

The Immune System That Mistakes Repair for Infection

Absurd Health Institute · Hypothesis and mechanistic perspective

Central hypothesis

The immune system does not respond only to pathogens. Damaged host tissue can release signals that recruit inflammatory responses even in sterile conditions. A potentially self-sustaining disease state can arise if the consequences of inflammation continually generate more of those signals.

The biological route

Extracellular ATP, mitochondrial DNA, uric acid crystals and damaged matrix fragments can function as danger-associated signals under defined conditions. Mitochondrial DNA released into the cytosol can activate cGAS-STING signaling; damaged cells recruit innate immune clearance. The plausible feedback loop is damage, innate activation, secondary injury and further danger signal release.

An illustrative scenario

Mitochondrial DNA found in the wrong cellular compartment can activate a DNA-sensing immune pathway. That mechanism is much more specific than saying mitochondria are “toxic” or the body has failed to detoxify. The cause may be oxidative injury, apoptosis-related membrane permeabilization or other stress. A theory must show how the nucleic acid leaves its usual location, which cell senses it, and whether this response is necessary for pathology.

Alternative explanations and limits

An activated inflammatory pathway does not mean immunity is “confused.” Many sterile responses are appropriate and terminate normally. Ongoing disease may instead reflect infection, ischemia, autoimmune antigen recognition or mechanical injury. Calling all inflammation mistaken ignores necessary wound defense.

What would change the conclusion?

The discriminating evidence is a causally important endogenous ligand whose reduction alters inflammation despite no change in microbial burden or primary damage. The model weakens if inflammation requires an untreated infectious or structural trigger.

The distinctive prediction

A sterile immune feedback loop should persist without a replicating pathogen and weaken when its identified self-derived danger signal is removed. Without that discriminating observation, inflammation could simply be responding appropriately to continuing injury.

Clinical interpretation

This conceptual lens supports the distinction between initiating insults and amplifying feedback circuits. It offers no basis for suppressing immunity indiscriminately or abandoning proven antimicrobial therapy.

Selected scientific reading

Contextual background, not direct validation of the proposed hypothesis.

Kim J et al. Molecular mechanisms of mitochondrial DNA release and activation of the cGAS-STING pathway. *Exp Mol Med*. 2023. <https://www.nature.com/articles/s12276-023-00965-7>

de Laval B et al. C/EBP β -dependent epigenetic memory induces trained immunity in hematopoietic stem cells. *Cell Stem Cell*. 2020. <https://doi.org/10.1016/j.stem.2020.01.017>

Editorial note: Original theoretical perspective, not an original clinical study, validated diagnosis, or treatment protocol.