

How BCG Vaccination Trials Might Finally Unlock the Many Mysteries of “COVID-19”

By Bill Sardi, Investigative Reporter
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An “urgent notice” from the Wuhan. China Health Commission warning of “successive cases of unknown pneumonia” was also leaked and posted online on 30 December 2019. The statement ordered hospitals to “strengthen responsible leadership” and ensure that no one “disclose information to the public without authorization.” Under growing pressure regarding this “unknown pneumonia”, the following day the Health Commission said researchers were investigating 27 cases of viral pneumonia, its first official notice. How did they know it was a virus? They didn’t.



Administering the BCG

The BCG vaccine has been used for nearly 100 years in the battle against tuberculosis. BCG is thinned-out bovine (cattle) tuberculosis derived from the pathogen *Mycobacterium bovis*. It is also the only approved vaccination for TB in the world.

Bacille Calmette-Guérin (BCG) is a live strain of *Mycobacterium bovis* developed by Calmette and Guérin for use as an attenuated vaccine to prevent tuberculosis (TB) and other mycobacterial infections. The vaccine was first administered to humans in 1921 and remains the only vaccine against TB in general use.

BCG vaccine is the [most widely administered vaccine in the world](#); it has been given to over three billion individuals, principally in the setting of routine newborn immunization.

CLAIM: BCG VACCINE “TRAINS” THE IMMUNE SYSTEM

But unlike recent claims that BCG will “train” the immune system to protect against COVID-19 or any other virus, the fact remains virtually any prior mycobacterial infection (whether naturally acquired or vaccine induced) appears to [produce some level of protection against subsequent disease due to TB and, in some cases, to other mycobacteria, such as avium or fowl tuberculosis](#) [*Mycobacterium avium*].

[Natural infections that confer protection against TB](#) include prior contained infection with *Mycobacterium tuberculosis* itself or [prior infection with nontuberculous mycobacteria](#).

These observations suggest that protection is conferred by the immune response to common mycobacterial antigens from the mycobacteria inside the BCG vaccine which have nothing to do with a virus.

The case for the mycobacterial origins for COVID-19 has already been laid out. Such mycobacterial illness usually begins with flu-like symptoms indistinguishable from coronavirus and should be ruled out before pursuing a viral origin, as documented in a series of authoritative reports by Lawrence Broxmeyer MD.

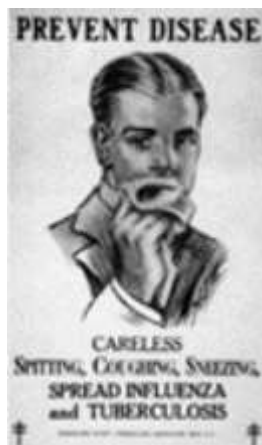
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Trials Underway

Although COVID trials using BCG have started in the [Netherlands](#), [Germany](#), [Denmark](#), [U.S.](#), [Egypt](#) and the [UK](#), the [Australian](#) arm of the trial will be one of the largest, where 4,000 healthcare workers, doctors and nurses will participate, half of them getting the vaccine and the other half not getting it. Healthcare workers and the elderly are particularly vulnerable to infection and many, many of them have fallen sick or worse from “the virus.” It is projected that some sign of the effectiveness of giving this vaccination designed to combat tuberculosis will be in evidence by 3 months into this study’s trials, with researchers claiming that the vaccine works by somehow “boosting the body’s immune system.”

Australia’s lead investigator Dr. Nigel Curtis said: “If I didn’t think [the TB vaccine against COVID-19] would work, I wouldn’t have been here seven days a week for the last month with a team of 20 people.” Granted that it might very well work, the larger question is specifically how and why it is going to work?

The thought that the tubercular BCG vaccine “stimulates” the immune system and protects against approximately 30% of a wide range of other diseases, including viruses is an extremely controversial view, [first espoused by Danish researchers Peter Aaby and Christine Stabell Benn, in Guinea-Bissau.](#)

BCG has the potential to destroy TB and other related mycobacteria. The destruction of TB bacilli in the body is in and of itself “bolstering the immune system”, as there is no other microbe known to man that is quite as immunosuppressive. And that is exactly how BCG works –not against “a virus” and not through “training” or “bolstering” the immune system, but by BCG (*Mycobacterium bovis*) shooting off its bacterial/ viral phages to kill or alter closely related mycobacteria or mycobacterial colonization, latent or active, in the body.

