A PUBLICATION OF THE AMERICAN SOCIETY FOR MATRIX BIOLOGY SPRING 2009, VOLUME 8, NO. 1

ASMB Newsletter

American Society for Matrix Biology

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President's Letter

Bill Parks

Dear Fellow Matrix Aficionados,

A new year, a promising new president (and I do not mean me – as I write this, we can apply for stem cell grants again!), an economy that is performing on par with my grant renewals, and a bolus of funds to the NIH that needs to dished out and spent in what will be a flash. Ah, 2009 will be a memorable year indeed! But I wish not to dwell on these issues but discuss the new opportunities and challenges for our Society.

First, I wish to thank Renato Iozzo for his dedicated service as the society's President from 2006–2008. Renato did a great job at expanding our membership and fund raising, and he oversaw the organization of the 2008 meeting in San Diego, which, by all accounts, was an outstanding meeting. I also wish to thank the Program Committee members – Jaime Fitzgerald, Karen Lyons, Joanne Murphy-Ullrich, Ambra Pozzi, Ralph Sanderson, Marian Young, Peter Yurchenco, and Don Senger – for helping me put together an outstanding list of topics and speakers. And of course, tons of thanks to Jen Holland for putting it all together, not just the meeting but the society as a whole.

I wish to congratulate Bob Mecham and Hiromi Yanagisawa, the 2008 Senior and Junior Investigator Awardees. I especially wish to congratulate the poster awardees Lauren Van Duyn, Hye Jyn Chung, Larry Lucsinger, B. Frank Eames, Marion Cooley, Amy Pyle, Ivan Rebustiri, Alayna Loiselle, Qinglang Li, and Siddarth Vora, and I hope all of you continue to make important contributions to the field and stay active in the society.

Congratulations also to Jean Schwarzbauer on being elected our new vice-president (and president once I am done!) and to our new (and renewed) council members Suneel Apte, Dan Greenspan, Audrey McAlinden, and Jeff Miner. I look forward to working with all of you.

With 2009 comes changes, improvements, and challenges to our society. As you will notice in this newsletter, we have a new, livelier logo, which was largely conceived and designed by Jen (who provides her interpretation of its essence elsewhere in this newsletter). With the new logo will also come a markedly improved web site. In particular, we plan to greatly expand the content and information provided at ASMB.net and allow for you – the member – to add to the content and postings on our site. An improved, interactive, and content-driven web site will be one way we hope to add value to your ASMB membership. The expanded content of our improved web site will be planned and implemented over the next few months, and as members, I invite any ideas you may have.

Over the upcoming year, there are three goals (among others) I hope that we – the council and membership together – can meet: 1) increased membership; 2) greater involvement of and activities directed toward trainees and beginning investigators; and 3) new mechanisms to add value to membership in our society.

Membership is the life blood of ours or any society, and our ability to positively impact the matrix biology field is directly related to the numbers we represent. Thus, I hope you will maintain your membership and encourage your colleagues to join ASMB. As we grow, ASMB will only gain in its position to represent the interests of the membership in issues such as NIH funding initiatives and representation on study sections and we invite you to be a driving force in this effort.

Planning for the 2010 meeting is now underway and we hope to meet, if not exceed the success of our 2008 meeting. We are in the beginning stages of developing the program structure, and we welcome your ideas. In particular, we would like to provide venues targeted to students, postdocs and fellows, and junior faculty. Among the ideas that have been discussed among the Council are Meet the Speaker

lunches and workshops on grantsmanship, emerging technologies, or how to deal with existing technologies (such as the pitfalls of immunofluorescence or bioinformatic approaches to large data sets). I am certain we will all enjoy the city and venue choice in Charleston, SC. October is a beautiful time to visit Charleston, and we hope you will take advantage of this historic town during the 2010 meeting. Make note in your calendars, spread the word and start planning your abstract submissions. We look forward to seeing you October 24–27, 2010! In addition to our own biennial meeting, ASMB will continue to maintain a presence at other meetings throughout the year such as my own presentation as the ASMB guest lecturer at the 2009 Experimental Biology meeting in April and Jean Schwarzbauer and Renato Iozzo's lectures at the 2009 Society for Glycobiology meeting symposium dedicated to Matrix Biology.

Enjoy this first newsletter issue of 2009 and remember that ASMB belongs to its members. Please feel free to contact me (parksw@u.washington.edu) or Jen (jholland@faseb.org) anytime with your input.
Best,

Bill Parks
ASMB President

A Message from your Executive Director

It was very exciting to see ASMB's 2008 meeting come to fruition in December. It was a pleasure to meet so many members, speakers and general attendees. I am very impressed with the far reaching implications of your science and am thrilled to be part of this quickly growing society.

