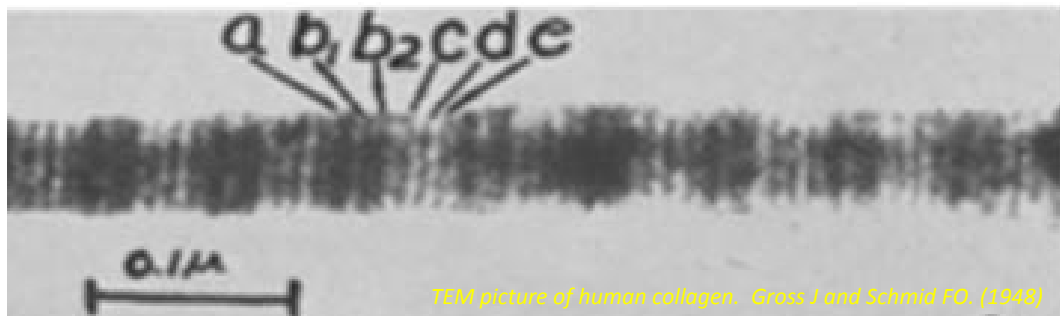




ISMB NEWSLETTER 19 March 2014

Editors: Barbara Brodsky and John Ramshaw



From the President's Desk

Welcome to 2014. It's been a busy start to the year for ISMB Council. We have decided to support three conferences so far – Matrix Biology Europe (the new name for a reinvigorated FECTS), the American Society for Matrix Biology (ASMB) meeting, and the Proteoglycan Gordon Research Seminar/ Research Conference – as usual with a focus on providing international travel fellowships for students and post-docs. We have also been reading a lot of extremely high quality papers from our young researchers and are pleased to announce the winner of the 2014 Rupert Timpl award for the best paper

published by a young researcher in the field of matrix biology in the last two years is Dr Franck Oury (Cell (2013) 155, 228-241). We will present Franck with this award at the upcoming Matrix Biology Europe conference where he will present his work on osteocalcin. Nominations have now closed for the ISMB Distinguished Investigator award and we will be announcing the winner of this senior award in the next few weeks. The Distinguished Investigator will be recognized at the 2014 ASMB meeting and will present in a special awards session. We hope to see a lot of ISMB members at these meetings to help celebrate our awardees. David Hulmes has established a relationship between ISMB and Extracellular Matrix News. For those not familiar with Extracellular Matrix News they provide a free weekly e-newsletter that includes the latest papers, industry news, policy news, events and job opportunities. They will be including an ISMB banner in their newsletter once a month – those of you who subscribe to their newsletter will have noticed the first banner a few weeks ago. More information is available on our web site (ismb.org).

During the last few months we have sadly lost a number of prominent senior matrix biologists including Jerry Gross, Yoshi Ninomiya, Shmuel Shoshan and Nick Kefalides. Tributes to these researchers are included in this newsletter. I'd like to encourage you all to continue to support ISMB by renewing your memberships and urging your colleagues, students and post-docs to join so that we can continue to promote matrix biology research worldwide and support our young researchers. Thanks again to everyone who has contributed to this newsletter.

Shireen Lamandé

President ISMB (shireen.lamande@mcri.edu.au).

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Header Picture: From: Jerome Gross and Francis O. Schmitt (1948) The structure of human skin collagen as studied with the electron microscope. *J. Exp. Med.* 88:555–568. (Other TEM photographs from Jerry Gross are included elsewhere in the Newsletter.)



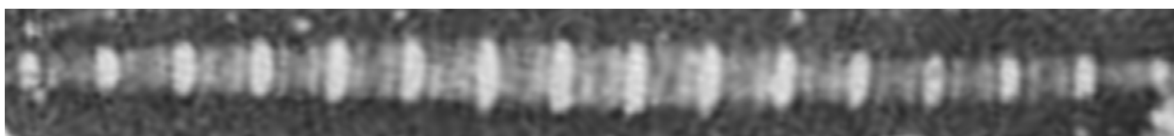
WELCOME NEW MEMBERS TO SOCIETY

We welcome the following new and returning members who have joined ISMB so far this year:

Ulrich Auf dem Keller (Senior Scientist, ETH Zurich, Switzerland)
Marjolein Blaauboer (Postdoc, VU Medical Center, Amsterdam, The Netherlands)
Sundas Chohan (Graduate student, Manchester, UK)
Nikos Karamanos (Professor, University of Patras, Greece)
Wei Kong (Professor, Peking University Health Science Center, Beijing, China)
Sciandra Franceska (Researcher, CNR, Rome, Italy)
Jelena Rnjak-Kovacina (Lecturer, UNSW, Sydney, Australia)
Chrisostomi Gialeli (Graduate student, University of Patras, Greece)
Nikolaos Afratis (Graduate student, University of Patras, Greece)
Laurent Debelle (Professor, University of Reims Champagne-Ardenne, Reims, France)
Tobias Kühl (Graduate student, Freiburg University, Germany)
Mia Rinta-Jaskari (Graduate student, University of Oulu, Finland)
Sumaya Allaith (Graduate student, University of Liverpool, UK)
Alexander Nystrom (Group leader, University of Freiburg, Germany)
Laëtitia Gorisse (Graduate student, University of Reims Champagne-Ardenne, Reims, France)
Pauline Nauroy (Graduate student, IGFL-ENS Lyon, France)

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. For further information, please see www.ismb.org.



From: Gross J, Hightberger JH, Schmitt FO. (1954) Collagen structures considered as states of aggregation of a kinetic unit. Proc Natl Acad Sci U S A. 40:679–688.

ISMB SURVEY

Thank you to all who responded to the ISMB survey. David Hulmes and Jo Adams have nearly completed analysing the data. They will be writing a Report for Members and this will be circulated as a Newsletter Supplement when finished.

NEW MATRIX ORGANIZATION: MATRIX BIOLOGY IRELAND

Dear Colleagues,

We are pleased to announce the birth of **Matrix Biology Ireland** (MBI), the Irish Society for Matrix Biology (<http://matrixbiologyireland.wordpress.com>). The Society was founded as an initiative of Dr. Fabio Quondamatteo and Dr. Dimitrios Zeugolis, two researchers based at the National University of Ireland Galway (NUI Galway) with long standing expertise in Matrix Biology.

