



ION* Intelligence
of Nature™



What does
“Intelligence of Nature”
mean?

Nature has the answers

Two of the most foundational aspects of health:

- **communication** allows us to obtain what we need to thrive
- and **connection** provides a healthy and symbiotic relationship with our surroundings.

Nature effortlessly connects and communicates, providing an endless array of techniques to ensure that all living things are balanced and efficient.



Nature is always communicating

Singing birds, ant colonies, bees, and even vegetation have all adapted to their environment, finding ways to communicate with each other and connect with the natural world.





How does this intelligence —
— impact us?

Our invisible communicators

One device of nature's innate ability to communicate is the **microbiome**.

A collection of bacteria, fungi, and even parasites that exists on and within each of us, the microbiome is what helps facilitate communication and connection between us and the natural world.

Human

1 species – 20,000 genes

Parasites

300,000 species – 20,000 genes

Bacteria

40,000 species – 2 million genes

Fungi

3,500,000 species – 125 trillion genes





You are more microbe than human

Bacteria is not the enemy. In fact, you are mostly microbes with at least 10 times as many microbial cells as human cells.

Further, your microbiome is not set. It is constantly changing and adapting to new environments.

- The things you eat
- The places you go
- The air you breathe all contribute to its diversity and ultimately your health.





The weight of your microbiome

But it's not all about size. The true weight of your microbiome cannot be measured (although they think in total it's roughly 2.3 kilos).

Your microbiome is essentially a collection of microscopic communicators that (among other things):

- digest food
- regulate immune function
- produce essential vitamins and neurotransmitters that help with mood.

In essence, most of your wellbeing is riding on a well-balanced microbiome.



“All disease begins in the gut.”
-Hippocrates


A balanced microbiome communicates with the intestinal cells and prevents disease-causing bacteria from sticking to the gut lining.

A dysfunctional, **unbalanced** microbiome, on the other hand, contributes to:

- inflammation
- digestive issues
- brain fog
- and too many diseases to name.

This is known as **gut dysbiosis**.





A diverse microbiome is key, but let's go deeper

For your microbiome to thrive, it needs a healthy space to live, and your gut lining is foundational.

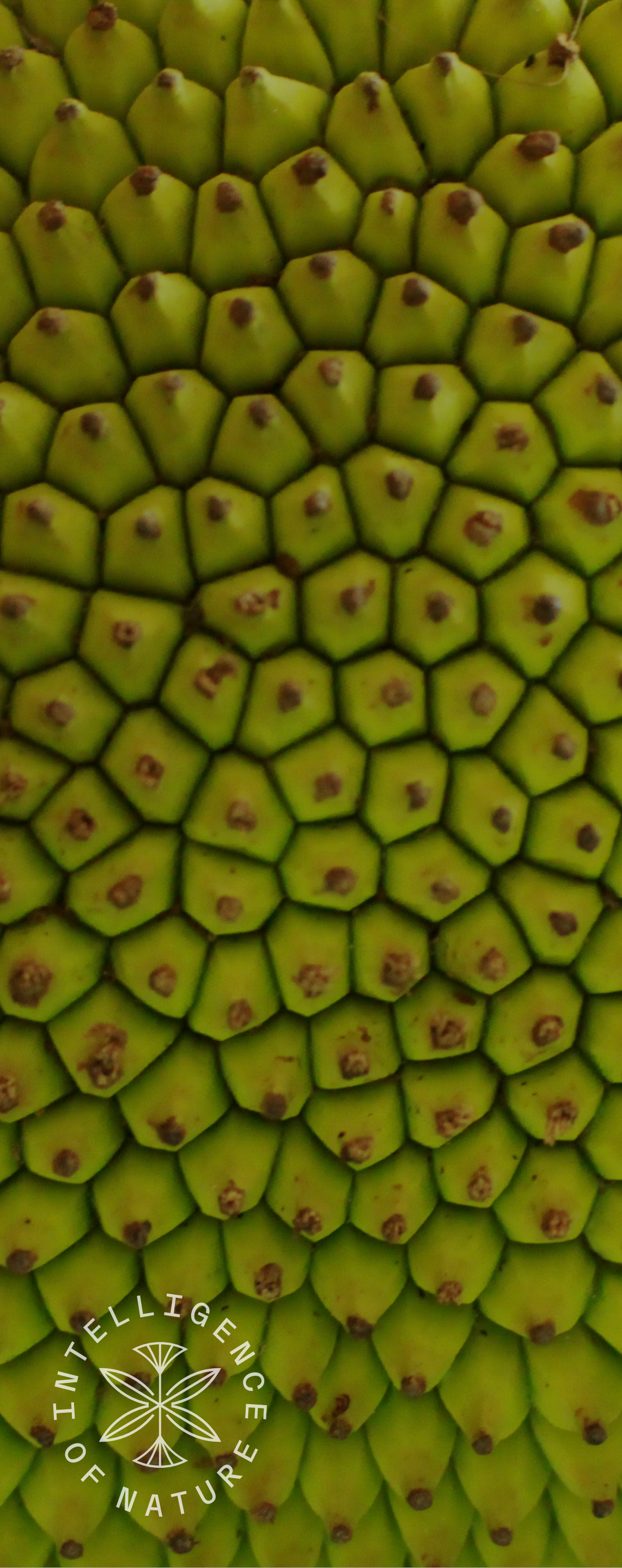
- It is the largest barrier system between you and the outside world.
- Two tennis courts worth of surface area from nose to rectum!
- Houses 70-80% of your immune system.

However, this barrier, called the **epithelial layer**, is only one cell layer thick (half the width of a human hair) and delicately held together by cellular seals called **tight junctions**. Coated in what is best described as a **mucosal “terrain”**, this is where your microbiome lives.



Epithelial Layer
+ Mucosal Terrain

= Gut Lining



Tight junctions: intelligence at a cellular level

The importance of tight junctions cannot be overstated. They are

- the unsung heroes of gut health, essentially acting as the intelligent gate keepers of the gut
- the seals in between the cells of the epithelial layer that keeps toxins and foreign particles out of the bloodstream

Further, tight junctions

- allow nutrients to enter, and
- support the mucosal “terrain” upon which your microbiome resides, making or breaking its balance and health.



Tight Junction Function

Tight junction function impacts:

- Front line immune function
- Inflammatory response
- Nutrient delivery (loss of membrane integrity means a lack of nutrient transport)
- Mental wellbeing (neurotransmitter production)
- Hydration (increase in membrane integrity means water gets to the cells more efficiently)
- Detoxification
- Cellular metabolism and hormone production
- Sleep quality



How does this all fit together?

tight junction integrity



```
graph TD; A[tight junction integrity] --> B[strong gut lining]; B --> C[stable environment for microbes]; C --> D[balanced microbiome]; D --> E[inherent health]
```

strong gut lining

stable environment for microbes

balanced microbiome

inherent health

If nature is intelligent, _____
_____ what is the problem?





We are working against ourselves

Over the last sixty years, several factors have played major roles in the **decline of tight junction function**, microbiome diversity, and overall health:

- **factory farming**
- **processed foods, and**
- **widespread antibiotic use to name a few**

The “leaky gut” phenomenon has become increasingly widespread, with studies showing roughly **80% of people suffering from some sort of gut issue.**

This has opened our eyes to a better understanding of the microbiome, the gut lining, and what we’re doing to harm these essential mechanisms.



A vertical strip on the left side of the slide features a microscopic image of tissue, showing cellular structures and a prominent circular area. In the bottom left corner of this strip is a circular logo with the text 'INTELLIGENCE OF NATURE' around a central floral or leaf-like design.

Antibiotic exposure comes in many forms

Primary Exposure:

At least 20% of all antibiotics prescribed in primary care in England are inappropriate.

A single course of antibiotics can negatively impact composition of both oral and gut microbiomes for at least a year. Further, one single regimen of antibiotics per year can increase your chances of depression by 25%.



Livestock: the secondhand smoke of the gut

Secondary Exposure:

Roughly **19.7 tonnes of antibiotics** are used in the British poultry meat sectors.

The over-use of antibiotics in food-producing animals can contribute to the development and spread of drug-resistant bacteria, which is a potential risk to public health.



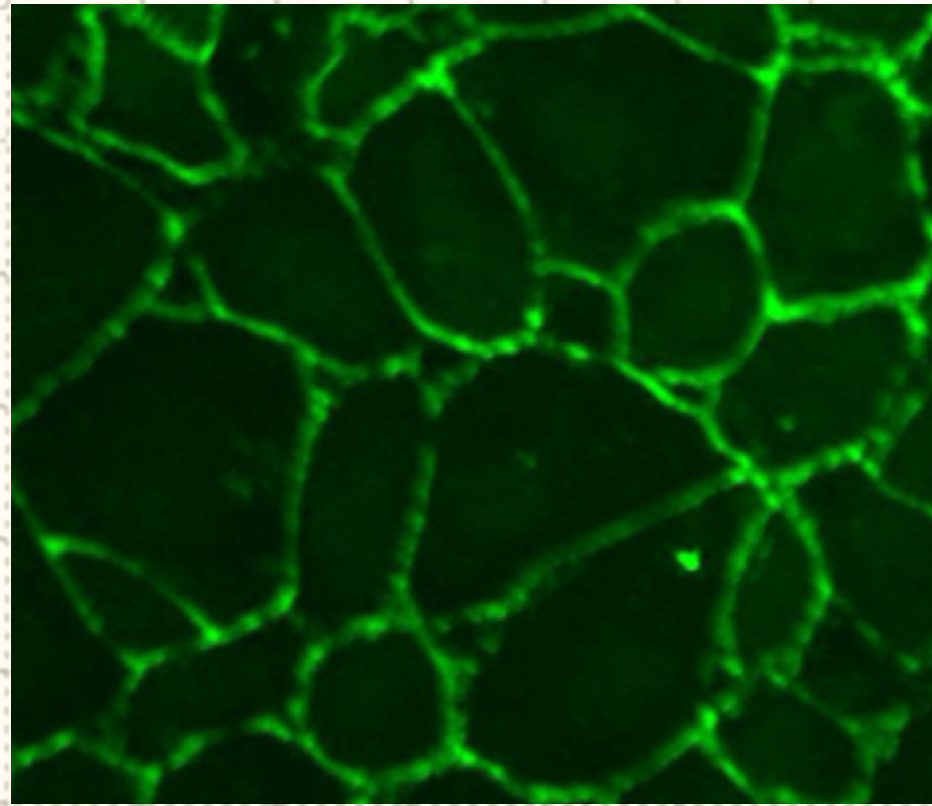
Pesticides and herbicides are in fact antibiotics

