

TITLE

Mitochondrial Dynamics as a new therapeutic target for neurodegenerative diseases

DESCRIPTION

Compelling evidence has accumulated over the years indicating that mitochondrial dynamics play an essential role in normal neuronal physiology and in pathophysiology, being essential for synaptogenesis, Ca²⁺ buffering, axonal transport and bioenergetics. Inactivation of the main players of the mitochondrial fusion/fission machinery is associated with defects in neuronal development, plasticity and function, both *ex vivo* and *in vivo*. As a matter of fact, in the last decades, perturbation in mitochondrial dynamics has been linked to different human neurodegenerative diseases such as Down syndrome, Alzheimer's disease, Parkinson's disease and Huntington's disease.

We are interested in identifying genes and metabolic pathways controlling mitochondrial dynamics that could represent potential drug targets in neurodegenerative diseases. The relevant therapeutic implication of these findings is that mitochondrial network recovery might improve the mitochondrial functions and the neurological phenotype. By screening compounds targeting the mitochondrial fission/fusion machinery in human cellular disease models we have already identified a drug that provides attractive results and we expect to be able to find a new family of molecules with even stronger effect on mitochondrial dynamics. We believe that the recovery of the mitochondrial network will represent a new therapeutic approach for neurodegenerative disorders.

SELECTION CRITERIA

Eligibility Criteria

- Academic degree: Applicants shall have a master degree in **Biology and related fields such as Molecular Biology, Immunology, Cell Biology, Genetics etc.**, corresponding to the second level of studies.

- Mobility rule: There will be no nationality restrictions. Applicants can be from any Country. However, according to the mobility rule, at the time of the application deadline researchers should not have resided or carried out their main activity (work, studies, etc.) in Italy for more than 12 months in the 3 years immediately prior to the reference date. Compulsory national service and/or short stays such as holidays will not be taken into account.

- Research experience: Applicants shall, at the time of the application deadline, be in the first four years (full-time equivalent research experience) of their research careers and not yet awarded a doctoral degree.

Full-Time Equivalent (FTE) Research Experience will be determined from the date when a researcher obtained the degree which would formally entitle her/him to embark on a doctorate, either in the country in which the degree was obtained or in Italy, irrespective of whether or not a doctorate is or was ever envisaged.

Evaluation Criteria

Step 1 -Evaluation of documentation provided by the candidate: a) Academic record and training b) Research activities c) CV/motivation letter; d) Level of English; e) Reference letters.

Step 2 - Interview: a) Scientific knowledge in the field of interest; b) Research experience in the field of interest c), Motivation; d) English proficiency.

Supervisor

Dr. Lucio Nitsch

<https://www.docenti.unina.it/nitsch>