



DECLARATION

of CIRCE's Blue Ribbon Panel on Mental Immunity
January 2023

We, the signers of this declaration, call for action on our world's increasingly existential disinformation problem. Digital tools and manipulative messaging have combined to form a powerful threat to human wellbeing. Fortunately, the scientific community's growing understanding of mental immunity points to solutions. We need the help of many, though, to translate hard-won insights into practical tools. Consequently, we invite scholars and domain experts to [join us as declaration signatories](#). We ask journalists to [help raise public understanding](#). We need innovators and policymakers to design systems that cultivate misinformation immunity. We urge universities and funding agencies to [advance a promising science](#). And to leaders everywhere we say: [applying the science](#) within your organization can be an excellent investment in its long-term prospects. A mental immunity revolution would make an outsized contribution to planetary welfare; it falls to us, in our time, to catalyze it.

CIRCE's Blue-Ribbon Panel

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Overview

The science of mental immunity has arrived.¹ And none too soon: viral disinformation now threatens the very foundations of free, democratic societies. Fortunately, researchers are learning how to mobilize the mind's natural defenses. Their findings reveal powerful antidotes to cognitive contagion. To implement the indicated solutions, though, we need the help of allies and advocates, institutional partners and change agents. Together, we can conquer the scourge of weaponized information.

The Problem

Science magazine and the *Proceedings of the National Academy of Sciences* have raised alarms about our hyperconnected, disinformation-addled condition.² "Misinformation," they report, "has reached crisis proportions." Studying the problem, they argue, "should become a top scientific priority." We agree. The *Science* article goes on to say that a coherent vision for the field has yet to emerge. On that, we respectfully disagree: a coherent framework for addressing the problem *has* emerged.

1. <https://www.nature.com/articles/s41591-022-01713-6>

2. <https://www.science.org/content/article/studying-fighting-misinformation-top-scientific-priority-biologist-argues>

The Science

We refer to the science of mental immunity. This discipline borrows insights from psychology, immunology, and evolutionary biology to understand how healthy minds ward off problematic information. Researchers in this space have shed considerable light on our tragic susceptibility to what we might call “mind infections.” They’ve also discovered powerful ways to prevent them.

“The science of mental immunity has arrived.”

At the heart of this work lies a consequential but little-known fact: *minds have immune systems all their own.*³ Both bodies and minds have evolved defenses: just as bodily immune systems work to spot and neutralize infectious *microbes*, mental immune systems work to spot and neutralize infectious *information*.⁴ Each of us possesses a sophisticated capacity to filter information well, but mental immune health is not a given. In our digital age, mental immune disorders are common, and proper care of the mind’s immune system is essential.⁵

Evidence from several fields supports these claims. Well-established models of epidemiological spread work for misinformation contagion as well as biological contagion.⁶ These models classify members of a population as susceptible, infected, or recovered. Those in the last category are often treated as functionally immune, and for good reason: in each case, they’ve acquired something—a kind of resistance—that needs to be

scientifically understood. The difference between susceptibility and immunity to smallpox can be of enormous significance, and the difference between susceptibility and immunity to propaganda can be similarly consequential. In both cases, we need to understand what makes some, but not others, vulnerable to infectious agents.

“Mental immune system” strikes many as metaphorical talk. Among experts, though, a consensus is forming that it’s no mere metaphor. The phrase may not have a distinct material referent, but minds have long needed to ward off problematic information. The phrase, then, must designate something of functional (and evolutionary) significance. *Some* bundle of adaptive dispositions functioned to ward off (much) fitness-reducing information, and that bundle deserves to be named and studied. Mental immune systems, we assert, are at least *functionally* real.⁷

The mind’s and the body’s immune systems also work in remarkably similar ways: the one manufactures *chemical* antibodies to fight off *biological* threats; the other manufactures *cognitive* antibodies to ward off *informational* threats.^{8a 8b}

“Both bodies and minds have evolved defenses.”

Anyone can perform an experiment to confirm this. Just find an intemperate screed written by the proponent of a noxious ideology; read it and observe what happens in your mind. Assuming you don’t share the ideology, you’ll witness objections

3. We do not pretend that this claim is settled science. To the contrary: it currently ranks as a hypothesis that merits more scientific scrutiny. For all that, this declaration points to several bodies of convergent evidence. A detailed philosophical case for the claim can be found in Norman, A. (2021). *Mental Immunity: Infectious Ideas, Mind-Parasites, and the Search for a Better Way to Think*. Harper Wave.
4. Some will accuse us of ‘reifying’ mental immune systems. This is precisely correct: we’re using evidence and argument to place mental immune systems within the ranks of the real. As evolved systems, they already exist; we reify them—that is, treat them as real—so we can begin studying them in earnest. The sooner our colleagues in the sciences join us, the sooner we’ll unlock their secrets.
5. *Mental Immunity*, chapters 2, 3, 4, 5 and 7. See also McIntyre, L. (2018). *Post-Truth*. MIT Press.
6. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0256179>
7. Philosophers continue to debate what it means for something to be real; scientists often take a more pragmatic approach: metaphorical usages often prove useful, gain acceptance, and thereby morph into literal usages. On this view, “mental immune system” is transitioning from metaphorical to literal.
- 8a. <https://compass.onlinelibrary.wiley.com/doi/full/10.1111/spc3.12602>
- 8b. https://www.academia.edu/61410760/Threat_and_in_inoculation_theory. The claim that cognitive antibodies exist is not yet settled science, but it is gaining acceptance among experts.