ASMB is a fairly young society with members from a broad range of specialties, giving you an immense opportunity to become a strong voice in the community. This year, I hope to help ASMB make strides towards this evolution. As you can see from your first 2009 newsletter, ASMB has a new logo. This design will become the face for ASMB's new user friendly website with increased modern functionality.

We have also set the wheels in motion to begin planning for the 2010 meeting which will be held in Charleston, SC. The location and program are being tailored in response to the many excellent suggestions made after the 2008 meeting, including a much lower accommodation room rate.

Thank you for the opportunity to be part of your society. I am very impressed by the focus of the board and I would like to welcome the new members who will certainly be a valuable addition; bringing new perspective to the group. Please feel free to contact me anytime. I welcome your ideas for the future of ASMB in regards to meetings, journals, corporate partnerships and committee functions.

Best regards,
Jen Holland
jholland@faseb.org

ASMB Moves Forward…..

2009 will be a big transition year for ASMB as we grow with our new membership. The first piece of this puzzle was a new logo. The logo was designed with a lot of thought about what ASMB needed to convey to our members and associated societies. The "MB" existing inside the ECM is quite deliberate and the 3D feel of the cells coming out of the matrix and pointing to the word "Matrix" shows how the group is thinking outside of the proverbial "box". Although not truly "anatomically correct", the logo is an artistic impression and conveyance of the science and maintains the organic feel. Some may say the cells look like UFOs, but we like that; it leaves people thinking what we're really all about. We welcome your feedback on the new look and invite you to see it on the new website coming soon!

2009 Election Results

The ASMB Council would like to thank everyone for voting in the 2009 ASMB Elections. We had an excellent response which speaks to the growing strength and interest that our society has.

The ASMB Nominating Committee, led by Renato Iozzo, would like to thank everyone on the ballot for their dedication to our society and the board looks forward to their future participation. The new board members are as follows:

President Elect (2009-2010) / President (2011-2012)

Jean Schwarzbauer

Councilors (2009-2012)

Suneel Apte
Jeff Miner
Dan Greenspan
and
Audrey McAlinden

As always, please feel free to contact our administrative office at asmb@faseb.org if you have any questions, comments or ideas about the society.

Welcome New 2009 Members

Please welcome our newest members
(in order of date joined)

Shoujun Chen, University of South Florida
Marion Cooley, Medical University of South Carolina
Olivier Le Saux, John A. Burns School of Medicine
Daiana Stolf, University of Toronto
Christine Kern, Medical University of South Carolina
Austine Judley, University Of Liberia
David Schlaepfer, UC San Diego Moores Cancer Center
David Coe, Lerner Research Institute, Cleveland Clinic
Joel Collier, University of Chicago
Hsieh Yu-Hua, UAB
Katarzyna Gawron, Thomas Jefferson University
Amber Asher, The University of Texas at San Antonio
Rajesha Rupaimoole, Uni of Texas at San Antonio
Menas Kizoulis, Johnson & Johnson
Matthew Nugent, Boston University School of Medicine
Rosanna Malbran-Forteza, University of Miami
James Wylie, Cleveland Clinic
Jorge Filmus, Sunnybrook Health Sciences Centre
Mary Zutter, Vanderbilt University Medical Center
Erin Conn, UCSD
John Furber, Legendary Pharmaceuticals
Hawaen Lamfon, Um Alqura University
Young Mo Kang, Kyungpook National Univ. School of Med.
Matthew Hoffman, NIDCR, NIH
Erica Marsh, Northwestern University
Darren Plumb, Hospital for Special Surgery
Mary Ann Stepp, GWU Medical School
Rama Khokha, Univ. Health Network/Ontario Cancer Institute
Ann Chen, University of Washington
Bryan Crawford, University of New Brunswick
Anurag Purushothaman, Univ. of Alabama at Birmingham
Amy Pyle, Vanderbilt
Adam Engler, UCSD
Bernhard Schweighofer, Scripps
Erin Pardue, Clemson - MUSC Bioengineering Program
Erica Perryn, Stowers Institute for Medical Research
Maurice Godfrey, University of Nebraska Medical Center
David Kim, University of Washington
Karen Hasty, University of Tennessee Health Science Center
George Dodge, A.I. duPont Hospital for Children
Barbara Brodsky, UMDNJ-Robert Wood Johnson Med. School
Barbara Boyan, Georgia Institute of Technology
Carol De La Motte, Cleveland Clinic Foundation
Pamela Moalli, Magee Women's Research Institute
Edward Macarak, Univ. of Pennsylvania School of Dental Med.
Frederick Mercier, University of Hawaii
Abigail DeLisa, The Medical Affairs Company
Alan Grodzinsky, MIT

