2015

BioInterface Workshop & Symposium

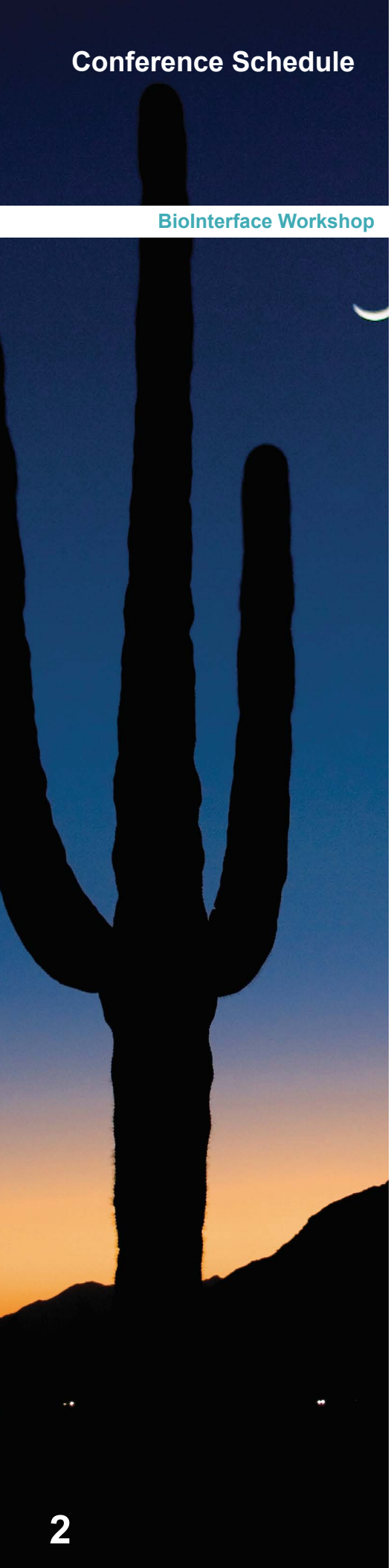
Celebrating 25 Years of Scientific Excellence

Scottsdale, Arizona USA

Surfaces in *Biomaterials* Foundation

September 21–23, 2015

Fairmont Scottsdale Princess



Monday, September 21

7:45–8:45am	Pre-Registration and Continental Breakfast
8:45am–3:00pm	*BioInterface Workshop: Hemocompatibility Technologies, Models, and Testing* Co-Chairs: **Bill Theilacker, Medtronic** **Chander Chawla, DSM Biomedical**
8:45–9:00am	Welcome and Introduction
9:00–9:45am	**Hans Peter Wendel, The Clinical Research Laboratory of Thoracic and Cardiovascular Surgery, University Hospital Tübingen**
9:45–10:30am	**Michael F. Wolf, Medtronic** *ISO10993-4 Biological Evaluation of Medical Devices: Selection of Tests for Interaction with Blood. Anticipated Changes and Udates on Working Group Round Robin Study Activities*
10:30–10:45am	Break
10:45–11:30 am	**John Brash, McMaster University** *Blood Compatibility: Controlling Protein Interactions at the Blood-Material Interface*
11:30am–12:15pm	**SP Sukavaneshvar, Thrombodyne** *In-vitro Blood Flow Models for Device Thrombosis Assessment*
12:15–1:15pm	Luncheon
1:15–2:00pm	**Patrick Cahalan, Ension, Inc.** *Comprehensive Approach for Blood Compatibility of Medical Devices and Biomaterials*
2:00–2:45pm	**Buddy Ratner, UW Bioengineering** *Hemocompatibility? Where Platelets Predominate, Hydrophobic Surfaces are the Way to Go*
2:45–3:00pm	Break

Applied Technology Workshops

Keynote Lecture

Session 1 »

3:00–4:00pm **Applied Technology Workshops**
Kent Grove, American Preclinical Services
New Directions in ISO-10993-4 Hemocompatibility Testing of Medical Devices

4:00 – 4:30pm 25th Anniversary Reception

4:30–5:30pm Keynote Lecture: **Stu Williams; Cardiovascular Innovation Institute University of Louisville**
Molecular and Cellular Modifications of Biomaterials

