The Matrix Letter

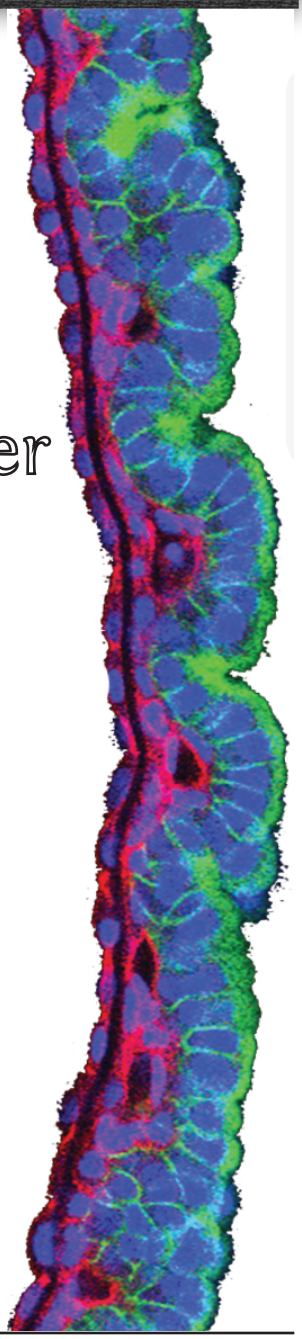
Spring 2017
Volume 16, No.1

A Publication of the American Society for Matrix Biology

ASMB is please to announce:

The First Ever ASMB Summer Workshop:

If you want to build a solid foundation, start with the **Basement.**



Vanderbilt, July 12-14.
Details inside, page 3.

Contents

Letter from the President

Dear ASMB Colleagues,

On behalf of the ASMB leadership team and the ASMB Council, I want to wish you and your loved ones peace and health in 2017. Best wishes for scientific success as well! Our goal is to make ASMB a valuable resource for enhancing scientific progress in matrix biology and for promoting professional development of our members, both established and those in training. ASMB exists for your benefit. I encourage you to participate in any way you can and to communicate with us.

The past year was an exciting one for ASMB.

The American Society for Matrix Biology recently held its biennial conference November 13-16, 2016 in St. Petersburg, Florida with the theme of "The ECM microenvironment: a regulatory force in aging and disease". Judith Campisi of the Buck Institute for Research on Aging" was our keynote speaker and delivered a well-received lecture to the nearly 300 attendees. Five plenary and 15 concurrent sessions followed, and 169 posters were presented, to the benefit of attendees from four continents.

We also welcomed the participation of two guest societies, TERMIS-AM and the International CCN Society, both of whom sponsored sessions. For the first time this year, ASMB trainees (from 3 countries—USA, Canada, and Spain) organized and led sessions on topics of their choosing. These sessions were well attended and the trainee leaders (Francisco Javier Rodriguez-Baena, Heena Kumra, Sumeda Nandasa, Kurt Zimmerman) were enthusiastic and admirably professional. It was fun working with these future leaders!

The ISMB and ASMB partnered to present a lecture in honor of Ruth Chiquet-Ehrismann, delivered by Jean Schwarzbauer. ISMB also generously provided 5 international travel awards to young scientists to attend the meeting: Francisco Javier Rodriguez-Baena, Sanne D'hondt, Heena Kumra, Nan Yang, and David Pulido-Gomez.

The conference was capped off with an entertaining evening at the Salvador Dali Museum, where guests could dine under the November supermoon or wander inside to stare at the fantastic and creative works. We are grateful to all the programming and planning committee members for their hard work in identifying outstanding speakers for a stimulating and innovative program and for reviewing abstracts.

We also wish to thank our supportive benefactors (NIH (NIA/NIAMS), Company of Biologists, Shriners Hospitals, ISMB, Matrix Biology, the Vanderbilt University Medical Center Center for Matrix Biology, StemBioSys, Advanced BioMatrix, Amsbio, New England Biolabs, and Abbvie) and to David Birk and the University of South Florida. Of course, none of this would have happened without the terrific management and calming skills of the ASMB Executive Director, Kendra LaDuca.

