



A fibroblast within a tethered lattice, after 13 days, with a cavity surrounding the cell and areas of packed collagen fibrils (Porter et al. 1998 Wound Rep. Reg. 6: 157-166)

ISMB NEWSLETTER 28 February 2018

Editor: Sylvie Ricard-Blum and the Communication Subcommittee

FROM THE PRESIDENT'S DESK



Dear ISMB members:

With the first issue of the ISMB Newsletter in 2018 I would like to wish you a joyful, prosperous, and successful New Year.

I am optimistic as we embark on the Society's 26th year. The ISMB is growing and expanding all around the world. We now have a record number of matrix biologist members: 320! It is my pleasure to welcome the new ISMB members hailing from China, Denmark, Germany, Ireland, Italy, Spain, and the United States,

who are all listed in this issue.

Our Society continues to lift up young scientists by encouraging them to participate in matrix-related meetings. We wrapped up the last year with three exciting meetings: the meeting of the Matrix Societies of Australia and New Zealand in Melbourne, David's Day in Lyon (dedicated to David Hulmes), and the Annual Meeting of the Matrix Biology Ireland in Dublin. We include fond memories from these last two meetings in this issue.

This year we are going to have a very attractive program for matrix biologists. We will participate in a number of national and international society meetings, Gordon Research Seminars and Conferences, as well as a FEBS Advanced Lecture Course on Extracellular Matrix. Of particular attention is the 50th Anniversary of Matrix Biology Europe (formerly FECTS) celebrated at the conference in Manchester (21st-24th July, 2018). Details regarding these meetings can be found in this issue. Please do not forget that the next deadline to apply for ISMB travel fellowships for graduate students and postdocs and for support of ECM-related international meetings is April 1st, 2018.

Scientific meetings are one of the highlights in our professional life. However, the ISMB aims to join young investigators in their career on a day-to-day basis as well. In this Newsletter we present spotlights on useful methods in matrix biology. We hope that this new initiative of the Junior Council Member and Membership sub-committee will lead to members working together and networking outside of scientific meetings. Many thanks to Chloe Yeung and Jamie Fitzgerald for the first issue: IN FOCUS: TECHNIQUES AND TECHNICAL TIPS. If you would like to contribute in the next newsletter, please email chloe.yeung@gmail.com.

ISMB OFFICERS

President

Liliana Schaefer

Vice-President

Sylvie Ricard-Blum

Secretary/Treasurer

David J.S. Hulmes

Council Members

Jo Adams

Ruud Bank

Danny Chan

Anthony Day

Julia Etich

Jamie Fitzgerald

Wei Kong

Taina Pihlajaniemi

Francesco Ramirez (Past-President)

Gehard Sengle

Barbara Smith

Hide Watanabe

Suneel Apte

Chloé Young

Ex officio

Renato Iozzo

Bjorn Olsen



On behalf of the ISMB Council I would like to thank all members for nominating candidates for the Rupert Timpl Award (for young investigators) and the Distinguished Investigator Award (for established researchers) in recognition of their important contributions to Matrix Biology. It will be my great honor and pleasure to present the ISMB Distinguished Investigator award 2018 at the ASMB meeting in Las Vegas to Billy Hudson. The Rupert Timpl award 2018, generously sponsored by Matrix Biology Journal and Elsevier, will be presented during the Matrix Biology Europe Meeting in Manchester to Alexandra Naba. Congrats to both outstanding researchers in the field of Matrix Biology.

With the New Year comes some changes in the ISMB Council. I would like to thank Sara Wickström for her contributions to the Council over the last six years. I am happy that Taina Pihlajaniemi, Jamie Fitzgerald, and Hide Watanabe have decided to continue to serve the ISMB following their initial 3-year terms. It is my great pleasure to welcome Suneel Apte as a new member to the ISMB Council. I am looking forward to our joint contribution to the ISMB. As David Hulmes's current term as ISMB secretary/treasurer expires at the end of 2018, the ISMB will honor David for his outstanding contributions to the Society during the Matrix Biology Europe meeting in Manchester. We are grateful to Jo Adams, who will assume the very important role as ISMB secretary in 2019. However, we do not have a treasurer for the 2019 term. Volunteers and nominators are highly encouraged to contact David with their proposals for the future ISMB treasurer at david.hulmes@ibcp.fr. Finally, I would like to wish successful grant applications and fascinating scientific discoveries to all of our members and readers.

Kind regards,

Liliana Schaefer, ISMB President

COMPOSITION OF ISMB COUNCIL SUBCOMMITTEES

Communication

Jo Adams (UK)
Danny Chan (Hong-Kong)
Julia Etich (Germany)
Wei Kong (China)
Sylvie Ricard-Blum (France, chair)

Membership

Jamie Fitzgerald (Australia, chair)
Hide Watanabe (Japan)

Meetings and travel grants

Anthony Day (UK)
Ruud Bank (The Netherlands, chair)
Barbara Smith (USA)
Gerhard Sengle (Germany)
Barbara Smith (USA)
Hide Watanabe (Japan)
Chloé Yeung (Denmark)

Like ISMB on Facebook

<https://www.facebook.com/IntSocMatBio/>

and follow the ISMB on Twitter

ISMB@IntSocMatBio

<https://twitter.com/intsocmatbio>

ISMB correspondents of National Societies for Matrix Biology for Facebook and Twitter

The American Society for Matrix Biology

Alexandra Naba, University of Illinois, Chicago (USA)

anaba@uic.edu



The British Society for Matrix Biology

Andrew Hellewell, University of Bristol (UK)

andrew.hellewell@bristol.ac.uk

The Finnish Connective Tissue Society

Piia Takabe, University of Eastern Finland, Kuopio (Finland)

piia.takabe@uef.fi

The French Society for Matrix Biology

Marine Montmasson, Lyon (France)

marine.montmasson@ibcp.fr

The German Society for Matrix Biology

Julia Etich, University of Cologne (Germany)

julia.etich@uni-koeln.de

Matrix Biology Society of Australia and New Zealand (MBSANZ)

Luise Kung, Murdoch Childrens Research Institute, Melbourne (Australia)

louise.kung@mcri.edu.au

OBITUARY

Ladislav Robert (Paris, France) passed away in January. He was 93 years old but was still strongly active. He was passionate about Matrix Biology, specifically about elastin, and was one of the founders of the French Club of Connective Tissue, which is now the French Society for Matrix Biology. He also participated with John Scott (UK) to the creation of the Federation of European Connective Tissue Societies (FECTS), now Matrix Biology Europe. He relentlessly promoted the field of Matrix Biology during his scientific career, and supervised many students, post-docs and young scientists. Ladislav Robert is survived by his wife, Jacqueline Labat-Robert, who worked with him for many years. He will be deeply missed.

NATIONAL SOCIETIES FOR MATRIX BIOLOGY

THE DANISH SOCIETY FOR MATRIX BIOLOGY

The main objective of the Danish Society of Matrix Biology is "To advance the science of connective tissue, extracellular matrix biology and related areas". We aim to bring together expertise and enthusiastic researchers from not only Denmark but all over Europe and beyond to join us at our annual meetings and seminars. We hope this provides the incentives to encourage and motivate our younger and junior scientists with the hope to build a stronger research foundation and greater network during their research years.



THE DANISH
SOCIETY FOR
MATRIX BIOLOGY

Our society has grown from 10 to over 100 members over the last couple of years and it is still growing. Our members include both senior, junior researchers and clinicians from academia, hospitals and industries that are not



only Denmark but also around Scandinavia. Our recent years of half-day DSMB Annual meetings have been very successful where we have various matrix surrounding themes involving and not limited to sports injuries (eg. tendons, cartilage, bone), cardiovascular disease, cancer, renal fibrosis and many more. We hope to increase the areas of extracellular matrix topics covered each year to involve ground-breaking research of our members and their work in the near future.

DSMB sends out 3 newsletters a year to our members where we introduce a newly established research group, recent meeting updates as well as any local or international research opportunities and meetings in each issue. This can also be found on our newly updated website (www.dsmb.dk) in addition to social media platforms such as Facebook (@DanishSocietyForMatrixBiology), Twitter (@DSMB_DK) as well as LinkedIn (www.linkedin.com/in/dsmbdk). We hope this advancement with the use of social media will help our members to understand what DSMB can offer (eg. provide a network and research portal) and to also help our younger generation of matrix researchers to advance in their careers.

Christian Couppé, chair DSMB.

THE CHINESE SOCIETY OF MATRIX BIOLOGY



The Chinese Society of Matrix Biology (CSMB), was initially approved by the twenty-fourth Executive Council meeting of the Chinese Association for Physiological Science (CAPS) on 23th, October 2015, which was formally inaugurated on 18th, March 2016. Professors Wei Kong, Hongquan Zhang, Zhigang Zhang, Cary Wu, and Danny Chan initiated CSMB by the support of ISMB. The incumbent President of CSMB is Professor Hongquan Zhang from Peking University, devoting his research attention on matrix and cancer metastasis. Professor Wei Kong was the former President (whose research interest is matrix and cardiovascular diseases), while Professor Zhigang Zhang (whose research interest focuses on cell-matrix interaction) is the President elected. CSMB (www.chinasmb.org) is an academic, non-profit organization, aiming at promoting mutual communications between academic and medical institutions of matrix biology. In China, the scientists and clinical doctors who are interested in Matrix Biology are united in CSMB, promoting the linkage of basic research and clinical applications. In CSMB, there exists 41 senior members from 34 different institutions and 150 regulatory members. CSMB commits to spread knowledge on matrix biology through organizing national conference and providing platform for young scientists in the field.

