

# **BRAIN AWARENESS WEEK 2011 REPORT**

**Institute of Biomedical Research in Light and Image (IBILI)  
University of Coimbra, Coimbra, Portugal**

**Coordinator:** António Francisco Ambrósio

**14 - 18 March 2011**

**LAB OPEN DAY**  
**“EYE, BRAIN AND VISION”**

**Visiting Students from Escola Secundária Raul Proença,  
Caldas da Rainha**

**March 18<sup>th</sup>, 2011**

# Researchers involved

**Ana Paula Silva**

**Andreia Gonçalves**

**Joana Gonçalves**

**Rosa Fernandes**

**Sofia Baptista**



# Activities

**Seminar** – “Eye, vision and ocular diseases” – Rosa Fernandes  
and “Drugs of Abuse and the Brain” – Ana Paula Silva

**The activities in the lab included:**

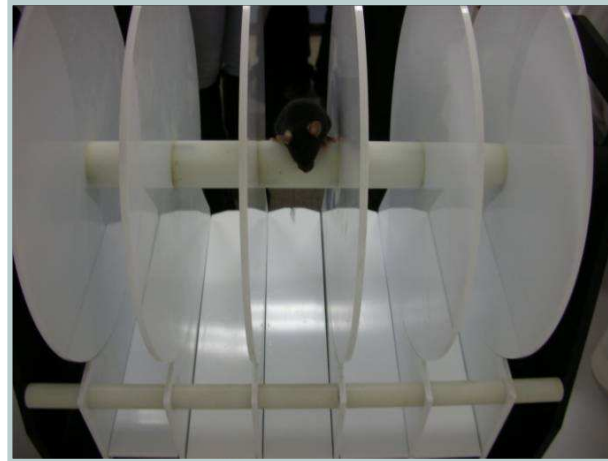
- Behaviour studies – Rotarod test
- Dissection of brain and eyes from mice and rats
- Brain slices and neuronal observation
- Retina sections staining
- Fluorescence microscopy

# Activities

## Talking about animal care and maintenance



## The effect of alcohol in motor coordination



# Activities



**Dissecting mouse and rat brain**

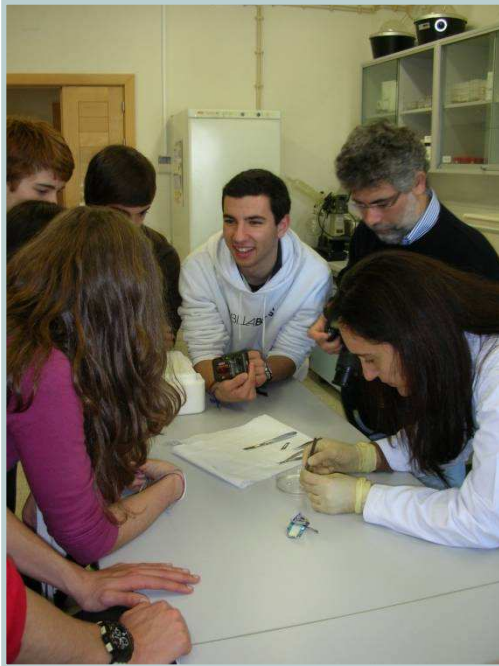


**Brains sections and neuronal cells observation**



# Activities

## Dissecting a rat eye



## Whole mount retinal preparation



## Retinal vasculature observation

# **“ENVELHECIMENTO E VISÃO”**

**Visita de alunos do Colégio Internato dos Carvalhos,  
Vila Nova de Gaia**

**18 de Março de 2011**



# **Investigadores do grupo de “Biologia do Envelhecimento” envolvidos na acção**

**Paulo Pereira**

**Henrique Girão**

**Carla Bento**

**Carla Marques**

**Steve Catarino**

**Joana Simões Correia**

# Actividades

**Seminário – “Envelhecimento e Visão - Mecanismos moleculares de doenças”**

**Henrique Girao, Carla Bento, Joana Simões-Correia**

**Actividades Laboratoriais:**

- Manipulação genética: produção e isolamento de DNA
- Modelos de cultura celular e regulação da expressão de proteínas
- Técnicas de bioquímica: detecção e quantificação de proteínas
- Modelos animais de doença
- Microscopia de fluorescência e confocal

