

Recruitment event of IT-DED³

Institut de la vision **Sorbonne University** Dr Françoise Brignole-Baudouin [*ESR* 8]

May 24, 2018







Inflammation in dry eye disease

Adapted from Baudouin C. et al. The Ocular Surface, 2013

Dry eye disease biomarker research: there is a Growing Need for Validated Biomarkers and Endpoints for Dry Eye Clinical Research (Roy, IOVS, 2017)





HLA DR, the gold standard marker of ocular surface inflammation a marker of severity, the only one repeatedly validated in multicenter clinical studies









HLA DR	CCR4	MIF
CD40	CCR5	FasL
CD44	CXCR3	IL-6
CD95/Fas	CXCR4	IL-8
$CD54/ICAM_1$	CX3CR1	Groa
	UNJOINT	FNN

Biomarker investigation

→HLA DR, the "gold standard"



Ocular Surface Diseases Center of Clinical investigation

IT-DED³

Large scale Transcriptomics

nanoString



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Conjunctival expression of SDF-1 (FL-1) No need of enzymatic detachment

DED3





PhD RESEARCH PROGRAM – ESR8 – WP3 Development of new biomarkers and imaging techniques for dry eye disease



PhD Supervisor: Dr Françoise Brignole-Baudouin

Objectives: (T3.2)

- To define a cohort of dry eye disease patients with clinical and biological phenotyping and evaluation of quality of life, quality of vision, and environmental living conditions
- To collect **biological samples for further biomarker analysis with new techniques** (proteomics & lipidomics)
- To identify new molecular biomarkers to better understand the pathophysiology of dry eye disease in humans in relation with animal model findings (T3.1)

Methods: Clinical Investigations

Questionnaires: OSDI, SPEED, Pain score,

Signs:

- Slit Lamp evaluation and inflammation exploration (*In vivo* confocal microscopy, HRT-RCM[®]),
- Anterior segment OCT, Angio-OCT,
- Optical Quality Analyzing System (OQAS[®]),
- Keratograph Oculus® f

Methods: (T3.2)

- Ex vivo Impression cytology specimen from DE patients,
- In vitro using corneal and conjunctival cell lines
- Flow cytometry,
- RT-PCR,
- ELISA, Multiplex assays,
- Mass spectrometry for lipidomics study

Description of Deliverables,

D3.2.1 Report on the evolution and content of the clinical database (month 35);

D3.2.2 Report on identified biomarkers and image analysis from patient cohorts (month 42);

D3.2.3 Report on analysis of ocular pain in patients with dry eye disease (month 42)





Planned secondments

Institut de la Vision (IDV) and ESR9

Supervision: Annabelle Réaux-Le Goazigo

<u>Horus Pharma</u> (supervision: Dr. Carole Gard): 3 months, training in development activities, scientific communication, clinical evaluation and regulatory strategy as part of the developments necessary to obtain marketing authorizations (M30-32)





Horus Pharma is an independent French laboratory specialised in ophthalmology Founded in 2003, Horus Pharma develops, patents and markets products designed to facilitate eye and eyelid health.





4. Doctoral school linked to the beneficiary and offering training on transferable skills

ED394 : http://www.ed394.upmc.fr/fr/index.html

In consultation with its supervisor, each doctoral student develops a plan for continuing education.

This plan is in support of the research project and supports the professional project. It is part of a process of professionalization and openness.

The PhD student chooses courses from the list of modules approved by the Doctoral School. Each doctoral student **in the first and second year must take courses for an hourly volume of about 60 to 80 hours a year** (15 days). He must have his training plan validated by the Doctoral School before enrolling in the different modules, respecting the registration procedures specific to each organization that provides the training chosen.

