American Society for Matrix Biology

President's Letter

Jean Schwarzbauer

Dear Fellow Matrix Biologists,

As the first act of my term as ASMB President, I want to thank Bill Parks for his dedicated leadership of the society over the past 2 years. Bill has led us in exciting new directions with a revitalized vision for the society including some new initiatives and enhanced outreach efforts. Let's all thank Bill for his terrific job as our 6th President. He has left some pretty big shoes for me to fill!

Hopefully still fresh in our memories is some exciting science from the ASMB meeting held in Charleston, SC, last October. I want to extend my personal thanks to all members of the Program Committee for their diligence in developing a stimulating and innovative scientific program. And a special thanks goes to Jen Holland, our executive director, for all she did to plan, organize, and execute an outstanding meeting. Of course, the society can't take credit for the great weather in Charleston or the fascinating exhibits at the aquarium but those also added to the success of the conference.

The meeting format of concurrent, plenary, and poster sessions was similar to years past, but we added a few new features this time. One change was to start the meeting on Sunday afternoon with Guest Society Symposia presented by the Society for Glycobiology (SfG) and the Tissue Engineering & Regenerative Medicine International Society (TERMIS). They put together interesting sessions that highlighted their connections to matrix biology and were very well received by the participants. Another new feature at the meeting was the Career Mentoring Breakfast where senior scientists provided their best advice to junior investigators on issues of career development, lab management, collaborations and publication, and many other topics. We were surprised and very pleased at the popularity of this event and plan to organize this activity for our members at future meetings. During non-meeting periods, our new Professional Development Committee with Chair Amy Bradshaw will oversee mentoring and career activities.

Related to our committees, an important agenda item at the Council meeting in October was to revamp and streamline the committee structure of the society. Committee membership information can be found under the Home menu at our website. The committees work to benefit our members so your feedback about any and all committee activities is always welcome. In this issue of the Newsletter, you will find a report from a reinvigorated Newsletter Committee describing updated plans to include recurring columns, invited features, committee reports, science highlights, and other items of interest to our members in each issue of the Newsletter.

Building on an idea that pre-dates my election, our next meeting in 2012 will be a joint venture between ASMB and SfG. The leadership of the societies recently agreed on a site in San Diego for the dates November 11-14, 2012. Pro-

gram development has not yet begun but our goal will be to cover areas of mutual interest to matrix biologists and glycobiologists as well as to include specialized topics that may be more interesting to one or the other group. A Program Committee will be formed with members from both societies. The next ASMB President-elect will be a key member of this committee, so please see the candidates' biographical information later in this issue and make sure to vote. The results of our 2010 meeting survey will definitely be helpful in directing the 2012 Program Committee as it plans our next meeting so thanks to all who responded to the survey and gave us their comments.

The Guest Symposia in 2010 and the joint meeting in 2012 are indicative of a more pro-active outreach effort by ASMB to other groups of matrix biologists. Bill Parks was instrumental in expanding our connections with other societies and I intend to continue this approach. Of course, ASMB has had a longstanding association with ISMB, and we have strengthened our connections with SfG and TERMIS. ASMB is also lending some support to a matrix-related symposium in honor of Bjorn Olsen with two student travel awards. We hope these outreach efforts will lead to new opportunities and fruitful interactions that will benefit our members. Over the next few years, I anticipate that ASMB will forge new links with societies on other continents and in other scientific areas, perhaps in biomaterials or clinical/translational directions, as we build a worldwide community of matrix biologists.

One final thought. A successful society has strong leadership and an involved membership. We have an excellent slate of candidates on the ballot for President-elect and Council. So PLEASE VOTE and let your voice be heard.

Thanks and best wishes,

Jean Schwarzbauer
ASMB President

New Features and Schedule for the Newsletter

The newsletter committee is excited about its new efforts to expand its offerings that will include many new features. In addition to the letter from the president, there will be a short description from each ASMB committee that will update members on their latest endeavors. A popular feature called "What's going on in your lab" will continue and the highlighted labs will selected by our committee members, Marian Young and Ambra Pozzi (Co-editors), and Bill Parks, Jean Schwarzbauer, and Joanne Murphy-Ullrich, (executive board). Bill Parks is developing a new initiative to compile a list of publications related to the ECM referred to as "publications alerts" and has solicited the help of Audrey McAlinden to implement it. We have added a feature to display news and information from some of our "sister" international societies and this month we will feature the German Matrix Society with an article submitted by its president Lilana Schaeffer. As has been in the past, other items in the newsletter will include lists of upcoming meetings, job openings and notable accomplishments of our members and of course, fantastic pictures from our meeting in Charleston, SC. The committee has agreed that the newsletter will be published two times in "odd years" and three times in even years. The committee would love to hear about other features any of our members would like to see in the newsletter. To submit materials to the newsletter or for other information about it please contact Jen Holland (jholland@faseb.org), Marian Young (Myoung@dir.nidcr.nih.gov) or Ambra Pozzi (ambra.pozzi@Vanderbilt.Edu).

2011 Election Biosketchs

For the Office of President Elect: (select one)

Jeffrey Davidson, Ph.D.

Jeffrey M. Davidson, Ph.D. has published 150 original articles and more than 30 book chapters and reviews on connective tissue biochemistry and the interplay of growth factors in wound healing. In addition to substantial support from industry, his current, federally funded research includes investigation of the role of growth factors in age- and diabetes related healing defects, gene therapy of wounds, biomaterial-tissue interactions, nanotechnology, and laser-tissue interactions. Jeff is past chair of the NIH Pathobiochemistry Study Section and he continues to be an ad hoc reviewer for the ASG and SAT study sections. He is immediate past president of the Wound Healing Society and a member the board of the Wound Healing Foundation and the ASMB Council. He is currently on the editorial boards of the Journal of Investigative Dermatology, Wounds, Wound Repair and Regeneration and the International Wound Journal. At Vanderbilt, Jeff organizes a course on ECM pathobiology and is a member of the Center for Matrix Biology. Jeff was part of the organizing committee for the national ASMB meetings in 2006 and 2008. Last year, he received the Founder's Award from the Symposium for Advanced Wound Care. He has been a previous chair of the Gordon Research Conference on Elastic Tissue, he founded the Gordon Research Conference on Tissue Repair, and he co-chaired a Keystone Conference on the same topic. He has served on numerous government advisory panels, and has had an extensive series of scientific collaborations and consultancies with the pharmaceutical and biotechnology sectors for over 25 years. He currently serves as a scientific advisor for Cook Biotech, Greystone Medical, Stiefel, Inc, and Baxter AG. Jeff received his Ph.D. from Stanford in 1975 and postdoctoral training at the University of Washington with Paul Bornstein. His previous professional positions were at the NIH (with Ron Crystal, 1978-81) and the University of Utah (1981-85), and he is currently Professor of Pathology at Vanderbilt University School of Medicine, Director of the Phenotype Core of the Skin Diseases Research Core Center, and a Senior Research Career Scientist at the Department of Veterans Affairs Medical Center, Nashville, Tennessee.