Related Meetings Announcements

6th International Conference on Proteoglycans

September 13-17, 2009 Aix-les-Bains, France

Conference co-organizers:
H. Lortat-Jacob (Grenoble, France)
J. Van den Born (Gronigen, The Netherlands)
Contact: contact.pg2009@ibs.fr
For details please visit: http://pg2009-france.ibs.fr/

Annual Meeting of the Society for Glycobiology

November 12-15, 2009, San Diego, CA

Contacts: Dr. Tom Oeltmann, President;
president@glycobiology.org AND
Dr. Kelley Moremen, Secretary; moremen@uga.edu
For details, please visit::http://www.glycobiology.org

2nd FEBS Advanced Lecture Course Matrix Pathobiology, Signaling and Molecular Targets

July 11-16, 2009 Patras, Greece

For details, please visit:
http://www.febs-mpst2009.upatras.gr/

2009 Elastin and Elastic Fiber Protein Gordon Research Conference

The 2009 Gordon Research Conference on Elastin and Elastic Fiber Proteins will be held July 26-31, 2009 at University of New Enland, Biddeford, ME. Conference Chair: Anthony S. Weiss, Co-Chair Richard Pierce. The Program and online application can be found on the Gordon Conference website using the following link:
http://www.grc.org/programs.aspx?year=2009&program=elastin

2009 Collagen Gordon Research Conference

The 2009 Collagen Gordon Research Conference will be held July 19-24, 2009 at Colby-Sawyer College in New London, NH. Conference Chair: Leena Bruckner-Tuderman, Co-Chair Billy G. Hudson. The Program and online application can be found on the Gordon Conference website using the following link:
http://www.grc.org/programs.aspx?year=2009&program=collagen

2009 Matrix Metalloproteinases Gordon Research Conference

The 2009 MMP Gordon Research Conference will be held Aug 30-Sept 4, 2009 at Les Diablerets Conference Center in Les Diablerets, Switzerland. Conference Chair: Carl Blobel, Co-Chair Rafael Fridman. The Program and online application can be found on the Gordon Conference website using the following link:
http://www.grc.org/programs.aspx?year=2009&program=matrixmet

2009 Bones and Teeth Gordon Research Conference

July 12-17, 2009 at University of New England, Biddeford, ME. Conference Chair: Brendan Boyce, Co-Chair Bjorn Olsen. The Program and online application can be found on the Gordon Conference website using the following link:
http://www.grc.org/programs.aspx?year=2009&program=bones

2009 Cartilage Biology & Pathology Gordon Research Conference

July 7-12, 2009 at Les Diablerets Conference Center in Les Diablerets, Switzerland. Conference Chair: Bjorn Olsen, Co-Chair Kick Heinegard. The Program and online application can be found on the Gordon Conference website using the following link:
http://www.grc.org/programs.aspx?year=2009&program=cartilage

2009 Atherosclerosis Gordon Research Conference

June 21-26, 2009 at Tilton School, Tilton, NH. Conference Chairs: Martha Cathcart and Linda Demer, Co-ChairJohn Chapman. The Program and online application can be found on the Gordon Conference website using the following link:
http://www.grc.org/programs.aspx?year=2009&program=athero

Engineering Cell Biology

Aug 9-12, 2009 at Chaminade Resort, Santa Cruz, CA. Conference Chairs: Anand Asthagiri, Bart Hendriks, Valerie Weaver. For information visit:
http://www.engconfintl.org/9ak.html

Thrombospondins and other Matricellular Proteins in Tissue Organization and Homeostasis

July 18-23, 2010 Snowmass, Colorado

2010 FASEB Summer Research Conference. Organizers: David D. Roberts, Chair; Joanne Murphy-Ullrich, Co-Chair

Hyaluronan 2010

June 6-11, 2010 Kyoto, Japan

International Society for Hyaluronan Sciences
8th International Conference, Kyoto, Japan
Conference organizers:
Koji Kimata (Aichi Medical University)
Masaki Yanagishita (Tokyo Medical & Dental University)
Bryan Toole (Medical University of South Carolina)
For details, please visit: http://www.ishas.org