The scope of MBI is both to promote and consolidate scientific interest and expertise around extracellular matrix research in all its forms within Ireland, and, to link this with international scientific community on Matrix Biology. Our brief also encompasses all related aspects as well as practical and translational applications of the biology of the extracellular matrix (e.g. regenerative medicine, bioengineering and biomaterials, glycobiology; drug delivery, *in vitro* and *in vivo* models etc). To this end, the first MBI Council has already been established with distinguished scientists to cover a wide range of aspects related to the biological significance of the extracellular matrix.

Prof. Peter Dockery, Director of Advanced Microscopy Research Facility, Head of Anatomy, NUI Galway

Dr. Garry Duffy, Department of Anatomy, Royal College of Surgeons Ireland (RCSI)

Dr. Tom Flanagan, School of Medicine & Medical Science, University College of Dublin

Prof. Lokesh Joshi, Director Alimentary Glycoscience Research Cluster, NUI Galway

Prof. Tim O'Brien, Director of Regenerative Medicine Institute (REMEDI), NUI Galway

Prof. Abhay Pandit, Director of Network of Excellence for Functional Biomaterials (NFB), NUI Galway

Dr. Fabio Quondamatteo, Skin and ECM Research Group, Anatomy NUI Galway

Dr. Dimitrios Zeugolis, PI at Network of Excellence for Functional Biomaterials (NFB), NUI Galway

For further information or to join our group, please visit our website or contact Dr Zeugolis. We are looking forward to meeting you in our annual meetings.

Sincerely,

Dr. Fabio Quondamatteo, President of MBI

Email: fabio.quondamatteo@nuigalway.ie

Tel: 00353 (0) 91 49 2161

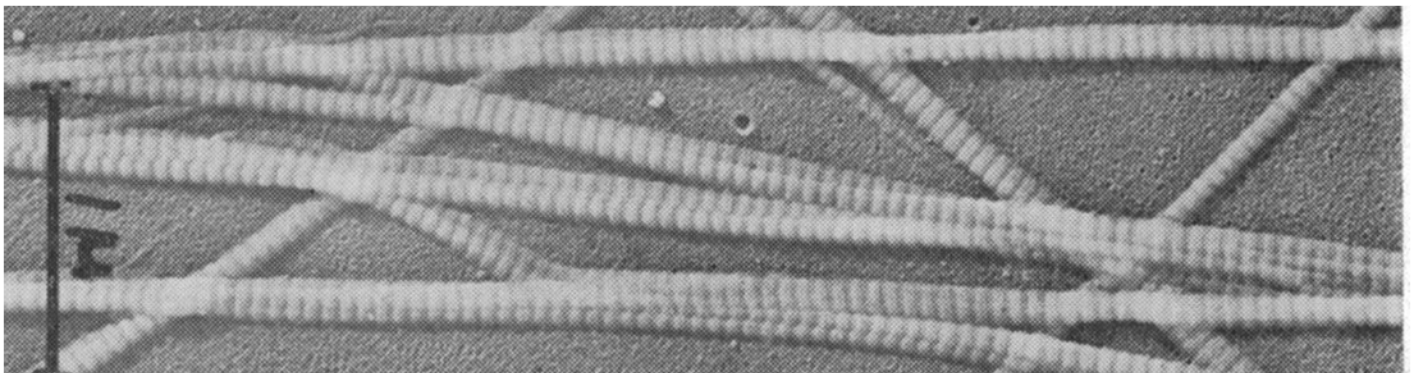
Skin and ECM Research Group - Anatomy
NUI Galway

Dr. Dimitrios Zeugolis, Secretary and Treasurer of MBI

Email: dimitrios.zeugolis@nuigalway.ie

Tel: 00353 (0) 91 49 3166

Network of Excellence for Functional Biomaterials (NFB)
NUI Galway



From: Gross J, Highberger JH, Schmitt FO. (1955) Extraction of collagen from connective tissue by neutral salt solutions. Proc Natl Acad Sci U S A. 41:1-7.

THE ASPIRNAUT PROGRAM

We all hope the students we encounter in our classes and labs will be inspired to go into science, and maybe even become researchers in the extracellular matrix field. **Billy Hudson**, a pioneer in basement membrane structure at Vanderbilt University, and his wife **Julie Hudson**, M.D. assistant vice-chancellor for Health Affairs at Vanderbilt University Medical Center, went way beyond the hoping stage. In 2005, they created the “Aspirnaut” program to elevate achievement in science and math of K-12 students from under-represented groups in the US science workforce (geographically and economically disadvantaged backgrounds, students from underrepresented racial and ethnic minority groups, and Native Americans).

The program evolved to sponsor a summer research program at Vanderbilt University where the Aspirnauts (high school students and undergraduate students) receive a stipend, room and board for the summer and get to experience intensive biomedical research. Their research recently led to a publication in the Proceedings of the National Academy of Sciences: **Fidler et al. (2014) A unique covalent bond in basement membrane is a primordial innovation for tissue evolution. Proc Natl Acad Sci 111:331. PMC3890831.** This paper was co-authored by 83 participants: six were middle school students when the study was conducted, 42 were high school students, 30 were college undergraduates and five were graduate students.

In 2009, the Hudson laboratory discovered the sulfilimine bond as the covalent linkage between the C-terminal NC1 domains of two type IV collagen molecules which stabilize hexamers in basement membranes. The students worked to investigate whether this sulfilimine cross-link is essential for tissue development in Metazoa, by searching for its presence in 30 different species, representing 11 major phyla. Their findings revealed that the unique chemical bond is present in all major phyla and its occurrence coincides with the divergence of Porifera and Cnidaria.

In the Materials and Methods section of this PNAS paper is a description of how the Aspirnauts participated in the research project. Over five summer periods, students participated as teams in a search for the sulfilimine bond. They were educated on the topic, including basic biology and chemistry, and trained in basic biochemical technologies sufficient for the investigation. They isolated, purified, and analyzed collagen IV NC1hexamers from 27 animal species. These activities provided an in-depth research experience, involving crafting of questions, designing and conducting experiments, and presenting and arguing results while contributing to the advancement of a research topic. They prepared written reports and gave oral and poster presentations to their peers and mentors. The names and demographics of the students are presented in [Table S2.](#)”

You can get further information on this PNAS article and the Aspirnaut program at:
<http://www.mc.vanderbilt.edu/vanderbiltmedicine/index.html?article=14572> and
http://www.eurekalert.org/pub_releases/2013-12/vumc-vsa121013.php

If you want to support this program, you can donate at the web site at www.aspirnaut.org or send a check to Billy Hudson made out to Aspirnaut.





