Connective Issues:

BSMB Newsletter

Committee:
Prof Andrew Pitsillides (Chair), Prof Kim Midwood (Secretary),
Dr James Whiteford (Treasurer), Dr Michal Dudek (Post doc rep),
Anders Jensen (Student rep), Prof Jerry Turnbull, Dr Blandine Poulet,
Dr Maria Fragiadaki, Dr Anna Maria Piccinini, Dr Chrissy Hammond
and Dr Salvatore Santamaria

Registered Charity no. 281399

No. 102, January 2023

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Editorial

Welcome to the 102nd Connective Issues!

Following the success of our return to in person BSMB meetings in Liverpool last year, we continue this year with our regular two face to face meetings – Spring in Sheffield and an alliance with the Biochemical Society to host the International Proteoglycan meeting in Autumn! Registration for the former is now open, details for both can be found below.

I'm also delighted to announce that the winner of the 2023 Fell Muir Award is Professor Jo Adams from the University of Bristol. This awards honours outstanding contributions of matrix biologists both to the field and to the BSMB. Jo will present her award-winning lecture at the Spring BSMB meeting in Sheffield – an event not to be missed.

On a personal note, this will be my 12th and final newsletter writing as your Secretary. I'd like to thank you all for reading and to welcome Qing-Jun Meng as he takes on the role in Spring this year. It's been a real privilege to work alongside this fantastic committee, not to mention a great deal of fun. I hope Qing-Jun will enjoy it as much as I have, and wish him the very best of luck.

Thank you in turn to Kasia Pirog who assumes the Chair of the bursary award panel as Qing-Jun steps away from this role, and to Salvo Santamaria who joined the committee at the last AGM. Finally, we are currently seeking one committee member - nominations are most welcome - do consider joining us and get involved in running your BSMB!

Kim Midwood, Honorary Secretary

Chair's letter

Dear Fellow Matrix Biologists,

Welcome to Connective Issues 102; the Winter 2022 edition. This brings with it: news of more strikes, rising inflation, an energy supply crisis. I could go on.. *'No'* – I hear you say – *'give us pleasant things to think about. Give us news and updates from BSMB instead to help us get through these troubled times.'* Your wish is our command.

Looking forward: **'Steel City'**, beckons you for our next meeting, organised by **Maria Fragiadaki**. As ever, there is something stimulating in the programme for all members and there is important socialising – oops meant networking – to do too. **Register now for our Spring 2023 meeting in Sheffield**. This will take place on 20th and 21st April at The Edge, with the morning of the 20th serving as a satellite symposium for Early Career Researchers. A range of accommodation - Hotels, Halifax B&B Halls of residence and Inox accommodation - is available to cater for all. Maria has brought together an excellent programme of International and UK speakers themed upon '**Vascular Inflammation and the Extracellular Matrix'**. I am sure she is looking forward to seeing you all in Sheffield. Please join me in wishing Maria every success with this meeting

From my very first experience on the committee, it was crystal clear that the achievements of ECRs is central to the BSMB mission. We hope that such ECR events will expand in their scope and that local gatherings, 'near-you', will help grow even stronger camaraderie, to enable interaction and develop a sense of a BSMB community. Who's to say that they won't also foster lifelong friendships? **Please get in touch if you'd like to organise an ECR gathering near you.**

Timely, therefore, that I should introduce/ welcome **Anders Jensen, the new student representative**, from Liverpool who has joined the BSMB Committee. I am sure that he will be happy to convey news or ideas that will help improve the ECR experience. He is one of your Committee voices.

Our plans include an **Autumn 2023** meeting themed on **Proteoglycans** being organised by a team led by **Jerry Turnbull,** including our ex-Chair, John Couchman, Committee member, Linda Troeberg, Jessica Kwok and Cathy Merry. This is planned for September 4th-7th with sponsorship from The Biochemical Society (BS) as a **Harden Conference**. The venue will be the De Vere Horsley Estate & Towers in Surrey and you can register your interest for this meeting here: 89th Harden Conference: Proteoglycans: Matrix Master Regulators 2023 (biochemistry.org)

We are also fully committed to our **Spring 2024** meeting in **Bristol** that explores links between the ECM, mechanobiology, ageing and repair, with **Chrissy Hammond** leading from the front for BSMB. Plan ahead and put these dates in your **diary now** so that you can take advantage of these opportunities.

