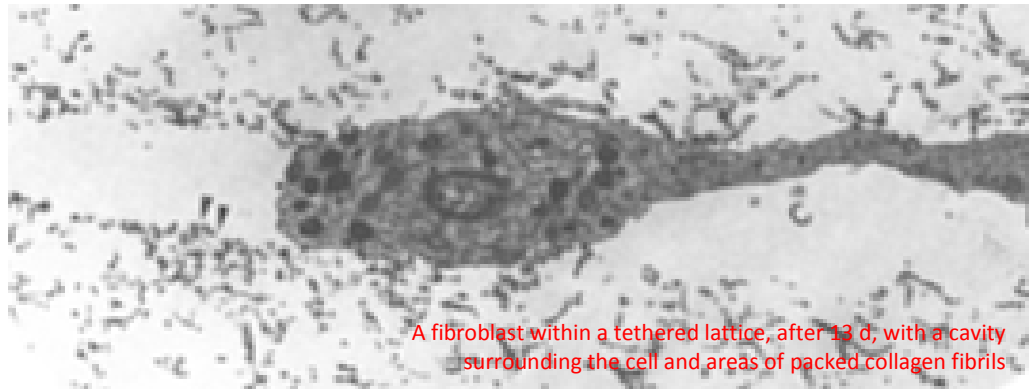




ISMB NEWSLETTER 23 April 2016

Editors: Barbara Brodsky and John Ramshaw



Francesco (Checco) Ramirez

From the President's Desk:

I want to share with you two important developments that are emblematic of the ever-growing vitality of ECM research in Asia. The first development pertains to the evolution of the Japanese matrix society. Japan has had a long and prestigious tradition of ECM-related research, as evidenced by the Japan Collagen Club funded in 1959 (and re-named the Japan Matrix Club in 1991) and the Japanese Society of Connective Tissue Research funded in 1969. The two organizations reflected in many ways the two disciplines upon which ECM research was traditionally based,

protein biochemistry on the one hand and human pathology on the other. After much discussion and several joint meetings, last year the Japan Matrix Club and the Japanese Society of Connective Tissue Research have finally agreed to merge into a single entity whose name reflects both the history and the future of ECM research, namely the Japanese Society of Matrix Biology and Medicine (JSMBM).



Prof. Yutaka Inagaki, the current JSMBM President.

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The second development: In recognition of the increasing relevance of ECM research in translational medicine, last year the Chinese Association for Physiological Sciences has approved the establishment of the Chinese Society of Matrix Biology (CSMB). This decision was the result of substantial effort by the society's current president, Prof. Wei Kong, and her colleagues who two years earlier had organized in Beijing a satellite meeting of the 9th Pan Pacific Connective Tissue Societies conference held in Hong Kong. Aside from several prominent Chinese scientists, the leaders of other national ECM societies participated in the meeting by sharing their own experience in developing the structure and goals of the respective organizations. In March of this year, the 1st CSMB meeting was held in Beijing and was a resounding success in terms of scientific quality, diversity of scientific topics and great attendance (particularly by young investigators and students).



Official photo of the 1st CSMB meeting; Prof. Kong is in the first lane, tenth from the left



Prof. W. Kong (sixth from the left) with members of her laboratory at the closing of the 1st CSMB meeting

These two developments bode very well for the future of our field, as they will surely contribute to elevate the profile of and attract new blood to ECM research; importantly, we hope that they will also translate into an increasing involvement by our Asian colleagues in the governance and growth of the ISMB.

As they are about to step down as newsletter editors, I would like to thank Barbara Brodsky and John Ramshaw on behalf of the entire society for the superb job they have done in this capacity.

Checco Ramirez
President ISMB (francesco.ramirez@mssm.edu)

Matrix Biology News

From the ISMB Secretary/Treasurer:



David J.S. Hulmes

ISMB continues to unite the world matrix biology community and complement the activities of national matrix biology societies. So far this year we have 30 new members (see pg 12), making a current membership of 309, from all over the globe (185 from Europe and the Middle East, 82 from the Americas, 42 from Asia-Pacific). Particularly noticeable is the upsurge of matrix biology in Asia (see letter from our President). We also have five new Council members, including Anthony Day (Manchester, UK), Gerhard Sengle (Cologne, Germany) and Wei Kong (Beijing, China), as well as a two junior members (a new venture for Council) in the form of Julia Etich (Cologne, Germany) and Chloé Leung (Manchester, UK). This makes a total of 19 members, Council having decided to accept all nominations for available positions this year.

This year, ISMB is supporting two major matrix biology meetings (Matrix Biology Europe, Athens, June 11-14; American Society for Matrix Biology, St Petersburg, Florida, November 13-16), for which special registration discounts have been negotiated for ISMB members, and we are also supporting a meeting in honour of Professors G. Murphy and H. Nagase on Metalloproteinases and their Inhibitors in Oxford, UK, August 4-5 (see further details on pg 18 and the ISMB web site, ismb.org). At the MBE meeting in Athens, we will be making the Rupert Timpl award to Alexander Nystroem (Freiburg), this prize being awarded every two years in recognition of an outstanding contribution to matrix biology from a junior scientist. And at the ASMB meeting in St Petersburg, Florida, we will be making the biennial ISMB Distinguished Investigator award to Karl Tryggvasson (Stockholm and Singapore) for outstanding lifetime achievements in the field.

To help junior scientists participate at matrix biology meetings, ISMB offers international travel grants. These have become increasingly popular over recent years and ISMB considers these to be a priority in these times of tight budgets, especially for foreign travel. Applications for travel awards, which must be for international travel only and can be for any meeting relevant to matrix biology, are now made directly to ISMB (see web site for details). A full list of recent awardees is also on the web site. Unfortunately, the number of travel awards available is limited by our budget, ISMB being totally dependent on membership subscriptions to support such activities. For this reason, it is important for all members of the Society to keep up to date with their subscriptions. To those of you who have already paid this year, thank you. To those of you who haven't, don't worry I will be chasing you up!

Lastly, another much appreciated activity of the Society is this regular Newsletter. Barbara Brodsky and John Ramshaw have done a brilliant job with this over the past few years. This is the last edition to be edited by them, but we are fortunate that Sylvie Ricard-Blum will be taking over as Newsletter Editor starting with the next edition this autumn (or fall, or 秋季, etc, depending on which part of the world you come).

David J.S. Hulmes
Lyon

NEWSLETTER EDITOR

We have enjoyed our time as Editors of the ISMB Newsletter, and are happy to pass on this task to Sylvie Ricard-Blum (sylvie.ricard-blum@univ-lyon1.fr).

