



ACMIT

Austrian Center for Medical Innovation and Technology

Main location	Wiener Neustadt, Niederösterreich
Other locations	
Thematic field	R&D concerning sensors for tissue parameter investigations, Micro-optics

Success Story Summary

Innovative eye-lenses for increased quality of life of elderly people in a modern leisure-loving society

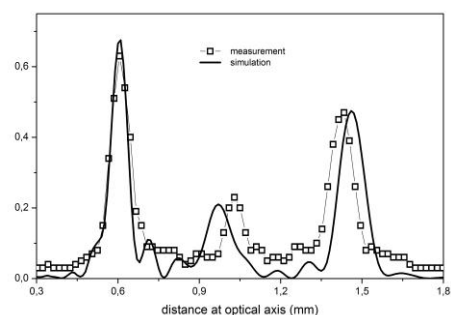
When the human eye-lens has to be replaced by an artificial implant due to decreased opacity, usually patients need eyeglasses after surgery. In order to meet an increased desire of concerned persons for eyeglasses independency in later periods of life, innovative multifocal implants, which provide at least some ability for accommodation, are developed in a cooperation between COMET competence center „Austrian Center for Medical Innovation and Technology“ (ACMIT) and the company Croma Pharma GmbH.

Success Story

The number of concerned persons, which have to replace their natural lens due to a cataract, is continuously increasing over the past years and further, these patients also become younger in average. On the other hand, an increased desire for eyeglasses independency can be observed with progressing life expectancy and activity in later periods of life (sports, etc.).

Usually, in case of decreasing opacity of the human eye-lens, it will be replaced by an artificial implant (intraocular lens - IOL), which is made of polymeric material and exhibits one single focal region. Accordingly, the IOL is selected to allow for good visual acuity at far distances. But as the ability for accommodation, the process by which the eye changes its optical power to maintain a clear image on an object at varying distances, is lost after surgery, these patients will need eyeglasses to achieve good visual acuity at near distances (e.g. for reading).

Due to the circumstances described above a growing market for IOLs, which provide good visual acuity in more than one single distance (bi- or multifocal IOLs), has developed over the past years. There are several concepts for such multifocal IOLs which have been evaluated by ACMIT. In cooperation with the company Croma Pharma GmbH implantable multifocal IOLs are developed, tested and optimized. Within these activities ACMIT is able to deploy and engross its know-how in the area of micro-optics as well as simulations and optimizations of optical components and systems. Currently, first prototypes of multifocal IOLs are characterized in various tests and studies.



Pictures: Comparison between simulation and measurement results concerning the intensity distribution of a multifocal IOL in 3 focal regions (top). Measurement setup for IOL characterization (bottom).



As a result of these activities innovative products are expected, which can significantly increase quality of later life periods for a growing number of people.

Contact:	ACMIT – Austrian Center for Medical Innovation and Technology; www.acmit.at DI Dr. Christian Krutzler; christian.krutzler@acmit.at Viktor Kaplan Str. 2; 2700 Wiener Neustadt
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