Genyous Presentation for CNS/PNS
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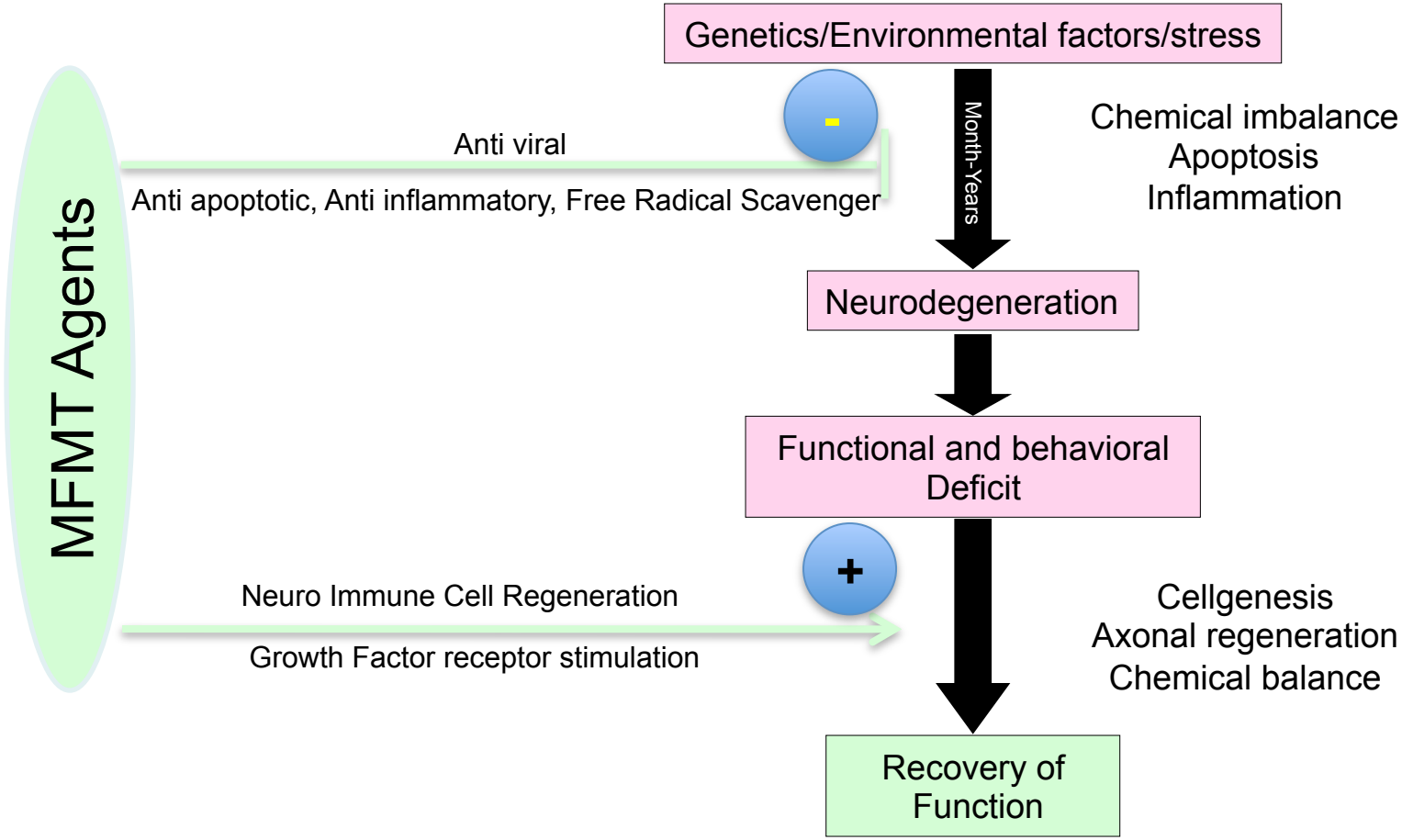
CNS/PNS—A Major Opportunity for Advancement in Pharmaceuticals

Systems Medicine – Combinations of MFMT™ multivalent drugs with the most rational single targeted drug and/or music plus psychotherapy will likely deliver personalized preventative as well as disease modifying treatments for heterogeneous CNS/PNS diseases

If the outcome of therapeutic intervention is determined by host, stromal and neuro cell biology, Multifunctional Multitargeted (MFMT™) compounds, designed based on systems biology considerations, will impact molecular pathways related to neuro cells, stroma in CNS, and host metabolic and immunological response.

