International Conference on
Neuroimmunology, Neurological disorders and Neurogenetics
&
28th World Summit on
Neurology, Neuroscience and Neuropharmacology
September 26-27, 2018 | Montreal, Canada

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## Biomarker surrogates for inflammatory and neuropathic complications and pain related hypersensitivity

Biomarkers are measurable indicators for biological conditions, which extend from normal biological processes to pathological progress as well as pharmacological response and therapeutical interventions. Biomarker surrogates are required for early diagnosis and treatments of chronic inflammatory and neurological disorders. Appropriate surrogates are required to be sensitive, specific, noninvasive and feasible yet to predict recoveries. Effective biomarkers are often involved in the pathophysiological chain. These markers can be classified as simple and nonspecific (e.g. blood pressure, hematogram, BMI), more specific (e.g. enzymes, cytokines, chimokines) or complex and expensive (e.g. FMRI, PET and, CT scans). Pro-inflammatory cytokine, tumor necrosis factor α (TNFα) is released during the early process of the inflammatory response following insults. TNFα is a prominent inflammatory biomarker which up-regulates various inflammatory cytokines and chimokines biomarkers, to initiate acute and chronic stages of inflammation and pain related sensation in inflammatory and neurophathic patients and models. TNFα is released by activating macrophages, microglia, neurons, astroglia, CD4+ lymphocytes, and natural killer cells. In a historical clinical trial (1988) subjects were injected with TNFα when shortly after had developed fever, pain and general malaise. As, the initial inflammatory insult primes the immune system, the succeeding insult/s amplify/s deleterious responses to inflammatory and neuropathic disorders. Dysregulation of TNFα contributes to the development of inflammatory conditions such as a headache, periodontal, temporomandibular and neuropathic pain. Trigeminal neuropathic pain is common following trigeminal nerve damage post surgical procedures and maxillofacial injuries. Analysis of proteomic profiling at multiple time points identifies several altered levels of inflammatory cytokines and chimokines. This presentation will explore surrogate markers of inflammatory and neuropathic disorders and their implication in diagnostics as well as possible clinical interventions.

### Biography

Helieh Oz has a DVM, MS (U.IL); PhD (U.MN) and clinical translational research certificate (U.KY). She is an active member of the American Association of Gastroenterology (AGA) and AGA Fellow (AGAF) and associate in Rome Foundation. She is Immuno-Microbiologist with expertise in inflammatory/infectious diseases, drugs discovery, pathogenesis, innate/mucosal Immunity, and micronutrient, animal models, and pain-related behavioral modifications. She has over 90 publications and served as Lead Editor for special issues. she serves on different editorial advisory board committees including Center of Excellence for Medical Research and Innovative Products, Walailak University Thailand and is an avid reviewer for several peer-reviewed journals.

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