Looking back: Since Summer 2022, we have gathered 'in person' in Liverpool for the Autumn BSMB meeting organised by Blandine Poulet. She found us a lovely Maritime Museum venue and I am sure that you will join me in congratulating Blandine on creating a fantastic programme with an ECR pre-meeting, great talks covering 'The Matrix in Development', a John Scott lecture by Joan Chang and for also making the dinner memorable. BSMB is hugely grateful for all these efforts; she now leaves the Committee; **Blandine - thank-you.**

Some of you may also have been lucky enough to meet at the Matrix Biology Europe (MBE2022) in Florence, whilst others were topping up Vitamin D levels, elsewhere in the Med. Last, but certainly not least, please check out opportunities (below) and **nominate yourself** to fulfil vital roles for our matrix community.

So, as our memories of the festivities at the end of 2022 fade, I'll take this chance to wish everyone a successful and enjoyable 2023, as we all look forward to meeting in Sheffield for even more great science.

Best wishes to all

Andy Pitsillides*, BSMB Chair*

Mark your diary

BSMB Spring 2023 Meeting
University of Sheffield
Vascular Inflammation and the ECM
April 20th -21st 2023

BSMB Autumn 2023 Meeting
International Proteoglycan meeting
Proteoglycans: Matrix Master Regulatros
De Vere Horsley Estate & Towers, Surrey
September 4th – 7th 2023

BSMB Spring 2024 Meeting
University of Bristol
The mechanical matrix: the mechanobiology of ageing and repair
April 8th - 9th 2024

BSMB News

BSMB Spring Meeting 2023

Organised by Dr Maria Fragiadaki, QMUL & University of Sheffield

As the host of the next BSMB Spring Meeting, I am delighted to invite you to register, submit your abstracts and attend this outstanding meeting. The Spring Meeting will take place at the University of Sheffield from the 20th to the 21st of April 2023. There will be plenty of opportunities for interaction, lively discussion and networking. The theme of the meeting is "Vascular inflammation and the extracellular matrix". I am honoured and excited to be joined by many distinguished speakers and young up-and-coming rising stars. Our spring meeting will hold the Full-Muir Award and lecture and a bonus satellite meeting on sustainability in research, which the University of Sheffield is very proud of! I am looking forward to seeing you all in the beautiful Peak District city of Sheffield. More information about this meeting can be found on page 6.

Key Information:

- Registration is open (bsmb.ac.uk)
- Early Bird registration closes 31st March
- Late registration closes 15th April
- Abstract submission closes 20th March
- Oral presentation outcomes 31st March
- Bursary application deadline 3rd March
- Bursary outcomes 14th March

Register and submit abstracts: https://bsmb.ac.uk

Bursary submission: https://bsmb.ac.uk/page/presenter-bursaries/

For further information please visit: bsmb.ac.uk

You can also follow us on…
Instagram: @matrixbiologyuk
Twitter: @BSMB1
Facebook: @BritishSocietyForMatrixBiology

WELCOME TO NEW BSMB MEMBERS!

STUDENTS
Oliver McClurg

FULL MEMBERS
Jennifer Ashworth (Nottingham)
Christian Pinali (Manchester)

Early Career Researcher Award AND the Dick Heinegård European Young Investigator Award

This year we have recognized and celebrated two rising stars in matrix biology for their excellent contributions to the field.

Dr Joan Chang (Wellcome Centre for Cell-Matrix Research, Manchester) was awarded the Early Career Researcher Award and concluded the first day of the BSMB Autumn meeting in Liverpool on a high note delivering the John Scott Lecture. Her lecture, chaired by Professor Andy

Pitsillides (Royal Veterinary College), provided insights into her most recent work seeking to understand the molecular control of collagen trafficking within different cell types, and how these coordinate with one another to synthesize, maintain and remove a fibrous matrix.

Dr Neil Marr (Royal Veterinary College) was nominated by the BSMB for the Dick Heinegård European Young Investigator Award and delivered an excellent oral presentation entitled "The tendon interfascicular basement membrane provides an endothelial-like niche for CD146+ cell subpopulations" at the MBE 2022 conference in Florence, Italy. Dr Amro Hussien (Switzerland), Dr Claire Leclech (France), Dr Julian Nüchel (Germany) and Dr Arianna Parnigoni (Italy), nominated by their respective affiliated European Matrix Biology Society, also competed, and Dr Julian Nüchel won the award.