So far, CSMB has successfully held two sessions of National Conference on matrix biology, separately in Beijing (2016), and Jishou, Hunan (2017). Under the authorization of International Society for Matrix Biology (ISMB), CSMB will hold the 11th Asian and Pan-Pacific Connective Tissue Societies Symposium and the 3rd Academic Annual Meeting of the CSMB in association with the ISMB. The symposium is scheduled to be held on Nov 16-20, 2018 in Hangzhou International Expo Center, Zhejiang Province, China, which was the location of G20 HANGZHOU SUMMIT 2016.

The biennial symposium on connective tissue will discuss eight major themes, which are listed as follows:

1. Novel aspects in matrix biology (technological and conceptual advances).
2. Signaling from the Matrix.
3. Matrix in development and disease
4. Matrix dynamics and turnover.
5. ECM in fibrosis and cancer.
6. ECM in Inflammation and Immunity.
7. ECM in stem cell and regeneration.

8. Mechanical sensing.

Particularly, there will be a unique opportunity for fresh investigators to communicate with experienced researchers. We will warmly welcome your participation in Hangzhou next November. Welcome!

<http://www.chinasmb.org/>

THE JAPANESE SOCIETY FOR MATRIX BIOLOGY AND MEDICINE

THE JAPANESE SOCIETY FOR MATRIX BIOLOGY AND MEDICINE
日本結合組織学会 ~JSMBM~



It is delightful to inform that the Japanese Society for Matrix Biology and Medicine (JSMBM) celebrates the 50th anniversary this year since its foundation as the Japanese Society of Connective Tissue Research (JSCTR) in 1969. Traditionally, there had been two organizations in Japan working on matrix biology and connective tissue disorders during a half century. One was the JSCTR where physician scientists studied the pathogenesis and diagnosis/treatment of connective tissue diseases that used to be called "collagen disease". The other was the Japan Matrix Club (the former Japan Collagen Club) that was founded rather earlier in 1959. Scientists gathering in the Collagen/Matrix Club were mostly chemists and biologists who studied the structural and functional properties of the extracellular matrix (ECM) components. As the biological and pathological significance of ECM was widely recognized in the fields of

cancer research and regenerative medicine, many scientists became the members of both organizations, and consequently both societies discussed the common topics in each annual meeting. After thoughtful discussion and the trial of several joint meetings, the JSCTR and the Japan Matrix Club have finally merged into a single and representative organization, JSMBM, in 2015.

The new society has more than 600 hundred members. As easily understood by the name "Matrix Biology and Medicine", the JSMBM consists of a wide range of scientists from the basic anatomists and biologists to the physicians working on translational and clinical researches, which is a characteristic and very important feature of the society. The JSMBM makes every effort to bring up young scientists working in this important research field and strengthen the relationship among international and national matrix biology societies. For that purpose, the JSMBM supports young scientists by providing the Young Investigator Award and the International Travel Award to those who present their excellent works in the annual domestic meeting and the meetings held in foreign countries, respectively. In addition, our society has been organizing the joint symposium with Korean Society of Matrix Biology for the recent 5 years.

<http://www.jsctr.org/>

Yutaka Inagaki, M.D., Ph.D., President, JSMBM

MEETING REPORTS

Scientific Day in Honor of David Hulmes, November 9th, 2017, Lyon (France): Collagens in all its forms

The scientific day organized to celebrate David Hulmes' retirement gathered 87 participants coming from several countries, who shared great science in a friendly atmosphere punctuated by good memories. Keynote speakers and young investigators embarked with the participants on "A day in the life of a collagen molecule" as very well

summarized by Karl Kadler (Manchester, UK) in the title of his talk. Clair Baldock ("Hierarchical organisation of microfibrillar proteins", Manchester, UK), Erhard Hohenester ("Collagen as a signalling molecule", London, UK), Alain Colige ("Aminoprocollagen peptidases: fibrillar procollagens and beyond", Liège, Belgium) presented various aspects of collagens and microfibrillar proteins. Peter Bruckner brought a magic touch to this special day with his talk entitled "Magic collagens: The life-long pastimes of David (and other magicians)", Freiburg, Germany). The French side of David's collaborative network was illustrated by Jean-Marie Bouhris ("Orgasms (at least scientific ones). Three years on collagen", Grenoble), Marie-Madeleine Giraud-Guille ("Collagen in its liquid crystalline form", Paris), Florence Ruggiero ("What are unconventional collagens and what do they do?", Lyon), and Nicole Thielens ("Immune sensor and effector functions of soluble defence collagens", Grenoble). Other close collaborators and friends, Michel van der Rest (Lyon), Efrat Kessler (Tel Hashomer, Israël), Nushin Aghajari (Lyon) and Frédéric Mallein-Gerin (Lyon), chaired the sessions. The President of the French Society for Matrix Biology, Patricia Rousselle (Lyon, France), and the President of the International Society for Matrix Biology, Liliana Schaefer (Frankfurt, Germany), were there to acknowledge David's strong implication in both societies.





4th Annual Matrix Biology Ireland meeting, Dublin, Ireland (30th November -1st December, 2017)

Matrix Biology Ireland – the Irish Society for matrix biology - was founded at the end of 2012 by Dr Dimitrios Zeugolis and Prof Fabio Quondamatteo. Since then, the Society has hosted four annual meetings with high calibre speakers with endorsement and support from the British Society for Matrix Biology (BSMB), American Society for Matrix Biology (ASMB), Deutsche Gesellschaft für Matrixbiologie e.V. (DGMB- German Society for Matrix Biology e.V.), International Society for Matrix Biology (ISMB) and Matrix Biology Europe (MBE). The scope of MBI is both to promote and consolidate scientific interest and expertise around extracellular matrix research in all its forms within Ireland, and, to link this with the international scientific community on Matrix Biology. The Society's brief also encompasses practical and translational applications of the biology of the extracellular matrix in all forms and aspects.



The Monaghan Lab at the Trinity Centre for Bioengineering, Trinity College Dublin, the University of Dublin hosted the 4th Annual MBI meeting from the 30th November -1st December, 2017. The theme of the 2017 meeting was "Learning from Development to Engineering Therapeutics" with the aim to create a significant format for young researchers to showcase their research and actively network both nationally and internationally. The meeting was opened by the local organising chair; Asst. Prof. Michael Monaghan who welcomed the national and international delegates. The 4th Annual meeting deviated from a typical format, with the introduction of a Young Investigator



Rapid Fire Round to kick off proceedings. This session was chaired by Prof. Liliana Schaefer (Goethe University, Frankfurt, and President of ISMB) and Prof. Abhay Pandit (National University of Ireland, Galway), who put 11 young investigators through their paces in delivering a concise three-minute presentation followed by 1-2 questions. Following the Young Investigator Rapid Fire Session, the main sessions of the meetings commenced with the inclusion of the invited guest speakers. All sessions were composed of both invited guest speakers and talks selected from submitted abstracts- the majority being from Young Investigators. Additionally, the session chair panel consisted an established PI with a Young Investigator as co-chair.

Prof. Charles Little (University of Kansas, USA) delivered the first invited lecture of the meeting; he delivered a talk demonstrating ECM motion during early amniote embryogenesis. The following talks proceeded to focus on the role of ECM in its purest forms including Prof. Liliana Schaefer and Prof. John Couchman (University of Copenhagen, and Chair of BSMB). The afternoon session of the first day introduced us to how cell-matrix interactions control circadian clocks in breast tissue with Prof. Charles Streuli (Wellcome Trust Centre for Cell-Matrix Research, Manchester), leading onto tumour microenvironments and the induction of immunomodulatory functions of stromal cells by Dr. Aideen Ryan (National University of Ireland, Galway). Prof. George Bou-Gharios (University of Liverpool, UK and BSMB Council) led the last session of the day with an intriguing discussion on matrix gene enhancers to target fibroblasts and chondrocytes in connective tissue diseases, followed up by Dr. Karen English (National University of Ireland, Maynooth) who discussed chronic inflammatory lung diseases and the use of mesenchymal stromal cells as a therapy. The day ended with a welcome wine and cheese poster reception at the Trinity Centre for Bioengineering.

The second day of the meeting focussed primarily on the topics of imaging, ECM in cardiovascular disease and concluding with harnessing ECM as bioengineered therapeutics. Prof. Peter Friedl (Radboud University Nijmegen Medical Centre, The Netherlands) presented detailed investigations using multiphoton microscopy and introduced many of the delegates to the concept of 'cell jamming', which was followed by Prof. Caitriona Lally (Trinity College Dublin) demonstrating conclusive high-resolution diffusion MRI in the non-destructive characterisation of arterial structure. The second session of the day was cardiac-ECM-centric with Prof. Adam Engler (University of California San Diego, USA) showcasing his research group's cardiovascular 'diseases-in-a-dish' with engineered niche. Dr. John Baugh (University College Dublin) delivered a thorough talk on epigenetic modifiers as a treatment of cardiac fibrosis and heart failure, while Prof. Garry Duffy (National University of Ireland, Galway) detailed the development and implementation of advanced materials for cardiac regeneration (Medtronic Sponsored Lecture).

The final session of the meeting was a showcase of ECM bioengineering therapies in the Irish Scientific Community. Dr. Tanya Levingstone (Dublin City University, Ireland) led this session with a detailed history of developing directed osteogenesis and chondrogenesis in a multi-layered osteochondral scaffold; all the way to its application in treating osteochondritis in a 16-month old thoroughbred filly.

The day ended with a closing address from Dr. Michael Monaghan (Trinity College Dublin) who introduced Dr. Olga Piskareva and Dr Ronaldo Do Amaral (both Royal College of Surgeons in Ireland) as newly elected MBI Council Members. Prizes were also presented to the top student presentation in each category which were evaluated by an independent judging Panel.

