Background

- Many kinds of surfaces are notorious sources of infection. Eradication of bacteria immobilized as biofilms on these surfaces is a major biological problem.
- Prevention of the development of biofilms is of prime concern to veterinarians, medical professionals, dentists and others.
- Urinary tract catheters, dental surfaces, stents, implants, and indwelling devices are all prone to accumulation of biofilms.
- Sustained-release, localised drug delivery is a novel method for eradicating these biofilms.

Our Innovation

A sustained-release drug delivery system that can be applied directly to an inserted catheter, teeth, skin and other surfaces. Drug release is controlled by the pH of surroundings.

A “built-in” pH sensor controls the release rate. For example, the release rate can be increased in acid conditions.

Applications for use

- Enables in situ delivery of active ingredients where and when required.
- Catheters, stents, and orthopedic implants are frequently involved in infections caused by the development of biofilms
- Appropriate for veterinary as well as human applications
- Reducing Biofilm formation associated with oral disorders such as hypersensitive teeth, tooth staining and oral ulceration.

Figures: Comparison of urinary catheters under confocal microscope. The light intensity is significantly lower in the catheter coated with sustained-release antiseptic varnish (treated) when compared with the untreated
Key Features

- This unique technology controls the release of the drug, overcoming the disadvantages of other delivery methods in affecting diseases.
- Controlled duration and concentrations of a drug in the target site enables reduced amount of applied drug, minimizes side effects (such as the recurrence of oral infections, the development of resistant bacterial strains, bitter taste, tooth staining etc. and).
- The technology is a pharmaceutical platform that can incorporate many types of drugs (antibacterial, anti-inflammatory, anti-cancer etc.)
- The technology has been tested in vitro, ex vivo, in animals, and in humans.
- The technology can be applied as varnishes, gels, foams and spray.
- The system has been developed as a varnish that provides sustained release of active ingredients when applied to catheters, teeth, skin, stents, implants, udders of cows, and more.
- Leads to reduction of infections, better clinical improvement, and better patient compliance.

Development Milestones

- Seeking funding and industrial cooperation to develop applications for veterinary, medical, and dental use.

Patent Status

Granted Israel 228462

Contact for more information:
Ilya Pittel
VP, BD AGTECH, FOODTECH, VETERINARY & ENVIRONMENT
+972-2-6586693

Yissum Research Development Company of the Hebrew University of Jerusalem
Hi-Tech Park, Edmond J. Safra Campus, Givat-Ram, Jerusalem
P.O. Box 39135, Jerusalem 91390 Israel
Telephone: 972-2-658-6688, Fax: 972-2-658-6689