

MAST CELL ACTIVATION

DR. SANDEEP GUPTA

WHAT ARE MAST CELLS?

Found in all tissues of body, especially

(around) blood vessels & nerves

Skin, Lungs

Digestive tract

Mouth, Nose

Blood brain barrier

Triggered by

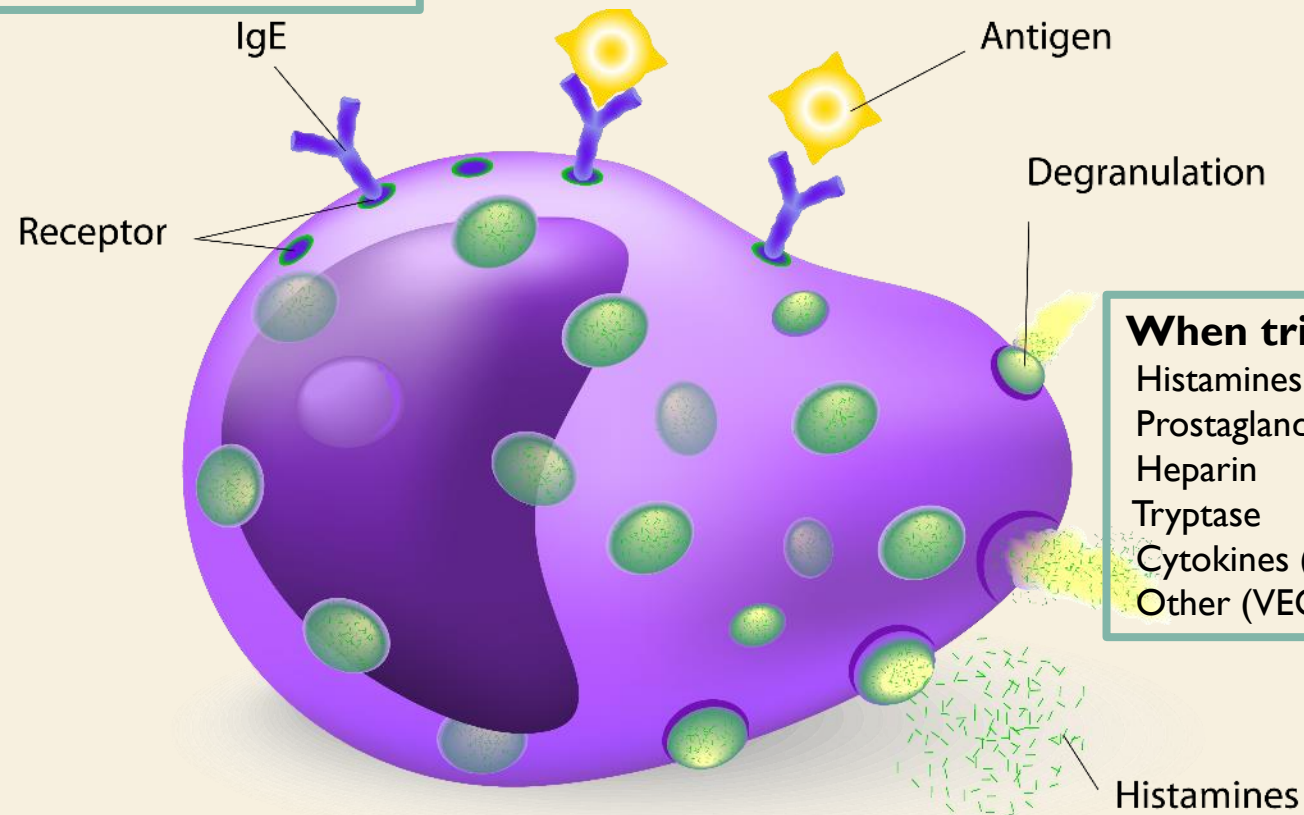
IgE & IgG antibodies

Antigens (allergens, bacteria, viruses, fungi, toxins)

Cytokines (inflammation)

