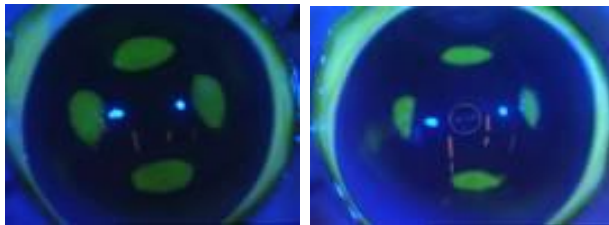


The EVEIT system replaces the DRAIZE test and reduces animal tests in ophthalmology research.

Our EVEIT system enables:

- Multilocal exposure and healing
- Simulation of Disease models:
  - Dry eye,
  - Inflammations,
  - Corneal edemas
- In Toxicology:
  - Decontamination studies
  - Detection of side effects
- Pharmacokinetics
- Corneal culture
- Testing of new galenics



*Control of corneal healing at four injured sites by means of fluorescein and blue light*

With cooperation partners, we are on the way towards validation of the EVEIT system within the next 5 years



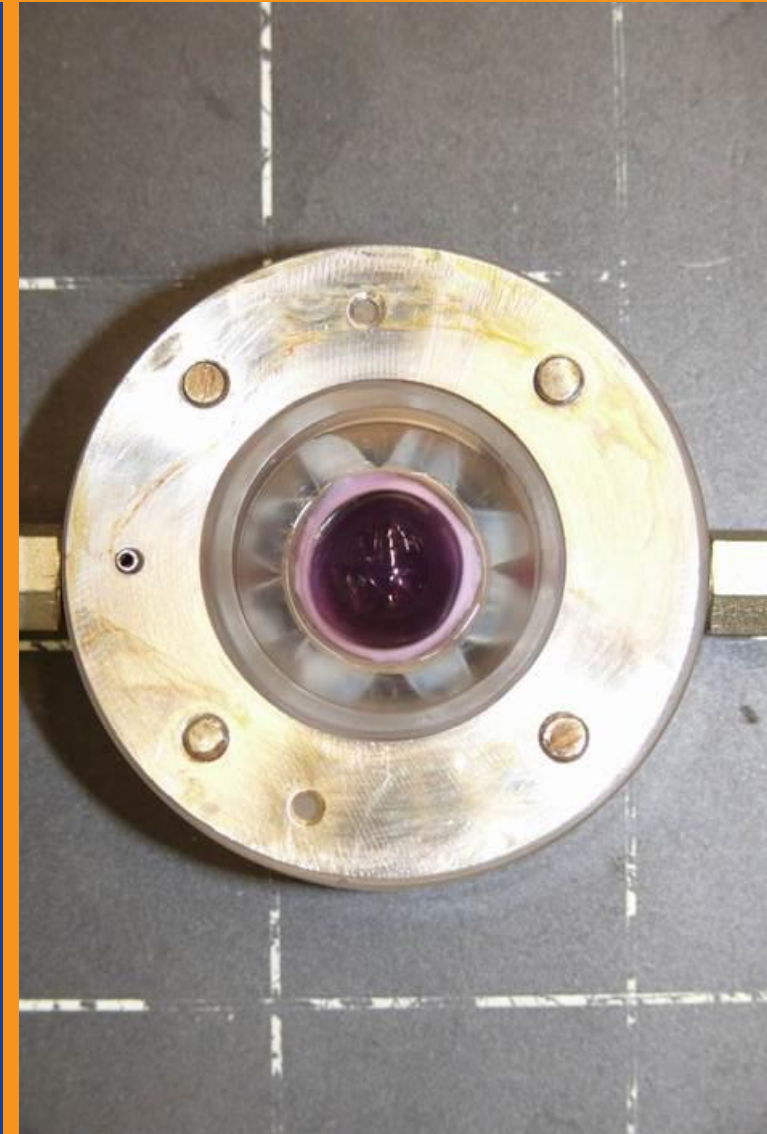
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*EVEIT - Ex Vivo Eye Irritation Test*



# Problem Definition

Effects on the eye can be subdivided as follows:

- Pharmaceutical effects on the eye
- Acute changes resulting from toxins, caustic substances, mechanical and physical influences
- Longer-term changes after single and multiple contact
- Microbial effects.

Currently animal tests are being performed to test tolerance to medicines, medicinal products and chemicals.

Even though alternative methods exist, they prove only acute toxicity.

Yet a method is missing which can evaluate the long-term damage from

- Chronic toxicity
- Repeated application of substances
- and depict a possible healing.



# Our Test Principle

Eyes of slaughterhouse rabbits are treated so that they can be cultivated for several weeks. Thus, a method is available which precludes tests on live animals and yields the same or even better degree of validity.

The tests performed on the cornea aim to recognize the effectiveness, tolerance and possible side effects of particular agents, e.g. calcifications resulting from phosphate-containing eye drops, before application on humans.

The essential criterium of this method is the in vitro healing of wounds.

During this examination, at any time the cornea can be microscopically and biochemically evaluated and longitudinal sections as a function of time can be taken. This system allows the tracing of the smallest changes that lead to alterations of a human eye only after years.

The slightest corneal changes can be shown by combining the EVEIT with optical coherence tomography (OCT) introduced in a joint project by the Institute of Semiconductor Electronics at RWTH Aachen University (IHT). ACTO e.V. and IHT have been distinguished with various prizes for this new method as an alternative to animal tests.

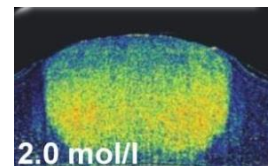
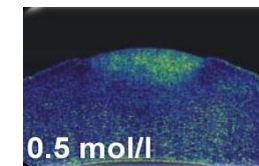
# The Method

In the “EVEIT-acute” test, corneal clouding, changes to the corneal surface and deeper corneal tissue can be visualized through special investigative methods (microscope, optical coherence tomography (OCT), biochemistry and histology).

Longer term changes after such a single contact and, in particular, the question of whether the tissue can regenerate itself once again can only be assessed when such a cornea is kept alive.

In the “EVEIT—long-term” test, this works up to 20 days. Hereby the cornea is kept moist and is nourished with a culture medium in a special chamber modeled to the eye. Under these conditions, it can be seen after a single or multiple contact with substances whether the cornea has completely healed, only the defect has healed or whether no corneal healing has taken place.

With EVEIT, ACTO e.V. has developed a system which replaces animal testing, yields improved results and can reduce the number of animal tests overall.



*Detection of the depth of injury from sodium hydroxide (NaOH) in various concentrations with the help of optical coherence tomography (OCT)*