

Casual Friday Series

# **Mycotoxins and Chronic Care Patients**

A Biogenetix Clinical Presentation

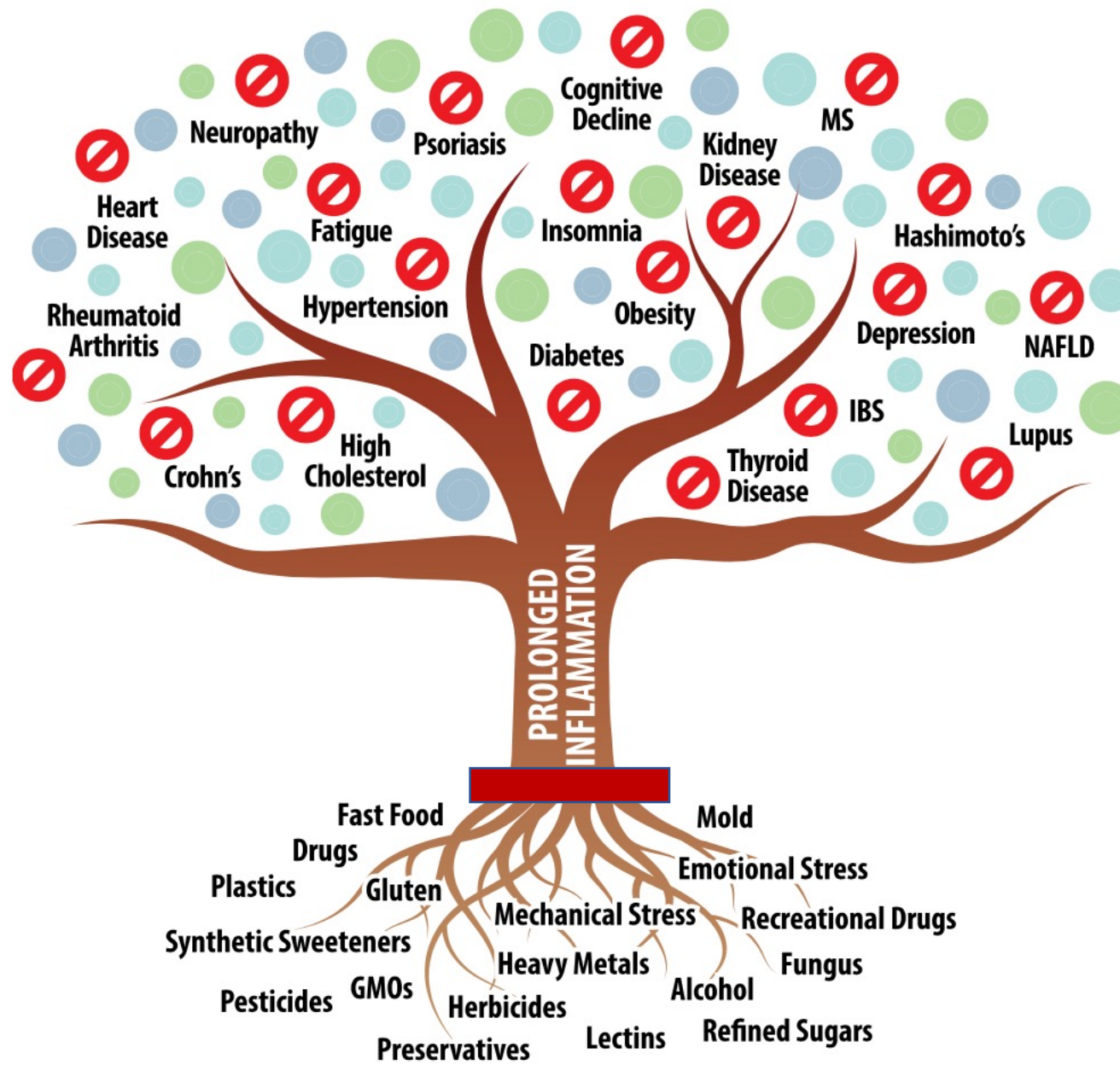
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- *Information in this presentation is not intended, in itself, to diagnose, treat, reverse, cure, or prevent any disease. While this presentation is based on medical literature, findings, and text, The following statements have not been evaluated by the FDA.*
- *The information provided in this presentation is for your consideration only as a practicing health care provider. Ultimately you are responsible for exercising professional judgment in the care of your own patients.*