2010 Proteoglycan Gordon Research Conference

The 2010 Proteoglycan Gordon Research Conference will be held July 16-17, 2010 at Proctor Academy in Andover, NH. Conference Chair: Marian Young, Co-Chair Robert Lindhardt.
http://www.grc.org/programs.aspx?year=2010&program=proteoglyc

Use The ASMB Web Site www.asmb.net

Website Features

- Information about the organization, including bylaws, officers, membership, etc.
- Announcements--items of interest to matrix biologists
- Information about the ASMB National Meeting
- Employment & Funding Opportunities
- ASMB Newsletter archive
- Directory of members
- Links to members' web sites

ASMB business

- When you log onto the "Members Only" page (login using your email address and password. If you have forgotten your password, contact the ASMB office at **asmb@asmb.net**), you will immediately see your dues payment status and a listing of your journal subscriptions.
- You can pay your dues and subscribe to journals by selecting the "Membership Dues" button.
- The "Update" and "Search" buttons allow you to review and update your own contact information as well as search our member database.

To post information about a job opening or job wanted, send detailed information to our Administrative Assistant: **asmb@asmb.net**

Job opportunities and announcements will also be printed in our Society newsletter.

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 2009 Annual Dues are $90 for regular membership and $50 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:

- Membership and recognition in an emerging, important scientific discipline.
- A two-year membership rate that is significantly less expensive per year than the one-year rate.
- For two-year renewals, a significant discount on the registration fee for the 2009 ASMB National Meeting in San Diego.
- Access to the "Members only" web material where you can search the membership list, the meeting abstracts published in Matrix Biology and other interesting information relating to matrix biology
- A Newsletter containing information about Society activities.

A big THANK YOU to our Sustaining Members

Renato Iozzo, Thomas Jefferson University
Robert Mecham, Washington University
Mary Ann Stepp, GWU Medical School

JOB OPENINGS

FACULTY POSITION
Department of Pathology, Anatomy & Cell Biology
Thomas Jefferson University, Philadelphia, PA

Applicants are invited for research faculty positions at the Associate/Full Professor level (tenure track) with scientific interests in neuroscience, cardiovascular biology and pathology, or tumor development and metastasis. Successful candidates will interact and develop collaborations with well-established investigators in these and related areas, with the goal of developing effective multi-investigator groups. Applications from individuals with MD, MD/PhD, PhD or equivalent degrees, with investigative backgrounds and active grant funding are welcome. Preference will be accorded to federally-funded investigators with vigorous research programs in the target areas listed, and to those with established capabilities of collaborating effectively with others. Training in Pathology and the ability to participate in clinical activities are optional.

Thomas Jefferson University is home to one of the largest and most active groups of investigators in a Department of Pathology in the United States. Key areas of interest include neurodegenerative diseases and neuro-AIDS, cellular signaling pathways, alcohol-induced tissue and cellular injury, computational and systems biology, tumor invasion and metastasis, matrix biology, angiogenesis, and gene therapy.

All correspondence should include the following: curriculum vitae; names and contact information for at least three professional referees; summary of current and pending grant support; and an introductory letter emphasizing professional and investigative goals, active collaborations and anticipated career development. Please address all correspondence to:

David S. Strayer, MD, PhD
Head, Faculty Search Committee
c/o Ms. Jennifer Jackson, Room 279 Jefferson Alumni Hall
Department of Pathology, Anatomy & Cell Biology
Jefferson Medical College
1020 Locust Street
Philadelphia, Pennsylvania 19107
Jennifer.jackson@jefferson.edu

Postdoctoral Fellow Position - SUNY-Albany

Postdoctoral fellow wanted to work on an NIH-funded systems biology project focused on cellular and basement membrane dynamics in the developing submandibular salivary gland. Candidates must have a PhD in biology, physics, tissue engineering, or a related field. Experience working with systems biology approaches, primary cell cultures, 3D organotypic cultures and/or mouse models is desirable, as is experience with time-lapse microscopy, image processing, and/or atomic force microscopy (AFM). Good communication skills are critical. Support includes stipend, health insurance, and a travel allowance for a minimum of one year.

Please send letter of interest, CV, and names and contact information for three references to: Melinda Larsen via email (mlarsen@albany.edu) or via mail to Melinda Larsen, Assistant Professor, University at Albany, State University of New York (SUNY), Department of Biosciences, 1400 Washington Ave., LSRB 1088, Albany, NY 12222. Phone: 518-591-8882.