The prizes were awarded to: Sigita Malijauskaitė (University of Limerick) for Best Poster presentation, Juhi Samal (National University of Ireland, Galway) for best Rapid Fire Presentation and Olwyn Mahon (Trinity College Dublin) for Best Podium Presentation. The MBI 2017 organising committee would like to acknowledge the support of the following sponsors and exhibitors: Medtronic, MERCK, Lennox, Biocolor, Mason Technology, Sarstedt and Zwick/Roell Testing Systems. Dibyangana Bhattacharyya (NUI Galway), Stefan Scheurer (Trinity College Dublin) and Julia Fernandez-Perez (Trinity College Dublin) were the winners of the exhibitor booth passport check-in scheme.

The 2017 Matrix Biology Ireland Meeting was the largest one to date with over 100 delegates present at the meeting and a significant proportion of time designated to networking and scientific discussion. There was also an intended effort to ensure diversity across all categories of delegates. Commenting at the event, meeting chair Dr



Michael Monaghan said, "MBI 2017 was delighted to host such esteemed speakers in the field of Matrix Biology. This set the standard of the meeting and all delegates rose and kept to this standard. The very high quality of research and innovation present at MBI 2017 is testament to the calibre of science in Ireland. It is no surprise that Ireland has jumped to be ranked 10th Globally for Overall Scientific Research Quality and coming from a relatively small country I am very proud to be part of this community. I am particularly delighted with the degree to which sessions became engaging and even challenged some of the traditional paradigms in Matrix Biology, leading to much debate and discussions outside of the main sessions."

For the near future, Matrix Biology Ireland supports the 3rd Matrix Biology Europe meeting taking place in Manchester 21-24th July 2018 and will coordinate a guest session at the ASMB Biennial Meeting 2018.

For further information, please visit the society webpages (www.mbi.ie) and for membership enquiries, please contact the MBI secretary at secretary@mbi.ie.

POSITIONS AVAILABLE

The group of **Sara Wickström** has just moved to the HiLIFE Meilahti campus from the Max Planck Institute for Biology of Ageing, Germany and is looking for outstanding candidates for a **post-doctoral researcher in stem cell research** for 2 years fixed term (with 6-month trial period) starting from 1.3.2018 with possibility of extension up to 4 years.

The successful candidate will join a young and dynamic research team in the analysis of stem cell regulation in tissue morphogenesis, maintenance and cancer. We employ a wide range of techniques, including mouse genetics, cell biology, live cell imaging, mass spectrometry and next generation sequencing to study how stem cell fate is regulated through interactions with their niche. The applicant is required to hold PhD in biology, genetics, bioengineering, biochemistry, or a related field, as well as strong written and oral communication skills. The working language is of the lab is English; knowledge of the Finnish language is not necessary. Experience in cell biology and imaging are required, experience in computational data analysis and next generation sequencing is an advantage.

The University of Helsinki is a leading Nordic university with a strong life science research. An international academic community with a critical outlook and a creative attitude is aiming to build a better future together. Helsinki Institute of Life Science, [HiLIFE](http://www.hilife.fi), is a new life science institute at the University of Helsinki established in 2017 supporting high quality research across campuses and life science faculties. HiLIFE builds on existing strengths, new recruits and partnerships to create an attractive international environment for solving grand challenges in health, food, and environment. It coordinates research infrastructures in life sciences, provides research-based interdisciplinary training and supports researchers within its units and partner faculties.

To apply, please submit your application using the [University of Helsinki electronic recruitment system](http://www.helsinki.fi/en/research/recruitment). Upload a single pdf-file containing a one-page letter with a personal statement outlining your research interests and relevant work experience, your CV and bibliography, contact information for 2-3 references. Informal inquiries are very welcome and should be sent to sara.wickstrom@helsinki.fi. For more information on the Wickström lab see <http://www.age.mpg.de/science/research-labs/wickstroem/>

2 post-doctoral positions to study the impact of the tumor matrix environment on immune cells (Nice and Sophia Antipolis, France)

Applications are invited for 2 full-time postdoctoral positions in tumor/immuno-biology to study the implication of extracellular matrix components in the immunosuppressive reprogramming of the tumor microenvironment in head and neck cancer. The project aims to provide a better understanding of the cellular,

molecular and functional interactions between tumor-associated innate immune cells and ECM molecules during carcinogenesis of head and neck squamous epithelium. Studies will be conducted using an immunocompetent mouse model of tongue carcinogenesis and *ex vivo* 3D reconstituted ECM systems. Implications of our findings for human cancer and therapeutic intervention will be determined by analyzing samples from human patients. This collaborative project will provide training in an interdisciplinary context at the crossroads of immunology, cell and molecular biology and human tumor pathology.

One position is available in the **Institute of Biology Valrose (iBV)** (<http://ibv.unice.fr>) and one position in the **Institute of Molecular and Cellular Pharmacology (IPMC)** (<https://www.ipmc.cnrs.fr/cgi-bin/ipmcx.cgi>). These leading Research Centers of the Université Côte d'Azur are equipped with state of the art core facilities and dynamic scientific environments in which English is the working language. The iBV team headed by E. Van Obberghen-Schilling has an expertise cell-matrix adhesion and matrix-driven signaling in squamous cell carcinomas of the head and neck. F. Anjuère, leader of the IPMC team "Immune regulations at muco-cutaneous surfaces" with V. Braud, is an expert in mucosal immunology and has led numerous studies aimed at developing mucosal vaccines against infectious diseases and cancer. Clinical collaborators at the head and neck oncology team of the Centre Antoine Lacassagne (CAL) and University Head and Neck Institute (IUFC) are actively involved in clinical studies focused on immunotherapy.

The successful post-doctoral candidates should have a strong background in cell biology/immunology and experience in cellular/tissue imaging and mice studies. Excellent written and spoken English communication skills, strong self-motivation, the ability to work both independently and collaboratively is expected.

Please send applications (full CV including research interests and the name of 2-3 referees in a single pdf document) and requests for further information by email to: Ellen Van Obberghen-Schilling (vanobber@unice.fr) - Fabienne Anjuère (anjuere@ipmc.cnrs.fr).

Starting date: March 2018

Further positions on ISMB website (<http://ismb.org/career/>)

RECENT PAPERS

Lee CS, Fu H, Baratang N, Rousseau J, Kumra H, Sutton VR, Niceta M, Ciolfi A, Yamamoto G, Bertola D, Marcelis CL, Lugtenberg D, Bartuli A, Kim C, Hoover-Fong J, Sobreira N, Pauli R, Bacino C, Krakow D, Parboosingh J, Yap P, Kariminejad A, McDonald MT, Aracena MI, Lausch E, Unger S, Superti-Furga A, Lu JT; Baylor-Hopkins Center for Mendelian Genomics, Cohn DH, Tartaglia M, Lee BH, Reinhardt DP, Campeau PM. *Am. J. Hum. Genet.* (2017) 101:815-823. Mutations in Fibronectin Cause a Subtype of Spondylometaphyseal Dysplasia with "Corner Fractures".

Corresponding authors: dieter.reinhardt@mcgill.ca and p.campeau@umontreal.ca

Abstract: *Fibronectin is a master organizer of extracellular matrices (ECMs) and promotes the assembly of collagens, fibrillin-1, and other proteins. It is also known to play roles in skeletal tissues through its secretion by osteoblasts, chondrocytes, and mesenchymal cells. Spondylometaphyseal dysplasias (SMDs) comprise a diverse group of skeletal dysplasias and often manifest as short stature, growth-plate irregularities, and vertebral anomalies, such as scoliosis. By comparing the exomes of individuals with SMD with the radiographic appearance of "corner fractures" at metaphyses, we identified three individuals with fibronectin (FN1) variants affecting highly conserved residues. Furthermore, using matching tools and the SkelDys emailing list, we identified other individuals with de novo FN1 variants and a similar phenotype. The severe scoliosis in most individuals and rare developmental coxa vara distinguish individuals with FN1 mutations from those with classical Sutcliffe-type SMD. To study functional*



consequences of these FN1 mutations on the protein level, we introduced three disease-associated missense variants (p.Cys87Phe [c.260G>T], p.Tyr240Asp [c.718T>G], and p.Cys260Gly [c.778T>G]) into a recombinant secreted N-terminal 70 kDa fragment (rF70K) and the full-length fibronectin (rFN). The wild-type rF70K and rFN were secreted into the culture medium, whereas all mutant proteins were either not secreted or secreted at significantly lower amounts. Immunofluorescence analysis demonstrated increased intracellular retention of the mutant proteins. In summary, FN1 mutations that cause defective fibronectin secretion are found in SMD, and we thus provide additional evidence for a critical function of fibronectin in cartilage and bone.

Press release News provided by Shriners Hospitals For Children Nov 02, 2017, 07:00 ET

Unique collaboration between Shriners Hospitals for Children - Canada, CHU Sainte-Justine and McGill University leads to a publication in The American Journal of Human Genetics

MONTREAL, Nov. 2, 2017 /CNW Telbec/ - "Mutations in fibronectin cause a subtype of spondylometaphyseal dysplasia with 'corner fractures'" is the title of the article that appears online on November 2, 2017 on the website of The American Journal of Human Genetics and some time later in its printed version.

The adventure began when Amaya's pediatrician observed that in addition to an abnormal thigh fold, the infant's hips were not quite aligned. Amaya was referred to Shriners Hospitals for Children – Canada. Reggie Hamdy, M.D., the hospital's chief physician, then conducted extensive examinations, identifying Amaya's hip deformity and scoliosis. The Shriners team suspected a genetic cause and referred Amaya to Philippe Campeau, M.D., a geneticist specialized in bone diseases, who works at both Canada Shriners Hospitals and CHU Sainte-Justine, to perform genetic tests and ultimately identify the faulty molecular mechanism.