LINKS: https://medschool.mc.vanderbilt.edu/facultydata/php_files/part_dept/show_part.php?id3=754
http://www.mc.vanderbilt.edu/centers/sdrcc/

Peter Yurchenco, M.D. Ph.D.

Peter D. Yurchenco, a Professor of Pathology at the Robert Wood Johnson Medical School, has devoted nearly three decades to the study of basement membranes and their functions. He received his M.D. and Ph.D. from the Albert Einstein College of Medicine in 1975 and 1976. In 1981, following a medical internship at Dartmouth, pathology residency at Yale, and fellowship on red cell proteins under Vincent Marchesi, he joined the laboratory of Heinz Furthmayr where he began to elucidate roles of type IV collagen and laminin in basement membrane assembly. Three years later he joined the faculty of the Pathology Department at Rutgers Medical School (now Robert Wood Johnson Medical School) in Piscataway, NJ. In the ensuing years, he has made a number contributions that include a model for the initiation and progression of basement membrane assembly, a molecular mechanism for laminin self-assembly, evidence for a key role of laminin polymerization in neuromuscular basement membranes, and the role of laminin domains in the induction of epithelial polarity and gastrulation in early embryogenesis. His most recent work has focused on laminin and laminin-receptor interactions in renal and peripheral nerve development. In 1995 Peter Yurchenco hosted the East Coast Connective Tissue Society meeting in New Jersey. In 1996/98 he co-chaired/chaired the Gordon Conferences on Basement Membranes. He has served on NIH study section (Pathobiochemistry), has been a member of the Editorial Boards of the Journal of Biological Chemistry and Matrix Biology, and has been supported by NIH funding since 1986. His current efforts are supported by a Merit Award.

LINK: http://rwjms.umdnj.edu/pathology/Faculty/yurchenco.htm and http://orion.umdnj.edu/

For the Office of Councilor: (select one)

Tom Barker, Georgia Institute of Technology

Dr. Barker is an Assistant Professor in the joint Emory University and Georgia Institute of Technology Biomedical Engineering department. He holds faculty memberships in the Petit Institute for Bioengineering and Bioscience, the GA Tech/Emory Center for the Engineering of Living Tissues, and the Emory Center for Pulmonary Health among other Atlanta area research centers. He received his PhD in Biomedical Engineering from the University of Alabama at Birmingham and did his postdoctoral training with E. Helene Sage at the Benaroya Research Institute. He then worked as a senior scientist in Jeffrey Hubbell's lab the Ecole Polytechnique Fédérale de Lausanne exploring engineering of ECM for directed cell differentiation. His current research integrates engineering and cell and molecular biology approaches to understand and control matrix-driven cell phenotypic changes through the design of engineered extracellular matrices. His research is also focused on understanding fundamental roles of mechanical forces in regulating the biochemical activity of proteins in the extracellular matrix toward tissue development, regeneration, and pathogenesis. Dr. Barker currently an Associate Editor for *Biomaterials*, the leading biomaterials journal. He receives funding from the NIH, the Wallace H. Coulter Foundation, and was awarded the Walter A. Rosenblith New Investigator Award by the Health Effects Institute in 2008. His past accomplishments include the Ruth L. Kirchstein NIH Postdoctoral Fellow, National NASA Space Fellow, as well as several conference awards for outstanding original research. Dr. Barker has been an active member of ASMB since 2002.

Link: http://barker.bme.gatech.edu/MBEL_website/the_lab.html

Dwayne Stupack, University of California San Diego

Dr. Stupeck is an Associate Professor of Pathology in the Tumor Growth, Invasion & Metastasis Program at UCSD. After receiving his doctorate from the University of Manitoba in Canada, Dr. Stupack trained at The Scripps Research Institute in La Jolla the joined that institution as a faculty member. The focus of Dr. Stupack's work has been to understand how cells interact with the extracellular matrix via cell surface receptors of the integrin family. In particular, he has focused on characterizing how similar, or even the same ligand can transduce vastly different cellular signals based on the geometry of presentation to the cell, and its relative mechanical/soluble properties. Currently, his investigations focus on the crosstalk between integrin signals and proteins in of the programmed cell death cascade. Dr. Stupack has been recognized as Junior Investigator Award of the ASMB (2006), and has assisted in organizing past ASMB events.

Link: http://cancer.ucsd.edu/summaries/dstupack.asp

Pyong Woo Park, Harvard University

Dr. Park is an Associate Professor of Pediatrics at Children's Hospital, Harvard Medical School. His research focuses on the cell biology of proteoglycans in diseases. He received his Sc.B. in Engineering from Brown University and his PhD in Molecular Cell Biology and Biochemistry from Washington University under Dr. Robert Mecham. After a postdoctoral fellowship at Harvard Medical School with the late Dr. Merton Bernfield, he joined Baylor College of Medicine as a faculty member in 2000. He has published several seminal papers on how matrix components modulate molecular and cellular processes that are central to disease pathogenesis and host defense. He has received several awards, including the Junior Investigator Award of the ASMB (2010), Mizutani Foundation Glycoscience Research Award, Young Investigator Award on Glycoconjugates, and Career Investigator Award (American Lung Association), chaired sessions at ASMB meetings and other national and international meetings, and served on study sections (NIH, VA, AHA).

Link: http://www.childrenshospital.org/cfapps/research/data_admin/Site2568/mainpageS2568P0.html

Tell Us What Your Lab is Doing!