Drugs, Physical activity, Hormones

C3a, C5a



When triggered release

Histamines

Prostaglandins

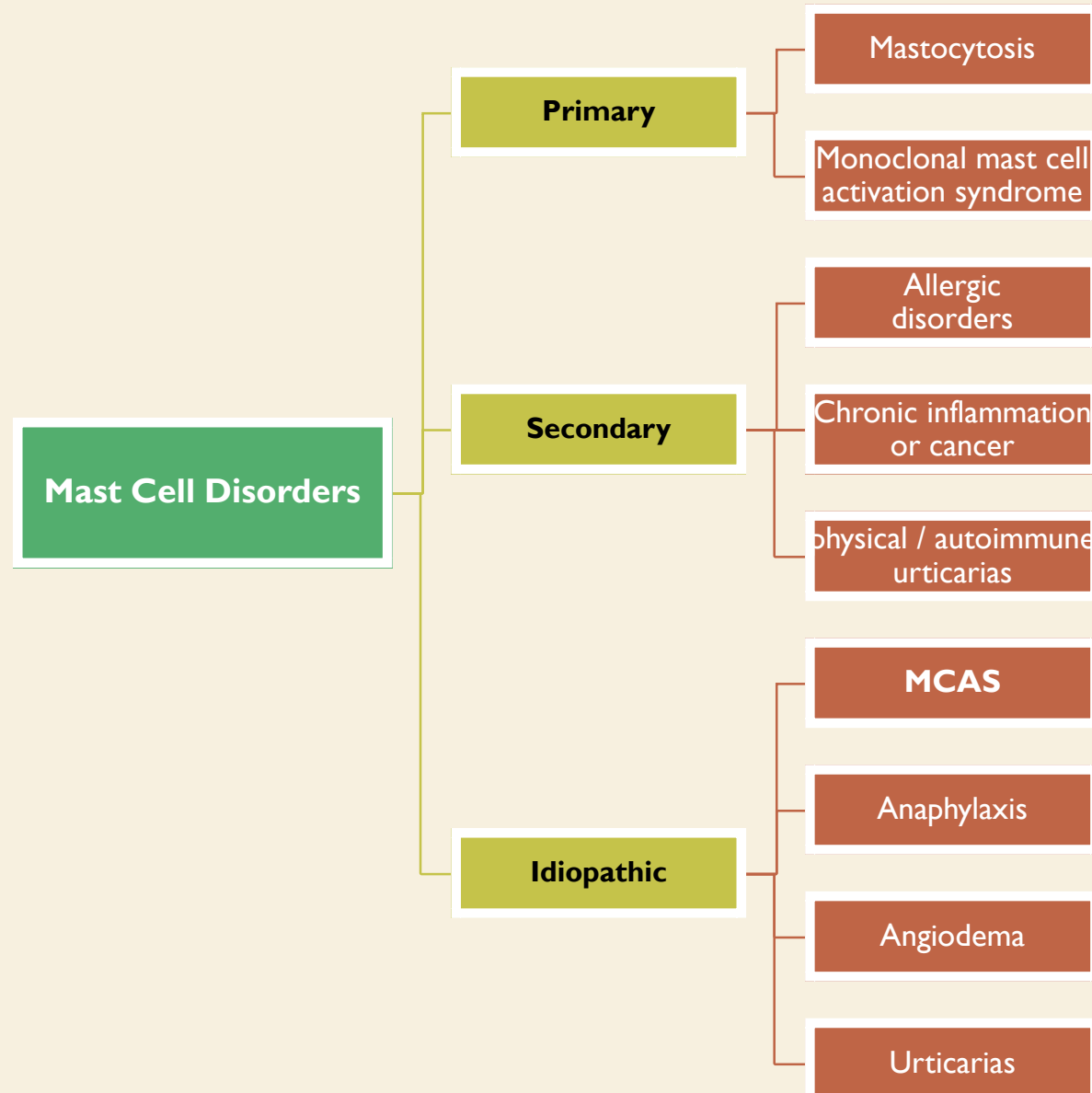
Heparin

Tryptase

Cytokines (IL-6 et al, MMP-9, TGF- β 1)

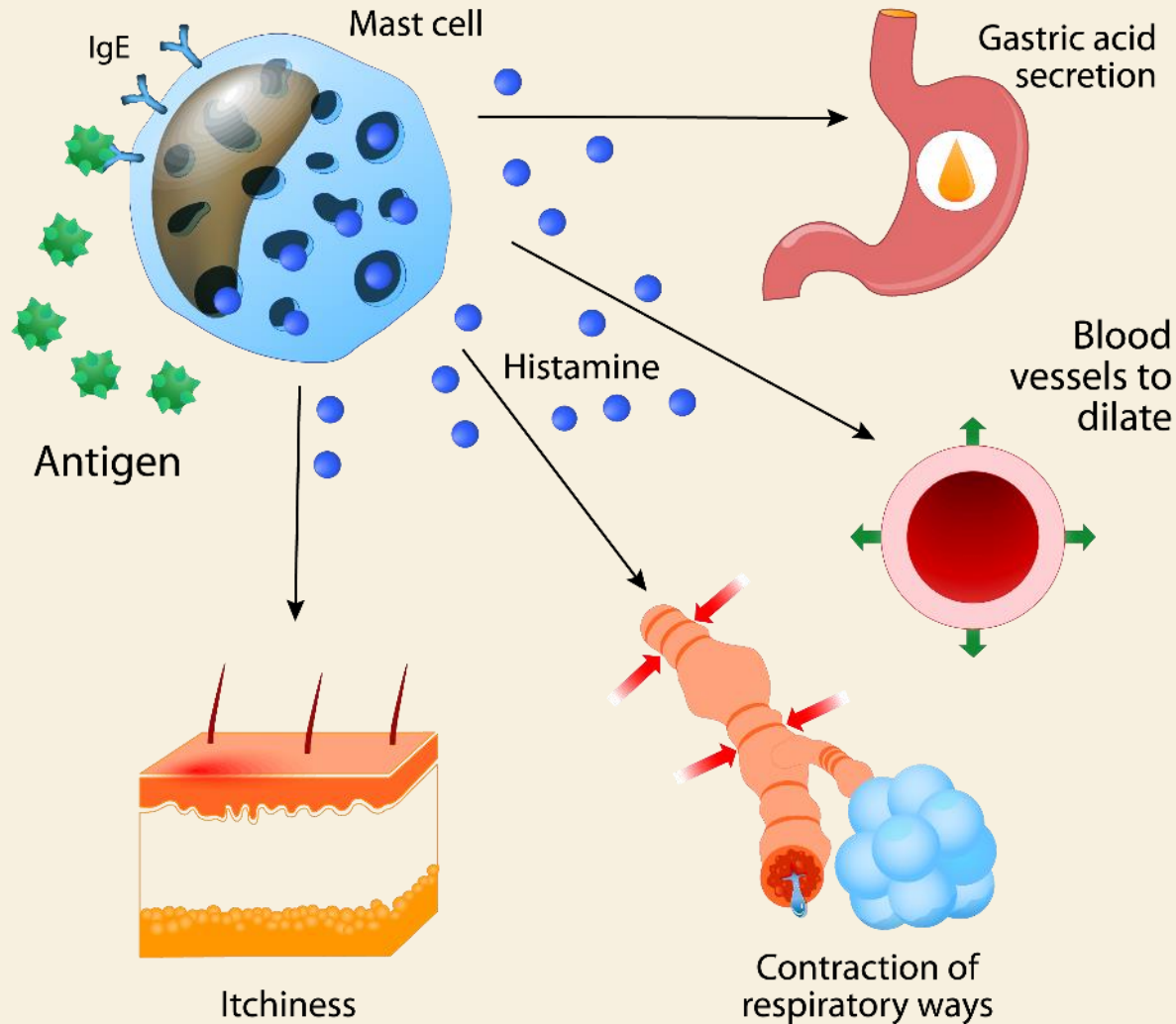
Other (VEGF, PAI-1)

WHAT IS MAST CELL ACTIVATION SYNDROME?



First described in early '90s but
Not named until 2007

SYMPTOMS OF MCAS



Skin

Flushing, itching, heat, hives, pain

Cardiovascular

Hypotension or hypertension, POTS, tachycardia

Head

Headaches, migraines, brain fog, anxiety, depression, vertigo, irritability

GI

Nausea, stomach aches, bloating, cramping, constipation, loose stools, leaky gut, dysbiosis, crohn's disease

Menstrual

Pelvic pain, PMS, endometriosis

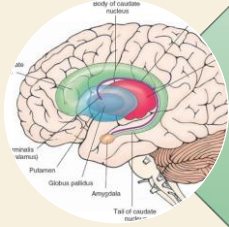
Respiratory

Nasal congestion, runny nose, sneezing, itchy/watery eyes, mucous, wheezing

Systemic

Fatigue, food, drug, chemical sensitivities

NEUROLOGICAL EFFECTS OF MAST CELLS



“MCs play a critical role in neuroinflammation, which is facilitated by their close proximity to nerve fibres in the periphery and meninges of the spinal cord and the brain”.