# Actividades



**Técnicas para avaliar alterações proteicas**

**Regulação da expressão genética**

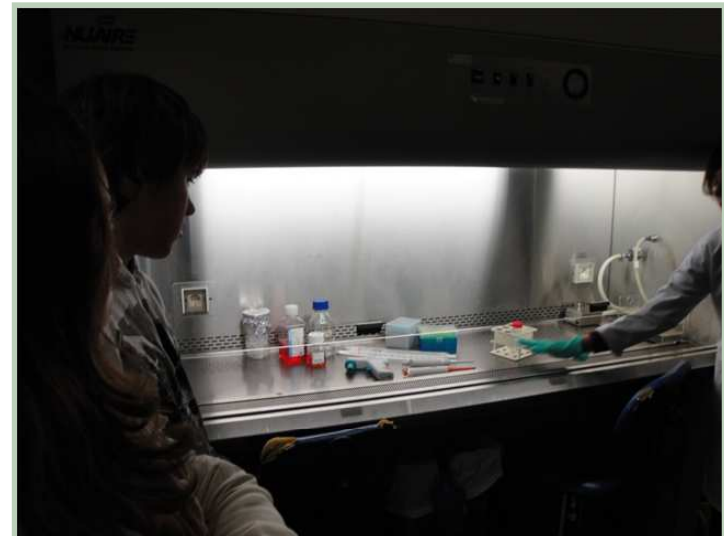


# Actividades

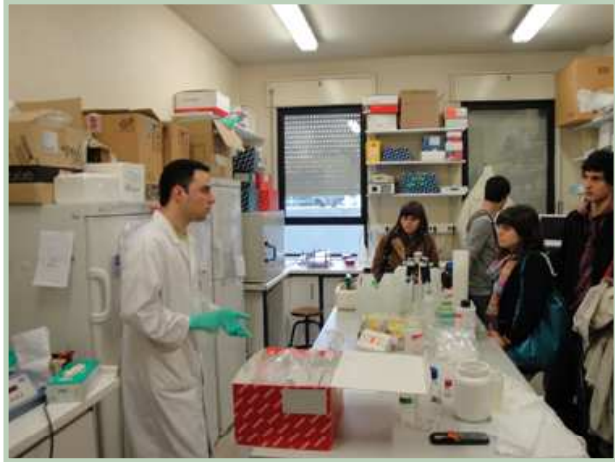


**Observação de células transfectadas com proteína GFP por microscopia confocal**

**Observação e manipulação de culturas de células de mamíferos**



# Actividades



**Purificação de DNA produzido em bactérias**

**Dissecção de olhos de ratos (modelos animais de doença ocular)**



# **Os Neurocientistas vão à Escola**

## **“O que são drogas?”**

**Visited school: Escola Secundária c/ 2º e 3º ciclos D. Pedro I,  
Alcobaça**

**March 16<sup>th</sup>, 2011**

# **Os Neurocientistas vão à Escola**

## **“O que são drogas?”**

**Visited School: Escola EB Dra Maria Alice Gouveia,  
Coimbra**

**March 17<sup>th</sup>, 2011**



## Researcher involved

**Frederico Costa Pereira**



# Activities

## Seminar – “Drugs of Abuse and the Brain”



Addressed topics:

- Main drugs of abuse used worldwide including Portugal

- The impact of drugs of abuse in the brain

- Systemic adverse effects of drugs of abuse (e.g. drugs of abuse and the heart)

- Are sedative-hypnotic drugs also misused/abused?

# Escola Secundária c/ 2º e 3º ciclos D. Pedro I, Alcobaça

Circa 100 students from 9th grade attended this seminar



# Escola Secundária EB Dra. Maria Alice Gouveia, Coimbra

Circa 30 students from 9th grade attended this seminar



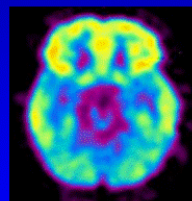


# Take-home message

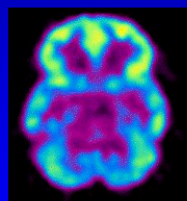
## *Addiction is Like Other Diseases...*

- It is preventable
- It is treatable
- It changes biology
- If untreated, it can last a lifetime

Decreased Brain Metabolism  
in *Drug Abuser*

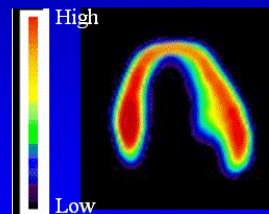


Healthy Brain

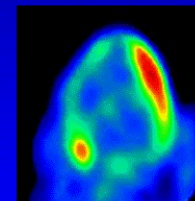


Diseased Brain/  
Cocaine Abuser

Decreased Heart Metabolism  
in *Heart Disease Patient*



Healthy  
Heart



Diseased Heart

*Research supported by NIDA addresses all of these  
components of addiction.*

NIDA

# **Os Neurocientistas vão à Escola**

## **“Retina: uma porta aberta para o cérebro”**

**Visited School: Escola Secundária de Figueiró dos Vinhos**

**March 18<sup>th</sup>, 2011**

# Researcher involved

**António Francisco Ambrósio**

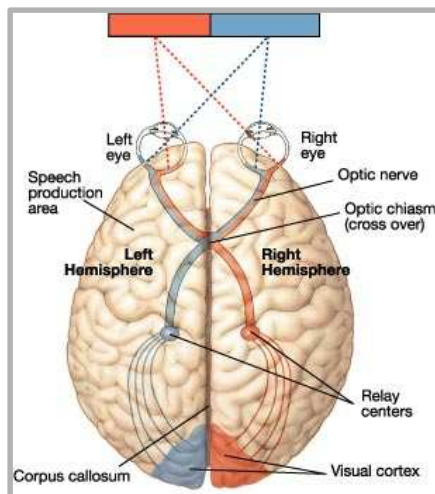
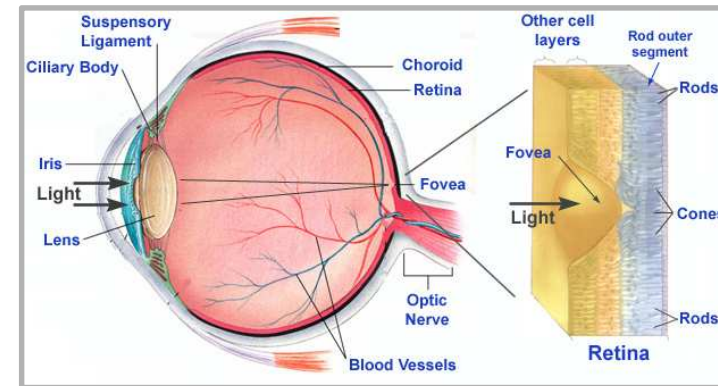




# Actividades

## Addressed topics:

- The eye and retina: anatomy and physiology
- Cell types in the retina
- Visual problems and perception
- Visual input to the brain and visual cortex



# Actividades

Addressed topics:

-Retinal degenerative diseases: age-related macular degeneration, diabetic retinopathy, glaucoma

-Research in Vision Sciences



**Circa 70 students from 9-12th grades attended this seminar  
.... many question raised after the talk, mainly about eye diseases...**

