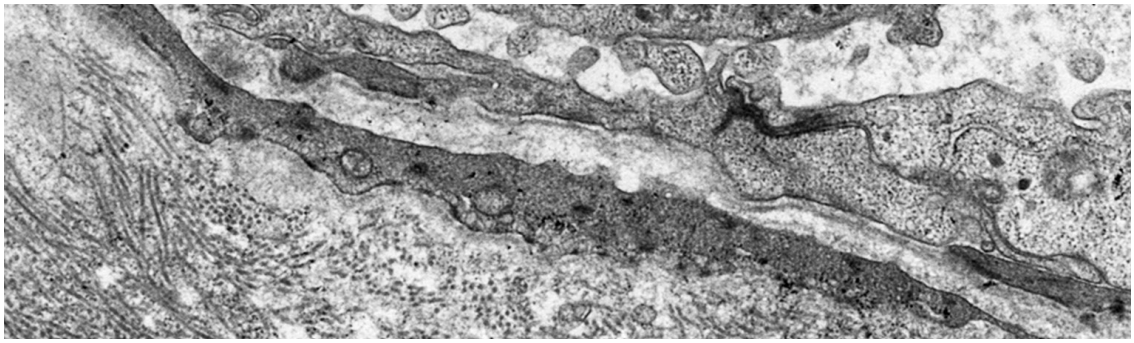


ISMB NEWSLETTER
September, 2012

From the President's Desk

ISMB was recently involved in the organization of the FECTS (Federation of European Connective Societies) meeting in Katowice, Poland. The quality of the science at this meeting was excellent, with speakers from Sweden, France, Spain, USA, Denmark, Germany, Netherlands, Poland, UK, Finland and Australia. Congratulations in particular to Thordur Oskarsson, this year's ISMB Rupert Timpl awardee, given for the best paper in matrix bioogy by a young scientist over the course of the previous two years. Thordur gave an excellent talk on the promotion of metastasis by the stem cell niche component tenascin C. We now look forward to the meeting of the American Society for Matrix Biology in November (http://www.asmbsfg2012.org) in which ISMB is also heavily involved, including the presentation of the Distinguished Investigator award, for lifetime achievements in the field, to Richard Hynes. ISMB is also funding international travel awards for young scientists to both meetings, including Marion Jeanne (San Francisco) for the FECTS meeting, as well as Vanessa López-Alpuche (Oulu, Finland), Alessandro Malara (Pavia, Italy) and Wei Xin, (Cologne, Germany) for the ASMB meeting. Congratulations to one and all !

We also congratulate Renato Iozzo, former ISMB President, who has been appointed as new Editor-in-Chief of our flagship journal Matrix Biology, starting January 2013. Renato will certainly do a brilliant job, just like his predecessor Bjorn Olsen to whom we owe a huge debt of thanks for having put matrix biology firmly on the international scene and having steered the journal so well over the last 10 years. This issue includes some reflections from Bjorn on his time in office.

Matrix biology is a discipline that pervades almost all areas of biology. This is what makes it so fascinating, and fun ! Please support the Society in any way you can. New members are always welcome (see www.ismb.org).

Warm regards,

David Hulmes
President ISMB

From the desk of the Secretary /Treasurer

ISMB, quo vadis?

Dear ISMB-member,
As I have announced previously, I shall resign at the end of this year from my post as the secretary / treasurer of ISMB. It seems that we have found a very good candidate for the succession and you will soon hear from Council in this matter. After all, you have to elect the secretary as well as the treasurer. I suspect that this will be done by another electronic ballot. So, there may be no need for a cumbersome, general assembly.

I have closely followed the society‘s affairs for more than 10 years, now. In fact, I do not even remember when I took over from Michel van der Rest who was the spiritus rector of the society in 1994. So, it may be time to reminisce about the initial intentions of the founders of ISMB and what has been accomplished in the meantime.
Needless to say, much has changed since the beginnings. Communication has become much simpler whereas it proves to be increasingly difficult to physically congregate in person. As a consequence, amendments to our constitution should be made, such as the formal institution of cyber meetings and ballots. Our constitution still lives in the times before computers in this respect.

What were the objectives the founders had in mind? At the time, there was no integrative, international organisation of the field of matrix biology. There were several strong “Connective Tissue Societies“ in Europe. However, there was (and still is) no formal European umbrella organisation. So-called FECTS (Federation of the European Connective Tissue Societies) meetings are organised biannually by an *ad hoc* national organising committee since the early seventies. Until the early nineties, the regular integration of national societies of the eastern European (socialist) countries was an important objective of FECTS. Fortunately, things have changed a lot in this respect. The 23rd FECTS meeting just took place in Katowice, Poland, from August 25-29. I have been there and I can confirm that it was worthwhile going. However, probably all European “Connective Tissue Societies“ are now “Societies for Matrix Biology“ and, for these and other reasons, FECTS had to reorient its scopes. I‘ll come back to this later.