REMEMBRANCES

In Remembrance of those in our extracellular matrix community who have died recently, remembering and celebrating the life and contributions of Robert Brown.

Robert Brown



My friend and our colleague Prof Robert Brown sadly passed away on 4th February 2016 at the age of 64. An extraordinary human being, Robert is survived by his mother Doris Brown, his daughter Elizabeth Pelichet, his son Michael Brown and grandson Finley Brown. His passing is a huge loss to our UCL community and the tissue engineering community in the UK, Europe and Internationally.

Robert was awarded his Ph.D. in 1976 by Manchester University where, under the supervision of Dr J.B.Weiss, he successfully defended his research into "*A Molecular Dissection of Rheumatoid and Normal Synovial Membranes with Special Reference to their Collagen Contents*". This started his lifelong fascination of all things collagen. He had a brief stint with industry working first as a research

assistant and then as Deputy Head of R&D with Blood Products Laboratory (Elstree) between 1977-1983 before joining UCL Institute of Orthopaedics and Musculoskeletal Science, Royal National Orthopaedics Hospital, Stanmore as a Lecturer/Senior Lecturer (1984-1992). In 1992 on his promotion to Reader he moved his research base to Bloomsbury as Director of the Tissue Repair Unit which he set up along with the UCL Tissue Engineering Centre (TREC). In 2002 he was appointed as UCL's first Professor of Tissue Engineering and moved his research base back to Institute of Orthopaedics and Musculoskeletal Science, Royal National Orthopaedics Hospital, Stanmore. He was a founding member of the British Tissue Engineering community and past president of the Tissue and Cell Engineering Society (TCES) UK.

His key research achievements were in understanding the control of growth, especially nano-micro structure, in 3D tissue models. 2 key output innovations underpinned this: orientated fibrillar fibronectin cell scaffolds and the Culture Force Monitor (CFM) model, measuring/applying directional loads to 3D culture. He was a pioneer in developing 3D models and their use in elucidating the effect of mechanics. His research innovation (the Plastic Compression -rapid, biomimetic fabrication process for collagen tissues) established him as an international leading scientist for biomimetic tissue engineering. His ability to collaborate across disciplines resulted in many successful research alliances with leading scientists in the UK, Europe and internationally. He successfully supervised over 30 M.D. and Ph.D. students, over 60 M.Sc. projects and numerous post-doc researchers. Throughout his career at UCL Robert was a very popular teacher, a sought after research supervisor, collaborator and friend to many UCL colleagues across Faculties. He was also a very popular and highly regarded scientist in the Tissue Engineering community nationally and internationally.

A Summary of Prof Brown's key Achievements.

- UCL patents on the fibronectin materials, licensed to UK biotech companies.
- Development of internationally recognised models of cell mechanics (platforms for tissue bioreactor & biomimetic scaffolds: 3 patents) plus innovative, non-destructive optical monitoring system.
- Revolutionary approach in ultra-rapid, cell-independent tissue fabrication (8 patents with licensing).
- Authored around 200+ high impact factor peer-review papers, book chapters, books & patents. Successfully delivered on research grants (PI & CoI) ~£4.75M over past 5 years and a steady invitation stream to contribute to international conferences, review/examination panels, government & learned committees (UK and international).

Robert leaves behind a rich legacy of scientific innovations, motivated students with successful careers and scientifically productive collaborations across the UK, Europe and Internationally. But most importantly he leaves behind a legacy of global friendships brought together by Robert's passion for science. I feel honoured to have spent time with a distinguished scientist and remarkable human being. Rest in peace my friend.

*Professor Vivek Mudera
University College, London*

MAJOR ISMB AWARDS



ISMB AWARDS 2016

Karl Tryggvason, MD, PhD

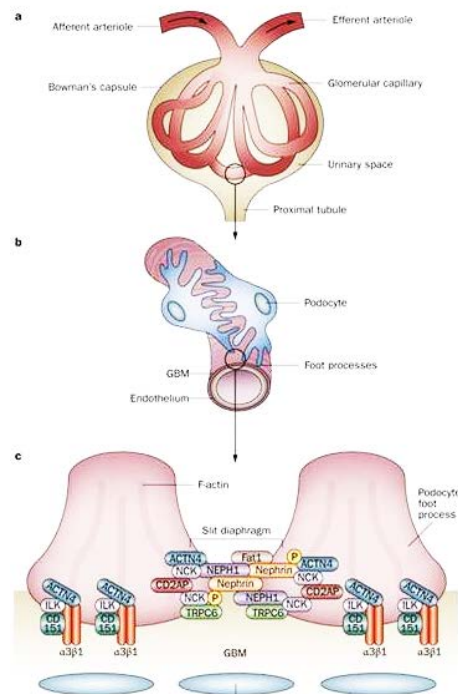
**Recipient of the 2016 ISMB
Distinguished Investigator Award
for Outstanding Contributions to
Matrix Biology**

Professor Karl Tryggvason has made numerous contributions over his career that have advanced our understanding of the composition and structure of basement membranes, mechanisms of ECM turnover, inherited and acquired kidney disorders, and most recently, the role of laminins in stem cell biology. Karl is still very active in research, presently as an investigator in the Duke University-National University of Singapore program and maintains an appointment in the Department of Biochemistry and Biophysics at the Karolinska Institute in Sweden. Of nearly 400 peer-reviewed publications to date, several describe seminal findings in matrix biology that resulted from ambitious experiments that Karl and his laboratory undertook. These publications set a high standard in the ECM field and a fine example for young investigators.

The first group of these discoveries relate to the composition and structure of basement membranes. Professor Tryggvason focused for many years on the cause of Alport syndrome, an inherited kidney disorder, and was the first to identify COL4A5 mutations in this condition, published in *PNAS* and *Science* in 1990. In fundamental work over the years, his group has characterized new collagen IV chains, laminins and perlecan, first published in papers in *J Cell Biol* and *J Biol Chem*. This work, over the years, also contributed to understanding diabetic nephropathy, cardiovascular and eye disorders and the genetics of diffuse smooth muscle tumors. His laboratory generated mice with engineered mutations in several basement membrane components, including laminins, collagens and perlecan. These provided numerous insights on the mechanisms of basement membrane assembly and the roles of basement membranes in kidney disease, cancer, diabetes and neurogenesis, among many other processes and pathologies. In recent years he has been an active proponent of and contributor to advancing gene therapy for kidney disorders.