Perpetual Exposure:

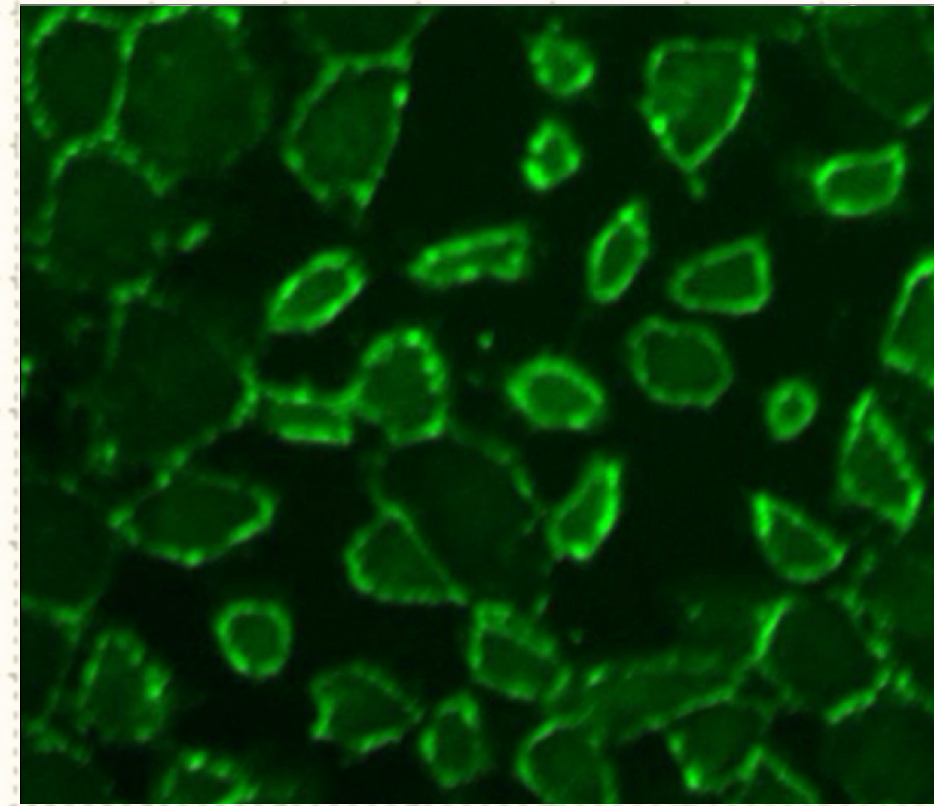
Glyphosate (Roundup), however, may be one of the most dangerous and prevalent antibiotics, and indeed the most unavoidable.

- 2.2 million kilograms treated on UK farmland a year
- 4.5 billion pounds worldwide every year
- More than a quarter of the UK's farmland is being treated with glyphosate
- Found in urine, blood, and breast milk of feed animals and humans alike
- Over 60% of wholemeal bread contains traces of glyphosate

What glyphosate is doing

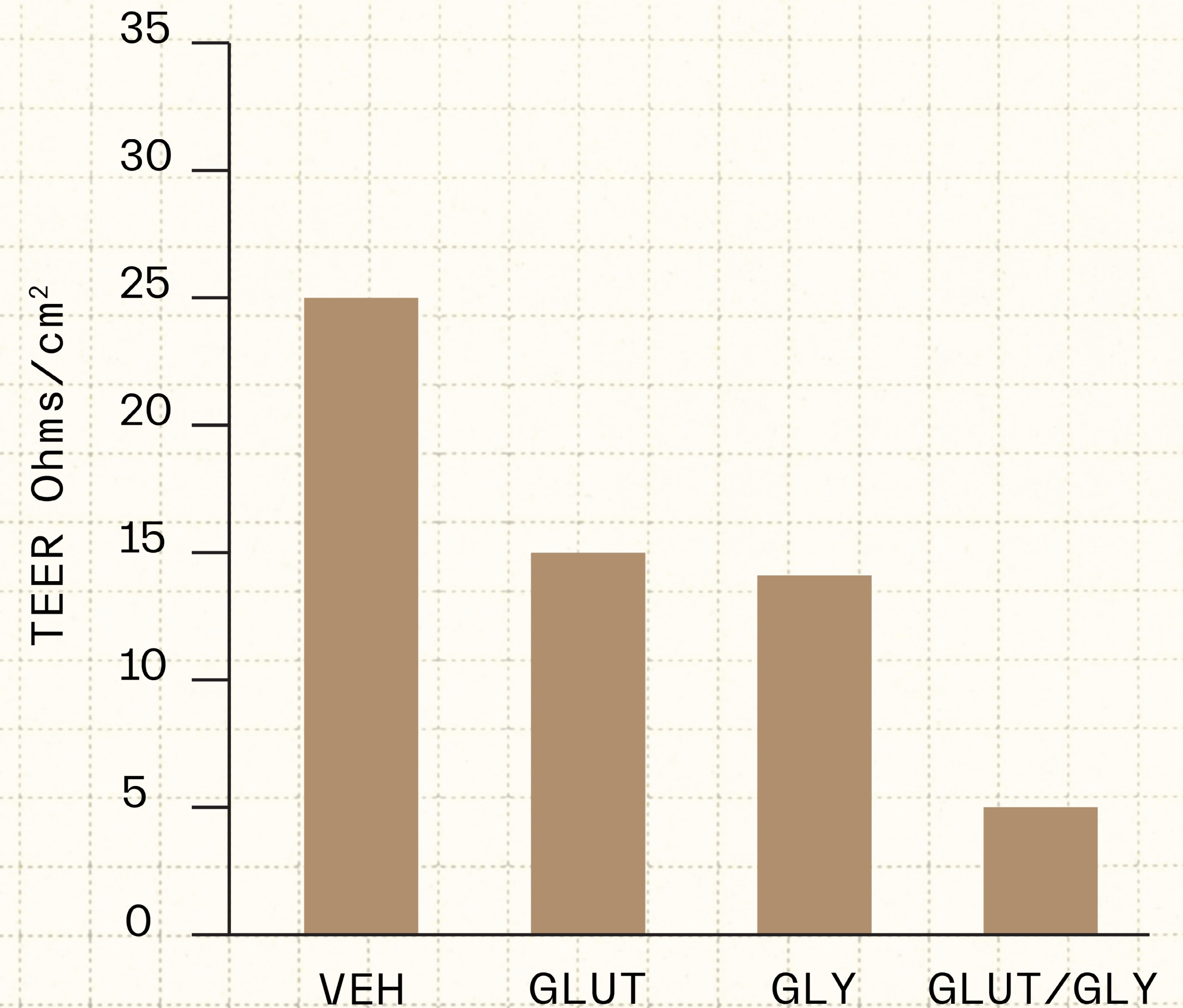


This is your gut membrane.

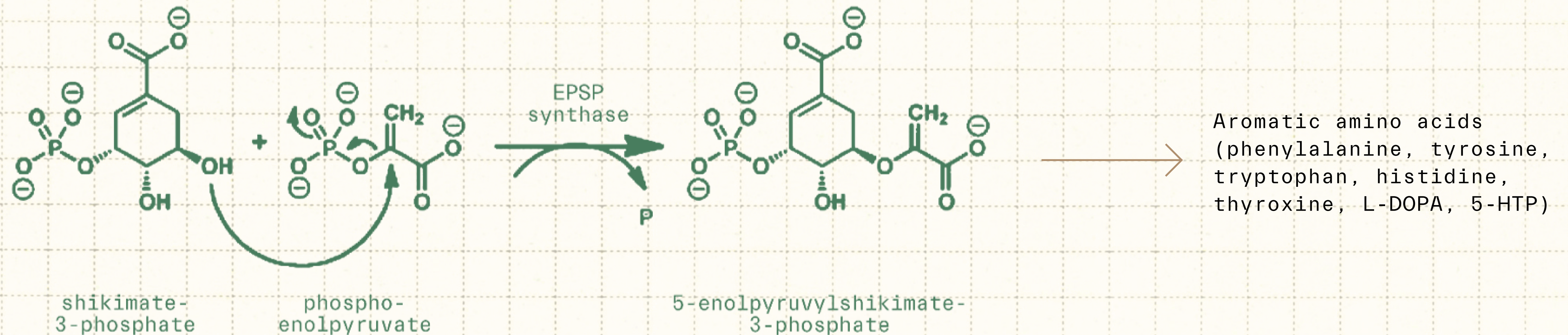


This is your gut membrane on glyphosate.

There is a growing body of well-developed science that demonstrates that the tight junction barrier in the gut can be degraded with exposure to glyphosate.