MATRIX BIOLOGY RESOURCES

<http://www.le.ac.uk/ge/collagen/>

A brief history of the Osteogenesis imperfecta and Ehlers Danlos syndrome sequence variant databases

Raymond Dalgleish

Introduction

This is a concise history of the databases of variants that cause osteogenesis imperfecta and Ehlers Danlos syndrome that I have curated for somewhere around 25 years. It is based on what are probably faulty recollections and there will almost certainly be gaps in the story. Hopefully, these errors and omissions will not detract too much.

The early days

The databases of sequence variants that lead to Osteogenesis imperfecta (OI) and Ehlers Danlos syndrome (EDS) originated from my need many years ago to ensure that my PhD students were citing all the relevant published variant data when writing their theses. The task was relatively straightforward in the late 1980s as few variants had yet been discovered. Indeed, the first variant leading to OI was not published until 1984. (See the paper at: <http://www.ncbi.nlm.nih.gov/pubmed/6092353>). This meant that keeping track of variants as tables in a Microsoft Word document was a manageable task, rather than having to resort to spreadsheet and database applications of the day such as Lotus 1-2-3 and dBASE II. Initially, there were data just for the type I collagen genes, *COL1A1* & *COL1A2*, but the type III collagen gene, *COL3A1*, was added later. Of course, these were initially just lists of publications in which sequence variants were described. No formal organised lists of variants were compiled at first.

Colleagues whom I met at conferences expressed their interest in my “databases” and asked for copies of the Word documents. It was fairly simple to send them as attachments to those recipients who enjoyed the luxury of email. For those who did not, the documents were printed and sent by post.

Reference sequences

You cannot compile a database of sequence variants without there being reference DNA sequences against which variants can be reported. Nowadays we take it for granted that there are expertly curated reference sequences for any of the myriad genes and mRNAs for which we might want to report a sequence variant. However, until the mid-1990s there were no full-length sequence records either for the genes or the mRNAs encoding the chains of type I collagen. By 1995 we had several overlapping part-length mRNA sequences available for the mRNAs. By way of contrast, the entire genomic DNA sequence for the 18-kb *COL1A1* gene was known, but the sequence of the much larger *COL1A2* gene was incomplete. Because of this, I took the decision to report variants descriptions with respect to mRNA reference sequences. However, there was still the problem of there being no single full-length mRNA reference sequences for either gene.

To remedy that, full length sequence records were patched together from the published overlapping part-length sequences and were submitted to the EMBL DNA sequence database. The initial response of EMBL was that they could not possibly accept these submissions as they did not represent primary data. Their policies at the time excluded acceptance of “contigs” based on data already in the database. However, they were eventually convinced by my arguments, and in June 1996 “full-length” cDNA sequence records were made public with the accession numbers Z74615.1 and Z74616.1. With benefit of hindsight, the correctness of these sequences could best be described as “adequate” if I’m being generous to myself. However, that was the state of the art two decades ago. Needless to say, high quality curated sequence records are now used as references standards.

Databases hosted on the web:

Having reference sequences finally made it possible to generate variant listings that were somewhat more akin to real databases. Initially, these lists were maintained as Microsoft Word Documents but transition of the data to web pages quickly followed, with a paper describing the type I collagen database being published in the “Database Issue” of Nucleic

Acids Research in January 1997 (<http://www.ncbi.nlm.nih.gov/pubmed/9016532>). Data were added the following year for the *COL3A1* gene in which variants which give rise to vascular EDS, and that's how matters remained for around a decade. More variants were added and corrections were made to the errors. Anybody feeling nostalgic for simpler times might like to take a look at how things looked in February 2008.

(<http://web.archive.org/web/20080226050113/http://www.le.ac.uk/genetics/collagen/>).

Relational databases based on LOVD

The data for the type I and type III collagen gene variants were moved from simple HTML web pages into a proper relational database in 2008. These new databases were based on the Leiden Open Variation Database (LOVD: <http://www.lovd.nl/>) system which was developed at Leiden University Medical Center as a generic solution to curating variant data that could be accessed using a web browser. Rather than lump the three genes together into a single installation, separate databases were set up for osteogenesis imperfecta (<https://oi.gene.le.ac.uk/>) and for Ehlers Danlos syndrome (<https://eds.gene.le.ac.uk/>).

Since the OI database was established in 2008, there has been an explosion in the number of genes which are recognised to harbour sequence variants leading to OI. All sixteen currently known OI genes are included in the database (<https://oi.gene.le.ac.uk/status.php>) with the majority of genes harbouring recessive variants. By comparison, the EDS gene complement is not yet complete (<https://eds.gene.le.ac.uk/status.php>) but the 10 genes that are already included do comprise those for which most variant data are known. The intention is that the remaining EDS genes will be added in the coming year.

What can I do to help?

The compilation of the OI and EDS variant databases has been achieved without any direct financial support. It's best to think of it as a personal "labour of love". That said, I'm not averse to offers of help. The databases are capable of accepting directly submitted variant data via the web interface and there is a tutorial to guide the novice submitter about how the process works. If you have any unpublished OI or EDS variant data that you would like to put into the database, then please get in touch.

Contact

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←
Felix Wherle
"Elastic skin Man"

→
Avery Childs
"Frog Boy"

*"Monsters of the Gilded Age:
Photographs by Charles
Eisenmann" by Mike Mitchell*



Photos circa 1890.

STUDENTS FUNDED BY ISMB TRAVEL GRANTS



Congratulations to the ISMB travel award recipients Herbert Schiller and Peter Bell, who attended the 9th Pan Pacific Connective Tissue Societies meeting, held in Hong Kong, 24-27 November, 2013.

They were presented their Awards by Shireen Lamande, President ISMB.

A brief Report by Peter Bell on his attendance at this Meeting is given below.