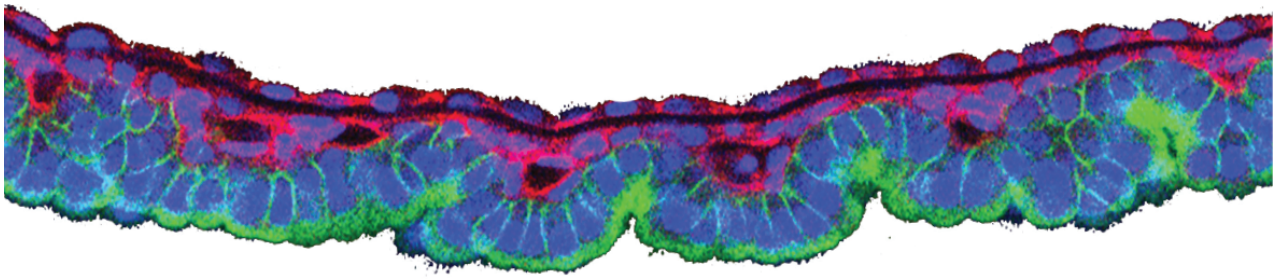
ASMB recently held its elections and we enjoyed excellent voter participation! We welcome **Lynn Sakai** as President-elect and three new Council members: **Merry Lindsey, Alexandra Naba, and Chris Overall**. Lynn is well known and highly respected by the matrix community for her seminal contributions on fibrillins. Lynn is already busy working with Kendra LaDuca to organize the 2018 ASMB meeting. **Ambra Pozzi** was elected to another term as Secretary/Treasurer.

Ambra did a terrific job guiding ASMB finances during her first term and I am pleased that she was enthusiastic about continuing these responsibilities. She will also represent ASMB at the ASIP-ASMB lecture at Experimental Biology in April 2017. **Merry Lindsey**, an expert in the ECM in cardiac remodeling, chaired the successful Women mentoring Women session at the 2016 meeting.

(con't on page 9...)

ASMB Workshop 2017 on Basement Membranes

July 12-14, 2017 • Nashville, TN USA



New Tools for Studying Basement Membranes
Chair: Rachel Lennon, University of Manchester

Biophysics of Basement Membranes: Structure Matters
Chair: Erhard Hohenester, Imperial College London

Basement Membrane Synthesis, Assembly and Stability
Chair: Billy Hudson, Vanderbilt University Medical Center

Cell-basement Membrane Communication
Chair: Renato Iozzo, Sidney Kimmel Medical College at Thomas Jefferson University

Basement Membrane Genetics
Chair: Sally Horne-Badovinac, University of Chicago

Therapeutics for Basement Membrane Diseases
Chair: Leena Bruckner-Tuderman, University Hospital Freiburg

Mechanisms of Basement Membrane Degradation
Chair: David Sherwood, Duke University

Basement Membrane-associated Pathologies
Chair: TBA

ASMB

VANDERBILT UNIVERSITY MEDICAL CENTER

Co-Chairs
Roy Zent
(Vanderbilt University)
Jeffrey H. Miner
(Washington University)

Organizing Committee
Jay Bhave
Jeff Davidson
Billy Hudson
AmbraPozzi

Visit *www.ASMB.net* to register

ASMB Entering New Era of Collaboration with other Societies

The ASMB (The American Society For Matrix Biology) and the ISMB (The International Society for Matrix Biology) have a similar overarching goal; to promote research focused on the extracelular matrix, leading to increased understanding and the novel approaches to manage disease.

Despite the regional name, the actual membership of ASMB also renders it an international society, with members throughout Canada, Asia and Europe as well as the United States. Nonetheless, the focus of ASMB is largely centered on developing the Matrix Biology field within North America, and particularly on the United States. The ISMB claims no host nation and fosters Matrix Biology in a broad international manner, with substantial membership in the European community. However, there is an impetus within both societies to better promote cooperation, with each other and to thereby increase both efficiency and to add services for to their members.

One of the central goals of both the ISMB and the ASMB is the professional development of scientists-in-training. We need strong participation by our youngest members for the continued health of the matrix biology field. The Biennial ASMB Meeting and the ASMB Workshops emphasize presentations by young scientists. These venues offer ample opportunity to display posters, to share the excitement of discoveries, while offering ample capacity to interact with other scientists in a more intimate venue.

Complementing this approach, ISMB offers young investigators the opportunity to apply for travel aid to attend many meetings, including not only the Pan Pacific and European meetings, but also the ASMB meetings. For the 2016 ASMB meeting this past November, ISMB generously provided 5 international travel awards to young scientists to permit their attendance at the meeting; Francisco Javier Rodriguez-Baena, Sanne D'hondt, Heena Kumra, Nan Yang, and David Pulido-Gomez. In fact, ISMB has also helped to sponsor each of the ASMB meetings. During the 2016 conference last November in St. Petersburg, nearly 300 attendees, representing XX countries, participated in 5 plenary and 15 concurrent sessions, presenting 169 posters. The ISMB Distinguished Awardee, Karl Tryggvason, gave his award lecture in a Plenary Session chaired by ISMB President, Francesco Ramirez The ISMB and ASMB partnered to present a lecture in honor of Ruth Chiquet-Ehrismann, delivered by Jean Schwarzbauer (*for more on Ruth's contributions, see* ***Matrix Letter*** *15-1*).

