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Biosketch

Tom is a Professor of Biomedical Engineering, Cell Biology and Pulmonary and Critical Care Medicine at the University of Virginia and the co-Founder of two biotech start-ups, SelSym Biotech and Vasarya Therapeutics. Tom's research activities center on fibronectin, integrins, mechanobiology, and biotechnology focused primarily on fibroblast-ECM interactions that drive tissue repair, regeneration, and fibrosis. Dr. Barker has been a member of ASMB since its first biennial meeting in Houston 2002 and has been an active member throughout that time. Dr. Barker has served on the ASMB conference program committee, organizing and chairing numerous sessions throughout the years, and was an ASMB council member from 2016-2019. During his time on council, he championed membership growth through the development of relationships and outreach to Society for Biomaterials and TERMIS spearheading multiple guest sessions both ASMB-sponsored sessions at SFB and TERMIS meetings as well as SFB and TERMIS sessions at ASMB's biennial meetings. He served as the first chair of the Membership Committee. He, with Merry Lindsey, has organized and run the ASMB Special Workshop on Fibroblasts in 2019 and 2022. Tom has received both ASMB's Junior Investigator Award (2012) and the Renato Iozzo Prize for Outstanding Research, a.k.a. the Iozzo Award (2016). Tom is dedicated to training the next generation of matrix biologists and several of his past trainees have gone on to receive ASMB awards, including the Founder's Award and the Junior Investigator Award, as well as serve as ASMB council members.

Vision Statement

ASMB is my 'home' and always will be. Even before ASMB was official, this bioengineer was embraced by the founders of this matrix biology community. I grew up scientifically and professionally within ASMB and the society and its members have consistently provided support, encouragement, and critical constructive criticism throughout my career that have resulted in not only a professional and intellectual bond but one that is deeply personal for me. For that, I am humbly honored to be nominated for the post of President-elect. It is no trivial decision to accept the nomination. One only need look at the outstanding accomplishments of the recent past presidents to see how high the bar has been set for those that follow. There is no doubt that Ambra will be taking us to even greater heights.

The society's foundation is strong and it has emerged from adolescence into a dynamic and robust organization. My commitment to ASMB has, for two decades, focused on 1) building awareness of matrix biology in outside communities, 2) enabling our youngest members to see a path to leadership and a sense of ownership and belonging within ASMB, and 3) support the growth of a diverse membership both through financial support mechanisms, but more importantly through our mentorship. These will continue to be driving principles for me. I believe there are additional concrete steps we can take to continue innovating on these core goals. The hosting of joint society meetings and guest sessions has been overall successful in bringing awareness of matrix biology to those outside our society. This outreach could and should expand and there are approaches that are cost-neutral but require member engagement. Can our individual members take up the torch and advocate for ASMB guest sessions in the other societies they are engaged in? Are there ways ASMB can support those activities? We must "go out" into other communities. Our efforts over the last decade to include young scientists in the leadership of the society is astounding and yet there remain opportunities to engage even earlier. As President-elect and program committee chair for the 2025 meeting, I would explore the opportunity to have up to an entire day that is graduate student/postdoc planned, organized, and led. Membership growth, sustainability, and vibrancy are forged by building relationships and having an impact early in someone's career. I believe additional efforts to empower and enable graduate students to plant their roots in ASMB will only lead to stronger membership and greater long-term impact for our society. These efforts will afford us continued opportunities to positively impact the diversity of our community across a range of demographics, a focus that will only gain momentum as ASMB is increasingly seen as a place that all scientists can grow and evolve in a highly scientifically rigorous but supportive environment. Finally, I see additional long-term opportunities for ASMB both engaging the growing ECM biotech community and extending our geographic footprint to more robustly include our neighbors to the south and through exploring opportunities for more global/international cross-pollination with our sister matrix biology societies.

Gunjan Agarwal, Ph.D.



Gunjan Agarwal is currently a Professor in the Department of Mechanical and Aerospace Engineering at the Ohio State University (OSU), in Columbus, OH.