In Dr. Philippe Campeau's laboratory at CHU Sainte-Justine

Amaya's medical history and X-rays were compatible with spondylometaphyseal dysplasia (SMD), a medical term that encompasses scoliosis and abnormal growth plates in the bones. Initially Dr. Campeau and his team tested known genes already associated with SMD, but the tests proved negative. "Extensive research then showed that there was a mutation in fibronectin, an important protein found in the blood and in connective tissues such as cartilage," Dr. Campeau explains. Mutations in fibronectin had previously been found by other researchers in a kidney disease, glomerulopathy, but never in a bone disease. Before identifying the mutation in Amaya's fibronectin, Dr. Campeau had observed similar fibronectin mutations in other children with the same disease by using exome sequencing (reading 20,000 genes). "I have been working for more than three years with Dieter Reinhardt, Ph.D., of McGill University's Faculty of Medicine and Faculty of Dentistry, to better understand how certain mutations in fibronectin can affect bones."

In Dr. Dieter Reinhardt's laboratory at McGill University

Dr. Reinhardt's lab studies extracellular matrix proteins, how they function together with cells, and the negative consequences of genetic mutations. "Dr. Campeau asked me if we could try to understand the cellular mechanism of these mutations in fibronectin, which is normally an organizer of the extracellular matrix. That's when we became equal partners in this research project. The Quebec network "Réseau de recherche en santé buccodentaire et osseuse" immediately provided team funding for this new emerging project" says Dr. Reinhardt. "We then selected three mutations of the seven identified in different patients." Our work has clearly shown that the studied mutations prevent the secretion of fibronectin from cells. This work was performed by Chae Syng (Jason) Lee, Research Assistant in Dr. Reinhardt's lab, assisted by He Fu, then a postdoctoral fellow in Dr. Campeau's lab. Our current hypothesis is that blockage of fibronectin secretion occurs in cartilage cells (especially growth plates) and consequently prevents normal bone growth.

The importance of studying rare genetic mutations

The publication of these two teams' research results in The American Journal of Human Genetics is important for the following reasons. In addition to discovery and scientific advancement, it concerns a genetic disease that, though rare, is a risk for recurrence in future generations. Knowing that Amaya and other affected individuals might one day

want to have children makes identifying the responsible gene important. For now, twelve families around the world are identified with this disease. In the years to come there will certainly be many more families recognized, guided by the publication of the findings of Drs. Campeau and Reinhardt. Knowing the affected gene, it is now possible to understand how the mutation leads to the disease and how to eventually arrive at the therapeutic stage within a few years. Dr. Campeau's student, Nissan Baratang, is working on developing experimental models of this disease with that idea in mind. This discovery will also have broader spin-off effects beyond SMD and understanding the role of fibronectin in cartilage: Dr. Campeau and Dr. Reinhardt, in collaboration with Dr. Florina Moldovan of CHUSJ, and Stefan Parent, orthopedic surgeon at CHUSJ and Shriners Hospitals for Children – Canada, have also found mutations in fibronectin in families with another more common bone-related disorder

Caldeira J Santa C, Osório H, Molinos M, Manadas B, Gonçalves R, Barbosa M. Matrisome Profiling During Intervertebral Disc Development And Ageing. Sci Rep. 2017 Sep 14;7(1):11629.

Corresponding author: joana.caldeira@ineb.up.pt

Abstract: *Intervertebral disc (IVD) degeneration is often the cause of low back pain. Degeneration occurs with age and is accompanied by extracellular matrix (ECM) depletion, culminating in nucleus pulposus (NP) extrusion and IVD destruction. The changes that occur in the disc with age have been under investigation. However, a thorough study of ECM profiling is needed, to better understand IVD development and age-associated degeneration. As so, iTRAQ LC-MS/MS analysis of foetus, young and old bovine NPs, was performed to define the NP matrisome. The enrichment of Collagen XII and XIV in foetus, Fibronectin and Prolargin in elder NPs and Collagen XI in young ones was independently validated. This study provides the first matrisome database of healthy discs during development and ageing, which is key to determine the pathways and processes that maintain disc homeostasis. The factors identified may help to explain age-associated IVD degeneration or constitute putative effectors for disc regeneration.*

Piperigkou Z, Götte M, Theocharis AD, Karamanos NK. Insights into the key roles of epigenetics in matrix macromolecules-associated wound healing. Adv Drug Deliv Rev. 2017 Oct 24. pii: S0169-409X(17)30232-6. doi: 10.1016/j.addr.2017.10.008. [Epub ahead of print]

Corresponding author: n.k.karamanos@upatras.gr

Abstract: *Extracellular matrix (ECM) is a dynamic network of macromolecules, playing a regulatory role in cell functions, tissue regeneration and remodeling. Wound healing is a tissue repair process necessary for the maintenance of the functionality of tissues and organs. This highly orchestrated process is divided into four temporally overlapping phases, including hemostasis, inflammation, proliferation and tissue remodeling. The dynamic interplay between ECM and resident cells exerts its critical role in many aspects of wound healing, including cell proliferation, migration, differentiation, survival, matrix degradation and biosynthesis. Several epigenetic regulatory factors, such as the endogenous non-coding microRNAs (miRNAs), are the drivers of the wound healing response. microRNAs have pivotal roles in regulating ECM composition during wound healing and dermal regeneration. Their expression is associated with the distinct phases of wound healing and they serve as target biomarkers and targets for systematic regulation of wound repair. In this article we critically present the importance of epigenetics with particular emphasis on miRNAs regulating ECM components (i.e. glycoproteins, proteoglycans and matrix proteases) that are key players in wound healing. The clinical relevance of miRNA targeting as well as the delivery strategies designed for clinical applications are also presented and discussed.*

The lymphoid extracellular matrix supports innate immunity

Collagen VII is essential for skin integrity by anchoring the epidermal basement membrane to the dermal interstitial extracellular matrix. Deficiency of collagen VII causes dystrophic epidermolysis bullosa (DEB) – a skin fragility disorder manifested in persistent wounding, soft tissue fibrosis and high propensity for skin cancers. Wound

infections – which are common in DEB and have been associated with cancer development in the disease – have so far been assumed to be a consequence of open wounds. Outside the skin collagen VII is present in selected organs, however there is limited understanding about the extracutaneous functions of collagen VII.

Alexander Nystrom and colleagues now describe an unprecedented systemic function of collagen VII as a member of a unique innate immune-supporting multiprotein complex in spleen and lymph nodes. In this complex, collagen VII sequesters the innate immune activator coxlin in the lumen of lymphoid conduits. During bacterial insults the LCCL domain of coxlin is proteolytically removed from the parental molecule and released into the circulation. At the site of infection the LCCL domain activates innate immune cells to increase the antibacterial response of them. In mouse models of DEB, loss of collagen VII increased bacterial colonization by diminishing levels of circulating coxlin LCCL domain. Analysis of skin and serum from human DEB patients confirmed the observations made in mice.

Restoration of collagen VII in spleen but not in the skin reactivated peripheral innate immune cells via coxlin and reduced bacterial skin colonization. Notably, systemic administration of the coxlin LCCL domain was alone sufficient to diminish bacterial supercolonization of DEB mouse skin. This study identifies an intrinsic innate immune dysfunction in DEB and uncovers a unique role of the lymphoid extracellular matrix in systemic defense against bacteria.

Nyström A, Bornert O, Kühl T, Gretzmeier C, Thriene K, Dengjel J, Pfister-Wartha A, Kiritsi D, Bruckner-Tuderman L. Impaired lymphoid extracellular matrix impedes antibacterial immunity in epidermolysis bullosa. Proc Natl Acad Sci U S A. 2018 Jan 5. pii: 201709111. doi: 10.1073/pnas.1709111115. [Epub ahead of print]

Corresponding author: alexander.nystroem@uniklinik-freiburg.de

Abstract: *Genetic loss of collagen VII causes recessive dystrophic epidermolysis bullosa (RDEB), a skin fragility disorder that, unexpectedly, manifests also with elevated colonization of commensal bacteria and frequent wound infections. Here, we describe an unprecedented systemic function of collagen VII as a member of a unique innate immune-supporting multiprotein complex in spleen and lymph nodes. In this complex, collagen VII specifically binds and sequesters the innate immune activator coxlin in the lumen of lymphoid conduits. In genetic mouse models, loss of collagen VII increased bacterial colonization by diminishing levels of circulating coxlin LCCL domain. Intraperitoneal injection of collagen VII, which restored coxlin in the spleen, but not in the skin, reactivated peripheral innate immune cells via coxlin and reduced bacterial skin colonization. Systemic administration of the coxlin LCCL domain was alone sufficient to diminish bacterial supercolonization of RDEB mouse skin. Human validation demonstrated that RDEB patients displayed lower levels of systemic coxlin LCCL domain with subsequently impaired macrophage response in infected wounds. This study identifies an intrinsic innate immune dysfunction in RDEB and uncovers a unique role of the lymphoid extracellular matrix in systemic defense against bacteria.*

Sun Z, Schwenzer A, Rupp T, Murdamoothoo D, Vegliante R, Lefebvre O, Klein A, Hussenet T, Orend G. Tenascin-C promotes tumor cell migration and metastasis through integrin $\alpha 9 \beta 1$ -mediated YAP inhibition. Cancer Res. 2017 Dec 19. pii: canres.1597.2017. doi: 10.1158/0008-5472.CAN-17-1597. [Epub ahead of print]

Corresponding author: gertraud.orend@inserm.fr

Abstract: *Tenascin-C is an extracellular matrix molecule that drives progression of many types of human cancer but the basis for its actions remain obscure. In this study, we describe a cell-autonomous signaling mechanism explaining how tenascin-C promotes cancer cell migration in the tumor microenvironment. In a murine xenograft model of advanced human osteosarcoma, tenascin-C and its receptor integrin $\alpha 9 \beta 1$ were determined to be essential for lung metastasis of tumor cells. We determined that activation of this pathway also reduced tumor cell-autonomous expression of target genes for the transcription factor YAP. In clinical specimens, a genetic signature comprising four YAP target genes represents prognostic impact. Taken together, our results illuminate how tumor cell deposition of tenascin-C in the tumor microenvironment promotes invasive migration and metastatic progression.*



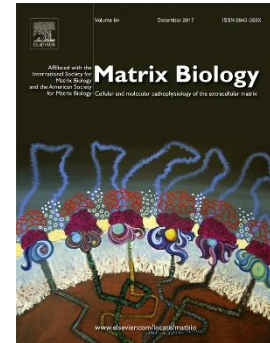
COLLAGEN AND RELATED RESEARCH ➔ MATRIX ➔ MATRIX BIOLOGY

January, 2018

Dear Fellow Matrix Biologists,

Did you know that we are close to a milestone: the forty-year anniversary for Matrix Biology?

