



# MILAN



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## IOls Design And Material Influence In Nd: Yag Laser Rates For A Large Series Of MICS IOL Implantations

Gilles Lesieur, MD

Paul Dupeyre, MSc

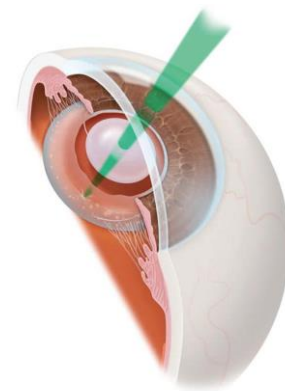
*Centre Iridis Innovation, Albi France*

Gilles Lesieur is consultant for Carl Zeiss Meditec and has Royalties for BVI and Rumex instrumentation

Paul Dupeyre has no financial interest in any of the mentioned products or methods

# Introduction

- **Posterior capsular opacification (PCO)** is the most common complication resulting from cataract surgery
- **Nd: Yag Laser** is effective but may lead to several risks
- **IOL biocompatibility** can be divided into :
  - **Uveal** biocompatibility → Better with **hydrophilic** IOL
  - **Capsular** biocompatibility → Better with **hydrophobic** IOL



## Purpose & Methods

- To analyze the rate of **posterior** Nd: YAG laser capsulotomy after **9433 implantations** of **11 hydrophilic acrylic** IOLs and **2 hydrophobic** IOLs of different design
- All surgeries were performed by **the same surgeon** (GL)
- Kaplan-Meier **survival analysis and propensity score** were performed on all data

**9433 implantations**



# Survival Rate over time

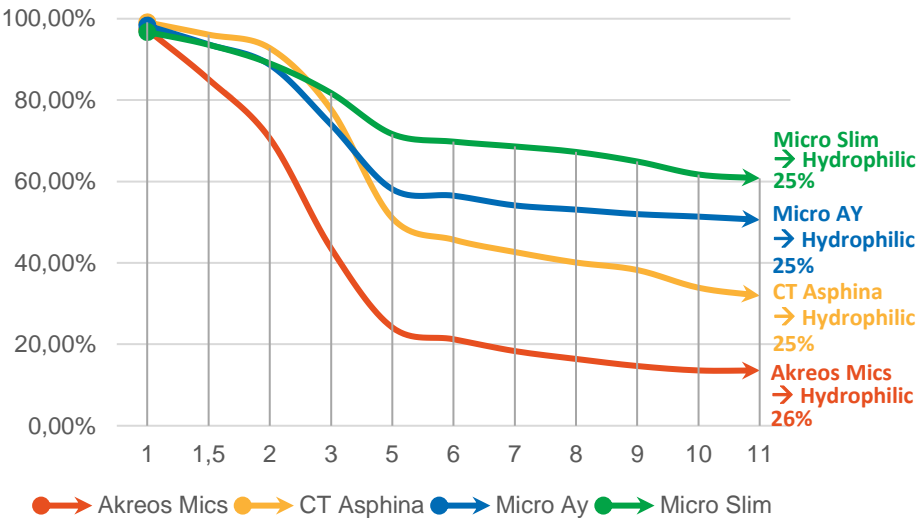
Group (Nb IOL)	1,5 years	2 years	3 years	5 years	7 years	9 years	11 years
Akreos MICS (477)	85,09%	70,56%	43,53%	24,12%	18,32%	14,65%	13,56%
CT Asphina (1220)	96,09%	92,77%	77,67%	50,98%	42,66%	38,24%	31,93%
Micro AY (2845)	93,69%	88,67%	73,98%	58,09%	54,12%	51,98%	50,58%
Micro Slim (665)	93,59%	89,00%	81,73%	71,64%	68,61%	64,91%	60,80%
Incise (261)	100,00%	100,00%	95,02%	89,92%	82,90%		
MicroPure (883)	95,74%	93,42%	79,65%	44,17%	32,58%		
AT Torbi (1620)	99,78%	97,86%	90,85%	70,83%	56,17%		
Ankoris (509)	92,33%	79,99%	52,51%	19,48%			
PodEye (174)	100,00%	100,00%	77,36%	29,82%			
Synthesis (126)	97,43%	87,34%	45,94%				
Synthesis Toric (65)	94,67%	50,05%					
Lucidis 108M/MT (60)	100,00%						
Lucidis 124M/MT (526)	90,00%						

Hydrophilic / Hydrophobic



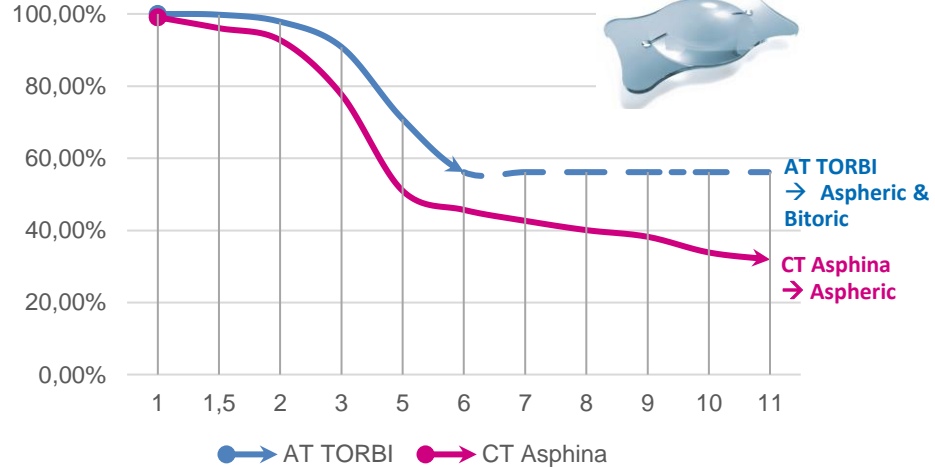
# IOLs followed at 11 years

Survival rate: Akreos Mics, CT Asphina, Micro Ay, Micro Slim  
 \*p < 0,05 between all groups at **11 years** of follow-up