Postdoctoral Fellow Positions - University of Washington

The Division of Dermatology at University of Washington has 1-3 postdoctoral research fellow positions available in skin biology effective July 1, 2009. The fellowship is for one year and may be extended for one additional year depending on the performance of the candidate. Applicants must have a Ph.D. in biological sciences or an M.D. or M.D./Ph.D. Funding will be provided from an NIH T32 Training Grant so applicants must be a U.S. citizen or permanent resident.

Please submit the following information by April 15, 2009 for a start date in July/August 2009 – or by January 15, 2010 for a start date in July 2010:

- **Cover letter:** Describe research interests and career goals. Identify proposed mentor. Indicate prior funding support from NIH (include award # i.e., T32 AR07019 and dates appointed).
- **Curriculum vitae**
- **Research proposal:** 1-2 page proposal. Include statement on the relevance of your project to skin biology
- **Reference letter from proposed mentor**
- **Two additional reference letters**

Submit application materials to:

Attn: Sue Montgomery
Administrative Coordinator
Division of Dermatology
Campus Box 356524
1959 NE Pacific Street
Seattle WA 98195-6524
206-543-6064
Email: sumont@u.washington.edu

The University of Washington is an affirmative action, equal opportunity employer. The University is building a culturally diverse faculty and staff and strongly encourages applications from women, minorities, individuals with disabilities and covered veterans.

Interesting Science

SPARC in cardiac physiology and pathology

Two recent papers (Bradshaw et al., (2009) Circulation 119:269-80; Schellings, M.W., et al. (2009) J. Exp. Med. 206:113-23) underscore the importance of SPARC in cardiac physiology and pathology. Bradshaw et al., used a pressure overload mouse model of cardiac hypertrophy to identify differences in cardiac collagen deposition in the presence and absence of SPARC expression. These authors report that the absence of SPARC was associated with decreased collagen content in normal mice and a decrease in fibrotic deposition of collagen in response to pressure overload. The decreases in collagen concentration in the absence of SPARC were associated with decreased muscle stiffness in comparison to wild-type. Schellings et al., reported a four-fold increase in mortality in SPARC-null mice following myocardial infarction versus wild-type mice. The SPARC-null infarcts exhibited disorganized granulation tissue and an extracellular matrix (ECM) that lacked mature collagen fibers. These authors report a decreased TGF-β response in cardiac fibroblasts with reduced SPARC expression whereas recombinant SPARC enhanced TGF-β dependent signaling in cardiac fibroblasts. TGF-β infused to SPARC-null mice reduced the incidence of cardiac rupture in response to infarction. Thus, SPARC would appear to be a critical factor in cardiac ECM production in normal mice and in response to injury. Although the decrease in collagen deposition in response to pressure over-load hypertrophy in SPARC-null animals was associated with a decrease in muscle stiffness of the myocardium, the lack of SPARC in response to myocardial infarction lead to increased mortality. These studies highlight the significance of factors that regulate cardiac ECM, in particular the role of SPARC, in injury and disease.

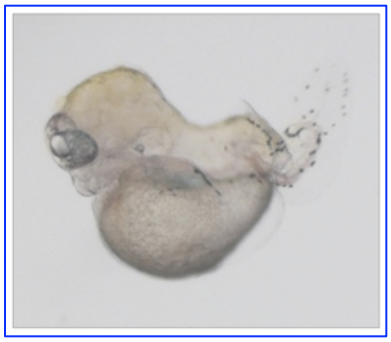
Contributed by: Amy Bradshaw

A Central Role for Decorin During Vertebrate Convergent Extension

Zoeller, J.J., Pimtong, W., Corby, H., Goldoni, S., Iozzo, A.E., Owens, R.T., Ho, S-Y., and Iozzo, R.V.

Journal of Biological Chemistry 2009, in press

Decorin, an archetypal member of the small leucine-rich proteoglycan gene family, regulates collagen fibrillogenesis and cell growth. To further explore its biological function, we examined the role of decorin during zebrafish development. Zebrafish decorin is a chondroitin sulfate proteoglycan which exhibits a high degree of conservation with its mammalian counterpart and displays a unique spatiotemporal expression pattern. Morpholino-mediated knockdown of zebrafish decorin identified a developmental role during medial-lateral convergence and anterior-posterior extension of the body plan, as well as in craniofacial cartilage formation. Decorin morphants displayed a pronounced shortening of the head-to-tail axis as well as compression, flattening and extension of the jaw cartilages. The morphant phenotype was efficiently rescued by zebrafish decorin mRNA. Unexpectedly, microinjection of excess zebrafish decorin mRNA or proteoglycan/protein core into one-cell stage embryos caused cyclopia. The morphant and overexpression phenotype represent a convergent extension defect. Our results indicate a central function for decorin during early embryogenesis.



