More on antibodies

How much do serum (blood) antibodies really tell us?

- **Natural immunity is always measured by serum (blood) antibodies, not T cells.**
- **If someone has zero antibodies, it is usually assumed that they have not been infected. This may not be the case!**
- **Although serum antibodies may be absent, respiratory tract mucosal antibodies may be present and doing their job.** After all, they are not much use in the blood when they should be in the mucous membrane of the respiratory tract!
- **Although serum antibodies may be absent, there may be high levels of T cells.**
- Furthermore, a study of asymptomatic **healthcare workers (i.e. continually exposed) with absent serum antibodies showed observable IgA antibodies in mucosal fluids with virus-neutralising capacity.**
- Antibody tests can show a false negative result in 30% of those tested (https://www.health.harvard.edu/blog/which-test-is-best-for-covid-19-2020081020734).

The meaning (if any) of high serum antibodies

- As we have seen, **high concentrations of antibodies, either neutralising or binding, are correlated with severe, not mild, disease.** This is probably not a good thing.
- But correlation does not equal causation. **Does severe disease trigger high antibody production or do high antibodies trigger severe disease or do both occur from some other cause?**
- **This question has not been properly addressed yet** and is not helped by the common assumption/misconception in scientific papers that high concentrations of serum antibodies are protective, in contravention of a lot of evidence!
- "Indeed, it is unclear whether antibody production is protective or pathogenic in coronavirus infections". (Hellerstein M. What are the roles of antibodies versus a durable, high quality T-cell response in protective immunity against SARS-CoV-2? Vaccine X. 2020 Dec 11;6:100076)
- **Many people (as well as studies) appear to suggest that it is only serum IgG that can take care of SARS-CoV-2, ignoring the far more important mucosal IgA and the T cell response.**
- **This is disappointing, given that the same observations were made with SARS-CoV-1 and MERS. No lessons learned there!**

Why antibodies may only be of marginal importance against a virus

- **From Dr Mike Yeadon (former Pfizer VP)** interviewed by Dr Mercola:
- “Viruses are really tiny, and their business is to get as quickly as they can inside your cells [because that is where they can reproduce]. So, they bind to a receptor on the surface and inject themselves into your cell. So, they’re inside. Antibodies are big molecules and they're generally outside your cells.
- So just think about that for a moment. Antibodies and viruses are in separate compartments. The virus is inside the cell, the antibodies outside the cell. I'm not saying antibodies have no role, but they're really not very important [what is important is T cells]. This has been proven.
- **So, all of these mentions of antibody levels, it's just bunk. It is not a good measure of whether or not you're immune.** It does give evidence that you've been infected, but their persistence is not important as to whether you've got immunity…
- **We've known this for decades.** We've known about T-cells for decades. They were clearly in my undergraduate textbooks. And we've known about their importance in defending you against respiratory viruses since….the 1980s. So, don't believe anything where people suggest to you that (the role of T cells) is uncertain. We've known for a very long time that they are absolutely central.”

(https://articles.mercola.com/sites/articles/archive/2021/05/15/planet-lockdown.aspx?ui=32d3de160460d53724748248da8b3ffa560c047b02260865fa2ebc33906212d1&sd=20150403&cid_source=dnl&cid_medium=email&cid_content=art1HL&cid=20210515&mid=DM873673&rid=1157736460)

Relentless testing of antibodies and not T cells

- **A number of scientists have commented that T cell testing should be introduced, since antibodies were not sufficiently reliable as a measure of current or lasting immunity.**
- Example: 'After surveying the literature, the authors present the case for urgent development of diagnostic T cell assays for SARS-CoV-2 by accredited laboratories' (Ameratunga R, et al. Perspective: diagnostic laboratories should urgently develop T cell assays for SARS-CoV-2 infection. Expert Rev Clin Immunol. 2021 May;17(5):421-430)
- **Remarkably, no-one had developed a test for clinical use but only for research use,** because it is a "laborious process with a lot of complex machinery".
- But in August 2020 the BBC announced that a suitable test for commercial use has been developed by a Cardiff biotechnology laboratory.
- **There are several private T cell tests available now but nothing on the NHS.**

