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The genistein by loading into transferrinosomes as new possible adjuvant in the oxidative stress-related neurodegenerative diseases

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Genistein (GEN) is a soy-derived isoflavone, and its antioxidant and neuroprotective activity has been reported by several authors. Promising results have been obtained both in vitro and in vivo studies, but several drawbacks such as low oral bioavailability, poor water solubility, and rapid metabolism/excretion limit GEN's clinical applications. The aim of this study was to overcome those limitations by loading GEN in transferrinosomes (GEN-TF) and use GEN-TF as a potential therapeutic or preventive strategy in neurodegenerative diseases. Several GEN-TF complexes were administered and tested on H₂O₂-induced oxidative damage in PC12 cell line by means of MTT, LDH and flow cytometer assay. All the obtained genistein carrier were able to improve GEN internalization in PC12 cells, reducing ROS and the amounts of apoptotic cells generated by H₂O₂ treatment, strengthening the neuroprotective activity of GEN. The experimental data indicate the GEN-TF2 as the most promising drug delivery system in terms of antioxidant activity and oxidative stress reduction in our PC12 cells model. These results suggest that GEN-TF2 could be used as adjuvant therapy in oxidative stress-related neurodegenerative diseases.

Biography

Rossana Migheli has completed his PhD in 1995 from Sassari University and postdoctoral studies from Sassari University School of Medicine. She is a researcher in Sassari University School of Medicine directs the cellular laboratory of Pharmacology. She has published more than 50 papers in reputed journals. The your research in recent years has mainly concerned the neurochemistry of natural and synthetic antioxidant molecules in neuronal models in vitro and in vivo of oxidative stress. She used different technologies in order to evaluate new strategies for the administration of drug therapies.

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