

Immune Disorders Primer: How to Manage Inflammatory and Autoimmune and Inflammatory Conditions

Andrew Heyman, MD MHSA

Relevant financial relationships in the past twelve months by
presenter or spouse/partner:

Employment: N/A
Speakers Bureau: Metagenics
Stock Shareholder: N/A
Grant/Research Support: N/A
Consultant: N/A

Status of FDA devices used for the material being presented
N/A

Status of off-label use of devices, drugs or other materials that constitute the subject of this
presentation
N/A

A Healthy Immune System Is...



- **D**etective & defensive
- **I**nternally Regulated
- **R**estorative
- **T**olerant

Detective & Defensive



- Identifies potentially threatening molecular structures:
 - ***stranger* signals, found in microbes, food, plants & fungi, chemicals**
 - ***danger* signals (alarmins), found in tissues or secreted by stimulated leukocytes or epithelia**
- Mounts responses appropriate to ***level of threat***

Internally Regulated (homeodynamic)



- Immune responses are tightly controlled & actively resolved by multiple cellular, genomic, and enzymatic mechanisms, eg.
 - T regulatory lymphocytes
 - Lipid-derived pro-resolution mediators
 - Redox balance: Nrf2-ARE activation

Restorative

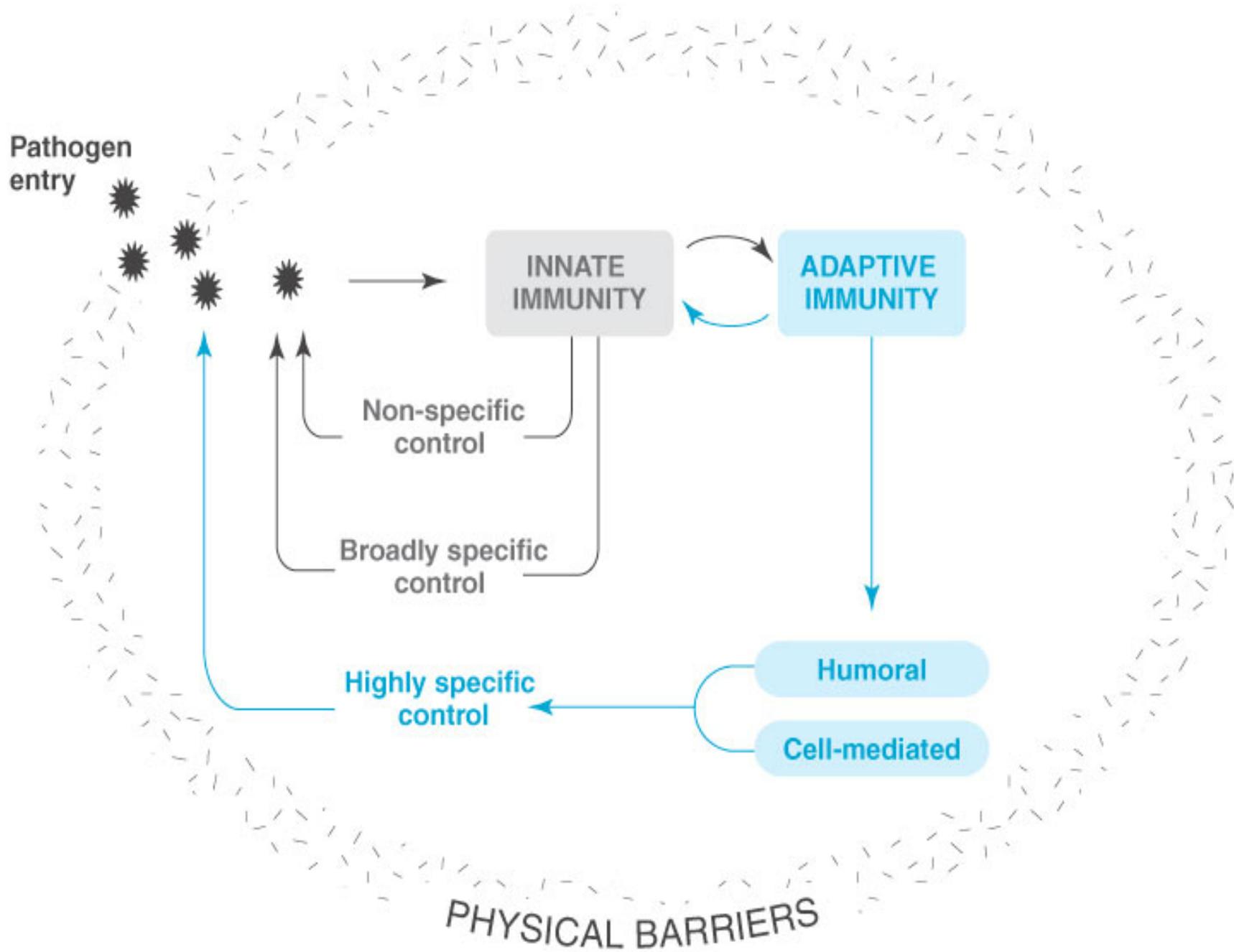


- Repairs damage that ensues from injury or adversarial encounters
 - Phagocytes
 - Fibroblasts
 - Stem cells
 - Endothelial cells

Tolerant



- **“Respects” healthy boundaries**
- ***Actively* unresponsive or anergic to:**
 - Self or fetal antigens
 - **Innocuous** environmental antigens
 - ✦ Microbes
 - ✦ Foods
 - ✦ Plants and fungi



Immune response

Natural / Innate

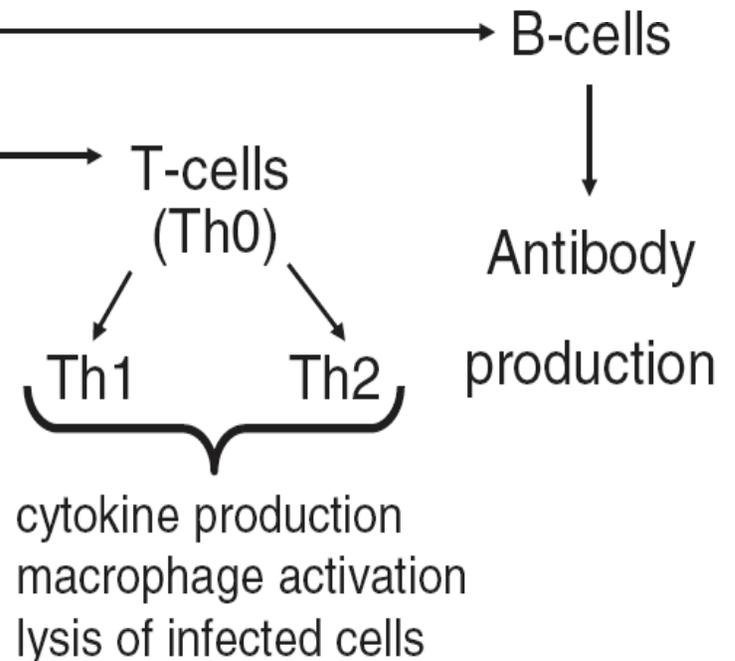
Cells / Systems involved: dendritic cells
neutrophils
monocytes / macrophages
natural killer cells
complement system

