

# CYCLOSPORIN-A BASED EYE DROPS FOR DRY EYE AND OCULAR INFLAMMATORY DISEASES



**HEALTH**  
OPHTHALMOLOGY

## MICELLAR CYCLOSPORIN A-BASED EYE DROPS

Cyclosporin A (CsA) is an immunosuppressor used in eye drops to increase tear production in people with dry eye disease.

Insolubility of CsA in aqueous solutions requires specific production techniques for efficient drug delivery to the eye. However, CsA emulsions are associated with discomfort and pain in patients

We have developed a strategy to deliver a solubilized state of CsA to the eye by encapsulating CsA into a micellar hydrophobic fraction that represents only 20% of the final eye drop volume with contains residual amounts of ethanol. Our eye drops are preservative-free and felt by patients as an aqueous solution with no associated discomfort and pain.

The manufacturing process allows the addition of lubricants such as hyaluronic acid or povidone and concentrations of CsA up to 20 mg / ml, allowing to address dry eye and inflammatory ocular diseases markets.



## Competitive Advantages

- Unique micellar cyclosporin A (CsA) based eye drop formulations
- Formulations available for a large range of CsA (1 to 20 mg/ml)
- Proven efficacy of CsA in inflammatory eye diseases
- Compositions treat causes and symptoms of dry eye and inflammation
- CsA eye drops avoid or substitute to toxic corticoid-based treatments
- Topical administration with no side effects
- Povidone or Hyaluronic acid as lubricants with proven efficacy
- Preservative-free products
- Micellar composition avoids discomfort of emulsion-based eye drops
- Single-dose or 1-month format packages possible

## Development Status

- Original formulation already used by hundreds of patients
- Production process of the new formula has been optimized
- Stability studies ongoing
- Extractibles / leacheables study ongoing
- Preclinical efficacy and toxicity studies ongoing

## Business Opportunities

- Opportunity to address multiple markets of eye diseases
- Large, underserved global dry eye market (> 300 million people)
- Human and veterinary markets
- Possibility of Orphan Drug Designation on specific indications
- Facilitated regulatory approval process
- Short time-to-market anticipated
- High gross margin on premium severe eye diseases market segment

### #Keywords

Cyclosporin A  
Eye drops  
Micellar  
Inflammatory eye diseases  
Dry Eye Syndrome

### Research Team

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### Partnership

Licensing or co-development

### Intellectual Property

Priority patent filing 02 Oct. 2015

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