Gunjan was trained as a Biophysicist during her PhD (in India) and post-doctoral training (in the US). She has expertise in a number of high-resolution microscopy approaches to examine biomolecular interactions and cellular processes at the nanoscale level. Gunjan entered the world of matrix biology during her post-doctoral stint at the Procter and Gamble Company (Cincinnati, OH), where she examined the binding of recombinant discoidin domain receptor 2 (DDR2) to collagen type I by using atomic force microscopy (AFM). Thereafter she started an independent

research program at the Ohio State University (OSU) to delve deeper into DDR-collagen interactions at the cell-matrix interface. In nearly two decades of research at OSU, the Agarwal lab has investigated the binding of DDRs to collagen at the single molecule level and pioneered the role of DDRs in regulating collagen fibrillogenesis and fibril morphology. By using a combination of microscopy approaches, they have provided novel insights in how the DDR receptors cluster and phosphorylate in response to the fibrillar state of collagen type I. Ongoing work in the Agarwal lab aims to understand how the collagen fibril morphology modulates matrix mechanics, mineralization and cell-matrix interactions in vascular and bone biology. They are also interested in understanding the interaction of collagen type IV with matrix receptors.

Dr. Agarwal has authored over 55 journal articles and contributed to multiple review articles and invited book chapters. She has served as a guest editor of two special issues on DDRs (BBA: Mol Cell Res) and collagen (Bioengineering) and is a member of the editorial board of the J. Structural Biology. Her research has been continuously funded by the National Institutes of Health, the National Science Foundation and the American Heart Association. She has served on multiple NIH and NSF panels and as a reviewer for international grants. At OSU, she directs a multi-user Bio-AFM core facility (funded by NIH S10) and serves as a co-director of the Interdisciplinary Biophysics graduate program. She has mentored 11 PhD and 5 MS students in the Biomedical Engineering and Biophysics graduate programs and teaches graduate courses in Extracellular matrix, Medical Imaging and Microscopy. Dr. Agarwal has been recognized by awards at OSU for faculty excellence in mentoring and in enhancing diversity in the student body. The Agarwal lab has been a regular participant at the biennial ASMB meetings (2006, 08, 14, 16, 18, 21, 23) and recipient of three student travel awards. They are also present at the Collagen Gordon Research Conferences in intermittent years (2007, 11, 15, 19).

As a council member of the ASMB, Gunjan will focus on two aspects for the society: 1) increase membership and connections of ASMB with the bioengineering and biophysics community, with a particular emphasis on the early career scientists and 2) enhance the diversity, inclusion and outreach efforts of ASMB with a focus on growing the membership and keeping the community engaged via local chapters and e-platforms.



Evangelia Bellas, Ph.D.

Dr. Evangelia Bellas is an Associate Professor in the Department of Bioengineering at Temple University. Prior to joining Temple University, Dr. Bellas was a postdoctoral fellow in Biomedical Engineering at Boston University and Bioengineering at University of Pennsylvania under the mentorship of Dr. Christopher Chen where she developed 3D in vitro adipose tissue disease models. She received her Ph.D. in Biomedical Engineering at Tufts University mentored by Dr. David Kaplan. Her Ph.D. research focused on developing long-term volume stable silk biomaterials for soft tissue regeneration. This work resulted in 2 patents and a start-up. Before starting her Ph.D., Dr. Bellas was at Massachusetts Institute of Technology under the supervision of Drs. Robert Langer and Daniel Kohane, where she worked on biomaterial, drug delivery solutions for prevention of peritoneal adhesions and controlled release formulations for long-term pain management. Her current research focuses on the development of fat-on-chip and (dys)functional adipose tissue models to study how vascularization and interactions with the microenvironment impact tissue health and function and funded by NIH, NASA, NSF, Lipedema Foundation and VentureWell. She is the recipient of the NSF CAREER Award (2021), Biomedical Engineering Society (BMES)- Cell and Molecular Bioengineering (CMBE) Young Innovators Award (2021), Biomedical Engineering Society- Cell and Molecular Bioengineering Rising Star Award (2023) and the American Society for Matrix Biology- Junior Investigator Award (2023).

Dr. Bellas is active in service to her broader professional community, namely in diversity, equity and inclusion efforts and served as the Biomedical Engineering Society's Diversity Committee Chair (2019-2022), currently serving as an outgoing chair and is the BME Council of Diversity elected vice-chair (2023-2024). Dr. Bellas is also an elected member of the BMES-CMBE Council, and a member of the ASMB Membership Committee.