Future cooperation is lkely to include long term cooperative planning, thus trying to more effectively plan meeting location and timing, and sharing news and developments across membership. This will be facilitated by ASMB council members that also sit on the ISMB council. More communication will help to expedite enhanced integration of the socitties, and newsletters are destined to play a role in this. As part of an awareness series in the ISMB newsletter, ASMB contributed the 'kick-off' article detailing our most recent meeting and future plans.

ASMB is also enthusiastic about increasing its interactions with other matrix focused societies and ASMB leadership has been engaged in discussions with Matrix Biology Ireland and the International CCN Society. ASMB has had a relationship with TERMIS-AM (Tissue Engineering Regenerative Medicine International Society-Americas) since our 2010 meeting and ASMB will be participating in the 2017 TERMIS-AM meeting. ASMB is also pleased to participate in the 2018 Matrix Biology Europe World Congress in Manchester; further details of ASMB participation are expected to be finalized very soon!

International Society for Matrix Biology

An Interview with Alexandra Naba

The Matrix Letter recently caught up with Alexandra Naba, one of the rising stars of the ASMB. She shared insights into not only her strong affinity for the extracellular matrix, but also the challenges faced by any young scientist setting up a new lab.

ML: Alexandra, you started your graduate school studies looking at epithelial differentiation. What focused your attention on the ECM?

AN: During my Ph.D. studies in the laboratory of Daniel Louvard at the Curie Institute in Paris, I studied the role of ezrin, a protein that links the cytoskeleton to the plasma membrane, in cell adhesion and morphogenesis. I discovered a novel interacting partner of ezrin, the kinase c-Fes and showed that the ezrin/c-Fes interaction was crucial to regulate the balance between cell/cell and cell/matrix adhesions. I further showed that this balance was tightly regulated by ECM and growth-factor signaling (Naba et al. EMBO J, 2008). This is how I became very interested in studying extracellular cues governing cell morphology and functions. Once my paper reporting these findings was accepted, I attended the 2007 ASCB meeting with the idea of starting to look for a lab for my postdoctoral training. It is at the ASCB meeting that I heard Richard Hynes give a brilliant talk on how ECM proteins are "more than pretty fibrils", after hearing his talk, I knew I wanted to work with him.

ML: One thing that starts early in your career is applied proteomics. What is it about proteomic approaches that you find most fascinating?

AN: I was taught in college that proteins, not DNA, not RNA, are the structural and functional regulators of biological processes. So, I think it has always been obvious to me that if we could look at proteins directly (as opposed to DNA or RNA), we should.

ML: In fact, there are many examples where the level of messenger RNA does not directly correlate with protein level, and certainly you can gain more insight into activity by looking at proteins themselves.

AN: Exactly. Unless there is active turnover of the ECM, the mRNAs for ECM proteins may be present at low levels, while the actual proteins are quite abundant. Now you could argue that one could study proteins with classical biochemical approaches. The high throughput and the somewhat unbiased nature of proteomics is what makes it so appealing to me as it can allow you to discover things you had not anticipated.

ML: But there are problems, too, right? Too many new students think that Mass Spec will be the answer to all their problems.

AN: I think proteomics is appealing because in most cases, it "works" in that you will get a long list of proteins. But you are right, there are challenges. Over the years, I have observed that the challenges are less in the design and execution of the experiments, but rather present themselves in terms of data analysis and interpretation. I will give you two examples: the first one is that interpretation of mass spec data relies on protein identification via database search. When I embarked on my postdoctoral project aimed at profiling the composition of the ECM of tumors, we did not really know what to expect, were we going to identify 10s, 100s or 1000s of proteins and how many proteins would actually be ECM proteins and not contaminants? Very rapidly we realized that current tools to annotate mass spec output were not satisfactory, they would fail to annotate known ECM proteins, so we were missing important information and so this is what motivated us to come up with a robust and comprehensive definition of the "matrisome".

The other example relates to the importance of knowing your subject! I have had collaborators send me data they had acquired on their favorite samples and claimed that despite following exactly our protocols they were barely detecting any ECM proteins in their samples. A closer look at the data revealed that they had not allowed for proline and lysine to be hydroxylated when they conducted their database search.

ML: Which would change a lot...

AN: Right. As you know, these are two very abundant post-translational modifications found in particular in collagens and so that explained why they barely detected any collagens in their samples. So to go back to your initial questions, yes, proteomics is powerful, but as for any other experiments, mass spec experiments need to be carefully designed and controlled and one needs to remain critical of the data.

ML: You are still maintaining the Matrisome Project website.* Is this a lot of work?
* (http://matrisome.org/).

AN: Like anything, it does indeed require work! Several factors motivated me to create the website in the first place. First, I am an advocate of open access and open source. As you can imagine, every proteomic project generates a lot of data, so I wanted to create a platform to make our datasets accessible, with consideration to non-mass-spec specialists in particular. Because our work democratized the use of proteomics to study the ECM, we started receiving very frequent collaboration requests which we could not accept. Not that the projects were not interesting but there are just so many things one can work on. So, we decided to provide details protocols and tools for people interested in doing ECM proteomics. I am encouraged by the very positive feedback I am getting from researchers from all over the world.