# Mycotoxins

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Fungi are major plant and insect pathogens, but they are not nearly as important as agents of disease in vertebrates, i.e., the number of medically important fungi is relatively low. Frank growth of fungi on animal hosts produces the diseases collectively called mycoses, while dietary, respiratory, dermal, and other exposures to toxic fungal metabolites produce the diseases collectively called mycotoxicoses.

Mycoses range from merely annoying (e.g., athlete's foot) to life-threatening (e.g., invasive aspergillosis). The fungi that cause mycoses can be divided into two categories, primary pathogens (e.g., *Coccidioides immitis* and *Histoplasma capsulatum*) and opportunistic pathogens (e.g., *Aspergillus fumigatus* and *Candida albicans*). Primary pathogens affect otherwise healthy individuals with normal immune systems. Opportunistic pathogens produce illness by taking advantage of debilitated or immunocompromised hosts. The majority of human mycoses are caused by opportunistic fungi ([149](#), [172](#), [245](#), [265](#)). The mechanisms of pathogenesis of both primary and opportunistic fungi are complex, and medical mycologists have devoted considerable research energy trying to identify the factors that distinguish fungal pathogens from saprophytic and commensal species ([31](#), [66](#)). Some infections remain localized, while others progress to systemic infection. For many mycoses, the ordinary portal of entry is through the pulmonary tract, but direct inoculation through skin contact is not uncommon.





