anne Pirofski, argued that collecting blood serum or plasma from previously infected people might be the best hope for treating severe cases of COVID-19, the disease caused by the virus, at least until a better treatment can be developed.

There’s some evidence from recent history that suggests the approach could work.

In 2003, doctors in China used plasma from recovered patients to treat 80 people suffering from the viral disease known as severe acute respiratory syndrome, or SARS — an earlier coronavirus — and found that the treatments were associated with improved outcomes and shorter hospital stays. In 2014, the World Health Organization published guidelines for using donated plasma to treat people infected with Ebola after the treatments showed promise.

Full coverage of the coronavirus outbreak

In an interview with Stat News last month, a top Food and Drug Administration official said convalescent plasma might be helpful in the fight against the new coronavirus. Although the treatment is not a cure, Casadevall says it might be an important stopgap.

Researchers in the US and across the globe have been trying to develop drugs for the coronavirus, but federal officials say those treatments are likely months or — in the case of a vaccine — more than a year away. That leaves hospitals with few options other than ventilators to treat COVID-19 patients suffering from respiratory failure, stoking concerns nationally that a surge of severely ill patients in the coming weeks could overwhelm emergency rooms and intensive care units.

“The approach definitely has merit, and what’s remarkable about it is it’s not a new idea; it’s been with us for a good hundred years or longer,” said Dr. Jeffrey Henderson, an assistant professor of medicine and molecular microbiology at the Washington University School of Medicine in St. Louis. “I think we don’t know until we have experience and case reports with this particular disease whether it will be effective, but just based on its track record with a number of other viruses, I think it has a very good chance of working.”

Henderson said part of what makes the treatment attractive is its simplicity. Although there is danger in giving a patient the wrong type of blood, safety advancements over the past two decades have made adverse outcomes rare. And hospitals have the tools needed to begin harvesting and transfusing patients with blood serum right away, he said. The Johns Hopkins team is planning to submit its plan for approval by the FDA, but Casadevall said they don’t anticipate problems since the method has been used in the past and relies on standard blood-banking technology. He hopes to begin collecting serum from recovered patients within four to six weeks.

Patients tend to make large numbers of antibodies against an infecting pathogen, and these antibodies often circulate in the blood of survivors for months or years afterward. By collecting and transfusing a survivor’s serum or plasma — the liquid portion of blood left once cells and platelets have been removed — doctors could potentially boost an ailing patient’s immune response, Casadevall said.

Doctors in China have begun treating COVID-19 patients with plasma harvested from survivors and have reported somewhat positive results, especially when the method is applied early in the disease, though it has not been tested widely.

“The usage of plasma will probably reduce the time needed to treat the disease from five to 10 days to three to five days,” said Dr. Zhang Wenhong, the leader of a medical team sent from Shanghai to Wuhan to help tackle the outbreak, in an interview with Al-Jazeera last week. Casadevall argues that convalescent serum could also be given to front-line health care workers to help protect them from becoming ill.

To implement his plan, academic hospitals would need to work collaboratively with blood banks to set up research protocols and treatment guidelines. Doctors at Johns Hopkins started that work weeks ago, Casadevall said, and they have begun drafting guidelines that can be copied by hospitals across the country.

He’s already been in touch with doctors at the Mayo Clinic in Minnesota, he said.

“At the local level, hospitals and blood banks have everything they need to do this,” Casadevall said. “But what would really help is coordination from the federal government.”

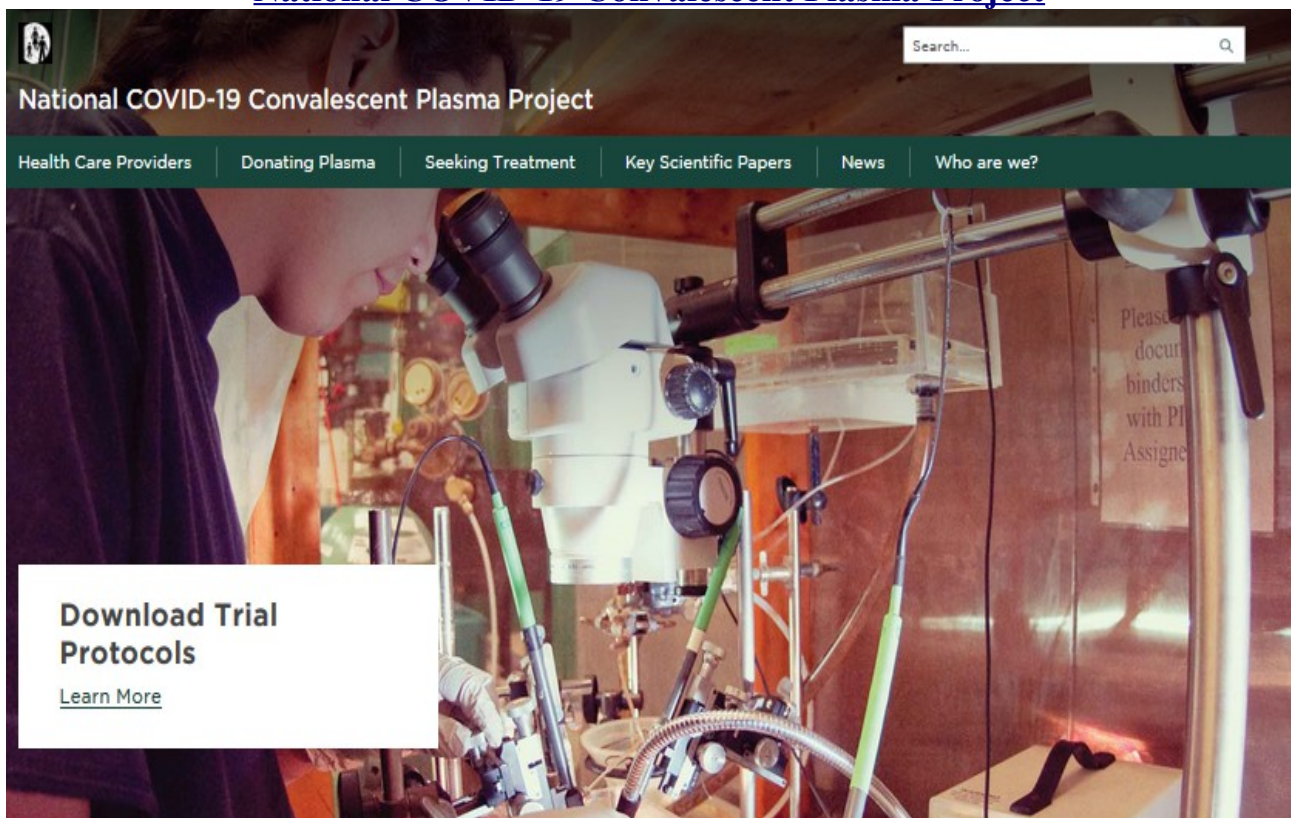
First, Casadevall said, the U.S. must immediately begin widespread testing, because it's impossible to collect blood serum from survivors if public health officials don't know who's been infected.

Second, Casadevall said federal officials may need to oversee the interstate shipment of blood products. He can imagine a scenario where blood banks in Seattle, which has been at the epicenter of the U.S. outbreak for weeks, might be in a position to send excess blood products to other cities where outbreaks are still ramping up.

