



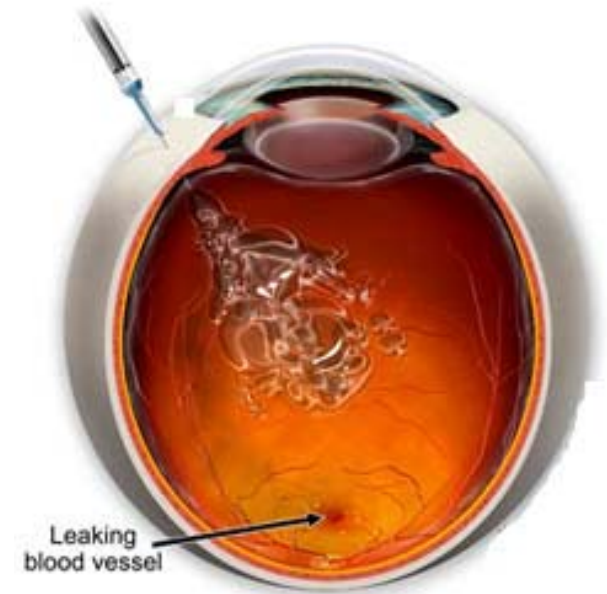
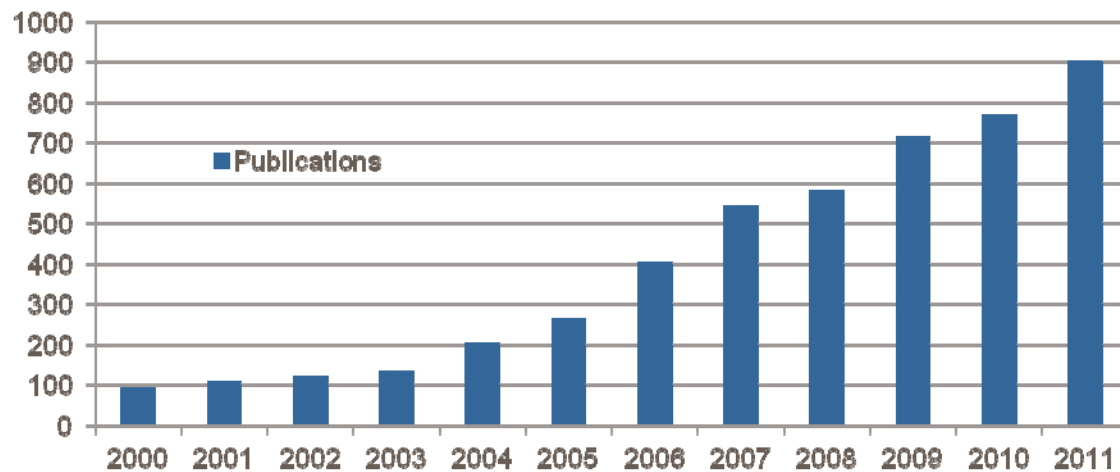
# RETINAS

REfinement of Techniques for INtravitreal injection to Avoid Side effects in Rabbits