Based on the effect of MFMT™ compounds upon multiple metabolic pathways —including neuro cell, stroma and host response—and the action to normalize aberrations in these pathways, it might be speculated that rational combinations of single targeted and Multifunctional Multitargeted agents maximize anti-neurodegeneration impact by focusing the signal:targeted agent response whilst ‘normalizing’ or ‘harmonizing’ the stromal and host biological response.

Central Nervous System Disorders are Heterogeneous with Multiple Systems Affected; a Distinct Therapeutic Opportunity for MFMT™ Drugs



Multivalent therapies affecting these biological processes have the promise to prevent the cause, stop the progression and enhance the recovery of function in CNS disorders

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A Systems Biology Approach to Treat CNS Diseases

- **MFMT™ Therapeutic Opportunity:**
  - Free radical scavenging to remove oxidative stress
  - Disruption of chronic inflammatory processes to disrupt development or progression of oxidative stress to the brain
  - Maintain & re-establish homeostasis of neuroimmune system
  - Immune boosting / improve cell regeneration in neuroimmune system
  - Neuroprotection (primary cortical neurons)
  - Strengthen cognitive performance

2009 Discovery of HGRV In Patients with Chronic Fatigue Syndrome

- HGRV RNA/DNA in 67% of CFS patients tested
- HGRV protein detected in >85% stimulated/dividing T and B cells
- Antibody to HGRV Env detected in >50% CFS patient plasma
- Infectious virus transmitted from >90% CFS patient plasma
- HGRV is a Blood Borne, Infectious Human Retrovirus

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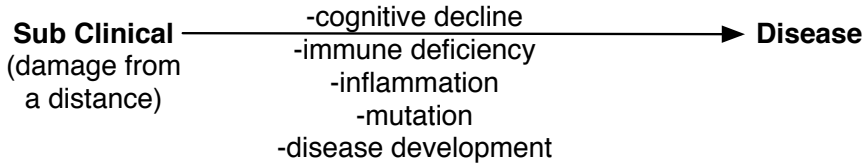
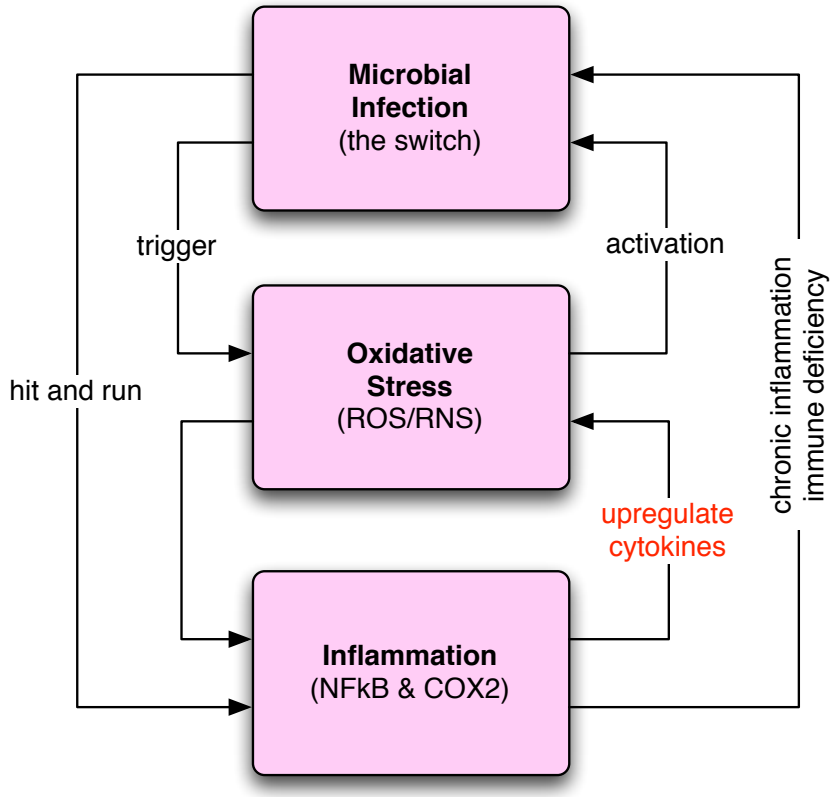
Key Contributors to Cognitive Performance Decline