From the laboratory of Adam Engler

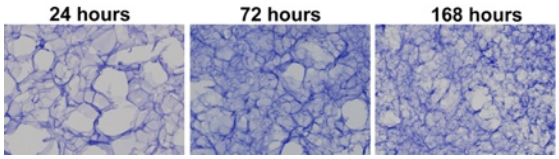
University of California San Diego

The Engler lab at the University of California, San Diego has recently extended our previous observation that stem cells are sensitive to matrix properties, such as stiffness, using new types of matrix-mimetic hydrogels. These materials change their stiffness over both time and space just as the dynamic extracellular matrix does in vivo. What we have found is that even cell fate appears to be surprisingly sensitive to such cues, which suggests that even the most basic processes can be driven by matrix and its chemical and mechanical properties.

Regional changes in stiffness in vivo are likely due to matrix density and crosslinking. Small natural variations in healthy myocardium can become 10-fold higher in pathological conditions, e.g. myocardial infarct where collagen aides in forming a fibrotic scar. Surprisingly, when adult stem cells are presented with shallow stiffness gradients similar to natural tissue variations (<3% of total stiffness change from one side of the cell to the other), cells still migrate towards the stiffer end rather than remain in place to differentiate based on the local stiffness. As a result, migratory cells have delayed onset of differentiation markers in an observation we termed "differentiation hierarchy." These cells also demonstrate a degree of cell memory, expressing mixed phenotypes of where they once were and where they presently are. Given that adult stem cells can hone to injury sites, e.g. myocardial infarcts, it would appear that mechanical properties of the matrix can significantly influence into what these cells become.

Engler Lab in February 2011 (L to R): Adam Engler, Somyot Chirasatitsin, Andrew Holle, Jerry Tuler, Gaurav Kaushik, Jennifer Young, Alex Fuhrmann, Hermes Taylor-Weiner, Ludovic Vincent, Justin Tse, Yu Suk Choi, Jennifer Kiang, Deepthi Vijayraghavan, Jessica Wen, Xinyi Tang. The newest lab member: Catherine Engler (born 22 December 2010)

During development, cells within the niche secrete and assemble significant amounts of matrix, which can increase the stiffness of their surroundings. Specifically in the myocardium, we observed a 9-fold increase in stiffness from pre-cardiac through fully matured myocardium that correlated with an increase in type I collagen expression and localization. Temporal stiffness changes were mimicked using a Michael-type Addition Reaction to crosslink thiolated hyaluronic acid and polyethylene glycol-diacrylate (PEGDA). By tuning crosslinker concentration and molecular weight, a material which stiffened at a similar rate to in vivo myocardium was produced (see adjacent Figure showing a change in porosity, and thus stiffness, with time). Mature sarcomere formation was used to assess terminal differentiation of chick pre-cardiac cells isolated 72 hours post-fertilization. After 10 days in vitro, 75% of pre-cardiac cells plated on hyaluronic acid hydrogels contained maturing or mature myofibrils. Conversely, pre-cardiac cells on hydrogels which had static stiffness over time, i.e. polyacrylamide, mostly contained immature premyofibrils at these early time points, resulting in up to a 60% difference.



Histological staining of hyaluronic acid-based hydrogels changing porosity over time.

Ongoing work in the lab is attempting to address the molecular mechanism(s) behind how matrix properties, e.g. stiffness and structure, induce differentiation. This work is, has been, or is currently supported by the National Institutes of Health, California Institute of Regenerative Medicine, National Science Foundation, American Heart Association, Human Frontiers Science Program, and UCSD.

Young, J.L., and Engler, A.J. "Hydrogels with Time-Dependent Mechanical Properties Enhance Cardiomyocyte Differentiation In Vitro" Biomaterials, 2011. 32(4): 1002-1009.

Tse, J.R. and Engler, A.J. "Stiffness Gradients Mimicking In Vivo Tissue Variation Regulate Mesenchymal Stem Cell Fate" PLoS One, 2011. 6(1): e15978.

Engler, A.J., Humbert, P.O. Wehrle-Haller, B., and Weaver, V.M. "Multiscale Modeling of Form and Function" Science, 2009. 208: 208-212.

Engler, A.J., Sen, S., Sweeney, H.L., and Discher, D.E. "Matrix Elasticity Directs Stem Cell Lineage Specification" Cell, 2006. 126(4): 677-689.

Interesting Science (contributed by ASMB members)

Contributed by Maurizio Pacifici

Fibrillin-1 and -2 differentially modulate endogenous TGF-β and BMP bioavailability during bone formation

Harikiran Nistala, Sui Lee-Arteaga, Silvia Smaldone, Gabriella Siciliano, Luca Carta, Robert N. Ono, Gerhard Sengle, Emilio Arteaga-Solis, Regis Levasseur, Patricia Ducy, Lynn Y. Sakai,Gerard Karsenty and Francesco Ramirez

J. Cell Biol. 190:1107-1121, 2010

It is becoming increasingly clear that extracellular matrix components influence not only tissue structure and organization, but also regulate distribution and activity of signaling factors that are important for tissue development and morphogenesis as well as long-term phenotypic expression and function. This study is an elegant and compelling demonstration of this emerging new axiom and focuses on fibrillin-1 and -2, the structural components of extracellular microfibrils, and on members of the transforming growth factor (TGF) -β family. The authors show that fibrillin-1 and -2 differentially regulate TGF-β and bone morphogenetic proteins (BMP) bioavailability in developing bone. They find that fibrillin-2–null (Fbn2–/–) mice display a low bone mass phenotype that is associated with reduced bone formation in vivo and impaired osteoblast maturation in vitro. Additional in vivo and in vitro analyses indicate that the bone phenotype in the Fbn2–/– mice can be explained by improper activation of latent TGF-β that in turn selectively inhibits expression of both Osterix, a master transcriptional regulator of osteoblast maturation, and collagen I, the major structural component of bone extracellular matrix required also for mineralization. When the authors compared osteoblasts from wild type and Fbn1–/– mice in vitro, they observed that the mutant cells did display improper latent TGF-β activation and then underwent faster maturation concomitant with, and likely caused by, increased bioavailability of otherwise matrix-bound BMPs. Because the extracellular matrix components are important for mineralization, the authors studied this process as well, but found that microfibrils do not appear to have a major supporting role in mineral deposition. These interesting findings provide clear evidence that microfibrils are critical regulators of bone formation through modulation of distribution, bioavailability and signaling activity of endogenous TGF-β and BMP family members. The authors propose a model in which the fibrillin-rich bone matrix would calibrate the threshold levels of TGF-β and BMP signals and thus sustain proper progression of the osteoblast maturation process.