The Americans had their West Coast-, Mid Western- and East Coast-Meetings but, here too, there was no joint US- or North American organisation. As we all know, there is now a strong ASMB, the American Society for Matrix Biology. The main activity of ASMB is to conduct meetings with a very competitive scientific level. The meetings take place biannually, too, and the next meeting will be in San Diego (Nov 11-14). I have come to several of the past ASMB-meetings and, not surprisingly in view of the eminent organisers of the meetings, they were highlights in my scientific career.
I must confess that I do not know when MBSANZ (Matrix Biology Society of Australia and New Zealand) has been founded. But I do know that, in 2012, we see a vigorous flagship of Matrix Biology in the Pacific region. MBSANZ-meetings (I have never been to one of them) also give testimony to a thriving activity in matrix biology. Also, there are several Japanese societies and, here too, meetings with a very high scientific standard have been held. However, as far as I know, efforts to unite into one Japanese society have not yet been successful. Let’s hope that our Japanese colleagues will manage to join ranks. Finally, Danny Chan and colleagues are in the course of organising a matrix biology conference in China. And one can already see the contours on the horizon of an arising Chinese society. It would be great if this came into being because this will give a major boost to the field of our interest.
However, back in 1994, things were not so well developed and the founders of ISMB sought to integrate the national or regional societies. Many instruments of support have been implemented since. Awards, both for junior and accomplished scientists, have been endowed and support for travel to conferences is regularly given to graduate students and young post-docs. The journal Matrix Biology was initially co-owned by the society but this turned out to be unfeasible in the long run. Nevertheless, ISMB still closely co-operates with Elsevier who have sponsored the Rupert Timpl Award since 2008. In addition, ISMB contributed to the expenses of ASMB- and FECTS-meetings, in part in the role of a co-organiser. The membership is informed about new developments by a newsletter, whose format was established and expanded by Jamie Fitzgerald and is now edited by Barbara Brodsky. Finally, and more in the background, ISMB contributes to the coordination of scientific activities in matrix biology at an international level. However, all these activities have been complemented, if not superseded, by very strong regional organisations.

Which brings me back to FECTS and FECTS-meetings. Initially, FECTS-meetings were conceived as forums of scientific presentation especially for young and financially less independent colleagues. It was felt that it is important to organise low-cost matrix meetings with encyclopaedic scopes able to accommodate the interest of every matrix

biologist. Providing opportunities to graduate students and young post-docs to present their results and conclusions to large audiences was considered an invaluable task of FECTS. So, a loosely knitted consortium was created that each time identified the organisers of the subsequent biannual meeting, with the help of “contact people“ from the national societies, usually their presidents. There were “guidelines“ for conducting these meetings (I have promised to do same archaeology on this but, I am afraid, it is simply not worth the effort). But there was no formal membership nor was there an income from membership fees. Every organising national society was responsible for the financial success of “its“ FECTS meeting and, usually, profits (not so small, for that matter) went to the treasuries of the societies. At the same time, it is fair to say that the founding fathers of FECTS had a distinct knack for xenophobia against “extra-Europeans“. Only since the early nineties this is no longer considered appropriate by most of us. The current FECTS meetings now welcome participation from everywhere albeit with moderate success.

Initially, the meetings were very well received and this was the case until about the middle of the last decade. However, participation has dwindled during the last three or four meetings and, in Katowice, there were concerns about keeping the meeting financially afloat although the scientific programme continued to be attractive. Many reasons were identified at the Katowice meeting of “contact persons“. One reason was seen in the fact that the times of “connective tissue societies“ are over. So, future meetings will carry the name “Matrix Biology Europe“ (first with the subtitle xxth FECTS meeting to maintain the continuity). That was easy. Other reasons, however, are distinctly more difficult. The grant situation has become increasingly difficult for many, if not most scientists and, likewise, it no longer is a piece of cake to raise funds. Well, “try harder!“ is the only thing that can be said here. Advertise the meetings more and earlier (the internet helps here). One further reason: While funds have dried up, FECTS no longer is the virtually sole comprehensive international meeting in matrix biology. Very large and concurrent meetings, including the ASMB-meeting, inevitably must lead to lower participation. Could the solution here be to hold regional meetings (in Europe, North America and the Pacific region) in alternating years, i.e., only every third year? This may not exactly make sense in view of the extremely strong attraction by this year‘s ASMB meeting on the community. Still, would this not be in the interest of everybody? One more thing: The number of highly attractive specialised meetings on subjects related to matrix biology has steadily increased [see meeting announcements at end of newsletter]. This again threatens good participation of all meetings concerned. The way out here, of course, is to hold scientifically competitive meetings. But this is neither particularly new nor has Katowice failed in this respect. So, what could or what should be done, here?

There was no Katowice-resolution about these questions. But, aren‘t you tickled to voice your own opinion? ISMB encourages this and the Newsletter could be one of the vehicles to do so. Barbara looks forward to your input. Also, I expect an intense response to “Katowice“ from “San Diego“ or “Mantra Legends, Gold Coast“. Or from Hong Kong and other places and occasions, for that matter.

In the meantime, I say to ISMB “Thank You for the Music“, for helping me in my task (in the end), and for your loyalty. I also can (and want to) say wholeheartedly to ISMB, “Good Luck for the future”!

Peter Bruckner
Secretary/Treasurer ISMB

Interview with Bjorn Olsen:
Why he became Editor of Matrix Biology and his vision for the journal and the field

Bjorn Olsen has been editor-in-Chief of Matrix Biology for more than 10 years, and has overseen a substantial rise in the profile, quality and impact of the journal. As announced recently, Bjorn will step down from the position as Editor-in-Chief, and Renato Iozzo will take over on January 1, 2013. An interview with Bjorn about his tenure as Editor-in-Chief was conducted by Barbara Brodsky for ISMB and edited excerpts follow.

Why Bjorn Olsen took on the Editor position and his vision of the journal:

After I came to Harvard in 1985, and we expanded our genetics projects and got into aspects of extracellular matrix biology that diverged from collagen biochemistry, it became obvious to me that matrix biology was more than simply the biology of hard-to-isolate, hard-to-purify, hard-to-study structural proteins. … I thought it would be important for a journal like Matrix Biology (MB) to be a forum for papers that would expand the definition of matrix biology. I hoped that by writing Editorials [an innovation by Bjorn] I could help expand that definition. …. I would get papers reviewed that … would not only be technically excellent, but would help expand the view of matrix biology as a field. And I think we have done that to some extent. I think extracellular matrix is now seen as much more than structural macromolecules. … it includes all the enzymes, proteases, extracellular kinases and phosphatases as well as cytokines and growth factors which bind to matrix molecules and to receptors on cell surfaces, in addition to structural macromolecules. That is matrix biology to me. Renato Iozzo has such an expanded view of matrix biology as well. So I'm glad he will become the next Editor-in-Chief.