The original Matrix Biology Journal was founded in 1980 by Steffen Gay and Ed Miller, both at the University of Alabama in Birmingham. In their first editorial published on December 1st, 1980, Steffen and Ed wrote:



“COLLAGEN AND RELATED RESEARCH represents a new specialty journal, the publication of which is inaugurated with this issue. The initiation of the journal was prompted by the realization that information on collagen and related macromolecules in normal and diseased states is expanding at an unprecedented pace. Significant contributions in these areas are being made by an increasing number of investigators engaged in a variety of disciplines. It is thus likely that the rapid rate of growth will be sustained and even accelerated in the coming years. We therefore visualize the journal as an international forum for the periodic assembly of new results, techniques, and concepts which will be of value to scientists as well as clinicians interested in extracellular matrices.”

I find these statements quite modern and contemporary. However, the matrix biology field is not anymore a “niche field” nor a “specialty area” of research. It is likely the largest area of research in mammals, encompassing the genetic and acquired diseases of bone and muscles, cardiovascular, skin, and renal diseases, etcetera.

In 2020, we will celebrate the 40th anniversary of the Journal and I am planning several events, including special issues focusing on the most important and transformative discoveries of matrix biology research and their impact on human health. Awards will also be given for the best original research papers and reviews published in the Journal and more. At this time I would like to ask if you could send me a few opinions/ideas in a brief format, one or two paragraphs. I will compile them and discuss this matter at the next Editorial Board Meeting to occur at the upcoming ASMB meeting in Las Vegas (how appropriate!!). As Ralph Sanderson put it with his typical Southern cadence: “Renato, it is not Las Vegas, but ratherVegas baby!”

All the best,

Renato V. Iozzo, MD PhD (Hc)
Editor-In-Chief, Matrix Biology



ISMB MEMBERSHIP: BECOME A MEMBER OF ISMB!

ISMB is dedicated to promoting matrix biology research on a global scale and to facilitating communication among matrix-related organizations and researchers from different countries. Members are eligible for discounted registration fees at matrix meetings supported by ISMB. The Society sends out newsletters highlighting recent research advances, descriptions of matrix biology resources, new appointments and awards, together with announcements of relevant meetings.

Every two years, the Society presents the Rupert Timpl Award to a young scientist (<40 years old) for the best paper related to matrix biology published in the previous two years and gives the Distinguished Investigator Award for lifetime achievement in the field of matrix biology. ISMB sponsors travel grants for young scientists to attend international matrix meetings. If you work in the matrix biology area, consider becoming a member of ISMB to support the international matrix community and give your input on ways to improve interactions and communication. See the website www.ismb.org to join, and for recent job postings and newsletters.

Welcome to new members of ISMB since October 2017

Yiting Jia	Ph.D. student	Peking University Health Science Center, Beijing, China
Yi Fu	Associate Professor	Peking University Health Science Center, Beijing, China
Juan Saus Mas	Professor	University of Valencia, Valencia, Spain
Michael Monaghan	Assistant Professor	Trinity College Dublin, Dublin, Ireland
Nikolaj Malgaard-Clausen	Ph.D. student	Inst. of Sports Medicine, Copenhagen, Denmark
Nicoletta Gagliano	Associate Professor	University of Milan, Milan, Italy
Sergey Samsonov	Principal Investigator	University of Gdansk, Gdansk, Poland
Tom Flanagan	Assistant Professor	University College Dublin, Dublin, Ireland
Wing Ying Chow	Postdoc	FMP, Berlin, Germany
Peter Tran	Ph.D. student	Institute of Sports Medicine, Copenhagen, Denmark
Merry Lindsey	Professor	University of Mississippi Medical Center, Jackson, MS, USA
Hongquan Zhang	Professor	Peking University Health Science Center, Beijing, China
Jun Zhan	Associate Professor	Peking University Health Science Center, Beijing, China
Xiaofan Wei	Assistant Professor	Peking University Health Science Center, Beijing, China

Message from a Junior council member and from the membership sub-committee

As the ISMB is expanding, we want to provide more opportunities outside of conferences and meetings for you to network with other members. In particular, early career researchers want to learn more about established and emerging methods within the field of matrix biology and the people/groups that are doing them. To enable this, we have created a new column within the newsletter. "In Focus" will feature short profiles of members who have expertise in techniques that they think might be of interest to other ISMB members in our newsletter. If you would like to feature in the next ISMB newsletter sharing tips on your favourite and most trusted technique, please email Chloé Yeung (chloe.yeung@gmail.com).

Another idea we have is to create a searchable database of key research terms on our website to offer our members exclusive access for potential collaborations. There will be a possibility to update our own research terms as our careers progress. We hope to announce the launch of this soon!



We want to remind members that we offer young scientists (graduate students or postdocs up to 5 years after PhD with extensions for maternity leave, military service, etc) travel grants to attend major matrix biology meetings anywhere in the world. Please see our website for more details.

We also want to increase the society's presence at local meetings and are looking for ISMB members to become regional representatives (particularly in South America and Asia) to spread the good word! If you are interested in becoming a representative and/or have ideas on how to accomplish this, please get in touch.

Chloé Yeung, Junior council member, and Jamie Fitzgerald, chair of the ISMB Membership Sub-Committee

NEW ECM LABS

Computational analysis of protein-glycosaminoglycan interactions

Dr. Sergey Samsonov is a Project Leader within the Polonez Funding Programme at the Laboratory of Molecular Modeling run by Prof. Liwo at the University of Gdańsk. He received his MS degree in Biophysics at Saint-Petersburg State Polytechnical University, PhD degrees in Structural Bioinformatics at Dresden University of Technology and in Biophysics and Biochemistry at Saint-Petersburg State University.

The project "Computational analysis of protein-glycosaminoglycan interactions" deals with modeling protein-glycosaminoglycan (GAG) interactions using such computational techniques as molecular docking, molecular dynamics (MD), quantum chemistry (QM). The goal of the project is to contribute to the general understanding of protein-GAG molecular recognition and conformational properties GAG molecules, to develop appropriate computational strategies to treat these systems more effectively, to assist and complement the experimental data providing atomic details basis for molecular mechanisms underlying protein-GAG interactions. The data obtained in this project will be useful for theoretical rationale in the further development of novel approaches for tissue regeneration.

Glycosaminoglycans are linear, periodic, anionic polysaccharides playing a key role in the extracellular matrix via interaction with proteins such as growth factors and chemokines and so representing promising targets in artificial matrix engineering for potential applications in regenerative medicine. Computationally, these molecules are challenging due to their high flexibility, importance of the solvent-mediated interactions, sugar ring conformational interconversions, periodicity and binding to the long and flexible positively charged residues on the protein surface. In comparison to other classes of molecules, there is a lack of specific computational approaches to effectively treat protein-GAG systems.

The topics of the project include:

- GAG recognition by particular protein targets

Molecular docking, MD-based approaches and free binding energy calculations are applied for particular protein-GAG systems to systematically and rigorously characterize binding of GAGs of different types, length and sulfation to particular protein targets. These data are then used in order to complement and explain the experimental data on binding specificity, affinity and kinetic parameters obtained by biochemical assays, surface plasmon resonance, small angle X-ray scattering and nuclear magnetic resonance and other techniques used by experimental partners. At the moment the following protein targets are being studied: chemokine ligand 14 (CXCL14), endostatin, procollagen C-proteinase enhancer-1 (PCPE-1), propeptide of lysyl oxidase, cathepsin proteases, selectins.

- Analysis of phosphorylated GAGs

Using MD-based and QM-based methods phosphorylated GAGs are analyzed in silico. These polysaccharides is a novel and uncharacterized class of synthetically modified GAGs, which are potential targets for matrix engineering

due to the chemical nature of their phosphate groups. Numerous experimental and computational studies indicate the high potential of natural and artificially sulfated GAGs for applications in regenerative medicine by exploiting their interactions with protein targets in ECM. There are several reasons why phosphorylated GAGs can be very interesting for the studies aimed to understand and to control tissue regeneration: phosphates are weak electrolytes in comparison to sulfates and, therefore, are potentially more efficient in the organization of more complex and variable H-bonding network structure. Phosphate groups have very different charge characteristics in comparison to sulfates, and this could be used for regulating of specificity of their interactions with proteins; phosphorylated GAGs cannot be substrates for classical GAGs-specific glycosidases, which make their potential applicability substantially different and attractive for biological systems; ³¹P is a more conventional nucleus for NMR approaches than ³³S, which makes analysis of phosphorylated GAGs binding more straightforward in comparison to sulfated GAGs.

