

# Molecular Basis of Protein Misfolding Disorders.

<https://neurodegenerationresearch.eu/survey/molecular-basis-of-protein-misfolding-disorders/>

## Principal Investigators

Prof Christopher Dobson

## Institution

University of Cambridge

## Contact information of lead PI

### Country

United Kingdom

## Title of project or programme

Molecular Basis of Protein Misfolding Disorders.

## Source of funding information

The Wellcome Trust

## Total sum awarded (Euro)

€ 1,560,915

## Start date of award

27/06/2011

## Total duration of award in years

6.0

## The project/programme is most relevant to:

Neurodegenerative disease in general

## Keywords

### Research Abstract

Our programme concerns the identification of the molecular basis of protein misfolding disorders. We will build on the generic view of protein aggregation to investigate five major questions: Objective 1: Kinetics of Protein Aggregation To define the microscopic processes underlying the phenomenon of protein aggregation, and the factors that determine their initiation and their rates. Objective 2: Thermodynamics of Protein Aggregation To analyse the

thermodynamic stabilities of the different states of proteins, and their links with the roles of kinetic factors in enabling them to remain functional in crowded cellular environments. Objective 3: Metastability of the Human Proteome To characterise the origins of pathogenesis in misfolding diseases in terms of the interaction between amyloid species and the set of human proteins that are metastable against aggregation. Objective 4: Biological Regulation of Protein Aggregation To analyse the mechanisms by which chaperones and other biological processes protect against protein aggregation in vivo, and how these pathways depend on risk factors ranging from mutagenesis to ageing. Objective 5: Chemical Regulation of Protein Aggregation To develop principles and methods of rational intervention in misfolding diseases, including potential therapies, based on the knowledge of the specific mechanisms of aggregation and on the restoration of the health of the proteome as a whole.

## **Lay Summary**

**Further information available at:**

### **Types:**

Investments > €500k

### **Member States:**

United Kingdom

### **Diseases:**

Neurodegenerative disease in general

### **Years:**

2016

### **Database Categories:**

N/A

### **Database Tags:**

N/A