Glyphosate Prevents the Production of our Protein Building Blocks

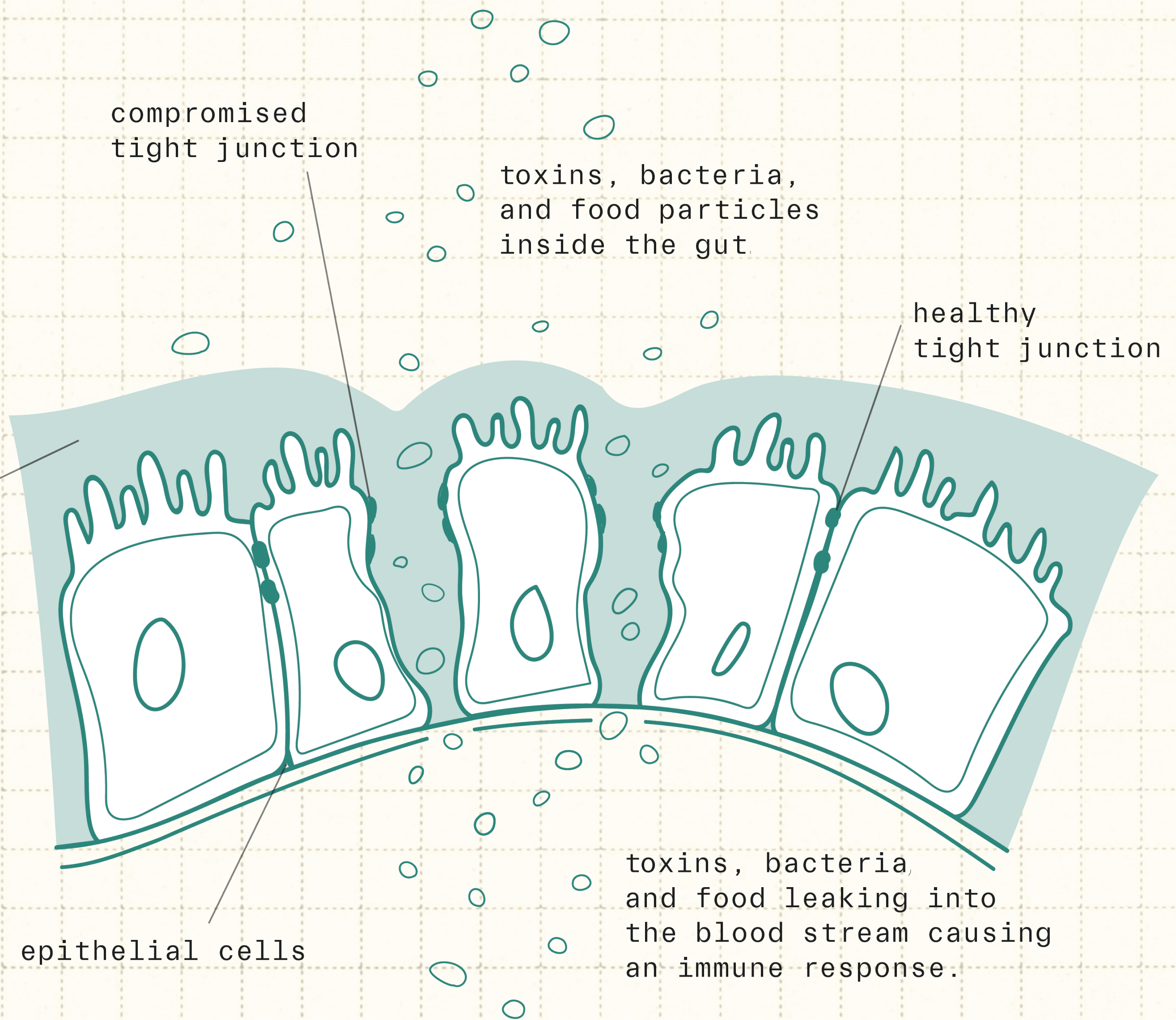


Glyphosate blocks the shikimate pathway, the metabolic pathway that exists in plants, fungi, and bacteria, but not in animals.

The shikimate pathway is the source of essential amino acids. These aromatic amino acids are responsible for making alkaloids, which are the medicinal qualities in our food.

Communication breakdown

With a breakdown in tight junction function, comes a breakdown in microbial communication and ultimately a breakdown in health.



Your body needs the inherent strength that it once possessed in order to communicate effectively. And for that, we look to nature itself...



The
60 — million — year — old
answer

Communication is key

A supplement in name only, ION^{*} doesn't simply add; it connects.

Sourced from ancient soil, ION^{*} has been shown to spark natural communication between human cells and the microbiome, allowing a healthy adaptive response to your environment at a cellular level.

In this way, ION^{*} works at a foundational and even primitive level that naturally recreates what our bodies should be able to do on their own.



What is ION*?

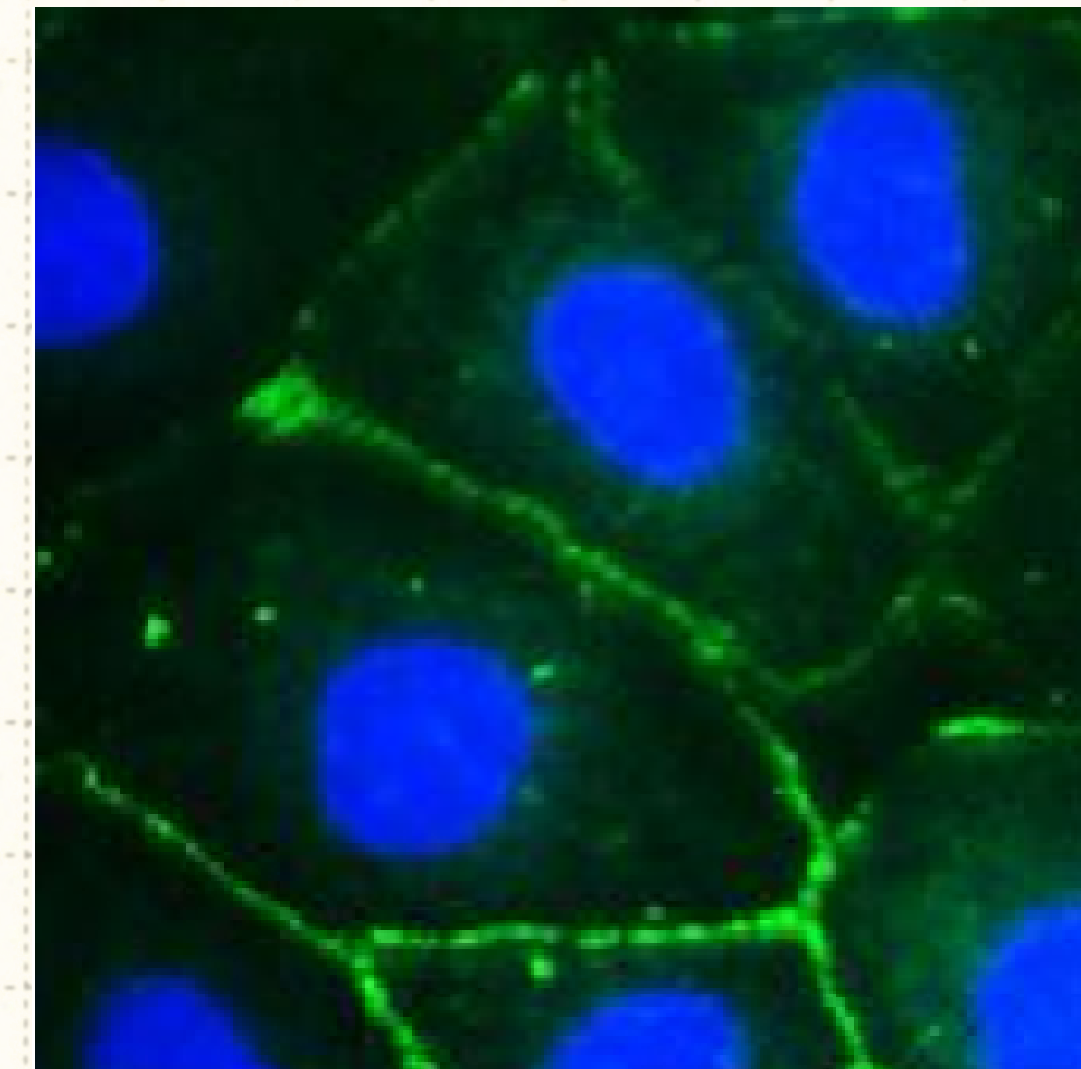
Let's start with what it's not. **ION*** is not a probiotic. It is derived from soil rich in bacterial metabolites but contains no actual bacteria.

Billions of a few strains of bacteria will not help to balance and diversify your gut in the way that it needs.