- Development of new computational strategies to analyze protein-GAG interactions

In order to specifically approach protein-GAG systems, new approaches and methodologies are developed, calibrated and tested within the project. In particular, such computational aspects of modeling protein-GAG systems are investigated: docking approaches and new scoring schemes, integration GAGs into coarse-grained models (f.i. UNRES and ATTRACT), allosteric regulation of GAG protein targets functions via GAGs, structural information on protein-GAG complexes available in the PDB.

The Project Team consists of three members at the moment: Dr. Sergey Samsonov, Dr. Urszula Uciechowska-Kaczmarzyk and PhD student Krzysztof Bojarski; and collaborates with Prof. Adam Liwo (University of Gdańsk), Prof. Sylvie Ricard-Blum (University of Lyon), Dr. Fabien Lecaille (University of Tours), Prof. Martin Zacharias (TU Munich), Prof. Daniel Huster, Dr. Jürgen Schiller (Leipzig University), Dr. Tamás Beke-Somfai (Institute of Materials and

Environmental Chemistry, Hungarian Academy of Sciences), Prof. Niclas Karlsson (University of Gothenburg), Prof. Satoru Tsushima (Helmholz-Zentrum, Dresden), Prof. Ludmila Puchkova (Saint-Petersburg Polytechnical University).

Contact: Sergey Samsonov, Laboratory of Molecular Modeling, Department of Theoretical Chemistry, Faculty of Chemistry, University of Gdańsk (Poland), e-mail: sergey.samsonov@ug.edu.pl, web site: prot-gag.ug.edu.pl



IN FOCUS: TECHNIQUES AND TECHNICAL TIPS



Spotlights on methods that other ISMB members may find useful

If you would like to feature in the next newsletter, please email chloe.yeung@gmail.com

Improved CRISPR targeting for bone, cartilage and muscle research

Description: We have developed a series of CRISPR-Cas9 vectors containing Cas9-msfGFP-puro multicistronic transcription unit and U6 promoter-driven gRNA unit suitable for DNA editing in a wide range of ECM cell types. This

vector system can enrich transfected cells by transient puromycin selection without resorting to flow cytometry enrichment. CRISPR-Cas13a/b vectors have also been developed for targeting RNA.

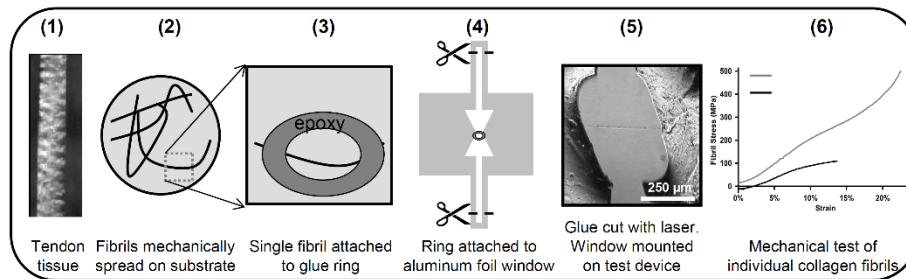
Useful for: Cell lines and primary cells. We have successfully targeted mouse and rat chondrocyte, osteoblast and myoblast cell lines for editing and tested human fibroblast RNA for human genetic studies.

Challenges/Tips: Cell transfection efficiency remains a problem (as always) but the puromycin selection is rapid and very efficient. Puromycin sensitivity needs to be determined for each cell type.

Contact: Jamie Fitzgerald, Associate Scientist at the Bone and Joint Center, Henry Ford Hospital, Detroit, MI, USA

Email: jfitzge2@hfhs.org

Single Collagen Fibril Mechanics



Description: Collagen fibrils obtained from native tendon tissue (1). Isolating individual collagen fibrils by mechanical disruption (2). Verifying structural intactness and measuring dimensions by atomic force microscopy. Adsorbing polystyrene beads to fibril for local strain measurement. Attaching fibril to epoxy ring for manipulation (3). Detaching ring from substrate and mounting on aluminum foil window (4). Cutting ring with laser dissection microscope (5). Mounting window on custom test device. Cutting window flanges to release protection. Tensile mechanical testing of the fibril (6).

Useful for: Probing tissue mechanics at the nano-scale and isolating mechanical function in collagen from other matrix components.

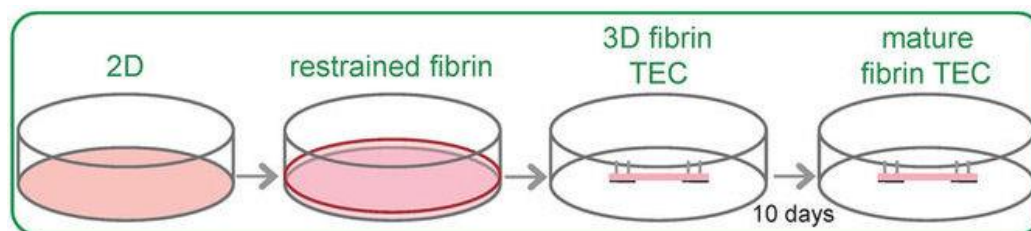
Challenges/Tips: Time consuming. Labour intensive. Requires a non-commercial force sensor.

References: Pending

Contact: Rene B. Svensson, postdoc at Institute of Sports Medicine Copenhagen, Denmark

Email: svensson.nano@gmail.com

3D Tensioned Matrix Constructs



Description: A tractable cell culture model that enables progenitor cells and tendon fibroblasts to *de novo* synthesise and assemble a 3D, tensioned collagen-rich matrix.

Useful for: Examining isolated genes/pathways/cells contribution to matrix assembly and alignment when combined with siRNA or CRISPR transfections; culturing fibroblasts in a more *in vivo* environment; creating 3D matrix scaffolds.

Challenges/Tips: Optimisation of seeding density and culture time required for each cell type.

References: PMID: 26337655, PMID: 20356622, PMID: 20736064, PMID: 2893783

Contact: Chloé Yeung, postdoc at Institute of Sports Medicine Copenhagen, Denmark

Email: chloe.yeung@gmail.com

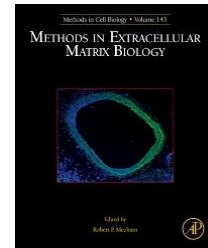
Methods in Extracellular Matrix Biology

2018, Volume 143, 1st edition

Edited by Robert P. Mecham

This book covers a wide array of topics about the extracellular matrix including elastin, quantification of collagen and elastin, fibrillins, lysyl oxidase, fibulins, matrilins, hyaluronan, small leucine-rich proteoglycans, syndecans, fibronectin, SPARC, thrombospondins, tenascins, collagen IV, multi-photon analysis of ECM, cell-derived extracellular matrices, laminins, fibrillar Collagens, imaging ECM in developing embryos, analysis of matrix degradation, ultrastructural analysis of ECM, versican and large proteoglycans, and an ECM crosslink analysis.

<https://www.elsevier.com/books/methods-in-extracellular-matrix-biology/mecham/978-0-12-812297-6>



AWARDS

The **ISMB Distinguished Investigator award 2018** will be presented at the ASMB meeting in Las Vegas to Billy Hudson (Vanderbilt University Medical Center, TN, USA).



The **Rupert Timpl award 2018**, generously sponsored by Matrix Biology Journal and Elsevier, will be presented during the Matrix Biology Europe Meeting in Manchester to Alexandra Naba (University of Illinois at Chicago, Chicago, USA).

MATRIX BIOLOGY MEETING ANNOUNCEMENTS

Annual meeting of the German Society for Matrix Biology (DGMB), March 22-24, 2018

Joint Meeting of the German and Swiss Societies for Matrix Biology, Stuttgart, Germany

<http://www.matrixbiologie.de/JahrestagungStuttgart/StuttgartDGMB-Index.html>



Annual meeting of the Danish Society for Matrix Biology, April, 16, 2018

Maersk Tower, University of Copenhagen (Denmark) www.dsmb.dk



2018 DSMB Annual Meeting



Extracellular Matrix Remodeling and Repair

Mærsk Tower, University of Copenhagen. 16 April, 2018

www.dsmb.dk

Confirmed speakers:

Ulrich auf dem Keller (Technical University of Denmark)
Magnus Ågren (Bispebjerg Hospital, Denmark)
Federica Genovese (Nordic Bioscience A/S, Denmark)
Daniel H. Madsen (Herlev Hospital, Denmark)

Abstract submissions for oral presentations and travel grant* deadline: Friday 9th March, 2018 noon (CET zone UTS +01:00).

*Travel grant: DSMB will award the best oral presentation with a travel grant worth 5000 dkr (sponsored by Tebu-Bio) to attend 2018 BME, Manchester, UK. You will need to be a DSMB member to be eligible.

Registration* deadline: Friday 23rd March 2018 and email to dsmb.dk@gmail.com for catering purposes.

*Registration is free for all DSMB members or 100 dkr to become a member. DSMB annual membership includes 3-4 newsletters/yr, free registration for DSMB seminars and workshops, and eligibility for travel awards. Please email dsmb.dk@gmail.com for membership payment details.

The Nordic Proteoglycan Meeting (Oslo, Norway), May 15-16, 2018

<http://norheart.no/nordic-proteoglycan-meeting-2018/>



Annual meeting of the Dutch Society (NVMB) for Matrix Biology May 17-18th, 2018

The Dutch Society for Matrix Biology (www.matrixbiology.nl) will convene for its annual meeting on 17 & 18 May 2018. The venue of *de Werelt* (Lunteren) is central in the Netherlands and surrounded by a beautiful forest. Members of the society, in particular ESRs (early stage researchers such as PhD studies), will present and discuss their research on matrix biology in its broadest sense: from fundamental ECM studies to clinical applications. In addition, an interactive poster session will provide opportunities to meet & greet. The ESR committee will organize a scientific surprise session. On 17 May Sylvie Ricard-Blum will give the candle light keynote address. Registration is via the website www.matrixbiology.nl.