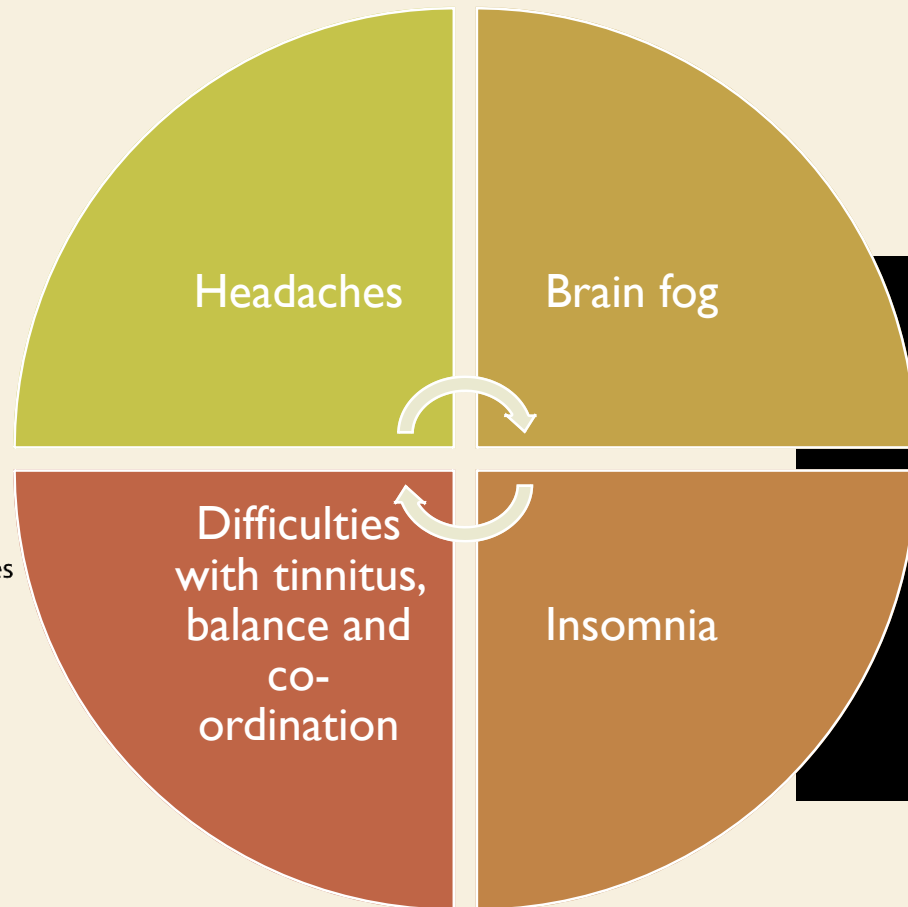
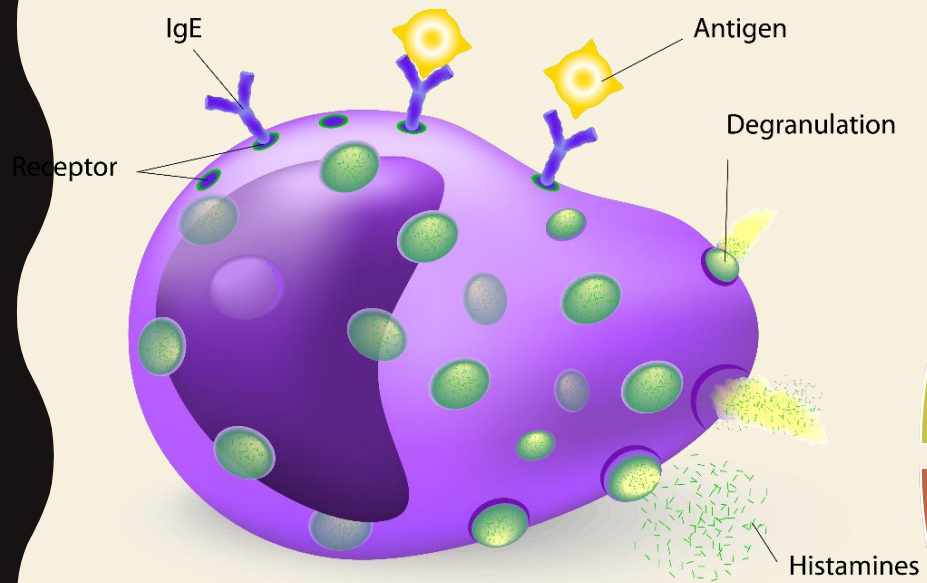


“Multifaceted activation of MCs releasing neuropeptides, cytokines and other mediators has direct effects on the neural system as well as neurovascular interactions. Emerging studies have identified the release of extracellular traps, a phenomenon traditionally meant to ensnare invading pathogens, as a cause of MC-induced neural injury”.



Extracellular traps involve citrullination of histone proteins and are dependent on ROS formation and engagement of toll-like receptor 4 (TLR4)

NEUROLOGICAL SYMPTOMS OF MCAS



**ANECDOTALLY MCAS HAS BEEN
ASSOCIATED WITH ALMOST
EVERY CASE OF SEVERE
SENSITIVITY I HAVE SEEN**

BIOMARKER TESTING

No definitive test(s)
MCAS is a clinical diagnosis

Increase over baseline of 20% (+ 2 ng/mL)
OR baseline > 15 (NR < 11.5 ng/mL)

