Treating inherited binding disease with a slow released form of the rod-derived cone viability factor protein (DrEYE)

Thierry Léveillard

Project Coordinator:

Thierry Léveillard, Sorbonne Université, France

Project Partners:

Molly Shoichet, University of Toronto, Canada

Eckhard Wolf, Ludwig-Maximilians-Universität München, Germany

Robert Fluhr, Weizmann Institute of Science, Israel

The cones concentrated at the center of the retina are essential for daily vision. The rods, which are active only in darkness, provide the cones with a signaling protein called rod-derived cone viability factor (RdCVF). RdCVF is necessary for central vision as it facilitates the absorption of bloodborne glucose by cones for the periodic reconstruction of the segment that captures light. Two million patients worldwide suffer from retinitis pigmentosa and become blind from inherited mutations that kill rods and consequently abolish RdCVF production. Our aim is to prevent this from happening by restoring RdCVF using a slow release form of RdCVF.

Our group will study the feasibility of such protein therapy using rodent and porcine models of the targeted disease, retinitis pigmentosa. The success of this proof of concept for a future human therapy relies on the competence of the consortium of experts in their respective domains. Rehovot will produce research grade RdCVF protein, coupled to a matrix for slow release in Toronto. Paris and Toronto will test this therapeutic protein in rodents. Munich will provide the pig model that will ultimately be tested in Paris. Dr. EYE explores a new promising therapeutic approach of this, until now, untreatable disease.