Dr. Bellas's vision for the society is to advocate for growth in a few key areas in addition to the great work already led by the society. The first major area for growth is in the study of matrix related to endocrine tissue (patho)physiology. This is an understudied sub-field of matrix biology, and our society could be well-poised to serve as leaders in this important space as a second key area (sex, reproductive health and/or hormone-based differences in matrix biology) of growth. In a similar vein, endocrine tissues often have sex-based differences, and we can also serve as leaders in this emerging space. These emerging areas can be highlighted via e-symposia or future workshops and during our biennial meetings. To complement these research areas, Dr. Bellas envisions working with the diversity and membership committees to strengthen our commitment to all members and the various identities they bring to our society.



Sergei Boudko, PhD

Sergei Boudko is an Assistant Professor in the Department of Medicine, the Division of Nephrology at Vanderbilt University Medical Center and in the Department of Biochemistry at Vanderbilt University, a member of The Aspirnaut™ program (K-20 STEM Pipeline for underserved and diverse youth from rural areas), and a member of the Center for Matrix Biology at the Vanderbilt University Medical Center.

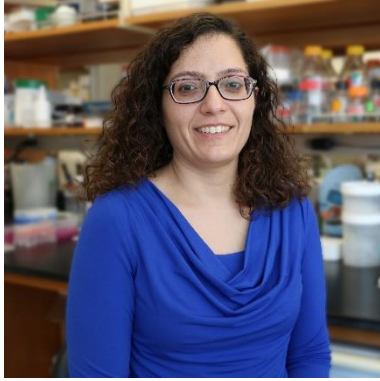
Sergei earned his Ph.D. in 2003 from the University of Basel, Switzerland, studying the folding of collagen triple helix from single and trimerized chains in the laboratory of Prof. PD Jürgen Engel at Biozentrum. He then spent two years in the laboratory of Prof. Michael Rossmann at Purdue University working on viral proteins and learning structural methods. In 2006 Sergei joined the group of Prof. Hans Peter Bächinger at Shriners Hospital for Children, OR, where he re-engaged his research on collagen folding with an emphasis on trimerization domains and the development of tools for producing functional collagen fragments.

Sergei's current projects are focused on deciphering molecular mechanisms of assembly, stability, and function of extracellular matrix proteins using structural methods to better understand the molecular biology of kidney diseases and develop new therapies based on protein replacement and pharmacological chaperones. He is a member of the American Society for Matrix Biology, the American Society for Biochemistry and Molecular Biology, and the American Society of Nephrology. If elected to the council of ASMB, Sergei will work to integrate structural biology communities into the ASMB and bring educational resources to the members.

I am an active member of the ASMB society since 2010. Our society provides a very stimulating exchange of ideas, updates on the most recent progress in the field, and ways to communicate and learn from leaders in their specific fields. Of special importance, ASMB cares about young scientists on how to learn the field and get known, thus providing continuity in the dynamically developing Matrix Biology world.

Our society does a great job by bringing people together (via meetings and workshops), providing opportunities to publish research (via journals Matrix Biology and Matrix Biology Plus), recognizing researchers (via Investigators awards), mentoring young investigators (mentoring breakfasts), keeping us up to date with the recent advances and news (newsletters) and helping students (poster and travel awards). I feel that there is also a need for an educational role in the ASMB. Despite growing interest in matrix biology, there are no courses available for Matrix Biology. On the other hand, our society has numerous researchers and educators who publish and edit fantastic reviews and read different courses to students. I believe that an online course on matrix biology from very basic principles to the current status and challenges would be highly appreciated by not only students but also anyone interested in Matrix Biology. I would highly promote and support the development of such a course.

I am actively involved with the Aspirnaut program led by Drs. Julie and Billy Hudsons for high school and undergraduate students from disadvantaged backgrounds. This summer we published an expedition taken by 23 Aspirnaut students to discover a primordial role of chloride pressure in collagen assembly. My experience from that program helps to bring more diversity to our society.



Carmen Halabi is an Assistant Professor of Pediatrics, Division of Nephrology, at Washington University School of Medicine (WUSM) in St. Louis. She holds a secondary appointment in the Department of Cell Biology and Physiology at WUSM.

After completing her MD/PhD training at the University of Iowa, Carmen moved to St. Louis for her Pediatric residency and Nephrology fellowship training. Her first introduction to matrix biology research began in 2012 when she joined Dr. Bob Mecham's lab for her postdoctoral training. In Dr.