My highlights of PPCTSS 2013 (Hong Kong, 24-27 Nov 2013)

Peter Bell – Newcastle University (UK)

I had the great pleasure of participating in the 9th Pan Pacific Connective Tissue Societies Symposium recently held in Hong Kong, where I presented my ongoing work. The programme covered a wide variety of extracellular matrix biology themes including the ECM in development/disease, cell-ECM interactions, mechanobiology and ECM homeostasis.

Being my first trip to the city I was struck by its scale, surprised by the proximity of wide expanses of countryside to the main city, and particularly impressed by the setting for our opening plenary lectures – I can't think of a better view from a lab than from the Hong Kong Jockey Club Building for Interdisciplinary Research.

Among the (many) highlights for me personally were the presentations by Chris Overall, who outlined some surprising (and rigorously validated) findings of beneficial MMP roles in inflammation, along with Hal Dietz's excellently presented talk, where he described the remarkable advances that his lab have contributed to our understanding of the pathogenesis/treatment of Marfan syndrome.

The atmosphere of the conference was welcoming to researchers at all career stages, and I was glad to be able to chat to both junior and senior delegates during breaks and at the conference dinner, where we were treated to some fantastic Cantonese food.

I found it a valuable experience to meet and hear from researchers from the Pan-Pacific region, the vast majority of whom I had never had the opportunity to see present. I am grateful to the ISMB for their support, and I would highly recommend that other scientists consider attending the next PPCTSS meeting, planned to take place in South Korea.

ISMB New Directions

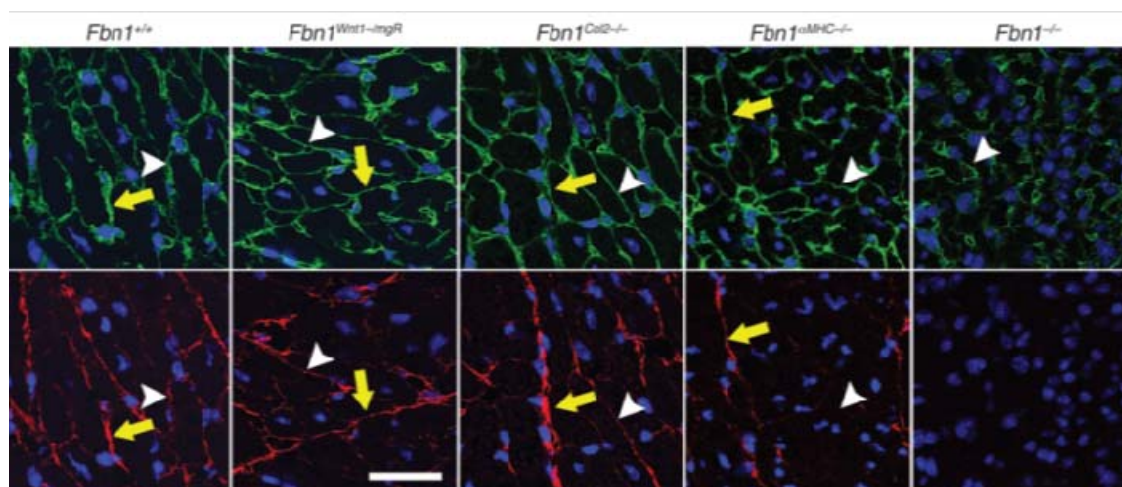
Fibrillin-1 is a component of the muscle mechanosignaling complex

Jason R. Cook & Francesco Ramirez

Department of Pharmacology & Systems Biology, Icahn School of Medicine at Mount Sinai.

Studies of mice with mutations affecting the expression or structure of fibrillin-1 have revealed the different mechanisms that this ECM molecule uses to instruct cell behavior. Characterization of mice with Marfan syndrome (MFS) has implicated fibrillin-1 in modulating TGF β bioavailability, whereas analyses of mice with Stiff Skin Syndrome (SSS) have documented the importance of fibrillin-1/integrin interactions for tissue homeostasis [1, 2]. Our recent work with MFS mice has identified a previously unsuspected role of fibrillin-1 in myocardial mechanosignaling [3]. Heart function depends on the ECM to transmit mechanical forces to cardiomyocytes where they are converted into biochemical signals that regulate muscle activity to maintain homeostasis [4]. Studies of inherited forms of dilated cardiomyopathy (DCM) have implicated several cell surface and intracellular components of myocytes in sensing stretch signals and in generating and transmitting force to and from the sarcomere [4]. Contrary to the prevailing view, we demonstrated that DCM is a primary manifestation of MFS caused by ECM-induced abnormal myocyte mechanosignaling. Like aortic aneurysm, DCM in MFS mice was associated with improper activity of the angiotensin II type 1 receptor (AT1R); in contrast to aortic aneurysm, promiscuous TGF β did not contribute to cardiac disease [1,3]. Interestingly, stretch-induced AT1R signaling influenced integrin mechanosensing through an as yet to be defined mechanism. Fibrillin-1 is therefore a component of the ECM/sarcomere multi-protein complex that regulates muscle tissue adaptation to demanding loading conditions.

- [1] Habashi JP, Judge DP, Holm TM, Cohn RD, Loeys BL, Cooper TK, Myers L, Klein EC, Liu G, Calvi C, Podowski M, Neptune ER, Halushka MK, Bedja D, Gabrielson K, Rifkin DB, Carta L, Ramirez F, Huso DL, Dietz HC. Losartan, an AT1 antagonist, prevents aortic aneurysm in a mouse model of Marfan syndrome. *Science* 2006; 312:117-121.
- [2] Gerber EE, Gallo EM, Fontana SC, Davis EC, Wigley FM, Huso DL, Dietz HC. Integrin-modulating therapy prevents fibrosis and autoimmunity in mouse models of scleroderma. *Nature* 2013; 503:126-130.
- [3] Cook JR, Carta L, Benard L, Chemaly ER, Chiu E, Rao SK, Hampton TG, Yurchenco P, Costa KD, Hajjar RJ, Ramirez F. Abnormal muscle mechanosignaling triggers cardiomyopathy in mice with Marfan syndrome. *J. Clin. Invest.* 2014; 124:1329-1339.
- [4] Seidman JG, Seidman C. The genetic basis for cardiomyopathy: from mutation identification to mechanistic paradigms. *Cell* 2001; 104:557-567.



