

Neuronutraceuticals modulate transglutaminase 2 over expression as a marker of neuro inflammation in mouse and human cells

Vittorio Gentile

University of Campania Luigi Vanvitelli, Italy

Background: Tissue type 2 Transglutaminase (TG2, E.C. 2.3.2,13) is reported to be involved in phagocytosis of apoptotic cells in mouse microglial BV2 cells and peripheral macrophages.

In this study, by using Lipopolysaccharide (LPS)- or Amyloid-1-42 (A1-42) peptide-stimulated mouse microglial cells BV2 or human THP-1 cells, we examined the effects of different neuronutraceutical compounds, such as Curcumin (Cu) and NPalmityolethanolamine (PEA), known for their anti-inflammatory activity, on TG2 and several inflammatory or neuroprotective biomarkers expressions.

Methods: Mouse BV2 or human THP-1 cells were treated with LPS or A β 1-42 in presence of Curcumin or PEA, in order to evaluate the expression of TG2 and other inflammatory or neuroprotective markers by RealTime PCR and Western Blot analyses.

Results: Curcumin and PEA were capable to reduce TG2 expression in mouse BV2 or human THP-1 cells during co-treatment with LPS or A1-42.

Conclusions: The results show a role for TG2 as an important marker of neuroinflammation and suggest a possible use of Curcumin and PEA, in order to reduce LPS- or A 1-42-induced T2 overexpression in mouse BV2 or human THP-1 cells.

Biography

Vittorio Gentile is a recognized expert in the transglutaminase research area and has a strong background in the molecular biology and biochemical aspects of the transglutaminase (TG) enzymes expression, activity and function. His work has been focused to the tissue TG (TG2) characterization in normal and pathological cellular events (cell growth and differentiation, adhesion, apoptosis, neurodegeneration) by biochemical and molecular biology studies. Currently Dr. Gentile works as associate professor at the University of Campania "Luigi Vanvitelli".