Canadian Connective Tissue Society (Toronto, Canada), May 23-25, 2018

<http://connective-tissue-canada.com/cctc-2018/>



Gordon Research Conference on Transglutaminases in Human Disease Processes

Towards Understanding and Modulating Transglutaminases in Human Diseases

June 17-22, 2018

Les Diablerets Conference Center, Les Diablerets, Switzerland

Chair: Mari Kaartinen, Vice-Chair: Jeffrey Keillor

<http://www.grc.org/programs.aspx?id=14565>



Gordon Research Seminar on Transglutaminases in Human Disease Processes

June 16-17, 2018

Chairs: Magdalena Adamczyk & Huifang Sun

Les Diablerets Conference Center, Les Diablerets, Switzerland

<http://www.grc.org/programs.aspx?id=17699>



Gordon Research Conference on Proteoglycans

Proteoglycans in Homeostasis and Disease: Cracking the PG Code

July 8-13, 2018

Proctor Academy, Andover, NH (USA)

Chairs: Anthony Day, Carol de la Motte, Vice-chair: Liliana Schaefer

<https://www.grc.org/proteoglycans-conference/2018/>



Gordon Research Seminar on Proteoglycans

Structure, Mechanisms, and Applications of Proteoglycans in Health and Disease

July 7-8, 2018

Proctor Academy, Andover, NH (USA)

Chairs: Aaron Petrey and Rogier Reijmers

<https://www.grc.org/proteoglycans-grs-conference/2018/>



The 3rd Matrix Biology Europe Conference 2018, July, 21-24, 2018 Manchester (UK)

Update: The British Society for Matrix Biology (BSMB) is organising the next Matrix Biology Europe (Formerly FECTS) conference together with the Wellcome Trust Centre for Cell-Matrix Research in Manchester (21st- 24th July, 2018).

The conference website is up and running <http://www.conferecare.manchester.ac.uk/events/mbe2018/>

Key dates:

- Registration is open on the 5th March.
- Early Bird registration deadline is on the 15th June.
- Deadline for abstract submission to be considered for oral: 18th May (outcome communicated by 31st May).
- Deadline for late breaking hot topic abstracts for posters: 15th June.
- Bursary application deadline is the 4th May (outcome will be communicated by the 15th May).



wellcome
centre
cell-matrix
research

MANCHESTER
The University of Manchester

Matrix Biology Europe 2018
Celebrating 50 years of FECTS
Manchester, United Kingdom. 21-24 July 2018

Confirmed speakers
Judith Allen, Maria Dolores Martin Bermudo, Tom Barker, Andy Blanchard, Ray Boot-Handford
Mike Briggs, Janine Erler, Reinhard Fässler, Laurent Duca, Farshid Guillek, Erhard Hohenester
Karl Kadler, Nikos Karamanos Wei Kong, Christa Maes, Joanne Murphy-Ullrich, Liliana Schaefer
Gerjo van Osch, Alberto Passi Taina Pihlajaniemi, Martin Schwartz
Rebecca Wells, Kazuhiro Yagita, Dimitrios Zeugolis

(Rupert Timpl Award; Fell Muir Award; Dick Heinegård Young Investigator Award)

Kindly sponsored by the ISMB and ASMB

www.conferecare.manchester.ac.uk/events/mbe2018/



MBE 2018 Manchester International Bursaries:

To promote participation of junior researchers in this exciting international conference, The MBE 2018 Manchester conference will be providing bursaries for up to 5 international applicants (i.e. not from UK). International applicants should follow the International Bursaries link on the conference website for further details and application forms (<http://www.confercare.manchester.ac.uk/events/mbe2018/>). These applications will be assessed on a case-by-case basis by the Bursary Committee. Bursary application deadline is the 4th May (outcome will be communicated by the 15th May).

Ray Boot-Handford & Qing-Jun Meng
Local Organising Committee

MBE 2018 Provisional Programme

Saturday 21st July 2018

16.00 - 20.00 Registration

Plenary 1 Chairperson: Ray Boot-Handford

18.00 – 19.00 **Reinhard Fassler** (Martinsried) **Keynote Address**, 'The Kindlin Universe'

Followed by Welcome Reception

Sunday 22nd July 2018, Morning Session

Plenary 2 Chairperson: tba

9.00 – 9.30 Farshid Guilak (Washington Uni): 'Engineering new biologic therapies for arthritis.'

9.30 – 10.00 Janine Erler (BRIC Copenhagen): 'ECM remodelling during cancer progression.'

10.00 – 10.50 Coffee break

10.50 – 12.30 **Workshop 1: Stem cells and Matrix Engineering** Chairperson: John Bateman

10.50 – 11.10 Gerjo van Osch (Erasmus MC, Netherland): 'Adult human Mesenchymal Stem Cells; heterogeneity and cartilage matrix engineering capacity.'

11.10 – 12.10 4 x 15 min talks selected from abstracts

12.10 – 12.30 Dimitrios Zeugolis (NUI Galway, Ireland): 'Extracellular matrix rich supramolecular assemblies in regenerative medicine.'

10.50 – 12.30 **Workshop 2: Fibrillar/Matricellular Signalling** Chairperson: Patricia Rousselle

10.50 – 11.10 Laurent Duca (Reims, France): 'Elastin modification during vascular aging and pathophysiological consequences.'

11.10 – 12.10 4 x 15 min talks selected from abstracts

12.10 – 12.30 Wei Kong (Beijing, China): 'Cartilage Oligomeric Matrix Protein Interactome in Vascular Homeostasis.'

12.30 – 14.30 LUNCH and POSTERS

Sunday 22nd July 2018, Afternoon Session

14.30 – 16.10 **Workshop 3: Rhythms and Matrix Dynamics** Chairperson: Qing-Jun Meng



- 14.30 – 14.50 Karl Kadler (Manchester) 'On the existence of a circadian matrix that is mechanoprotective and able to respond quickly to injury.'
- 14.50 – 15.50 4 x 15 min talks selected from abstracts
- 15.50 – 16.10 Kazuhiro Yagita (Kyoto, Japan): 'Regulation and mis-regulation of cellular differentiation-coupled circadian clock functionality in mammals.'
- 14.30 – 16.10 **Workshop 4: ECM Microenvironment, Adhesion and Cell Fate** Chairperson: Zhigang Zhang
- 14.30 – 14.50 Christa Maes (KU Leuven, Belgium): 'Osteolineage Cells.'
- 14.50 – 15.50 4 x 15 min talks selected from abstracts
- 15.50 – 16.10 Alberto Passi (University of Insubria, Italy): 'Epigenetic control of hyaluronan synthesis.'
- 16.10 – 16.40 Tea Break
- Plenary 3 Chairperson: Liliana Schaefer
- 16.40 – 17.10 Taina Pihlajaniemi (Uni Oulu, Finland): Collagen XVIII and its contributions to development of tissues and tumourigenesis
- 17.10 – 18.00 ISMB Rupert Timpl Award Lecture followed by Reception

Monday 23rd July, Morning session

- Plenary 4 Chairperson: tba
- 9.00 – 9.30 Joanne Murphy-Ullrich (University of Alabama at Birmingham): The ER stress and calcium regulatory protein calreticulin in fibrosis in diabetic nephropathy.
- 9.30 – 10.00 Andy Blanchard (GSK Stevenage): 'Translating research to therapies for lung fibrosis.'
- 10.00 – 10.50 Coffee break
- 10.50 – 12.30 **Workshop 5: ASMB sponsored session: Pathobiology and Therapeutics to fibrosis.** Chairperson: Joanne Murphy-Ullrich
- 10.50 – 11.10 Rebecca Wells (UPenn): 'The effect of a complex matrix on the mechanics of liver fibrosis.'
- 11.10 – 12.10 4 x 15 min talks selected from abstracts
- 12.10 – 12.30 Tom Barker (Uni Virginia): 'Post-translational modifications of Fibronectin as therapeutic targets for Fibrosis?'
- 10.50 – 12.30 **Workshop 6: Mechanisms of matrix disease.** Chairperson: Kathy Cheah
- 10.50 – 11.10 Nikos Karamanos (Univ. of Patras, Greece): 'ERs as regulators of ECM: from epigenetics to breast cancer cell behaviour.'
- 11.10 – 12.10 4 x 15 min talks selected from abstracts
- 12.10 – 12.30 Mike Briggs (Newcastle): 'New therapeutic targets in genetic skeletal diseases.'
- 12.30 – 14.30 LUNCH and POSTERS

Monday 23rd July 2018, Afternoon Session

- 14.30 – 16.10 **Workshop 7: The Immunology/Matrix Interface.** Chairperson: John Whitelock
- 14.30 – 14.50 Liliana Schaefer (Goethe University, Germany): 'Small leucine-rich proteoglycans in inflammation: two sides of the coin.'



- 14.50 – 15.50 4 x 15 min talks selected from abstracts
15.50 – 16.10 Judi Allen (Manchester): 'Regulation of Matrix by Type 2 cytokines: Learning from Helminths.'
- 14.30 – 16.10 **Workshop 8: Matrix Mechanobiology.** Chairperson: Checco Ramirez
14.30 – 14.50 Martin Schwartz (Manchester/Yale): 'Modulation of mechanotransduction responses by extracellular matrix.'
- 14.50 – 15.50 4 x 15 min talks selected from abstracts
15.50 – 16.10 Maria Dolores Martin Bermudo (Sevilla, Spain): 'Cellular contractility controlled by cell-ECM interactions sculpt organs and tissues.'
- 16.10 – 16.40 Tea Break
- 16.40 – 17.30 **BSMB Fell-Muir Award.** Chairperson: John Couchman
Ray Boot-Handford (Manchester): Gene cloning to clinical trials - the trials and tribulations of a life with collagen. (Followed by reception).
- Tuesday 24th July 2018, Morning Session
- 9.00 – 10.45 **Dick Heinegard Young Investigator Award Session.** Chairperson: tba
6 x 15 min presentations from finalists in competition
- 10.45 – 11.30 Coffee Break
- Final session:** Chairperson tba
11.30 – 12.00 Erhard Hohenester (Imperial College London): 'Biosynthesis and function of (honorary) glycosaminoglycans: insights from structural studies.'
- 12.00 – 12.30 2 x 15 min Hot topics (selected from abstracts)
- 12.30- 13.30 MBE AGM, Heinegard Prize, Poster prizes, closing ceremony and Lunch.