ML: So, it would be fair ot say that this has been well-received by the matrix biology community?

AN: I think so! We have received very positive feedback. One aspect that is very motivating is that we find both ECM experts and researchers new to our field using it.

ML: What might we expect in the future from the Matrisome Project?

AN: Here is a scoop for you: we are planning a ***new release*** of the website and of MatrisomeDB for the fall of 2017! In fact, if any of the readers have proteomics data that they would like to see included in the next release of Matrisome DB, they should contact me.

ML: What inspired you to run for ASMB council?

AN: I have been a member of the ASMB since 2010. Since then, I have attended all the ASMB meetings. Our society is very welcoming and supportive of young researchers passionate about the ECM. I found very rapidly not only a home at the ASMB but also amazing mentors who, for the past 7 years, have supported me in my journey from being a post-doctoral trainee to a young faculty member. And so, I thought that now was a good time to start giving back, in particular to the next generation of matrix biologists

ML: You are the youngest member of the ASMB council. Do you think this provides any insight, or allows allows you to better represent the interests of younger members of ASMB?

AN: I actually had not realized that I was the youngest member of the council! But the answer is yes, I will work wholeheartedly to represent the interest of our trainees, and in particular those of young women aspiring to pursue a career in biomedical sciences. Part of this approach is to broaden the way we can communicate with each other. For example, I have started to work together with Justin Weinbaum, under Joanne Murphy-Ullrich's leadership to increase the presence of our society on social media and we hope that our trainees will use these platforms to network and take part in the life of our society.

ML: As you mentioned, you started your career with some outstanding training in France. What do you miss most, and least, now that you've settled in the United States?

AN: What I miss the most? My family and friends of course! The transition from Paris to Boston was actually quite smooth. Boston, as a city, is very European in flavor. And once I had found grocery stores that carried French staples, like cheeses or bread. Boston felt like home.

ML: It is perhaps a bit early to ask this question, but how are you finding Chicago compared to Boston?

AN: You often hear people say that there is no better place in the world than Cambridge (MA) to conduct research. I enjoyed working in the highly collaborative, although at times competitive, environment offered by MIT and the Broad Institute tremendously. But, having said this, I am happy to have now moved to the Midwest to establish my own lab. Chicago is a great city (*go Cubs!*) and the area boasts a vibrant research environment. I am also very excited to be able to contribute to the education mission as well - in particular to educate and train a very diverse body of students at the University of Illinois at Chicago.

ML: What are the Challenges you are facing with setting up a new lab?

AN: Challenges... Well, I need to say first that the feeling of independence that comes with being a young PI is exhilarating! So far, I have enjoyed the experience very much. This includes all aspects; setting up my lab, recruiting people, establishing novel collaborations, and deciding on our research priorities. After 5 months, the lab is already up and running, our mouse colonies are expanding, and my trainees have already been able to reproduce some key experiments. This is all good, so I can't really say, I have faced major challenges yet.

But of course, the true challenge is going to be to sustain funding for my lab, so that I can attract the very best young scientists and offer them the resources they need to conduct great research.

ML: And are you still looking for students or post docs?

AN: I am! So if you are reading this letter, are a creative scientist and passionate about the ECM, (*and ideally have bioinformatic skills or trained as a developmental biologist*) contact me!

ML: Thank you for talking with us, Alexandra. I'm sure you will have no shortage of interested emails.

For those more interested in the work ongoing in the Naba lab, you You can find the lab website here.

http://nabalab.uic.edu

Matrix Biology Rising

For those that may not be aware, the journal Matrix Biology, published by Elsevier, is affiliated with both the ASMB and the ISMB. Current Editor-in-Chief Renato Iozzo has made a number of changes to the journal that have served to strengthen its impact.

Mechanistic insight has become a prioritized value for manuscripts. The journal has also featured several special issues, and is on track to do this again in 2017 with the recent Special Issue on Basement Membranes edited by Ambra Pozzi, and an upcoming Special Issue on Provisional Matrix edited by Tom Barker and Adam Engler.

Additional special issues planned for next year include Hyaluronan Biology to be edited by Rashmin Savani and ECM-Driven Diseases edited by Renato Iozzo. The result has been a gradual rise in citations, and impact factor.