And finally, Casadevall said, government officials would need to help spread the word. He believes people who've had the coronavirus and recovered will be eager to donate plasma if they believe it could help elderly patients and health care workers.

"This is by no means a panacea," Casadevall said. "But at a time when the message has been, 'There's nothing you can do but wash your hands,' this is an opportunity to do something proactive that can help fight this.

[National COVID-19 Convalescent Plasma Project](#)



This website is for:

- [Health care providers](#) who are considering using convalescent plasma to treat patients, either outside of a trial or in the context of a randomized trial
- Patients who have recovered from COVID-19 infection and are willing to [donate plasma](#)
- Patients with any stage of COVID-19 (or their families) who are considering this [treatment](#)
- Any member of the public interested in learning more about convalescent plasma use currently and in the past (see section on key papers)

Johns Hopkins Bloomberg School of Public Health

[Donate Plasma](#)

[Investigational COVID-19 Convalescent Plasma -Emergency INDs](#)

FDA - [Frequently Asked Questions](#)

[Convalescent plasma: new evidence for an old therapeutic tool?](#)

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Sanquin starts collecting plasma from cured corona patients

March 25, 2020



Contact



Sanquin starts collecting blood plasma from cured corona patients. In a study design, hospitals investigate whether the plasma antibodies of cured corona patients help to reduce corona symptoms in other patients.

This could, for example, prevent a patient with the coronavirus from ending up in the Intensive Care Unit (IC). This is not a regular treatment, but an investigation into the effectiveness of such plasma. As of this week, ex-patients are asked by their GGD to register with Sanquin.

Procedure

Only healed patients with a PCR test result (and thus an official finding of a COVID-19 infection) are approached. That will happen in the near future. They receive a request from their GGD to register with Sanquin for donating their plasma. **Then they are asked to donate plasma 4 times in total, at 7-day intervals.** This is safe and not very burdensome for ex-patients.

The plasma of cured patients is transfused to corona patients. Doctors can then investigate whether the antibodies from the plasma fight the virus and help the patient reduce the physical response to the virus. **This may save people an admission to the ICU,** or perhaps even hospital admission in further development.

In the meantime, the procedure has been started at Sanquin Plasma Products to **purify the antibodies from the plasma to make a so-called immunoglobulin preparation.** That way we can no longer offer it as a blood product, but as a medicine.

No treatment

This is not yet a widely available treatment for corona sick people. It is a research design that examines the effects of this plasma on patients. It is also expected that the required plasma will be a scarce commodity and that it will take time to collect it sufficiently. It will have to come from patients who have been cured for two weeks and who want to donate.

Current patients

The plasma will especially help prevent the spread of the virus in the body. This mainly helps physically weak people, such as the elderly or people with lung problems. [\[Nederlands Source\]](#)

In Dutch, the antibodies test that the blood bank in the Netherlands also does.

[Arts-microbioloog Hans Zaaijer bloedonderzoek naar antistoffen coronavirus | Op 18:10](#)

Sanquin study: how wide is the coronavirus already spread? ■

20 march 2020 **groepsimmunititeit**

How wide is the coronavirus already spread in the Netherlands and how quickly can we as a society build up immunity against the disease? Sanquin is investigating this in collaboration with RIVM by testing blood and plasma donors. People cannot register for the test themselves, which is explicitly not about individual results, but about the results of an anonymous total test group.

In collaboration with RIVM, Sanquin contributes to scientific research into the group immunity to the coronavirus. Donor blood is tested for the presence of antibodies to the virus for periods of one week. They show whether someone has had an infection.

The research is designed for large-scale research, it is not possible to give donors a personal result. The goal is to gauge how quickly society is building up immunity to the disease. **Experts argue that when 60 percent of the Dutch population is immune to corona, the virus no longer has a chance to spread.**

In April 2020, Sanquin will start measuring antibodies to the coronavirus in all blood donors who donate over a period of about a week. That is approximately ten thousand. The test is accurate enough to give an idea of the spread of the virus in the Netherlands. However, the test is not suitable for giving donors a personal result, because there is a chance that an incorrect result may occur on an individual level. **The results are made anonymous, as required for scientific research.**

The research will be repeated regularly, so that it is easy to follow how group immunity is developing in our country. By testing all blood samples from all over the Netherlands for a short time, a representative sample of Dutch people aged 18-79 years is obtained. This creates an image of how widely the coronavirus is spread in the Netherlands and how quickly we as a society can build up immunity against the disease.

Frequently asked questions about the corona survey

Can I become a donor to be tested?

Donors do not receive a test result. This research serves to measure group immunity.

Why don't donors hear if they have antibodies to corona?

The test is not reliable enough to give individual donors the results. The chance that someone will get an incorrect result is too great. However, the test is suitable for obtaining a reliable picture among the population.

If there are antibodies in my blood, have I been infected with the coronavirus?

Indeed, if antibodies are produced, it means that you have had the coronavirus in your body.

You may not have noticed that very much.

Can I indicate that I do not want my blood to be used for this test?

For a blood donation, donors also answer the question whether they give permission for part of their blood to be made available for medical research. This research falls under this. You have the option to indicate on the form that you do not want your blood to be used for this.

Can my blood infect patients with corona?

No, it has never been demonstrated that the coronavirus or similar viruses are transfused. Even if you are unknowingly infected, **your blood will not hurt patients.** [[Netherlands Source](#)]



FAQ Give blood and plasma and coronavirus



Sanquin Blood Bank will be open in the coming weeks! Blood is vital, and so are blood and plasma donors. Blood products have a limited shelf life and must be replenished continuously to save lives.

Pay attention! Additional measures apply to donors in connection with the coronavirus.

Are you coming to give blood or plasma? Then you are very welcome if:

- **You are completely free of complaints (no cold / cough or other complaints).**
- **Your housemates are also completely complaint-free.**
- **You come alone to the blood bank, we ask you temporarily not to bring children or others.**

See below for frequently asked questions about blood and plasma donation and the coronavirus.

Frequently asked questions and answers

- Have you had a confirmed corona infection yourself and are you cured again? You can approach the GGD for donating plasma. We use the antibodies you have created for (research into) the treatment of patients. If you receive a call from the GGD, please report!
 - I have been called up, can I give blood?

Gladly! If you have no complaints and your family members and / or housemates are not ill, please come and donate blood. **You are desperately needed!** Do the donor test first.

- I have a plasma appointment, can I come and give plasma?

If you have no complaints and no sick housemates, you can donate. Do the donor test first. In some locations, fewer plasma agreements take place to increase the distance between the donors. This may mean that your appointment cannot be made. If so, we will contact you personally. Have you heard nothing? Then you can just come.

- In the newspaper I read that Sanquin will test for coronavirus. Do I get a result?

Donors do not receive a test result. **This research serves to measure group immunity.**

- Will my blood be tested for corona after I have donated?

No, not for patient safety. There has never been a known case of corona or a similar virus that has been transmitted by blood. Therefore, **the donated blood is not tested for corona.** We test blood for a number of blood-borne diseases: HIV, hepatitis B, C and E, and syphilis.

