EVI-GENORET

Publishable executive summary

The retina is a highly complex biological system that accommodates both numerous tissue-specific and ubiquitously expressed developmental and pathologic pathways. The number of genes identified in Inherited Retinal Degenerations (IRD) has steadily increased. The commonest cause of blindness, (12.5 Million affected in Europe) Age-Related-Macular-Degeneration (ARMD), is likely to depend on both mostly unknown genetic and modifying factors. Preventing blindness from IRD and ARMD requires the understanding of the genetic and cellular interactions controlling retinal development, maintenance and function.

In EVI-GENORET, 24 academic and industrial partners form five interacting components (phenotyping, development, genetics, therapy and functional genomics) to establish working platforms, share tools and knowledge within and outside the academic community (dissemination through patient organisations and transfer to industrial partners).

The objectives of EVI-GENORET are to:

1. Obtain and integrate the information on gene function through numerous human, animal and in vitro models of retinal degeneration available as well as data from studies during development;
2. Standardize and analyse these informations (databases, bioinformatics, transcriptome, proteome and expression studies);
3. Validate the information (bioinformatics and functional assays);
4. Generate conceptual and biological models of genes, gene networks and pathways relevant to major functions involved and/or impaired in retinal health and disease;
5. Design novel cell-based and genomic-based therapies that would obviously potentially benefit patients but also validate the pathways and targets identified using the above-described approaches that might be modulated by rational drug, cell or gene therapies.

The consortium has already provided significant results towards these objectives:

- Harmonization of Standard Operating Procedure and development of the relational EVI-GENORET database ;
- Identification of candidate genes involved in retinal degeneration by DNA chips and proteomic analysis;
- Retinoid dehydrogenases/reductases (RDH) catalyze key oxidation-reduction reactions in the visual cycle that converts vitamin A to 11-*cis* retinal, the chromophore of the rod and cone photoreceptors. We have shown that mutations in *RDH12*, encoding a retinal dehydrogenase, result in severe and early-onset autosomal recessive retinal dystrophy (arRD)

Description of the EVI-GENORET consortium:

1 EVI : T. Wheeler Schilling
2 INSERM : J. Sahel, S. Aymé, O. Goureau, J. Kaplan, T. Léveillard, C. Hamel, F. Mascarelli, S. Picaud, F. Behar-Cohen
3 UCL : A. Bird, T. Moore, A. Webster, R. Ali ,S. Moss, J. Greenwood, S. Bhattacharya
4 UTUB : E. Zrenner, M. Seeliger, F. Schuettauf B. Wissinger, U. Schraymeyer,
5 AIBILI : J. Cunha Vaz
6 FTELE : V. Marigo, S. Banfi
7 UMCN : R. Roepman, F. Cremers
8 ULUND : M. Perez, P. Ekstroem
9 UNIMIB : A. Vescovi
10 MRC : V. Van Heyningen, T. Moore

11 GSF : M. Ueffing
12 UKE : A. Gal
13 UNI.ZURICH : C. Grimm
14 UHD : H. Scholl, F. Holz
15 TCD : P. Humphries
16 RET.INT : C. Fasser
17 FZJ : F. Mueller
18 GENABLE : G. Tuohy
19 QUB : U. Chakravarty
20 CERBM : O. Poch, P. Dollé, R. Ripp
21 GENOWAY : K. Thiam
22 C. Ayuso
23 NKUA : S. Kamakari
24 INSERM-TRANSFERT : O. Lorentz

EVI-GENORET web site: www.evi-genoret.org

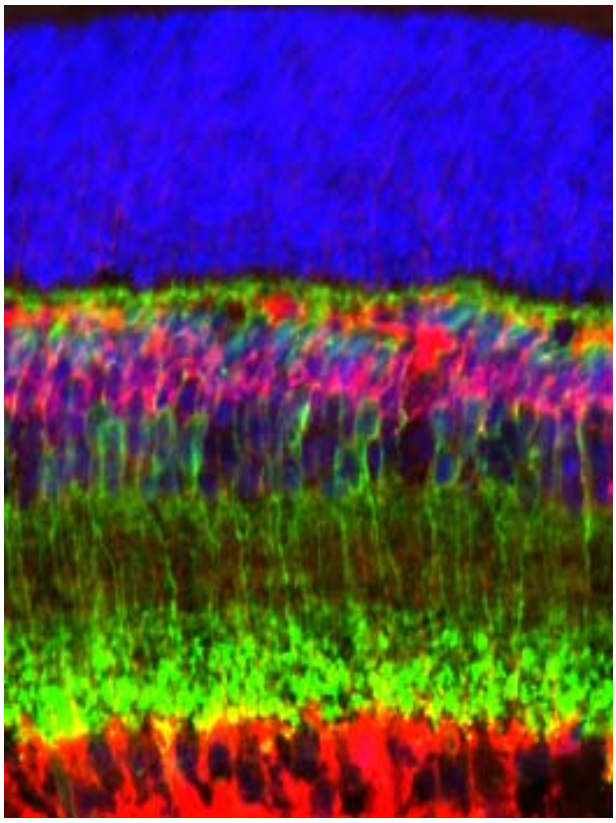
Email: info@evi-genoret.org

Tel: 00 33 1 49 28 66 73

00 49 7071 29 87644

Scientific Coordinator
Prof José-Alain Sahel
Laboratoire de Physiopathologie Cellulaire et Moléculaire de la Rétine
INSERM U592
Institut de la Vision
184 rue du Faubourg St-Antoine
75571 Paris CEDEX12

INSERM Acknowledgements to Dr. O. Goureau (permission for copyright has to be asked for to publication editors)



CERBM: Acknowledgements to Dr P. Dollé (permission for copyright has to be asked for to publication editors)