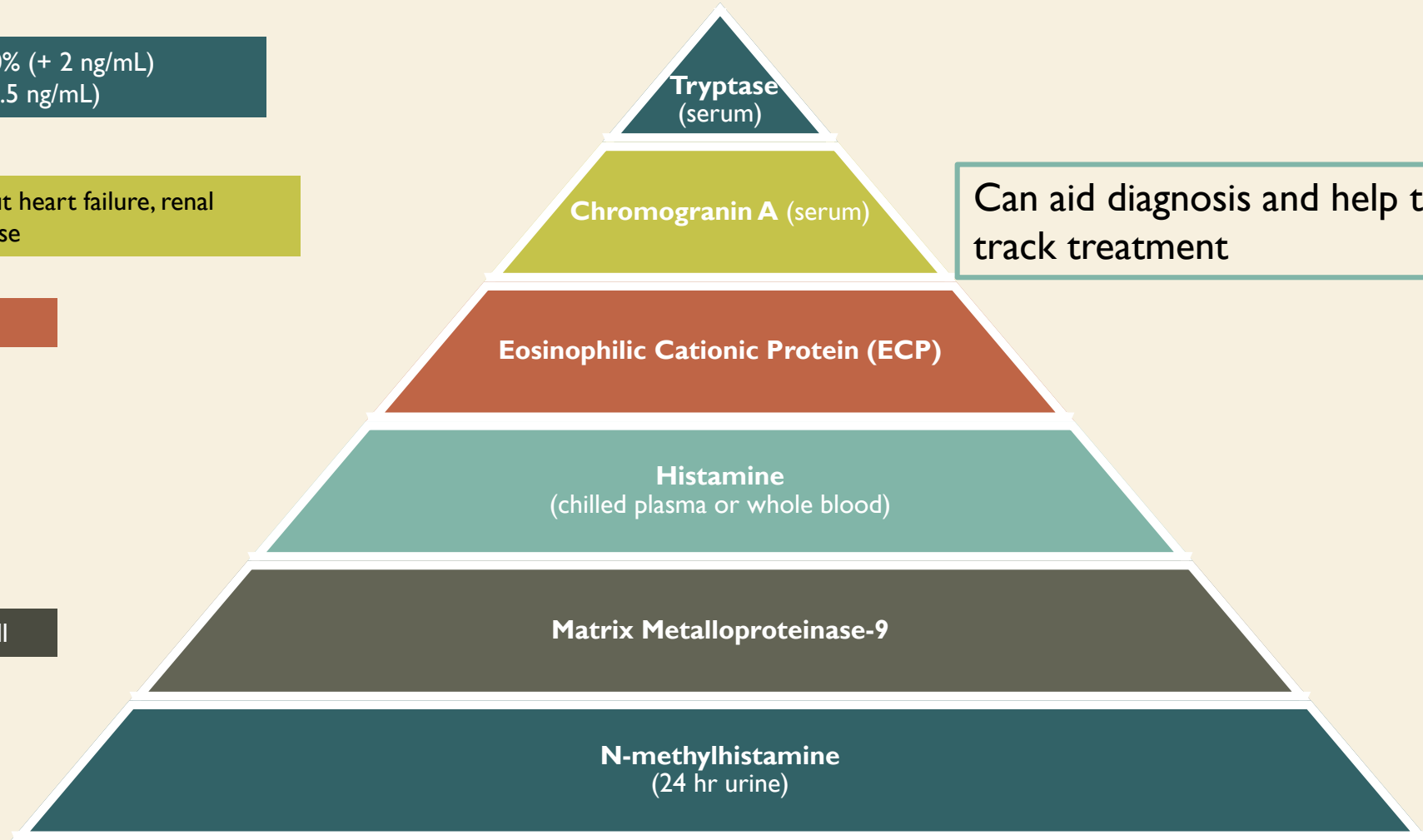
Can be elevated but rule out heart failure, renal problems, tumors and PPI use

PGF2a NR < 1000 ng/24h

WB NR 28-51 ug/L

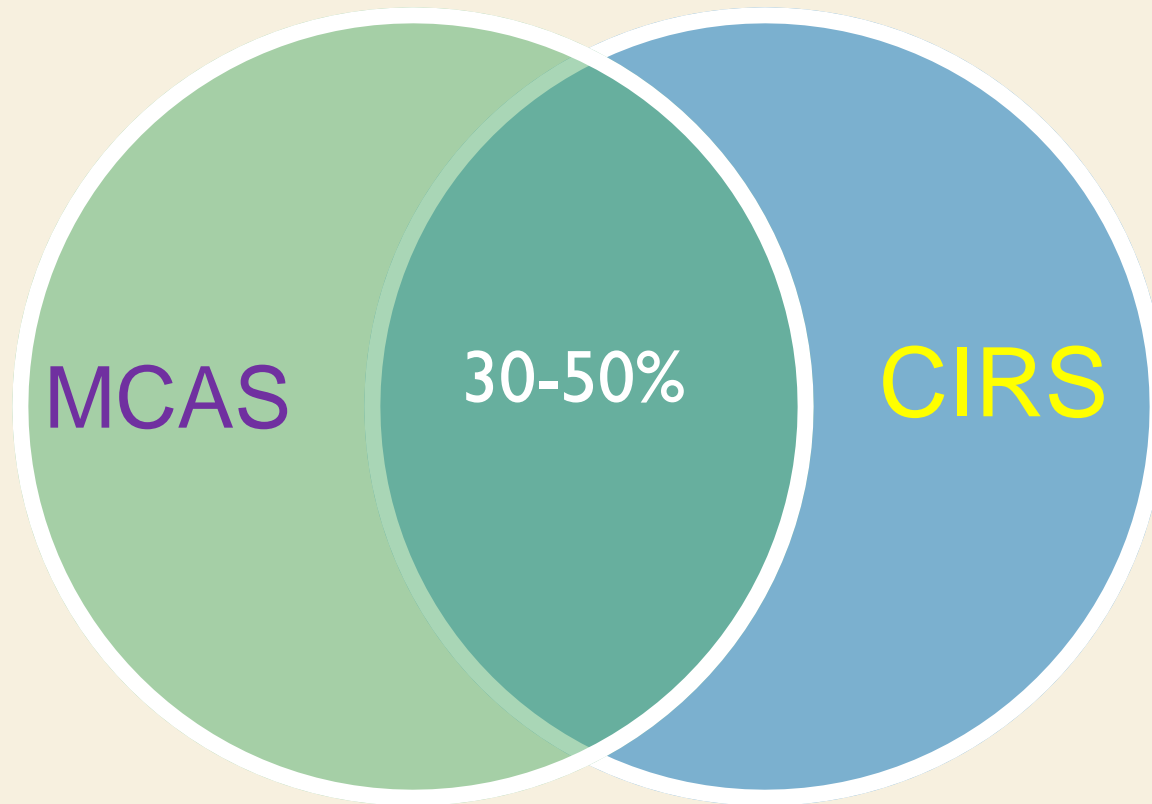
Abnormal is above 350mg/dl

NR < 200 mcg/g



Can aid diagnosis and help to track treatment

MCAS AND OTHER CONDITIONS



MCAS also involved in

Allergies & Asthma

Autism

Autoimmune disorders

(Hashimoto's, lupus, MS, RA, eczema)