During the past three years, the Journal visibility and quality have markedly improved. Matrix Biology received 288 submissions in 2016 and > 450,000 downloads. According to CiteScore, the new metric system of Scopus, Matrix Biology has reached a score of 6.23 which places the Journal in the 91st percentile. Matrix Biology now ranks #31 out of 351 journals in Molecular Biology.

https://www.scopus.com/sourceid/17219

We celebrate the success of the editorial team.

https://www.journals.elsevier.com/matrix-biology

Editorial

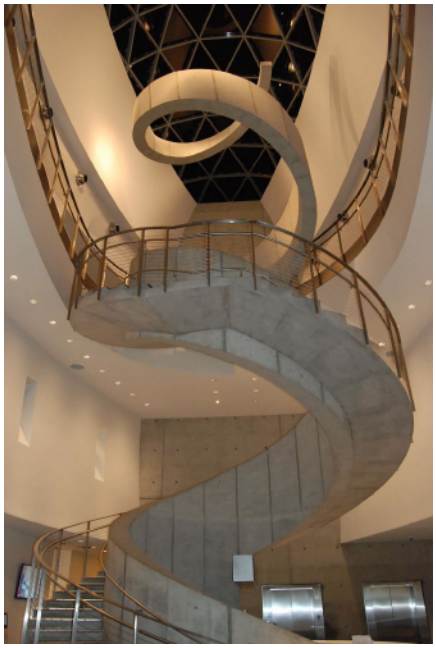
On Dali, Science & Scientists

During the last ASMB meeting I had the opportunity to walk around the Dali Museum and to see a variety of the works by Salvador Dali, an artist with whom I was really only distinctly acquainted. Certainly I had seen his paintings of long legged elephants, and I was aware that he like to play tricks with perception. Like everyone, I knew of his most famous work perception of time. In fact, I used that image in a science project about the mutability of time when I was in middle school. But the museum was more than just a showcase of his works. It shared snippets of his life, chronicled his rise, and provided insight into the man himself and his views. I was quite amazed by the scientific reference in his works, and by the visual techniques he used.

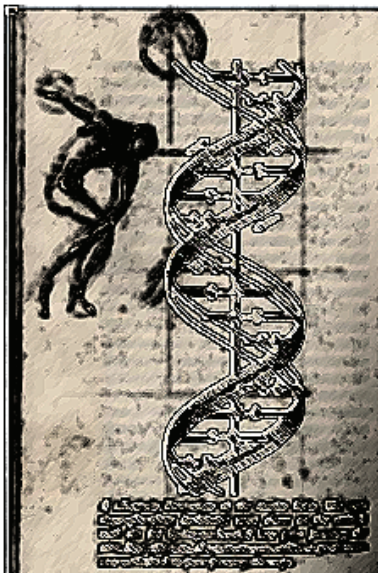
Shortly after the ASMB meeting, The US elections also has me thinking about the new administration, and the impact that it may have on science in the US. I considered characteristics our president might have in common with Dali. I agree that it seems a stretch, and there may not be many. After all, Trump and Dali appear to have different views on Science. Mr. Trump seems to have little use for science when it inconveniently conflicts with the pursuit of economic interests. A recent example might be the appointment of Scott Pruitt to the Environmental Protection Agency, and a concomittant slash in its funding, seems to place this scientific agency on the verge of being dismantled. The National Institutes of Health are also facing a potential 18% loss in funding. Given that cuts cannot be uniformly applied across the Institute, this means that vulnerable funding mechanisms like the R01 program may be cut by 25%. While this seems grim for many labs, science associated with the military may see gains.

Dali, like Trump, received no training in science. A genius who grew up in strange circumstances, Dali was nonetheless an astute observer (which one might argue is really the essence of science, in any case). During the course of his career, he became increasingly enamored with science.

Dali's early works satisfied simply his desire to evoke pure emotion. However, he appreciated psychology, met Sigmund Freud, and used the current concepts as insipiration in his work. Via his interactions with the surrealist movement, he was exposed to and embraced the rapidly evolving field of theoretical physics. His enagement with science didn't stop at physics. He appreciated DNA as the genetic material, and saw art in its physical form (see images). Dali was mystic in nature, and thus increasingly married concepts of science art, and religion, trying to marry them together. Science shaped his view of the universe.



Right: Dahli was fascinated by the Helix as a natural force, as shown by the helical staircase in the Dali MuseFlorida. (Photo: Kendra LaDuca)



Left: Enhanced image of one of Dali's Sketches in his copy of James Watson's book "The Double Helix." (Original image in Pasaje a la Ciencia, num. 13,June 2010.)

Yet despite these differences in their appreciation of science , Trump and Dali share a characteristic that scientists as a group could greatly benefit from from. Both men were completely shameless in their self-promotion. And maybe, though not a normal facet of scientific enterprise, there is nothing wrong with this. What pushes back the darkness, if not science?