Why this is the right time now to leave the position as Editor-in-Chief

Being Editor has been fun; I still like it, but there are so many other things I want to do. … I want to have more time to do science. I do spend quite a bit of time as Editor. Every day I have papers to read through, make decisions on, and assign reviewers for. I am also an Associate Editor of Bone, another Elsevier journal,… and get many manuscripts from them to assign reviewers.
I need more time for the science. In the last 10 years, we have worked on a very exciting collaborative project in vascular biology started many years ago with Mikka Vikkula , Laurence Boon [former post-doctoral research fellows in the Olsen lab, now in Brussels] and Prof. John Mulliken at Boston Childrens Hospital. We just got the NIAMS program project grant supporting this project approved for a second 5-year period. This is a challenging project and I really want to put more effort into that. I also want to work on projects that are based on recent findings that endothelial mesenchymal transition provides an explanation for some of the heterotopic bone formation in fibrodysplasia ossificans progressiva, where soft tissues turn into bone. And finally, we have discovered that intracellular VEGF stimulates the differentiation of stem cells to osteoblasts and represses their differentiation to adipocytes and we want to understand the cell biology mechanisms that can turn a molecule that is usually secreted into an intracellular regulator of cell differentiation. I'm also getting older. I just got my bone grant renewed for another 5 years and with that support I want to make the most of it. ... I think we are at the threshold of another expansion of the concept of matrix biology: the concept of extracellular matrix signaling and I want to be part of that as well.

Matrix Biology: A work in progress

In the first few years, I told people if they had a good paper that they might send to JBC, why not consider MB. If it was an outstanding paper, they should try to send it to Cell, Science, Nature and try to get it into the best, most-widely read journals; but if it a very good paper, you should consider MB. I think the journal has improved. If you look back 15-20 years, the most cited papers were nomenclature reviews to a large extent. That is not sufficient for a journal to become a flagship journal of a society. MB is not a review journal and if it had become one, I would think I hadn't done a good enough job. … Compared to many other society journals, MB is pretty good. And some of the papers published in this journal are clearly better than what you find in JBC.

Disappointments /challenges

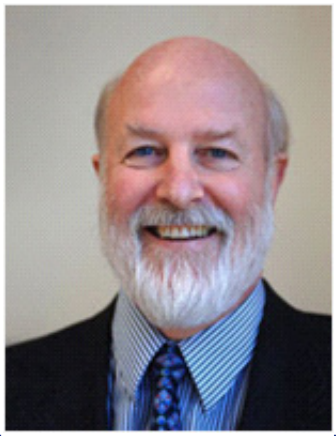
At times I had hoped that readers would contribute more to the journal. In the beginning, for every issue I tried to write an editorial. After some years, I wrote an editorial in which I invited the readers of the journal to submit guest editorials based on their exciting ideas or to summarize an exciting paper they had read in other journals. What really disappointed me is that very few people did that. I am disappointed that many of the stars in the field did little to help raise the profile of the journal and get the rest of the scientists in the field excited about really great science. I think I can count on one hand the people who actually did this. I think the field of matrix biology had the potential for becoming a fundamental field of inquiry/discovery that would complement cell biology and support development biology and pathology. What happened instead is that matrix biology got incorporated into developmental and cell biology. However, the establishment and success of the American Society of Matrix Biology and the activities of other national/regional societies give me hope that the future for the field of matrix biology and the journal of Matrix Biology is bright. I think Renato Iozzo will do an excellent job as Editor-in-Chief.

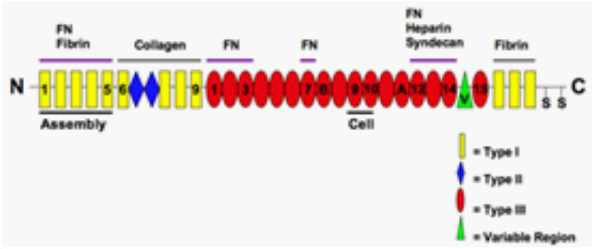
Things Bjorn will miss after stepping down as Editor

I think I will miss writing the Editorials. If Renato lets me, I would be happy to write a guest editorial once in a while.

ISMB AWARDS

Richard O. Hynes- Winner of the 2012 ISMB Distinguished Investigator Award for outstanding contributions to matrix biology

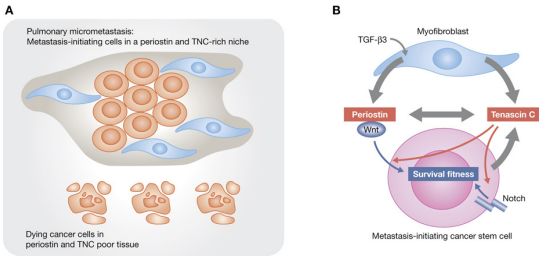




The 2012 ISMB Distinguished Investigator award winner is Dr. Richard O. Hynes. Dr. Hynes is a Daniel K. Ludwig Professor for Cancer Research and an Investigator of the Howard Hughes Medical Institute at MIT. He received his B.A. in biochemistry from the University of Cambridge, U.K., and his Ph.D. in biology from MIT in 1971. After postdoctoral work at the Imperial Cancer Research Fund in London, where he initiated his work on cell adhesion, he returned to MIT as a faculty member. For more than three decades, Dr. Hynes has worked to uncover the specific proteins that govern cell adhesion and migration in healthy tissues and in various disease states. He has made substantial contributions to establishing the field of cell adhesion. Through his investigation of the molecular changes on cell surfaces that distinguish cancer cells from normal cells, he discovered fibronectin. His work was instrumental in establishing integrins as a major family of cell adhesion receptors and a critical link between the extracellular matrix and intracellular pathways. Many of his current research projects study cell adhesion in tumor invasion, metastasis, and angiogenesis using mice with targeted mutations in adhesion proteins. Dr. Hynes is a fellow of the Royal Society of London, the American Academy of Arts and Sciences, and the American Association for the Advancement of Science, and a member of the National Academy of Sciences and the Institute of Medicine.