Contributed by Josephine Adams

Ancient origin of the integrin-mediated adhesion and signaling machinery

Sebé-Pedrós A, Roger AJ, Lang FB, King N, Ruiz-Trillo I.

Proc Natl Acad Sci U S A. 107: 10142-7, 2010.

This paper is of interest to the ASMB group because of its important finding that integrin heterodimers are present in a modern unikont protist. This is the first demonstration that integrins evolved before the origin of the metazoa or the extracellular matrix ligands that bind to many metazoan integrins. The ECM-independent functions of integrins in the protist are, as yet, unknown. The paper also identifies striking conservation of multiple components of the focal adhesion complex, including paxillin, talin, PINCH and ILK, and suggests that this scaffolding machinery became co-opted into the integrin adhesion system along the metazoan stem lineage

Contributed by Ralph Sanderson

Syndecan-1 Promotes Staphylococcus aureus Corneal Infection by Counteracting Neutrophil-mediated Host Defense

Hayashida A, Amano S, Park PW

J Biol Chem. 2011 286:3288-97

Physiologic shedding of syndecans from the cell surface releases the intact ectodomain of the proteoglycan into the extracellular environment. Emerging evidence demonstrates that these shed syndecans can dramatically impact behavior of cells and help promote progression of inflammatory diseases, cancer and other pathological states. Hayashida et al., using a model of Staphylococcus aureus corneal infection, now demonstrate that shed syndecan-1 can be required for establishment of some bacterial infections. Inhibition of syndecan-1 shedding decreased bacterial infection, while topical addition to the eye of either purified syndecan-1 ectodomain or heparan sulfate dramatically increased bacterial burden. However, the effect of syndecan-1 on enhancing infection was not due to a syndecan-1-mediated increase in binding of the bacteria to corneal epithelium, rather it was traced to an effect of shed syndecan-1 on the host neutrophils that respond to the infection. Surprisingly, this effect was not related to syndecan-mediated regulation of neutrophil infiltration into sites of infection, but was due to the ability of syndecan-1 to inhibit neutrophil-mediated killing of the bacteria. This is the first demonstration that syndecan-1 shedding can contribute to establishing a bacterial infection and, more importantly, points to a role for shed syndecan-1 in interfering with normal host defense mechanisms. Moreover, this work raises the possibility that therapeutic inhibition of syndecan shedding could be used to restore normal neutrophil function as a means to control the progression of diverse pathological states such as infection, inflammation and cancer.

News from the President of the German Connective Tissue Society

The German Connective Tissue Society (Deutsche Gesellschaft für Bindegewebsforschung, DGBF, http://www.dgbf.de) was established shortly after World War II by a group of rheumatologists. In those days it was not easy in Germany to hold meetings with good food and accommodation. However, the German Society for Connective Tissue Research was generously supported by the Count of Waldburg and Zeyl who hosted the society's meetings in the Lake Constance region with lovely scenery amid orchards and woods. The buffets sponsored by the Count were legendary and memorable to participants of these meetings. Science also was important, but it focused mostly on clinical rheumatology. It was only in 1987 that Klaus Kühn and Klaus von der Mark became the driving forces in turning these annual meetings of the society into a forum of cutting-edge science in matrix biology. Initially, this resulted in a loss of the traditional members as well as an end to the meetings in Bad Waldsee or Isny-Neutrauchburg. But gradually the society recovered and now regularly hosts meetings with an internationally competitive scientific standard. Presently, the society consists of 163 members with diverse scientific backgrounds, including basic scientists and clinicians of various specializations (e.g. dermatologists, rheumatologists, orthopedics, nephrologists, and pulmonologists), working in universities, research institutions, hospitals and industry. The interdisciplinary character of the DGBF creates an excellent platform to exchange knowledge and research tools, distribute information on new advances in matrix-related science (including tissue engineering and regenerative medicine), train new generations of matrix researchers, and inform the community about ECM-related pathologies and research in these areas.

The DGBF conferences are held once a year at different universities around the country. In addition, there are regular smaller meetings, such as the *ECM afternoons* organized by the Universities of Cologne and Muenster, which focus on specific ECM-related topics. An important objective of the DGBF is the intra-European exchange of research findings and information concerning funding and training possibilities, achieved by joint meetings with other ECM-oriented societies in Europe (e.g. with the French, Belgian, Swiss, and British Societies for Matrix Biology or with the Universities of southern Scandinavia). Next year, the DGBF will celebrate its 25th anniversary with a Joint Meeting of the British and German Societies for Matrix Biology in April 02-04, 2012 in Oxford, UK.

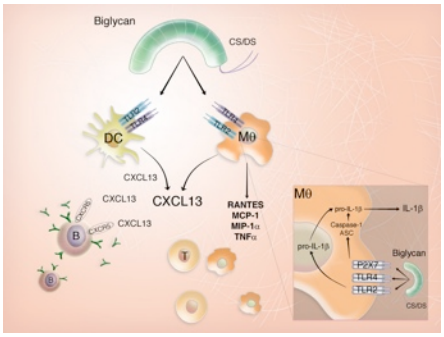
The society is a member of the Federation of European Connective Tissue Societies (FECTS) and works closely with the International Society for Matrix Biology (ISMB) as documented by the XXIInd FECTS Meeting joined with the ISMB, which was hosted by the DGBF and the Swiss Society for Matrix Biology in Davos, 2010. Members of the DGBF actively participate and organize various Gordon Research Conferences (e.g. GRC on Collagens, Proteoglycans, Elastin and Elastic Fibers, Fibronectin, Integrins and Related Molecules). There is a long-term collaboration between the members of the DGBF and ASMB documented by multiple publications and a growing numbers of DGBF members attending the ASMB meeting to exchange research ideas, meet friends and to start new collaborations.