Tuesday, September 22

7:30 – 8:25am Registration and Continental Breakfast

8:25am President's Welcome

8:30 – 10:00am **Session 1: Analytical Techniques for Surface Characterization of Biomaterials**
Chair: **Jill Mendelson, Medtronic CardioVascular**
Sponsor: Evans Analytical Group

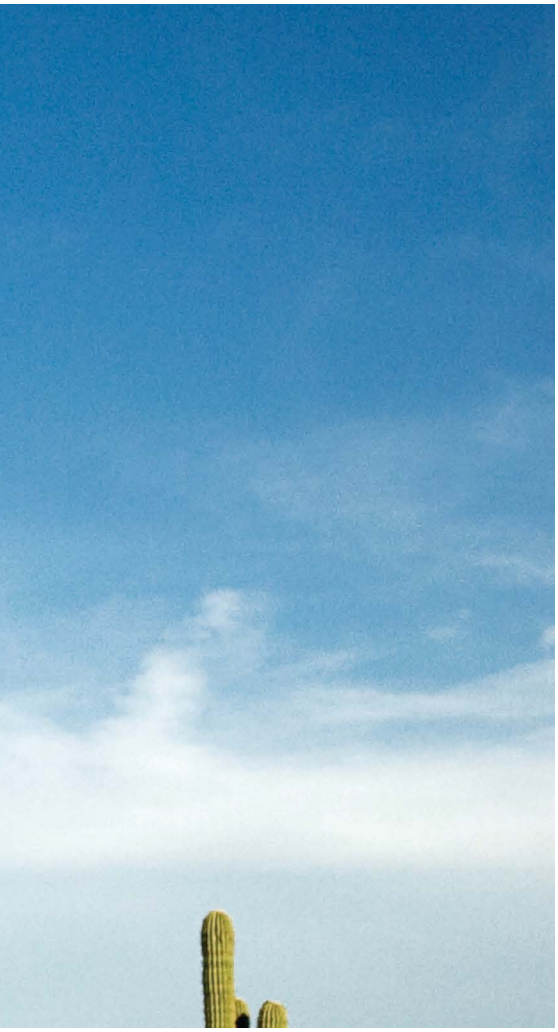
8:30 – 9:00am Invited Speaker: **Luke Hanley, University Illinois at Chicago**
Advances in Mass Spectrometry Imaging of Biointerfaces Using Femtosecond Lasers and Postionization

9:00 – 10:00am **Stefan B. Kaemmer, JPK Instruments**
New Tools for Quantitative Nano-Mechanical Force Microscopy and High-Speed High-Resolution AFM
Yung Chen Wang, University of Washington
Characterization of Protein G B1 Immobilized Gold Nanoparticles Using Time of Flight Secondary Ion Mass Spectrometry and X-ray Photoelectron Spectroscopy
Dan Hook, Bausch & Lomb
Imaging of Novel Daily Disposable Contact Lenses Having Unusual Water Characteristics Before and After Wear

10:00 – 10:30am Exhibitor Break

Conference Schedule,
Continued

Session 2 »



Session 3 »

Student Poster Competition

10:30 – 12:00 **Session 2: Chemical and Physical Strategies to Regulate Biological Adhesion**
Chair: **Chelsea Magin & Ethan Mann, Sharklet Technologies, Inc**.

10:30 – 11:00am Invited Speaker: **Joanna Aizenberg, Harvard University**
Preventing Biological Adhesion Using Liquid-infused Materials

11:00 – 12:00pm **Jennifer Neff, Allvivo Vascular**
In Vitro Performance of Peptide Based Antimicrobial Coating
Joris van Ark, Materiomics B.V.
Designed Surfaces for Improved Medical Device Functionality
Melissa Reynolds, Colorado State University
Alternative Approaches for Long-Term Hemocompatibility

12:00 – 1:00pm Student Town Hall Meeting and Attendee Luncheon
Chair: **Norman Munroe, Florida International University**

