

Molecular mechanisms of neuronal restoration: novel approaches for Parkinson's disease (MOLPARK)

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Title of project or programme

Molecular mechanisms of neuronal restoration: novel approaches for Parkinson's disease (MOLPARK)

Principal Investigators of project/programme grant

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Source of funding information

European Commission

Total sum awarded (Euro)

3472653

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01-04-2009

Total duration of award in months

36

The project/programme is most relevant to

- Parkinson's disease

Keywords

Drosophila, Parkinson's Disease, Stem Cells, Connectivity, Transgenic Mice, Neurotrophic Factor, Neuronal Survival

Research abstract in English

MOLPARK aims to define the basic cellular and molecular mechanisms underlying the generation, differentiation, survival and connectivity of nigrostriatal dopaminergic neurons and translate this knowledge into radically new therapeutic strategies for Parkinson's disease (PD). MOLPARK brings together two industrial partners and 6 world-renowned academic groups with a uniquely advantageous knowledge platform based on complementary state-of-the-art technologies and recent relevant discoveries in their laboratories. These include, unique approaches for stem cell renewal control based on novel insights into the function of GABA receptors and intracellular signaling components such as Bex1, novel neurotrophic factors for dopaminergic neurons such as CDFN and MANF, novel approaches to harness the power of GDNF and Wnt proteins for stimulating the growth of dopaminergic terminals and novel ways to enhance synaptogenesis.

MOLPARK's strategy is based on four major interrelated objectives.

- Define the mechanisms of stem cell self-renewal, differentiation and integration and exploit these mechanisms to induce or boost existing self-repair processes with the aim of replenishing neurons in PD.
- Define the mechanisms for sustaining dopaminergic neuron survival in health and disease with the aim of developing new, effective growth factor-based therapies aimed at protecting neurons in PD.
- Define the mechanisms that promote the growth of DA nigrostriatal axons and dendrites with the aim of identifying therapeutic strategies based on restoring neural processes in PD. – Define the mechanisms that promote and sustain the synaptic connections of dopaminergic neurons with the aim of restoring connections in PD

Lay Summary