Goodbye Flat Biology: *In Vivo* Inspired Cancer Biology and Therapy, 9 - 12 September 2018

Berlin (Germany)

European Association for Cancer Research Conferences Series

<http://www.eacr.org/conference/goodbyeflatbiology2018/speakers>

Extracellular Matrix: Cell Regulation, Epigenetics and Modeling - FEBS Advanced Lecture Course 27th September - 2nd October 2018 Conference & Cultural Center of the University of Patras, Patras, Greece

The FEBS Advanced Lecture Course on Extracellular Matrix: Cell Regulation, Epigenetics and Modeling (FEBS-ECM 2018) will be held in Patras (Greece) from September 27th to October 2nd (Chair: Prof. N. Karamanos) under the auspices of FEBS and the University of Patras, and the support of ISMB and private sectors. This ALC adds to the previous FEBS-MPST series (*organized by Prof. Karamanos and his Colleagues since 2007*) in an effort to emerge and push forward the Matrix Biology field. Issues related to matrix-mediated cell signaling and regulation, as well as the structure/function/dynamics of the matrix macromolecular effectors, namely proteoglycans and glycans, integrins, novel collagen types, matrikines, growth factors and matrix metalloproteinases and other matrix degrading enzymes that affect the cell behavior, will be the target of the FEBS-ECM 2018. Furthermore, epigenetic control of gene expression in extracellular matrix proteins is an important emerging aspect of disease onset. These topics are of great importance to understand the maintenance of normal tissue homeostasis and disease initiation and development, signaling elicited by interactions of cell surface receptors with matrix components and growth factors, as well as to establish rapid and sensitive structure analysis and cell imaging methods.



Federation of European
Biochemical Societies



UNIVERSITY OF
PATRAS
ΠΑΤΡΑΣ



Key Dates
Applications
31 May 2018

YTF applications
15 May 2018



Extracellular Matrix: Cell Regulation, Epigenetics and Modeling
27 September - 2 October 2018, Patras, Greece
Venue Conference and Cultural Center of the University of Patras
Website <http://extracellularmatrix.febsevents.org>

THEMATIC AREAS

- Cell surface, interactions and signaling
- Matrix-remodeling enzymes
- Matrix organization and assembly
- Epigenetics
- Novel insights in molecular modeling of ECM components

ORGANIZING COMMITTEE

Nikos K. Karamanos (*chairman*), Renato V. Iozzo, Alberto Passi, Stéphane Brézillon, Dimitris Kletsas, Achilleas Theocharis, Spyros Skandalis, Chrysostomi Gialeli, Zoi Piperigkou

SPONSORS SUPPORTING FELLOWSHIPS & AWARDS

- FEBS Young Travel Fellowships (YTF)
- Young Investigator Awards
- Poster Prizes by FEBS Press Journals
- ISMB Travel Awards



The “**Extracellular Matrix: Cell Regulation, Epigenetics and Modeling**”, will cover topics related to ongoing development in the fields of:

1. **Cell surface, interactions and signaling**
2. **Matrix-remodeling enzymes**
3. **Matrix organization and assembly**
4. **Epigenetics**
5. **Novel insights in molecular modeling of ECM components**

The above fields will focus also on bioinformatics, glycomics, matrix-mediated epithelial to mesenchymal transition (EMT), and domain mapping of interactions with matrix effectors and their importance for disease treatment and diagnosis. Key areas of cancer stem cell biology and biomarkers, and pharmacological targeting in malignancies are also included.

Following the 2015 and 2017 very successful set-up of the FEBS Matrix Pathobiology courses (<http://www.feb-mpst2017.upatras.gr/>) a young scientists' committee will organize general lectures/tutorials in the first days of the



meeting as well as pubquiz during the entire course providing in this way the necessary brainstorming for those entering the field of Extracellular Matrix Pathobiology. A career development session to promote the motivation of students including general presentations/tutorials will be also organized by the young scientists' committee.

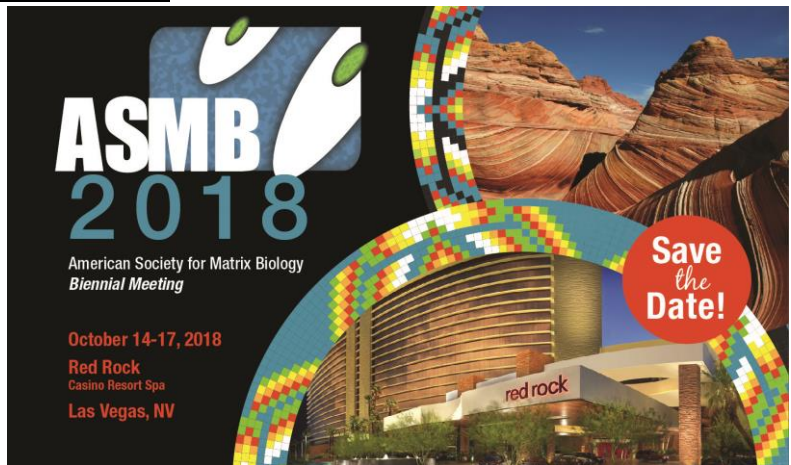
These ALC courses aim at providing support to young scientists by interacting with established investigators (*i.e. Meet the Experts/Speakers' Corner*) and gain information that can be applied to their academic environment and research institutes. Moreover, they can promote their work by presentations in form of selected talks, selected poster flash presentations, posters).

For further info, applications, fellowships, travel, accommodation and key dates visit <https://extracellularmatrix.febsevents.org>.

2018 Biennial ASMB meeting, Red Rock Casino, Las Vegas, Nevada (USA) October 14-17, 2018 and ASMB connections

The American Society for Matrix Biology (ASMB) is pleased to announce its 2018 Biennial Meeting. The conference will be held in Las Vegas, Nevada USA on October 14-17, 2018. The theme of the meeting is **"ECM Microenvironments in Disease, Aging, and Regeneration"** and the program promises to integrate the interests of a wide scientific audience. ASMB welcomes ISMB back as a sponsor and partner at this event. Importantly, ISMB members can register for the meeting at the ASMB member rate.

The ASMB meeting represents a unique opportunity for scientists, biomedical engineers, and medical professionals involved in research, clinical, and applied disciplines related to matrix biology to meet, discuss, learn, and network. Attendance is expected to exceed 300 participants. Dr. Billy Hudson will be the ISMB Distinguished Investigator at the 2018 meeting. In addition to the ISMB presence at this event, ASMB is pleased to announce participation from the guest societies TERMIS, the Histochemical Society, Alport Syndrome Society, and Matrix Biology Ireland. In addition, the ASMB meeting



will feature Special Interest Sessions organized and run by trainees. These sessions were very well run and attended at the 2016 meeting and we expect them to be similarly successful in 2018. If you are or know a trainee interested in organizing a Special Interest Session, please see the ASMB website for more information. Applications are due February 28. The ASMB will continue to host two mentoring breakfasts (Career Development, Women mentoring Women), which are always well attended with lively discussions.

Las Vegas, with its ease of access, great autumn weather and superior meeting amenities provides an outstanding location for the meeting. The Red Rock Resort, on the periphery of the city, is only 30 minutes from McCarran International airport and 20 minutes from the famous Las Vegas Strip for those wishing to see the city lights up close. We invite ISMB members will to join ASMB in Las Vegas this October. Registration will open in late March, 2018. Check the [ASMB website](#) for the most updated information. Submit your abstracts, register for the meeting, and see you in Red Rock!

ASMB requests for proposals

1) ASMB seeks proposals for Trainee-led Special Interest Sessions (SIS) at the 2018 Biennial Meeting.

The SIS is an outstanding opportunity for students, postdocs, and junior investigators to present their work, organize a session reflecting their own interests, and receive feedback from leaders in the field. Special Interest Sessions (SIS),



which are part of the official program for the 2018 ASMB meeting, should be centered on a well-focused topic. The overall goals of the SIS are to provide opportunities for young investigators working in closely related areas to exchange new data and ideas. Proposals are now being accepted. Visit the ASMB meeting website (www.asmb.net) for complete information and proposal requirements. Submit your application by February 23, 2018.

2) REQUESTS FOR PROPOSALS FOR THE 2019 ASMB WORKSHOP

Proposals are invited for organization of biennial ASMB Workshops in 2019. These workshops are intended to be low-cost, focused meetings that will occur in 2019. The ASMB workshops can be on any topic that is of relevance to extracellular matrix and cell-matrix interactions and that fulfills a perceived need within the matrix community. It is important that there not be an existing conference on the workshop topic, or one that has significant overlap with it. The ASMB's goal through this initiative is to jump-start recurring low-cost meetings on neglected or emerging topics in extracellular matrix. For more information, please visit the ASMB website.

The 11th Asian and Pan-Pacific Connective Tissue Societies Symposium and the 3rd Academic Annual Meeting of the Chinese Society of Matrix Biology in association with the ISMB. November 16-20, 2018

Hangzhou International Expo Center, Zhejiang Province (China).

<https://www.bagevent.com/event/1099148>

