



SurFACTS

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Thank You to Our
Members!



From President Tim Bloomquist

On another note, I am thrilled to announce that Dr. Marvin Slepian has graciously agreed to be the keynote speaker at this year's BiolInterface Workshop & Symposium. Dr. Slepian's expertise and insights will undoubtedly enrich our event and inspire us all.

Speaking of BiolInterface, preparations for the Workshop & Symposium are progressing smoothly. However, I would like to gently remind everyone to submit their abstracts by May 31st. Your contributions are vital to shaping a dynamic and engaging program for this year's event.

Thank you for your unwavering dedication to SIBF, and I eagerly anticipate the opportunity to connect with each of you at the BiolInterface Workshop & Symposium.

Thank you all for your dedication and enthusiasm. Together, we will continue to drive innovation, collaboration, and excellence in biomaterials research.

I'm excited to share some important updates with you all as we enter spring. This season is not just about nature's renewal but also about refocusing our efforts on growing and fortifying the Foundation.

First and foremost, I want to extend a warm welcome to our new Supporting Members, SuSoS AG and Provision Kinetics. Your commitment to advancing our mission is deeply appreciated, and we look forward to the valuable contributions you will bring to our community.

I also want to express my gratitude to all our supporting members who have recently renewed their memberships. Your ongoing support is the backbone of our success, and we are grateful for your continued partnership.

A Warm Welcome to Our New Supporting Members



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Provision Kinetics manufactures and distributes Anti-Xa and Anti-IIa heparin activity testing kits for use in conducting pharmacopeial heparin potency Assays (e.g. EP, USP, JP). Our customers include unfractionated heparin and LMW-heparin manufacturers, compounding pharmacies, analytical testing facilities, medical device makers, and research laboratories. With a global distribution network, Provision Kinetics is committed to serving customers worldwide. The company takes pride in providing high-quality US-manufactured products, excellent customer service, and unparalleled technical training and support.

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Shape Memory Polymer-Hydrogel Composites for Localized Drug Delivery

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With the advancements in resorbable biomaterials, there has been a growing interest in leveraging these materials as implantable local drug delivery systems. The advantages of local administration of therapeutics compared to systemic administration include lower required doses, increased efficacy of treatment, and decreased adverse effects on non-target tissues. Recently, we developed a biopsy tract sealant device to address the risk of hemothorax and pneumothorax in lung biopsies and the risk of excess bleeding in liver biopsies.

The device is a composite consisting of a shape memory polymer (SMP) foam combined with a poly(ethylene glycol) (PEG) hydrogel coating. The porous SMP foam network is infiltrated by the hydrogel to create a dual sealant system. The SMP foam expands at physiological conditions as the PEG hydrogel swells to create a seal at the site of tissue removal.

While this device addresses the procedural risks of these biopsies, the risk of infection at the biopsy site is still present. Thus, the objective of this work is to modify the existing biopsy sealant device to achieve sustained delivery of antibiotics and lower the risk of infection in these procedures. Specifically, to achieve sustained delivery of antibiotics over the course of multiple weeks, our approach is to incorporate drug-loaded alginate microparticles into the SMP-hydrogel composites (Figure 1).



Read the rest of the Article by clicking [HERE](#)

Titania nanotube (TiO₂) arrays doped with zinc and strontium for improving antibacterial activity and cell compatibility

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Titanium (Ti) and its alloys are popular as orthopedic implants because of their superior corrosion resistance, lightweight properties, and excellent biocompatibility [1]. However, around 10% of these implants fail each year resulting in immense pain and suffering to the patients [2]. Bacterial infection and poor osseointegration are the two major causes of implant failure [3]. To improve the failure rate, nanosurface modification approaches can be utilized. TiO₂ nanotube (NT) arrays can be fabricated on the Ti implant to achieve unique surface properties. Due to the presence of nanotubes, the surface becomes superhydrophilic which helps in reducing bacterial adhesion. On the other hand, the flexible nature of the nanotubes provides a suitable surface for the stem cells to adhere and spread efficiently. However, these nanotubes do not provide any specific chemical signaling to the adhering stem cells for differentiating into osteoblastic phenotypes that improves bone healing.

For that reason, doping of the nanotubes with important antibacterial and cell signaling elements can help in improving both the antibacterial activity and osseointegration properties of the implant surface.

Several important signaling elements have been used to improve the functionality of orthopedic implant surfaces. However, most of these elements were doped to impart only antibacterial activity. Popular elements in this case are copper and silver. These important elements can make the surface antibacterial by reducing bacterial adhesion and biofilm formation [4-5]. However, there is an inherent risk of using these elements on the orthopedic implant surface since high concentration of these elements can cause cytotoxicity towards adhering stem cells. Also, these elements do not provide specific chemical signaling to stem cells for differentiating into osteoblasts. For that reason, the doping of Ti implants with copper and silver may not improve both antibacterial and osseointegration properties.

[Read the rest of the Article by clicking HERE](#)

October 2-4, 2024
McNamara Alumni Center
Minneapolis, MN

Registration is Open!

This year's BioInterface Workshop & Symposium will be held in Minneapolis, MN at the University of Minneapolis's McNamara Alumni Center.

Visit surfaces.org to register.

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**List of this year's
sessions**



Book your hotel - Space is limited

The hotel block is at [The Graduate - Minneapolis](#) for \$169 per night before taxes + fees. [Click here](#) to reserve a hotel room at the Graduate Minneapolis Hotel at the current rate.

Follow us on LinkedIn
for event updates!





Surfaces in Biomaterials Foundation

Mentorship Program

Surfaces in Biomaterials is hosting a **mentorship program**. The goal is to build a professional relationship between mentor and mentees. Once matched, mentors and mentees can create a timeline to meet virtually. The goal is to meet twice in the first month and then at least once a month for a total of six months. The mentee opportunity is open to young professionals, graduate students, and post doctoral students. **Please sign up to start your mentorship.**

SurFACTS in Biomaterials is the official publication of the Foundation and is dedicated to serving industrial engineers, research scientists, and academicians working on the field of biomaterials, biomedical devices, or diagnostic research.

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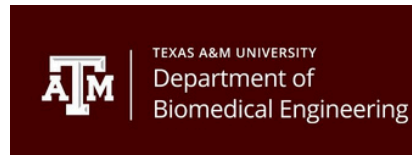
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