Processes: phagocytosis
antigen presentation
oxidative burst
cytokine production

Specific / Adaptive

Cell mediated
immunity

Humoral
immunity



Autoimmune Disease: A Broad Definition

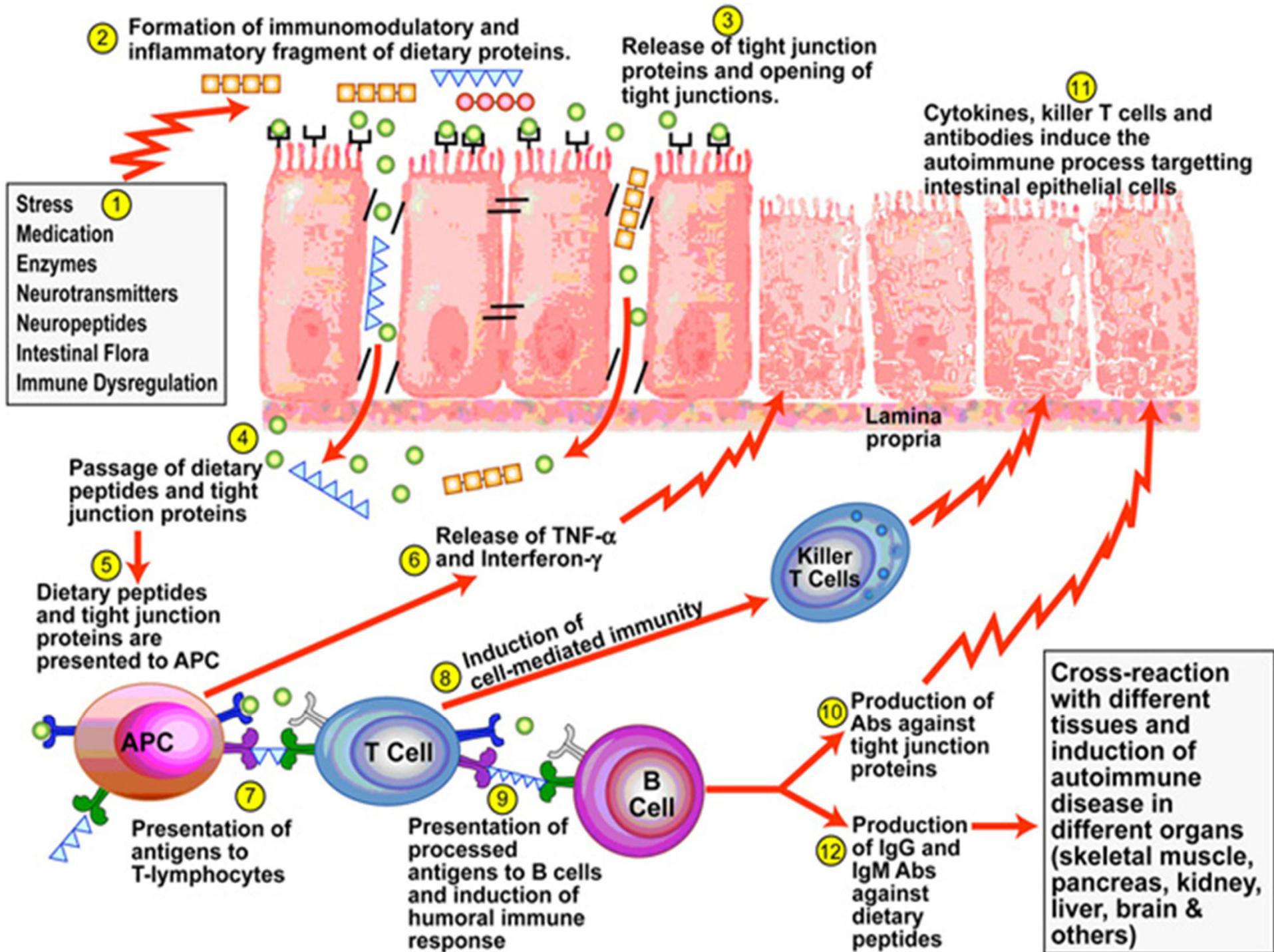
PLoS Med, 2006, Vol 3(8): 1242-1248

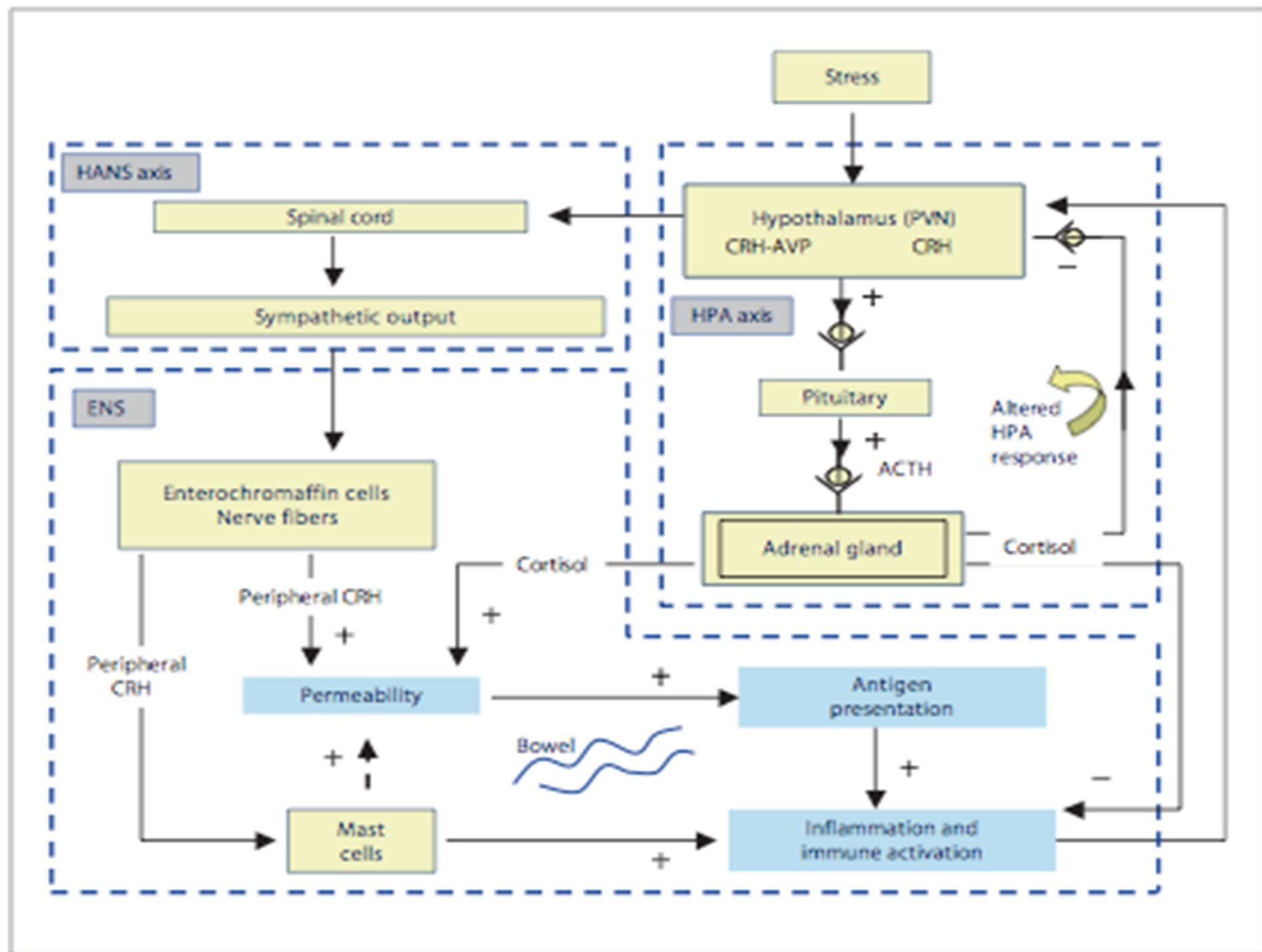
- Self-directed tissue inflammation, resulting from loss of tolerance by aberrant dendritic cell, B & T cell responses with development of immune reactivity towards native antigens
- Adaptive immune response (antibodies, activated T lymphocytes) **appears** to play predominant role in clinical disease
- Pathophysiology is ongoing & multifactorial: organ or tissue-specific antibodies may predate clinical disease by many years