Overexpression of zebrafish decorin induces a severely truncated embryo body plan associated with one single eye present at the midline.

The Feb. 2009 issue of The International Journal of Biochemistry and Cell Biology is a special issue that celebrates the Charles Darwin 200th Anniversary

The International Journal of Biochemistry & Cell BiologyVolume 41, Issue 2, pp. 249-434 (February 2009)
Molecular and Cellular Evolution: A Celebration of the 200th Anniversary of the Birth of Charles Darwin
Guest Editor: J.C. Adams.

Among the cellular and molecular topics covered, two articles on ECM will be of special interest to ASMB members:
Evolution of collagen-based adhesion systems, Pages 341-348. Jyrki Heino, Mikko Huhtala, Jarmo Käpylä, Mark S. Johnson

AND

Evidence for the evolution of tenascin and fibronectin early in the chordate lineage, Pages 424-434. Richard P. Tucker, Ruth Chiquet-Ehrismann

Contributed by: Josephine C. Adams

Dentin Matrix Protein-1 Isoforms Promote Differential Cell Attachment and Haptotactic Migration

Zofia von Marschall & Larry W.Fisher

Journal of Biological Chemistry 283:32730-40 (2008)

Dentin matrix protein 1 (DMP1), bone sialoprotein (BSP), and osteopontin (OPN), are small integrin-binding glycophosphoproteins (SIBLINGs) co-expressed and secreted by skeletal as well as active ductal epithelial cells. Although the etiology remains unclear, DMP1 is the only one of these three SIBLING genes known to have mutations resulting in human disease. All three contain the conserved integrin-binding tripeptide, RGD, suggesting that interaction with integrins is critical for their functions. Therefore, we performed experiments comparing the cell attachment and haptotactic migration-enabling properties of DMP1 to BSP and OPN using human skeletal cells (MG63 and primary dental pulp cells) and salivary gland (HSG) cells. We found that mutation of any SIBLING's RGD destroyed all attachment and haptotactic migration activity. HSG cells attached to BSP using its own αVβ5 integrin, but they could not attach to DMP1 or OPN. Furthermore, HSG cells could not migrate onto BSP. De novo expression of αVβ3 by adenoviral gene transduction enabled HSG cells to attach to both DMP1 and OPN and promoted haptotactic migration onto all three SIBLING proteins. Our data suggest that integrin recognition specificity may constitute major regulation points for differential cellular response to the different members of the SIBLING family. Experiments undertaken to define the biochemical basis of the SIBLING's integrin receptor specificity showed that interchanging the first four coding exons or the conserved amino acids adjacent to the RGD of DMP1 with corresponding sequences of BSP did not enable DMP1 to bind to αVβ5. By performing mutation analysis, we were able to verify the sequence specificity of DMP1's proposed BMP1-cleavage site and to show for the first time that the highly conserved Met-Gln (MQ) residues in the BMP1-cleavage site are necessary for the BMP1-mediated cleavage. However, in contrast to previous studies suggesting that the proteolytic processing of DMP1 is required to generate a functional C-terminal fragment defined by other assays, we did not observe significant differences in cell attachment or haptotactic migration between the full-length and BMP1-processed forms. Interestingly, the proteoglycan form of the full-length DMP1 exhibited a greatly reduced ability for cell attachment and haptotactic migration suggesting that the GAG chain can modify at least these biological functions of DMP1. Cells distinguish between the SIBLINGs (and their isoforms), which may help to explain in part why neither OPN nor BSP is able to compensate for the loss of DMP1 activity in at least some specific abnormal tissues with mutations of DMP1.

Type XIV Collagen Regulates Fibrillogenesis: Premature Collagen FIbril Growth and Tissue Dysfunction in Null Mice

Ansorge, H.L., Meng, X., Zhang, G., Veit, G., Sun, M., Klement, J.F., Beason, D.P., Soslowsky, L.J., Koch, M., Birk, D.E.