However, a study into antibodies against coronavirus is being conducted with a limited number of donations. These data are shared with RIVM to support the fight against coronavirus. We use this to measure group immunity in the Netherlands against the virus.

Sanquin conducts the survey anonymously, so it is not possible to share individual test results.

Thank you for registering, great that you want to help! [[Nederlands Source](#)]



Apr 02, 2020

[Celtics' Marcus Smart, three other NBA players to donate blood for tests after battling coronavirus](#)



Several players with the National Basketball Association are getting their blood tested after battling the coronavirus.

[ABC News reported](#) that one of the players, Boston Celtics' Marcus Smart, will opt into the experimental therapy known as convalescent plasma.

Smart confirmed the news through his agent, ABC News reported.

[Smart announced via social media](#) that he had tested positive for the virus back on March 19. On Sunday, Smart [confirmed through his Twitter page](#) that the Massachusetts Department had cleared him.

[The NBA season was suspended indefinitely back on March 11](#) after Utah Jazz player Rudy Gobert tested positive for the virus before his team played the Oklahoma City Thunder.

Since then, several more players - [including Brooklyn Nets' Kevin Durant](#) - have tested positive for the coronavirus.

The other three players in the ABC News article are not currently known.

Antibodies from blood of recovered COVID-19 patients may be key to fighting coronavirus

March 30, 2020 CBS This Morning



One potential treatment being studied uses blood plasma collected from coronavirus survivors, whom one doctor credits as "incredibly generous people."

Patients who have been infected with the [coronavirus](#) and have recovered could be key to fighting the disease. One potential treatment uses the antibodies built up in the blood of patients who have survived the illness. This past weekend, Dr. Eric Salazar supervised a treatment at [Houston Methodist Hospital](#) he hopes will become the first proven therapy against COVID-19.

Here's how it works: Blood taken from recovered patients contains antibodies that can attack the virus. Dr. Salazar and his team transfused plasma the part of blood containing those antibodies into two critically-ill patients. Dr. Salazar told CBS News chief medical correspondent Dr. Jon LaPook he is monitoring patients very closely to see if the transfusion works. Dr. LaPook asked, "Have you discussed a goal for how many people you'd like to be able to treat a day using this method?"

"As many as possible," he replied.

Such transfusions may have helped a small number of patients in China, but much more study is needed. Kindergarten teacher Julie Thaler, a COVID-19 survivor, has donated her blood to possibly be used in a similar transfusion in New York City. "I am one of the survivors," she said. "It's a tough ride; I got very lucky, and it was a way that I could give back." A lot of it will depend on the donor pool.

Dr. Nicole Bouvier and her team at New York's [Mount Sinai](#) will soon be using the same treatment just performed in Houston. When asked why she thinks it might work, Dr. Bouvier said, "We have some idea, partially from [the 1918 influenza epidemic](#), that taking blood plasma from one person and giving it to another actually may improve outcomes." Antibodies against coronavirus are not only being used for treatment. They also help identify people who may have been infected without knowing it.

"An aggressive testing regimen with our front lines to find out who has levels of immunity is an opportunity to get back to the new normal as quickly as possible," said Lou Reese, who, with Mei Mei Hu, is a co-CEO of [United Biomedical](#), an international bio-tech company. It is one of several companies to develop a simple, rapid blood test for COVID-19 antibodies to see if someone has been infected and built up immunity to the virus. Their current plan: test as many of the residents of Colorado's rural [San Miguel County](#) as possible, nearly 8,000 in all. "We'll be able to find out who's been exposed and who has antibodies, and hence, who has a certain level of immunity to this," said Reese.

Once the antibody test is more widely available, researchers will be able to screen large numbers of potential donors for antibody-rich plasma to be used for treatment. Dr. Salazar said, "I don't think any center across the country is going to have any trouble recruiting donors that have recovered from COVID-19. These are incredibly generous people."

Dr. LaPook told "CBS This Morning" co-host Anthony Mason that testing for past infection and immunity is "hugely important." "It's very likely that there are a lot of people out there who have been infected with the new coronavirus but had little, few, or maybe no symptoms at all. And this is going to help us get our arms around it.

"Think about it: If it turns out that those people have some immunity, some protection, because of these antibodies, now depending upon how much protection they have, maybe they could go back to the front lines again and we won't have to make this choice between, do we save the economy or do we save the health care system?

"There are a lot of questions here: How protected are people? How long will the immunity last? There are a lot of questions and a lot fewer answers right now."

Dr. LaPook said, "There was a report of just five patients in China who had this done. They had other therapies [done as well], so it's hard to really know. Over the next week or two, they seemed to get better. Again, we don't know if it was the antibody treatment or other medications they were getting. In the past, back in 1918, in the pandemic flu, there was some success in sporadic cases there. [But] there's never been a huge controlled trial to see exactly how this works and in what people it works and for how long it lasts and things like that. This will be an opportunity to do that."

Mar 23, 2020

[Why an antibody test for coronavirus is important-CBS This Morning 3:50](#)

Mar 29, 2020

[Dr. Jon LaPook on the value of antibody tests-CBS Sunday Morning 2:21](#)

CBS This Morning Mar 30, 2020

[Antibodies from recovered COVID-19 patients could be key to fighting virus 4:32](#)



Mar 31, 2020 8:56

[SARS2 coronavirus immunity, re-infection and convalescent plasma as treatment for COVID-19](#)

Apr 3, 2020

[Mayo Clinic's Dr. Michael Joyner discusses Convalescent Plasma Expanded Access Program 2:40](#)

San Miguel County, Blood testing Corona



SAN MIGUEL COUNTY

COLORADO

COVID-19 (CORONAVIRUS) LATEST NEWS

COVID-19 Second Round Testing Delayed - Company Lab Processing Compromised Due to Virus

(April 7, 2020) SMCDPHE recommended to the BOCC today that the second round of COVID-19 blood tests be delayed indefinitely due to United Biomedical Inc.'s considerable reduced ability to process the tests due to the COVID-19 pandemic.

[Read On...](#)

CONFIRMED CASES:

SAN MIGUEL COUNTY: 10 - COLORADO: 5,429

(as of April 7, 2020, 4:00 PM)

COVID-19 BLOOD TEST RESULTS

- 1,631 tests have been processed
 - 8 were positive
 - 25 were indeterminate (borderline)
 - 1,598 were negative

[COVID-19 \(Coronavirus\) | San Miguel County, CO - Official](#)

[Why a Tiny Colorado County Can Offer COVID-19 Tests to Every Resident](#)

[Free coronavirus test? Everyone living in this Colorado county can get one](#)

[It's Time to Start Testing Coronavirus Immunity, Bloomberg](#)

[Why coronavirus antibody testing in one Colorado town could provide a way forward](#)

[Mount Sinai to Begin the Transfer of COVID-19 Antibodies into Critically Ill Patients 4:30](#)

[Mount Sinai to Begin the Transfer of COVID-19 Antibodies into Critically Ill Patients](#)

The Mount Sinai Health System this week plans to initiate a procedure known as plasmapheresis, where the antibodies from patients who have recovered from COVID-19 will be transferred into critically ill patients with the disease, with the expectation that the antibodies will neutralize it.

