Why This Matters for the Token System

The current system makes us sick. Not through malice — through design.

- Isolation increases inflammation
- Chronic stress damages immune function
- Lack of community accelerates disease
- Feeling powerless shortens lives

The token system addresses each of these at the root:

HEALTH FACTOR	CURRENT SYSTEM	TOKEN SYSTEM
Social connection	Declining, atomized	Built-in via vouch network, meetings
Stress response	Chronic, uncontrollable	Reduced via safety button, community support
Sense of purpose	Work often meaningless	Direct participation in governance
Control over environment	Minimal	Proximity-weighted voting on things that affect you

The research is clear: these factors don't just affect mood. They change gene expression. They regulate inflammation. They determine whether you get cancer.

The Core Finding

70-90% of cancers are caused by extrinsic factors – things we can control.

> *"The other causes of cancer, the extrinsic factors that are under our control, are responsible for more than 70 to 90 percent of the most common cancer types."*
>
> >
>
> *– American Institute for Cancer Research*

Only ~10% is the "random mutation, bad luck" type. The rest is environment, lifestyle, stress, connection, meaning.

We're not helpless. We're being harmed by systems we could change.

Psychoneuroimmunology: Your Mind Changes Your Immune System

This isn't woo. It's peer-reviewed science with decades of evidence.

What Stress Does

From Murray, Prokosch & Airington (2019), *Frontiers in Psychology*:

> *"Both acute and chronic stressors are associated with higher numbers of pro-inflammatory monocytes and elevated concentrations of pro-inflammatory cytokines in the periphery."*

Translation: Stress increases inflammation. Chronic inflammation causes disease.

> *"Stress activates immune cells in the brain called microglia and can disrupt the structure and function of the*

> *BBB [blood-brain barrier]."*

Translation: Stress doesn't just make you feel bad. It physically changes your brain's immune system.

The Social Defeat Model

Researchers created a stress model by putting aggressive rats with resident rats daily. The results:

> *"RSD causes resident rodents to release immature, pro-inflammatory immune cells from the bone marrow, promoting inflammation... RSD also leads to activation of microglia... which enhance neuroinflammation and facilitate the recruitment of pro-inflammatory monocytes across the BBB and into the brain."*

The effects persisted for **weeks after the stressor ended** and could be **re-activated by later stress**.

Sound familiar? That's what living in a hostile system does to us.

What Positive States Do

The flip side: positive psychological states **reduce** inflammation.

From Bower & Kuhlman et al. (2019), *Social and Personality Psychology Compass*:

> *"Higher levels of positive affect are associated with lower levels of circulating inflammatory markers, including IL-6, TNF-α, and CRP... and reduced stimulated cytokine production by immune cells."*

Eudaimonic Well-Being

This is the science term for "sense of purpose and meaning in life, social embeddedness, and potential for personal growth."

> *"Eudaimonic well-being is associated with lower CTRA gene expression in middle-aged and older adults."*

CTRA = Conserved Transcriptional Response to Adversity. It's a gene expression profile that shows up under chronic stress. Purpose and meaning literally change which genes get expressed.

Social Connection

> *"These findings are consistent with a large literature linking social support and social integration with lower inflammatory cytokines."*

Being connected to others isn't just nice. It's anti-inflammatory medicine.

How the Token System Creates Health

1. Reduced Isolation

The vouch mechanism requires 3 people to verify you exist. Those 3 people become your first community. The system expands from there.

> *"Positive psychological states might signal safe environmental conditions, decreasing peripheral stress response signaling and associated mobilization of the pro-inflammatory network."*

When you know people have your back, your immune system calms down.

2. Safety Response

The safety button provides 60-second community response. Compare to 20+ minute police response (if they come at all).

Research on domestic violence shows safety buttons are the most effective intervention. But the mechanism is broader:

> *"To the extent that positive states involve feelings of social connection or integration, this may shift the immune system away from inflammation and towards an antiviral response program."*

Knowing help will come changes your physiology.

3. Control and Agency

Proximity-weighted voting means you actually control things that affect you.

> *"Chronic stress elevates cortisol levels, impairing DNA repair, weakening the immune system, and contributing to cancer progression."*

The opposite of chronic stress is agency. When you can act on your environment, stress becomes manageable.

4. Purpose and Meaning

Participating in governance, helping your community, being part of something larger than yourself — this is eudaimonic well-being in practice.

> *"Eudaimonic well-being encompasses a sense of purpose and meaning in life, social embeddedness, and the potential for personal growth."*

The token system isn't just governance. It's a structure for meaning.

Preventative Health: The Numbers

From the Australian Institute of Health and Welfare (2024):

> *"More than a third of the Australian population suffers from preventable diseases and health conditions."*

> *"In 2024 alone, Australians lost around 5.8 million years of healthy life due to premature death or living with illnesses."*

From Oracle Healthcare:

> *"Up to 36% of Australia's total disease burden could be prevented by addressing risk factors such as smoking, poor diet, alcohol use and physical inactivity."*

> *"For every $1.40 invested in preventative health, it's estimated Australia saves around $13 in healthcare costs."*

We know how to prevent disease. We just don't do it because the system isn't designed for prevention.