swarming into conscious awareness. Apparently, healthy minds respond to informational threats by deploying agents—doubts—to neutralize them. This is the mind’s immune system in action.⁹

(Congratulations: you just performed the analog of a Nobel Prize-winning experiment. In 1882, Elie Metchnikoff inserted a thorn into a starfish larva and watched what happened through a microscope. He saw white blood cells swarm to the scene of the “insult” and begin consuming the invading thorn. He was the first human being to witness the body’s immune system in action.)

Doubts, we conjecture, are cognitive antibodies. (At a minimum, they are experiential manifestations of mental immune function: minds appear to deploy them—alongside qualms, reservations, objections, and the like—to fight off information they find threatening.¹⁰) Unfortunately, they sometimes fail to do this properly.

**“Critical thinking is not enough;
in our digital age, proper care of
the mind’s immune system is essential.”**

Importantly, the science of mental immunity reveals that *critical thinking is not enough*. The ability and inclination to think critically are not enough to protect a mind from false narratives, conspiracy theories, or infectious ideologies. In fact, doubt and criticism can themselves be weaponized.¹¹ Our digital age calls for stronger medicine.

Evolutionary Foundations

Bad information has always been a threat to biological organisms. Deceptive signals and mistaken assumptions, false narratives and misguided beliefs: these threats killed off many

would-be ancestors. This left the field to others with better-functioning informational defenses. We inherited those defenses—defenses we dub *mental immune systems*. We don’t know the full story of *how* these defenses are implemented in the brain, but it’s a foregone conclusion *that* they exist, given our evolutionary origins.¹²

Our cognitive defenses try to distinguish “good” information from “bad.” They strive to let in the former and weed out the latter. Our ancestors survived and reproduced; it follows that their minds performed this task relatively well. The aptitudes they passed to us, though, are far from perfect: we frequently mistake bad information for good, or good information for bad. Such mistakes lead to misunderstanding, groundless beliefs, and evidence-resistant thinking. Rigid ideologies, toxic partisanship, poor decision-making: much of this is rooted in our susceptibility to “bad” information.¹³

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In confusing information environments, mental immune systems malfunction in predictable ways. Minds can become *immune deficient* and fail to produce a healthy response to real informational threats (manipulative advertising, say). They can also overreact to imaginary threats. Take the idea that a monolithic “mainstream media” conspires to hoodwink all but a clever few: it can render a person indiscriminately critical, even paranoid. The human mind is prone to autoimmune disorders.¹⁴

Throughout history, bad actors have used manipulative messaging to unhinge minds.

9. See *Mental Immunity*, chapter 8.

10. They even do this in strikingly similar ways: a challenge, for example, can “bind” to (and thereby neutralize) a problematic claim, in much the way an antibody can bind to (and thereby neutralize) a dangerous pathogen. <https://compass.onlinelibrary.wiley.com/doi/full/10.1111/spc3.12602>

11. <https://www.nature.com/articles/d41586-020-00273-4>

12. By the time this declaration is released, *This View of Life* magazine will have published an online symposium on mental immunity: <https://thisviewoflife.com/>.

13. The philosophical question ‘What makes good information good and bad information bad?’ is fascinating but need not concern us here. For present purposes, it’s enough to note that true, useful, and understanding-conducive information is generally beneficial, while false, harmful, and misunderstanding-conducive information is generally problematic. The philosophical issues raised here are explored in depth in (Norman, 2021).

14. <https://www.psychologytoday.com/us/blog/mental-immunity/202106/how-address-allergies-the-mind>

Cult leaders and xenophobes, demagogues and propagandists, climate denialists, conspiracy theorists, and religious extremists: all of them use similar playbooks.¹⁵ And their methods allow them to hijack mental immune systems.¹⁶ The problem is longstanding, but modern information technologies afford bad actors unprecedented power to manipulate vulnerable minds.¹⁷ Some now see social media-fueled disinformation as a serious threat to democratic modes of governance.^{18a 18b}

Solutions

Minds left to the depredations of such actors are the opposite of free. Cracking down on manipulative speech, though, can amount to censorship. So what's the alternative?

We can teach people how to spot and reject manipulative messaging. Such immune-boosting, “demand-side” empowerment is the liberty-preserving alternative to “supply-side” censorship. By strengthening mental immune systems, we can shrink the market for disinformation and free captive minds.

In a digitally connected age, the science of mental immunity becomes essential: without it, we can't safeguard our most precious freedoms.

“The human mind is prone to autoimmune disorders.”