The process of using antibody-rich plasma from COVID-19 patients to help others was used successfully in China, according to a state-owned organization, which reported that some patients improved within 24 hours, with reduced inflammation and viral loads, and better oxygen levels in the blood.

[Mount Sinai researchers develop test for coronavirus antibodies](#)

[Liverpool School of Tropical Medicine, Corona anti bodies](#)

Mar 25, 2020 MSNBC

[Mass Antibody Testing Could Offer New Coronavirus Insights | Rachel Maddow | MSNBC 5:45](#)

Mar 30, 2020 CBS Los Angeles

[Coronavirus Antibody Testing In Colorado 1:57](#)

Convalescent Plasma ■



Mar 17, 2020 Johns Hopkins Bloomberg School of Public Health
1 persons blood can help a great amount of people
[Can Antibodies be Used to Treat or Prevent COVID-19? 15:33](#)

[Dr Arturo Casadevall](#)

Mar 17, 2020
[Can Antibodies be Used to Treat or Prevent COVID-19? 15:33](#)

Mar 25, 2020
[Blood from recovered patients being tested as COVID 19 treatment-LiveScience 1:17](#)

Mar 26, 2020
[Coronavirus Patients Wanted For Antibodies Treatment 0:21](#)

Mar 30, 2020
[Could Blood Plasma of Coronavirus Survivors Be the Key to a Vaccine? | TODAY 2:47](#)

Mar 31, 2020
[How do Coronavirus Tests Work? \(Genetic & Antibody\) - TLDR News 12:46](#)

Apr 1, 2020
[Doctors considering blood transfusions to treat COVID-19 patients 1:58](#)

Apr 5, 2020
[Convalescent plasma therapy: alternative treatment of COVID-19-Sajid Shaikh 1:19](#)

[Here a practical example](#)

The first case of COVID-19, already cured in Nuevo León, is donating plasma from its blood to critical patients because it has antibodies that help fight this disease.

Reality check about Corona



A virus cannot be killed because it is not alive. That terrible flu of 1918 still exists, yet for us it's only the annual flu. **A virus can only be conquered by adapting to it and thus building up immunity.** It was always denied that you built up immunity for it, now you can even measure it in tests. **So it's that group immunity that ultimately defeats the virus.** And then it is the next flu virus that will probably come back the next year. Yes, that 1918 contamination was from animal to human as well.

With time we realize that we cannot hide from it and that our bodies adaption to it, is the solution.

Many now hope for a vaccine, but there are already 40 of them and they must now pass the inspection, which will take at least 12 to 18 months. So hiding from it doesn't work !

They should have done what they wanted to do right away, build up that group immunity, and you do that by getting sick, and building antibodies through it. **The weak should have just been locked down and the strong should have gone out to fight it.** Then the statistics would look different.

Now only the weak are represented in the statistics, because they are now the ones hit, while the stronger hardly are or have already been without knowing. While those are the stronger ones you can take that plasma off to save the weaker ones. So they should have been hit first as among them we can expect the highest numbers of recoveries.

But that is a notion that is difficult to accept for many because they think there will be a vaccine in a few weeks. By the time the vaccine is available to the public, the virus has already mutated and the vaccine has stopped working. So we'll have to face this for the sake of our beloved weaker ones.

That antibody test can take people out of their fear as I figure many more have been infected then the amounts we see in the statistics, if this is a true virus. But ones infected, we are automatically released, because then we can no longer infect people, as then we are immune and the virus no longer can get to us. At that stage we have build up that group immunity. For some, it's something you don't even feel, and that comes from the blood bank info that admit it. Media wants sensation as that sells. So we only get to see the worst cases, but that realistically is the small minority.

So this is not about being tired of life, this is just facing reality instead of holding on to fear images.

Letting go in the esoteric teaching and attachment in Buddhist teachings.

This is just reality and while using that antibody research you can see if you have already had it and are immune to it. So it may pull many out of their fear. Then that bad dream is also over for you.

So those antibodies are simply the best strategy, because it is realistic. Waiting for a year for a vaccine is, watching how we lose all our elderly people, while that can be solved with a simple blood transfusion.

So hope knowing this will help those who have not yet understood this and that knowing this will draw them out of their fear. We have to do tests like savages, then build up liters of antibody rich plasma. If they start testing the healthy ones then we can get liters of plasma available.

So the weapons are at hand,

The strategy is on the table,

All we need is humanity daring to accept their fate.

Half of all people do not experience symptoms



Half of all people do not experience symptoms

[Experts Warn Of Difficult Week Ahead In Coronavirus Battle | TODAY 16:14](#)



Most of the people or the vast majority of people have mild infections

[Takeda says it's developing a plasma derived-therapy to treat virus patients | Street Signs Asia 3:45](#)



Those between their teens and 40s may experience mild cold

[You Need To Listen To This Leading COVID-19 Expert From South Korea | ASIAN BOSS 36:55](#)

Dutch on link



Patients with mild symptoms (no additional oxygen requirement) : Given the mild course in the vast majority of infected individuals, it is recommended not to start with agents whose efficacy has not yet been demonstrated in mild complaints of proven COVID-19.

[SWAB Site](#)

Given the mild course in the vast majority of infected individuals



The reason we are in lockdown is so that we spread it less among the weak. But as long as we stay in lockdown the virus keeps spreading at a slow paste. Resulting in the situation continuing. It will only stop ones we get a vaccine or ones we build up immunity. Vaccine takes too much time, so we will have to become immune to it in another way. By building up resistance.

Waking up to the realism in this, Lock Down ■

In a while people get sick of staying inside and then they will go out and many many more infections will occur. Now the weakest die and make room for those of the next wave. That is the plan behind this lock down and that is also what politicians explain. 80% will get it. But this is not a horror story ! There are ways to fight this and they will be explored as well in this story.

Heat related to Corona

Many hope that warmth will kill Corona. But as i showed in earlier texts, heat would only kill it, if it is FLU, as flu is a seasonal illness. Corona is sold to us as a virus, not as a bacteria, and heat does not influence a virus, as i showed by quoting reports from scientists. So hoping it will go away with the seasonal change, equals hoping it is the flu and not corona, as the state tells us it is.

IF it actually influences us like the flu, which i believe it is, then it indeed will go ones warmth comes. But i researched this thinking already, and shown the temperatures in Italy and Spain. They are already in the warmth that gets here during summer, and they have most victims.

So it does not look like heat has any influence on it.

So i figure that this lock down time is just the start and that many more will get it at least that should be the case if their definition of this as virus is correct.

Empty hospitals

There are all kinds of videos showing empty hospitals, but imo that is manipulation.

We had a lack of breathing machines and beds in hospitals for many years.

Every-time we get an influenza epidemic we had that problem.

So i do not believe those empty hospital videos, as i know what happened in the years before.

Want a why ? Not every hospital will have corona patients they pick certain locations.

Prevention of overloading the care system

Many people are in the hospitals now. Had they not asked us to stay in our homes, then all the population would get it at the same time, and then hospitals can not deal with the amounts of people that need them. So those lock downs are only to avoid hospitals being overwhelmed.