The second major category of discoveries related to the structure and biology of matrix metalloproteinases, which was related to his interest in basement-membrane degrading enzymes (the so-called type IV collagenases). Professor Tryggvason's laboratory achieved the first structure of MMP2, published in *Science* in 1999, and was instrumental in achieving the structure of full length TIMP-2 with MMP2, published subsequently in the *PNAS* in 2002. He further contributed to understanding the mechanisms of matrix proteolysis and MMP transactivation by generating mice deficient in MMP14, the principal collagenase in many settings, and primary activator of MMP2, published in *PNAS* in 2000. These mice, and others generated by his laboratory over the years have been freely available to investigators worldwide and have resulted in several additional discoveries.

Recently, Professor Tryggvason's laboratory has made a number of contributions to the culture of embryonic stem cells on matrices with defined laminin composition, such as laminin 521 and 511, published in *Nature Communications*, *Nature Biotechnology* and *Nature Protocols*. These advances have enabled consideration of animal product-free maintenance of



Patrakka J, Tryggvason K. New insights into the role of podocytes in proteinuria. *Nature Reviews Nephrology* 2009;5:463-468.

ES cells for therapy. In addition, he has led major discoveries on nephrin, the gene mutated in congenital nephrotic syndrome.

Professor Tryggvason was instrumental in contributing to the strength of ECM communities, first in Oulu, Finland, subsequently at the Karolinska Institute in Sweden, and presently, in Singapore. He has fostered the growth of numerous young investigators and participated in several long-term, productive collaborations (in areas as diverse as cancer, aging, and developmental biology) that advanced the field of matrix biology and helped bring it to public prominence. He has also been a founder of, or been significantly involved in companies related to ECM products. For his contributions, direct and indirect, over the years to knowledge, training and collaboration in our field, the ISMB Distinguished Investigator Award is an appropriate recognition by our community.

Contributed by Suneel S. Apte, MBBS



ISMB Awards 2016

Alexander Nyström

Recipient of the 2016 ISMB Rupert Timpl Award

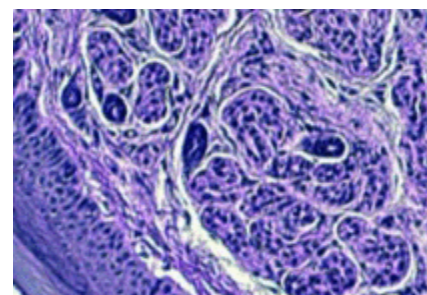
(The Rupert Timpl Award is given for the best paper published by a young researcher in the last two years).

Alexander Nyström is an excellent young investigator, who is very committed to matrix biology with its different facets. After international training, first at the University of Lund, then as a postdoc in the Iozzo lab at Thomas Jefferson University in Philadelphia and then in my laboratory, Dr Nyström is embarking on an independent career as a research group leader in Freiburg since 2013. He has published several papers in high-ranking journals such as *Journal of Clinical Investigation*, *EMBO Molecular Medicine*, or *Science Translational Medicine*. Dr Nyström also has independent grants from the German Research Foundation and from an E-rare consortium with participants from several European countries. He is recognized in the community as an invited speaker in international conferences and as a peer-reviewer for different scientific journals.

Specifically, Dr Nyström should be recognized for his paper last year in *EMBO Molecular Medicine* entitled "*Losartan ameliorates dystrophic epidermolysis bullosa and uncovers new disease mechanisms*" (Nyström et al., *EMBO Mol Med.* 7:1211-28, 2015). In this paper he showed with several different methods including proteomics that tissue-specific inflammation and TGF- β signalling in chronically injured skin contributes to progressive soft tissue fibrosis and fusion of the digits in dystrophic EB skin, a symptom that is at least as debilitating as chronic skin fragility. Furthermore, he used losartan, a small molecule angiotensin II, type 1 receptor antagonist to reduce inflammation and context-specific TGF- β activity. Collectively, the data argue that in dystrophic EB, fibrosis is a consequence of a cascade encompassing tissue damage, TGF- β mediated inflammation and matrix remodelling. Inhibition of TGF- β activity limits unwanted outcomes and substantially ameliorates long-term symptoms of the disease.

This paper was very well received by the scientific community and has led to a clinical trial with patients (in the final stages of preparation after financing has been secured). Thus, Alexander Nyström's work, in particular this paper in *EMBO Molecular Medicine*, represents high level translational research worthy of the Rupert Timpl Award.

Contributed by Dr. Leena Bruckner-Tuderman, M.D.



Targeting the secondary consequences of collagen VII loss with FDA-approved drug losartan ameliorates recessive dystrophic epidermolysis bullosa (RDEB) in a mouse model.

Symposium in Honour of Ruth Chiquet-Ehrismann

“The Extracellular matrix and beyond”



A Symposium in honour of the life and science of Ruth Chiquet-Ehrismann, who passed away untimely on 4 September 2015, was held at the Friedrich Miescher Institute, Basel, on 22 April 2016. Ruth Chiquet-Ehrismann joined the FMI in 1984 and remained there as a Group Leader throughout the rest of her career.

The Symposium was organised by Susan Gasser (FMI Director) and Denis Monard (former FMI Director and long time research colleague). The programme brought together current and former laboratory members, colleagues and collaborators of Ruth Chiquet-Ehrismann. The first session included presentations from former members of Ruth's laboratory, beginning with Eleanor Mackie (University of Melbourne), a founder member of the group. In addition to commenting on how the group began and achieved

notable rapid success with a Cell paper in 1986, Eleanor explained how “Myotendinous antigen” came to be renamed “Tenascin”. Other lab Alumni who gave talks in this session included Gertraud Orend (INSERM Strasbourg), Arnaud Scherberich (University of Basel), Stefan Baumgartner (Lund University) and Ken Ichi Marsumoto (Shimane University). Martin Degen, a recent group member who is now starting his own group at University of Bern, presented his studies with Ruth on the up-regulation of tenascin-C and -W in breast cancers and the future potential of these proteins as prognostic or predictive markers.

In the second session, Nancy Hynes, a long-term colleague at FMI, described her initial collaboration with Ruth on the role of tenascin-C in regulating transcription factors important for mammary epithelial differentiation and then recent research on the influence of the extracellular tumour environment on metastasis. We then heard from current group members: Ismail Hendaoui, on novel research into tenascins in hepatobiliary diseases, and Maria Asparuhova, now at University of Bern, on her research in Ruth's laboratory on the regulation of tenascin-C expression by the stress-dependent transcription factor MKL1, which has led to the identification of a MKL1-regulated suite of genes that correlate with poor prognosis in breast cancer patients. The latter half of this session included talks from a tenascin colleague (Kim Midwood, Oxford) and a collaborator (Jo Adams, University of Bristol). The closing talk was given by long-term collaborator Richard Tucker, (UC-Davis), who focused on the teneurins, a family of transmembrane, tenascin-related proteins discovered by Ruth's team.