Certainly, some of the bigger labs have the exposure to do this already, and readily advocate for science (*...which may explain why they are bigger labs*). But even the shy among us might take up the standard of battle, and tout the benefits of science to others. After all, if we don't, who can we depend upon to speak for us? *(continued on page 9)*

Matrix Interactions

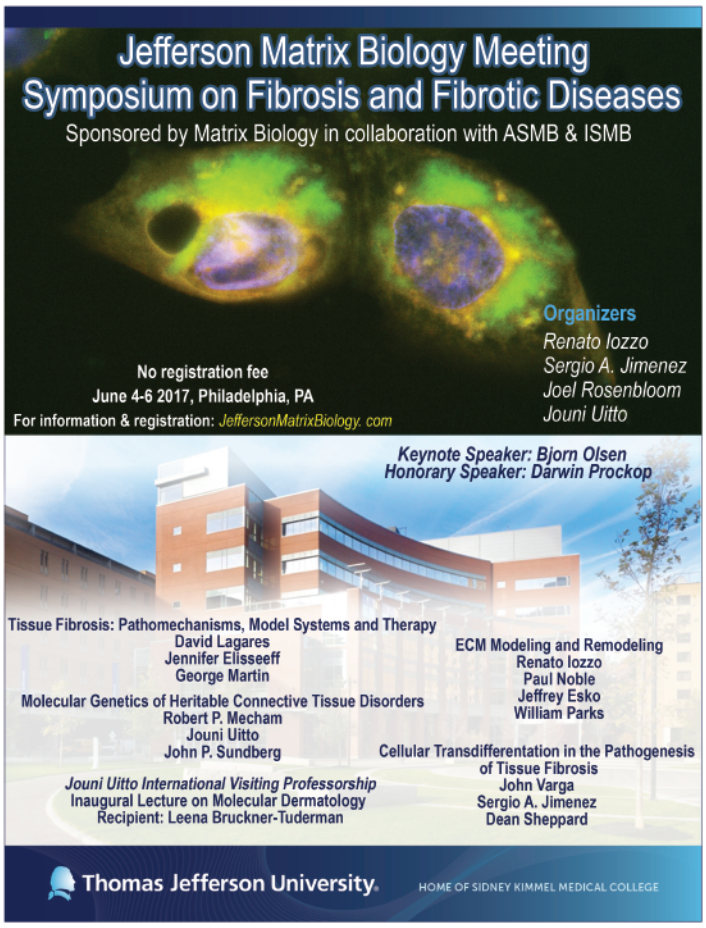
ASMB News and Announcements in Brief

ASMB Election Results

Lynn Sakai is our new President-elect; we offer her many congratulations and good luck for the planning of the meeting to come. Congratulations also to the new Council members that were elected this year. Three council slots were filled by: **Merry Lindsey, Alexandra Naba, and Chris Overall**. In addition **Ambra Pozzi** was elected to serve as another term as Secretary/Treasurer.

Outgoing Council Members

The ASMB membership thanks council members **Caroline Alexander**, **Peter Bruckner, Billy Hudson, Dieter Reinhardt**, and also **Hiromi Yanagisawa** for their service over the last four years. Special thanks also to outgoing past president **Jeff Davidson.** (and new Past President **Suneel Apte**).



Upcoming Events

June 4-6th, 2017
Jefferson Matrix Biology Meeting:
Symposium on Fibrosis and Fibrotic Diseases
Philadelphia, PA, USA
https://www.jeffersonmatrixbiology.com

June 4-9, 2017
Gordon Research Conference: Scientifically Informed Strategies to Turn Pathologic Tissue Repair into Perfect Regeneration
Colby-Sawyer College, New London, NH, USA
https://www.grc.org/programs.aspx?id=12413

July 9-14, 2017
Gordon Research Conference: Matrix Metalloproteinases
Rediscovering Metalloproteinases as Disease Targets
University of New England, Biddeford, ME, USA
https://www.grc.org/programs.aspx?id=12359

July 12-14, 2017
American Society for Matrix Biology
Workshop on Basement Membranes
Nashville, TN, USA.
http://www.asmb.net

July 12-15, 2017
EMBO Meeting: Mechanical Forces in Biology
EMBL Heidelberg, Germany
https://www.embo-embl-symposia.org/symposia/2017/EES17-06/index.html

July 16-21, 2017
Gordon Research Conference: The Multifaceted Nature of Collagens in Development, Disease and Tissue Repair
Colby-Sawyer College, New London, NH, USA
https://www.grc.org/programs.aspx?id=12176

ASMB To Increase Social Media Presence

ASMB recently added social media pages to promote the society and its members.

Follow us on Twitter:
https://twitter.com/amsocmatbio

Like our page on Facebook:
https://www.facebook.com/American-Society-for-Matrix-Biology-137954280062378/

Start your own pages, and Link to us!

President's Letter, (Con't from page 1)

Alexandra Naba, known for her work on proteomics of ECM components in cancer, is already the ASMB-ISMB liaison for social media. Chris Overall has developed novel proteomic technologies to study matrix proteolysis. Thomas Barker is the new leader of the ASMB membership committee and Dwayne Stupack will continue as editor of The Matrix Letter, assisted by Karen Posey. We look forward to the contributions of these highly talented and enthusiastic matrix biology advocates to raise the profile of ASMB and to make ASMB a more valuable resource for the matrix community.