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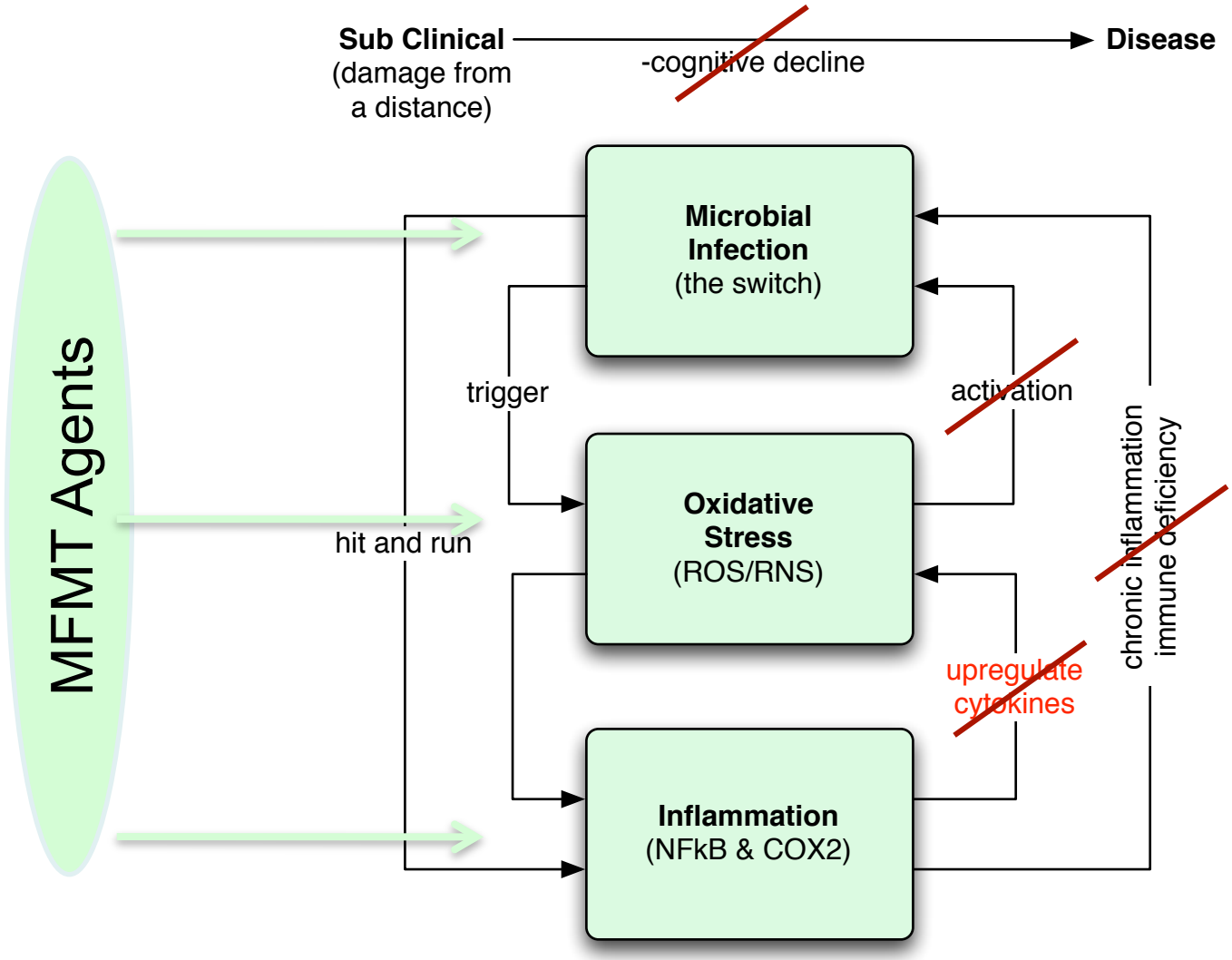
MFMT™ Agents Will Stop The Progression of CNS Diseases, Reestablish Homeostasis of Immune System and Improve Molecular Signaling in Patients (patent pending)



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Inflammatory Cytokines/Chemokines are Dysregulated in CFS

CYTOKINES/ CHEMOKINES	Patient N = 118	Control N=138	P value	FUNCTION IN INFLAMMATION
IL-8	1045	13	<0.0001	RNase L and CMV activated
MIP-1α	763	91	0.0062	Elevated in Neurodegenerative disease
MIP-1β	1985	164	<0.0001	Elevated in Neurodegenerative disease
IL-6	336	29	<0.0001	Stimulates chronic inflammation
TNF-α	148	13	<0.0001	Stimulates chronic inflammation
IL1β	500	56	<0.0001	Stimulates chronic inflammation
IP-10	98	32	<0.0001	Interferon response protein
IFN-α	35	60	<0.0001	Stimulates macrophages and NK cells to elicit an anti-viral response
IL-13	28	86	<0.0001	Inhibits inflammatory cytokine production
IL-7	160	60	<0.0001	Stimulates proliferation of B and T lymphocytes and NK cells