Ruth Chiquet-Ehrismann is best known for her research on the molecular properties and functional roles of tenascins. The Symposium gave witness to the breadth and diversity of basic and applied research directions that have emanated from these initial interests, and how former and recent lab. members are carrying these forward in creative ways. At this moving occasion, the heartfelt warmth and esteem of all Ruth's mentees, colleagues and collaborators was very much apparent. As one speaker simply expressed it “Everyone who knew Ruth loved her”. We love and miss her as a person and as a scientist.

*Jo Adams
University of Bristol
ISMB Council Member*

MEETING REPORTS

REPORTS FROM STUDENTS FUNDED BY ISMB TRAVEL GRANTS

One of the most important activities of ISMB is providing international travel grants for young investigators to attend and participate in matrix biology meetings. Below are reports provided by the ISMB travel awardees to a Gordon Conference and an ECM meeting earlier this year. Reading their reports below, you can see the value of the ISMB travel awards for these young researchers.

Gordon Research Conference (GRC) and Seminar (GRS) on Bones and Teeth

13th - 16th February 2016, Galveston, Texas, USA

It was my great pleasure to attend to the GRS/GRC on Bones and Teeth in February 2016, being my first international conference in the U.S. Participating in the seminar that serves as a unique forum for graduate students and post-docs to meet and present data was a valuable experience. The relaxed and unreserved atmosphere invited young scientists to ask questions and discuss projects, which made it much easier to do so during the conference. I was very surprised by the fact that also the conference did not felt like a hierarchical place enabling me to feel equal and easily interact with both senior and junior scientists. Not only the organizers but also world famous senior scientist approached young scientist openly and thereby set a great platform for connecting and networking. This very encouraging environment allowed me to rapidly feel comfortable. Even though the scientific program was tough from 9.00 am to 9.30 pm, the free time after lunch provided a great opportunity to spend the time with other participants outside the scientific focus and get to know Galveston and its surroundings. I thoroughly enjoyed the scientific sessions and the poster sessions as well as the scientific and non-scientific discussion during the lunch and dinner time. Most importantly, the evening events provided a great platform to interact with both senior and junior investigators and I met a lot of fascinating people I plan to stay in touch with. In contrast to several international meetings in Europe, at the GRC/GRS I have learned that the community at a scientific meeting can be open, equal and supportive. This was an extremely stimulating and impressive experience. I was very happy to be part of such an inspiring scientific event and am exceedingly grateful to the ISMB for their support.

Julia Etich

Postdoc, University of Cologne (Germany)



GRC Chairs and Poster Award Winners: Fanxin Long (Vice Chair), Abhishek Chandra, Gazelle J Crasto, Julia Etich, Anyonya R Guntur, Maurizio Pacifici (Chair)



Extracellular Matrix: New Perspectives for Translational Medicine

3rd – 5th March, 2016, Freiburg

I am currently a Postdoc in the lab of Fiona Watt, KCL in London and work on how different dermal fibroblast lineages contribute to neonatal wound repair and dermal maturation in the skin. This matrix biology conference was the perfect place to present my recent findings. The German and French Societies for Matrix biology held a joined meeting in Freiburg, bringing together many international speakers and over 80 posters. The conference was well organized, had the right size and there were no difficulties to meet other scientists during the coffee breaks and poster sessions. The many cutting-edge talks kept a familiar atmosphere, covering a wide variety of exciting research fields in matrix biology from basic science to translational approaches. There was a strong focus on how extracellular matrix components have huge impact on cell behavior and cellular processes. Thus, in the FRIAS lecture Renato Iozzo, Philadelphia, emphasized the role of proteoglycans, specifically Decorin and Perlecan, in controlling cell autophagy. In the first session I enjoyed the talk of Beate Eckes, Cologne, showing how latent TGF β 1 is secreted by fibroblasts via autophagy, pointing to the possibility that inhibition of the autophagosome might help to modulate TGF β signaling in disease in the future. Further, I was impressed by the discovery of Chris Overall's lab, that extracellular MMPs can exert transcriptional activity. They showed that MMP12, secreted from macrophages, translocate to the nucleus and is able to modulate I κ B α gene transcription by binding to its promoter. Intriguingly, MMP12 is able to bind to the DNA through its catalytic domain. Chris' talk sparked a vivid discussion about the mechanism of nuclear transport and molecular regulation, which are still unknown. In my view this unexpected discovery opens a whole new research field.

In the System biology of the ECM section I was intrigued by the talk of Ulrich auf dem Keller, Zurich, presenting an elegant proteomic approach to monitor the proteolysis of distinct MMPs and how this can lead to the identification of new MMP substrates. In the same section Mattia Botto, Boston, described the exciting role of secreted kinases in the extracellular environment. How these kinases are able to phosphorylate extracellular matrix components was extensively discussed at the meeting. In the inflammation and fibrosis section it was interesting to see the multiple ways how immune cells influence and modulate the extracellular matrix. For example Sabine Eming, Cologne, presented how macrophages, via Interleukin-4 Receptor α signaling, are able to modulate endothelial cell matrix interactions and collagen fibril assembly during wound healing. Further in the Musculoskeletal biology section I was impressed by the work of the Gerard Karsenty lab, New York, who have uncovered a central role of glucose, the main osteoblast nutrient, in the initiation of osteoblast differentiation. They were able to show that glucose is taken up via Glut1 receptor in an insulin independent manner and modulates AMPK activity in osteoblasts, which prevents Runx2 degradation (marker for osteoclast differentiation) and promotes bone formation. This direct interplay of bone development and glucose metabolism fascinated me. In the basement membrane and kidney function section it was interesting to see the advances achieved by Jeff Miner, St Louis, and Tobias Huber, Freiburg, using super-resolution and scanning electron microscopy to dissect the molecular composition of kidney filtering barrier at the basement membrane cell interface with an incredible resolution.

Finally the Young investigator award session was very exciting for me because the travel grant allowed me to be part of the committee and to actively participate in the decision making process. In summary I was very impressed by the conference, the high level of science and the many stimulating talks. I am sure I will be able to translate this experience and the many inspirations in to my own science at KCL.

*Emanuel Rognoni
Center for Stem Cell and Regenerative Medicine, KCL, London, UK*



Chinese Society of Matrix Biology



We are proud to announce the recent establishment of the Chinese Society of Matrix Biology (CSMB). CSMB is a non-profit scientific group which is affiliated with Chinese Association for Physiological Sciences. The Association for Physiological Science approved to establish a branch association, Chinese Society of Matrix Biology in October 2015. CSMB will be engaged in the dissemination of information relating to research on the extracellular matrix, cell-matrix interactions, and related areas in biology and medicine and will promote the research on matrix biology and develop the translational medicine in China.