Journal of Biological Chemistry 2009 In Press

Type XIV collagen is a fibril-associated collagen with interrupted triple helix. This collagen interacts with the fibril surface and has been implicated as a regulator of fibrillogenesis; however, a specific role has not been elucidated. Functional roles for type XIV collagen were defined utilizing a new type XIV collagen deficient mouse line. This line was produced using a conventional targeted knockout approach. Col14a1-/- mice were devoid of type XIV collagen while heterozygous mice had reduced synthesis. Both mutant Col14a1 genotypes were viable with a grossly normal phenotype; however, mature skin exhibited altered mechanical properties. Prior to evaluating tendon fibrillogenesis in type XIV collagen deficient mice, the developmental expression patterns were analyzed in wild type flexor digitorum longus (FDL) tendons. Analyses of mRNA and protein expression indicated tissue-specific temporal expression that was associated with the early stages in fibrillogenesis. Ultrastructural analyses of wild type and null tendons demonstrated premature fibril growth and larger fibril diameters in tendons from null mice at post-natal day 4 (P4). However, fibril structure in mature tendons was normal. Biomechanical studies established a direct structure/function relationship with reduced strength in P7 null tendons. However, the biomechanical properties in P60 tendons were comparable in null and wild type mice. Our results indicate a regulatory function for type XIV collagen in early stages of collagen fibrillogenesis with tissue differences.

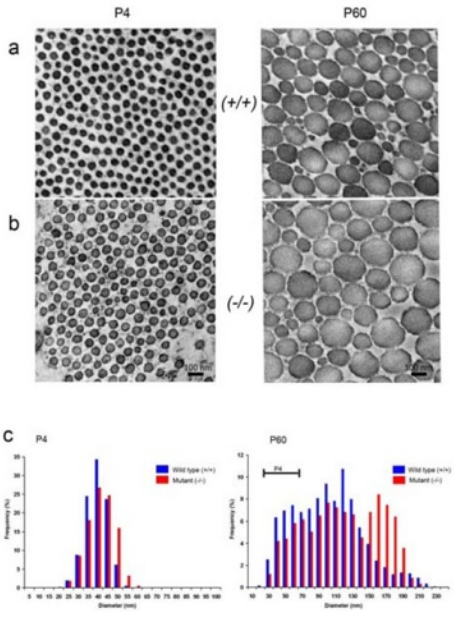


Figure Legend: Altered collagen fibril formation in Col14a1-/- tendons. Transmission electron micrographs of FDL tendon at postnatal day 4 (P4) from (a) Col14a1+/+ and (b) Col14a1-/- mice. At P4, the fibrils of the wild type control are more uniform in shape and smaller than the fibrils in the Col14a1-/- tendon which are more irregular and larger. At P60, the mature fibrils from the wild type tendon are of variable size with small to larger cross sectional profiles. In the Col14a1-/- tendon, there are fewer smaller fibrils and more fibrils of larger diameter as compared to the wild type control. Bar = 100 nm. (c) Histograms representing fibril diameter measurements of tendons at P4 and P60. In the P4 wild type tendon.

Genetic Evidence for the Coordinated Regulation of Collagen Fibrillogenesis in the Cornea by Decorin and Biglycan

Zhang, G., Chen, S., Goldoni, S., Calder, B.W., Simpson, H.C., McQuillan, D.J., Young, M.F., Iozzo, R.V., Birk, D.E.
Journal of Biological Chemistry 2009 In Press

Decorin and biglycan are class I small leucine-rich proteoglycans (SLRPs) involved in regulation of collagen fibril and matrix assembly. We hypothesize that tissue-specific matrix assembly, such as in the cornea, requires a coordinate regulation involving multiple SLRPs. To this end, we investigated the expression of decorin and biglycan in the cornea of mice deficient in either SLRP gene and in -mutant mice. Decorin and biglycan exhibited overlapping spatial expression patterns throughout the corneal stroma with differential temporal expression. Whereas decorin was expressed at relatively high levels in all developmental stages, biglycan expression was high early, decreased during development and was present at very low levels in the mature cornea. Ultrastructural analyses demonstrated comparable fibril structure in the decorin- and biglycan-null corneas compared to wild type controls. We found a compensatory up-regulation of biglycan gene expression in the decorin-deficient mice, but not the reverse. Notably, the corneas of compound decorin/biglycan-null mice showed severe disruption in fibril structure and organization, especially affecting the posterior corneal regions, corroborating the idea that biglycan compensates for the loss of decorin. Fibrillogenesis assays using recombinant decorin and biglycan confirmed a functional compensation, with both having similar effects at high SLRP/collagen ratios. However, at low ratios decorin was a more efficient regulator. The use of proteoglycan or protein core yielded comparable results. These findings provide firm genetic evidence for an interaction of decorin and biglycan during corneal development and further suggest that decorin has a primary role in regulating fibril assembly, a function that can be fine-tuned by biglycan during early development.