Mean values in pg/ml: Red denotes up regulation, Blue denotes down regulation

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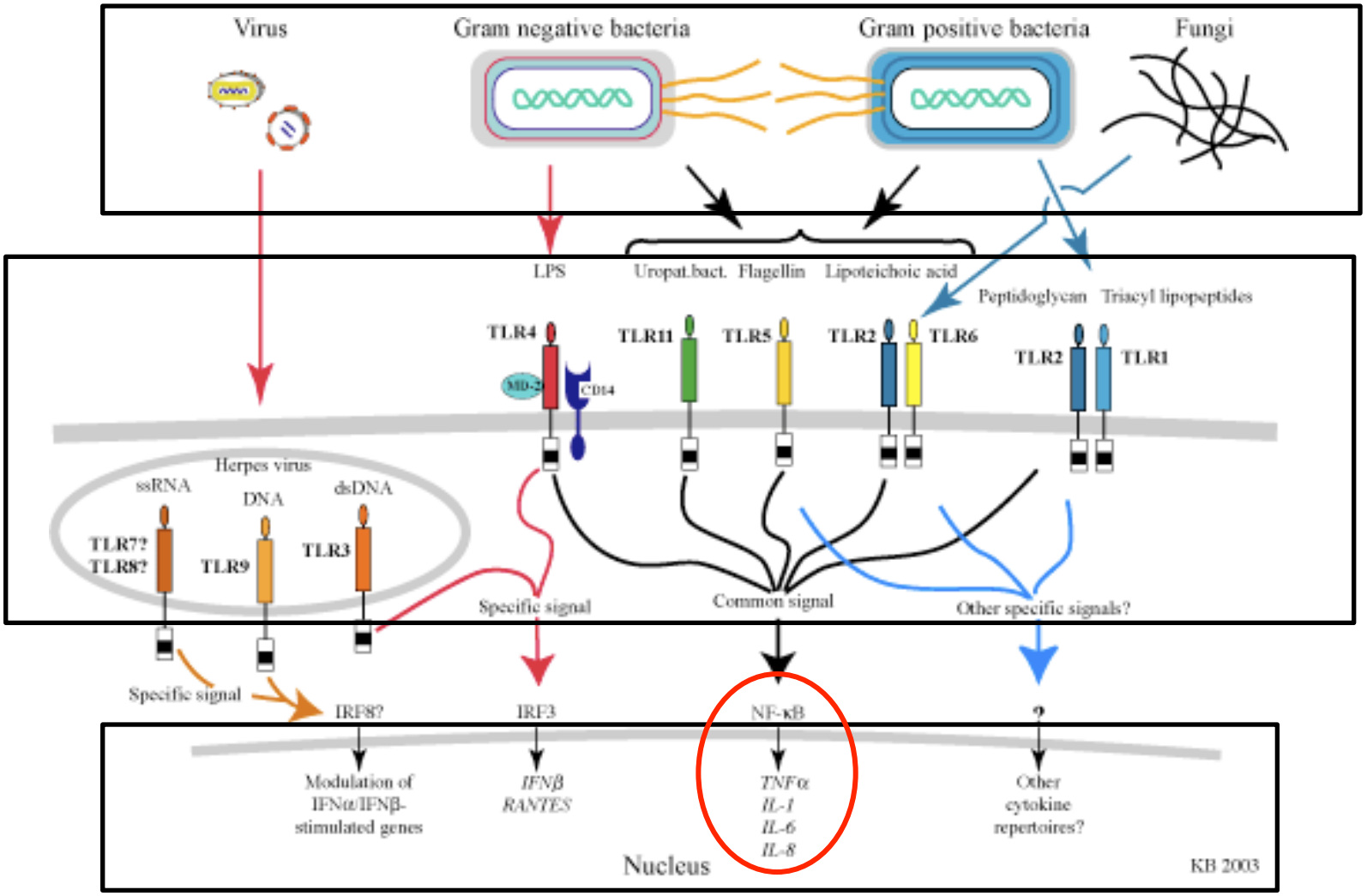
Inhibition of NFkB Prevents Cytokine Storm