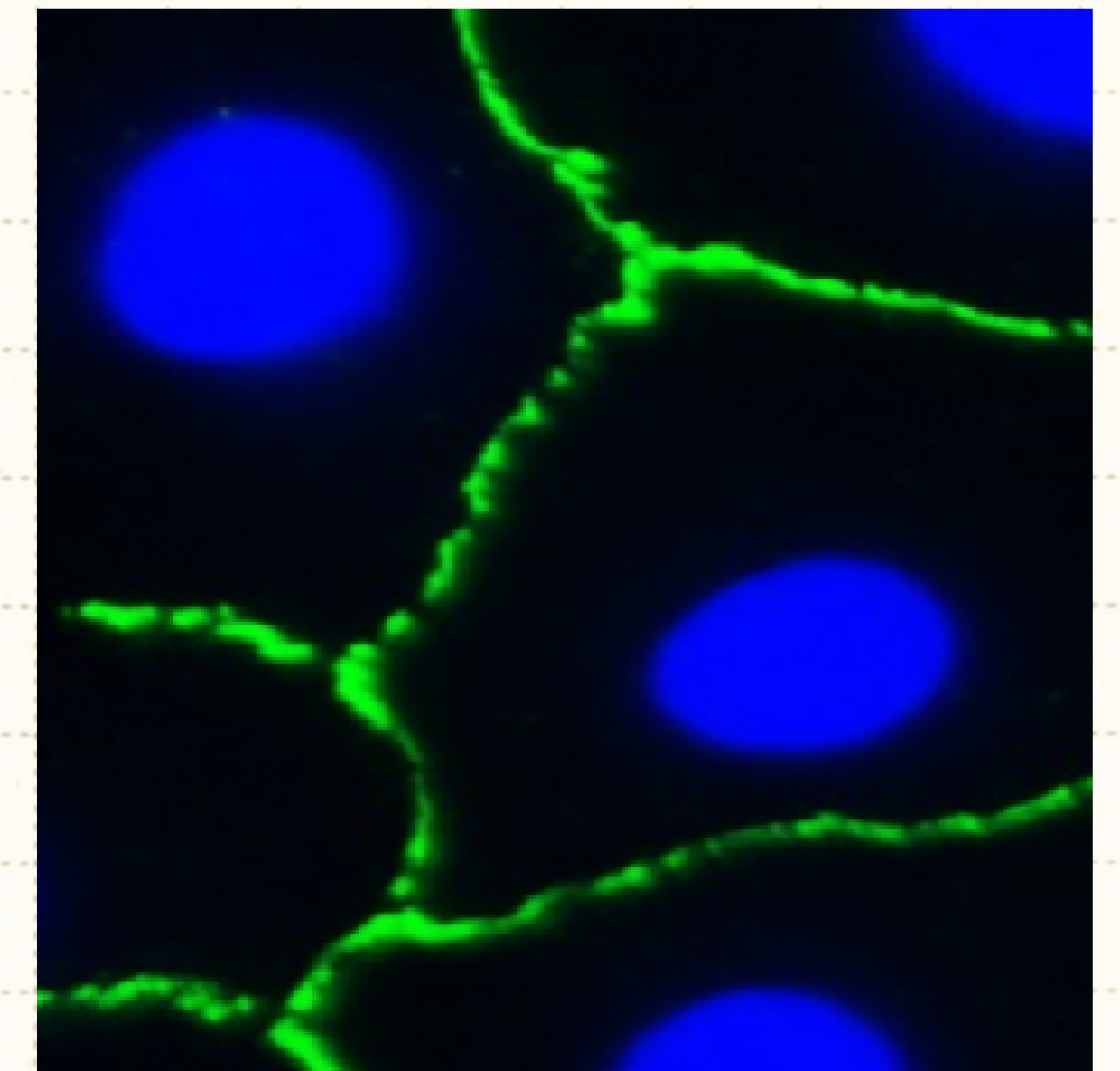
Further, by applying a one size fits all answer, probiotics are not helping to foster your individual needs. To do that, you must go deeper...



Why are probiotics falling short?



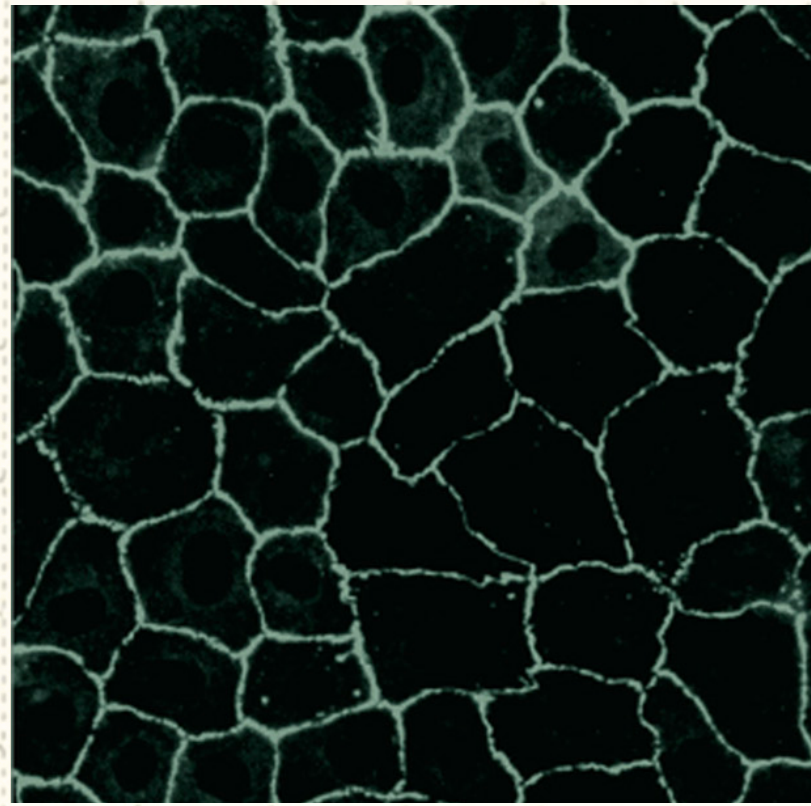
Mouse Stool



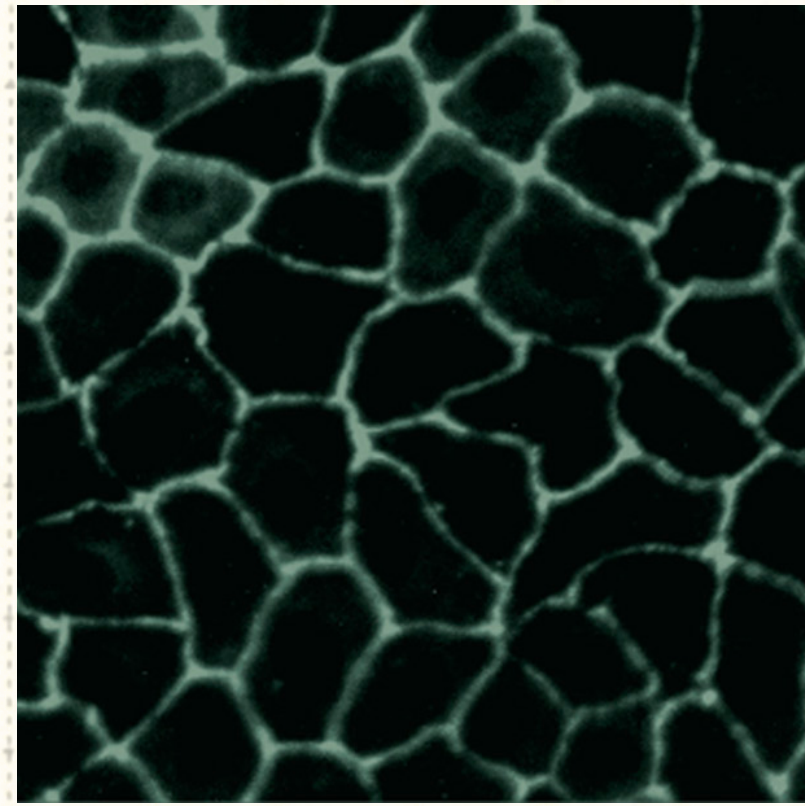
Human Stool

Two back-to-back papers published in the journal, Cell, in 2018, "Post-Antibiotic Gut Mucosal Microbiome Reconstitution Is Impaired by Probiotics and Improved by Autologous FMT" showed that probiotic administration prevents post-antibiotic recovery of native microbiome for 6 months or more.

