



## **IQB-775 – TÓPICOS ESPECIAIS EM BIOQUÍMICA: PROTEIN MISFOLDING IN NEURODEGENERATIVE DISORDERS**

### **Professores**

Tiago Fleming Outeiro (Georg-August-Universität Göttingen) – [touteiro@gmail.com](mailto:touteiro@gmail.com)

Elis Cristina Araujo Eleutherio (IQ-UFRJ) – [eliscael@iq.ufrj.br](mailto:eliscael@iq.ufrj.br)

Luciana Pizzatti Barboza (IQ-UFRJ) – [pizzatti@iq.ufrj.br](mailto:pizzatti@iq.ufrj.br)

Cristian Follmer (IQ-UFRJ) – [follmer@iq.ufrj.br](mailto:follmer@iq.ufrj.br)

Anderson de Sá Pinheiro (IQ-UFRJ) – [pinheiro@iq.ufrj.br](mailto:pinheiro@iq.ufrj.br)

**Carga horária:** 30 horas

Disciplina teórica

**Créditos:** 2

**Vagas:** 20

### **Objetivo/Goal**

In this course, the molecular and biochemical basis of protein folding and misfolding, and its connection to neurodegenerative disorders such as the prion diseases, Alzheimer's disease, Parkinson's disease, Amyotrophic Lateral Sclerosis, and Huntington's disease, will be covered.

### **Ementa/Description**

The main subjects covered in the course: (i) Proteins involved in degenerative disorders; (ii) How the proteins' three dimensional structures change during the course of these afflictions; (iii) Cellular quality control systems used to cope with protein misfolding; (iv) Experimental models to study the molecular basis of degenerative diseases; (v) the effect of oxidative stress on degenerative diseases; (vi) biophysical techniques for studying protein folding and biochemical properties; (vii) novel detection methods and therapies that are under development to treat neurodegenerative disorders.

### **Programa Analítico/Program**

1. The molecular and biochemical basis of protein folding and misfolding, and its connection to neurodegenerative disorders;
2. Proteins involved in degenerative disorders: Alzheimer's disease, Parkinson's disease, Amyotrophic Lateral Sclerosis, and Huntington's disease
3. Biophysical and biochemical methods for studying protein structure and properties.
4. Cellular quality control systems used to cope with protein misfolding;
5. Experimental models to study the molecular basis of degenerative diseases;
6. Oxidative stress and degenerative diseases;
7. Novel detection methods and therapies that are under development to treat neurodegenerative disorders.



### **Avaliação/Assignment**

Work in groups of two or individual. Write (in English) a fictive grant application for 12 months and with a budget of 50,000 reais. This should consist of a two page document containing: Introduction, Justification, Goals, Methodology/Experimental Strategy, Expectations for the work, References, Chronogram, Budget. On the last day, present projects (5 min) and defend (slide presentation in English, oral presentation in English).

### **Literatura Recomendada/Bibliography**

- Scientific articles