

## **Internship Proposal**

### **Academic Year 2018-2019**

#### **1. Host team :**

Research Unit: Asociación Para Evitar la Ceguera en México I.A.P.  
Research Unit Director: M.D. Hugo Quiróz  
Research Team Director: PhD. Rubén Zamora and PhD. Lenin Ochoa  
Team name: Immunobiology and molecular physiology

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#### **2. Internship project title:**

Determination of inflammatory, osmotic and angiogenic proteins in corneal tissue and capsules of diabetic patients.

#### **3. Internship Description :**

Cataracts are one of the complications that occur early in individuals with type 2 diabetes mellitus. It is estimated that approximately more than 20% of cataract surgeries are performed in diabetic patients. So far it is known that the formation of cataracts is due to an imbalance of different osmotic components and presence of oxidative stress, which induces a degeneration of the lenses and results in the formation of opacities. However, the pathogenesis of diabetic cataracts is still poorly understood. There are reports that show an involvement of the immune system in the formation of diabetic cataracts, and even during post-operative recovery. However, nothing can be done other than the proteins involved.

The present proposal is to determine the expression of inflammatory, osmotic and angiogenic proteins present in corneal tissue and eye capsules in diabetic patients. The samples will be obtained from diabetic patients who enter surgery at the hospital and with prior authorization.

1- Determination of the expression of Inflammatory proteins (IL-6, IL-1 $\beta$ , TNF, LFA-1), Osmotic (AQ0, AQ2, AQ4, Kir's 2.1, 2.2, 4.1,4.2), associated with angiogenic processes (VEGF, HIF2a) by Western Blot in samples from diabetic patients.

2- Determination of the expression of transcripts by RT-PCR of Inflammatory factors (IL-6, IL-1 $\beta$ , TNF, LFA-1), Osmotic (AQ0, AQ2, AQ4, Kir's 2.1, 2.2, 4.1,4.2). Associated with angiogenic processes (VEGF, HIF2a) of corneal tissue and capsules isolated from diabetic patients.