# Mycotoxins

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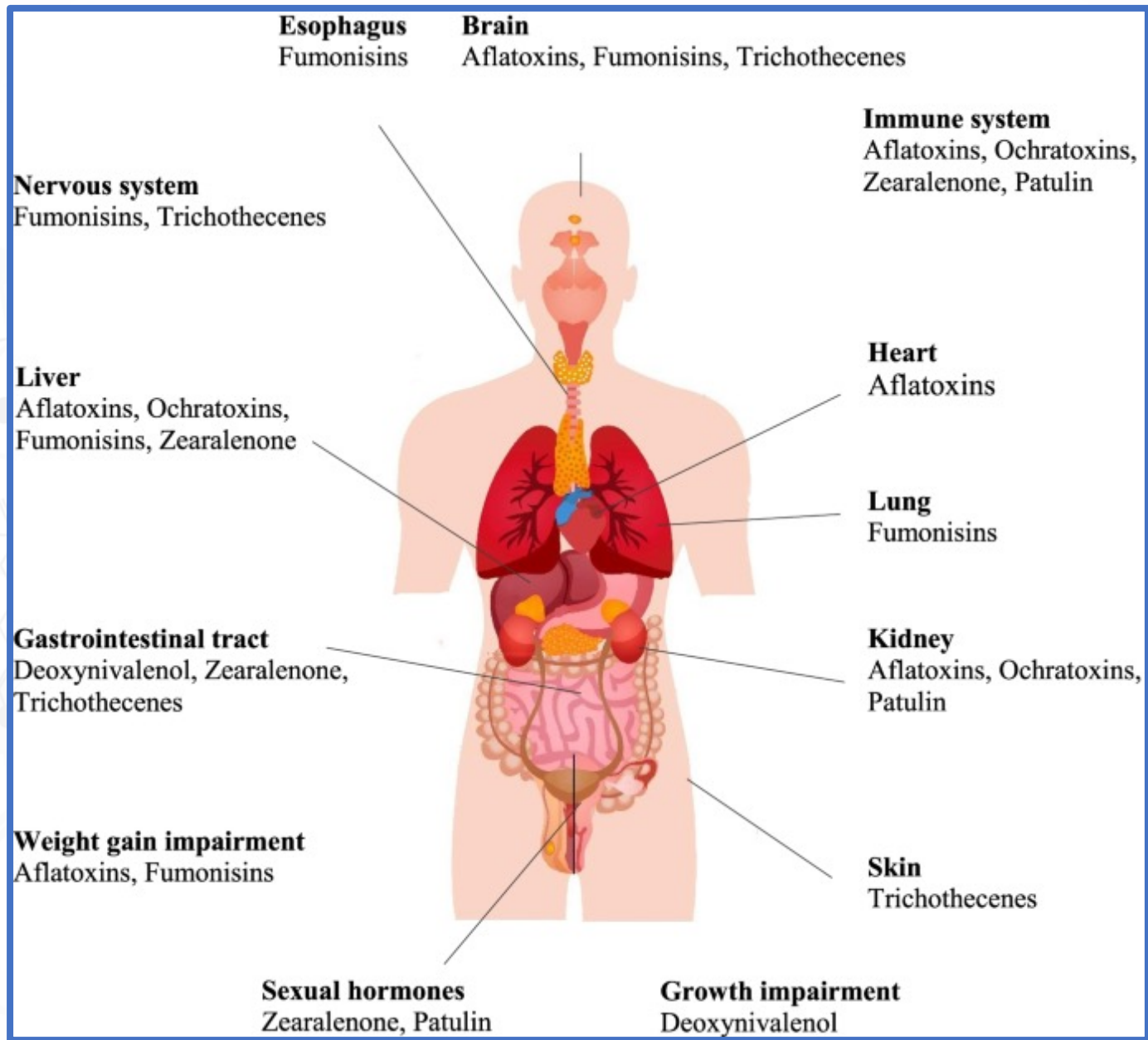
In contrast to mycoses, mycotoxicoses are examples of “poisoning by natural means” and thus are analogous to the pathologies caused by exposure to pesticides or heavy metal residues. The symptoms of a mycotoxicosis depend on the type of mycotoxin; the amount and duration of the exposure; the age, health, and sex of the exposed individual; and many poorly understood synergistic effects involving genetics, dietary status, and interactions with other toxic insults. Thus, the severity of mycotoxin poisoning can be compounded by factors such as vitamin deficiency, caloric deprivation, alcohol abuse, and infectious disease status. In turn, mycotoxicoses can heighten vulnerability to microbial diseases, worsen the effects of malnutrition, and interact synergistically with other toxins.