Contributed by Jean Schwartzbauer

Thordur Oskarsson – Winner of the 2012 Rupert Timpl award for an outstanding contribution to matrix biology from a young scientist



Thordur Oskarsson works at the crossroads of cancer stem cells, the metastatic niche, the extracellular matrix (ECM), and breast cancer metastasis. He pursued his PhD in the lab of Prof. Andreas Trumpp (then at ISREC, Lausanne) where he used genetic mouse models to study the function of the c-Myc oncogene in skin carcinogenesis. After completing his PhD training, Thordur joined the group of Joan Massagué at Memorial Sloan-Kettering Cancer Center in New York to investigate mechanisms of breast cancer metastasis. He focused on the ECM protein tenascin-C (TNC) as a gene previously implicated in metastasis by unknown mechanisms. Earlier noted as an ECM component of stem cell

niches and stressed tissues, TNC expression is associated with the rapid development and lethality of pulmonary metastasis in breast cancer patients. Thordur's work demonstrated that breast cancer cells that infiltrate the lungs support their own metastatic viability by expressing TNC.

Using xenografts and *in vitro* models, Thordur showed that TNC production by breast cancer cells promotes their survival and outgrowth in the lungs. He used a conditional TNC knockdown to show that cancer cell-derived TNC remains critical until the tumor stroma takes over as the main source of TNC. Mechanistically, he found that TNC has a dual effect by modulating the NOTCH and WNT pathways, which are key for the fitness of cancer stem cells. He showed that TNC enhances NOTCH signaling by protecting Musashi1 from STAT5-mediated repression, and it also acts on WNT signaling by enhancing the expression of a select subset of Wnt target genes including LGR5 in breast cancer cells (Oskarsson et al Nat. Med. 2011). These findings link TNC to signaling pathways that support the viability of disseminated cancer cells and highlight the significance of a cancer cell-derived matrix protein as a component of the metastatic niche.

Thordur is a cancer researcher who combines mouse models, molecular cell biology approaches, patient tissue sample analysis, and metastasis models and imaging in his work. His laboratory at HI-STEM and DKFZ in Heidelberg is pursuing an exciting research program that further builds on his recent discoveries on the metastatic niche and the biology of disseminated cancer stem cells. The group pays a particular attention to the ECM and the role it plays in the metastatic niche, supporting the outgrowth of metastasis initiating cancer stem cells and possibly mediating resistance to cancer therapy. This work has an eminently translational bent, since it may reveal new measures how cancer cells maintain their fitness in distant sites and identify new therapeutic targets against metastasis.

Contributed by Joan Massagué

In Memoriam

Professor John E. Scott

Professor Scott was at the University of Manchester from 1976 until 1998 and then as Emeritus Professor until 2012. He was a member of the UK Medical Research Council external staff from 1963-96.

John died peacefully in Didsbury, Manchester on 12th July 2012, aged 81.

John had an outstanding career, applying chemical and physical methods to understanding biology. He was at the forefront of pioneering investigations on glycosaminoglycans and in developing methods for their specific analysis and their detection by histochemistry and electron microscopy. He has citation classics in this area. He went on to link glycosaminoglycans to extracellular matrix structure and the auxiliary role they play in organising collagen fibrils in providing structure and form to tissues. He developed the notion of chemical structure underpinning the shape, form and function of biological tissues. He received numerous national and international awards, including the Gold Medal from the UK Biochemical Society as well as visiting professorships and honorary research society memberships in the UK, USA, Australia, New Zealand, France, Germany, Italy, Czech Republic and Sweden, and was recognised worldwide for his outstanding contributions to science.

Contributed by Tim Hardingham

Elisabeth Georges-Labouesse

It is with great sadness we announce the death of our dear colleague Elisabeth Georges-Labouesse on July 21, 2012 after battling a chronic illness for several years. She was one of the first to work on fibronectin gene knockouts in mice and worked in the field of cell-extracellular matrix interactions, but was best know for the generation of the integrin a6b1 KO mouse - one of the transgenic strains that has had an enormous impact on the field of extracellular matrix interactions in particular in development. Elisabeth was a team leader at the Institut de Genetique et de Biologie Moleculaire et Cellulaire and had a faculty appointment at the University of Strasbourg in France. We will miss her pragmatic, non-fuss manner, her generousity in collaborations - and her joy in science.

Contributed by Roy Zent, Jo Adams, and Lydia Sorokin

MEETING ANNOUNCEMENTS

Joint meeting of the American Society for Matrix Biology and the Society for Glycobiology.
November 11-14th, 2012
Sheraton San Diego Hotel and Marina, San Diego, CA, USA
Meeting Chairs: Jeffrey Davidson and Hudson Freeze
See flyer at end of Newsletter for session topics.

BSMB British Society for Matrix Biology: Epigenetics in Matrix Biology and Disease March 25-26, 2013
St. Catherine's College, University of Oxford
Organizer: Chris Murphy
http://www.bsmb.ac.uk/meetings/documents/BSMBSpring2013programmev2.pdf
See flyer at end of newsletter for more details.