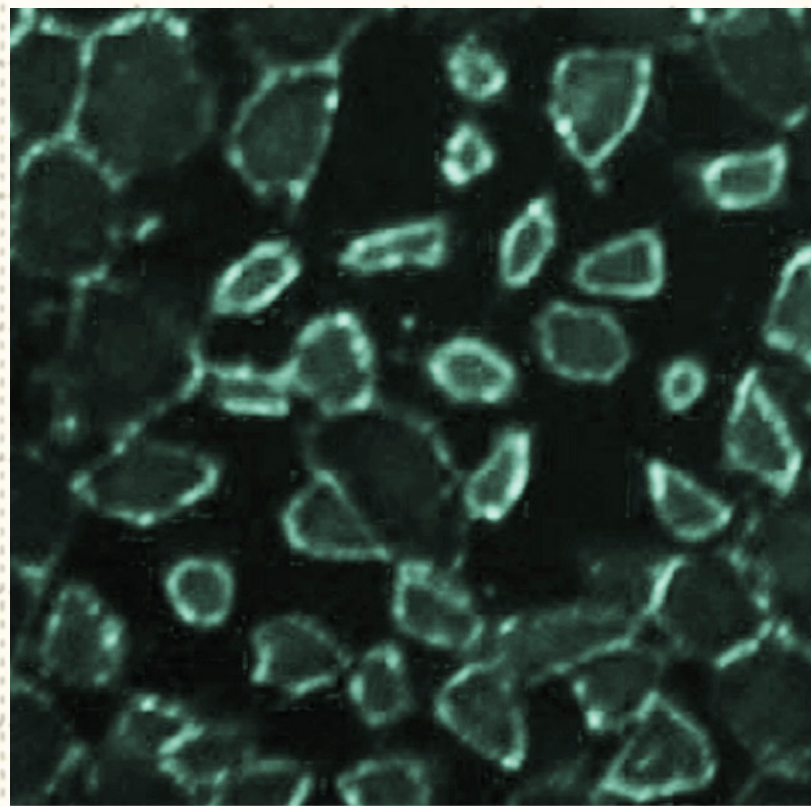
ION* goes beyond probiotics



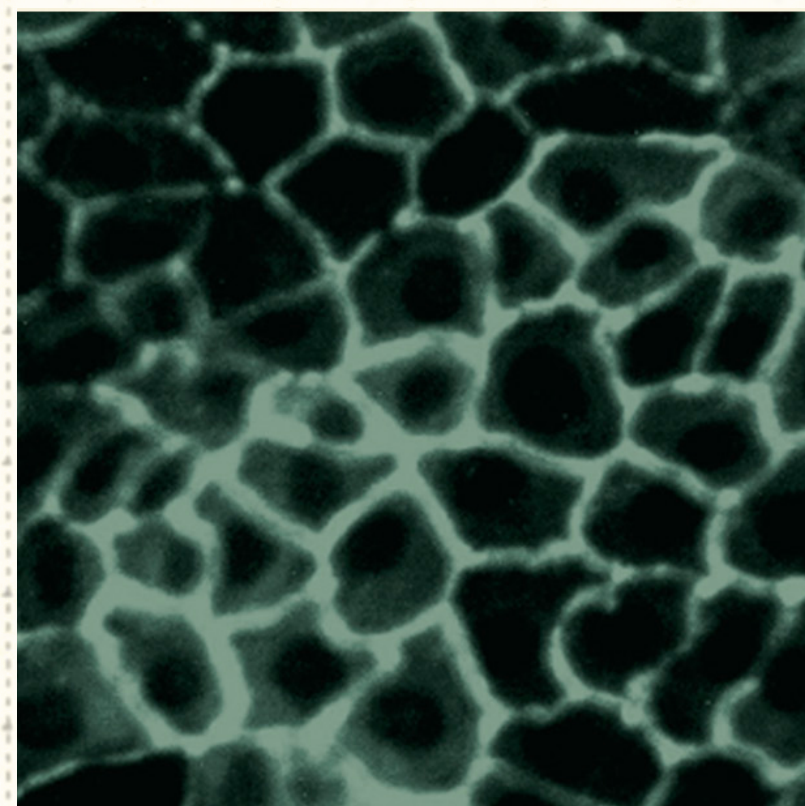
Normal gut lining.



Gut lining supported
with ION*.



Gut lining
compromised by
glyphosate.



Gut lining
reinforced with
addition of ION*

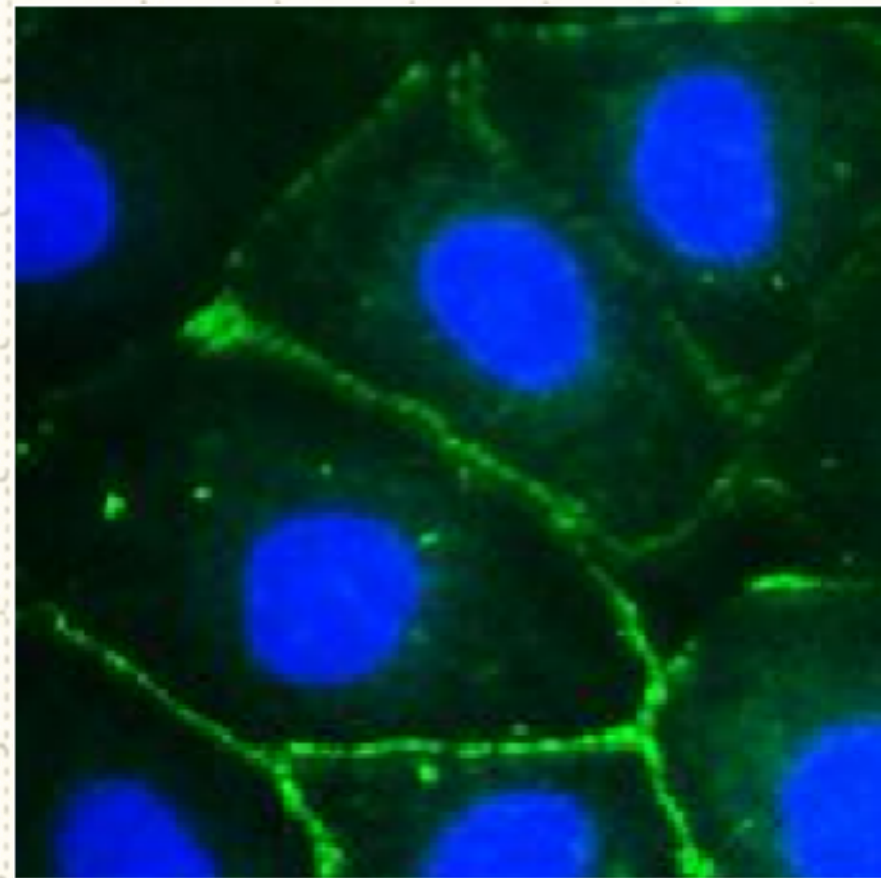
ION* is a humic extract naturally rich in a variety of trace minerals and amino acids that fortifies the tight junctions in your gut barrier (even in the face of glyphosate exposure).

ION^{*} is the Intelligence of Nature

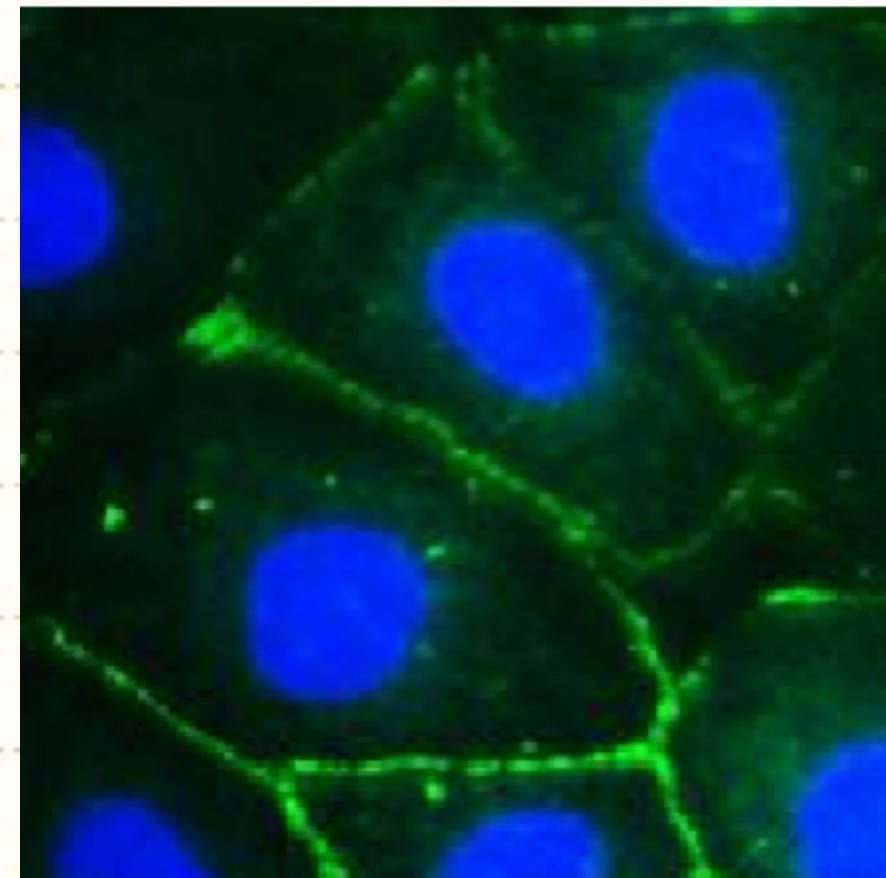
ION^{*} is a family of molecules made by bacteria and derived from 60-million-year-old soil. This family of carbon-based molecules naturally enhances the diversity of your unique microbiome via cell-to-cell communication.

- Communication is achieved via redox signaling - an intrinsic, tightly regulated component of cell metabolism, controlling cell growth and differentiation.
- Redox signaling in the gastrointestinal mucosa of your gut is held in an intricate balance. And emerging evidence suggests that precise control of redox signaling by these barrier-forming cells may dictate inflammatory response in the gut.
- ION^{*} has been shown in our studies to reduce mitochondrial output of ROS (reactive oxygen species) in healthy cells, which indicates greater efficiency in energy production.