1:00 – 1:30pm Surfaces in Biomaterials Foundation Annual Business Meeting

1:30 – 3:00pm **Session 3: Ophthalmic Drug Delivery**
Chair: **Sarah van de Graaf, DSM**

1:30 – 2:00pm Invited Speaker: **Thierry Nivaggioli, Genentech**
Delivery of Protein Therapeutics to the Back of the Eye: Challenges and New Approaches

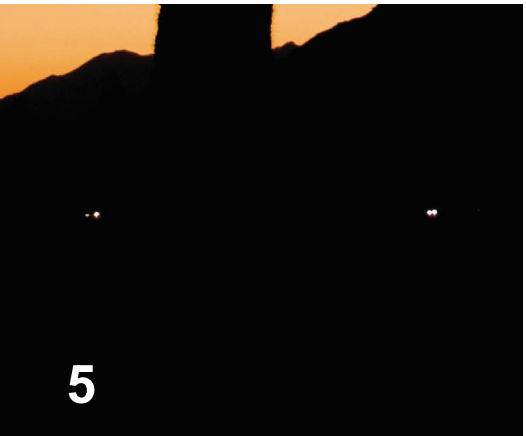
2:00 – 3:00pm **Benjamin Yerxa, Envisia Therapeutics**
Developing New Ophthalmic Formulations using PRINT
Paul Ashton, pSivida
Idea to Product in Ophthalmic Sustained Release
Ruiwen Shi, Allergan

3:00 – 4:00pm Student Poster Competition and Reception
Chair: **Norman Munroe, Florida International University**

Session 4: Point Counterpoint »

Session 5 »

Session 6 »



4:00 – 5:00pm **Session 4: Point Counterpoint**
Therapies of the Future: Tissue-Based or Device-Based Revisited
Chair: **Rob Kellar, Development Engineering Sciences**
Moderator: **Stu Williams, Cardiovascular Innovation Institute, University of Louisville**
Debater 1: **Jim Brauker, Extreme Deer Habitat**
Debater 2: **Gail Naughton, Histogen, Inc.**

5:00pm Conclusion of Symposium Day One

Wednesday, September 23

8:00 – 8:30am Registration and Continental Breakfast

8:30 – 10:00am **Session 5: Integration for Tissue Repair and Regeneration**
Chair: **Anthony Ratcliffe, Synthasome**

8:30 – 9:00am Invited Speaker: **Tony Mikos, Rice University**
Development of Porus Space Maintainers for Craniofacial Tissue Enginering

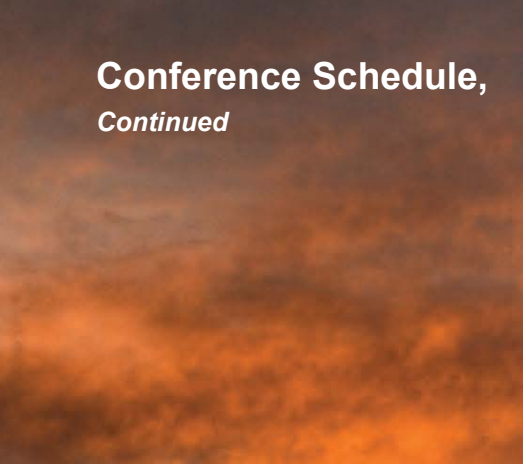
9:00 – 10:00am **Robert Diller, Development Engineering Sciences, LLC**
Characterization of Electrospun Scaffolds
Jonathan Vande Geest, University of Arizona
Development of a Biopolymer Based Compliance Matched Vascular Graft
Chelsea Magin, Sharklet Technologies, Inc.,
Micropatterns Promote Cell Migration for Enhanced Epithelialization

10:00 – 10:45 Exhibitor Break & Poster Session

10:45 – 12:15pm **Session 6: 3D Printing in Medical Applications**
Chair: **Chander Chawla, DSM Biomedical**

10:45 – 11:15am Invited Speaker: **Roger Narayan, North Carolina State University**
3D Printing of Medical Devices at Small Length Scales

11:15 – 12:15pm **Janelle Schrot, Materialise**
How 3D Printing is Changing Cardiac Care



