



**Liposphere**  
Revolutionizing biolubrication.

**OnePager-2022**

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## ○ About Liposphere

Liposphere is a biomedical start-up spun out from the Weizmann Institute of Science (Israel) in 2019. Its unique IP-protected platform technology has been developed over the past two decades at the Department of Materials & Interfaces under Professor Jacob Klein. Based on the profound knowledge of Klein and his team, Liposphere is now commercially developing an innovative **platform of highly lubricous, water-based biocompatible nanomaterials** for conditions of the human body where **ultralow friction** is of utmost importance.

## ○ Liposphere Answers Significant Unmet Medical Needs

There is an urgent global unmet medical need for the technology in mechanically stressed environments, including high-load conditions to which major joints are exposed, and low-load conditions such as the cornea-eye lid interface, targeting dry eye syndrome. **Liposphere's formulation** can be used as a **pure lubricant**, but also has the potential to **encapsulate active pharmaceutical ingredients** in the future. Secondly, Liposphere's platform technology enables the **coating of artificial medical surfaces** such as catheters, prostheses and contact lenses, giving the potential for smooth movement in a wide range of biomedical devices.

## ○ Liposphere's Technology and Differentiators

Liposphere's technology is based on the discovery of the **Hydration Lubrication Mechanism<sup>1</sup>** which initiated a paradigm shift from classical oil-based lubricants towards water-based formulations. This mechanism allows us to develop materials that most efficiently hold water and hence hydrate their environment in an absolutely unique manner.

Liposphere's nanomaterials are robust water-based, biocompatible liposomal formulations which a) significantly reduce friction forces and resist high loads, b) show clean preliminary in-vivo safety and cytotoxicity profiles, c) are highly homogenous and d) show increased retention times of up to 50x in an animal model after local administration.

## ○ Liposphere's Platform Product

Liposphere has developed an ophthalmic and an orthopedic biolubricant formulation as part of its **platform technology AqueousTech**. **AqueousJoint** will target the Osteoarthritis market as an intraarticular injectable. It is expected to be designated a medical device for regulatory approval. **AqueousJoint** will have a distinct position on the market as a long-lasting boundary lubricant, which directly **protects the cartilage surface** of the **knee**.

**AqueousEye** offers a first-line treatment for patients suffering from **Dry Eye Syndrome**. It efficiently coats the cornea, hence provides superior hydration and lubrication. This has great potential to lead to patient-friendly dosing schemes reducing discomfort and irritation of the eye.

## ○ The Companies Commercial Development

The Company recently **secured seed funding** from private investors and in June 2019, the **Israeli Innovation Authority (IIA)** announced supporting Liposphere within its Women's Entrepreneur Track to develop AqueousJoint as an innovative treatment for Osteoarthritis, giving Liposphere a strong position for commercialization. Currently, the Company **raises USD 1M** to further develop Liposphere's ophthalmic product and to establish a QMS-regulated product life-cycle.

## ○ Seeking partnerships

Liposphere is looking for partnerships to explore its biolubricant platform product in depth. Partnerships with medtech/pharma companies working in the field of medical or industrial **surface coatings, skincare products** and **drug delivery** are of great interest.

## The Team

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