

## Evaluation of stability and capsular bag opacification with a foldable intraocular lens coupled with a protective membrane in the rabbit model

[Gregory D. Kramer](#), MD, [Liliana Werner](#), MD, PhD  , [Kyle MacLean](#), MD, [Aabid Farukhi](#), MD, [Gareth L. Gardiner](#), BS, [Nick Mamalis](#), MD

From the Department of Ophthalmology and Visual Sciences, John A. Moran Eye Center, University of Utah, Salt Lake City, Utah, USA

DOI: <http://dx.doi.org/10.1016/j.jcrs.2015.03.017> |

### Purpose

To evaluate the stability and capsular bag opacification of a smooth or a patterned silicone protective membrane implanted in the bag with secondary placement of an intraocular lens (IOL).

### Setting

John A. Moran Eye Center, University of Utah, Salt Lake City, Utah, USA.

### Design

Experimental study.

### Methods

Twelve New Zealand rabbits had bilateral implantation of a protective membrane and an IOL or an IOL alone. Three groups of 8 eyes each received the IOL and the smooth protective membrane, the IOL and the patterned membrane, or the IOL alone. Slitlamp examination was performed weekly for 4 weeks. The rabbits were then humanely killed and their globes enucleated. Capsular bag opacification was scored based on the Miyake-Apple view, and the eyes underwent histopathology.

### Results

At 4 weeks, the mean central posterior capsule opacification (PCO) score was  $0.28 \pm 0.32$  (SD) in all eyes with a protective membrane and  $2.08 \pm 1.28$  in eyes with the IOL alone ( $P < .00001$ , Student *t* test). Peripheral PCO and Soemmerring ring formation were also significantly less in eyes with the protective membrane. Histopathologically, the posterior capsules were relatively clear in most IOLs with the protective membrane. The smooth and patterned protective membranes showed a significant difference in overall capsular bag opacification formation compared with the IOLs without the membrane.

### Conclusions

The circular geometry of the protective membrane led to expansion of the capsular bag and appeared to prevent capsular bag opacification. Further studies are warranted to assess whether the pattern on the device's posterior surface further enhances this effect.

### Financial Disclosure

No author has a financial or proprietary interest in any material or method mentioned.