Many congratulations Joan and Neil for your excellent achievements!

Anna Piccinini, Chair, ECR Selection Panel

In print!

In print: Abstracts from the Surrey BSMB Spring meeting 2022 meeting are currently in print online in the International Journal of Experimental Pathology.

In prep: Abstracts from the Liverpool BSMB Autumn meeting 2022 will be in print soon in the International Journal of Experimental Pathology.

BSMB Committee news

Welcome to our new committee members:

Salvatore Santamaria, Ph.D., M.Sc. (Hons), B.Sc., is a British Heart Foundation Intermediate Basic Science Research Fellow and Lecturer in Cardiovascular Science at University of Surrey (left photo). He obtained his M.Sc. in Biotechnology from University of Pisa, Italy, in 2008. He later joined Prof. Hideaki Nagase's laboratory at Imperial College London, where he developed inhibitory antibodies of ADAMTS5, a key protease in osteoarthritis. He was awarded his Ph.D. in 2014. Following a post-doc at the University of Oxford, he rejoined Imperial College as a Post-Doctoral Researcher in Dr. Josefin Ahnström's lab. In 2019 he was awarded the Young Investigator Award by the BSMB. His current research interests focus on the regulation of ADAMTS proteases and proteoglycans in cardiovascular tissues.

My name is **Anders Jensen**, I am just starting my second year of my PhD at the University of Liverpool (right photo). My project, supervised by Kazuhiro Yamamoto, is aimed towards understanding the role of extracellular matrix proteins in dental tissues and more specifically the roles they may play in ageing and disease. By

extracting proteins from dental tissues, we aim to detect markers of the ageing tooth and understand how this may link to an increase in disease prevalence. The main areas of research I am interested in are proteomics, immunohistochemistry and protein purification. More generally, I am really interested in data visualisation and coding.

There is also one position becoming available on the committee:

BSMB committee member

Any current BSMB member in good standing is eligible for this post. Committee members formulate policy and have responsibility for organising BSMB meetings. It is expected that each Committee member will take a major part in planning and organising one BSMB meeting during their tenure, and be available to attend most Committee meetings, and occasional further meetings as required. Appointees become BSMB Trustees. It is recommended that those interested read BSMB Constitution and trustee status (www.bsmb.ac.uk).

Nomination process

Nominations for a committee member of the BSMB can be made by any 2 members of the BSMB, or members of the current BSMB Committee.

Any nominations, together with the written consent of the proposed nominee should be forwarded to the Honorary Secretary, Professor Kim Midwood, by midnight **Friday February 24th 2023.** These can be sent by e-mail to kim.midwood@kennedy.ox.ac.uk.

In the event of more than one nomination, a ballot of the membership by e-mail will be held. To this end, it would be helpful if nominees can send a brief (one page) CV together with a short statement outlining their aspirations for the Society should they be elected. In the event of no nominations, the Committee may elect to nominate and appoint a person to the post of BSMB committee member.

BSMB SPRING 2023 MEETING

Vascular inflammation and the extracellular matrix

At the University of Sheffield
April 20-21 2023

Organized by:
Dr Maria Fragiadaki

The BSMB Spring meeting will be at the Edge, located within Endcliffe village. The address is 34 Endcliffe Crescent, S10 3ED (see attached map). The registration covers refreshments, lunches on both days and dinner on the first night.

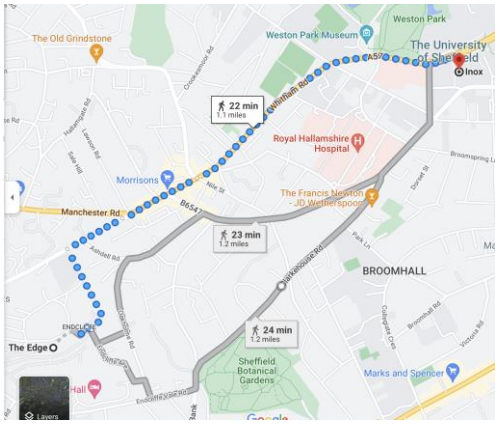
The dinner will be at INOX on the top floor of the students' union. It is a 25-minute walk between the Edge and INOX via the leafy campus. The Botanical gardens are between the two sites, are worth a visit and are free to enter: https://www.sbg.org.uk. If you visit the botanical gardens, I recommend visiting the bear pit, a great II listed structure, and the orangery.