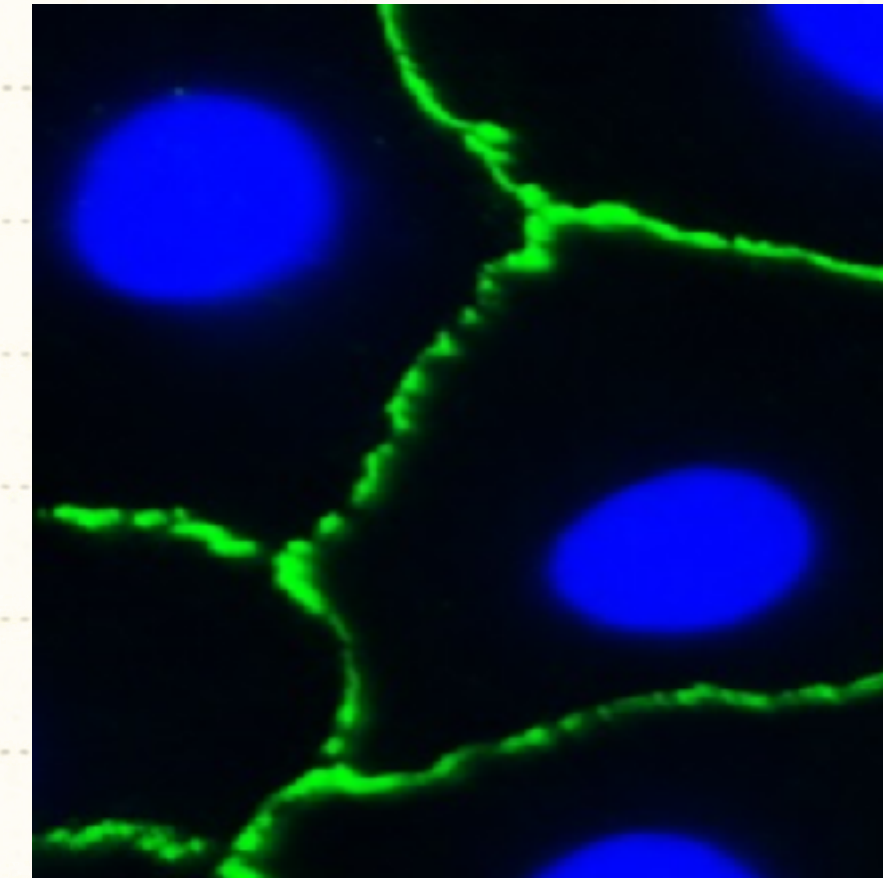




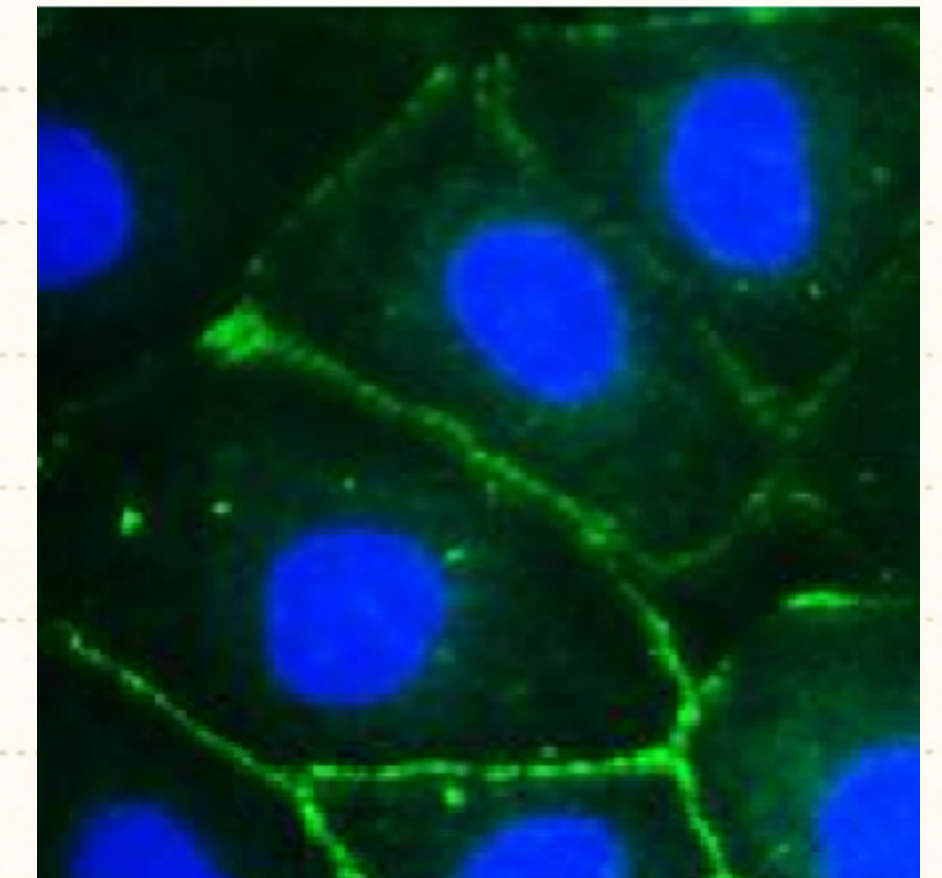
Control



Gliadin (Gluten)



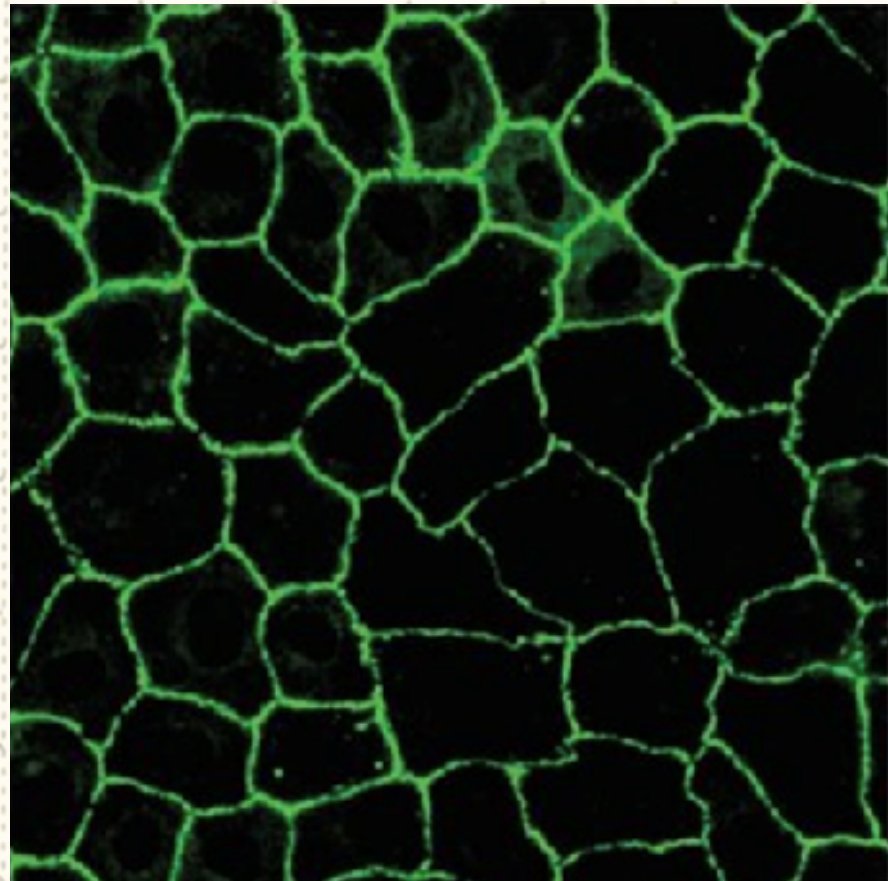
ION* Gut + Microbiome



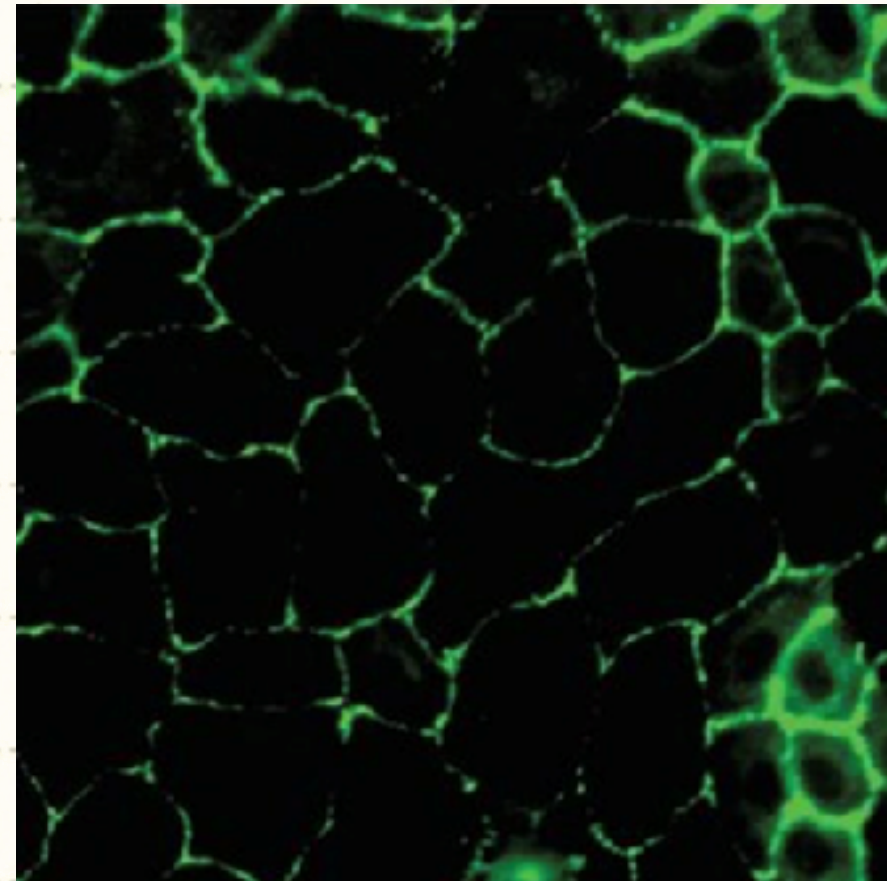
Gliadin (Gluten) and
ION* Gut + Microbiome