Celiac disease

ME/CFS, Fibromyalgia

Food allergy and intolerances

GERD

Infertility

Interstitial cystitis

IBS

Migraines

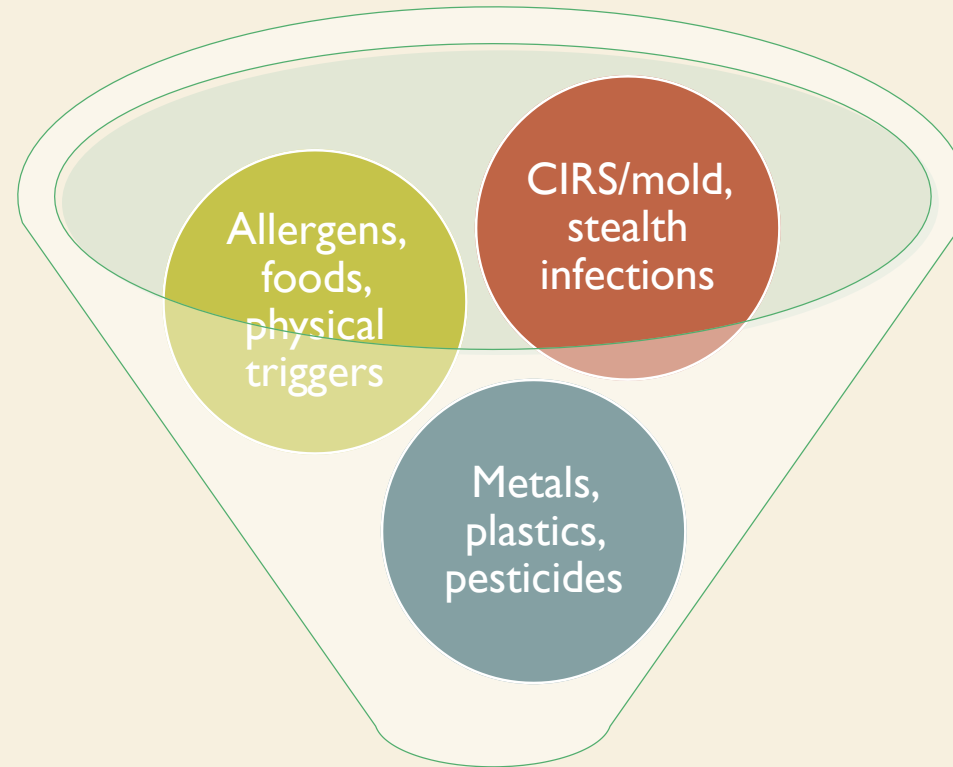
Mood disorders

MCS

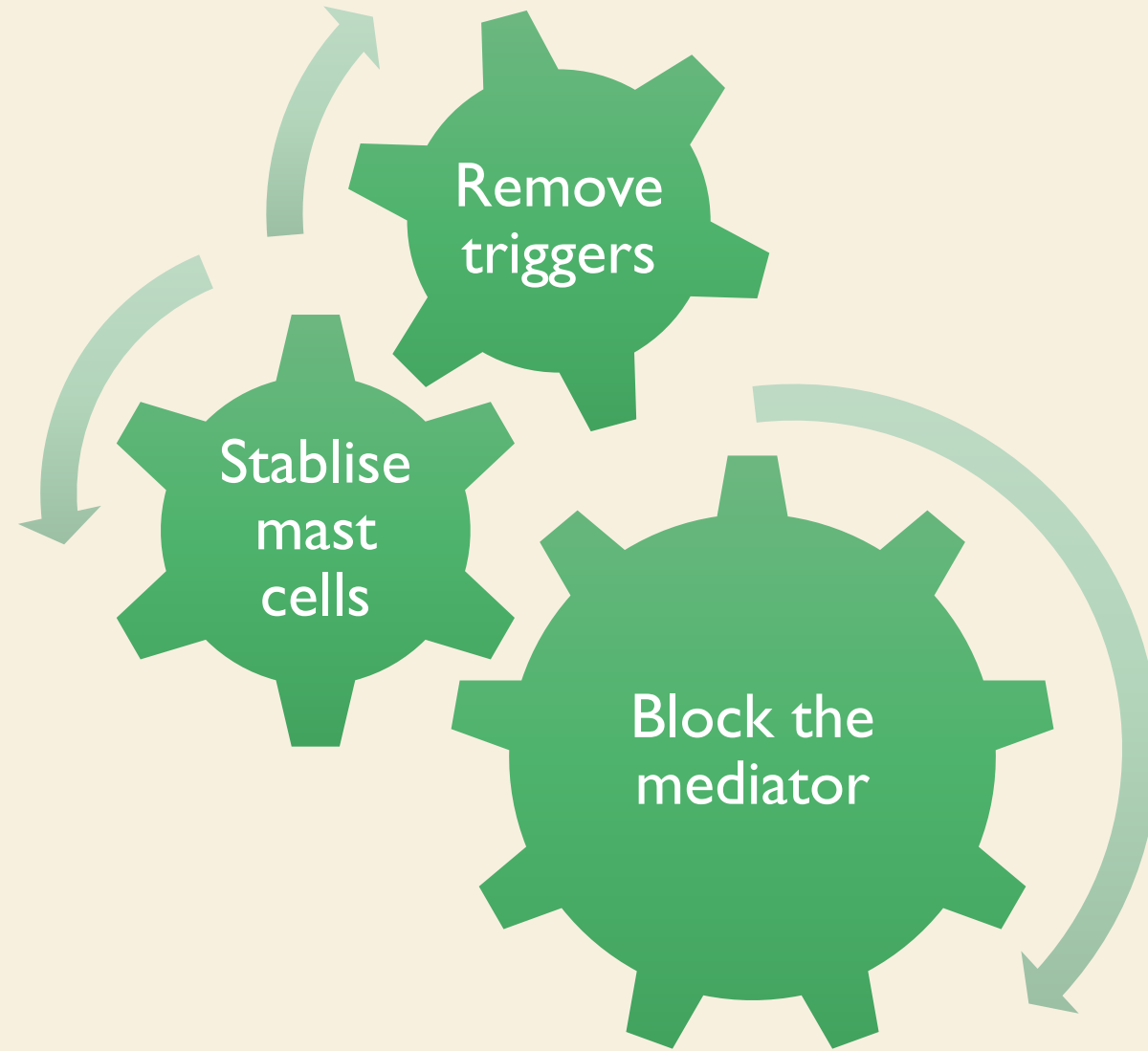
POTS

& more

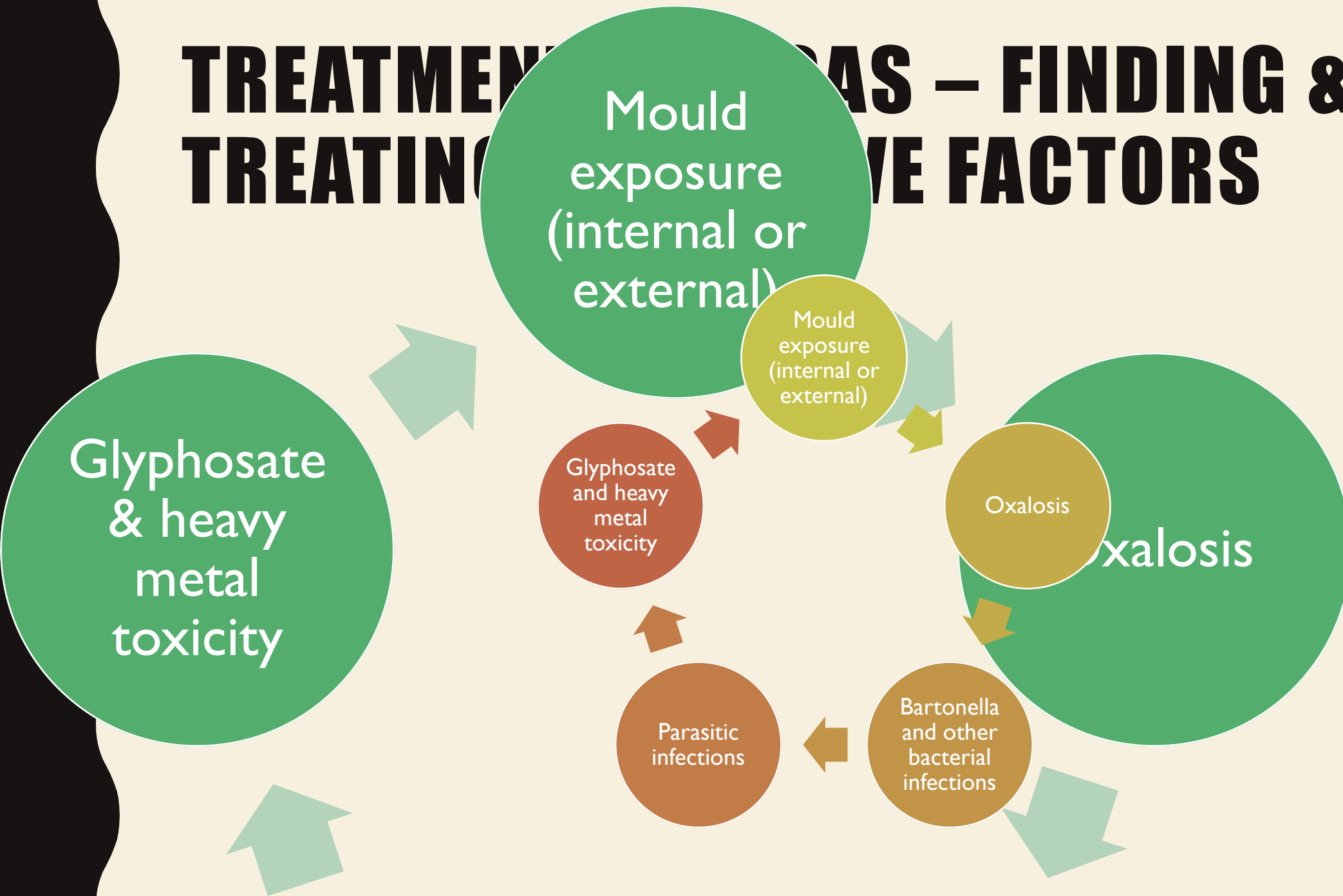
TREATMENT – REMOVE TRIGGERS



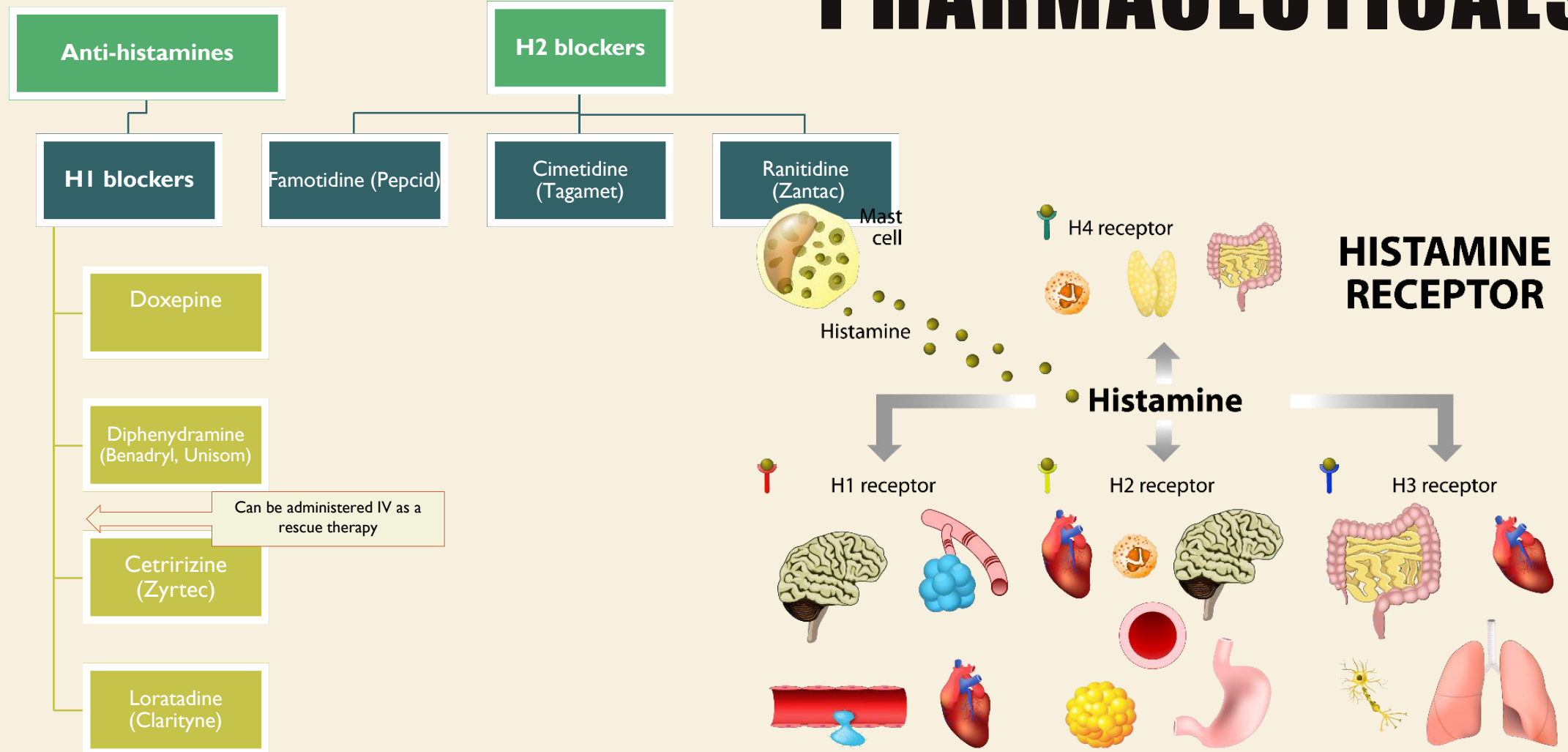