2013 Gordon Research Conference on Matrix Metalloproteinases May 19-24,2013
Crucial Components of Molecular Networks and Disease Pathways
Il Ciocco Tuscany Resort, Barga, Tuscany, Italy
Gordon Research Conference, May 19-24, 2013; Chair, GRC : Suneel S. Apte; Vice Chair, GRC: M. Sharon Stack
Gordon Research Seminar, May 18-19, 2013; Chair, GRS Sean Gill ; Vice-Chair, GRS: Alisha Mendonsa

Elucidating the role of proteases in disease, resulting either from loss of function or over-expression, requires a sophisticated understanding within the context of biological networks. Furthermore, successful development of novel therapies relies on an integrated, multidisciplinary approach to investigating such networks and pathways. The 2013 GRC on Matrix Metalloproteinases will develop these themes, featuring fundamental and applied research on all aspects of MMPs, ADAM, ADAMTS, and astacin metalloproteinases, as well as their natural and synthetic inhibitors. The role of these metalloproteinases in molecular maturation and turnover in diverse biological systems and models is a major focus. In addition, disease-causing protease mutations, proteolytic mechanisms in acquired diseases, protease regulatory mechanisms at all levels, structural biology, developmental biology, genetics, and therapeutics will constitute the broad scope of the meeting.

Speakers will summarize the most exciting recent developments in their fields, identify the major unanswered questions, and share novel, unpublished data from their laboratories. The GRC on Matrix Metalloproteinases is an international forum that welcomes junior and established scientists from all disciplines to participate, and features scientists from both academia and industry. All applicants are encouraged to submit abstracts and a significant proportion of the oral program will be selected from submitted abstracts. Poster sessions as well as abundant time for social activities provide excellent opportunities for interactions. The informal nature of the conference promotes interdisciplinary interactions and stimulating discussions in a spirit of collegiality and collaboration. Immediately preceding the 2013 GRC on Matrix Metalloproteinases, there will be a Gordon Research Seminar (GRS, May 18-19) designed specifically for junior investigators, such as students, postdocs, and clinical trainees.

Sessions:
Benchmark Session: Linearity and Divergence of Metalloproteinase Networks (Carl P. Blobel / J. Evan Sadler / Stefan Rose-John / Stephen J. Weiss)
Networks Regulating Cell-Surface Proteolysis by Metalloproteinases (Yoshifumi Itoh / Marie Kveiborg / Kaisa Lehti)
Metalloproteinases in Network Assembly and Disassembly (Hideaki Nagase / Dirk Hubmacher / Christoph Becker-Pauly)
Developmental Networks Requiring Metalloproteinases and Inhibitors (Kiyoji Nishiwaki / Rama Khokha)
Explaining How Metalloproteinases Work (Catherine Moali / Amanda Fosang)
Metalloproteinases in Cancer Networks (M. Sharon Stack / Howard Crawford / Luisa Iruela-Arispe)
Metalloproteinase Inhibition and Targeting: Thinking Anew (Gillian Murphy / Carl Blobel / Linda Troeberg)
Diversity of Disease Contexts Involving Metalloproteinases (Alicia Garcia-Arroyo / Juliane Bubeck Wardenburg / Nathalie Theret)
From Networks and Pathways to New Treatment (Rafael Fridman / Friedrich Scheifflinger / Taewon Lee)

2013 Collagen Gordon Research Conference (GRC) July 14-19, 2013
2013 Collagen Gordon Research Seminar (GRS) July 13-14, 2013
Colby-Sawyer College, New London, NH, USA.
The 2013 conference builds on the popular 2011 Collagen GRC by retaining the GRS-GRC format. The GRS is a 2-day symposium prior to the GRC aimed at graduate students and early-career postdoctoral researchers who wish to present their data in a relaxed forum. GRS participants can register for the GRC, which runs from Sunday evening through to Thursday evening. If you haven't been to a Collagen GRC or GRS before, apply! Colby-Sawyer is a modern, New England college that offers excellent lecture theatres, accommodation, sporting facilities, and meeting rooms, and is a perfect summer setting for our conference.
The GRC and GRS will encompass the molecular, physical and cellular aspects, and bioengineering applications of collagen in health and disease. The programs will consist of invited speakers, selected abstract speakers and poster presentations. Scientists at all levels of their careers in academia, industry and healthcare sectors are encouraged to attend. We look forward to seeing you at Colby Sawyer in July 2013!

Session 1: Emerging Technologies in Cell-Matrix Research; Leader:John Bateman
Session 2: Collagen Biosynthesis, Structure and Assembly; Leader: David Hulmes
Session 3: Collagen-Protein Interactions and Signaling; Leader: Hilary Ashe
Session 4: Developmental Biology of the Matrix; Leader: Ronen Schweitzer
Session 5: Genetic Mechanisms of Disease; Leader: Leena Bruckner-Tuderman
Session 6: Collagen Regulation and Dysregulation; Leader: Sergey Leikin
Session 7: Stem Cells, Repair and Regenerative Medicine; Leader: Pamela Robey
Session 8: Matrix Mechanobiology; Leader: Dr. Boris Hinz
Session 9: Future directions of collagen matrix research; Leader: Collin Stultz

The Organizing Committee: Karl Kadler (University of Manchester), Collin Stultz (Massachusetts Institute of Technology),Lydia Murray (University of Glasgow) ,Jorge Fallas (Rice University).

Up to date information is available on the websites:
http://www.grc.org/programs.aspx?year=2013&program=collagen
http://www.grc.org/programs.aspx?year=2013&program=grs_coll

Gordon Research Conference and Gordon Research Seminar on Elastin, Elastic Fibers, and Microfibrils, July 20-26, 2013
University of New England, Biddeford, Maine
GRS: Chair: Katja Schenke-Layland; Assoc. Chair: Sandeep Khatri
GRS: Chair: Dieter Reinhardt; Vice-Chair: Zsolt Urban
See flyer at end for information on sessions.

