BioInteractions

Advancing Healthcare Through Innovation™

Contact Lens Technologies

Biomimetic Non-Fouling Contact Lens & Antimicrobial Contact Lens Care solution

The **Inhibit™** Biomimetic **Contact Lens** Technology provides superior *wettability* and *non-fouling* properties, making the lens more comfortable by suppressing protein adhesion / adsorption.

Our **Antimicrobial Contact Lens Care** Solution prevents biofilm formation via a contact-kill mode of action on bacteria, providing an efficient disinfectant solution for all contact lenses.

Biomimetic Non-Fouling Contact Lens

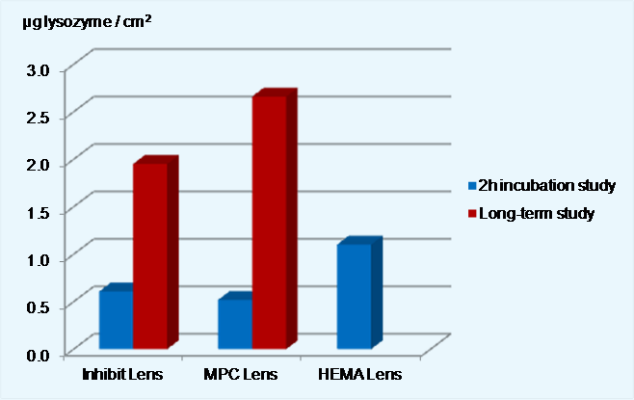
Dryness and protein adsorption are common problems that contact lens wearers can be confronted with and occur when proteins and other tear components adhere and adsorb onto the surface of the material. Conformational changes within proteins can result in papillary conjunctivitis and other inflammatory responses. Thus, a surface that can prevent the adhesion and adsorption of proteins and bacteria is critical.

In order to overcome eye-related complications, BioInteractions has taken inspiration from the natural cell membrane and combined this with additional biocompatible functionality to provide a functional biomimetic contact lens, **Inhibit™**.

Inhibit™ Protein Adsorption

The **Inhibit™** Contact Lens attracts and absorbs water molecules to provide a superior non-fouling surface, which helps the lens stay wet and comfortable throughout the day. The high water content (65%) also allows for oxygen permeability through the material.

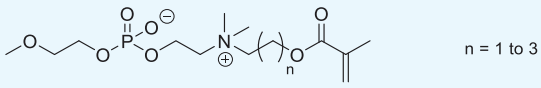
In-vitro evaluations of the **Inhibit™** Contact Lens have shown a reduction in lysozyme adsorption compared to a HEMA lens (2-hydroxyethyl methacrylate) and a similar level compared with a MPC lens (methacryloyloxyethyl phosphorylcholine). However, when incubated with lysozyme for a longer-term study, reproducing a wear of 30 days, the Inbibit™ lens is more efficient at reducing the level of lysozyme adsorbed onto the surface.



HEMA lenses containing **Inhibit™** also demonstrated a higher rate of hydration, as well as a slower rate of dehydration, when compared with HEMA lenses alone.

Technology

The core technology of **Inhibit™** contact lens consists of a proprietary zwitterionic molecule developed at BioInteractions, displaying an additional biocompatible, hydrophilic functional group.



The zwitterionic moiety attracts and retains water molecules, providing comfort throughout the day. Additionally, the zwitterionic component and hydrophilic end group provide a surface that prevents cellular adhesion and offer excellent protein adsorption resistance, thus limiting contact lens associated complications.

Applications

The enhanced hydrophilicity and non-fouling properties of the **Inhibit™ Contact Lens** means that it can also be integrated into intraocular lenses to provide high levels of hydration with minimized protein adsorption. The technology can be applied to a wide range of contact lens platforms, from daily wear, to long-term wear and the core technology can be associated with other materials such as silicones, lubricious and antimicrobial components.

Antimicrobial Contact Lens Care Solution

BioInteractions has also developed an *Antimicrobial Contact Lens Care* Solution that prevents bacterial adhesion and biofilm formation. The antimicrobial Contact Lens Care Solution contains the active ingredient poly(hexanide), a well-known macromolecular structure that actively kills bacteria via a contact-kill mechanism. The active component is co-polymerised to offer biocompatilibity but also to prevent small molecules entering the contact lens and ocular environment. BioInteractions' Contact Lens Care Solution passed all the primary criteria defined by ISO 14729 with a disinfection time of less than 10 minutes.

Collaboration

BioInteractions is committed to the advancement of healthcare through the development of innovative technologies and welcomes interest in the ***Inhibit™ Contact Lens Technology and* the *Antimicrobial* Contact Lens Care Solution**.

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