Auto-Immunity: Think Barriers and Triggers

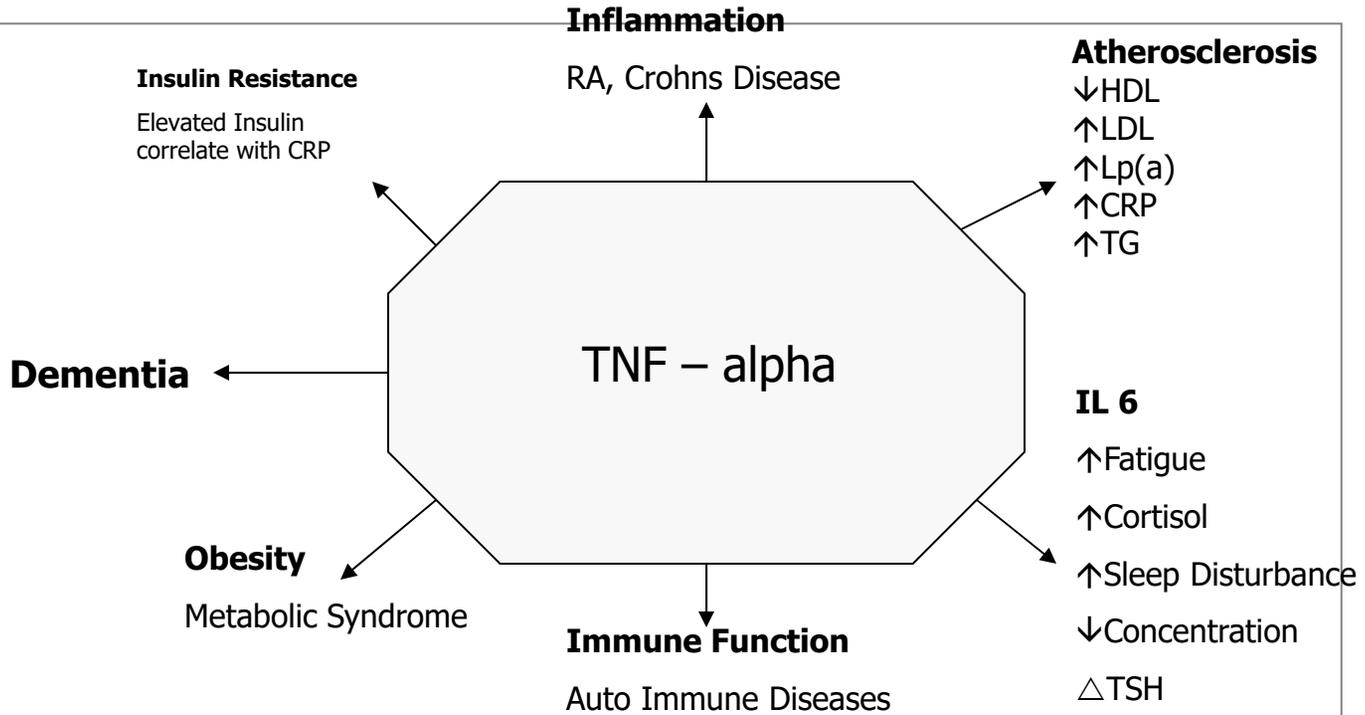


- Gut
- Endothelial
- Brain
- Stress
- Toxins
- Infections
- Food
- Biotoxins (innate)