We call the interdisciplinary science of mental immunity *cognitive immunology*. It builds on the findings of [inoculation theory](#) and extends the framework's explanatory power. It advances a more general theory of mental immunity and points to innovative solutions to our disinformation

problem. For just as biological immune systems can be boosted, fortified, and modulated, *cognitive* immune systems can be boosted, fortified, and modulated.¹⁹ (We mean the cognitive immune systems of the *willing*; we're not advocating forced immunization.) The trick is to help folks distinguish between real and imaginary threats.

Call to Action

Immunology gave us inoculants, immune boosters, and vaccines. This transformed the human condition, saving hundreds of millions of lives.²⁰ We think cognitive immunology can have a comparable impact on human welfare.

Epidemiologists know that modest reductions in aggregate susceptibility can yield outsized benefits: tweak certain variables and you can bring a raging pandemic under control. Similar interventions should work to bring *infodemics* under control.²¹ Translation: a systematic approach to building cognitive resilience could pay off handsomely. Both the science and efforts to apply its findings, though, need resources.

There's much we don't know about the mind's immune system. Filling in the gaps in our understanding should be a scientific priority. We can't wait, though, to begin applying what we *do* know: our predicament is too dire.

What Works?

Already, forward-thinking actors are using the insights of inoculation theory to combat fake news and conspiracy thinking. Inoculation has been used to prevent a lie from overturning an American presidential election.²² It's been used to “prebunk” a false narrative of Ukrainian aggression.²³

15. <https://www.newsweek.com/how-talk-covid-deniers-1525496>

16. <https://www.degruyter.com/document/doi/10.1515/9789048553921-015/html>

17. Fisher, M. (2022). *The Chaos Machine*. Little Brown. See also <https://www.populismstudies.org/Vocabulary/weaponization-of-information/>.

18.a <https://www.epc.eu/en/publications/Disinformation-and-democracy-The-home-front-in-the-information-war-21c294>

18.b <https://www.oecd.org/governance/reinforcing-democracy/responses-to-mis-dis-information/>.

19. https://en.wikipedia.org/wiki/Inoculation_theory

20. <https://en.wikipedia.org/wiki/Immunology>

21. <https://www.who.int/teams/risk-communication/infodemic-management>

22. <https://www.wnycstudios.org/podcasts/otm/segments/war-pineapple-on-the-media>

23. <https://www.economist.com/united-states/2022/02/26/deploying-reality-against-putin>

Countries like Lithuania and Estonia are using it to inoculate their populations against Russian propaganda.²⁴ Mind-inoculation works.²⁵

“We need the science of mental immunity to safeguard our most precious freedoms. We call it cognitive immunology.”

Medical inoculation isn't the only way to strengthen the body's immune system, and psychological inoculation isn't the only way to strengthen the mind's immune system. So what else can we do? We can teach children the art of Socratic questioning.²⁶ We can tell stories that bring home our vulnerability to false narratives.²⁷ We can instill epistemic humility.²⁸ We can teach lateral reading.²⁹ We can improve critical thinking curricula.³⁰ We can help people shed “immune disruptive” ideas.³¹ We can clarify the difference between rational confidence and dogmatic certainty.³² We can instill the growth mindset.³³ In all these ways, we can activate dormant mental immune systems.³⁴

It's not enough, though, to focus on individual minds. We need to think about the defenses and vulnerabilities of *networked* minds. We need institutions that protect the “information commons.”³⁵ We need robust norms of accountable talk.³⁶ We need to reduce toxic polarization and minimize its immune-compromising effects.³⁷ We need to practice the art of “street epistemology” and share the immune-boosting effects of cordial curiosity.³⁸ We need to adjust the algorithms that

give inflammatory speech hyper-virality on social media.³⁹

“Together, we can build a world where cognitive contagion no longer frustrates human aspirations.”

Our world needs an immunologically sophisticated approach to combating mis- and disinformation. So join us in advancing the science of mental immunity. Apply its findings to the people and organizations in your orbit. Together, we can build a world where cognitive contagion no longer frustrates human aspirations.

What Can You Do

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24. <https://www.bbc.com/future/article/20220128-the-country-inoculating-against-disinformation>

25. <https://stratcomcoe.org/publications/inoculation-theory-and-misinformation/217>

26. <https://cognitiveimmunology.net/the-new-socratic-method>.

27. <https://www.jonathangottschall.com/the-story-paradox>

28. <https://adamgrant.net/book/think-again/>

29. <https://www.youtube.com/watch?v=SHNprb2hgZU>

30. <https://thinkingispower.com/>

31. <http://www.harperwave.com/mi>

32. <https://cognitiveimmunology.net/reasons-fulcrum>

33. <https://hbr.org/2016/01/what-having-a-growth-mindset-actually-means>

34. <https://cognitiveimmunology.net/12-steps>

35. <https://thisviewoflife.com/introducing-the-prosocial-commons/>

36. <https://link.springer.com/article/10.1007/s11217-007-9071-1>

37. <https://www.listenfirstproject.org/listen-first-coalition>

38. <https://streetepistemology.com/sei>; https://www.youtube.com/channel/UCiWKxPMKUBFjN3Ny_VxpkYw

39. <https://www.theatlantic.com/ideas/archive/2022/07/social-media-harm-facebook-meta-response/670975/>