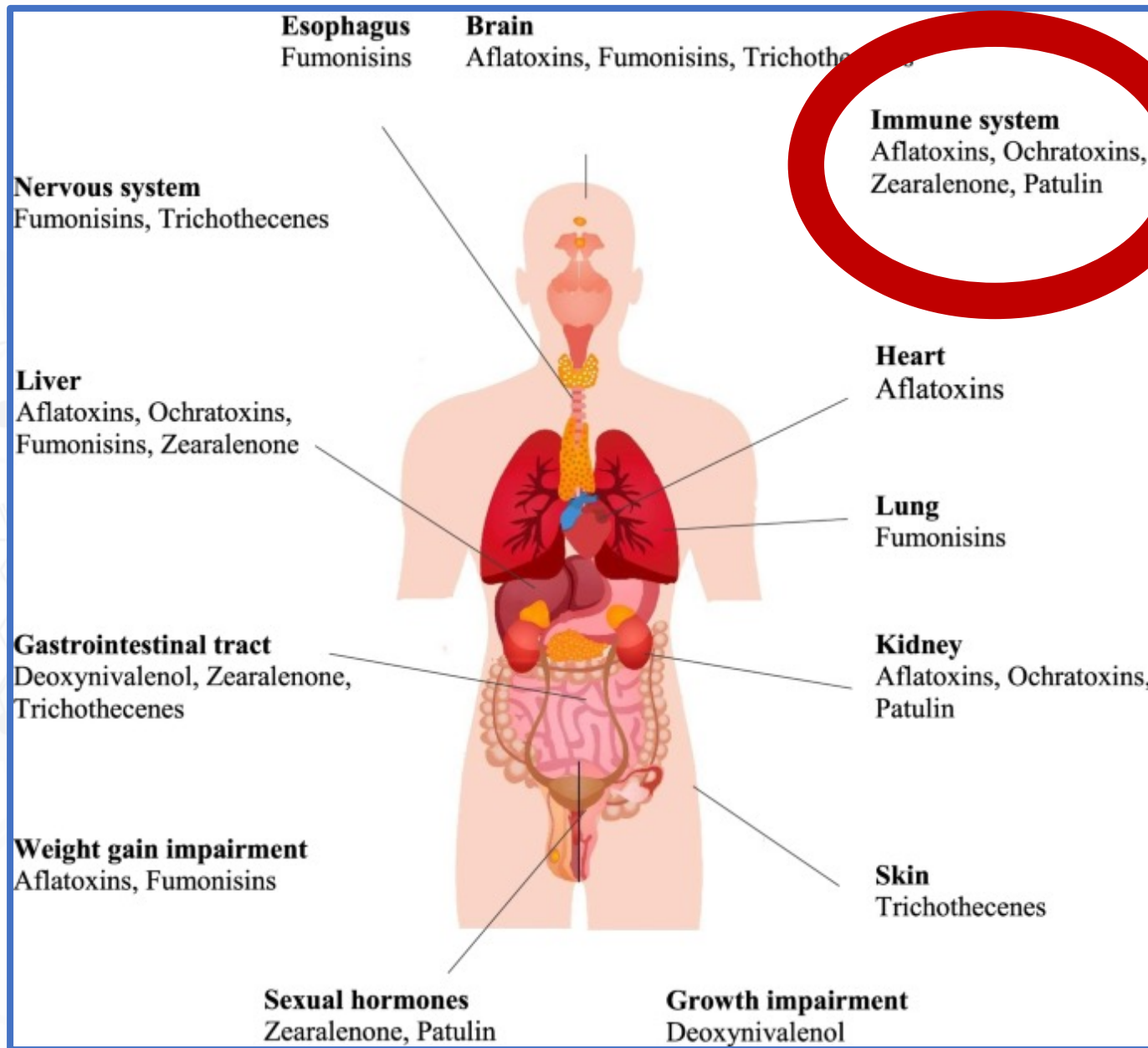


# Symptoms of Mycotoxin Exposure

- Fatigue and weakness
- Chronic burning in the throat and nasal passages
- Coughing, wheezing, and shortness of breath
- Loss of balance
- Depression and/or anxiety
- Skin rashes
- Eye irritation or tearing of the eyes
- Headache and/or light sensitivity
- Hearing loss
- Heightened sensitivity to chemicals and foods
- Irregular heartbeat
- Morning stiffness and/or joint pain
- Muscle weakness
- Sleep problems
- Poor memory, difficulty finding words
- Slower reaction time
- Vision changes
- Difficulty concentrating
- Abdominal pain, diarrhea, and/or bloating
- Unusual skin sensations, tingling, and numbness
- Increased urinary frequency or increased thirst
- Disorientation and/or dizziness
- Static shocks or metallic taste in the mouth