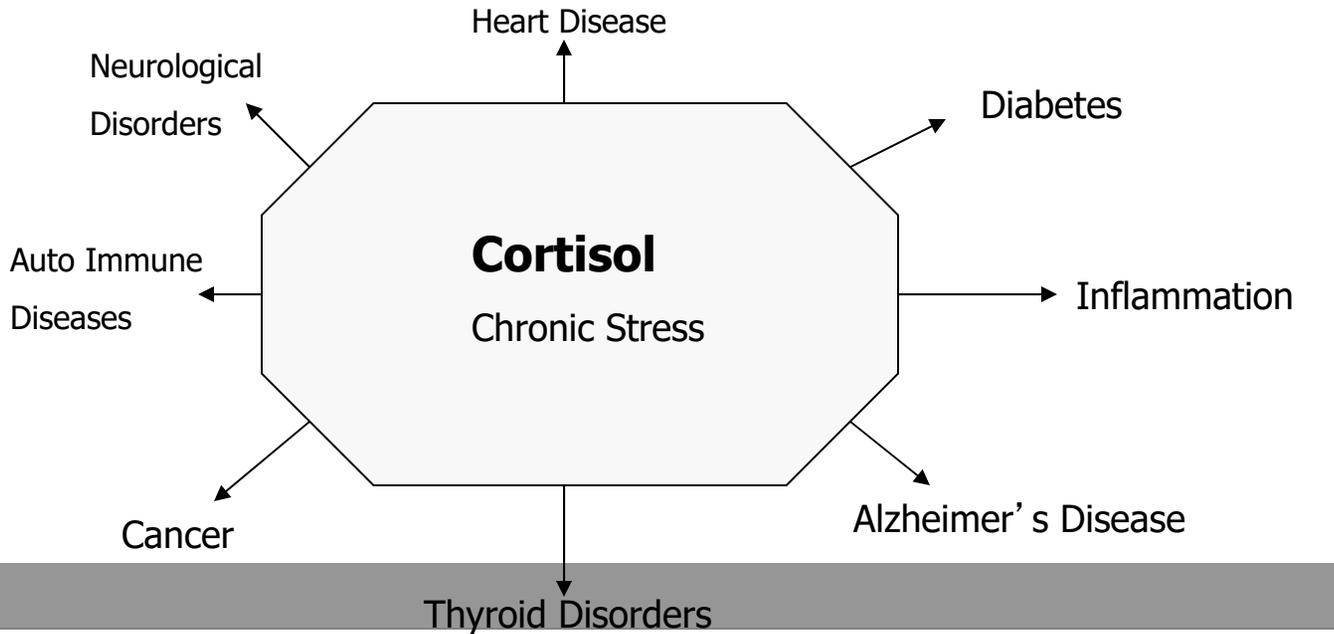




**Inflammation
Research**



Research Focus



**Stress/Anxiety
Research**



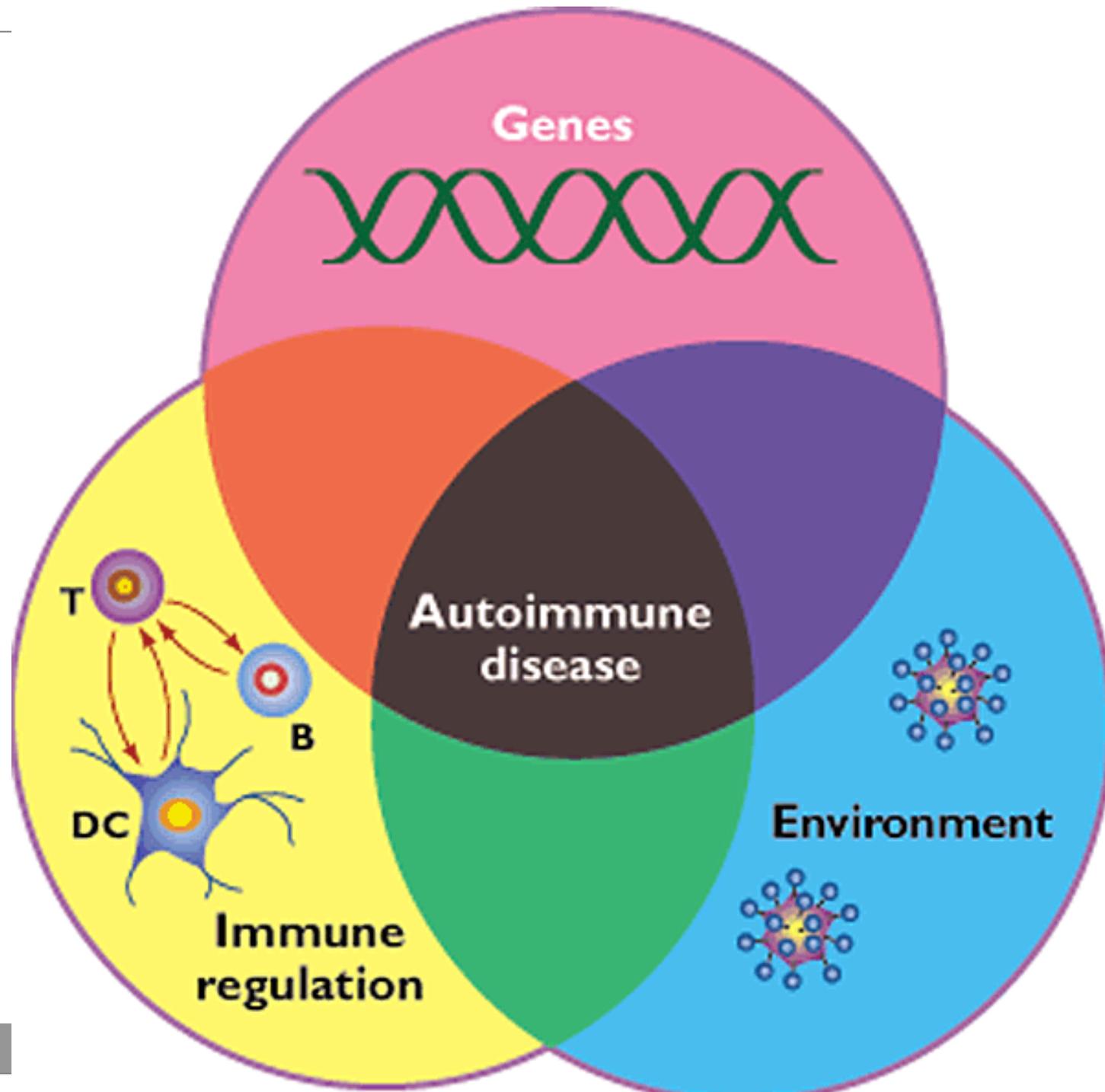
Effects of Toxic Metals

- They tend to persist and accumulate
- Replace nutrients at enzyme binding sites
- Replace other substances in tissues
- Stored in different tissues
- May contribute to bacterial growth
- Deficiency of nutrient elements contributes to replacement by toxins
 - Cd, Pb, HG for Zn
 - Cd for ZN in RNA transferase, carboxypeptidase, alcohol dehydrogenase

2008–2009 Annual Report  President's Cancer Panel

REDUCING ENVIRONMENTAL CANCER RISK

What We Can Do Now



Inflammation





Calor, **R**ubor, **D**olor, **T**umor, **L**oss of function

Nuclear Factor Kappa B: Proinflammatory Transcription Factor

- Final common pathway for most inflammatory triggers