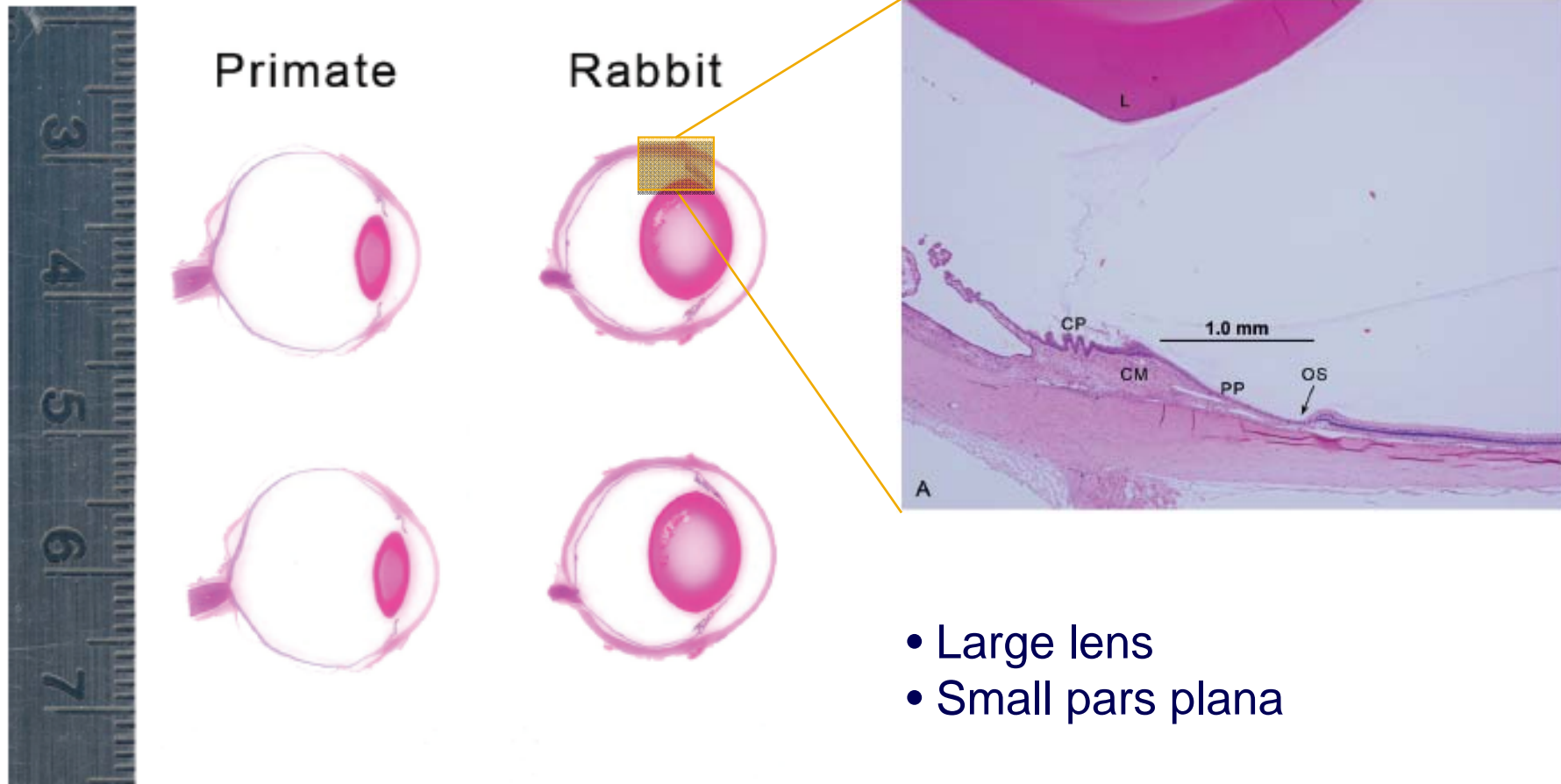
# What is an intravitreal injection and why is it important?

- Drug delivery into the eye as therapy for ocular diseases:
  - Age related macular degeneration
  - Diabetic retinopathy
  - Retinal vein occlusion
  - Endophthalmitis, Uveitis, Cytomegalovirus retinitis