2013 FASEB Summer Meeting: Matricellular Proteins in Development, Health and Disease
July 28-August 3, 2013
Vermont Academy, Saxons River, VT.
Co-Chairs: Joanne Murphy-Ullrich, UAB and Amy Bradshaw, MUSC
See flyer at end for program

8th International Conference on Proteoglycans
August 25-29, 2013, Frankfurt/Main, Germany
Organizers: Liliana Schaefer and John Couchman
www.proteoglycans2013.com See flyer at end.

MATRIX RESEARCH UPDATES

Structural basis of fibrillar collagen trimerization and related genetic disorders.
Bourhis, J.M., Mariano, N., Zhao, Y., Harlos, K., Jones, E.Y., Moali, C., Aghajari, N. and Hulmes, D.J.S.
Nature Struct. Mol. Biol. (2012), in press.

The C-propeptides of fibrillar procollagens play crucial roles in tissue growth and repair by controlling both the intracellular assembly of procollagen molecules and the extracellular assembly of collagen fibrils. Mutations in the C-propeptides are associated with several, often lethal, genetic disorders affecting bone, cartilage, blood vessels and skin. Here we report the first crystal structure of a C-propeptide domain, from human procollagen III. It reveals an exquisite structural mechanism of chain recognition during intracellular trimerization of the procollagen molecule. It also gives insights into why some types of collagen consist of three identical polypeptide chains while others do not. Finally, the data show striking correlations between the sites of numerous disease-related mutations in different C-propeptide domains and the degree of phenotype severity. The results have broad implications for understanding genetic disorders of connective tissues and designing new therapeutic strategies.

Sizzled is unique among secreted frizzled-related proteins for its ability to specifically inhibit BMP-1/tolloid-like proteinases.
Bijakowski, C., Vadon-Le Goff, S., Delolme, F., Bourhis, J.M., Lécorché, P., Ruggiero, F. Becker-Pauly, C., Yiallouros, I., Stöcker, W. Dive, V., Hulmes, D.J.S. and Moali, C.
J. Biol. Chem. (2012), in press.

BMP-1/tolloid-like proteinases (BTPs) are major enzymes involved in extracellular matrix assembly and activation of bioactive molecules, both growth factors and anti-angiogenic molecules. While the control of BTP activity by several enhancing molecules is well established, the possibility that regulation also occurs through endogenous inhibitors is still very debated. Secreted frizzled-related proteins (sFRPs) have been studied as possible candidates, with highly contradictory results, after the demonstration that sizzled, a sFRP found in Xenopus and zebrafish, was a potent inhibitor of Xenopus and zebrafish tolloid-like proteases. In the present study, we demonstrate that mammalian sFRP-1, -2 and -4 do not modify human BMP-1 activity on several of its known substrates including procollagen I, procollagen III, pN-collagen V and prolysyl oxidase. In contrast, Xenopus sizzled appears as a tight-binding inhibitor of human BMP-1, with a Ki of 1.5±0.5 nM, and is shown to strongly inhibit other human tolloid isoforms mTLD and mTLL-1. Since sizzled is the most potent inhibitor of human tolloid-like proteinases known to date, we have studied its mechanism of action in detail and shown that the frizzled domain of sizzled is both necessary and sufficient for inhibitory activity and that it acts directly on the catalytic domain of BMP-1. Residues in sizzled required for inhibition include Asp-92, which is shared by sFRP-1 and -2, and also Phe-94, Ser-43 and Glu-44, which are specific to sizzled, thereby providing a rational basis for the absence of inhibitory activity of human sFRPs.

Protein kinase C δ regulates the release of collagen type I from vascular smooth muscle cells via regulation of Cdc42.
Lengfeld J, Wang Q, Zohlman A, Salvarezza S, Morgan S, Ren J, Kato K, Rodriguez-Boulan E, Liu B.
Mol Biol Cell. 2012 May;23(10):1955-63. Epub 2012 Mar 28.

Collagen type I is the most abundant component of extracellular matrix in the arterial wall. Mice knocked out for the protein kinase C δ gene (PKCδ KO) show a marked reduction of collagen I in the arterial wall. The lack of PKCδ diminished the ability of arterial smooth muscle cells (SMCs) to secrete collagen I without significantly altering the intracellular collagen content. Moreover, the unsecreted collagen I molecules accumulate in large perinuclear puncta. These perinuclear structures colocalize with the trans-Golgi network (TGN) marker TGN38 and to a lesser degree with cis-Golgi marker (GM130) but not with early endosomal marker (EEA1). Associated with diminished collagen I secretion, PKCδ KO SMCs exhibit a significant reduction in levels of cell division cycle 42 (Cdc42) protein and mRNA. Restoring PKCδ expression partially rescues Cdc42 expression and collagen I secretion in PKCδ KO SMCs. Inhibition of Cdc42 expression or activity with small interfering RNA or secramine A in PKCδ WT SMCs eliminates collagen I secretion. Conversely, restoring Cdc42 expression in PKCδ KO SMCs enables collagen I secretion. Taken together, our data demonstrate that PKCδ mediates collagen I secretion from SMCs, likely through a Cdc42-dependent mechanism. *http://www.ncbi.nlm.nih.gov/pubmed/22456512*

Drosophila basement membrane collagen col4a1 mutations cause severe myopathy.

Kelemen-Valkony I, Kiss M, Csiha J, Kiss A, Bircher U, Szidonya J, Maróy P, Juhász G, Komonyi O, Csiszár K, Mink M. Matrix Biol. 2012 Jan;31(1):29-37. Epub 2011 Oct 18.

