

# 3<sup>rd</sup> International Conference and Exhibition on **Clinical & Cellular Immunology**

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## Immune and nervous system altogether against a big antigen called distress

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Chronic emotional distress creates an evident cross-talk among immune and nervous systems guiding mind, brain and body to communicate and overcome this adverse stimulus, that if not controlled becomes one of the major factors in developing degenerative diseases. A chronic exposure to a stressor entails inflammatory responses in the brain and the rest of the body. Extensively, cytokines, hormones and neuropeptides have been described as intermediaries between brain and immune system during a emotional distress condition. We have demonstrated that the neuroinflammation caused by distress induces, in a lack of blood-brain-barrier structure such as Area postrema (AP), the circulating leukocytes recruitment as well as changes in microglial morphology. We used a chronic emotional distress model on rats to study CD45 and CD11b expression by immunohistofluorescence in AP as well as TrkA neuronal marker. We found that distress induces number of immunomorphological phenotypes poorly presented in control group; interestingly CD45+ cells were able to co-express TrkA in a highly significant amount. On the other hand, by synchrotron FTIR microspectroscopy we were able to obtain the organic profile of circulating leukocytes from rats under chronic emotional distress providing unique information about the detrimental state of immune system, such as lipid peroxidation and transcriptional changes at single cell resolution. This study provides to psychoneuroimmunology new data about the inflammatory process of the CNS ought to distress sensed as an antigen by the circulatory system as the results demonstrate.

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