MCAS



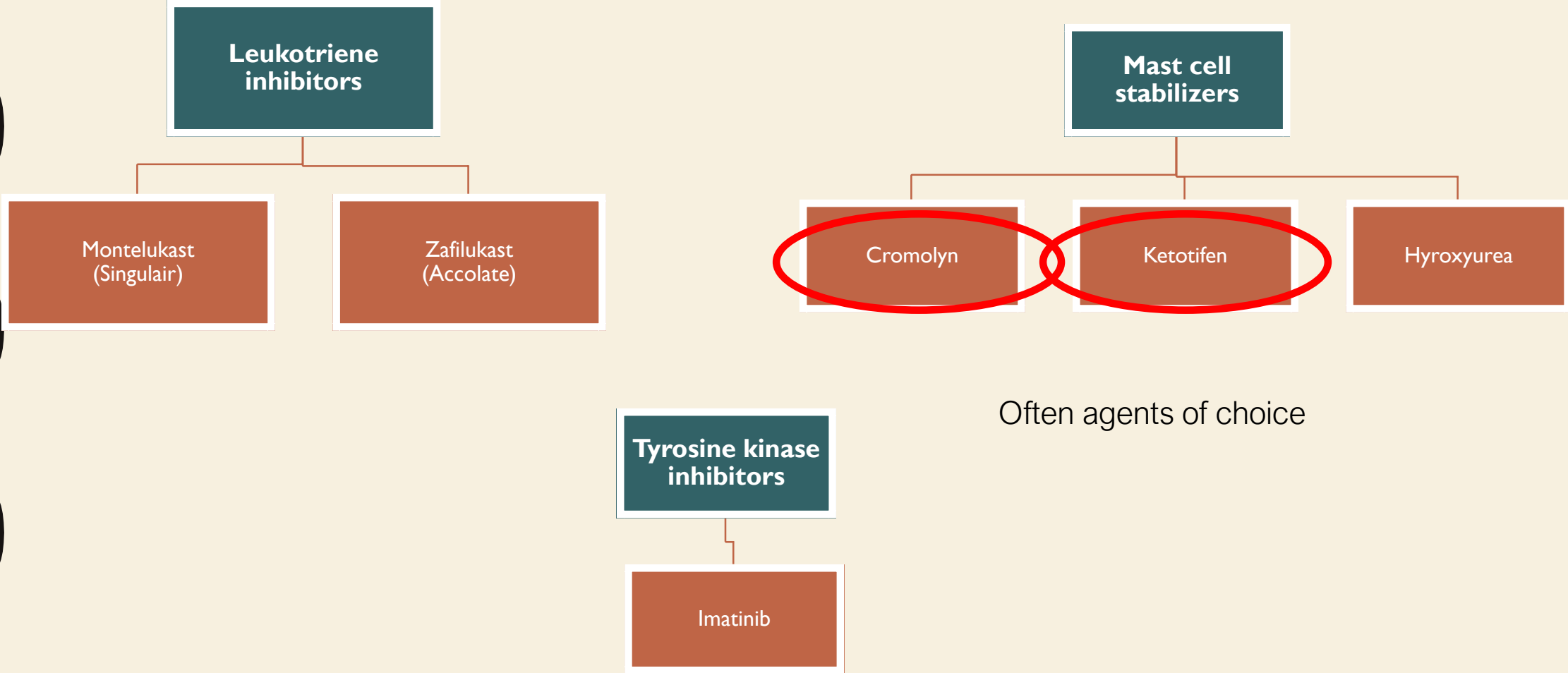
TREATMENT TREATING DISEASES – FINDING & CAUSATIVE FACTORS



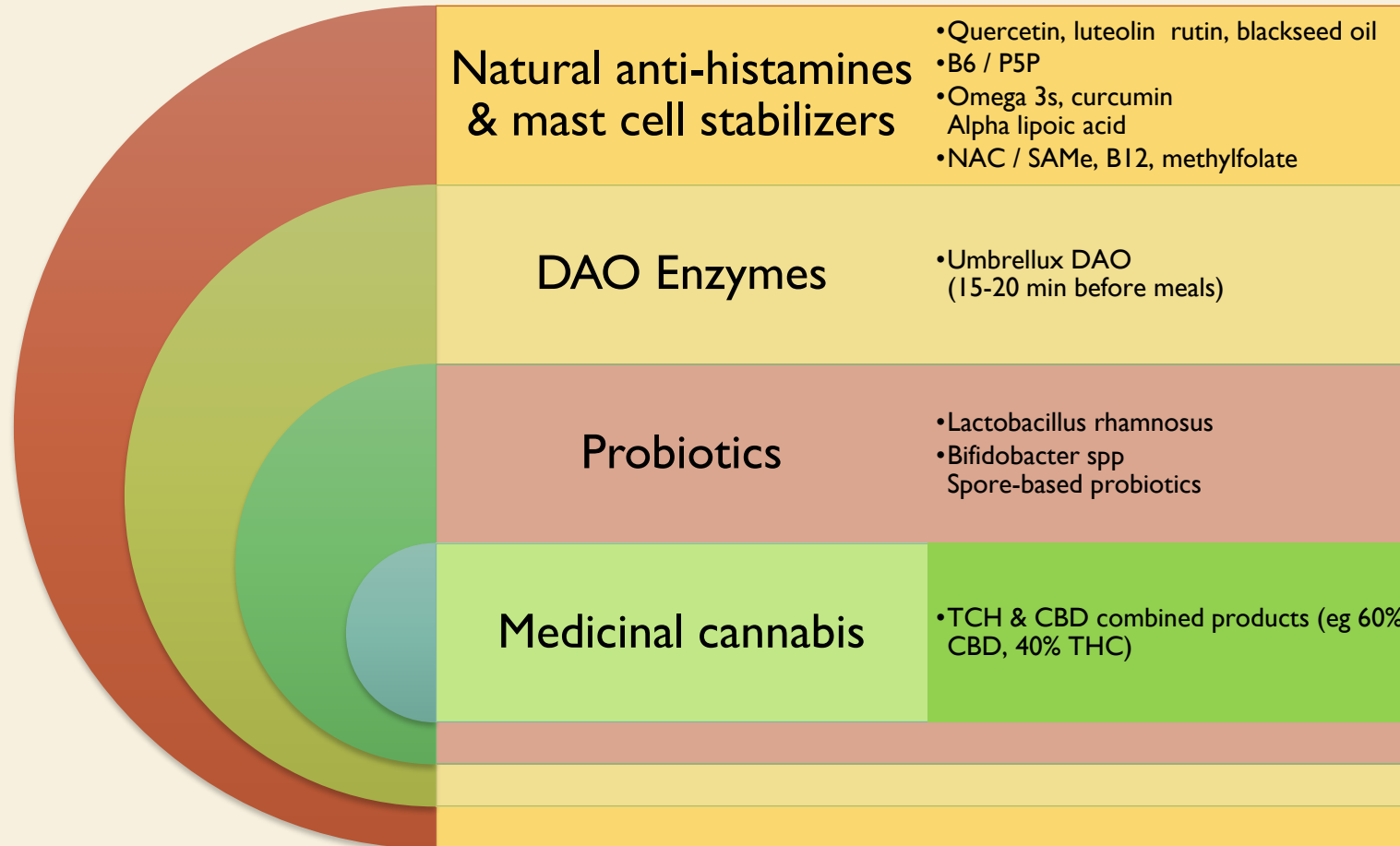
TREATMENT OF MCAS – PHARMACEUTICALS



TREATMENT OF MCAS – PHARMACEUTICALS (CONT.)



TREATMENT – SUPPLEMENTS



TREATMENT – LOW HISTAMINE DIET

Avoid/reduce

Cured Meat