- Binds to DNA, activating numerous genes involved in inflammation

Nuclear Factor Kappa B:



- Upregulated by:
 - infection (PAMPs, eg. LPS)
 - tissue damage (DAMPs)
 - oxidative stress (oxidized LDL)
 - advanced glycosylation end products (AGEs),
 - ***trans* fats**
 - synthetic toxins; heavy metals
 - inflammatory cytokines (IFN- α , TNF- α)

Persistent NFκB Activation



- Autoimmune disease
- Chronic inflammation
- Chronic oxidative stress (eg smoking)
- Excess visceral fat (abdominal obesity)
- Diabetes
- Cardiovascular disease
- Chronic infection
- Most forms of cancers
- Depression
- Aging

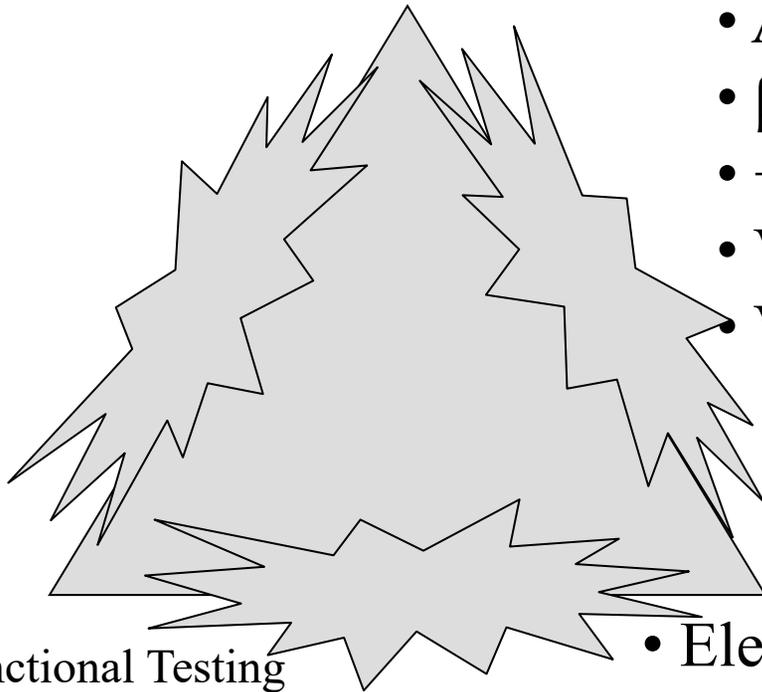
Treatment Approach: Remove Inflammatory Triggers



- Foods
- Microbes
- Toxins
- BioToxins (CIRS)
- Stress

Immune Evaluation

Brain



- Abnormal cortisol
- $\beta 2$ microglobulin
- ++ MTHFR
- VIP, MSH, VEGF, TGFB1, C4a
- VCS and NeuroQuant