Journal of Nutrition and Food Sciences,
Our first peer-reviewed journal article

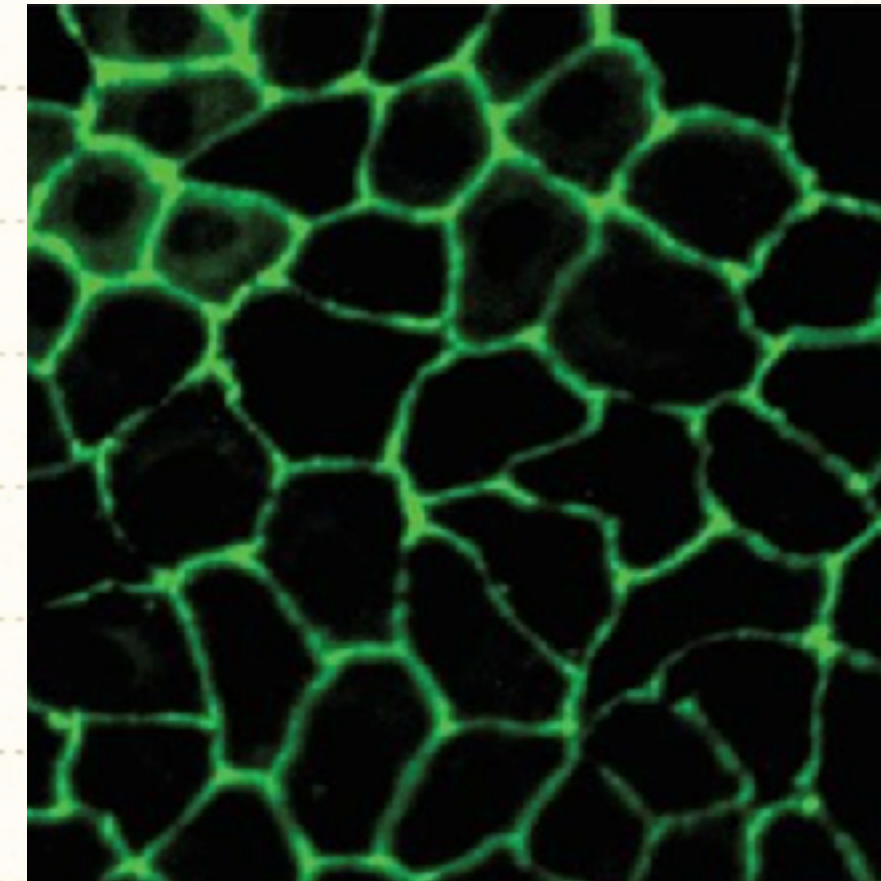
Protection Against Gluten-mediated Tight Junction
Injury with a Novel Lignite Extract Supplement



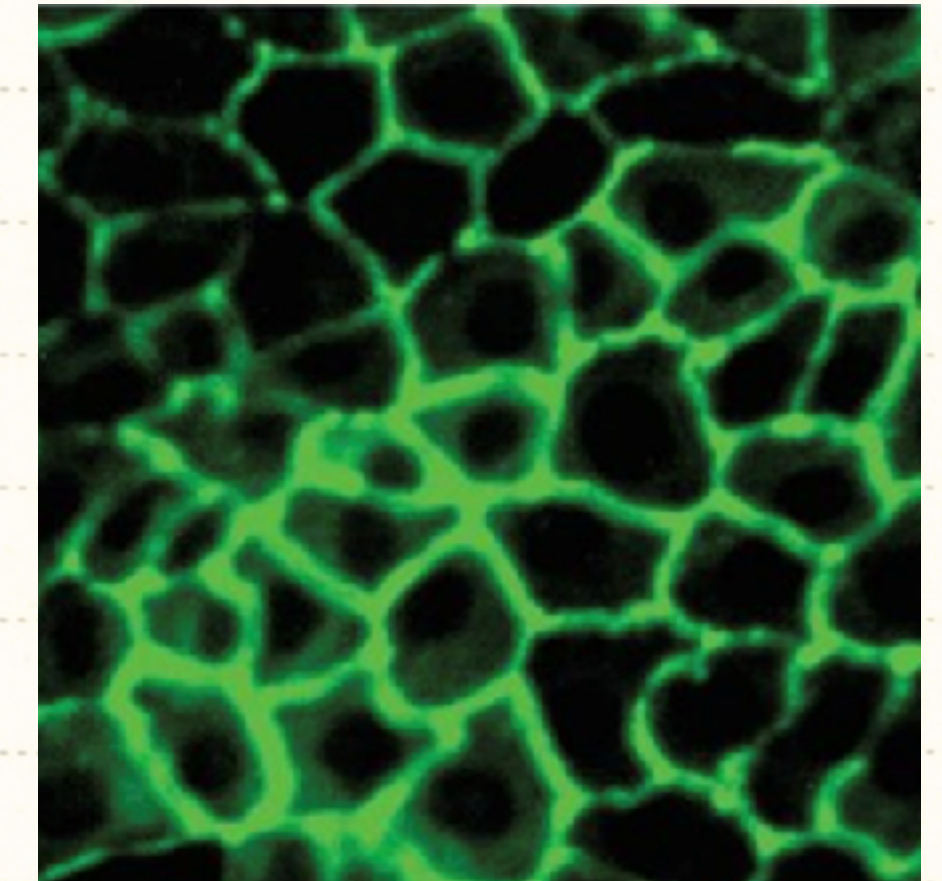
Normal gut lining



Gut lining compromised
by glyphosate



Gut lining supported
with ION*



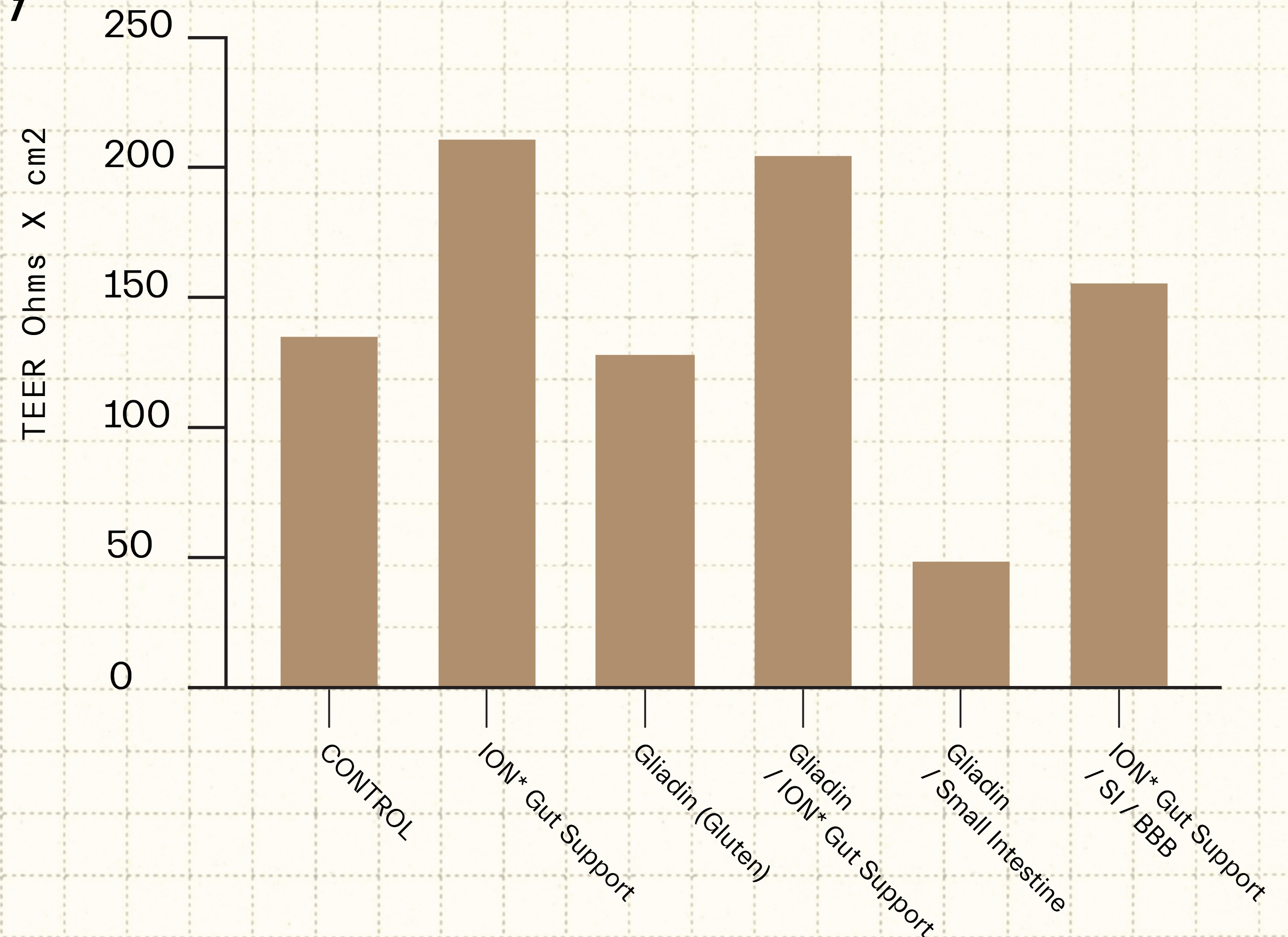
Gut lining compromised
by glyphosate with
ION* added for support

Journal of Clinial Nutrition & Dietetics,
Our second peer-reviewed journal article

Protective Effects of Lignite Extract Supplement on
Intestinal Barrier Function in Glyphosate-Mediated
Tight Junction Injury

Blood-Brain Barrier Response to Terrahydrite and Intestinal Gluten Injury

Our white paper shows not only the connection between the microbiome and the gut and blood-brain barrier systems, but also demonstrates the improved effect that ION^{*} has on the blood-brain barrier.



