

DOTTORATO DI RICERCA IN BIOLOGIA CELLULARE E DELLO SVILUPPO

Proposta di progetto per una borsa Dottorato Sapienza Linea di ricerca secondaria

Titolo della ricerca: Role of Vitamin B12 in neurological homeostasis and possible rescue from deficiency or metabolic defect using nanotechnology complexes

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Summary

Vitamin B12 (VitB12) is an essential micronutrient needed for life. It is synthesized exclusively by certain bacteria and archaea and, thanks to their interaction with animals and plants, VitB12 can enter the food chain of human beings. Deficiency of VitB12 or in-born defects related to VitB12 metabolism determine several impairments including neurological disorders. This project aims to characterize the role of VitB12 in neurological homeostasis evaluating neurotrophic action, neuroprotection and soluble and extracellular vesicles (EVs) -mediated inflammation following deficiency of VitB12 or alteration of VitB12 metabolism in motoneurons and oligodendrocytes in vitro cell models. Furthermore, the myelination process will be studying using 3D Brain MicroPhysiological System (BMPS). VitB12-loaded EVs and VitB12-loaded nanoparticles (lipid and mesoporous silica based) will be produced and rescue from neurodegenerative state determined by deficiency of VitB12 or VitB12 metabolism defect (induced by silencing of MMACHC gene) will be evaluated using mentioned complexes.

Lavori pubblicati negli ultimi 5 anni dai docenti richiedenti la borsa:

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