# Mycotoxicosis: mechanisms of immunosuppression

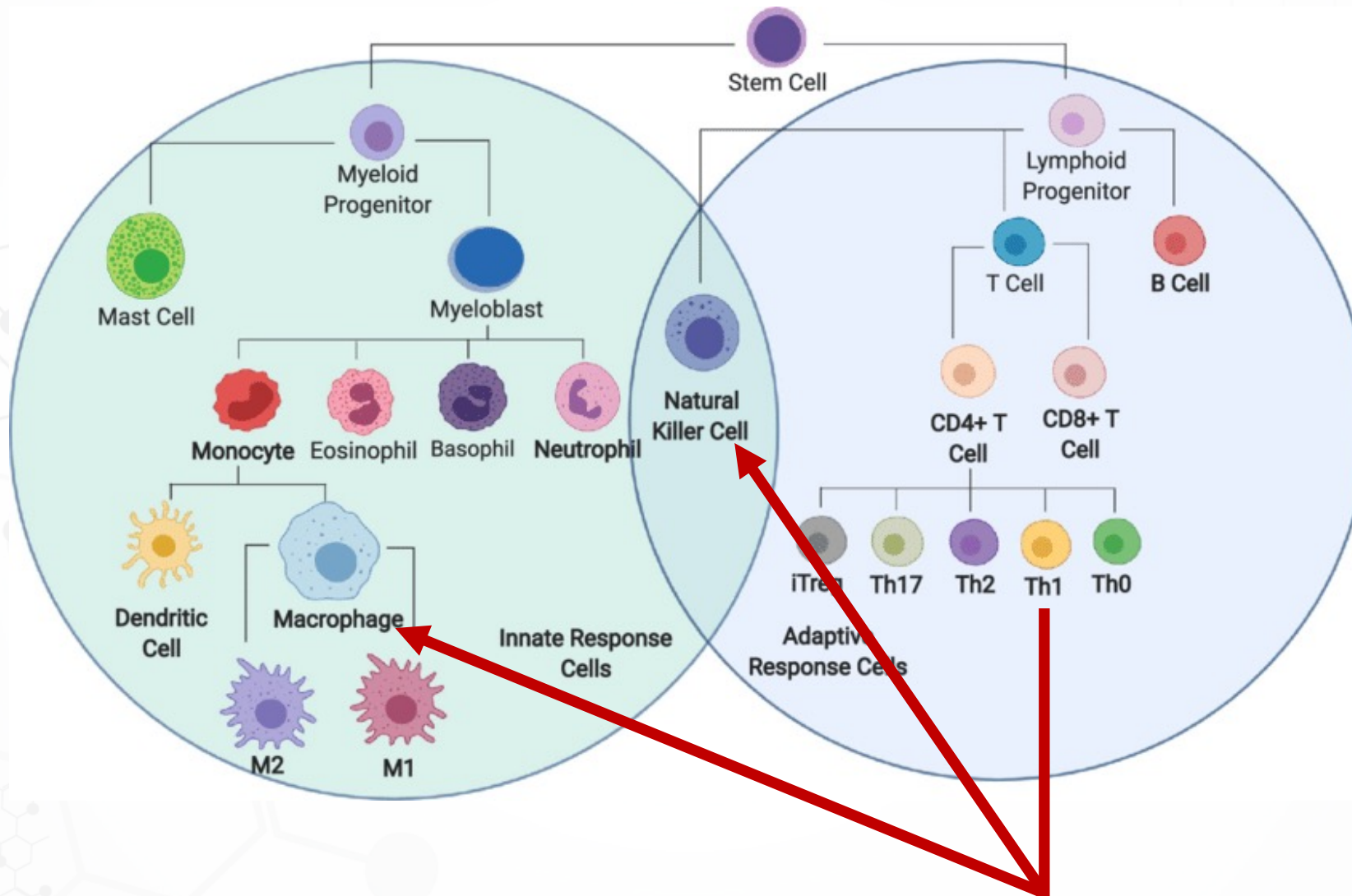
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