Gemini Refractive Capsule: Risk and Reward, Real Estate, and Future Proofing the Eye

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WELCOME TO THE WORLD OF REFRACTIVE CATARACT SURGERY
THE GREAT LENS GAMBLE

RISK

REWARD

High Risk/High Reward

Low Risk/Low Reward

Low Risk/High Reward

High Risk/Low Reward

OMEGA OPTHALMICS
THE CHALLENGE | Both Old & New technologies do not address an essential problem

2D LENS CAN’T SOLVE A 3D PROBLEM CURRENT IOLS:

› Limit predictability of visual outcome
› Limit reversibility
› Limit exchangeability
› Shows no versatility to implantation of other technology
THE CHALLENGE | Cataract Case Study

Smaller and thinner lenses have not led to better outcomes

GENERAL DIMENSIONS OF A CATARACT

› 5mm thick, 10mm in diameter
› a 2D disk

MISMATCH IN VOLUME

› Replacing a voluminous cataract with a thin disk
› Settling point: huge variable in lens position
› Fibrosis develops around the lens in place
› 30-40% of time after 5 years
› Closes the capsule, volume disappears
THE BENEFITS OF THE 3D CAPSULE

UNIQUE 3D DESIGN ALLOWS:

› No fibrosis around the lens position
› Gemini capsule fills the 3D space of a natural lens. No issues with position of the lens, the x, y, and most importantly the z axis. (the most common source of error)
› Capsule volume stays intact, allowing for future lens implantations
› Gemini offers valuable ‘real estate’ for drug delivery and biosensors
› Maximizes the large size of the implant (200 cubic mms) without compromising the small size of the incision (2.2 mm)

The Optical Real Estate Platform
First Human Implantation
THE SCIENCE | Human Trials

1ST TRIAL/AUGUST 2015:
Offshore human trial in El Salvador

VISION WITH GLASSES:
Omega meets or exceeds control
(Correctable vision compared to standard lens implant)

Central America

BCVA 4 Months Omega versus Control

- 20/20 or better
- 20/25 or better
- 20/32 or better
- 20/40 or better

Omega | Control
18 MONTHS POST IMPLANTATION - NO YAG
THE SCIENCE | Human Trials

2nd TRIAL/APRIL 2018:

Posterior Capsule
THE WIRELESS PRESSURE SENSOR

- **Cubeworks Proposed Solution**
- **Confidential**
- **5mm Height**
- **0.25mm Ø CTR**
- **Energy Storage & Solar Cells**
- **Flexible PCB Substrate**
- **System Components**
- **5mm Diameter**
THE FUTURE