Such a lock down does not stop the virus it only stops the massive inflow of sick people into hospitals at the same time. As said now the weakest be hit only. If we all go out now then many more will get it and hospitals wont be able to handle the inflow of sick people.

Herd immunity

So their strategy is to spread the victims over time. Ones the hospitals get less people inside them then wave 2 will come as then lock down will be less severe. More will go out and infect each other.

Then we will go on severe lock down again, until hospitals are able to cope with it again.

And then again lock down be made less severe.

THAT is the purpose of a lock down, not to stop the virus or bacteria !

So that is what that group immunity idea is about. They say their not doing that, but off course that is what their doing. They only spread it over time by using these lock downs. So that is the herd immunity strategy. They only can't do that strategy in one go as then hospitals can't handle it !

Health officials agree that we are past the point of containment we're not stopping this thing and instead we're into mitigation

Apr 7, 2020 Various waves of lock downs

[Tucker: How long will the lockdowns last?-Fox News 12:33](#)

[How we infect each other](#)

[The danger of supermarkets and singles, point i also been making a lot](#)

Flu vs Corona

Coronavirus vs the flu: How they differ and why your winter jab won't help

Death rate

sky news

Although the WHO says the true death rate for COVID-19 will take some time to fully understand, the current data it has so far, suggests the crude mortality ratio (the number of reported deaths divided by the reported cases) is between 3-4%.

It says the infection mortality rate (the number of reported deaths divided by the number of infections) will be lower.

For seasonal flu, it is usually well below 0.1%, but a big factor is the quality of health care available for some patients (in different parts of the world).

✓ [Coronavirus vs the flu: How they differ and why your winter jab won't help](#)

- **Claim: Corona is much deathlier then the Flu, influenza.**

According to the World Health Organisation

Flu has a death rate of **0.1**

Corona has a death rate of **3 to 4**

Flu

0.1

Corona

3 to 4

0.1 Flu is just a % **So we need to attach a number to it.** Relating to flu we can, as for that numbers are available.

Check the statistics in your country for flu epidemics and the influenza death rate.



Rijksinstituut voor Volksgezondheid
en Milieu
Ministerie van Volksgezondheid,
Welzijn en Sport



TERUGKIJKEN: Kamer wordt bijgepraat over het coronavirus-NOS
Oversterfte, 900 000 infected and the 10 000 deceased verified RIVM

Annual report Surveillance of influenza and other respiratory infections in the Netherlands:winter 2017/2018 [144 pages]

Synopsis

Surveillance of influenza and other respiratory infections: Winter 2017/2018

Influenza

In the winter of 2017/2018 the influenza epidemic lasted 18 weeks. This is longer than the average over the last 20 years (nine weeks). Between October 2017 and May 2018, an estimated 900,000 people had symptomatic influenza and 340,000 people consulted their general practitioner with influenza-like symptoms. Hospitals were also temporarily overstretched as many patients had to be admitted due to complications of flu (usually pneumonia); this number is estimated to have been over 16,000. Also, during the epidemic, 9,500 more people died than would normally be the case in the influenza season (October to May). Throughout the entire epidemic, people mostly became ill due to an influenza type B virus of the Yamagata lineage. This is the first time that an influenza type B virus has been dominant right from the start of the epidemic.

Lots of details let me break it down

- 1- In the winter of 2017/2018 the influenza epidemic lasted 18 weeks.
- 2- This is longer than the average over the last 20 years (nine weeks).

(gewoonlijk verwachten we in deze tijd van het jaar tussen de 2.711 en 3.022 sterfgevallen)

Seizoen Oversterfte

2010/2011	400
2011/2012	600
2012/2013	6300 <--- nine weeks = 63 days
2013/2014	0
2014/2015	8600 <--- nine weeks = 63 days
2015/2016	3900 <--- nine weeks = 63 days
2016/2017	7500 <--- nine weeks = 63 days
2017/2018	9400 <--- lasted 18 weeks, 126 days.
2018/2019	2900

Nine weeks = 9 x 7 = 63 days

$6300 / 63 = 100$ Deaths per day every day 63 days in a row
 $8600 / 63 = 136,50$
 $3900 / 63 = 61,90$
 $7500 / 63 = 119$

18 weeks = 18 x 7 = 126 days

$9400 / 126 = 74,6$ Deaths per day every day 126 days in a row



Huidige situatie

Sterfte

Trends

✓ Sterfte als gevolg van influenza

Oversterfte 2010-2019

Seizoen	Oversterfte
2010/2011	400
2011/2012	600
2012/2013	6300
2013/2014	0
2014/2015	8600
2015/2016	3900
2016/2017	7500
2017/2018	9400
2018/2019	2900

Bron: [Reukers et al., 2019](#)

Corona Duration Netherlands

Februari 2020 = 4 days

March 2020 = 31 days

April 2020 = 4 days

$$4 + 31 + 4 = 39$$

Netherlands casualties 1 651 [4 April]

$$1\ 651 / 39 = 42,333 \text{ Casualties a day}$$

Till today, as we are in the middle of it !, so these things will change, that's why I say keep your eyes on the "Growth Rate".

Corona Mortality rate 42,333 a day

Flu Mortality Rate

2012/2013 = 6300 = 100 Deaths per day every day 63 days in a row

2014/2015 = 8600 = 136,50

2015/2016 = 3900 = 61,90

2016/2017 = 7500 = 119

2017/2018 = 9400 = 74,6 Deaths per day every day 126 days in a row

	 Ordinary flu	 Novel Coronavirus
Incubation period	About 2 days	Up to 14 days
Symptoms	Fever, headache, cough, muscle pain	

So now that 0.1% flu has a number = 10 000

Now we as well can calculate what 4% would add up to

$$0.1 = 10\ 000$$

$$1 = 100\ 000 \times 4 = 400\ 000 = \text{that } 4\ \%$$

Netherlands:

Flu 0.1 % = 10 000 casualties

Corona 4 % = 400 000 Casualties

Dutch after a month of Corona are at 500 casualties

To reach the number of 400 000

It has to go on for 800 months

$$800 \times 500 = 400\ 000$$

This is what causes the misinterpretation of the statistics

3- Between October 2017 and May 2018, an estimated 900,000 people had symptomatic influenza

6- during the epidemic, 9,500 more people died than would normally be the case in the influenza season (October to May)

FLU Netherlands 1,05 % with 9500 deceased

Infection Cases....900 000 {9 000 = 1%}

Deceased9 500

$$9\ 500 / 9\ 000 = 1,0555555555555556$$

VS

Corona Netherlands 04th April... 9,929 % (+164)

Infection Cases....16 627 {166,27 = 1%}

Deceased Total.....1 651 (+164)

$$1\ 651 / 166,27 = 9,929632525410477$$

Solution:

1,05 looks a lot better than 9,92 But realistically

9 500 are more fatalities than 1 651 victims

So that is what creates this misinterpretation.

Trump is doing the same thing by testing a lot to raise the confirmed cases number. He raised it so quickly that the percentage even went down while casualty numbers went up.