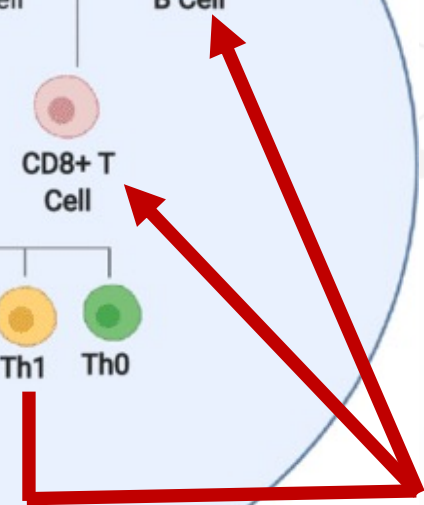
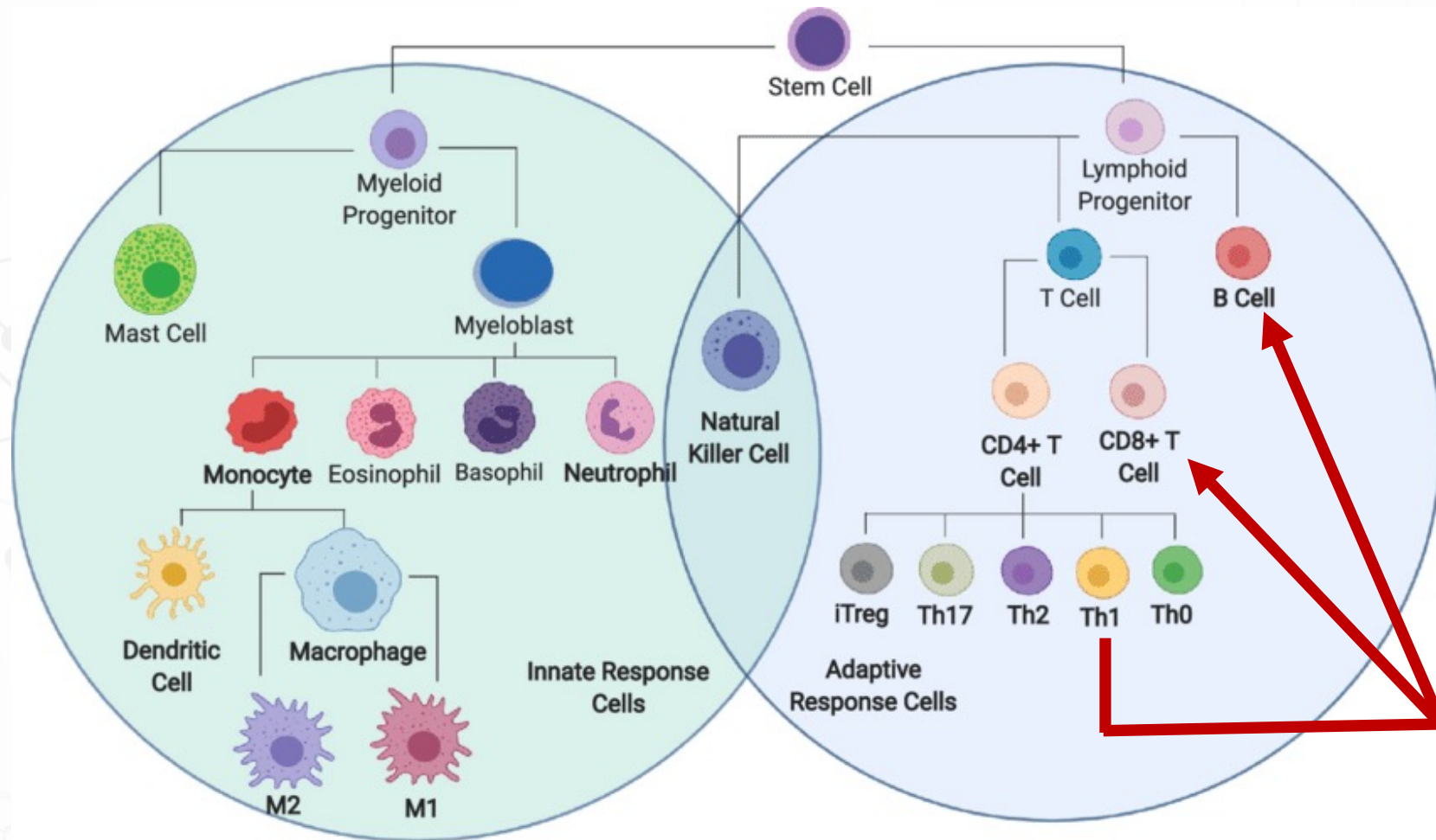