In 2017, ASMB will be developing new initiatives to better reach out to its members and to provide an ongoing resource for advice and career development through use of social media and blogs at its website. As noted in other places in this edition of the Matrix Letter, Alexandra Naba (University of Illinois Chicago) and Justin Weinbaum (University of Pittsburgh) have generously offered to lead this effort.

You can expect to hear more about new avenues for ASMB communications through responsible social media platforms. We will also continue discussions regarding the establishment of a new, competitive Founders Prize.

Also mentioned in this edition, a major new initiative of ASMB is the hosting of 2-3 day workshops focused on targeted topics. The ASMB workshops were initiated by our past president, Suneel Apte, to increase member activity in the "odd years" following many years of discussing the best approach to odd year meetings. These workshops will complement the ASMB biennial meetings held in even years.

Selection of the workshop topic is the result of a reviewed, competitive process, which may see an increase in the overall number of matrix meetings across the US. .

For 2017, the first ASMB Workshop will be on the topic "Basement Membranes", which will be held July 12-14, 2017 on the Vanderbilt Medical Center campus in Nashville, Tennessee, USA. (See Page 2 for the flyer).

Workshop organizers Roy Zent and Jeff Miner have assembled an outstanding cadre of speakers for sessions focused on such topics as basement membrane biophysics, synthesis and assembly, interactions with cellular receptors, genetics, disease, and therapeutics. There will be ample opportunities for trainees to present their work in short talks or in poster sessions, and the organizers expect to be able to provide some travel aid for both trainees and junior faculty.

Fianlly, I would also liketo extend our sincere gratitude to the dedicated service, inspired leadership, and wisdom of our outgoing past-president, Jeff Davidson, and to our now past-president, Suneel Apte, who helped guide and grow ASMB during their terms. We also extend our appreciation to retiring ASMB Councilors Caroline Alexander, Billy Hudson, Peter Bruckner, Hiromi Yanagisawa, and Dieter Reinhardt who have made invaluable contributions to ASMB.

Please stay involved, my friends!

Editorial (Con't from page 7)

Your activism is key for the success of matrix biology, and all biology. Fields advance because of mass action and individual talent. We can, therefore, all claim a part of the quiet scientific revolution that has occurred over the last two decades. As ASMB goes forward with a new dedicated social media platform to serve its membership, we must also consider the use of social media to let the general public know what it is we do, and why it is important.

Many cities will host a 'March for Science' on April 22nd - why not take part, and encourage some of your 'nonscientific' friends to join you? Science can be a beacon, but we must be certain that all who see it appreciate it. And if we become a little haughty (like Trump) or eccentric (like Dali), that's a small price to pay. /ds

Off the Presses:

Progranulin Finds its Receptor

Although the growth factor progranulin was discovered more than two decades ago, the functional signaling receptor remains elusive. Produced and secreted by most cells in the body, progranulin plays a key role in maintaining normal cellular function. In cancer, an over-production of progranulin makes tumors (particularly prostate carcinomas) more aggressive and metastatic. In neurodegenerative diseases, too little progranulin is associated with early disease onset and progression. Until now, studying the full impact of progranulin has been tricky, as the receptor that communicates biological information to the cell's internal signaling machinery has remained elusive for decades. However, a team of researchers led by Dr. Renato V. Iozzo at Thomas Jefferson University's Sidney Kimmel Cancer Center discovered that EphA2, a cell-surface receptor highly expressed by prostate cancer cells, is rapidly activated following a direct and high-affinity interaction with progranulin.

EphA2, a member of the large family of Ephrin receptor tyrosine kinases, was shown to act as a functional signaling receptor for progranulin. Recombinant progranulin was shown to bind with high affinity to EphA2 in both solid phase and in-solution assays. Perhaps more importantly, the researchers also showed that this interaction activates a cellular program that makes cancer cells more aggressive and induces endothelial cells to initiate angiogenesis in an EphA2-dependent manner.

This pioneering discovery of a nascent signaling receptor for progranulin offers the first real understanding of the molecular mechanisms for progranulin in cancer progression and tumor angiogenesis.

The results were published in ***The Journal of Cell Biology***.

Full text:

Neill, T., Buraschi, S., Goyal, A., Sharpe, C., Natkanski, E., Schaefer, L., Morrione, A., and Iozzo, R.V. "EphA2 is a functional receptor for the growth factor progranulin." The J. Cell Biol. 2016, 215(5):687-703.
http://www.ncbi.nlm.nih.gov/pubmed/27903606

Off the Presses:

ADAMTS17 Binds Fibrillin2

Secreted metalloproteases are well known to play critical roles in the formation and remodeling of extracellular matrix. Recent studies from Apte's group have shown that a poorly characterized metalloprotease, ADAMTS17, binds recombinant fibrillin-2 but not fibrillin-1, yet does not cleave either despite its rapidly activation following secretion. Nonetheless, it is found associated with Fibrillin 1, and prevents Fibrillin 2 association with microfibrils. The results may explain, in part, how recessive mutations in ADAMTS17 cause ectopia lentis and short stature in humans with Weill-Marchesani-like syndrome.