United States 1,442 % op 25 March

Confirmed cases...55 200 {552,00 = 1%}

Confirmed deaths.....796

$$796 / 552,00 = 1,442028985507246$$

United States 1,437 % op 27 March

Confirmed cases...83 545 {835,45 = 1%}

Confirmed deaths...1 201

$$1201 / 835,45 = 1,437548626488719$$

So that is how you can manipulate the statistics

By testing a heck of a lot

Dutch do not test a lot, that's why their stats look so dramatic

COVID-19 number of cases and deaths

How realistic is that 3 to 4 % as case Fatality rate for Corona ?



COVID-19 number of cases and deaths

Country	Cases	Deaths	Cases per 100,000 population	Case fatality rate (%)
Italy	124,632	15,362	206.2	12.3
United Kingdom	42,479	4320	63.9	10.2
Netherlands	16,729	1656	97.1	9.9
Spain	126,168	11,947	270	9.5
Indonesia	2092	191	0.8	9.1
France	90,853	7574	135.6	8.3
Belgium	18,431	1283	161.4	7
Iran	55,743	3452	68.1	6.2
Sweden	6443	373	63.3	5.8

[Coronavirus the infection numbers in real time \[news sky\].](#)

How many of them that got infected have deceased ?

Netherlands 04th April... 9,929 % (+164)
 Infection Cases.....16 627 {166,27 = 1%}
 Deceased Total.....1 651 (+164)
 $1\ 651 / 166,27 = 9,929632525410477$

So 90,070 %

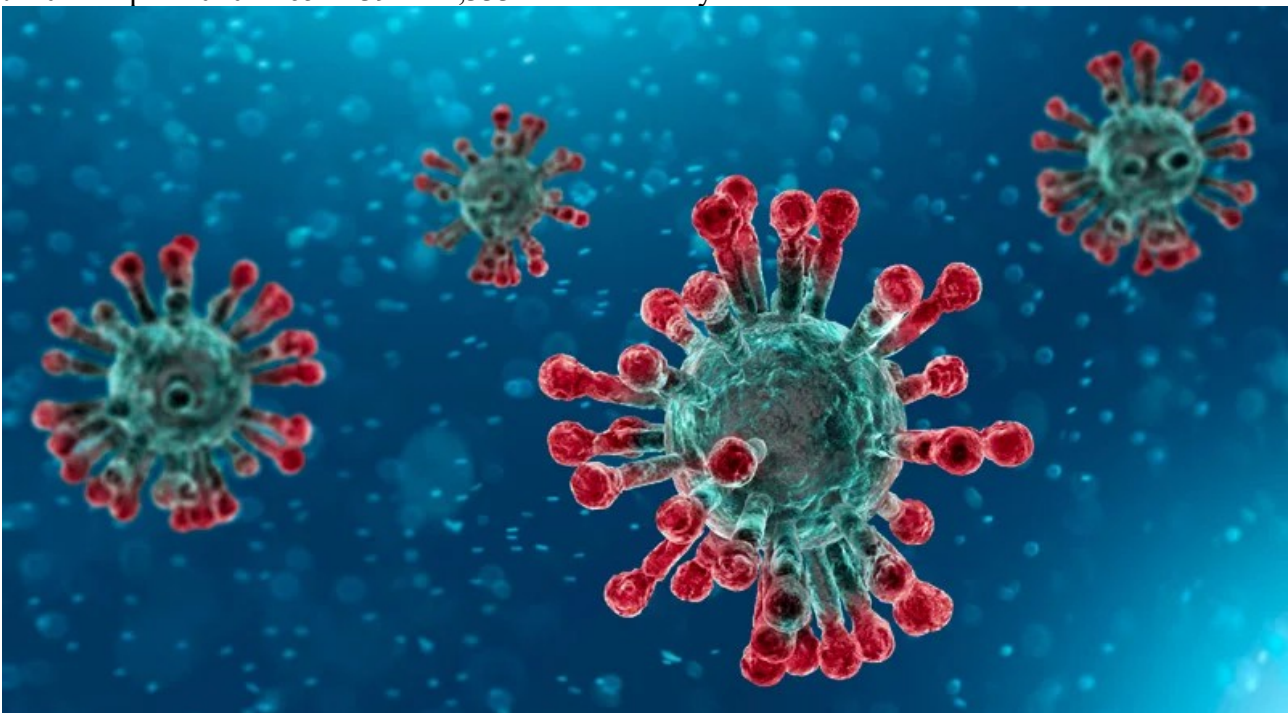
- Just got it, so no developing info yet
- In the hospital and is recovering
- Does not have much trouble, stays at home
- Is already recovered

How the Corona Infection evolved in the Netherlands ■

From the start, to see how it evolved, so you can compare where you are in your country. First a quick view list, then the calculations to get the details. Updated using RIVM data the Authority.

Netherlands 10th March (+1)
Netherlands 11th March (+1)
Netherlands 13th March (+5)
Netherlands 14th March (+2)
Netherlands 15th March (+8)
Netherlands 16th March (+4)
Netherlands 17th March 2,521 % (+19)
Netherlands 18th March 2,827 % (+15)
Netherlands 19th March 3,089 % (+18)
Netherlands 20th March 3,540 % (+30)
Netherlands 21th March 3,745 % (+30)
Netherlands 22th March 4,257 % (+43)
Netherlands 23th March 4,485 % (+34)
Netherlands 24th March 4,964 % (+63)
Netherlands 25th March 5,552 % (+80)
Netherlands 26th March 5,840 % (+78)
Netherlands 27th March 6,346 % (+112)
Netherlands 28th March 6,545 % (+93)
Netherlands 29th March 7,095 % (+132)
Netherlands 30th March 7,353 % (+93)
Netherlands 31th March 8,249 % (+175)
Netherlands 01st April... 8,616 % (+134)
Netherlands 02th April... 9,110 % (+166)
Netherlands 03th April... 9,457 % (+148)
Netherlands 04th April... 9,929 % (+164)

- ✓ Influenza 2014/2015 = 8600 = (+136) for 63 days
- ✓ 04th April 2020: $1\ 651 / 39 = 42,333$ deceased a day



Netherlands Corona Time Line

Netherlands 3th March
Infection Cases.....24

Netherlands 4th March
Infection Cases.....38

Netherlands 5th March
Infection Cases.....82

Netherlands 6th March
Infection Cases.....128

Netherlands 7th March
Infection Cases.....188

Netherlands 8th March
Infection Cases.....265

Netherlands 9th March
Infection Cases.....321

Netherlands 10th March (+1)
Infection Cases.....382
Deceased Persons....1

Netherlands 11th March (+1)
Infection Cases.....503
Deceased Persons....1

Netherlands 12th March
Infection Cases.....614

Netherlands 13th March (+5)
Infection Cases.....804
Deceased Persons....5

Netherlands 14th March (+2)
Infection Cases.....959
Deceased Persons....2

Netherlands 15th March (+8)
Infection Cases....1 135
Deceased Persons....8

Netherlands 16th March (+4)
Infection Cases.....1 413
Deceased Persons....4

Netherlands 17th March 2,521 % (+19)
Infection Cases.....1 705 {17,05 = 1%}
Deceased Total.....43 (+19)
 $43 / 17,05 = 2,521994134897361$

Netherlands 18th March 2,827 % (+15)
Infection Cases.....2 051 {20,51 = 1%}
Deceased Total.....58 (+15)
 $58 / 20,51 = 2,827888834714773$