Since phages, whether bacteriophages or mycobacteriophages are species specific, they are often used for diagnostic purposes. So just the mere successful use of dilute mycobacteria (BCG) with its mycobacteriophages is evidence in itself that the supposed target, the coronavirus, is probably a mycobacterial generated disease. That is, if BCG works, which it probably will.

The recognition of the *M. avium complex* as a not uncommon human pathogen which can be transmitted by fowl and swine is something long acknowledged by neck node swelling in children. [Trnka et al. established that in non-BCG vaccinated children the incidence of lymphadenitis \[neck lymph node inflammation and swelling\] usually caused by *Mycobacterium avium complex* was considerably higher than in vaccinated children.](#) BCG cells possess antigenic determinants which confer protective immunity both against *M. tuberculosis* and against *M. avium complex* infections. It may thus [be assumed that BCG vaccination protects both against pathogenic tubercle bacilli and *M. avium complex*.](#)



The Interview

I sat down with internist and medical researcher Dr. Lawrence Broxmeyer, MD to shed some light on the present COVID-19/BCG situation. Dr. Broxmeyer was on the staff at New York affiliates of Downstate, Cornell and NYU for 14 years. He was the originator and lead author of a [novel way to kill AIDS mycobacteria, both tubercular and *Mycobacterium avium*](#) using mycobacteriophages. His ideas on Phage Therapy [are still very much in use today](#). He contributed a chapter to the textbook Patho-Biotechnology (Landes Bioscience). His peer-reviewed articles are available on PubMed. Dr. Broxmeyer's signature, well-referenced, thought-provoking articles are widely known for bringing new thought and interesting slants, both to recent, and decades old medical issues.

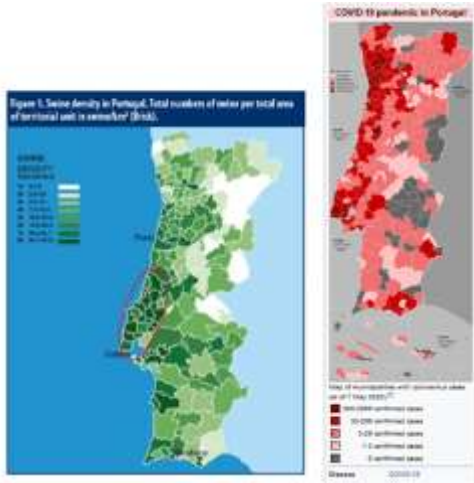
The Following is the result of that April, 2020 interview:

Bill Sardi: I was wondering if you could add insight into some strange, unexplained characteristics of COVID-19. For example COVID-19 seems very discriminatory in the way it affects regions of the world. Some countries report as much as a thousand times less deaths per inhabitant than Western European countries, which are the most affected so far. There are astonishing discrepancies.

For example, let's compare Spain and Portugal. The two countries are neighbors, juxtaposed on the Iberian Peninsula. Spain has 92 people per square kilometer, Portugal 114.5; the latter is therefore slightly more densely populated. They enjoy a similar level of development. They share a border of 1,214 km, the longest uninterrupted border within the European Union. One study said Portugal was quicker to take measures to combat Covid-19, but actually both national governments declared the highest level of alert at the same time. Spain's restriction on international travel is to this day much more restrictive than Portugal's. And yet, as of this interview, Portugal has 11.57 deaths per million inhabitants, versus 145.6 deaths per million inhabitants in Spain. In other words, Spain has suffered, so far, more than 12.5 times more deaths than its neighbor Portugal when adjusted for population.