From Figure 3 of Ref 3: Collagen IV (Col IV, green) and fibrillin 1 (FBN1, red) immunofluorescence staining of neonatal myocardia of the indicated genotypes. Whenever detectable, immunostaining of interstitial and BM-containing pericellular matrices are highlighted by a yellow arrow and white arrowhead, respectively. Scale bar: 30 μ m



EXTRACELLULAR MATRIX NEWS

"Extracellular Matrix News is a free, weekly e-Newsletter that keeps members of the extracellular matrix community informed by providing the latest news from all areas of the field, from science, research and business, to regulatory affairs."

ISMB partnership with EXTRACELLULAR MATRIX NEWS

**International
Society *for*
Matrix Biology**



ISMB has recently formed a partnership with EXTRACELLULAR MATRIX NEWS (<http://www.extracellularmatrixnews.com>) aimed at complementing our different activities in promoting matrix biology worldwide. The ISMB web site (www.ismb.org) now includes a link to EXTRACELLULAR MATRIX NEWS on the welcome page, to access their weekly listing of new publications in matrix biology as well as other news in the field. In return, an ISMB banner ad appears on the EXTRACELLULAR MATRIX NEWS web site, subscribers of which recently received a dedicated e-mail blast about ISMB.

THE DICK HEINEGÅRD YOUNG INVESTIGATOR AWARD

A new Award, has been established under the auspices of the MBE (formerly FECTS) and its affiliated National Matrix Biology Societies. This is for Young Investigators who should have no more than 5 years postdoctoral research experience. The six strongest Nominees from the affiliates will give presentations during the Young Investigator Award Session of the MBE conference 2014 in Rotterdam (www.mbe2014.eu). The MBE Awards Committee will meet and select The Dick Heinegård European Young Investigator Awardee, based on the overall quality of the science track record and the oral presentation. The Awardee will receive a certificate and a cheque (in the region of 1000 euros but yet to be finalised) at the closing ceremony of the conference.

POSITIONS AVAILABLE

In previous issues, we have run a Section on Positions available – this has changed.

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). (If you do not have this key site 'bookmarked' why not do this right now?)

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/>). If you are looking for opportunities also check out our website.

Also, as noted above as our highlighted ECM resource of this newsletter, the Extracellular Matrix News also includes an online listing of positions that are available.

Recent items on the web site <http://ismb.org/career/> include,

- Post-doctoral Fellowship in Matrix Biology of Tumor Development, University of Bergen, Norway
- Post-doctoral Position in Extracellular Matrix, Biomechanics and Skin Biology, Institut de Génomique Fonctionnelle de Lyon, France
- Postdoctoral Fellowship in Cartilage Biology, Washington University, St Louis, USA

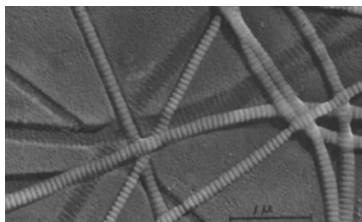
REMEMBRANCES

In Remembrance of those in our extracellular matrix community who have died recently, remembering and celebrating their lives and contributions to our field: Jerry Gross, Shmuel Shoshan, Nick Kefalides and Yoshi Ninomiya



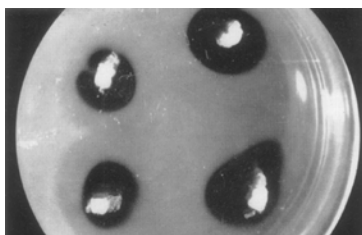
Jerome Gross, 1917-2013

It is hard to overstate the importance of the work of Jerry Gross for matrix biology. Born in New York City, a graduate of MIT then New York University College of Medicine, Jerry was the first to visualize collagen fibrils in the electron microscope (Gross and Schmitt, 1948). Fascinated by the mechanisms of tissue morphogenesis, regeneration and repair, he showed that collagen molecules could be extracted from tissues, using cold neutral salt solutions, after prevention of cross-linking using lathyritic agents (Levene and Gross, 1958), and then went on to show that fibrils could be reconstituted from such extracts simply by raising the temperature (Gross and Kirk, 1958). Not only this, but using explants of tadpole tail cultured on collagen gels, he was the first to identify a mammalian collagenase, the founder member of what later became the matrix metalloproteinase family (Lapière and Gross, 1962). In later years he continued to make seminal contributions to collagen biosynthesis, structure and fibril formation, as well as the regulation of collagenase activity, in a career that spanned over 60 years. These are quite simply stellar achievements in matrix biology which have laid the foundations for subsequent developments in the field right up to the present day.



Jerry was known for his passion for science, his incisive remarks and his love of debate. He was a mentor and colleague to numerous scientists in the field, including Francis Schmitt, John Highberger, Charles Levene, Karl Piez, Charles Lapière, Yutaka Nagai, Andy Kang, Saryu Dixit, Marvin Tanzer, Takahiro Sakai, Arthur Eisen, John Harper, Dave Newsome, Bob Trelstad, Romaine Bruns, Barbara Johnson-Wint, Chitra Biswas, Bryan Toole, Tom Linsenmayer and Richard Mayne. I also have fond memories of my time as a postdoc in his lab. To quote from Steve Krane: "Few individuals have had such an impact on modern biology or have influenced the scientific lives of so many others."

David Hulmes



For more information about Jerry's life and accomplishments, go to <http://jeromegrossmd.com>



Shmuel Shoshan, 1924 - 2013

I had the fortunate opportunity to share my sabbatical year in Lyon in 1992 with Shmuel. At that time my prevalent interest was the puzzling role of collagen overproduction in some types of cancer. It should be remembered that the extracellular matrix and its prevalent expression, the collagen, were considered mere passive substrates for cells and tissues lying or embedded on them. Shmuel Shoshan was among the very first scientists who believed in the active role of collagen on tissue functions, pathology and repair. In an exhaustive study of "Wound Healing" published in the "International Review of Connective Tissue Research" in 1981, he spoke about *"the fascinating mystery of the healing process"*. This phrase describes emblematically Shmuel's attitude towards Science. He loved Science to the same extent by which he loved and respected Life. He was a sincere lover of art and music, and had a great propensity towards human relationships. For his rich personality,

elegant sense of humor and great culture, talking with him was always a great pleasure and a personal enrichment.