The board of the DGBF: Liliana Schaefer (Chairman, Goethe Univ., Frankfurt/Main), Susanne Grässel (V-Chairman, Univ. of Regensburg), Johannes Eble (Secretary, Goethe Univ., Frankfurt/Main), Rolf Brenner (Treasurer, Univ. of Ulm) and Bent Brachtvogel (Member, Univ. of Cologne) and Lydia Sorokin (Member, Univ. of Muenster) wish to attract more students and young scientists to the DGBF. During the last annual meeting in Frankfurt/Main 2010, out of a total of 156 participants, 68 students were taking part, which we took as a good beginning. By reducing registration fees for the DGBF meetings, sponsoring a prestigious Young Investigator Award and poster prices, and providing bursaries to attend other matrix meetings, organizing attractive courses, advertising highlights of their research we hope to win more young, enthusiastic ECM scientists for the DGBF.

The scientific interest of the DGBF spans the structure and function of basement membranes and the interstitial matrix and their cellular receptors in tissue development, homeostasis and disease, as well as in tissue engineering and regenerative medicine. With growing evidence that not only the individual components and the 3D ultrastructure of the ECM impart specific signals to cells, but also their proteolytic fragments and soluble forms, the inter-relationship between factors that modify the ECM, such as cytokines and proteases, and cellular functions are gaining importance in DGBF research. The paper by Moreth et al. from the lab of Liliana Schaefer (*J Clin Invest* 120: 4251-72, 2010) and a review article by Lydia Sorokin (*Nature Rev Immunol* 10, 712-723, 2010) are recent examples of the scientific interest of the DGBF in the role of ECM signaling in inflammation.

The lab of Liliana Schaefer works in collaboration with Renato V. Iozzo (Thomas Jefferson Univ., Philadelphia) and Marian F. Young (NIDR, NIH) on the role of small leucine-rich proteoglycans (SLRPs) in matrix signaling. Previous work showed that the soluble form of biglycan, released by proteolytic digestion during tissue stress or being synthesized de novo by activated macrophages, acts as a danger signal. By signaling through the innate immunity receptors Toll-like receptor (TLR)-2 and TLR4 biglycan activates the NLRP3-inflammasome and triggers autonomously sterile inflammation or potentiates the pathogen-mediated inflammatory response via a second TLR, which is not involved in pathogen-sensing. In con-

tinuation of this work, Moreth at al. showed that soluble biglycan is enhanced in plasma from patients and mice with systemic lupus erythematosus (SLE) and stimulates various macrophage and T cells chemoattractants. The pivotal finding of this study was that biglycan triggers the expression of the major B cell chemoattractant CXC-chemokine ligand 13 (CXCL13) by signaling through TLR2/4 but not via the inflammasome. A working model summarizing our results is shown in the accompanying figure (DC, dendritic cell; MΘ, macrophage). These data shed new light on the mechanisms of how tertiary lymphoid tissue develops in non-lymphoid organs and how this relates to organ damage. Additionally, it provided novel implications for the genesis and regulation of autoimmunity. Thus, blocking biglycan-TLR2/4 interactions might turn out to be an attractive strategy for the management of SLE and other B cell-mediated inflammatory diseases (e.g. acute renal allograft rejection) as well.



Moreth K, Brodbeck R, Babelova A, Gretz N, Spieker T, Zeng-Brouwers J, Pfeilschifter J, Young M, Schaefer RM, Schaefer L: The proteoglycan biglycan regulates expression of the B cell chemoattractant CXCL13 and aggravates murine lupus nephritis. *J Clin Invest* 120: 4251-72, 2010

Highlight: *Nature Rev Immunol* 11, 6-7 (January 2011) | doi:10.1038/nri2911

Important Meeting Announcements

40th Anniversary Celebration of the Collagen Gordon Research Conference: Celebrating the Past and Future

July 17-22, 2011 Colby-Sawyer College
New London, NH (USA)

Since the inaugural meeting in 1970, collagen extracellular matrix research has expanded into all aspects of hereditary and acquired diseases of the musculoskeleton, regenerative medicine, developmental biology, cell biology and biochemistry, and molecular genetics. The 2011 Collagen GRC is an opportunity to celebrate our 40th Anniversary of past achievements and to build on this firm foundation to set the agenda for young scientists that are pushing the frontiers of collagen and ECM research.

***Key Note Speaker*:**
Kevin P. Campbell, Ph.D., HHMI, University of Iowa
"Glycobiology and Cell-Matrix Interactions: Insights from Dystroglycan Function"

***Key Topics*:**
- **Past and Future of Cell-Matrix Research: A Debate**
- **Emerging Technologies in Cell Matrix Biology**
- **Mechanotransduction in Tissue Organization**
- **Collagen Assembly and Processing**
- **Collagen Ligands and Receptors**
- **Collagens in Model Organisms**
- **Transcriptional and Epigenetic Regulation**
- **STEM Cells and Regenerative Medicine**

The 2011 GRC program will feature graduate students and postdoctoral fellows selected from talks given at the **first ever Collagen Gordon-Kenan Research Seminar (GRS)**, which will immediately precede the GRC on **July 16th - 17th, 2011**. The 2 day GRS will provide a venue for young scientists involved in the diverse areas of collagen research to discuss their current work, learn from one another, network with their peers, and interact with leading scientists from the associated GRC.

Please join us at this very special 40th Anniversary conference and encourage your students and fellows to attend both the GRS and GRC. For details on registration and information on the programs, please consult the following web sites:

GRC:
http://www.grc.org/programs.aspx?year=2011&program=collagen

Chair: Billy G. Hudson
Chair: Paul S. Nerenberg
Vice-Chair: Karl E. Kadler
Vice-Chair: Chloé Yeung

Bones and Teeth Gordon Research Conference & Seminar

June 19-24, 2011 Les Diablerets, Switzerland

Please inform your colleagues, including senior and junior investigators, who are interested in research on mineralized tissues. We would also like you to encourage graduate students and post-docs to attend the GRS, which is a unique forum for scientists with comparable levels of experience and education to present their data and ideas in order to get prepared for the following GRC.