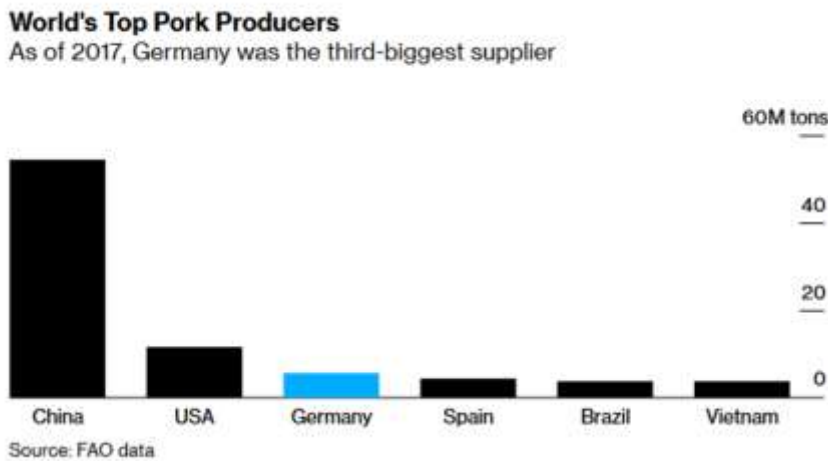
Dr. Broxmeyer: Spain has a huge and burgeoning swine and swine waste problem. But even in Portugal *Mycobacterium avium*, often found (when properly looked for) in swine is prevalent where pig farms are. And so is COVID-19. This is a trend which has repeatedly been seen throughout the history of epidemics and pandemics. It happened at Fort Funston in 1918. And it happened in the huge pig die-off in Wuhan

just prior to that outbreak. In the maps of Portugal below, for the most part, where there are swine there is COVID-19. BCG is protective against both *Mycobacterium tuberculosis* and *Mycobacterium avium*, but obviously it is not some magic bullet.



Map on left shows swine density in Portugal. Map on right shows COVID-19 in Portugal.

Similarly, below is a chart of the largest pork producing countries, most of which have sustained the most deadly COVID-19 assaults.



[Nine countries have ceased universal BCG vaccination programs](#); Spain was among the first, stopping in 1981. In Western Europe, [currently only Ireland](#) and Portugal continue to provide universal neonatal bacillus Calmette-Guérin (BCG) vaccination programs, despite not being considered as high tuberculosis (TB) incidence countries.

Bill Sardi: A similar phenomenon can be observed with other European countries; but Italy and Spain are strange outliers; even when accounting for air pollution plus age in Italy. The fact they lie by such a wide

margin ahead (178 deaths per million inhabitants and 145 deaths per million inhabitants respectively) to this point has no satisfactory explanation.

Dr. Broxmeyer : [BCG is not currently given in Italy](#). A booster BCG used to be given at the age of 9, but this was stopped in 2001.

Bill Sardi: What about the following group comprising Netherlands, France, Belgium, Switzerland, Luxembourg? All have between 35 and 45 deaths per million inhabitants, which is on the high side.

Dr. Broxmeyer: In the Netherlands: [The BCG vaccine neither mandatory nor recommended](#). The Netherlands never had a BCG vaccination policy for that country.

In France the [BCG was only mandatory for school children back between 1950 and 2007](#), and for healthcare professionals between 1947 and 2010. Vaccination is still available for French healthcare professionals and social workers but is now decided on a case-by-case basis.

In Belgium: [The BCG vaccine is neither mandatory nor recommended](#). The vaccine is only considered for certain subjects at risk (people working in the healthcare sector who may come into contact with patients and children under five years of age traveling to countries with a high prevalence of tuberculosis).

[Switzerland has discontinued its universal vaccine policies](#) due to comparatively low risk for developing *M. bovis* infections as well as the proven variable effectiveness in preventing adult TB.

[Luxembourg does not include BCG in its normal vaccination schedule](#).

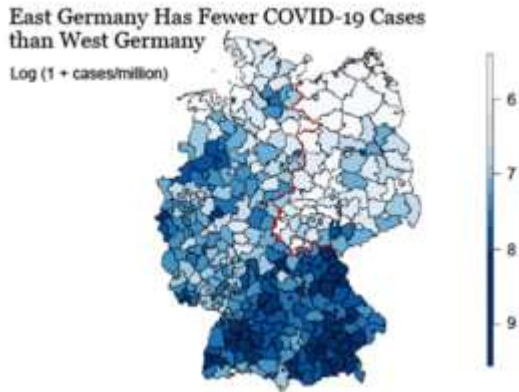
Countries such as the United States, Italy, and the Netherlands, have yet to adopt universal vaccine policies for similar reasons.

Bill Sardi: Now consider Germany, with 6.52 deaths per million.