- Raw and cured meats
- Processed and smoked fish

Treats

- Alcohol
- Chocolate
- Nuts

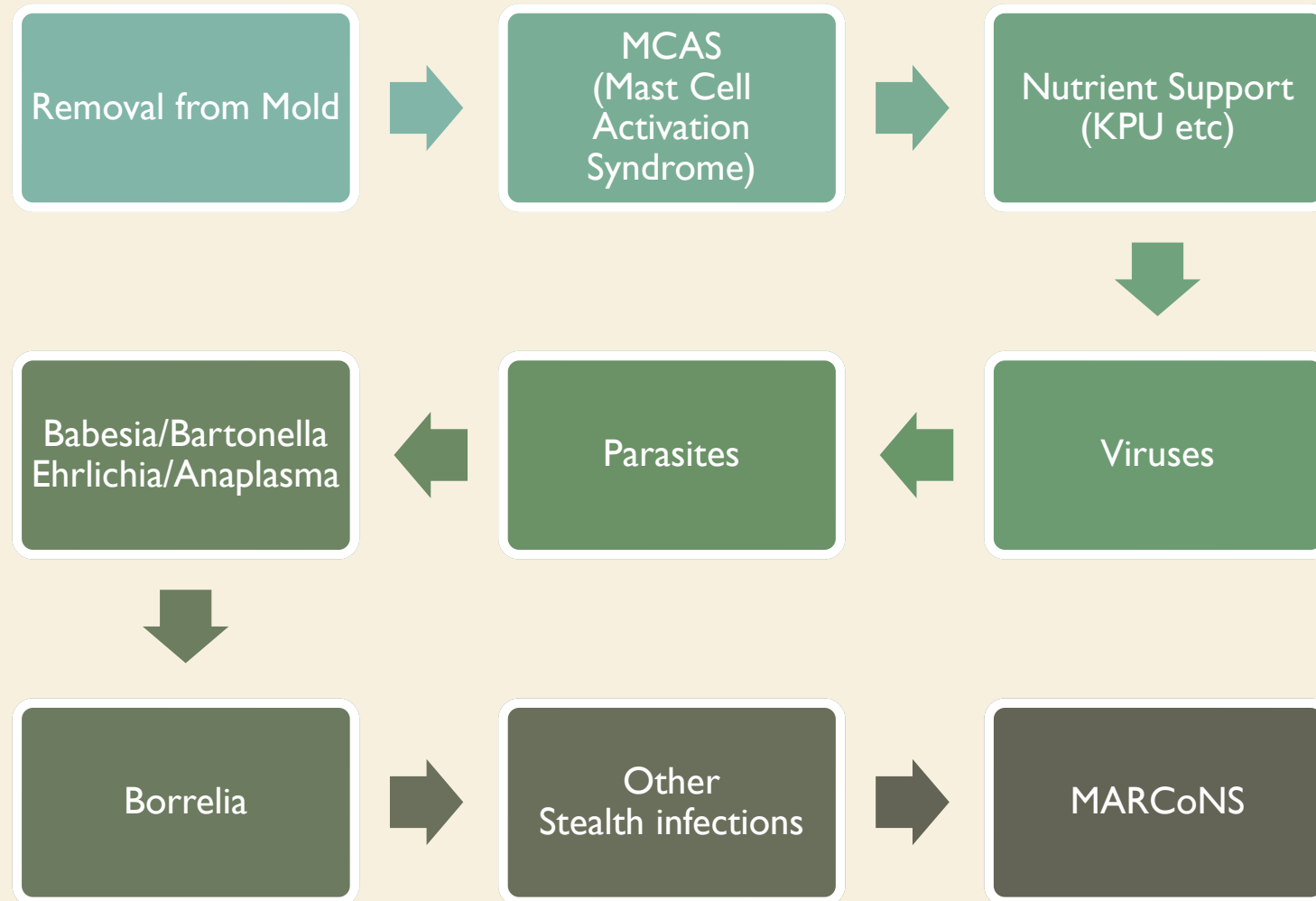
Fermented foods

- Soy sauce and fermented soy
- Aged cheese
- Pickles

Other

- Spinach (large quantities) / Citrus fruits
- Tomatoes, ketchup/tomato sauces
- Artificial food colorings & preservatives
- Yeast, yeast extracts

TREATMENT - PRIORITIZATION



A person wearing a blue hoodie is seen from behind, with their arms raised in a gesture of triumph or joy. They are standing against a dramatic sunset sky with a bright sun low on the horizon, casting a warm glow. The background shows a body of water and distant land.

Questions and Answers