The Society has elected the following Officers, along with a full Council.

President:	Wei Kong,	kongw@bjmu.edu.cn
Vice-Presidents:	Hongquan Zhang	Hongquan.zhang@bjmu.edu.cn
	Chuanyue Wu	carywu@pitt.edu
	Danny Chan	chand@hku.hk
	Zhigang Zhang	zzhang@shsci.org
Secretary:	Jun Zhan	zhanjun@bjmu.edu.cn

The Society has held its inaugural conference in Beijing, P.R.China on 18th – 20th March, 2016, which included various perspectives on the role of matrix microenvironment in development, stem cell differentiation, transmembrane signal transduction, ECM biomechanical characteristics, and related human diseases.

The Society has also initiated a Website <http://www.chinasmb.org/> which we encourage everyone to visit and book mark so that they can follow the news and events of this new Society for Matrix Biology.

*Wei Kong, Professor
Department of Physiology and Pathophysiology
Peking University Health Science Center*

POSITIONS AVAILABLE

In the past, we have included any Positions Available within the newsletter. But it has become clear that a twice yearly newsletter is not a good way of posting positions in any timely manner; the deadline for applications would frequently be over before the newsletter came out. So these job openings are now being posted and can be viewed online on the ISMB website (www.ismb.org). So, if you have any job openings please send the notification to David Hulmes (david.hulmes@ibcp.fr) for placing on the ISMB website (<http://ismb.org/career/>).

Also, as noted previously, the "Extracellular Matrix News" also includes an online listing of positions that are available, so you can also benefit from this partnership. "Extracellular Matrix News" is a free, weekly e-Newsletter for members of the extracellular matrix community. The ISMB web site (www.ismb.org) now includes a link to "Extracellular Matrix News: on the welcome page. (<http://www.extracellularmatrixnews.com>).

Recent posting on ISMB website (check for more details): "Postdoctoral Position to Study Mechanisms of Leukocyte Extravasation Across Postcapillary Venules using Intravital Microscopy", with Prof Lydia Sorokin at Institute of Physiological Chemistry and Pathobiochemistry, University of Muenster, Germany, e-mail: Sorokin@uni-muenster.de

Recent Reviews and Papers

A paper on Elastin has recently been published in 'Science Advances' by Tony Weiss and colleagues.
Yeo et al. Sci. Adv. 2016;2:e1501145. 5 February 2016

RESEARCH ARTICLE

BIOMOLECULES

Subtle balance of tropoelastin molecular shape and flexibility regulates dynamics and hierarchical assembly

Giselle C. Yeo,^{1,2*} Anna Tarakanova,^{3*} Clair Baldock,⁴ Steven G. Wise,⁵ Markus J. Buehler,³ Anthony S. Weiss^{1,2,6†}

The assembly of the tropoelastin monomer into elastin is vital for conferring elasticity on blood vessels, skin, and lungs. Tropoelastin has dual needs for flexibility and structure in self-assembly. We explore the structure-dynamics-function interplay, consider the duality of molecular order and disorder, and identify equally significant functional contributions by local and global structures. To study these organizational stratifications, we perturb a key hinge region by expressing an exon that is universally spliced out in human tropoelastins. We find a herniated nanostructure with a displaced C terminus and explain by molecular modeling that flexible helices are replaced with substantial β sheets. We see atypical higher-order cross-linking and inefficient assembly into discontinuous, thick elastic fibers. We explain this dysfunction by correlating local and global structural effects with changes in the molecule's assembly dynamics. This work has general implications for our understanding of elastomeric proteins, which balance disordered regions with defined structural modules at multiple scales for functional assembly.

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The University of Sydney, was quick to follow with more information:



(<http://sydney.edu.au/news-opinion/news/2016/02/06/study-explains-elastins-remarkable-movements.html>)

Study explains elastin's remarkable movements. Protein that gives blood vessels and skin their strength and flexibility has its molecular motions revealed.

Elastin is a crucial building block; during a person's life, the elastin in a blood vessel, for example, will go through an estimated two billion cycles of pulsation. But how the tissue achieved this flexibility remained a mystery. A paper published in *Science Advances* reports the discovery by an international group of researchers was a surprise, with the dynamics likened to the molecule doing a ballet dance.

Elastin is a crucial building block in our bodies – its flexibility allows skin to stretch and twist, blood vessels to expand and relax with every heartbeat, and lungs to swell and contract with each breath. But exactly how this protein-based tissue achieves this flexibility remained an unsolved question – until now.

This material has a remarkable combination of flexibility and durability: elastin is one of the body's most long-lasting component proteins, with an average survival time comparable to a human lifespan. During a person's life, the elastin in a blood vessel, for example, will have gone through an estimated two billion cycles of pulsation.

A team of researchers at the University of Sydney, MIT in the United States and at the University of Manchester in the United Kingdom has carried out an analysis that reveals the details of a hierarchical structure of scissor-shaped molecules that gives elastin its remarkable properties – *read more through the paper and the website.*



Elastin sheets for tissue repair.



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 twice yearly 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 last 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

We welcome the following new members who have joined ISMB this year:

Federico Soria	Postdoc, Institut des Maladies Neurodegeneratives, Bordeaux, France
Sandra Wiley	Research Associate, University of California, San Diego, La Jolla, USA
Julia Etich	Postdoc, University of Cologne, Cologne, Germany
Amy Bradshaw	Associate Professor, Medical University of South Carolina, Charleston, USA
Younes El Fersioui	Ph.D. student, Dept Orthodontics, Bern, Switzerland
Maria Gubbiotti	Ph.D. student, Thomas Jefferson University, Philadelphia, PA, USA
Emanuel Rognoni	Postdoc, Centre for Stem Cell and Regenerative Medicine, London, UK
Rhiannon Grant	Ph.D. student, Inst of Bioengineering, Edinburgh, UK
Andrew Hellewell	Postdoc, School of Biochemistry, Bristol, UK
Heather Davies	Postdoc, University of Grenoble Alpes, Grenoble, France
Bassil Dekky	Ph.D. student, Université de Rennes 1, Rennes, France
Pearl Lee	Ph.D. student, University of Sydney, Camperdown, Australia
Fiona Jones	Ph.D. student, Institute of integrative Biology, Liverpool, UK
Nan Yang	Postdoc, University of Manchester, Manchester, UK
Qing Jun Meng	Senior Research Fellow, University of Manchester, Manchester, UK
Jennifer Ashworth	Postdoc, University of Nottingham, Nottingham, UK
Elvira Diamantopoulou	Ph.D. student, University of Sheffield, Sheffield, UK
Ritva Heljasvaara	Senior Researcher, Oulu Center for Cell-Matrix Research, Oulu, Finland
David Pulido-Gomez	Postdoc, Imperial College London, London, UK
Andras Kiss	Ph.D. student, Dept of Genetics, Szeged, Hungary
Gerhard Sengle	Principal Investigator, Center for Biochemistry, Cologne, Germany
Clair Baldock	Professor, University of Manchester, Manchester, UK
Elena Carava	Ph.D. student, Università Degli Studi Dell Insubria, Varese, Italy
Mourad Bekhouche	Postdoc, University of Liège, Sart-Tilman, Belgium
Giulia Signorino	Ph.D. student, Università Cattolica dei Sacro Cuore, Rome, Italy
Raphael Reuten	Postdoc, Institute for Biochemistry II, Cologne, Germany
Fiorella Spinelli	Ph.D. student, Centro de Investigaciones Basicas y Aplicadas, Buenos Aires, Argentina
Zoi Piperiglou	Ph.D. student, University of Munster/University of Patras, Germany/Greece
Zhen Sun	Ph.D. student, University of Strasbourg, France
Rachel Lennon	Senior Clinical Lecturer, University of Manchester, UK
Evgenia Karousou	Assistant Professor, University of Insubria, Varese, Italy



MATRIX MEETING INFORMATION

ISMB
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Dear ISMB Colleagues,

On behalf of the Planning Committee and ASMB Executive Committee, I would like to invite you to attend the 2016 ASMB Biennial Meeting to be held at the Hilton St. Petersburg Bayfront in St. Petersburg, FL on November 13-16, 2016. **Registration, abstract submission, and applications for trainee travel awards are now open at www.asmb.net.** *ISMB and ASMB have negotiated a special arrangement for current ISMB members so that they can register at the ASMB member rate. Please fax +1 301 634 7455 or email ASMB@faseb.org to receive the discount.* Early-Bird registration ends July 8, 2016.

The Theme of the 2016 meeting is “The ECM Microenvironment: A Regulatory force in Aging and Disease.” The Programming Committee has crafted a program that will highlight the importance of ECM in the biology of disease and therapeutic applications. **Judith Campisi** from the Buck Institute for Research on Aging will be our keynote speaker. Plenary topics include sessions on Linking Metabolic Disease with the ECM Microenvironment, Aging and Fibrosis and ECM dysfunction, ECM in Regenerative Medicine and the Stem Cell Niche, Novel Mechanisms of ECM Regulation, and Therapeutics to regulate ECM in Diseases. We will also hold 15 concurrent sessions for oral and poster presentations. Posters can be displayed the entire meeting.

In keeping with ASMB tradition, Sunday afternoon will be reserved for Special Interest Sessions. Tissue Engineering and Regenerative Medicine International Society – Americas (TERMIS-AM) (Ashley Brown, NC State/UNC) and the CCN Society (Andrew Leask, University of Western Ontario) are guest societies hosting Sunday afternoon sessions. In addition, there are four Special Interest Sessions organized by trainees: Extracellular Matrix Dynamics in Development and Disease (Sumeda Nandasada Cleveland Clinic Foundation); Cilia, Inflammation, and Fibrosis (Kurt Zimmerman, UAB); ECM in Vascular Development (Heena Kumra, McGill University); and Unveiling the mechanisms of novel ECM-modifying proteases: focus on substrates (F. Javier Rodriguez-Baena, GENYO).

We are pleased to announce the ASMB Senior, Junior, and Iozzo Awardees and ISMB Distinguished Investigator Awardee who will give presentations at the meeting. **Renato Iozzo** is the ASMB Senior Investigator, **Vincent Tagliabracchi** is the ASMB Junior Investigator, and **Thomas Barker** is the ASMB Iozzo Awardee. **Karl Tryggvason** is the ISMB Distinguished Investigator. The ISMB and ASMB have partnered to sponsor a memorial lecture to honor the late Ruth Chiquet-Ehrismann, which will be presented by **Jean Schwarzbauer**.

St. Petersburg, Florida is a vibrant small city on Florida's Gulf Coast and Tampa Bay. The Hilton is located near the waterfront marina, restaurants and shopping. The hotel also offers a free shuttle service to local venues. Temperatures in November are typically in the mid to upper 70's for highs and low 60's for lows. The hotel is about 20-30 minutes from the Tampa International Airport (TPA) and ASMB will be able to offer discounted shuttle rates.

We are excited to announce that our Tuesday evening banquet will be held at the Salvador Dali Museum, a short walk from the Hilton and overlooking Tampa Bay. The Dali Museum architecture reflects the unique perspectives of its artist. Docents will be available to assist us in interpreting Dali's unique vision. As scientists, our challenge is to see things differently so that we can make new connections in our attempts to understand the cellular and molecular world: hopefully, you will find some inspiration here. A Latin salsa band will provide entertainment for the evening. Be sure to decorate wishing tree at the Museum with your wishes for fundable grant scores!

Please “save the date” for the 2016 meeting and encourage your trainees and colleagues to attend. ASMB values its partnership with ISMB and is grateful for ISMB's continued participation and support for the biennial ASMB meeting. Please contact me or Kendra LaDuca if you know of people or groups/societies who might be interested in attending so that we can publicize the meeting. Ideas for vendor, grant, and foundational support for the meeting are always welcome.

Joanne Murphy-Ullrich, PhD
Organizing Committee Chair, President-elect, ASMB



Dear ISMB Colleagues,

The Matrix Biology Society of Australia and New Zealand will be holding our 40th Annual Scientific Meeting, our **RUBY** year.

The meeting will be held 20th – 23rd November, 2016 at the tranquil setting of the Liz Kernohan Conference Centre at the University of Sydney Camden Campus, an ideal location for the retreat style conference.

There will be an outstanding international and national speakers who will explore exciting topics of significance to health and disease where the extracellular matrix and matrix biology play critical roles, such as:

- o Fibrosis - Raghu Kalluri (University of Texas)
- o Pain - Anne-Marie Malfait (Rush University)
- o Neural development and plasticity – Roger Pocock (Monash University)
- o Glycomics - Jerry Turnbull (University of Liverpool)

as well as including a host of other matrix-related themes including genetics, biochemistry, cell biology, invasion and metastasis, and tissue engineering.

