

Deciphering Protein Quality Control Pathways Targeting Cytosolic Proteins for Proteasome Degradation

<https://neurodegenerationresearch.eu/survey/deciphering-protein-quality-control-pathways-targeting-cytosolic-proteins-for-proteasome-degradation/>

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Contact information of lead PI Country

Canada

Title of project or programme

Deciphering Protein Quality Control Pathways Targeting Cytosolic Proteins for Proteasome Degradation

Source of funding information

CIHR

Total sum awarded (Euro)

€ 559,676

Start date of award

01/10/2013

Total duration of award in years

5.0

The project/programme is most relevant to:

Neurodegenerative disease in general

Keywords

Research Abstract

Proteins are essential components of the cell that participate to all aspect of cell life (e.g., enzymatic activity, structural component, maintenance and duplication of the genetic material,

communication with other cells). After synthesis, proteins are assembled (i.e., folded) to their native state and surveillance pathways ensure that aberrant proteins (i.e., misfolded or damaged) are repaired or eliminated from the cell. Failure to eliminate aberrant proteins is associated to aging and numerous neurodegenerative proteopathies like Parkinson's disease. In order to better understand how the cell recognizes aberrant proteins and targets them for degradation, we will study several protein quality control pathways that employ so-called ubiquitin ligases. Ubiquitin ligases are enzymes that mediate a modification (i.e., ubiquitination) on aberrant proteins that is then recognized by the proteasome, a large cellular machinery, that degrades proteins. More specifically, we will investigate how these ubiquitin ligases recognize misfolded proteins. An exciting prospect is that modification of the protein quality control pathways (e.g., using drugs) could increase the degradation of aberrant proteins, thereby reducing their accumulation in the cell, improving cell survival, and stopping the progression of neurodegenerative diseases.

Lay Summary

Further information available at:

Types:

Investments > €500k

Member States:

Canada

Diseases:

Neurodegenerative disease in general

Years:

2016

Database Categories:

N/A

Database Tags:

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