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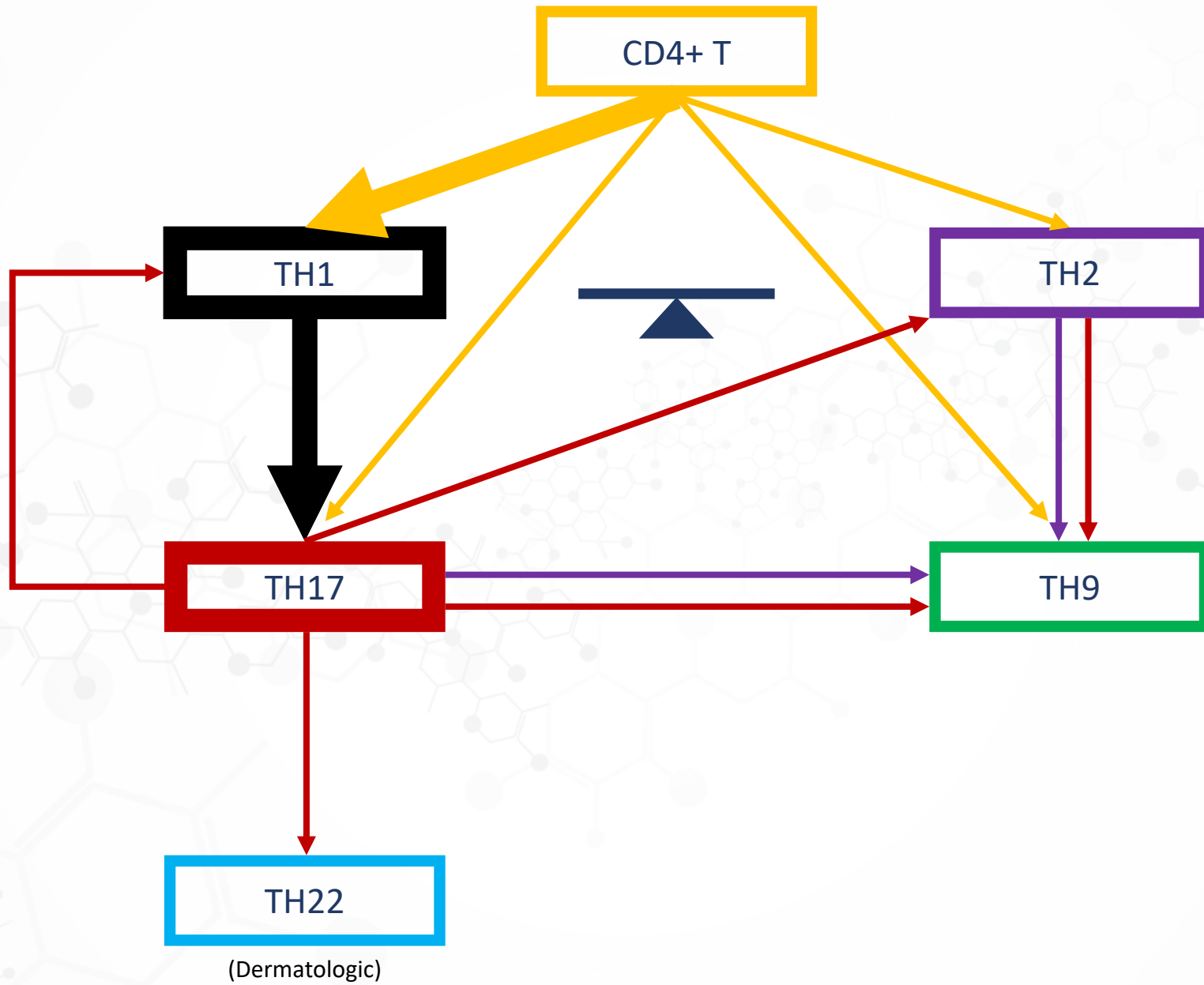
PMID: 1781158 DOI: [10.1016/0165-2427\(91\)90010-a](#)