Netherlands 19th March 3,089 % (+18)
Infection Cases.....2 460 {24,60 = 1%}
Deceased Total.....76 (+18)
 $76 / 24,60 = 3,089430894308943$

Netherlands 20th March 3,540 % (+30)
Infection Cases.....2 994 {29,94 = 1%}
Deceased Total.....106 (+30)
 $106 / 29,94 = 3,540414161656647$

Netherlands 21th March 3,745 % (+30)
Infection Cases.....3 631 {36,31 = 1%}
Deceased Total.....136 (+30)
 $136 / 36,31 = 3,745524648857064$

Netherlands 22th March 4,257 % (+43)
Infection Cases.....4 204 {42,04 = 1%}
Deceased Total.....179 (+43)
 $179 / 42,04 = 4,257849666983825$

Netherlands 23th March 4,485 % (+34)
Infection Cases.....4 749 {47,49 = 1%}
Deceased Total.....213 (+34)
 $213 / 47,49 = 4,485154769425142$

Netherlands 24th March 4,964 % (+63)
Infection Cases.....5 560 {55,60 = 1%}
Deceased Total.....276 (+63)
 $276 / 55,60 = 4,964028776978417$

Netherlands 25th March 5,552 % (+80)
Infection Cases.....6 412 {64,12 = 1%}
Deceased Total.....356 (+80)
 $356 / 64,12 = 5,552089831565814$

Netherlands 26th March 5,840 % (+78)
Infection Cases.....7 431 {74,31 = 1%}
Deceased Total.....434 (+78)
 $434 / 74,31 = 5,840398331314762$

Netherlands 27th March 6,346 % (+112)
Infection Cases.....8 603 {86,03 = 1%}
Deceased Total.....546 (+112)
 $546 / 86,03 = 6,346623270951993$

Netherlands 28th March 6,545 % (+93)
Infection Cases.....9 762 {97,62 = 1%}
Deceased Total.....639 (+93)
 $639 / 97,62 = 6,545789797172711$

Netherlands 29th March 7,095 % (+132)
Infection Cases.....10,866 {108,66 = 1%}
Deceased Total.....771 (+132)
 $771 / 108,66 = 7,095527332965213$

Netherlands 30th March 7,353 % (+93)
Infection Cases.....11 750 {117,50 = 1%}
Deceased Total.....864 (+93)
 $864 / 117,50 = 7,353191489361702$

Netherlands 31th March 8,249 % (+175)
Infection Cases.....12,595 {125,95 = 1%}
Deceased Total.....1 039 (+175)
 $1\ 039 / 125,95 = 8,249305279872965$

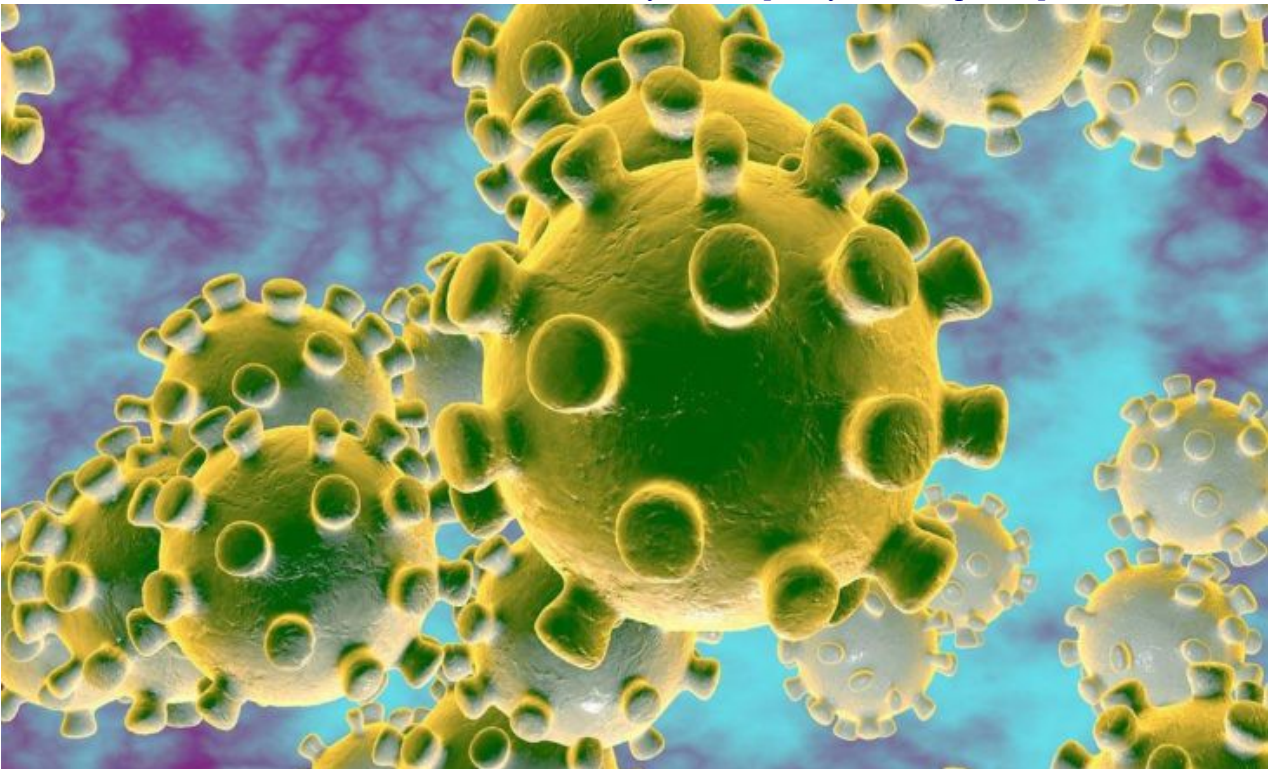
Netherlands 01st April... 8,616 % (+134)
Infection Cases.....13 614 {136,14 = 1%}
Deceased Total.....1 173 (+134)
 $1\ 173 / 136,14 = 8,616130453944469$

Netherlands 02th April... 9,110 % (+166)
Infection Cases.....14 697 {146,97 = 1%}
Deceased Total.....1 339 (+166)
 $1\ 339 / 146,97 = 9,110702864530176$

Netherlands 03th April... 9,457 % (+ 148)
Infection Cases.....15 723 {157,23 = 1%}
Deceased Total.....1 487 (+ 148)
 $1\ 487 / 157,23 = 9,457482668701902$

Netherlands 04th April... 9,929 % (+164)
Infection Cases.....16 627 {166,27 = 1%}
Deceased Total.....1 651 (+164)
 $1\ 651 / 166,27 = 9,929632525410477$

[Netherlands Corona Statistics by RIVM \[Daily 14:00 Updates\]](#)