The Behavioral Immune System

Humans have a "behavioral immune system" — psychological and behavioral responses that prevent infection before it happens.

From Murray et al. (2019):

> *"Humans proactively respond to disease-connoting cues with a cascade of affective and cognitive responses which, in turn, motivate behavior that minimizes the probability of infection."*

This system is shaped by environment:

> *"Systems shape behavior. Current system rewards hoarding and isolation. This one rewards connection and accountability. Same humans, different outcomes."*

The token system creates an environment where healthy behavior is the path of least resistance.

Physical Activity and Sleep

Two behaviors with massive health effects — both undermined by the current system.

Physical Activity

> *"Individuals who exercise regularly have lower circulating and intracellular markers of inflammation."*

> *"Exercise appears to shift microglia from an inflammatory to a neuroprotective phenotype."*

But when you work 40+ hours of bullshit jobs, commute, and collapse exhausted — when do you exercise?

UBI + end of bullshit work = time for physical activity.

Sleep

> *"Experimental sleep deprivation leads to acute increases in genomic markers of inflammation."*

> *"Sleep disruptions are closely linked to the development of both psychiatric and neurodegenerative disorders, such as depression, anxiety, and dementia."*

Chronic overwork destroys sleep. The system that demands 40+ hours destroys our health.

The Microbiome

Emerging research shows gut bacteria affect brain function and behavior.

> *"Gut microbiota are known to impact peripheral immunity and inflammation... SCFAs [short chain fatty acids] exert anti-inflammatory effects by inhibiting NF-κB signaling within immune cells."*

Stress disrupts the microbiome. Processed food (cheapest option under current system) disrupts the microbiome. Social connection supports it.

> *"Treatment with Lactobacillus rhamnosus increased expression of IL-10 (an anti-inflammatory cytokine) in Treg cells and led to fewer anxiety-related behaviors."*

The gut-brain axis is real. The system that produces chronic stress and poor diet is literally making us anxious and sick.

What Cannot Be Prevented?

Besides freak accidents:

- ~10% of cancers (random genetic mutations)
- Some congenital conditions
- Some autoimmune diseases (though even these are influenced by environment)
- Aging itself (though rate is modifiable)

Everything else is environmental. Which means: changeable.

Summary

WHAT WE KNOW	IMPLICATION
70-90% of cancers are extrinsic	Most disease is preventable
Stress increases inflammation	Chronic stress = chronic disease
Social connection reduces inflammation	Isolation kills
Purpose/meaning changes gene expression	Meaningless work harms us biologically
Control reduces stress response	Powerlessness is a health hazard
Sleep deprivation increases inflammation	Overwork destroys health

The token system addresses all of these:

- **Community** via vouch network and proximity meetings

- **Safety** via 60-second response
- **Purpose** via participation in governance
- **Control** via proximity-weighted voting
- **Time** via UBI and end of bullshit work

This isn't idealism. It's applied psychoneuroimmunology.

Sources

Organizations

- World Health Organization – Cancer Prevention
- American Institute for Cancer Research
- Australian Institute of Health and Welfare
- National Cancer Institute

Academic Papers

- Murray, D.R., Prokosch, M.L., & Airington, Z. (2019). PsychoBehavioroimmunology: Connecting the Behavioral Immune System to Its Physiological Foundations. *Frontiers in Psychology*, 10:200.
- Bower, J.E., Kuhlman, K.R., et al. (2019). Cultivating a healthy neuro-immune network: A health psychology approach. *Social and Personality Psychology Compass*.
- Kiecolt-Glaser, J.K., et al. (2003). Chronic stress and age-related increases in the proinflammatory cytokine IL-6. *PNAS*.
- Cole, S.W. (2014). Human social genomics. *PLOS Genetics*.

- Miller, G.E., Chen, E., & Parker, K.J. (2011). Psychological stress in childhood and susceptibility to the chronic diseases of aging. *Psychological Bulletin*.

Key Concepts

- **Psychoneuroimmunology (PNI)**: The study of interactions among psychological states, the brain, and the immune system
- **CTRA**: Conserved Transcriptional Response to Adversity — gene expression profile under chronic stress
- **Behavioral Immune System**: Psychological/behavioral responses that prevent infection
- **Eudaimonic Well-Being**: Sense of purpose, meaning, social connection, and growth potential

---

The Question

> *"A species that understands cause and effect would not deliberately contaminate its own food environment with substances that increase cancer risk. If we do this anyway, there are only two possible explanations: We are insane, or we hate ourselves and want to kill us. There is no third option that survives logic."*

We're not insane. We're trapped in a system that wasn't designed for human health.

The token system is designed for human health.

That's why it matters.

This document is part of the evidence base for the Token System. See also: MANIFESTO, JUSTIFICATIONS