For further details, please follow the Society website at <http://www.mbsanz.org/Home/Meetings#annual>

Please save the date and come and celebrate our **RUBY** Anniversary



Transglutaminases in Human Disease Processes - Understanding the Varied Pathological Roles of a Multifunctional Enzyme Family

This meeting, **July 10-15, 2016, Girona, Spain**, will discuss the latest cutting-edge research in the Transglutaminase biology, bringing together the most eminent researchers in Transglutaminase biology from across the world with disease experts. This conference aims to blend the expertise of seasoned scientists with young enthusiastic new comers to the field. Each session will be aimed at a particular disease area with the discussion lead tasked with building a focused and themed program to maximize participation and output. The sessions will include:

- o Modulators, Structures and Substrates of Transglutaminases
- o The Function of Transglutaminases in Cardiovascular Disease
- o Transglutaminases in Tissue Remodelling, Fibrosis and Scarring
- o Do Transglutaminases Play a Role in Immunology and Rheumatology disorders?
- o What Role do Transglutaminases Play in Neurological disease?
- o Celiac Disease, Gastroenterology and Transglutaminases
- o Transglutaminases in Oncology
- o The Contribution of Transglutaminases to Connective Tissue Disorders

Each presentation within the session will have ample time for in depth discussion. There will also be 4 poster sessions providing a great opportunity for Post-Docs and graduate students to present their work under an informal relaxed atmosphere that fosters networking and idea sharing. For the first time there will be an additional session for the best abstracts from young investigators to be presented as short talks.

Please see <https://www.grc.org/programs.aspx?id=14564> for further information.

*Chair: Timothy Johnson
Vice Chair: Mari T. Kaartinen*



MATRIX MEETING ANNOUNCEMENTS



McGOWAN INSTITUTE FOR REGENERATIVE MEDICINE
Regeneration Through Innovation™

9th Symposium on Biologic Scaffolds for Regenerative Medicine

April 28-30, 2016

Silverado Resort, Napa Valley, California

http://www.mirm.pitt.edu/events/2016_Meetings/2016scaffoldssymposium/



43rd Annual Calcified Tissue Society Congress

May 14-17, 2016

Rome, Italy

<http://2016.ectscongress.org/>



10th World Biomaterials Congress

May 17- 22, 2016

Montreal, Canada

Website: <http://www.wbc2016.org>



ICR 2016 : 18th International Conference on Rheumatology

May 23 - 24, 2016

London, United Kingdom

<https://www.waset.org/conference/2016/05/london/ICR/call-for-papers>



22nd Canadian Connective Tissue Conference 2016

May 28-30

Hamilton, Canada

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



EDS International Symposium 2016

May 2016

New York City

<http://ednf.org/eds-international-symposium-2016>



The European League Against Rheumatism (EULAR)

8 - 11 June 2016

London, UK

<http://www.congress.eular.org/>



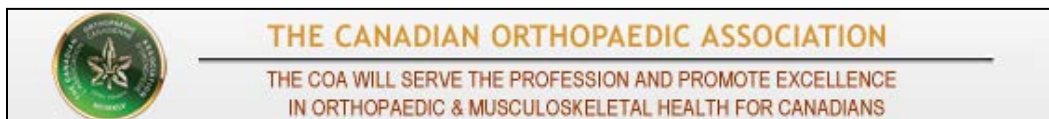
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Matrix Biology Europe

June 11-14, 2016

Athens, Greece

<http://www.mbe2016.upatras.gr> (See Poster at the end of the Newsletter)



Canadian Orthopaedic Association 2016 Annual Scientific Meeting

17 - 19 June 2016

Halifax, Canada

<http://www.coa-aco.org/>



Annual Symposium: TakeHeart

24-26 June 2016

Baltimore, MD

<http://www.loeysdietz.org/en/get-involved/conference-2016>



Gordon Research Conferences

 **Transglutaminases in Human Disease Processes**

July 10-15, 2016

Girona, Spain

<https://www.grc.org/programs.aspx?id=14564>



9th European Elastin Meeting

June 17-19, 2016

Stuttgart, Germany

<http://www.elastin2016.com/>



American Orthopaedic Association - 2016 Annual Scientific Meeting

22 Jun - 25 Jun 2016

Seattle Washington

<http://www.aoassn.org/calendar-of-events/2016-save-the-dates.aspx>

Gordon Research Conferences

 **Signal Transduction by Engineered Extracellular Matrices - *Gordon Research Conference***

June 26 - July 1, 2016

Biddeford, ME

<https://www.grc.org/programs.aspx?id=12911>



TERMIS-EU Conference 2016

June 28 - July 1, 2016

Uppsala, Sweden

Website: http://www.termis.org/meetings_europe.php



Bone Research Society

Bringing basic and clinical researchers together

Bone Research Society - BRS Annual Meeting 2016

29 June - 1 July 2016

Liverpool, UK

<http://boneresearchsociety.org/meetings/#7>



Gordon Research Conferences

Proteoglycans (GRS) - Proteoglycans as Functional Regulators of Development and Disease

July 9-10, 2016

Proteoglycans - The Proteoglycan Arc - From Molecular Mechanisms to Therapeutic Exploitation

July 10-15, 2016

Proctor Academy

<https://www.grc.org/programs.aspx?id=15430> and <https://www.grc.org/programs.aspx?id=12038>



FASEB

Federation of American Societies
For Experimental Biology

FASEB conference on Matricellular Proteins in Development, Health, and Disease

July 17 – 22, 2016

West Palm Beach, FL

<http://www.faseb.org/SRC-Microsite/MatProtein/Home.aspx>



KENNEDY
INSTITUTE OF RHEUMATOLOGY | NDORMS

&



Metalloproteinases and their Inhibitors: beginning, past and future

August 4 – 5, 2016

Oxford, UK

<http://www.kennedy.ox.ac.uk/more-events/metalloproteinases-and-their-inhibitors-beginning-past-and-future>

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termis®

Tissue Engineering International
& Regenerative Medicine Society

2016 TERMIS-AP Conference

September 3-7, 2016

Tamsui Town of New Taipei City

<http://www.termis.org/ap2016/>



British Society for Matrix Biology

BSMB Autumn meeting. 'The art of communication: signalling cascades in mechanotransduction'

September 5 – 6, 2016

Cardiff, Wales.