However, life for him, a young Jew during the Second World War, had been extremely hard. In June 1941, a few days after he had finished the high-school (cum laude) at the age of 17, Germany attacked the USSR and invaded the Baltic countries. At the same time, troops of the Red Army marched towards Riga (the town where Shmuel was born and lived until that time), retreating from the Germans and directing back to USSR. Shmuel and his brother Jacov went down to the street inquiring what was happening. They, and other young people, were invited to the Red Army Headquarters to "help the resistance against the Nazi Army". Regrettably, as they entered the building they were *seized* and immediately recruited to the Red Army, joining the troops directed to Russia. Shmuel never met his parents and brother again. Four years later, at the end of the war, he returned to Riga and found that they all had been murdered. This traumatic event marked his life forever, but his inner strength and his profound perception of the sense of life, saved him from psychological breakdown. During the war he was wounded twice, losing his left eye in one event. In 1945 he started a long, winding journey to Palestine from Russia, through Latvia, Poland, Italy and Cyprus. In December 1946, aged 22 old, he finally reached Palestine, where he was welcomed to Kibbutz Na'an. There, Shmuel met, and then married, Tamar, the beloved woman of his life.

Shmuel wanted to study medicine but the Kibbutz trained him to be a music teacher. So, eventually, in 1954 Shmuel with his new family (Tamar and their three children, Nimrod, Michal and Idith; Gadi the fourth was born during his student years) left the Kibbutz and moved to Jerusalem. Here, finally Shmuel was able to reach his dream and in 1964 was the first PhD graduate in Medical Sciences at the Hebrew University of Jerusalem. Here he carried out his academic career as Professor in Oral Biology and Head of Connective Tissue Research Laboratory.

Shmuel's vocation was research and from the beginning of his scientific career, as Research Fellow at Harvard University in Boston (1964-65), he started to study the extracellular microenvironment. Indeed collagen, was his favorite theme, both from a structural point of view to the metabolic processes and a medical point of view. In 1984 he was recognized as a major expert in the field of connective tissue, and was invited by the European Space Agency (ESA) to submit proposals for bio-medical experiments in space related to the phenomenon of weightlessness.

During his life he continued to cultivate numerous international relationships and to exchange experiences in most prestigious laboratories in Europe and in the US.

He was a convinced supporter of the idea that collagen plays an important role in wound healing, even when the wound is closed. He was also aware that other components of the extracellular matrix, such as proteoglycans and cellular factors, exerted active and synergic roles towards neighboring cells and tissue of the microenvironment. For a better understanding of these phenomena, Shmuel over the years, designed experiments aimed to clarify the modality of cell adhesion to collagen, of cell migration, as well as the collagen biosynthesis and breakdown and the bio-factors involved. His attention was also devoted to the mechanisms of healing in animal models and in patients in the course of therapies.



Analysing his scientific work on the topic of wound healing, you have the feeling that each individual paper is like a piece of a big puzzle, which Shmuel wanted to tenaciously put together during his life, being convinced that wound healing was a portrait of major life actions: embryonic development, differentiation and its aberrant counterpart, cancer. He conducted his scientific work with unchanged determination and coherence throughout his life, training students at his school until late in the life, when he was already emeritus. Now, not only the four generation of his family, but also colleagues around the world and generations of students, feel great sorrow for his death and will keep his memory and his teachings alive forever.

Ida Pucci Minafra

I met Shmuel for the first time in 1974, when I was looking for a post-doctoral position in the USA. Knowing I studied bacterial proteases relevant to collagen degradation, Shmuel called me up, urging me to specialize in the field of collagen Biology. He referred me to leading laboratories in the USA and although I ended up in other laboratories, I will always be grateful to him for introducing me to this exciting field. Being the friendly and enthusiastic person he was, Shmuel kept in touch and followed my career ever since. Shmuel was eager to learn about our findings and kept me informed of his own research projects. We became close and I miss him already.

Besides his role in my own career, Shmuel had a major impact on connective tissue research in Israel. He enticed Israeli students and post-doctoral candidates into the field, educating and providing a firm basis for them to pursue research in the field independently. Taking advantage of his numerous international relationships, Shmuel initiated contacts between young Israeli scientists and internationally known laboratories both in Europe and the United States, enabling them to practice research in extracellular matrix biology and then establish their own specialized laboratories in Israel. In the 1990's, Shmuel was very active in absorbing and educating young students arriving to Israel from the USSR as part of the great immigration 'wave' from these countries. Initially, these students spoke little Hebrew and their command of English was limited. Nevertheless, Shmuel accepted several such students and guided their research towards their MSc degree successfully. He was a devoted mentor, helping them to establish themselves in Israel as productive citizens.

Shmuel established and headed the Israeli 'Club' for connective tissue research, and served as the Israeli contact person for the Federation of European Connective Tissue Societies (FECTS) from the early 1980's to 1997 - a few years after his retirement from the Hebrew University. As the leader of the Israeli club for connective tissue research, Shmuel organized several international meetings in Jerusalem, bringing together local scientists and some of the world leading connective tissue experts. Shmuel was a consultant to several Israeli start-up companies developing new technologies in the field. He will be well remembered for this long-lasting contribution to connective tissue research in Israel.

Efrat Kessler



Nicholas A. Kefalides, 1927 - 2013

Nicholas A. Kefalides, M.D., Ph.D. passed away on Dec. 6, 2013 from pulmonary fibrosis at age 86. Nick was Emeritus Professor of Medicine and Biochemistry and Biophysics at the University of Pennsylvania, where he was an integral member of the Penn community for 43 years as a remarkable and dedicated scientist, clinician, and educator. After becoming Emeritus, he continued to serve actively on Penn medical school committees and councils, one being the Association of Senior and Emeritus Faculty that he helped found and then presided as president from 2009-2011.

Nick was born in Greece where he spent his first 20 years during the occupation by German and Italian armies. He emigrated to the U.S in 1947 and began his academic life at Augustana College where he received his bachelor's degree in chemistry, followed by his M.D. in 1956 from the University of Illinois. He served in the US Public Health Service in Lima, Peru working on the treatment of burn patients, returned to the University of Illinois for a residency and fellowship, and in 1965 earned his Ph.D. degree conducting research aimed at identifying the antigenic components of glomerular basement membranes. Nick's first faculty appointment was at the University of Chicago, and in 1970 he moved to Philadelphia at the University of Pennsylvania. In 1974 he became Professor of Medicine and then founder/director, of the Connective Tissue Research Institute at the University City Science Center, adjacent to the Penn Campus. At this section of the Department of Medicine, Nick recruited and mentored a number of scientists.