# Same design but different material or industrial process

Survival rate: AT TORBI vs CT Asphina (Carl Zeiss Meditec)  
 \*p < 0,05 at **6 years** of follow-up



Hydrophilic acrylic (25 %) with hydrophobic surface properties

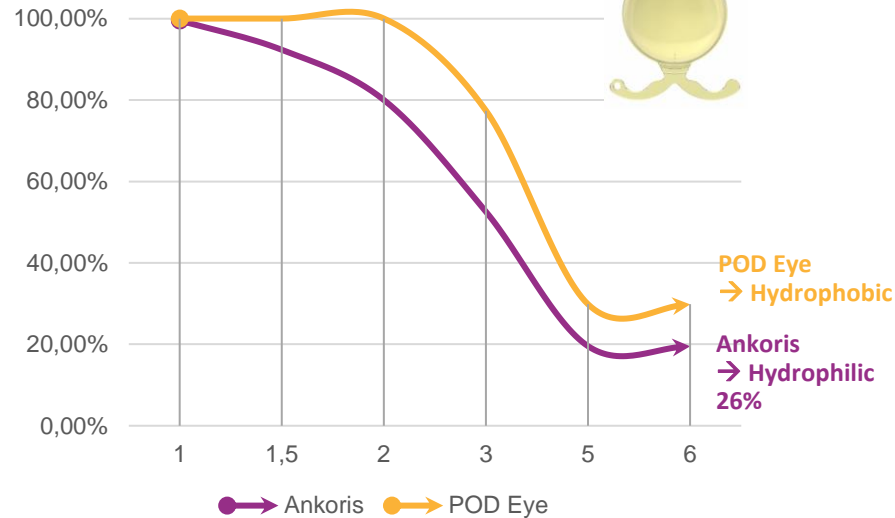
Thickness difference ?



# Same design but different material or industrial process

Survival rate: Ankoris vs POD Eye (PhysIOL)

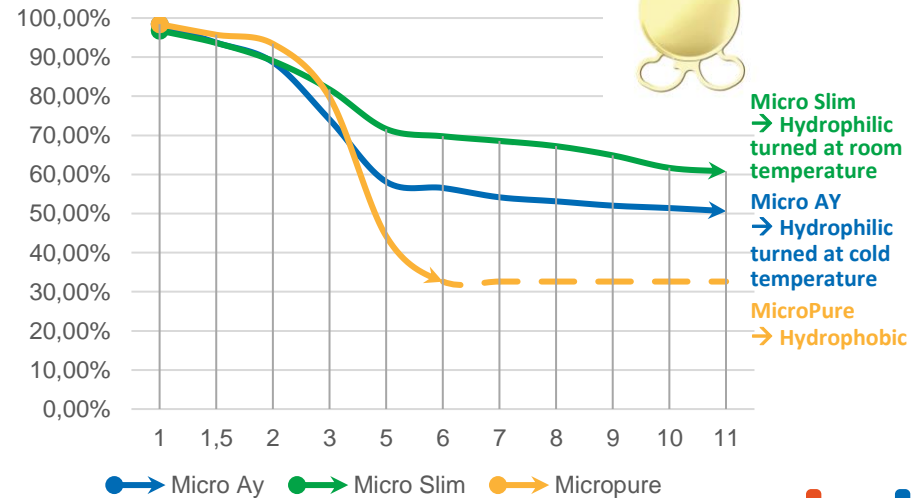
\*p < 0,05 at **6 years** of follow-up



Better for hydrophobic ?

Survival rate: Micro AY vs Micro Slim vs MicroPure (PhysIOL)

\*p < 0,05 between Micro Slim group and two others groups at **6 years** of follow-up



Better for hydrophilic ?



# Conclusions

- The **Akreos MICS** shows the highest rate of Nd: YAG, possibly due to the optical design and **polished edge**
- **MicroSlim** gives the best survival rate at 11 years probably due to the manufacturing process, **turned at room temperature**
- The comparison between the **Ankoris and the PodEye** could confirm the influence of the hydrophobic material in limiting Nd: YAG laser rate. **Nevertheless**, the comparison of **MicroPure, MicroSlim, and Micro AY** showed a **contrary conclusion**
- **INCISE** shows positive results in preventing the onset of Nd: YAG laser
- This analysis shows that IOL material and design cannot be the only predominant factors in reducing the Nd:YAG laser rate
- **Surface treatments** and other **manufacturing processes** seem to have greater impact, as it was said in the article by Zhang et al.\*
- It is essential to continue this study to analyze the tolerance and side effects in the long term

**Thank you for your  
attention**

\*Yidong Zhang, Chengshou Zhang, Silong Chen, Jianghua Hu, Lifang Shen, Yibo Yu. Research Progress Concerning a Novel Intraocular Lens for the Prevention of Posterior Capsular Opacification. *Pharmaceutics*. 2022 Jul; 14: 1343.