Dr. Broxmeyer: In Germany: [The BCG vaccine is presently neither mandatory nor recommended](#), but mass vaccination was performed in West Germany from 1961 until 1998.

Bill Sardi: Actually, Germany has 11.2 more deaths than Poland; a huge difference.

Dr. Broxmeyer: In Poland the BCG vaccine is mandatory. On the other hand, there is at present and since those time frames just mentioned no mandatory BCG vaccination in Germany. West Germany, which stopped mandatory BCG 15 years before East Germany, does have considerably higher COVID rates than East Germany.



Source: Robert Koch Institute

Importantly, it has come to light that in the presently particularly hard-hit pandemic southern areas of Bavaria and Baden-Wurttemberg in West Germany, at the bottom of the figure just above, that even during the time where universal BCG vaccine was supposed to be given.....that although such vaccination was carried out in North Germany, it was only carried out in a few “islands” in COVID-19 hard-hit Baden-Wurttemberg and Bavaria. These, I might add, are the very areas of a substantial German pork industry.

But besides this, while BCG Vaccination of newborn infants had been carried out in North Germany for many years, [in Baden-Wurttemberg and Bavaria it has only become standard practice in a few "islands"](#)

Bill Sardi: Interesting. There seems to be a pattern.

Dr. Broxmeyer: Definitely. A pattern throughout.

Slovenia has 5.32 deaths per million. [Slovenia presently has no mandatory BCG](#). They did have a recommended BCG booster shot given between 14 and 15 years of age from 1947-1996 but this was stopped after 1996.

Albania at 3.49 deaths per million. Here the BCG vaccine was mandatory until 1990.

Romania 2.21. In Romania, [the BCG vaccine is obligatory to newborns](#) with a birth weight greater than 2500 grams, between the ages of 2–7 days and 2 months. In the eighth grade (at the age of 13–14 years) a new dose of BCG vaccine is administered, only if the tuberculin IDR test result is negative (below 9 mm).

Serbia 1.86. [The BCG vaccine is mandatory](#), vaccinations occurs at birth and is applied throughout the entire country.

Hungary 1.54. [The BCG vaccination is mandatory for most newborns](#) since 1954.

Czechia 1.51. Czech Republic: The BCG vaccine is recommended for specific people only. Mass vaccination was performed in the past. BCG vaccine was mandatory for every newborn from 1953 – till 2010.

Croatia 1.47. Croatia: The BCG vaccine is mandatory.

Bulgaria 1.14. Bulgaria: [The BCG vaccine is mandatory for children](#) since 1951

Poland 0.58. Poland: The BCG vaccine is mandatory.

If not for variation in BCG policy, how else does one explain such a high discrepancy in death rates for countries so extremely well connected geographically? They are all part of, or candidates for, the EU.

Italy has 51 more deaths per inhabitant than Albania, despite the fact that there are 500,000 Albanians residing in Italy and that there is intense exchange between the two countries.

In Italy the BCG vaccine is neither mandatory nor recommended. Mass vaccination has never been performed in Italy. In Albania the BCG vaccine was mandatory until 1990. Also we should not forget the incineration of 10 tons of Wuhan pig meat by authorities in Northern Italy, just prior to that outbreak.

Croatia, Italy's neighbor to the East, has 121 times less deaths than its neighbor when adjusting for population. Again, in Italy the BCG vaccine is neither mandatory nor recommended, whereas in Croatia: the BCG vaccine is mandatory.

Bill Sardi: we also have a [large outbreak of COVID-19 in Sioux Falls, South Dakota](#), where Smithfield has a pig meat processing plant. So pig farms are a common locale for COVID-19. These pig farms have fecal waste that becomes aerosoled by the incineration of sick pigs. Can you comment?

Dr. Broxmeyer: Yes. By April 9, over 80 employees at a Smithfield Foods pork processing plant in Sioux Falls were confirmed to have COVID-19. The plant announced it would suspend operations beginning April 11. By that day, Smithfield employees accounted for the majority of active cases in South Dakota. Some activity continued at the plant on April 14, as it planned to shut down completely. On April 15, 438 Smithfield employees tested positive for COVID-19.