His research on the structure and biochemistry of basement membrane components spanned over 50 years and was the subject of his writings in over 150 journal, review and book chapter articles. He was a pioneer in the field of basement membranes and in 1982, chaired the first Basement Membrane Gordon Conference. In Nick's words "My most important scientific accomplishment was the discovery of Type IV collagen in all basement membranes." His studies, beginning in the 1960's, represented a landmark finding in the field, contrary to dogma collagen beliefs at that time and reported long before others realized similar observations. Type IV, the first collagen identified with a pepsin-sensitive collagenous region and non-processed terminal domains, was the prototype for subsequent discovery of more than 20 nonfibrillar collagen types. Studies of type IV collagen continue to dominate matrix literature as this molecule and its association with other integral basement membrane proteins is essential to our understanding of the pathobiology of the kidney and other organ systems.

In 2005, Nick's knowledge of basement membranes and literary talents resulted in his book, *Basement Membranes: Cell and Molecular Biology*, a comprehensive review of developments in normal and disease states. And in 2009 and 2012, he published his memoirs in two volumes, *Echoes From the Cobblestones* and *Finding Aesculapius Across the Atlantic*.

Many scientists owe Nick a debt of gratitude for his support and encouragement in furthering their careers. He was amazingly personable, optimistic and thoroughly enjoyed interacting with people. Every endeavor he undertook was carried out with extreme commitment, pride and to the very best of his ability. In April there will be a Memorial Service at the University of Pennsylvania where colleagues, friends and family will come together to celebrate Nick's life and accomplishments. He will truly be missed.

On a personal note, I retired from Penn in 2011 and the preceding year Nick asked me to serve with him on the Senior and Emeritus Faculty Council. He continued to attend our events and monthly meetings throughout 2013 even though his health was compromised and, as always, he contributed so much. Nick was the person responsible for me coming to Penn in 1983 and I was very glad for the time to interact with him again.

Jeanne Myers

On April 18th 2014, there will be a Memorial Service to celebrate Nick's life and career at 4 PM in the Austrian Auditorium, Clinical Research Building, 445 Curie Boulevard at the University of Pennsylvania, followed by a reception in the adjoining lobby lounge. If you would like to attend, please RSVP to Cordelia Biddle: biddlec@mail.med.upenn.edu, phone 215-573-7527.



Yoshifumi Ninomiya

It is with great sadness that I sit down at my desk to write about Yoshifumi (Yoshi) Ninomiya, but when I see him in my mind's eye, the view is filled with sunshine. I believe this is the light in which he wanted us to see him: Someone who was as excited about research in matrix biology when he was close to retirement as when he was a postdoctoral fellow; the professor of biochemistry who inspired medical students to seriously consider a life filled with science; the scientist and mentor who stimulated his graduate students and junior investigators to tackle scientific problems of substance.

This is the Yoshi that those who met and knew him will remember, but for me there is more. In 1980 he travelled from Japan to the United States with his family and arrived at Rutgers Medical School in New Jersey as my first postdoctoral fellow. He had received his MD degree and completed his residency at Okayama University Medical School, and he had graduated from the Tokyo Medical and Dental University PhD program. Dr.

Yutaka Nagai had been his advisor so I took it for granted that the new postdoctoral fellow would be well trained in collagen biochemistry. What I had not foreseen was that Yoshi's presence in my laboratory would turn out to be a life-changing event that established strong bonds between our families and profoundly affected our research directions and professional careers. It started an exciting journey that took us through discoveries of non-fibrillar collagens, changing our view of the roles of collagenous proteins in extracellular matrix architecture, and led us from matrix biochemistry to cell and developmental biology and genetics after we moved to Harvard Medical School in 1985.

Remarkably, our journey together did not come to an end when Yoshi left his Associate Professorship at Harvard and returned to Okayama University Medical School as Professor of Molecular Biology and Biochemistry in 1991. Our interactions continued through multiple meetings in Okayama while Yoshi built a strong department and put his stamp on extracellular matrix biology in Japan. Having one of his outstanding graduate students join my laboratory as a postdoctoral trainee also contributed to keeping our professional relationship strong. Finally, Yoshi started a very successful research internship program for medical students, and having 3rd year students in the program join my laboratory for 3 months in the Fall semester became an annual reminder of Yoshi's joyful approach to doing and teaching science.

I have often told my students and postdoctoral fellows that science is a marathon; not a sprint. Now the run of Yoshifumi Ninomiya, my collaborator and friend for the past 35 years, has come to an end. However, having seen the excited faces of Okayama students describing their research projects and sensed the pride and joy of Yoshi's trainees presenting their findings, I know for sure that this marathon has not reached a finish line and that runners inspired by Yoshi will continue to run.

Bjorn Olsen



MATRIX MEETING ANNOUNCEMENTS

Building the Extracellular Matrix: Molecules, Cells and Evolution

April 7-8, 2014

[A British Society for Matrix Biology Meeting]

Bristol, United Kingdom

Website: <http://www.bsmb.ac.uk/meetings/building-the-extracellular-matrix-molecules-cells-and-evolution/>

See banner at end.

Eighth Symposium on Biologic Scaffolds for Regenerative Medicine

April 24-26, 2014

Columbus, United States

Chair: Stephen F. Badylak. Keynote: Joseph P. Vacanti

Website: http://www.mirm.pitt.edu/events/2014_Meetings/2014scaffoldssymposium.asp

See banner at end.

OARSI – World Congress on Osteoarthritis

April 24 -27, 2014

Paris

Website: <http://2014.oarsi.org/>

See banner at end.

Spring Symposium in Strasbourg: TENASCINS - defining their role in tissue homeostasis and cancer

May 12 – 13, 2014

Strasbourg

Website: <http://medalis.unistra.fr/en/>

See banner at end.