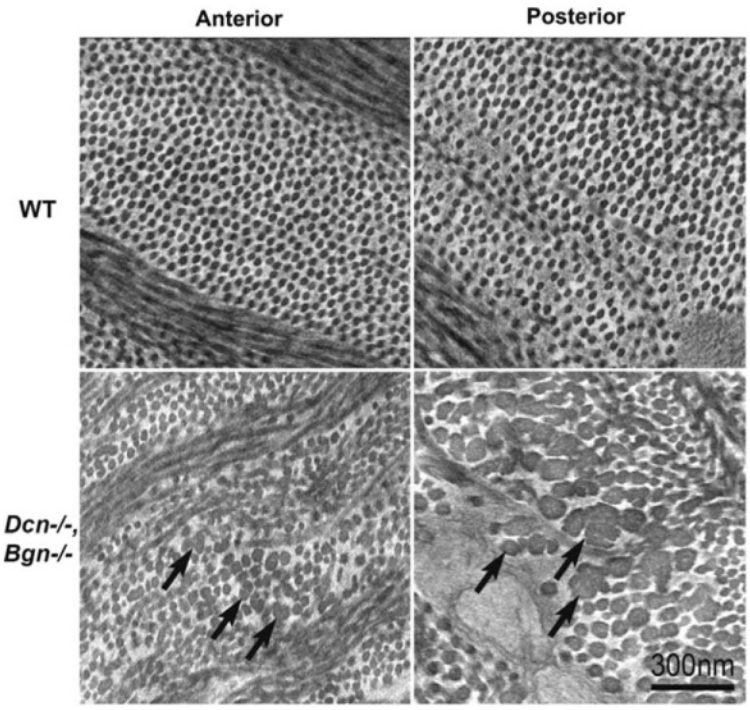


Figure Legend: Aberrant fibril structure in the compound Dcn/Bgn-null corneas. Transmission electron micrographs of the posterior and anterior stroma from: wild type (WT) and double-null (Dcn-/-,Bgn -/-) mice at P60.

New Publications by ASMB members:

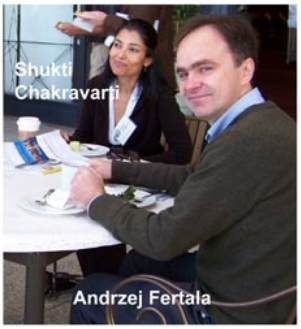
1. "Mapping of DDR1 distribution and oligomerization on the cell surface by FRET microscopy" Cosmin Mihai, M. Chotani, T. S. Elton and G. Agarwal* J. Mol. Biol. 2009 Jan 16;385(2):432-45.

2. "Regulation of Collagen Fibrillogenesis by Cell Surface Expression Of Kinase-Dead DDR2", Angela Blissett, Derek Garbellini, Ed Calomeni, Cosmin Mihai, Terry S. Elton and Gunjan Agarwal* J. Mol. Biol. 2009, Jan 23; 385(3): 902-911.

ASMB members in action, San Diego, December 2008

Deeply involved in electrolyte physiology

Guess who is not working with Dr. Iozzo?



I finally became president of something!

That's where all the wine tickets went!

Jen at the beginning.....

in the middle.....

and at the end.....

(Assembled with best wishes by yours truly RVI)

Bob Mecham
Senior Investigator Award

Hiromi Yanagisawa
Junior Investigator Award

Paul Bornstein
Founders Award

Jean Schwarzbauer
ASMB President-elect

Reinhard Fässler, ISMB Featured
Speaker with Roy Zent

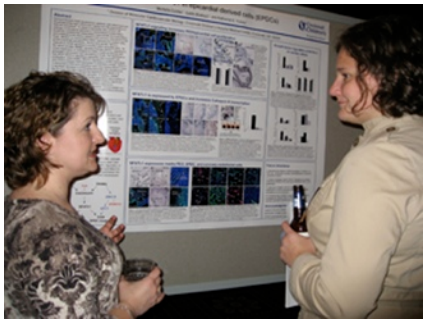
Marian Young
Nicholas Kefalides

Deborah Jensen, Qiaoli Li and friends

Madhusudhan Budatha scrutinizes
Thomas Lozito's Poster

Tom Wight, Awards Chair with
Zsolt Urban

Kevin McCarthy and Pyong Woo Park



Amy Pyle and her award winning poster

Harikiran Nistala, Luca Carta, and
Silvia Smaldone

Did we catch you on camera?
For the full conference slideshow visit: http://picasaweb.google.com/ASMB123/