Just as the involvement of the *Mycobacterium avium complex* or MAC in human lung pathology is grossly underestimated despite the fact that it is known to be the cause of the most common type of nontuberculous mycobacterial lung infection in the United States; so too does the USDA [United States Department of Agriculture] seem less than interested in properly probing, through RT-PCR, the actual incidence of *Mycobacterium avium* in swine and poultry farming, a disease which when it affects human can either require no treatment or present with the same fever or high fever, diarrhea, fatigue, shortness of breath, chronic or recurrent sore throat and cough, which have been reported in COVID patients.

During one time-interval study, the [incidence of *Mycobacterium avium* \(Fowl tuberculosis\) in a pig population was an astonishing 81%](#).

And as reported by some workers, *M. avium* isolates from swine represent a major threat to human beings. And the similarity of the IS1245 RFLP [Restriction fragment length polymorphism] patterns used to differentiate mycobacteria from human and swine isolates indicates close genetic relatedness, suggesting that *M. avium* can indeed be transmitted between pigs and humans.

Bill Sardi: So, to sum things up? That is, if there is a necessity to do so.

Dr. Broxmeyer: I believe that the current BCG trials said to be against COVID-19 will prove highly successful, but not for the reasons presently hypothesized. A review of the literature shows that countries with mandatory tubercular BCG vaccination invariably have lower rates of COVID. Japan, like many other countries including China, Korea, India, and the Russian Federation, have mandatory childhood BCG vaccines against tuberculosis. To this point, these countries have a relatively low per capita death rate from COVID-19 compared to countries that have no mandatory BCG vaccines (USA, Spain, France, Italy, The Netherlands). [Japan has not engaged in expansive testing, contact tracing, or strict quarantine measures and yet is reporting a slow growth rate of infected persons and a death rate that is currently just 1/10th of world average.](#)

And although virologists have attempted to paint the picture that BCG, by "bolstering" or "training" the immune system protects against viruses, this view is extremely controversial. Rather conventional wisdom says that BCG (dilute *Mycobacterium bovis*) only protects against other mycobacteria, such as *M. avium* and *M. tuberculosis*. Both of these mycobacteria can and often do begin with flu-like symptoms similar to COVID-19.

Bill Sardi: So, as mentioned in prior papers you have written, you are saying, that upon re-examination, the striking evidence points to a mycobacterium, not a virus behind the present Pandemic. Actually two mycobacteria are mentioned as possibly involved: the acquisition of a tubercular involvement earlier in life but now either active or more likely latent – punctuated in COVID-19 by a non-tubercular mycobacterium such as the *Mycobacterium avium complex* common in poultry and swine.

We have learned in retrospect from UC Berkeley demographers, that the 1918 Spanish flu resulted in a die off of TB-infected patients, [the disease which Noymer and Garenne felt was behind most of the deaths in 1918 to begin with.](#) [Later analysis by Broxmeyer re-confirmed this.](#) Perhaps we are reliving a portion of the past.

It is my understanding that by far the commonest mycobacteria such as TB in the human or animal system are "Cell-Wall-Deficient" [CWD] [microorganisms that closely mimic viruses.](#) Is this true?

Dr. Broxmeyer: Yes, it's certainly true that Cell-Wall-Deficient mycobacteria [CWD] are extremely similar to COVID-19 particles in both functionally and in physical size. At the same time Cell-Wall-Deficient [CWD] TB or avium have been implied in "latent" tubercular infection. There are approximately 13 million cases of latent cases of tuberculosis in the US alone and many, many more around the world.

Coronavirus particles (fancy scientific name "virions") are spheres with diameters of approximately 0.125 microns, though the smallest particles are 0.06 microns, and the largest are 0.14 microns.