Conference Schedule,
Continued

Elizabeth Cosgriff Hernandez, Texas A&M
3D Printing of High Porosity, Biodegradable Foams with Cure on Dispense
Jennifer Wagner, University of Colorado
Integration of 3D Printing into Clinical Workflows:Validated case Studies

12:15 - 1:30pm Awards Luncheon

Session 7 »

1:30 – 3:00pm **Session 7: Neuroendovascular Interventional Devices**
Chair: **Ram Kadirvel, Mayo Clinic**

1:30 – 2:00pm Invited Speaker: **David Kallmes, Mayo Clinic**
Update on Flow Diversion Therapies for Intracranial Aneurysms: Recent Successes and Ongoing Challenges

2:00 – 3:00pm **Colin Kealey, Neurosigma, Inc**
Thin Film Nitinol: A Unique Biomaterial for Next Generation Endovascular Devices
Siobhan Carroll, Boston Scientific
Surface Characterization of Electro-polished Nitinol Devices by Auger Analysis
Carolyn Lahti, Boston Scientific
Surface Quality of Incoming Nitinol Wire Used to Manufacture Braided Implants

3:00 – 3:15pm Break

Session 8 »

3:15 – 4:45pm **Session 8: Drug Coated Balloons**
Chair: **Joe McGonigle, SurModics, Inc.**

3:15 – 3:45pm Invited Speaker: **Michael Joner, CVPath**
Local Drug Delivery Using Drug Coated Balloons – Insights from Bench to Bedside

3:45 – 4:45pm **Claudio Silvestro, Medtronic**
Inhibiting Intimal Vessel Hyperplasia through Local Delivery of Anti-Proliferative Drug: Medtronic Drug-Coated Balloon
Rick Murphy, SurModics
Drug Delivery to the Vessel Wall: Coated Balloons and the role of the Excipient

4:45pm Program Concludes

Keynote Speaker: Dr. Suart Williams

Dr. Stuart Williams received his Ph.D. in Cell Biology from the University of Delaware followed by postdoctoral training in Pathology at the Yale School of Medicine. During the period 1980 to 1990 he held a faculty appointment at Jefferson Medical College where he was Director of Research in the Department of Surgery. In 1990 Dr. Williams joined the faculty at the University of Arizona and founded the University of Arizona Biomedical Engineering Program creating a research and educational link between the Medical School and College of Engineering. He held faculty positions jointly in Biomedical Engineering, Surgery, Physiology and Materials Science and Engineering. In 2007 Dr. Williams was selected as the Scientific Director of the newly established Cardiovascular Innovation Institute, a partnership between Jewish Hospital and the University of Louisville in Louisville Kentucky. He recently established the Bioficial Organs Program to create human tissues and organs for clinical therapeutics and in vitro toxicity testing using a patient's own cells. Central to this effort is the use of 3D bioprinting technologies. Dr. Williams' research interests have focused on medical devices and regenerative medicine. He developed and patented the first methods to use fat-derived stem and regenerative cells for therapeutic use. He has maintained continuous funding from the National Institutes of Health since 1979. Dr. Williams has authored over 300 scientific publications. His entrepreneurial spirit has resulted in 18 issued US patents with numerous patents pending. He has founded six biotechnology companies; maintained active managerial positions and has been an active consultant to the medical device, regenerative medicine and pharmaceutical community. He is a Fellow of the American Heart Association and a Fellow of the American Institute of Medical and Biological Engineering.

Molecular and Cellular Modifications of Biomaterials

Surface modification of biomaterials has resulted in new generations of medical devices with improved function. These modifications were originally relatively simple changes in surface chemistries and have evolved to include chemistries that directly alter the tissue response following device implantation. Cell- based biomaterial modifications continue to evolve and now include the technology known as 3D Bioprinting. This evolution in surface modification technology will be explored with the goal of creating a new generation of "Bioficial" devices and organs. cvregen.com