You are encouraged to book your accommodation should you wish to stay in

Sheffield overnight. We recommend Halifax Hall (https://www.halifaxhall.co.uk), a short walk from the venue. Jonas Hotels Sheffield are also available (https://www.jonashotel.co.uk).

For those feeling like it, I have organised a fun run (bring your running shoes!), which will take approximately 40 minutes return journey through Endcliffe park and towards the peaks.

I will see you all for dinner at INOX Sheffield at 19:30 (student union). Walking via the leafy campus from the Edge to INOX is 25 minutes. Should you need a taxi, City Sheffield Taxi company runs 24 hours, TEL: 0114 239 3939.



The University of Sheffield has taken part in Green Impact since 2009, as part of our behaviour change strategy to reduce carbon emissions. Over the 10 years of Green Impact projects at Sheffield, we have saved 3 million kg of CO2 through these staff sustainability projects.

Coronavirus updates: Check our coronavirus information pages for the latest on access to university buildings: https://www.sheffield.ac.uk/coronavirus

Other information: Should you need any additional information, contact me via email at: m.fragiadaki@sheffield.ac.uk

If you have any allergies please let me know and I will make my best to accommodate.

Abstract submissions for podium and poster presentations, and registration is now open: https://bsmb.ac.uk/meetings/

Early Bird Registration will cost £160 for BSMB members and £120 for student members and includes access to the entire 2 day BSMB meeting plus the Satellite session, as well as conference dinner and refreshments during the event.

Early Bird rates are available until 31st March 2023. Late registration closes 15/04/2023 (Late fees: BSMB member £190, BSMB student £160).

Abstract submission will close on 20/3/2023. Speakers will be notified by 31st March 2023.

We encourage submission of abstracts related to all areas of research pertinent to the BSMB and not only related to the theme of the meeting. Young investigators are particularly encouraged to apply.

Applications for meeting bursaries will close on 3/3/2023 with outcomes notified by 14/3/2023.

Provisional Programme

Vascular Inflammation & the ECM 20-21st April 2023

Provisional PROGRAMME

The edge, University of Sheffield

Day 1 – 20 April 2023

9:30-12:00 **Registration and coffee (attach posters to the boards)**

We are pleased to run the first sustainable BSMB meeting. Welcome and we hope you will find this satellite session illuminating!

Satellite session:	**Sustainability in research**
11:00-11:05	Welcome
11:05-11:30	Sustainability in research (University of Sheffield – Gold award for green impact)
11:35– 11:45	Miss Aina Roca-Barcelo, Imperial College London (Making academia environmentally sustainable)
11:45- 12:00	Dr Maria Fragiadaki, Queen Mary University of London – How this meeting was made sustainable and brainstorming sustainability ideas
12:00 – 13:00	**Lunch and poster viewing**

Main meeting

Session 1: (13:00-16:00)	**Shear stress and the extracellular matrix**
13:00 - 13:30	Keynote 1 – **Prof Ellie Tzima**
13:30- 14:15	3x abstract selected (10 min each + 5 min questions)
14:15-14:30	Invited speaker 1: Dr Areej Alahmadi (UoS)
14.30-16:00	**Trade stands, refreshments, posters & networking**
14:30-15:00	AGM

Session 2: (16:00-18:00)	**Vascular stability & dynamics**
16:00-16:30	Keynote 2 - **Prof Anna Randi**
16:30-17:15	3x abstract selected (10min + 5 min questions)
17:15-17:30	ECR invited speaker 2:
17:30-18:00	**networking and refreshments**

Session 3:	**Fell Muir Lecture**
18:00-18:05	Prof Andrew Pitsillides
18:05-18:45	**Professor Jo Adams**

FUN RUN

19:30 onwards **Conference dinner**

Day 2

8:30-9:30	**Registration Day 2, sponsor stands & refreshments**

Session 4:	**OPEN session & the ECM**
9:30-10:45	5x abstract selected (10min + 5 min questions)
10:45-11:00	Invited speaker 3: Dr Laura Denby (Uni of Edi)
11:00 - 11:30	**Refreshments & posters**

Session 5:	**The kidney & the ECM**
11:30 -12:00	Keynote 4 – Prof Rachel Lennon
12:00-12:45	Abstract selected talks (10min + 5min questions)
12:45-13:00	Invited speaker 4: Dr Fiona Macleod (UoS)
13:00-14:00	**Lunch (posters, networking and trade stands)**

Session 5:	**Developmental pathways & the ECM**
14:00 – 14:30	Keynote 5 - Prof Paul C Evans
14:30 - 15:15	3x abstract selected talks (10min + 5min questions)
15:15 – 15.30	Invited speaker 5: Dr John Davis (Crick)
15:30-16:00	**Prizes, sustainability discussion and close of the meeting**

BSMB Bursaries

BSMB Bursaries and Couchman Travel Awards are available.