Recent data from clinical and mammalian genetic studies indicate that COL4A1 mutations manifest with basement membrane defects that result in muscle weakness, cramps, contractures, dystrophy and atrophy. In-depth studies of mutant COL4A1-associated muscle phenotype, however, are lacking and significant details of the muscle-specific pathomechanisms remain unknown. In this study, we have used a comprehensive set of Drosophila col4a1 and col4a2 mutants and a series of genetic and mutational analyses, gene, protein expression, and immunohistochemistry experiments in order to establish a Drosophila model and address some of these questions. The Drosophila genome contains two type IV collagen genes, col4a1 and col4a2. Mutant heterozygotes of either gene are viable and fertile, whereas homozygotes are lethal. In complementation analysis of all known mutants of the locus and a complementation matrix derived from these data we have identified the dominant lesions within the col4a1, but not within the col4a2 gene. Expression of a col4a1 transgene partially rescued the dominant and recessive mutant col4a1 alleles but not the col4a2 mutations that were all recessive. Partial complementation suggested that col4a1 gene mutations have strong antimorph effect likely due to the incorporation of the mutant protein into the triple helix. In col4a1 mutants, morphological changes of the oviduct muscle included severe myopathy with centronuclear myofibers leading to gradual development of female sterility. In larval body wall muscles ultrastructural changes included disturbance of A and I bands between persisting Z bands. In the most severely affected DTS-L3 mutant, we have identified four missense mutations within the coding region of the col4a1 gene two of which affected the Y within the Gly-X-Y unit and a 3‘ UTR point mutation. In conclusion, our Drosophila mutant series may serve as an effective model to uncover the mechanisms by which COL4A1 mutations result in compromised myofiber-basement membrane interactions and aberrant muscle function.

Ubiquitin-dependent regulation of COPII coat size and function.
Jin L, Pahuja KB, Wickliffe KE, Gorur A, Baumgärtel C, Schekman R, Rape M.
Nature. 2012 Feb 22;482(7386):495-500. doi: 10.1038/nature10822.

Packaging of proteins from the endoplasmic reticulum into COPII vesicles is essential for secretion. In cells, most COPII vesicles are approximately 60-80 nm in diameter, yet some must increase their size to accommodate 300-400 nm procollagen fibres or chylomicrons. Impaired COPII function results in collagen deposition defects, cranio-lenticulo-sutural dysplasia, or chylomicron retention disease, but mechanisms to enlarge COPII coats have remained elusive. Here, we identified the ubiquitin ligase CUL3-KLHL12 as a regulator of COPII coat formation. CUL3-KLHL12 catalyses the monoubiquitylation of the COPII-component SEC31 and drives the assembly of large COPII coats. As a result, ubiquitylation by CUL3-KLHL12 is essential for collagen export, yet less important for the transport of small cargo. We conclude that monoubiquitylation controls the size and function of a vesicle coat.
http://www.ncbi.nlm.nih.gov/pubmed/22358839

MATRIX BIOLOGY RESOURCES

A new website http://collagentoolkit.bio.cam.ac.uk/ created by Richard Farndale’s laboratory provides the sequences of the overlapping sets of type II and type III collagen peptides used to define specific binding sites on collagen. References are given to all published toolkit targets, including integrins, DDR, GpVI, LAIR, MMP-1, OSCAR and SPARC. The website provides a portal for prospective new Toolkit users, and to distribute triple-helical peptides within the matrix biology community

AVAILABLE POSITIONS

Junior Group Leader positions in the Wellcome Trust Centre for Cell-Matrix Research

The Cell-Matrix Centre at the University of Manchester, UK is actively recruiting new Group Leaders now. We are looking for scientists working in any area of cell-matrix research, and our priorities lie within the Research Directions of the Centre (http://www.wellcome-matrix.org/home/mission.html). Successful candidates will be highly talented and visionary individuals who have a strong publication record and clear future research ambitions. The positions are available to individuals who are able to obtain their own direct long term research fellowships offered by major UK funding agencies. Successful applicants will be fully supported with lab space and facilities whilst direct funding is being sought, dependent on interview and approval by the Wellcome Trust. If you would like to discuss openings for a Group Leader position within the Centre, please send a CV, a concise 2-page summary of your research proposal, and contact details of 3 referees to Anna Fildes (Anna.Fildes-2@manchester.ac.uk). The deadline for Junior Group Leader applications for 2013 is 30 September 2012. However, we would be interested to have applications anytime after that if you are interested in setting up a lab in late 2013 or 2014.

Further information is available on the Cell-Matrix Centre website (http://www.wellcome-matrix.org/).

Postdoctoral Position in Bone Research at the University of Connecticut Health Center

A postdoctoral position is available in a NIH funded laboratory working in molecular genetics and functional analysis of rare bone disorders, keloid formation and other fibrotic disorders. We are identifying genes for several genetic disorders affecting bone and skin, and we study their function and molecular mechanisms leading to those disorders. Projects include investigation of downstream effects of mutations in the transmembrane protein ANK and the adapter protein SH3BP2 (Reichenberger et al. 2001, Am J Hum Genet 68(6):1321-1326; Ueki et al. 2001, Nature Genetics 28(2):125-126; Ueki et al. 2007, Cell 128(1):71-83; Chen et al., 2011, Hum Mol Genet 20(5):948-61). We investigate effects of the mutations in mouse models, on a cellular level, by cell signaling and mineral matrix analysis. Our lab is part of a strong bone group within the musculoskeletal signature program at UCHC.

Candidates must have PhD, MD/PhD or MD, be highly motivated and have strong interest in bone research. Candidates must have strong skills in molecular biology and cell culture techniques. Experience in the field of bone biology and/or protein biochemistry is highly desirable. Experience with mouse models, signal transduction techniques or mineralized tissue analysis is of advantage.

Please send CV, statement of research interests and research accomplishments, and contact information for 3 references to:

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MEMBERSHIP

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 of the Society receive twice yearly newsletters highlighting recent research advances, open positions, descriptions of matrix biology resources, and announcements of relevant meetings, together with messages from the ISMB President. 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 in Europe, America and Asia. 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 (www.ismb.org). Members can also renew on this site.