Although the meeting is 5 months from now, we would like to emphasize the application deadlines May 22nd for GRC and May 21st for GRS. Please note that the deadline for abstracts to be considered for an oral presentation for the GRS is February 18th. The following websites provide more details on the programs and registration:

GRC:
http://www.grc.org/programs.aspx?year=2011&program=bones

GRS:
http://www.grc.org/programs.aspx?year=2011&program=grs_bones

Any questions about the GRC should be sent to bjorn_olsen@hms.harvard.edu and for the GRS to

berendsena@nidcr.nih.gov.

We look forward to seeing you in Les Diablerets!
Bjorn R. Olsen and Agnes D. Berendsen (Chairs)
Brendan Lee and Shelley E. Brown (Vice Chairs)

National Marfan Foundation Annual Conference

July 14-17, 2011 Portland, OR (USA)

The NMF is thrilled to bring the 27th Annual Conference on Marfan Syndrome and Related Disorders to Portland, OR, where it will be co-hosted by the Oregon Health & Science University and Shriner's Hospital. This year's conference will include health fair appointments, small group workshops, information on medical care and procedures, special programs for children and teens, tips for living with Marfan syndrome, support groups, information on related disorders and networking opportunities. For more information please visit www.marfan.org.

Elastin and Elastic Fibers
Gordon Research Conference & Seminar

July 23-29, 2011 University of New England
Biddeford, Maine (USA)

We would like to invite you to participate in the **"Elastin and Elastic Fibers" Gordon Research Seminar** and **Gordon Research Conference.** They will take place from **July 23rd - 24th** and **24th – 29th 2011**, respectively, on the University of New England Campus in Biddeford, Maine (USA). For details on registration and information on the programs, please consult the following web sites:
GRC:
http://www.grc.org/programs.aspx?year=2011&program=elastin

The ***Gordon Research Conference*** on "Elastin and Elastic Fibers" is a cutting edge international research conference on elastin and elastic fibers chaired in 2011 by Rich Pierce with Dieter Reinhardt as Vice Chair. The research program includes sessions on developmental processes mediated by growth factors, regulation and function of accessory proteins, the molecular and cell biology of elastic fiber biogenesis, the genetics and pathobiology of elastin and associated molecules in inherited and acquired disorders, and the prospects for elastic tissue repair using advanced bioengineering approaches.

Additionally, the 2011 Conference will host for the first time, a ***Gordon Research Seminar*** for ***students, postdoctoral fellows and early stage principle investigators***, to foster their development as scientists in this field. Participants will join a distinct group of established investigators from the elastic fiber field on the Saturday and Sunday before the GRC. All oral presentations will be selected from the abstracts submitted by the participants. In addition, the session chairs will pair one of the faculty members with one of the GRS participants. This model offers a unique opportunity to be involved in the abstract selection and session moderation of an important conference early in their career. Interested young investigators are invited to contact directly the Chair Dirk Hubmacher (dirk.hubmacher@mcgill.ca) or Associate Chair Beth Kozel (kozel_b@kids.wustl.edu) for further information. A special mentorship component will feature a career panel with scientists from different backgrounds, offering insight on successful career transitions. Time between the sessions and in the following GRC will afford the participants the opportunity to seek professional advice and information from the panelists on career paths and scientific questions.

University of New England

We are very excited about seeing you at the GRC and/or GRS in 2011!

Rich Pierce / Dieter Reinhardt (GRC)
Dirk Hubmacher / Beth Kozel (GRS)

New Gordon Conference
Lung Development, Injury, & Repair

August 14-19, 2011 Salve Regina Univ.
Newport, RI (USA)

This conference will emphasize mechanisms in lung development, injury and repair and focus on new advances in these fields such as microRNA, systems biology, and bioengineering. By bringing together a diverse and outstanding group of investigators together to present the most up-to-date advances in these related fields, we hope to encourage creative and multidisciplinary approaches that will ultimately facilitate development of innovative and effective therapies.

Register early, as attendance is capped at 140 participants For more information and preliminary program, see
http://www.grc.org/programs.aspx?year=2011&program=lungdev

Fibronectin, Integrins, and Related Molecules
Gordon Research Conference
Gordon Research Conference & Seminar

May 1-6, 2011 Il Ciocco Hotel and Resort
Barga, Italy

Chair: David Calderwood; Vice Chair: Nick Brown
http://www.grc.org/programs.aspx?year=2011&program=fibronec

Glycobiology
Gordon Research Conference
Gordon Research Conference & Seminar

May 8-13, 2011 Il Ciocco Hotel and Resort
Barga, Italy

Chair: Hudson H. Freeze. Vice Chair: Kelley W. Moremen
http://www.grc.org/programs.aspx?year=2011&program=glycobio

Matrix Metalloproteinases
Gordon Research Conference
Gordon Research Conference & Seminar

August 7-12, 2011 Bryant University
Smithfield, RI (USA)

contact: Chair: Rafi Fridman, Vice Chair: Suneel Apte
http://www.grc.org/programs.aspx?year=2011&program=grs_matr

Cell Contact & Adhesion
Gordon Research Conference
Gordon Research Conference & Seminar

June 19-24, 2011 Mount Snow Resort
West Dover, VT (USA)

Chair: Alpha S. Yap; Vice Chair: Andrew P. Kowalczyk
http://www.grc.org/programs.aspx?year=2011&program=cellcont

Translational Opportunities for the Heritable Disorders of Connective Tissue

July 10-14, 2011 Portland, OR (USA)
contact: Amber Hieb: AHD@shcc.org

Vascular Matrix Biology & Bioengineering Workshop III

October 16-20, 2011 Hyannis, MA (USA)

Organizers: Elaine C. Davis, McGill University and Themis R. Kyriakides, Yale University with Pierre Moreau, University of Montreal and Narendra Vyavahare, Clemson University

KEYNOTE LECTURE:
Eugene Stanley,
Director, Center for Polymer Studies, Boston Univ.

Held in conjunction with the **Biology of Signaling in the Cardiovasular System Workshop II**

Register for either workshop and attend sessions from both! It's two meetings for the price of one!!

http://www.navbo.org/event/bscvs

Novel Targets for Cancer and Connective Tissue Diseases

A meeting sponsored by the International CCN Society
September 24-27, 2011 Coast Coal Harbour Hotel
Vancouver, Canada

The CCN family of matricellular proteins, which include cyr61, ctgf and nov, modulate adhesive signaling in response to a variety of ligands including fibronectin and transforming growth factor (TGF)β. The CCN family members are specifically expressed during conditions of tissue remodeling, such as development and wound healing and pathological states such as fibrosis, arthritis and cancers. Almost since their discovery around 1990, their unique expression patterns have led suggested that developing drugs targeting CCN protein expression and activity may be relevant therapeutics combating these disorders.