Gut

- GI Functional Testing
- DAO, LPS
- MSH
- IgG Food allergies
- Occludin, Zonulin

Immune

- Elevated CRP, ESR, IL-6, TNF α
- Markers of auto-immunity
- Measurable toxins, viruses
- MMP-9, C3a, C4a, TGFB1, CD4/25
- ACLA, VWf, D Dimer

Microbes to Watch



- Mycoplasma pneumonia, fermentans, hominis
- Lyme disease (Ceres NanoTrap or Advanced Labs), Bartonella (Galaxy), Babesia, Ehrlichia, Anaplasma
- Epstein Barr Virus including early antigen
- HHV-6 (Quest)
- CMV
- Toxoplasmosis gondii
- HSV I/II
- Streptococcus
- Periodontal disease
- Mold (ERMI > 2)

Restore Optimum Nutrition



- Eliminate inflammatory foods
 - processed foods
 - Refined carbohydrates
 - Trans fatty acids
 - Excessive arachidonic acid (vs omega-3 fats)
- Antioxidant phytochemicals
- Correct selenium deficiency (thyroiditis)

Immunomodulators



- Vitamin D: 60-90 ng/mL
- Probiotics
- Phosphatidylcholine 3 grams BID
- Butyrate 2 grams c BID
- Omega 3 fatty acids: 2-6 grams qd
- Omega 6 FA: 300-1200 mg
- Sterolins 2 c qam, 1 c qpm 60 d, then 1 c BID
- SPMs 6 T daily x 2 weeks, then 2 T daily
- Luteolin
- Quercetin
- Rutin
- Boswellia
- Curcumin
- EGCG
- Zinc 40 mg daily
- Low Dose Naltrexone
- Rg3/NR nasal spray
- BPC 157
- TA1
- TB4
- Melanotan II
- Exosomes
- Stem Cells

NFKB:

Agents That Inhibit or Modulate

“Inhibitors of NF-KB signaling: 785 and counting”
Gilmore, TD, Herscovitch, M, Oncogene (2006) 25, 6887–6899

- **Brassica glucosinolates:**
 - Sulforaphane
- **Spice-derived phytochemicals:**
 - Curcumin
 - Rosemary extract (carnosic acid, rosmarinic acid)
- **Polyphenols / flavonoids:** grape seed polyphenols, soy isoflavones, green tea catechins, resveratrol, olive oil (virgin)

Virus Management



- Combo 1: Anti-viral 3 caps BID
- Combo 2: Bilberry extract, Noni extract, Milk Thistle, Echinacea Purpurea extract, Echinacea Angustifolia, Goldenseal, Shiitake extract, White Willow Bark, Garlic, Grapeseed extract, Black Walnut (hull and leaf), Raspberry, Fumitory extract, Gentian, Tea Tree oil, Galbanum oil, Lavender oil, Oregano oil
- Monolaurin 600 mg 2 c with meals
- Homeopathic series –
 - Complete month one, then reverse order for month 2
- Oil of Oregano 2 c BID
- Olive Leaf Extract
- Astragalus 1 cap TID
- Valcyclovir 2 g BID x 1 week, then 500 mg daily

Allergies



- Sterolins 1-2 tabs BID on empty stomach
- Diamine Oxidase
- Histaminum 30 C 5 pellets BID
- Quercetin water soluble 500 mg BID - QID
- Bromelain
- Luteolin
- Vitamin C
- Allersodes
- Sublingual Immunotherapy

Drainage



- **Lymphatics**
 - Degex liquescence 1 dropper BID
 - Lymph liquescence 1 dropper BID
- **Liver/GB**
 - Milk Thistle phytosome 125 mg BID
 - Arsenicum 30 C 5 pellets BID
 - Artichoke 200 mg BID
- **Kidneys**
 - Solidago 250mg-500 mg TID
 - Cordyceps 500 mg BID
 - NAC phytosome 500 mg BID-TID
 - Glutamine 5 grams BID-TID
 - Melatonin 5-10 mg
 - Vitamin C

Thank You



ANDREW HEYMAN, MD MHSA