## ■ PubMed search 'intravitreal injection'



# Injecting into the rabbits eye is challenging

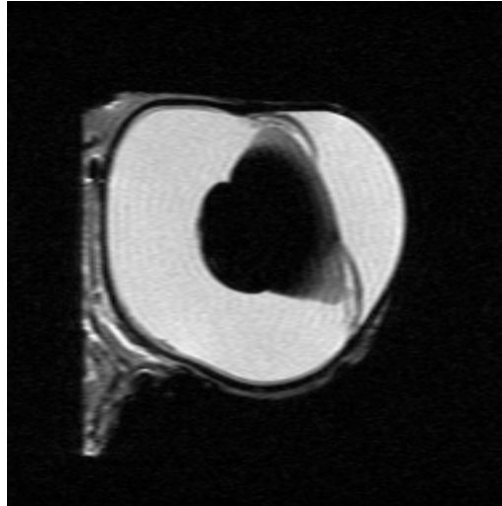


# Possible side effects of intravitreal injection in rabbits (1)

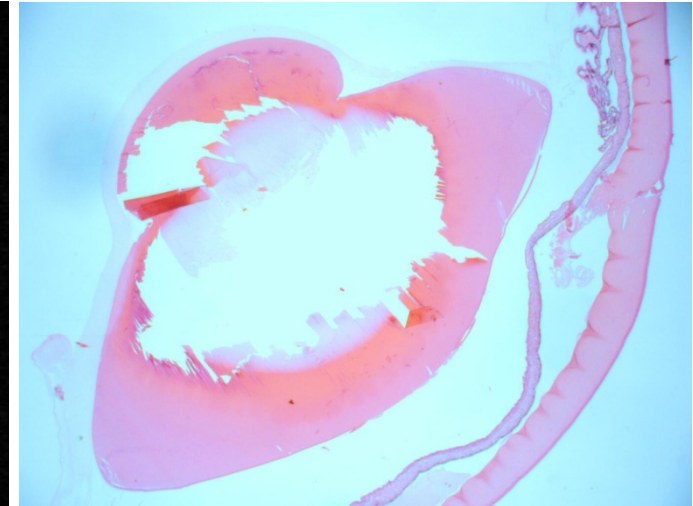
- Damage to the lens and lens rupture



● Photo



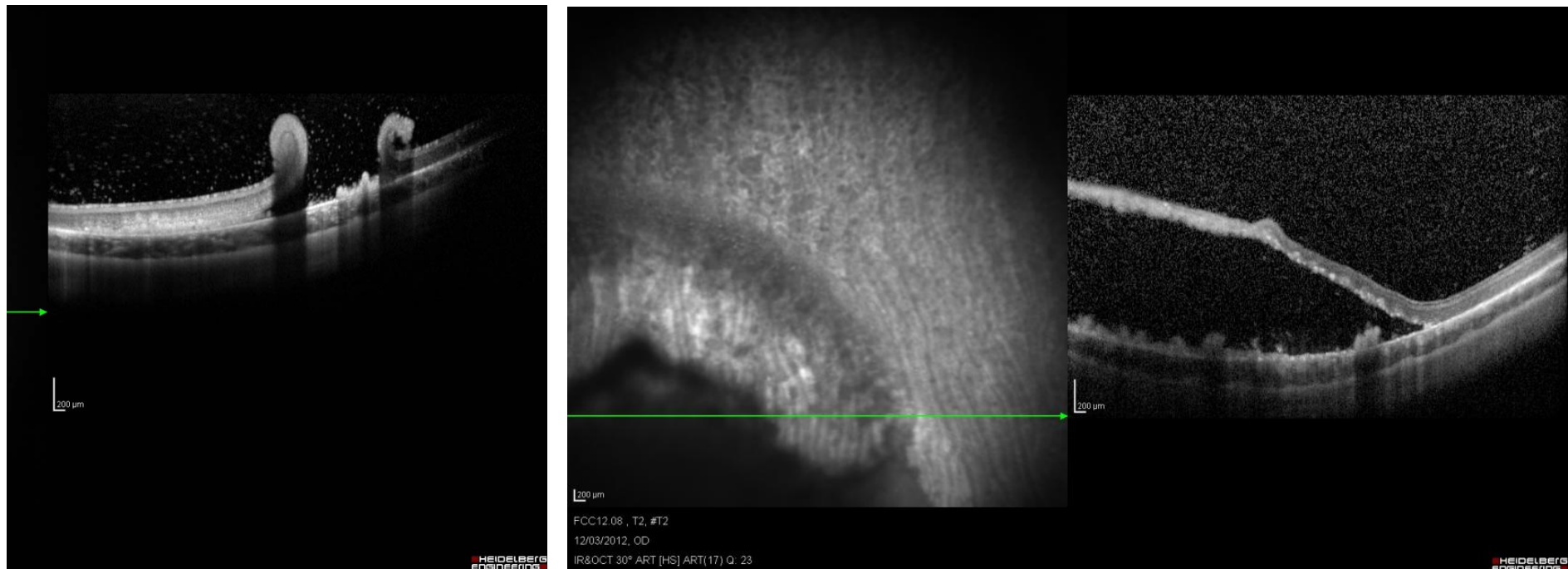
● MRI



● Histology

## Possible side effects of intravitreal injection in rabbits (2)

- Retinal tears and retinal detachment



- Scanning Laser Ophthalmoscope and Optical Coherence Tomography

## Possible side effects of intravitreal injection in rabbits (3)

- Lens rupture
- Retinal tears
- Retinal detachment



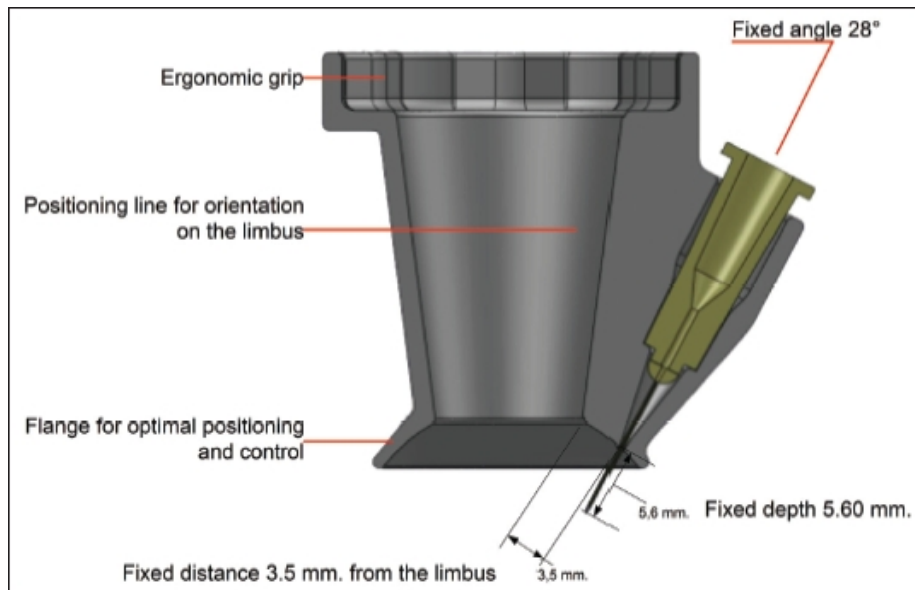
- Inflammatory response
- Altered pharmacokinetics
- Early termination of animal
- Exclusion of data

**Reduction of animal numbers**

**Refinement of procedure**

# We need a device that standardizes intravitreal injection in rabbits

Injection aids are available for humans - but not for rabbits



Gonçaves InVitria®

# The 'RETINAS' project collaboration



## Expert in animal studies

Data of rabbits eyes dimensions  
Evaluation of prototypes  