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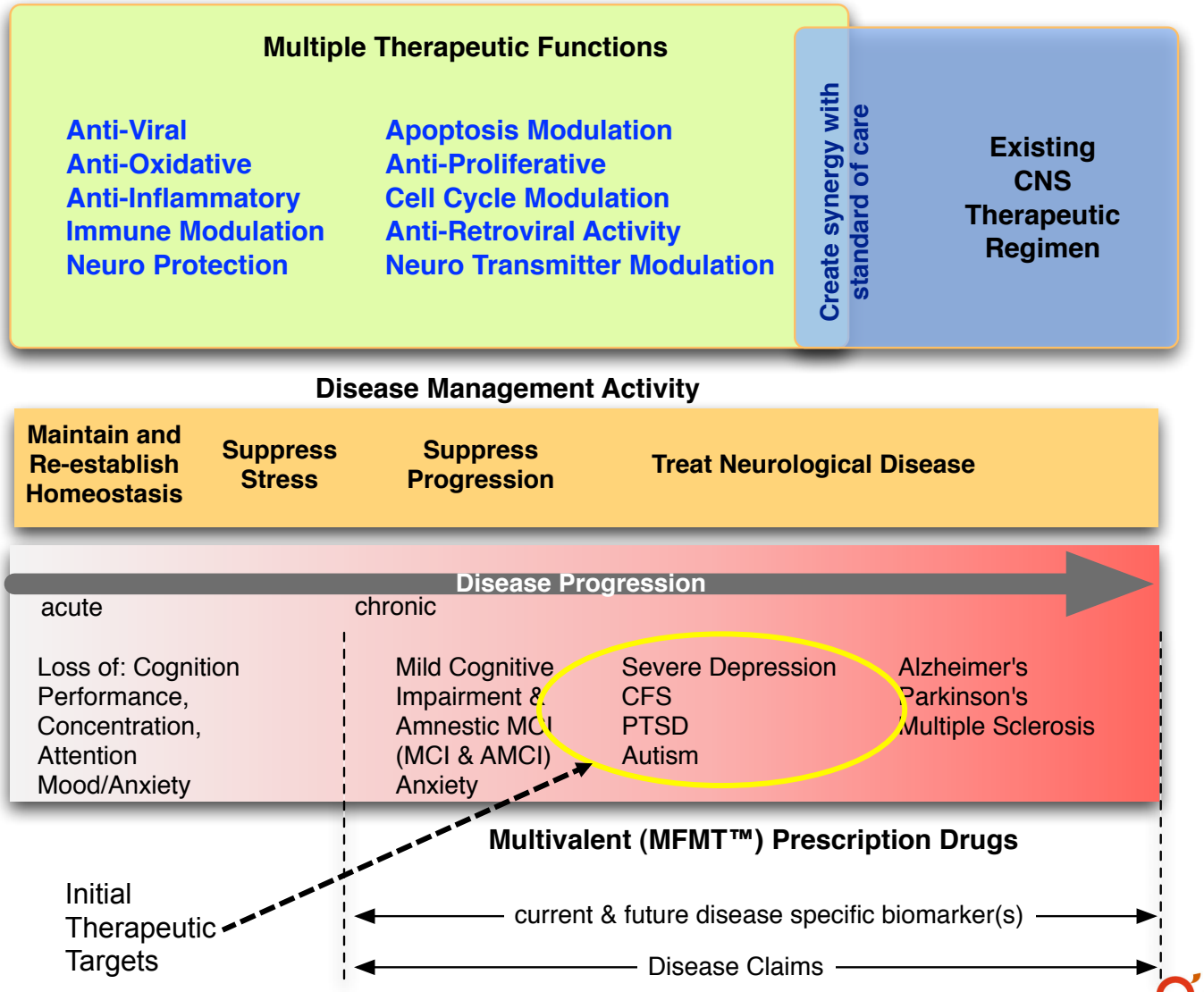
Characterization of MFMT™ Agents and CNS Drug Potential

- **We anticipate that MFMT library of agents, based on their mechanistic (cellular, biochemical, genomics) characterization, will have multiple types of beneficial activities in the central and peripheral nervous system**
- **Anti-apoptotic, neuro protection and neuro transmitter modulation activities, can be characterized in *in vitro* and *in vivo* models**
- **Pro-cognitive and anti-depressant, anxiolytic activities can be tested and characterized in *in vivo* models**
- **Optimized CNS drug for above indications could be ready for clinical trials within 1-2 years**

Multivalent (MFMT™) Therapy Strategy for CNS Diseases: treatment - slow down or stop progression (patent pending)



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