Mecham's lab, she studied the role of vascular elastic fiber perturbations in cardiovascular development and disease, focusing specifically on hypertension and aneurysms. An exciting observation she made during her postdoctoral work was that mutations in extracellular matrix (ECM) genes affect large elastic arteries differently than resistance arterioles. Based on this observation, the current focus of her lab is to understand differences between large and small arteries, both structurally and functionally, from a matrix perspective. She has published over 30 manuscripts. In addition to serving as an *ad hoc* reviewer for 24 journals including *Matrix Biology*, she has served as an *ad hoc* reviewer on NIH study sections as well as for the American Heart Association and Department of Defense. She was a member of North American Vascular Biology Organization (NAVBO)'s education committee (2019-2022) where she created a lecture on "Blood Vessels in Disease" for high school students and organized lists of current cardiovascular training grants across the country as a resource available for trainees on NAVBO's website. She is also a member of Microcirculatory Society's programming committee. In addition to running her research program, Carmen spends part of her time practicing general Pediatric Nephrology.

Carmen has been a member of the American Society for Matrix Biology (ASMB) since 2014 and has benefited immensely from the supportive community. Even as a trainee, she felt welcome and was encouraged to network with investigators at the biennial meeting and has developed long-lasting relationships with several members of the community. When she thinks about how she got to where she is today, she knows that it's mainly because of all the opportunities that have been provided to her by her mentors and colleagues. Therefore, in addition to adding the perspective of a physician-scientist and junior investigator to the Council, if elected, her goal will be to support activities that help recruit/promote young scientists not only to pay it forward, but also to secure the future of the matrix biology field.



Dirk Hubmacher

Bio:

Dr. Dirk Hubmacher is an Assistant Professor in the Department of Orthopaedics at the Icahn School of Medicine at Mount Sinai (New York), where his laboratory investigates the role of ADAMTS protease, ADAMTS-like proteins and fibrillins in the context of genetic musculoskeletal disorders. Dr. Hubmacher received his Ph.D. from the University of Lübeck (Germany) in 2004 where he studied iron uptake in salt-loving Archaea. He was introduced to the field of extracellular matrix biology as a postdoctoral fellow with Dr. Dieter Reinhardt at McGill University in Montreal where he elucidated mechanisms of fibrillin microfibril formation and determined molecular pathomechanisms underlying Marfan syndrome and homocystinuria. In 2011, Dr. Hubmacher joined the laboratory of Dr. Suneel Apte, a former president of ASMB, at the Cleveland Clinic Lerner Research Institute to study the function of ADAMTS proteases and ADAMTS-like proteins in mouse models of human genetic disorders in the context of acromelic dysplasias. So far, Dr. Hubmacher has published 44 articles in journals such as Matrix Biology, PNAS, The Journal of Biological Chemistry, and Scientific Reports and has received funding from the NIH/NIAMS, the Marfan Foundation, the Ines Mandl Research Foundation, and the German Academic Exchange Service. His work was recognized by several awards, including the Harold and Golden Lampport Clinical Research Award (2021), the Mount Sinai Faculty Idea Prize (2019) and the Young Investigator Award from the Marfan Foundation (2005). Dr. Hubmacher's involvement with ASMB started in 2012 as a participant in the San Diego meeting and he attended every ASMB meeting ever since. From 2018-2022, he served as an elected member on the ASMB Council. He also served on the Planning Committee for the ASMB Meeting 2021 in St. Louis and on the Nominations and Awards Committee in 2023. Dr. Hubmacher continues to be an active member of the ASMB Communication and Outreach Committee and the Publications Committee.

Vision for ASMB:

I consider ASMB as my home society. By running for the position as ASMB Council Member, I would like to actively support the society's mission so that ASMB continues to be the preeminent ambassador for ECM research in the United States and around the world and continues to promote the development of future generations of ECM researchers. For me, ASMB stands for exciting science, an ever growing community of fellow ECM researchers, and opportunities to meet with colleagues from around the world through biannual meetings, workshops, e-symposia, or other means of communication. My vision for ASMB is to provide an inclusive, diverse, and welcoming environment that promotes ECM research, fosters research collaborations, and provides career development and mentoring opportunities for scientists at all career stages.



Yoshihiro Ishikawa, PhD

Yoshi Ishikawa currently serves as an Assistant Professor in the Department of Ophthalmology at the University of California, San Francisco (UCSF).