SIBF BioInterface Excellence in Surface Science Award

Dr. Gail Naughton founded Histogen, Inc. in 2007, and currently serves as CEO and Chairman of the Board for the Company. She has spent more than 30 years extensively researching the tissue engineering process, holds more than 100 U.S. and foreign patents, and has been extensively published in the field. During her tenure at Advanced Tissue Sciences, where she was the company's co-founder and co-inventor of its core technology, Dr. Naughton oversaw the design and development of the world's first up-scaled manufacturing facility for tissue engineered products, established corporate development and marketing partnerships with companies including Smith & Nephew, Ltd., Medtronic and Inamed Corporation, was pivotal in raising over $350M from the public market and corporate partnerships, and brought four human cell-based products from concept through FDA approval and market launch. In addition to this work, Dr. Naughton served as Dean of the College of Business Administration at San Diego State University from 2002 until 2011, where she helped to make SDSU the first campus in the nation to found a Ph.D./MBA in life sciences. In 2000, Dr. Naughton received the National Inventor of the Year award by the Intellectual Property Owners Association in honor of her pioneering work in the field of tissue engineering. She sits on the Board of directors of the CR Bard (NYSE: BCR) and the La Jolla Institute for Allergy and Immunology, as well as in the Advisory Board of Georgia Tech, the Ackerman Foundation, Perminova and the Centre for Commercialization of Regenerative Medicine.

About the Hotel and Conference Venue:

Fairmont Scottsdale Princess
7575 East Princess Drive
Scottsdale, Arizona 85255 USA
http://www.fairmont.com/scottsdale

Hotel Reservations:
Conference attendees may receive the special reduced room rate of $199 per night. Reserve your room by August 19, 2015 to receive the group rate; availability cannot be guaranteed after August 19, 2015.

Reservations may be made by telephone 1-800-344-4758. Make sure to ask for the "*Surfaces in Biomaterials Foundation rate*" in order to receive the special discounted rate. Or reservations may be made online.

BioInterface 2015 Attendee Registration — September 21-23, 2015

Fairmont Scottsdale Princess, 7575 East Princess Drive, Scottsdale, Arizona 85255

First Name _____

Last Name/Surname _____

Affiliation/Company _____

Department _____

Address _____

City _____ State/Province _____ Postal Code _____

Country _____

E-mail _____

Phone (include country code) _____ FAX _____

ADA/Special Dietary Requests _____

Please indicate any dietary restrictions: ❒Vegan ❒Vegetarian ❒Kosher ❒Gluten-Free ❒Other: _____

Registration Rates

Please check the appropriate box if you are registering only yourself or additional persons. If you are registering up multiple people, additional registrant information must be completed on the next page.

	Early Bird Rates (before July 31, 2015)	Regular Rates (after July 31, 2015)
Member	❑ $775	❑ $875
Non-Member	❑ $875	❑ $975
Student: Workshop Only	❑ $350	❑ $450

TOTAL ENCLOSED $_____

Payment

(Payment must accompany registration form to be processed)

❑ MasterCard ❑ VISA ❑ American Express

NOTE: If you are paying via credit card, all the following information is required.

Name (as it appears on card) _____ Cardholder Phone _____

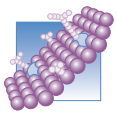
Cardholder Address (if different from above) _____

Cardholder City _____ State/Province _____ Postal Code _____ Country _____

Card # _____ Exp. Date _____ 3-Digit Sec. Code _____ _____ _____

Cardholder Signature _____

Send to: Surfaces in Biomaterials Foundation
1000 Westgate Drive, Suite 252
St. Paul, MN 55114 USA
FAX: 651-290-2266
Phone +1 (651) 290-6267



(For office use only)

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bal. due		

Please Note: Surfaces in Biomaterials Foundation has taken the appropriate steps to maintain PCI compliance. In order to protect your privacy, please **do not email your credit card information** to our office.

Cancellation Policy: With written cancellation notice, received by August 31, 2015 you will receive a full refund, less a $50 administrative charge. Cancellations after August 31, 2015 are non-refundable. Notices of cancellation must be faxed to the Surfaces in Biomaterials office at 651-290-2266. No-shows will not receive refunds.

BioInterface 2015 ADDITIONAL REGISTRANT INFORMATION

Please only fill out this page if you are submitting group registration.

Additional Registrant

Name _____

Company _____

Phone _____

E-mail _____

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