2014 TERMIS-EU

June 10 -13, 2014

Genova, Italy

Website: <http://www.termis.org/eu2014/>

See banner at end.

eCM XV: Cartilage & Disc: Repair and Regeneration

June 16 – 18, 2014

Davos, Switzerland

Website: http://www.ecmjournals.org/ecm_meetings/ecm_15/index.shtml

1st Matrix Biology Europe (MBE) Conference

June 21 -24 2014

[Formerly known as Federation of Connective Tissue Societies, FECTS]

Rotterdam, the Netherlands

Meeting Chair: Ruud Bank. Secretary Organizing Committee: Yvonne Bastiaansen

Website: www.mbe2014.eu

See banner at end.



European Orthopaedic Research Society: 22nd Annual Meeting

July 2 -4 2014

Nantes, France

Website: <http://eors2014.org/>

2014 Gordon Research Conference: Proteoglycans - Diverse Regulators of Health and Disease

July 6 -11, 2014

Proctor Academy, Andover, NH

Chair: Nicholas Shworak Vice Chair: Jeremy E. Turnbull

Website: <http://www.grc.org/programs.aspx?year=2014&program=protglyc>

2014 Gordon Research Conference: Signal Transduction by Engineered Extracellular Matrices

July 6-11, 2014

Waltham, Massachusetts, USA

Chair: Jason A. Burdick Vice Chair: Linda G. Griffith

Website: <http://www.grc.org/programs.aspx?year=2014&program=sigtrans>

Australian and New Zealand Bone and Mineral Society – Annual Scientific Meeting

September 7 - 10, 2014

Queenstown, NZ

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

ORS New Frontiers in Tendon Research

September 11 - 12, 2014

New York

Website: <http://www.ors.org/orsismms-new-frontiers-in-tendon-research/>

American Society for Bone and Mineral Research

September 12 - 15, 2014

Houston, TX

Website: <http://www.asbmr.org/annual-meeting>

See banner at end

8th International ASAMI and Bone Reconstruction Meeting

September 18 – 21, 2014

Goa, India

Website: <http://www.medical.theconferencewebsite.com/conference-info/8-International-ASAMI-Bone-Reconstruction-Meeting-2014>

3rd International Conference on Tissue Science & Regenerative Medicine

September 24 - 26, 2014

Valencia, Spain

Website: <http://www.ecco-org.eu/Global/Events/Other-Events/3rd-International-Conference-on-Tissue-Science-and-Regenerative-Medicine.aspx>



2014 TERMIS-AP

September 24 -27 2014

Daegu, South Korea

Website: <http://www.termis.org/ap2014/>

9th International Research Symposium on Marfan Syndrome and Related Disorders

September 25-27, 2014

Paris, France

Website: <http://www.marfan.org/resources/researchers/scientific-meetings> or email to: research@marfan.org.

See banner at end.

American Society for Matrix Biology, Biennial Meeting (ASMB)

October 12- 15, 2014

Cleveland, OH

Organizer: Suneel Apte

Website: http://www.asmb.net/2014_meeting.php or contact: Kladuca@faseb.org

Asia Pacific Orthopaedic Association

October 23 – 25, 2014

Pattaya, Thailand

Website: <http://www.apoa2014.com/>

38th Annual Meeting, Matrix Biology Society for Australia and New Zealand (MBSANZ)

October 26 – 29, 2014

Queenscliff, Victoria, Australia

Website: www.mbsanz2014.com.au

See banner at end

TERMIS-AM

December 13 -16, 2014

Washington, DC

Website: <http://www.termis.org/am2014/>



BSMB Spring Meeting 2014: April 7 and 8, 2014
**BUILDING THE EXTRACELLULAR MATRIX:
MOLECULES, CELLS AND EVOLUTION**
Organiser: Jo Adams
Location: University of Bristol



THEMES: Cell-ECM INTERACTIONS AND SIGNALING, ECM STRUCTURES AND NICHES, EVOLUTION OF ECM ORGANISATION, ECM/GROWTH FACTOR INTERACTIONS, BSMB OPEN SESSION **Info:** www.bsmb.ac.uk

The 8th Symposium on Biologic Scaffolds for Regenerative Medicine Silverado Resort in Napa Valley, CA April 24-26, 2014





2014
OARSI
WORLD CONGRESS
ON OSTEOARTHRITIS

Paris, France
APRIL 24–27, 2014
The Center of New Industries and Technologies (CNT)

Three circular inset images show: a modern building, a classical building facade, and the Arc de Triomphe.



SPRING SYMPOSIUM: May 12th and 13th 2014
TENASCINS:
DEFINING THEIR ROLE IN TISSUE
HOMEOSTASIS AND CANCER
Organizers: Kim Midwood and Gertraud Orend
Forum de la Faculté de Médecine
Strasbourg

Logos on the left: INSERM, Institut national de la santé et de la recherche médicale, Cancéropôle du Grand-Est, Université de Strasbourg, Faculté de médecine, FMTS.

Logos on the right: University of Oxford, medalis.

Local organizers: Gertraud Orend, Thomas Hussenet, Caroline Spenlé, Olivier Lefebvre, Tristan Rupp, Patricia Simon-Assmann, Isabelle Gillot
KEYNOTE Ruth Chiquet Ehrismann, FMI, Basel



TERMIS
EU 2014/CHAPTER MEETING
10/13 JUNE 2014 GENOVA/ITALY

termis

The background features a photograph of the St. Mark's Campanile in Genoa, Italy, with a white line-art skyline of Genoa overlaid on the right side.

**1ST MBE MEETING
(XXIVTH FECTS)**

**21 – 24 JUNE, 2014
ROTTERDAM, THE NETHERLANDS**



**POSTER
SESSIONS**



LECTURES



WORKSHOPS

NVMB
DUTCH SOCIETY FOR MATRIX BIOLOGY

NIRM
NEDERLANDSE INTERDISCIPLINAIR
RECHTERSONDERZOEKSGEBIED



SAVE THE DATE
25-27 september 2014
Paris, France

The 9th International Research Symposium on Marfan Syndrome and Related Disorders

Contact: marfan.2014@gmail.com **More information in september 2013**



Matrix Biology Society of Australia & New Zealand

Matrix Biology Society of Australia and New Zealand
38th Annual Scientific Meeting
26-29 October 2014
Vue Grand Hotel, Queenscliff



<http://mbsanz2014.com.au/>