Yoshi initiated his research career by earning a bachelor's degree in engineering from Ritsumeikan University, Japan. He focused on biochemical analysis for the protein disulfide isomerase (PDI) family protein PDIA6, gaining expertise in endogenous protein purification techniques. Subsequently, Yoshi joined the laboratory of Professor Kaz Nagata, the discoverer of the collagen chaperone HSP47, and completed his PhD in Biochemistry at Kyoto University in 2010. This work was conducted under the joint mentorship of Professor Hans Peter Bächinger, who elucidated the collagen triple helix formation from the C-terminal end to the N-terminal end, resembling the structure of a Ziploc. This research, carried out at Shriners Hospital

for Children in Portland, Oregon, provided Yoshi with a comprehensive understanding of collagen structure, biochemistry, biophysics, and the intricacies of collagen biosynthesis.

After obtaining his PhD, Yoshi continued his postdoctoral training in Bächinger's laboratory. Employing a diverse range of methodologies from structural biology to animal models, Yoshi made significant contributions to the fundamental understanding of how collagen biosynthesis is orchestrated, coining the term 'molecular ensemble.' He functionally characterized more than ten collagen-related biosynthetic molecules, including endoplasmic reticulum chaperones and enzymes essential for collagen trafficking and posttranslational modifications. Since 2019, Yoshi has been uniquely positioned to delve into collagen IV biochemistry and its molecular ensemble at UCSF, collaborating with Professor Doug Gould, who identified mutations in the COL4A1 causing a multi-system disorder.

Yoshi has been actively involved in matrix communities worldwide and served as a discussion leader at the Collagen Gordon Research Conference in 2023. Additionally, Yoshi has consistently participated in the American Society of Matrix Biology (ASMB), attending his first ASMB meeting in 2010 in Charleston, SC. In 2015, he served as an Associate Editor of The Matrix Letter, a publication of the American Society for Matrix Biology, and has recently been engaged in the ASMB Award Committee. Yoshi is committed to preserving the focus on biochemical aspects within the ASMB due to the broad spectrum of research areas covered by matrix biology today. Leveraging his Japanese background, he aims to contribute to increasing ASMB membership and attracting attendees from Asian countries to ASMB meetings and workshops. Yoshi expresses gratitude for the opportunity to dedicate his time and energy to the Society, fostering interest and showcasing the dynamic nature of the extracellular matrix research field.



Dieter Reinhardt, Ph.D.

Dr. Dieter Reinhardt is interested in extracellular matrix biology and its dynamic interactions with cells. The focus of his research is on extracellular fiber systems, their supramolecular structures, and their functional contributions to tissue integrity and development in health and disease. His research is internationally recognized for his original contributions to understanding the mechanisms and components involved in the biogenesis and function of the fibronectin/microfibril/elastic fiber axis. His laboratory has identified new components of this system and described many functional protein-protein interactions. Reinhardt has made important contributions to the understanding of the complex assembly mechanism of multi-protein aggregates in connective tissues. His laboratory contributed to the discovery of pathogenetic pathways in connective tissue disorders such as the Marfan syndrome, spondylometaphyseal dysplasia, homocystinuria, and others. He published 150 research articles in this field, which have received more than 10,000 citations, resulting in an accumulated h-index of 48. He has been invited for more than 120 presentations at the national and international level in North America, Europe, Australia, and Asia. Reinhardt has organized many international conferences, including the prestigious Gordon Research Conference on Elastin, Elastic Fibers & Microfibrils. He reviewed research articles for about 100 international journals, and he is regularly invited as panel member or as ad hoc reviewer for national and international granting agencies from countries located on three continents. He held a Canada Research Chair for Cell-Matrix Biology from 2006-2020 and was recently bestowed with the “Distinguished James McGill Professor” Award.

Reinhardt has been a member of ASMB since 2006 and participated in most biennial meetings. He previously served on the ASMB council from 2013-2016, providing him with the opportunity to contribute to this society. His most important vision for ASMB is to attract new members, focusing on the level of graduate students and postdoctoral fellows. The goal is to enlarge the base of upcoming scientists in matrix biology and to provide them with sufficient support from experienced scientists in this field. Another vision relates to how ASMB can leverage the inclusion of more matrix biologists in journal editorial boards and in grant review panels. This would help to better represent the importance of matrix biology in publications and in funding for matrix biology related projects and teams.