(Swadling L, Maini MK. Can T Cells Abort SARS-CoV-2 and Other Viral Infections? Int J Mol Sci. 2023 Feb 22;24(5):4371; https://www.fda.gov/medical-devices/safety-communications/antibody-testing-not-currently-recommended-assess-immunity-after-covid-19-vaccination-fda-safety; Adams ER, et al. Antibody testing for COVID-19: A report from the National COVID Scientific Advisory Panel. Wellcome Open Res. 2020 Jun 11;5:139; King E, https://www.bmj.com/content/370/bmj.m3563/rr-6; https://www.bbc.co.uk/news/uk-wales-53764640; Sekine T et al. Robust T Cell Immunity in Convalescent Individuals with Asymptomatic or Mild COVID-19. Cell. 2020 Oct 1;183(1):158-168.e14)

Even the US Food & Drug Administration (FDA) thinks antibody testing is pointless!

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Covid antibody tests CANNOT prove you are immune to the virus from prior infection OR vaccination, FDA warns

- The FDA warned Wednesday that relying on antibodies for protection from COVID-19 may leave people vulnerable
- A vaccine is still needed to confirm immunity from the effects of the virus
- Positive antibody tests also won't work as a substitute for proof of vaccination because the blood screening looks for different proteins than shots trigger
- Brief comes as vaccine progress in the United States slows down

By MANSUR SHAHEEN FOR DAILYMAIL.COM
UPDATED: 03:04, 20 May 2021

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Testing positive for **COVID-19** antibodies is not sufficient replacement for receiving the vaccine, according to a briefing released by the Food and Drug Administration (FDA) on Wednesday.

- In May 2021, the US FDA issued a public safety communication, stating that **antibody tests should not be used "to evaluate a person's level of immunity or protection from COVID-19 at any time, and especially after the person received a COVID-19 vaccination."**

https://www.medpagetoday.com/infectiousdisease/covid19/92836?xid=nl_secondopinion_2021-06-01&eun=g1301936d0r

But in the UK, just 3 months later….

- August 2021: **'Antibody tests are to be widely offered to the UK public for the first time in a new programme that aims to find out more about how much natural protection people have after getting coronavirus.'**
- 'The UK Health Security Agency is to run the programme and will work alongside NHS test and trace services in England, Scotland, Wales and Northern Ireland to use results to monitor levels of antibodies in (PCR) positive cases.'
- 'The Department of Health said as well as helping it improve understanding about antibody protection, the scheme could give information about any groups of people who did not develop an immune response after getting coronavirus.'
- **But looking at antibodies without T cells cannot tell us that.**

(https://www.bbc.co.uk/news/uk-58293249)

But there was concern that serum antibody absence meant people were not protected

- **And this belief that absence of serum antibodies means no protection from reinfection can lead to really poor government decision-making.** In New York City, where only 23% of people surveyed had antibodies, the health department concluded that "as this remains below herd immunity thresholds, monitoring, testing, and contact tracing remain essential public health strategies." (Rosenberg ES, https://www.medrxiv.org/content/10.1101/2020.05.25.20113050v1)
- **Has no-one heard of respiratory tract IgA antibodies? Or T cells?**
- **Lack of serum antibodies – and hence presumed lack of protection from reinfection - has also been cited as a reason for introducing the vaccines.**
- Due to few people testing positive for serum antibodies "A large proportion of the population remained susceptible to SARS-CoV-2 infection in England based on naturally acquired immunity from the first wave. Widespread vaccination is needed to confer immunity and control the epidemic at population level." (Ward H, et al. Prevalence of antibody positivity to SARS-CoV-2 following the first peak of infection in England: Serial cross-sectional studies of 365,000 adults. Lancet Reg Health Eur. 2021 May;4:100098)
- **Supposing there had been a clinically available T cell test and a better understanding of the limitations of serum antibody testing. We could have had a whole different pandemic!**

Antibodies summary

- If someone has zero antibodies, it is usually assumed that they have not been infected or have no continuing immunity. This may be untrue because..
- Although serum antibodies may be absent, respiratory tract mucosal antibodies, particularly IgA, may be present and doing their job.
- Although serum antibodies may be absent, there may be high levels of T cells providing immunity.
- We may have made completely the wrong assumption about antibodies because high concentrations are correlated with severe disease, not mild, and it is possible to have good immunity with zero antibodies.
- The US FDA abandoned antibody testing in 2021 (although the UK introduced it 3 months later).
- Many scientists have called for T cell tests to be made clinically available; so far they are only available privately.