Since 2000, The International CCN Society (http://www.ccnsociety.com/index.html) has sponsored biennial, basic research workshops in which the biology of the CCN proteins as a whole is discussed. The objective of these meeting has been to advance the basic research involving the CCN family of proteins. Prior meetings have been held in St Malo (France), Okayama (Japan) and Toronto (Canada). The last meeting was in Newcastle (Northern Ireland) in 2010, and the next meeting will be held in Sydney (Australia) in 2012. These meetings have been highly interactive, involving informal social activities resulting in the formation of friendships and fruitful collaborations.

For the first time, the International CCN Society will sponsor a meeting to be held in between the usual CCN workshops on a focused topic. The meeting will take place from September 24, 2011 to September 27, 2011 at the Coast Coal Harbour Hotel in Vancouver. This hotel was purpose-built for the 2010 Olympics and is located on Hastings Street, one block from Coal Harbour and is adjacent to a rapid transit line which allows easy access to Vancouver airport (YVR) which is easily accessible from any major city. The overall objective of this meeting is to promote the translation of basic research concepts in CCN protein structure, function and activity into pre-clinical and clinical application in connective tissue disease (fibrosis and arthritis) and cancer. Trainees who are judged to have the best abstracts will receive a travel award and present orally in a special session. Ample opportunities during the meeting (receptions, common meals, banquet social, tours, scheduled discussions, poster sessions) will be provided to facilitate interactions among attendees. Abstracts, papers and a meeting report describing the outcome of the meeting will be published in a special issue of Journal of Cell Communication and Signaling, a journal sponsored by the International CCN Society (http://www.springer.com/life+sciences/cell+biology/journal/12079).

Further information is available at:
http://www.ccnsociety.com/targets_2011/index.html

Extracellular Matrix in Health and Disease A Symposium Honoring Dr. Bjorn Olsen

April 14-15, Harvard Medical School
Boston, MA (USA)


Bjorn Olsen

The Extracellular Matrix in Health and Disease Symposium will be held at Harvard on April 14-15, 2011. The conference concentrates on vascular biology and skeletal development, and includes a talk on fibrillin that links the two topics in a novel way. The linkage of vascular and osteogenic biology should yield a very thought provoking conference. Those working on osteogenesis and the role of the vasculature in cancer will find this conference of interest.

Thursday, April 14, 2011, 5pm-9pm, Science Blast

- Scientists may present their latest data in 5 minutes using up to 3 slides

Friday, April 15, 2011, 8am-5pm, Symposium

- Session 1 8:15am-12:00pm
  Skeletal Development and Disease
- Box Lunch and Poster Session 12:00pm-1:45pm
- Session 2 1:45pm -5:30pm
  Vascular Biology and Pathology

REGISTRATION
Science Blast and Symposium:
Advanced registration $75; student registration (requires photo ID) $25.
After March 1, 2011: registration $100; student registration $50.

BUFFET DINNER HONORING DR. BJORN OLSEN
April 15, 2011, 6:00pm-10:00pm, Joseph B. Martin Conference Center
Cost is $50 payable on the registration site.
Dinner registration deadline is April 8.

QUESTIONS
Call Susan Mitchell or Laura Broughton at 617-432-1401 or Kathy Svoboda at Baylor College of Dentistry, Texas A&M University, Marion Gordon at the Environmental and Occupational Health Sciences Institute, Rutgers University.

Check out the New and Improved ASMB Website

www.asmb.net

Website Features

- Society information, including bylaws, history, Council members, etc.
- Complete ASMB awards information including criteria, applications and history
- Historical information about past ASMB meetings
- Career opportunities as posted on our new forum site with Scientist Solutions
- Other meetings listings
- Links to other resources such as partnering societies
- Newsletter archive
- Image Gallery

ASMB business

- Join/Renew your membership
- Manage and update your ASMB record
- Search our member database
- Link to Scientist Solutions forums
- Post related meetings
- Post job opportunities (under forums)
- Manage your *Matrix Biology* journal subscription

Need help navigating the new website?
Email asmb@asmb.net and we'll be happy to assist!

Don't Forget to Renew!

Your participation in our Society is the most important contribution you can make to helping increase awareness of research and opportunities in extracellular matrix biology.

With the help of your membership dues, we have added professional management of the society and provided students and postdoctoral fellows with travel awards to our national meeting. In the coming year, your dues will be at work to improve our website. We urge you to pay your dues so we can continue to add programs that benefit matrix biology.

The 2011 Annual Dues are $125 for regular membership and $75 for students/postdoctoral fellows. Dues can be paid any time via the ASMB website: http://www.asmb.net/

Alternatively, checks can be sent to the administrative office: ASMB, 9650 Rockville Pike, Bethesda, MD 20814.

Advantages of Membership:

- Discounts on *Matrix Biology* subscriptions (print and online)
- 33% Discount on volumes of the Biology of Extracellular Matrix series
- Discounts on Biennial Meeting registration
- Access to online forums and image galleries
- Receive society newsletters with article reviews and summaries
- Partner links to numerous other societies and valuable scientific resources
- Opportunities to submit abstracts for biennial meeting presentations
- Biennial meeting award eligibility
- Eligibility to run for Council positions and help direct the Society
- Access to list and view career opportunities within the community
- Make valuable professional connections with junior and senior researchers

Thank you to our sustaining members!

Renato Iozzo, *Thomas Jefferson University*
Robert Mecham, *Washington University*
William Parks, *University of Washington*
Kenneth Yamada*, NIH, NIDCR*
Peter Yurchenco, *UMDNJ-RW Johnson Medical School*

JOB OPENINGS

Postdoctoral Position
Extracellular Matrix Biology
McGill University, Montreal, Canada

Project Description:
Various exciting projects are available in the lab to study structural and functional aspects of extracellular matrix components involved in genetic disorders of the cardiovascular and skeletal system. The projects focus on components of the microfibril/elastic fiber system including fibrillins and fibulins. A broad spectrum of methods will be involved including cell imaging, recombinant protein production, protein chemistry, proteomics approaches, immunological methods and gene targeting experiments in mice. For further information and list of publications, please see lab website at http://reinhardt-lab.mcgill.ca. Funding for these positions is available for at least 3 years. General information about McGill University is available at http://www.mcgill.ca.