On the other hand, Cell-Wall-Deficient TB or *M. avium*, responsible for latent tuberculosis have either lost or have breaches in their cell wall, resulting in a viral-like size between 0.1 and 0.3 microns. Furthermore, both COVID-19 and CWD mycobacteria are [pleomorphic with different possible forms.](#)

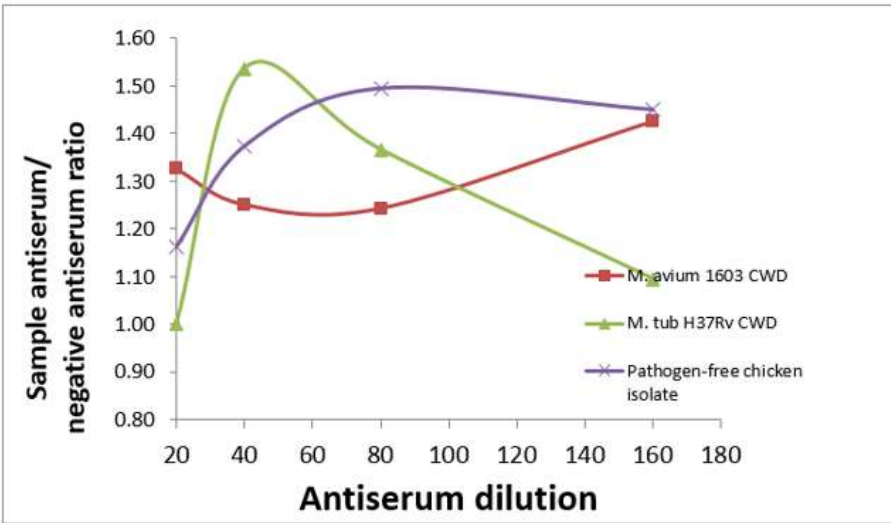
Yet, by the use of polymerase chain reaction (PCR) and appropriate sequencing (or spoligotyping), we are able to determine that such tubercular viral forms, no matter how far they deviate from their classical tubercular bacillus form and no matter how tiny, are of the same genetic composition as their parent. In addition such viral or latent forms of TB both have the capacity and in many cases over time do revert to their virulent and typical dreaded bacillary form. [Such highly accurate typing has been available for the tuberculous bacilli and its many viral-like pleomorphic forms since 2005.](#)

Moreover, such a conversion from latent or CWD tuberculosis to virulent, pathogenic forms can be instigated by a host of medical conditions, including the acquisition of a zoonosis like *Mycobacterium avium complex*. [The existence of latent Cell-Wall-Deficient TB was originally recognized](#) by the fact that it was [non-cultivable while living within closed pulmonary lesions](#).

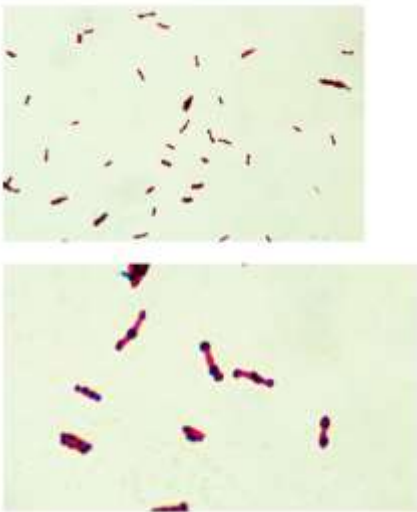
Such non-cultivability on standard laboratory culture media itself could certainly lead to the false belief that CWD mycobacteria were viruses, which for a virologist would amount to a self-fulfilling prophesy. But the main point is that mycobacteria, whether classical or Cell-Wall-Deficient, with the proper stains and media can be directly isolated, unlike viruses.

Bill Sardi: How does the microbiology community respond to your assertion this pandemic is of mycobacterial origin.

Dr. Broxmeyer: To this point I know of no formal study that has addressed using mycobacterial diagnostics to detect mycobacterial elements in COVID cases. Recently our group therefore took it upon themselves to attempt to prove that everything labeled an epidemic/pandemic is not automatically of viral cause. Preliminary results have been encouraging, unequivocally showing evidence of both Cell-Wall-Deficient (CWD) *Mycobacterium tuberculosis* and non-tubercular mycobacteria such as *Mycobacterium avium* in the blood and sputum of RT-PCR positive COVID-19 patients. In the excerpts from these initial results shown below, not only were CWD tubercular forms isolated but classical red-tinged acid-fast bacilli. It is important to note that this study is in its preliminary stage and has not yet been published or peer-reviewed.