Current BSMB members are encouraged to apply for bursaries to present your matrix-related findings in conferences.

1) Applications are invited for reporter bursaries to attend in person the BSMB Spring meeting to be held in Sheffield in April 2023. Up to £250 can be claimed. For more details, please follow the link here.

2) The Couchman Travel Award, kindly sponsored by Professor John Couchman are open to applications. Each Travel Award will cover up to £150 for a BSMB meeting (~10 awards per year), or up to £300 for a European matrix-related meeting (~2 awards per year, including the biannual MBE meetings). Please follow the link here.

3) For bursaries to attend the "Other meetings" category: These bursaries remain open. Please follow the link here.

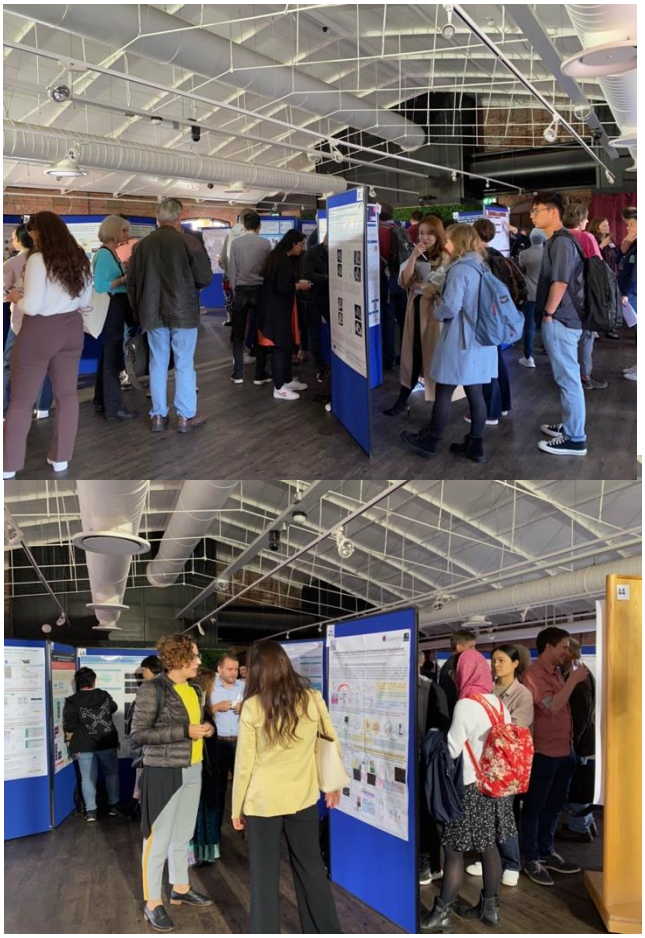
4) For bursaries to attend the " Matrix Biology Europe (MBE) or American Society for Matrix Biology (ASMB) meetings" category: These bursaries remain open. Please follow the link here.

Applications should be sent to Dr. Katarzyna Pirog (katarzyna.pirog@newcastle.ac.uk), Chair of the BSMB bursary committee.

Meeting Reports

Matrix defeats the pandemic in Liverpool
By George Bou Gharios

The autumn BSMB meeting brought together over 100 participants face-to-face over a great meeting "Matrix in development" organised by Blandine Poulet and the team in Liverpool and took place in a historic building in the docks surrounded by water….



The meeting was followed by dinner at the Hilton Hotel

And the night was still young….

We missed you if you were not there and we hope to see you in the Spring meeting in Sheffield 2023

BSMB Autumn meeting 2022
Matrix in development
12-14th of September 2022

BSMB 'Matrix In Development' Conference Report Day 1 – by Ren Jie

The first talks of the conference were given by Dr April Craft and Dr Paul Humphries who both work on chondrogenesis. April presented her work on using iPSCs to model chondrogenesis while Paul has harnessed an optogenetic system of blue light to drive chondrogenesis.