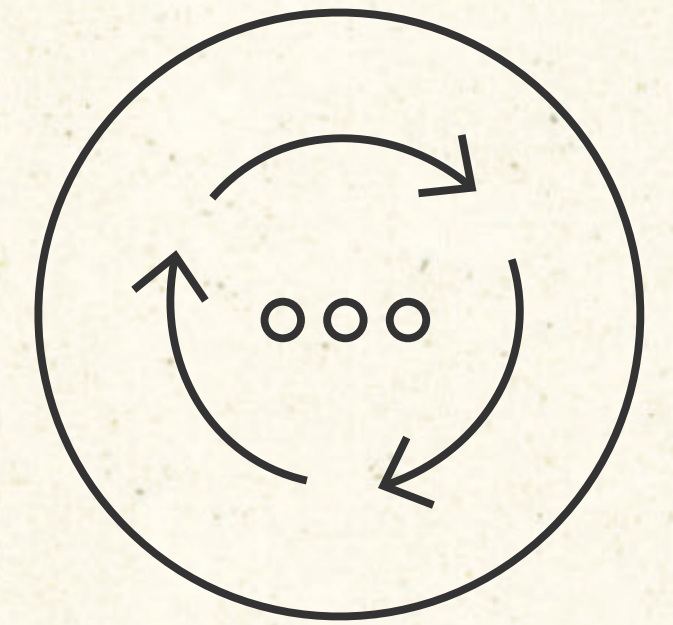
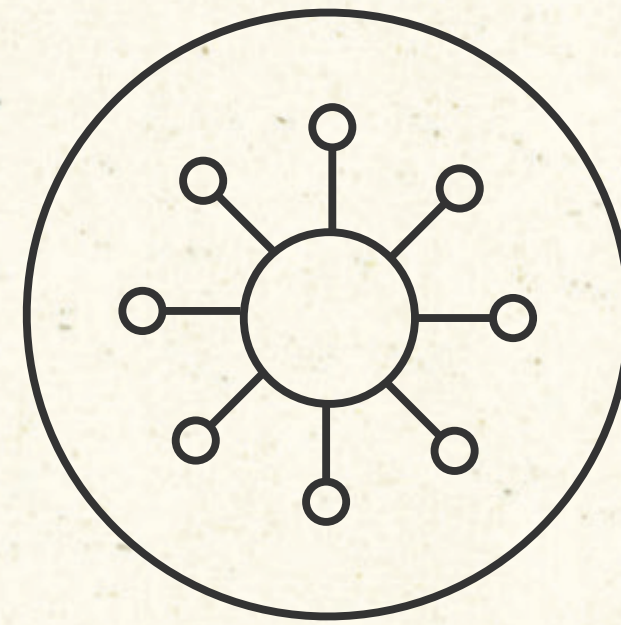
Human Clinical Trials

Our first clinical trial, “The Effects of ION* Dietary Supplement on Markers of Intestinal Permeability and Immune System Function in Healthy Subjects”, validates the marked effect that ION* has on reducing zonulin by 12%, IL-6 (an inflammatory marker) by 17%, and glyphosate by 23% in adults over a two-week course.

Our second clinical trial, “Dietary Supplementation of Terrahydrite® Promotes Lysine Production in Healthy Subjects” shows the ability of ION* to promote a twofold increase in the gut microbiome production of lysine by which it is expected to play an important role in protein production, epigenetic regulation, collagen production, immune system regulation, and a variety of cell processes.



The benefits are clear



A strengthened gut lining allows for the intelligent flow of nutrients, blockage of toxins, cell-to-cell communication and natural microbiome balance. A healthy gut improves **digestion**, **immune function**, **mood** and **mental clarity**.

Digestion

When tight junctions are damaged by harmful herbicides like glyphosate, uncontrolled absorption of undigested food particles and other foreign substances creates gas, bloating, and an inflammatory response.

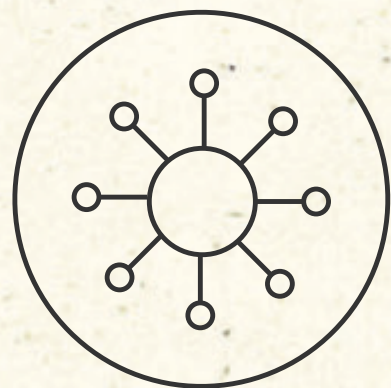
ION* instructs the body to regulate tight junction function which in turn improves digestion and nutrient absorption.



Immune function

With research indicating that 70% or more of the body's pathogen-fighting white blood cells reside in the gut and digestive track, gut health equals immune health.

In fact, during clinical trials, chronic immune markers were lower after just two weeks of use.



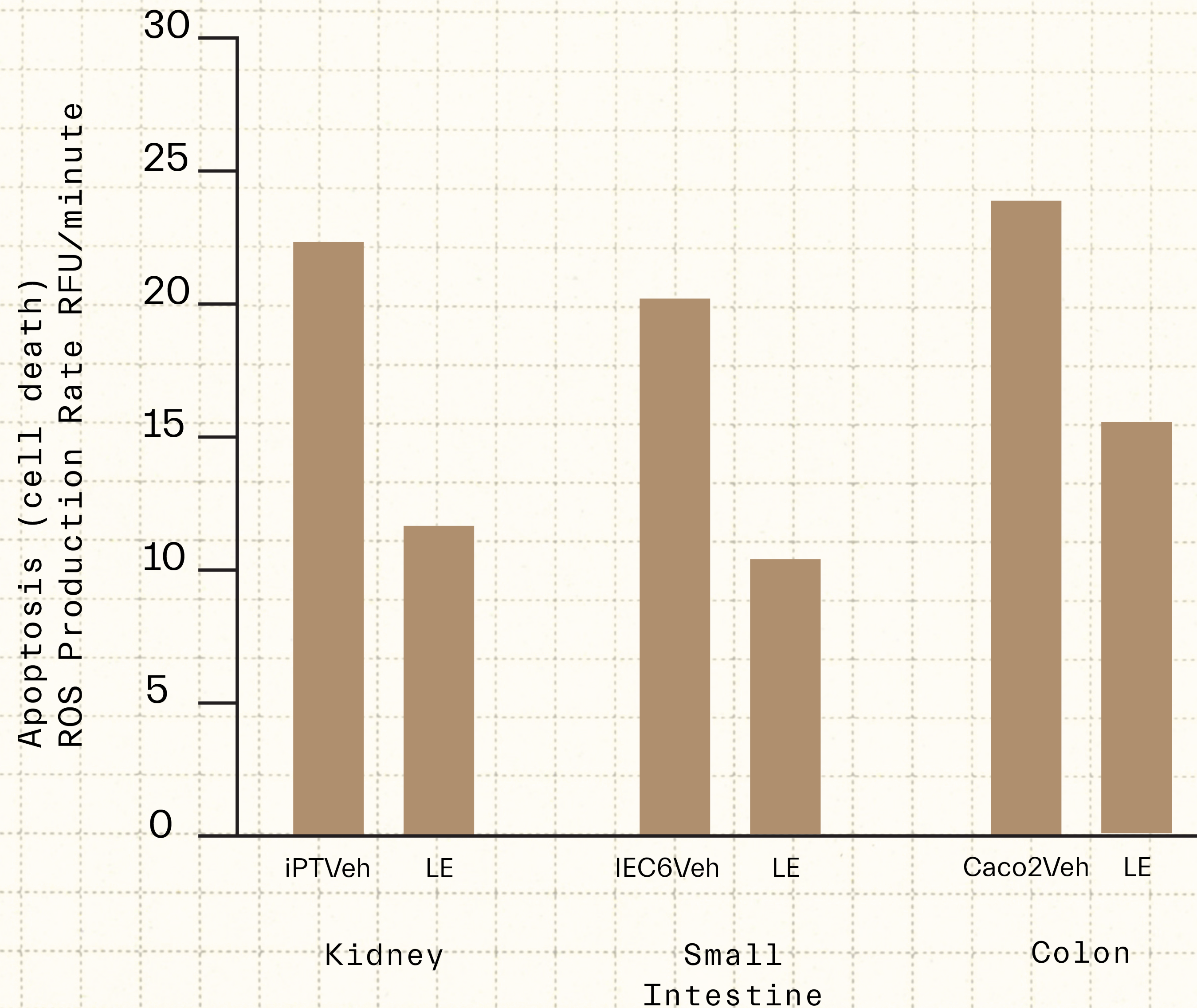
Mood and mental clarity

Approximately 15% of the gut lining is composed of enteric endocrine cells, which produce **over 90% of the serotonin** and **over 50% of the dopamine** that your body uses.

Tight junction integrity of the gut and blood-brain barrier systems allows your body to naturally produce the neurotransmitters most associated with good mood and mental clarity.



ION* Safety



ION* has been shown in our studies to reduce the production of Reactive Oxygen Species (ROS) in proximal renal tubes (iPT), small intestine (IEC-6), and colon (Caco-2) epithelial cells. The reduction in ROS allows the immune system to maintain a healthy injury/acute response reservoir.

ION* Gut + Microbiome Usage

Optimum usage for ION* Gut + Microbiome is one teaspoon (5ml) 3 times daily, 30 minutes before meals.

Sensitive individuals can start slowly: 1/8 teaspoon, doubling usage every 3-7 days as their bodies allow to reach suggested usage.

ION* Gut + Microbiome has a 6-8 hour efficacy on tight junction support. Frequency is more important than exact timing.

Keep smaller bottles around for increased success.

Separate by 30 minutes from iodine (including meds w/ iodine), binders, and ASEA.

Medications that are blood-level monitored should be checked within 2 weeks of starting ION*.



We haven't stopped with the microbiome

Our mission is macro.

Just as our passion for root-cause solutions led us to ION*, it has continued to lead us in all aspects of health. We are forging a path to restoration across the planet and it is critical that our pursuit of health begins with reconnecting to nature. We are dedicated to supporting a better world for future generations by contributing to Farmer's Footprint.



It's time to get back to nature's way

Farmer's Footprint, a 501(c)(3), is a coalition of farmers, educators, doctors, scientists, business leaders and a passionately engaged community aiming to expose the human and environmental impacts of chemical farming and offering a path forward through regenerative agricultural practices.

Learn more at www.farmersfootprint.us



