Multidisciplinary approaches to change the landscape horizon of remyelination therapies

Alessandra Dominicis [1], Alice Del Giovane [1], Eleonora Marino[2], Gaetano Barbato[2,3] and Antonella Ragnini-Wilson [1]

[1] Department of Biology and [2] School of Pharmacy at University of Rome Tor Vergata; [3] Inno-Sol S.r.l Rome Italy

An unmet goal for the clinical research is to restore myelin sheath after a demyelination event. Demyelination of axon can occur due to autoimmune, viral or injury attach to central nervous system myelin and is a hallmark of brain aging. Remyelination is a natural process that allows to restore neuronal activity after a demyelination event in adult brain. It relies on the reactivation of neural precursor cells and on their differentiation in myelinating oligodendrocytes. Pharmacological approaches promoting spontaneous remyelination are therefore on the spotlight of brain research for its potential possibility to reduce, retard or halt mental decay (1). Toward this aim we and others have set phenotypical screens that allowed to identify several molecules based on their ability to stimulate myelin gene expression in vitro and endogenous remyelination in animal models. Presently, we are characterising those targeting Smoothened receptor to bring them to clinical attention (2). Furthermore, we are also exploring the possibility that modulating a suitable cellular stimulation protocol based on low intensity pulsed ultrasound (LIPUS), using the instrument SonoWell®, might promote oligodendrocyte differentiation *per se* or possess a synergic action with the drugs (3).

Cited literature

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