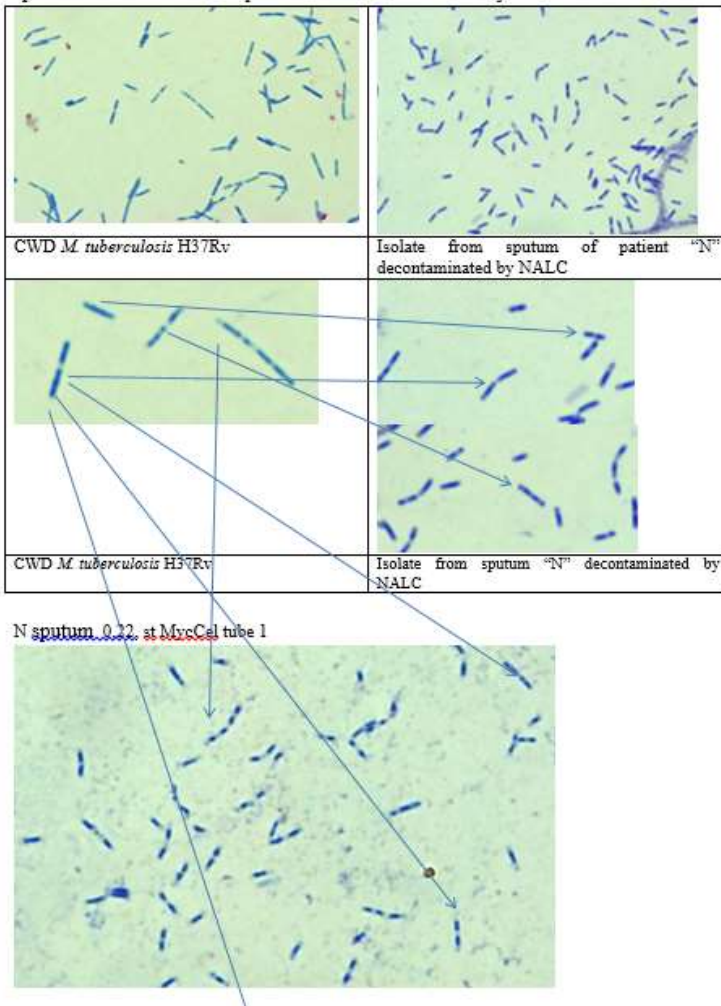


Elisa results with the serum of COVID-19+ woman (Patient "N") along with sonicates of CWD M. avium 1603, CWD M. tuberculosis H37Rv and the isolate from pathogen free egg.



Mycobacterial Acid-Fast Rods from a COVID-19 patient

Comparison of morphology of CWD *M. tuberculosis* H37Rv and isolate from sputum from COVID-19 + patient "N" decontaminated by NALC



BILL SARDI: So the reading audience can appreciate this preliminary finding (above), actual positive cell-wall-deficient bacteria have been identified in one patient, which is consistent with the hypothesis that COVID-19, that is roaming through human populations on planet earth, could certainly be a mycobacterium, not a virus. At this point the laboratory confirmation is anecdotal and awaits statistical significance. But this is an important step in this investigation.

Dr. Broxmeyer isn't out on a limb by himself, conjuring up his theory. There are others [who question if COVID-19 coronavirus even exists](#). [TB has been found to be the most prevalent co-morbidity with COVID-19 coronavirus](#). [TB is more common than diabetes, hypertension and coronary artery disease](#) in cases of coronaviral disease. The drugs used to treat COVID-19 coronavirus infection, hydroxychloroquine and azithromycin, are used to treat TB. The link between tuberculosis and COVID-19 burst out into the lay press when it was reported in [April of 2020 that the coronavirus death rate is six-fold lower in countries that use a century-old tuberculosis BCG vaccine](#), which led to this interview with Dr. Broxmeyer.

With all arrows pointed towards a mycobacterium and away from a virus, how long will this coronavirus myth last? It took eight decades before demographers dismissed the idea the 1918 Spanish flu pandemic was of viral origin and concluded it was more likely TB. Even that analysis is ignored. The COVID-19 trials using BCG vaccine that have started in the Netherlands, Germany, Australia and the UK may/may not shed more light on the question at hand - - is COVID-19 really a coronavirus infection? Science is agonizingly slow. Current public health policy may have been established on the wrong premise. Microbiologists may be side tracked to the detriment of billions of people.

Please keep us posted regarding this most interesting research. And thank you for sharing, Dr. Broxmeyer