<http://www.bsmb.ac.uk/meetings/1680/>



British Orthopaedic Association

British Orthopaedic Association - 2016 Annual Congress

September 13- 16, 2016

Belfast, Ireland

<http://congress.boa.ac.uk/>



6th Freiberg Collagen Symposium

September 14 to 15, 2016

Freiberg, Germany

<http://www.filkfreiberg.de/1/news/conferences/6th-freiberg-collagen-symposium-september-14-and-15-2016/>



International Conference on New Advances in Probing Cell-Extracellular Matrix Interactions

October 20-21, 2016

Berlin, Germany

<http://www.nanoge.org/CellMatrix/index.php>



11th International BMP Meeting "BMPs in Development, Disease, & Regeneration"

October 26 - 30, 2016

Boston, MA

http://projects.ig.harvard.edu/bmp2016conference_boston/register



Connective Tissue Oncology Society, 21st Annual Meeting

November 9 -12, 2016

Lisbon, Portugal

<https://www.ctos.org/Meeting/2016AnnualMeeting.aspx>



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American Society for Matrix Biology – Biennial Meeting

November 13-16, 2016

St. Petersburg, Florida

http://www.asmb.net/current_meeting.php



Matrix Biology Society of Australia and New Zealand - 40th Annual Meeting

November 20 - 23, 2016

Camden, Sydney

Website: <http://www.anzbmsconference.com>



2016 TERMIS-AM Conference

December 11-16, 2016

San Diego, CA

http://www.termis.org/chapters_am.php

And some Meetings for next year, 2017:



World Congress on Osteoporosis, Osteoarthritis and Musculoskeletal Diseases

March 23- 26, 2017

Florence, Italy

<http://www.humacom.com/node/79/raw>



Hyaluronan 2017

June 11-15 2017

Cleveland, OH

<https://www.ishas.org/>



2017 TERMIS-EU Conference

26-30 June 2017

Davos, Switzerland



Collagen - Gordon Research Seminar

July 15-16, 2017

Collagen - Gordon Research Conference

July 16-21, 2017

Colby-Sawyer College, New London, NH

<https://www.grc.org/programs.aspx?id=12176>



Elastin, Elastic Fibers & Microfibrils - Gordon Research Seminar

July 29-30, 2017

Elastin, Elastic Fibers & Microfibrils Gordon Research Conference

July 30 - August 4, 2017

University of New England, Biddeford, ME

And some Major Events in 2018 to Plan Ahead for:



50th Anniversary of Matrix Biology - MBE 2018

July 21-25, 2018

Manchester, UK

<http://www.sfbmec.fr/?p=1866>



TERMIS World Congress

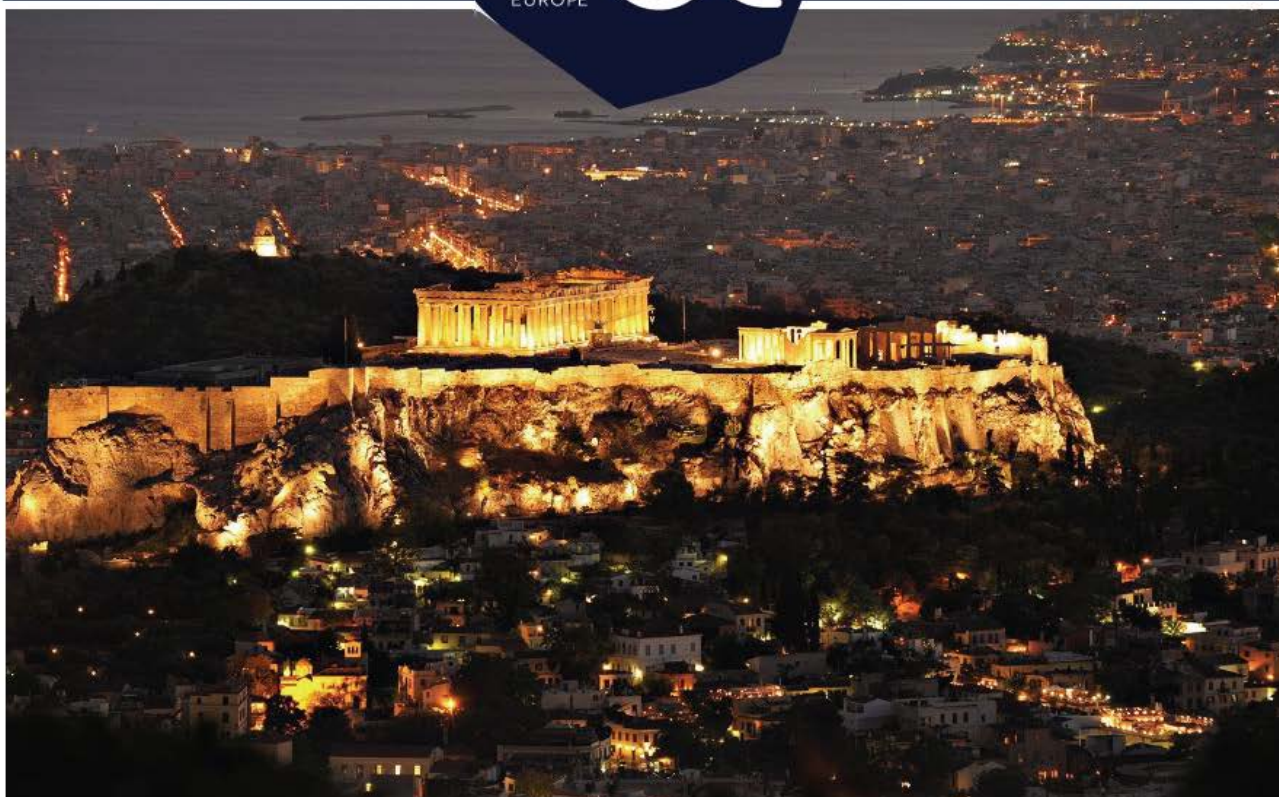
September 4 -7, 2018

Kyoto, Japan

http://www.termis.org/meetings_worldcongress.php

2nd MBE Conference
(XXVth FECTS
Meeting)

Athens Greece,
June 11-14, 2016



Plenary Lectures / Workshops

- ▶ Proteoglycans in health and disease
- ▶ Matrix proteolysis in health and disease
- ▶ Role of collagen modifications in matrix quality/quantity and disease
- ▶ Cell adhesion, signaling and the tumour environment
- ▶ Cell/matrix interactions and signaling in matrix biology and pathology
- ▶ Matrix in immune regulation
- ▶ Matrix disease mechanisms
- ▶ Pharmacological targeting of matrix in disease

- ▶ Tissue engineering from a matrix perspective and ECM-based nanobiotechnology
- ▶ Matrix regulation in health and disease. Genetics and Epigenetics
- ▶ Systems Biology
- ▶ ... and others to be announced

Venue: Conference Hotel "Royal Olympic"

Chair: Prof. Nikos K. Karamanos

Deadline Early Bird Registration:
mid April 2016

Website: www.mbe2016.upatras.gr

E-mail: mbe2016@chemistry.upatras.gr