Qualifications:
Applicants are expected to hold a PhD in an area related to extracellular matrix biology and to have an excellent academic record. Expertise in cell imaging techniques, protein chemistry, mass spectrometry, recombinant protein expression, or animal handling is highly advantageous. Candidates should send by email a cover letter, a complete curriculum vitae including a list of publications and the names of two references.

Contact Information:
Dr. Dieter Reinhardt, Associate Professor, Canada Research Chair, McGill University, Department of Anatomy and Cell Biology, 3640 University Street Montreal, Quebec H3A 2B2, Canada
Phone: +1 (514) 398-4243
Fax: +1 (514) 398-5047
E-mail: dieter.reinhardt@mcgill.ca
Web Address: http://reinhardt-lab.mcgill.ca/

Postdoctoral Position
Cellular and Molecular Mechanisms of Vascular Calcification
University of Washington

A postdoctoral fellow position is available in the Giachelli/Speer laboratory at the Department of Bioengineering, University of Washington to study cellular and molecular mechanisms of vascular calcification. Studies will examine the role of circulating and local multipotential mesenchymal progenitors in osteogenesis and cartilaginous metaplasia in atherosclerotic and arteriosclerotic disease via genetic manipulation. Projects incorporate a variety of cellular and molecular biological approaches (inc. cell sorting and gene expression profiling), histological and immunohistological imaging, mouse modeling and bone marrow transplantation. There will be many opportunities to benefit from the rich and diverse scientific environment of University of Washington and through our established collaborations. A suitable candidate must have a PhD degree with a strong background in cell and molecular biology and desire to work with animals. Experience with mammalian progenitor isolation and stem cell culture and/or animal modeling is preferred. Competitive salary and benefits offered. Send letter of application (including your reasons for doing a postdoc and how your training makes you suitable candidate), CV, and names/emails of three references to **yfwang@u.washington.edu**.

Postdoctoral Position
Identification of Molecular and Cellular Therapeutic Targets of Vascular Calcification
University of Washington

A postdoctoral fellowship position is available in the Giachelli laboratory at the University of Washington to work on a project to identify molecular and cellular therapeutic targets for vascular calcification in chronic kidney disease. The successful candidate will utilize a preclinical mouse model of renal insufficiency to test key mechanisms of vascular calcification in the uremic setting. A background in vascular biology, matrix biology, or nephrology is highly recommended. Experience with mouse surgery and in vivo experimental design, histology, and tissue analysis is preferred. Ability to work in a team, generate publications, contribute to grants and progress reports, and maintain meticulous records is required. Competitive salary and benefits offered. Send CV and names/emails of three references to **ceci@u.washington.edu**.

TENURE TRACK FACULTY
POSITION IN
MUSCULOSKELETAL RESEARCH

Penn Center for Musculoskeletal Disorders
University of Pennsylvania School of Medicine

The University of Pennsylvania School of Medicine seeks candidates for an Assistant or Associate Professor position in the tenure track. Rank will be commensurate with experience. Responsibilities include developing an independent, extramurally-funded research program, as well as collaborating with other faculty in the Penn Center for Musculoskeletal Disorders and elsewhere in the Penn community.

Faculty appointment will be in an appropriate department within the School of Medicine, depending on the scientific expertise of the final candidate.

The successful applicant will have experience in an identified area of musculoskeletal research such as cell and developmental biology or matrix biochemistry/biology. The candidate will be involved in teaching students, residents and research assistants. Applicants must have an M.D. or Ph.D. or M.D./Ph.D. degree and have demonstrated excellent qualifications in Education and Research.

Louis J. Soslowsky, Ph.D, Fairhill Professor of Orthopaedic Surgery and Professor of Bioengineering, and Director of Penn Center for Musculoskeletal Disorders is the chair of the search committee.

The University of Pennsylvania is an equal opportunity, affirmative action employer. Women and minority candidates are strongly encouraged to apply.

Apply for this position online at:
http://www.med.upenn.edu/apps/faculty_ad/index.php/g328/d2159

American Society for Matrix Biology

Membership Application

Mail form and payment to::
American Society for Matrix Biology
9650 Rockville Pike
Bethesda, MD 20814-3998
USA

Questions?
CALL: (301) 634-7814
FAX: (301) 634-7455
EMAIL: asmb@faseb.org

www.asmb.net

Last Name | First Name | MI | Title

Company/Organization | Department

Street Address

City | State / Province | Postal Code | Country

Telephone | FAX | Email

Signature _____ Date _____

Membership is based on a calendar year. Applications received prior to November 1st are applied to that calendar year. Applications received after November 1st are applied to the following year. No refunds for membership can be given for any reason.

MEMBERSHIP OPTIONS	Fee
☐ Full Member	$ 125
☐ Full 2 Year Member	$ 225
☐ Student/Post Doc Member	$ 75
☐ Student/Post Doc 2 Year Member	$ 125
☐ Sustaining Member	$ 250
☐ Sustaining 2 Year Member	$ 400
☐ Corporate Member	$ 5,000
☐ Optional 1 Year Subscription to *Matrix Biology* (print and online)	$ 120
☐ Optional 1 Year Subscription to *Matrix Biology* (online only)	$ 55
☐ Donation	$ _____

PAYMENT OPTIONS Payment must accompany this form. U.S. currency drawn on U.S. bank only.

Total Amount $ _____ ❑ ***I would like to have a RECEIPT for this payment.***

❑ **Check / Money Order** (enclosed) …Made payable to: American Society for Matrix Biology
❑ **Credit Card:** ❑ VISA ❑ MC/Euro ❑ AMEX ❑ Discover …If paying by credit card, this form may be faxed to (301) 634-7455

Card #: _____ CVV# _____

Exp. Date *(mm/yyyy)*: _____

Card Holder

Print Name _____ ***Signature*** _____

Billing Address / City, State & ZIP _____

Billing Phone | Email _____ | _____