Population Numbers

Country, Other	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	Active Cases	Serious, Critical	Tot Cases/ 1M pop	Deaths/ 1M pop	Population
Italy	115,242	+4,668	13,915	+760	18,278	83,049	4,053	1,906	230	60,550,075
Spain	110,238	+6,120	10,096	+709	26,743	73,399	6,092	2,358	216	46,736,776
USA	240,064	+25,061	5,800	+698	10,360	223,904	5,421	725	18	329,064,917
France	59,105	+2,116	4,503	+471	12,428	42,174	6,399	905	69	65,129,728
China	81,589	+35	3,318	+6	76,408	1,863	429	57	2	1,433,783,686
Iran	50,468	+2,875	3,160	+124	16,711	30,597	3,956	601	38	82,913,906
UK	33,718	+4,244	2,921	+569	135	30,662	163	497	43	67,530,172
Netherlands	14,697	+1,083	1,339	+166	250	13,108	1,053	858	78	17,097,130
Germany	84,688	+6,707	1,104	+173	21,400	62,184	3,936	1,011	13	83,517,045
Belgium	15,348	+1,384	1,011	+183	2,495	11,842	1,144	1,324	87	11,539,328
Switzerland	18,827	+1,059	536	+48	4,013	14,278	348	2,175	62	8,591,365
Turkey	18,135	+2,456	356	+79	415	17,364	1,101	215	4	83,429,615
Sweden	5,568	+621	308	+69	103	5,157	429	551	30	10,036,379
Brazil	7,910	+1,030	299	+57	127	7,484	296	37	1	211,049,527
Portugal	9,034	+783	209	+22	68	8,757	230	886	20	10,226,187

Here the precise data for this calculation,

Italy

Italy Population (LIVE) 60 483 160

Spain

Spain Population (LIVE) 46 750 423

USA

United States Population (LIVE) 330 532 892

France

France Population (LIVE) 65 238 702

China

China Population (LIVE) 1 437 981 715

Iran

Iran Population (LIVE) 83 730 655

UK

U.K. Population (LIVE) 67 799 764

Netherlands

Netherlands Population (LIVE) 17 125 735

Germany

Germany Population (LIVE) 83 719 302

Belgium

Belgium Population (LIVE) 11 577 437

Switzerland

Switzerland Population (LIVE) 8 639 277

Turkey

Turkey Population (LIVE) 84 118 163

Sweden

Sweden Population (LIVE) 10 084 017

Brazil

Brazil Population (LIVE) 212 193 178

Portugal

Portugal Population (LIVE) 10 203 832

Severe acute respiratory syndrome
coronavirus

PATENT VIEW

Patent: US2006257852

This web page summarizes information in PubChem about patent US2006257852. This includes chemicals mentioned, as reported by PubChem contributors, as well as other content, such as title, abstract, and International Patent Classification (IPC) codes. To read more about how this page was constructed, please visit the [PubChem patents help page](#).

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Severe acute respiratory syndrome coronavirus, Patent: US2006257852**US PATENT & TRADEMARK OFFICE****PATENT APPLICATION FULL TEXT AND IMAGE DATABASE**

United States Patent Application	20060257852
Kind Code	A1
Rappuoli; Rino ; et al.	November 16, 2006

Severe acute respiratory syndrome coronavirus

Abstract

An outbreak of a virulent respiratory virus, now known as Severe Acute Respiratory Syndrome (SARS), was identified in Hong Kong, China and a growing number of countries around the world in 2003. The invention relates to nucleic acids and proteins from the SARS coronavirus. These nucleic acids and proteins can be used in the preparation and manufacture of vaccine formulations, diagnostic reagents, kits, etc. The invention also provides methods for treating SARS by administering small molecule antiviral compounds, as well as methods of identifying potent small molecules for the treatment of SARS.

Inventors: **Rappuoli; Rino;** (*Castelnuovo Berardenga, IT*) ; **Masignani; Vega;** (*Siena, IT*) ; **Stadler; Konrad;** (*Scharnstein, AU*) ; **Gregersen; Jens Peter;** (*Wetter, DE*) ; **Chien; David;** (*Alamo, CA*) ; **Han; Jang;** (*Lafayette, CA*) ; **Polo; John M.;** (*Darville, CA*) ; **Weiner; Amy;** (*Fairfield, CA*) ; **Houghton; Michael;** (*Darville, CA*) ; **Song; Hyun Chul;** (*Berkeley, CA*) ; **Seo; Mi-Young;** (*Yongin-si, KR*) ; **Donnelly; John;** (*Moraga, CA*) ; **Klenk; Hans Dieter;** (*Marburg, DE*) ; **Valiante; Nicholas;** (*Fremont, CA*)

Patent: US2006257852



(11)

EP 3 172 319 B1**EUROPEAN PATENT SPECIFICATION**Date of publication and mention
of the grant of the patent:**20.11.2019 Bulletin 2019/47**

(51) Int Cl.:

C12N 7/04 (2006.01)**C07K 14/165** (2006.01)**A61K 39/00** (2006.01)**A61K 39/215** (2006.01)Application number: **15750093.5**

(86) International application number:

PCT/GB2015/052124Date of filing: **23.07.2015**

(87) International publication number:

WO 2016/012793 (28.01.2016 Gazette 2016/04)**CORONAVIRUS****EP 3172319B1 Vaccin patent, November 2019****FIELD OF THE INVENTION**

The present invention relates to an attenuated coronavirus comprising a variant replicase gene, which causes the virus to have reduced pathogenicity. The present invention also relates to the use of such a coronavirus in a vaccine to prevent and/or treat a disease.

BACKGROUND TO THE INVENTION

Avian infectious bronchitis virus (IBV), the aetiological agent of infectious bronchitis (IB), is a highly infectious and contagious pathogen of domestic fowl that replicates primarily in the respiratory tract but also in epithelial cells of the gut, kidney and oviduct. IBV is a member of the Order *Nidovirales*, Family *Coronaviridae*, Subfamily *Coronavirinae* and Genus *Gammacoronavirus*; genetically very similar coronaviruses cause disease in turkeys, guinea fowl and pheasants.

Clinical signs of IB include sneezing, tracheal rales, nasal discharge and wheezing. Meat-type birds have reduced weight gain, whilst egg-laying birds lay fewer eggs and produce poor quality eggs. The respiratory infection predisposes chickens to secondary bacterial infections which can be fatal in chicks. The virus can also cause permanent damage to the oviduct, especially in chicks, leading to reduced egg production and quality; and kidney, sometimes leading to kidney disease which can be fatal.

IBV has been reported to be responsible for more economic loss to the poultry industry than any other infectious disease. Although live attenuated vaccines and inactivated vaccines are universally used in the control of IBV, the protection gained by use of vaccination can be lost either due to vaccine breakdown or the introduction of a new IBV serotype that is not related to the vaccine used, posing a risk to the poultry industry.

EP3172319B1

European Patent Office

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2014-07-23 • Priority to GBGB1413020.7A

2015-07-23 • Application filed by Pirbright Institute, Pirbright Inst

2015-07-23 • Priority to PCT/GB2015/052124

2017-05-31 • Publication of EP3172319A1

2019-11-20 • Application granted

2019-11-20 • Publication of EP3172319B1

2020-04-08 • Application status is Active

2035-07-23 • Anticipated expiration

FIELD OF THE INVENTION

The present invention relates to an attenuated coronavirus comprising a variant replicase gene, which causes the virus to have reduced pathogenicity. The present invention also relates to the use of such a coronavirus in a vaccine to prevent and/or treat a disease. ■ xxxPassiexxx