Publication of study results



## Expert in product design

Designing of prototypes  
Modification of prototypes



## Expert in material selection

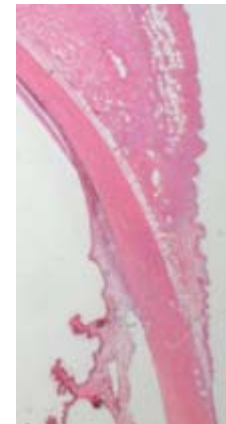
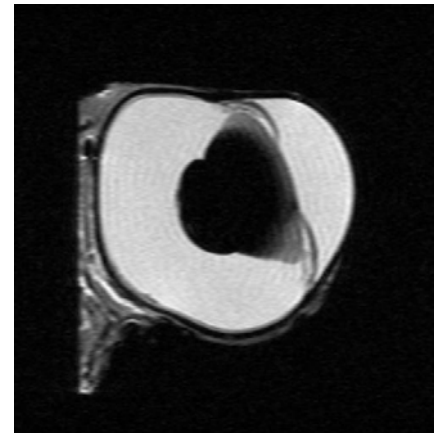
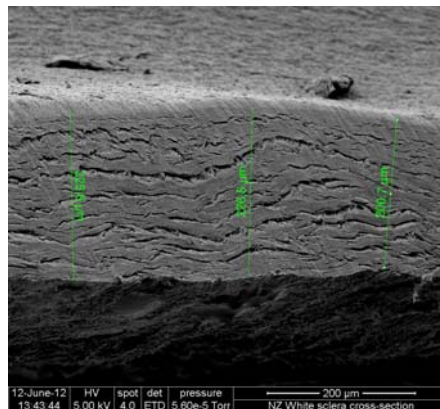
Production of prototypes  
Manufacturing and commercialising final product

**Design, develop and commercialise an intravitreal injection device for rabbits**



# We offer the collaborator:

- Expertise in performing animal studies and ocular research
- Experience in performing intravitreal injections in rabbits
- Access to data of rabbits eye dimension
- Evaluation of prototypes
- Publication of study results



# The goal is to design, develop and commercialise an intravitreal injection device for rabbits

- £50,000 grant from NC3Rs
- Project duration ~ 1 year
  
- Device that standardizes intravitreal injection in rabbits
- Device that reduces the risk of damage to the eye
- Device that is practical and easy to use
- Commercially available
- Potentially different sizes for different weight and strain rabbits
- Single use device (~ £10)
- Multiple use device (~ £250)



**GlaxoSmithKline**