infectious disease. The sensitivity of the immune system to mycotoxin-induced immunosuppression arises from the vulnerability of the continually proliferating and differentiating cells that participate in immunemediated activities and regulate the complex communication network between cellular and humoral components. Mycotoxin-induced immunosuppression may be manifested as depressed T or B lymphocyte activity, suppressed immunoglobulin and antibody production, reduced complement or interferon activity, and impaired macrophage-effector cell function. Although the cellular-molecular basis for many of the specific immunosuppressive effects of mycotoxins are presently unclear, inhibition of DNA, RNA and protein synthesis via a variety of different mechanisms appears to be directly or indirectly responsible for the immunosuppressive action of many mycotoxins.



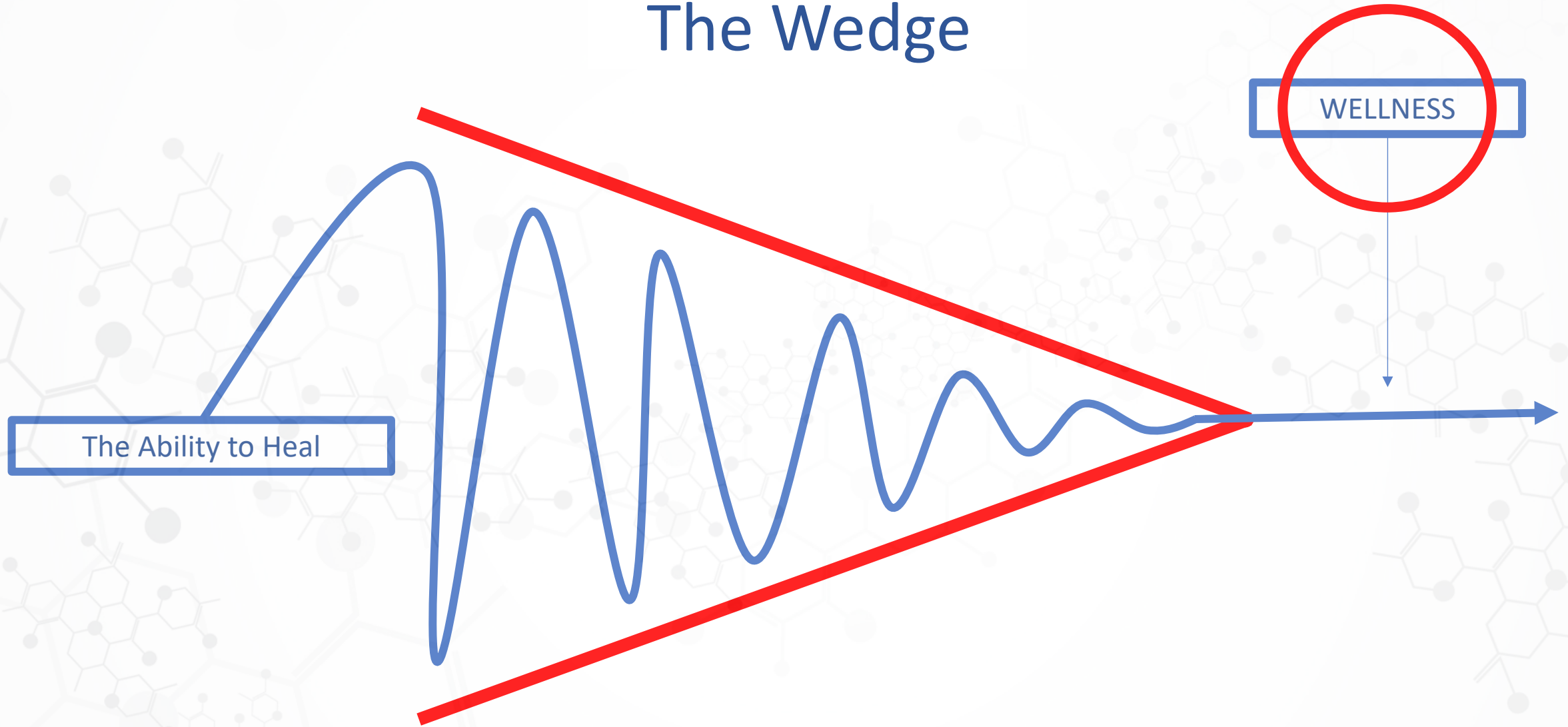








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