Full text:

Hubmacher D, Schneider M, Berardinelli SJ, Takeuchi H, Willard B, Reinhardt DP, Haltiwanger RS, Apte SS. Unusual life cycle and impact on microfibril assembly of ADAMTS17, a secreted metalloprotease mutated in genetic eye disease.
Sci Rep. 2017 Feb 8;7:41871. doi: 10.1038/srep41871.

The Bore of the Pore

In developing new wound repair matrix, one optimally wants a strong, resilient and and rigid material, yet one that ,is sufficiently porous to allow cells to pass through it to promote wound healing. New colloid-based microgels may offer an answer. The trick is that the inclusion of microgels create polymeric 'dead zones' that allow new channels, or pores, to form that have sufficentenough size to permit cell entry. Defying intuitive thinking, fibroblasts seem to have no problem pushing their way through these novel gels, moving microgels as needed, without the requirement for digestion that they would have in typical fibrin mesh.

Full Text:

Douglas AM, Fragkopoulos AA, Gaines MK, Lyon LA, Fernandez-Nieves A, Barker TH. Dynamic assembly of ultrasoft colloidal networks enables cell invasion within restrictive fibrillar polymers. Proceedings of the National Academy of Sciences, USA 2017 vol. 114 no. 5 885-890.
http://dx.doi.org/10.1073/pnas.1607350114

Would you like to see your most recent work featured here? Write to *dstupack@ucsd.edu* or *ASMB@faseb.org*

The Back Page

An announcement from the

Wellcome Centre for Cell-Matrix Research,

University of Manchester, UK

We are delighted to announce that the Wellcome Centre for Cell-Matrix Research (WCCMR) has been renewed, to 2021. The WCCMR is one of 15 Wellcome Centres* that cover biomedical research, the medical humanities, social societies and translational research.

The renewal brings together 20 academic staff, 9 support staff, and a community of postdocs and postgraduate students whose research is focused in three new themes of ChronoMatrix, ImmunoMatrix and MechanoMatrix, and a new overarching initiative in fibrosis.

The renewal funds new equipment in multi-scale imaging (including super-resolution and electron microscopy), biomolecular analysis, and biomechanics for analysis of cell-matrix structure and interactions. This opens up new opportunities for visitors, collaborations, and recruitment, at all levels.

We will also be continuing our annual GetConnected! conference (further information to follow).

https://www.matrix-getconnected.com/

We are revamping our current website, therefore in the meantime please contact Prof. Karl Kadler (Centre Director) (karl.kadler@manchester.ac.uk) for information.

*https://wellcome.ac.uk/news/wellcome-centre-awards

Contribute Content!

The content of The Matrix Letter includes both ASMB news items and also research-directed content that fosters the mission of the ASMB:

...to promote basic, translational, and clinical research on the extracellular matrix (ECM), cell-ECM interactions, and ECM-based therapies and devices, and to support the growth and professional development of the ECM research community...

From the perspective of this communication, connecting ASMB researchers with each other, based on their research focus or their approaches is the ultimate goal. The Matrix Letter currently publishes the following categories of lab-initiated content;

Mini-Reviews

The Mini-review feature is a focused summary the contribution of a particular lab in the context of the current state of knowledge in that field. Usually written by students, postdoctoral fellows or young faculty, the minireview runs about a single written page, with a single scientific illustration and a lab photo, and less than 10 references.

Essays & Opinions

The purpose of a Matrix Essay is to promote a new or breaking hypothesis in the field of Matrix biology, with the expressed purpose of garnering supporting evidence and collaborators from the greater ASMB membership. Matrix essays are about one running page and may include a single illustration and up to 10 references.

Letters

A letter to the editor should be short and succinct, and will focus on alerting the ASMB membership to recent advances or concerns in our, and related, fields. A letter to the editor is limited to 200 words and three references.

Images

These are submissions of particularly aesthetic or educational images that you are willing to share with the membership, along with a caption explaining the image.

We welcome your contributions. ASMB@faseb.org

Reference Format

1) Lewis R, Ravindran S, Wirthlin L, Traeger G, Fernandes RJ, McAlinden A. Disruption of the developmentally-regulated Col2a1 alternative splicing switch in a transgenic knock-in mouse model. Matrix Biol. 2012;31:214-26.

The Matrix Letter is a communication of the ASMB.
Join the Matrix Letter team. ASMB@faseb.org