Membership application:
https://ismb.uni-muenster.de/pdf/Application2012.pdf

Membership rates:

Regular member EUR 50 (~US$67) or with Matrix Biology subscription (online EUR110, print and online EUR 165)

Junior member (student or 2 years after Ph.D.) or Senior Member (retired) EUR 30 (~US$27), or with Matrix Biology (online EUR80, print and online EUR135)

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Contact Peter Bruckner for help with application, payment, etc. Peter.Bruckner@uni-muenster.de.

BSMB 2013 SPRING MEETING

Epigenetics in Matrix Biology and Disease

25-26th March, St Catherine's College, University of Oxford

Conference organiser: Chris Murphy

Meeting outline:
Epigenetic regulation, from microRNAs to methylation, is of fundamental importance in matrix biology and disease, and this field is set to expand exponentially. Whether actively involved in epigenetic research or simply keen to learn more, this meeting is for you!

Topics: Epigenetic mechanisms in - Musculoskeletal Pathophysiology, Stem Cells and Development, Cancer, and Epigenetic Reprogramming.
Programme includes the distinguished Fell-Muir award and presentation, and the Society's AGM.

Confirmed Speakers:
Wolf Reik (Cambridge), Kristian Helin (Denmark), Karen Steel (Cambridge), Hiroshi Asahara (Japan), Ian Clark (Norwich), Thomas Pap (Germany), Michaela Frye (Cambridge), Patrick Matthias (Switzerland), Adrian Harris (Oxford)

For further information and updates, visit: http://www.bsmb.ac.uk/meetings/index.html

Gordon Research Conference and Gordon Research Seminar

Elastin, Elastic Fibers & Microfibrils

- From Basic Concepts to Translational Applications –

University of New England, Biddeford, Maine (USA)

Gordon Research Seminar

July 20-21, 2013

Chair:

Katja Schenke-Layland

Associate Chair:

Sandeep M. Khatri

Sessions:

- Elastic Fibers - Past and Future
- Elastin
- Panel Discussion: "*Where to find a job and how to be successful in it*"
- Elastin Associated Proteins and Microfibrils
- Elastin, Elastic Fibers and Microfibrils in Regenerative Medicine

Gordon Research Conference

July 21-26, 2013

Chair:

Dieter P. Reinhardt

Vice Chair:

Zsolt Urban

Sessions:

- Molecular Properties and Assembly of Elastin
- Microfibrils, Fibrillins and Associated Proteins
- Novel Approaches for Elastic System Analysis
- Elastic Fiber-Related Cell Signaling in Health and Disease
- Functionalization of the Elastic Fiber/Microfibril System
- Elastic Fibers in Vascular and Lung Physiology and Remodeling
- Elastic Fiber Diseases and Translational Aspects
- Biomedical Engineering and Stem Cells of Elastic Systems
- Hot Topics Related to Elastic Fiber Research

2013 FASEB Summer Meeting

"MATRICELLULAR PROTEINS IN DEVELOPMENT, HEALTH, AND DISEASE"

July 28-August 2, 2013
Vermont Academy, Saxons River, VT
http://www.faseb.org/src/

Co-Chairs: Joanne Murphy-Ullrich, UAB
Amy Bradshaw, MUSC

The aim of the meeting is to bring together researchers with active interests in the structures, functions, and clinical applications of matricellular proteins. These proteins include the thrombospondins and other thrombospondin repeat (TSR) proteins, the tenascins, osteopontin, the SPARC family, the CCN family, and other newly recognized matricellular proteins such as periostin and fibulins. Matricellular proteins are spatially and temporally regulated components of extracellular matrix that have short-range and context-specific functions in cell-matrix and cell-cell interactions and in the regulation of cellular phenotype. On the basis of these distinctive functional attributes, these proteins have been termed modulatory adhesion proteins, or matricellular proteins. This meeting will discuss the latest findings regarding matricellular protein regulation, structure, and functions in development and disease, incorporating the latest technologies and model systems. Commonalities and differences between matricellular proteins will be considered in integrating this knowledge.

Preliminary Program:

Session 1 (Sunday pm): Matricellular proteins: local and global actions
(Chair: Themis Kyriakides, Yale University)

Session 2: (Monday am) Matricellular protein regulation (microRNAs epigenetics, SNPs)
(Chair: Olga Stenina, Cleveland Clinic)

Session 3 (Monday pm): Matricellular proteins in non-mammalian model systems and development
(Chair: Josephine Adams, University of Bristol)

Session 4 (Tuesday am): Matricellular protein regulation of growth factor activity
(Chair: Andrew Leask, University of Western Ontario)

Session 5 (Tuesday pm): Matricellular proteins in inflammation and immunity
(Chair: Kim Midwood, Kennedy Institute, University of Oxford)

Session 6: (Wednesday am): Matricellular proteins in diabetes and obesity
(Chair: Joanne Murphy-Ullrich, UAB)

Session 7: (Wed pm): Matricellular proteins in musculoskeletal disease
(Chair: Kurt Hankenson, University of Pennsylvania)

Session 8: (Thursday am): Matricellular proteins in carcinogenesis and angiogenesis
(Chair: Gertraud Orend, University of Strasbourg)

Session 9: (Thursday pm): Matriceullar proteins in neuronal systems
(Chair: Cagla Eroglu, Duke University)

Session 10 (Friday am): Matricellular proteins in cardiovascular disease
(Chair: Jeff Isenberg, University of Pittsburgh)

8th International Conference on Proteoglycans

August 25-29, 2013

Frankfurt/Main, Germany

Organizers: Liliana Schaefer and John Couchman

International Scientific Committee:

John Couchman (Denmark)
Jeffrey Esko (USA)
Amanda Fosang (Australia)
Renato V. Iozzo (USA)
Kenji Kadomatsu (Japan)
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