Dr David Turner gave an interesting talk about his use of gastulouids to study development. David leaves pluripotent stem cells to cluster and form gastuloids that begin to elongate and become polarised in a similar way to how embryos develop, so provide a great model for developmental studies. David noted that the use of Matrigel in these systems is a hindrance to his NC3Rs project.

Glycosaminoglycans were discussed by Professor Cathy Merry and Emma Barker, a recipient of a poster prize. They presented iPSC models of glycosaminoglycan developmental diseases with Cathy's talk focusing on a model lacking heparan sulphate which is still able to maintain pluripotency and differentiate by compensation of increased keratan sulphate. Cathy finished the talk by introducing peptide hydrogels and their potential to study the ECM.

Samuel Moxon, who also won a poster prize, has created a 3D bioprinted model of the intervertebral disc and its potential to study the matrix in both healthy and diseased tissue models.

Angus Nichols and Professor Florence Ruggiero showed their research which uses Drosophila and zebrafish models to investigate functions of different collagens.

The first day was rounded up with the John Scott Lecture from Joan Chang who was presented with the Early Career Researcher 2022 Award.

BSMB 'Matrix In Development' Conference Report Day 2 – by Emma Barker.

Day 2 of the BSMB 2022 meeting in Liverpool started with the session on "Angiogenesis in development" and a presentation by Emily Noel, who talked about the importance of Laminin in the cardiac development in Zebrafish and how it affects the process of trabecular seeding. This was followed by Alina Kurjan, who presented her work on the transcriptomics of developing tendons in the Achilles tendon of human foetus. Dr Claire Clarkin, whom was unfortunately unable to join us in-person, gave a pre-recorded presentation on how high resolution CT helped identify and characterise osteoporotic features in bones, and using VEGF showed sex-dependant effects in mice models on the mineralisation and angiogenesis in fractures. After a short break, we returned to the BSMB open session where Mat Baldwin (on behalf of Sarah Snelling) talked about the spatial transciptomics of foetal sheep tendons and how they have intrinsic property for scarless repair – a property ideal yet absent in adult tissues. Sarah Ibrahim from Liverpool then talked about her PhD work in MMP13 and how to regulate its transcription with enhancer plasmids. Salvatore Santamaria then went on to talk about his work on identifying novel cleaveage sites of ADAMTS enzymes on versican, biglycan, cartilage oligomeric matrix protein, and osteopontin using label-free mass spectrometry.

After a coffee and posters break, the last session of "Matrix composition and development" started with the presentation from Ioannis Kanakis, talking about the effects of low protein intake during reproduction and how it affected bone development and skeletal muscles - not only the parent but also in the offspring - in mice models. This was followed by Shijian Fu, who talked about how HuR may control bone homeostasis in both human and mouse cell lines. The final presentation was given by Audrey McAlinden on miR-181a/b-1 cluster and its possible mechanisms in affecting mitochondrial metabolism to improve bone fracture repair. The meeting closed with a presentation of poster prizes by Blandine Poulet, with the prizes going to (in no particular order) Emma Barker, Samuel Robert Moxon, and Jack Roberts. The meeting was the first face-to-face meeting after the pandemic and was crucial in re-igniting old and sparking new connections amongst the community. We'd like to thank IJEP and the Company of Biologists for sponsoring this meeting.

Matrix Biology Europe 2022
Meeting report

By Danae Zamboulis, Rebecca Dodd, Ramla Omar, Maria Martina Meschis

The autumn 2022 MBE meeting was organised in Florence, Italy, one of the beautiful art cities worldwide, at the Istituto degli Innocenti , 28th-30th September 2022. Overall, the MBE conference was addressing extracellular biological polymers, which are key molecules in several pathophysiological processes. Specifically, several sessions were focused on the clinical applications of matrix extracellular proteins as therapeutic targets in several diseases. The entire program covered aspects of the extracellular matrix biology in both health and disease, cell-matrix interactions and tumour environment as well as the recent advances in matrix biology.

Opening/ "Late breaking topics"

The meeting started with an opening address from local organiser Professor Alberto Passi in a packed-out Brunelleschi room of the Istituto degli Innocenti in Florence. The scientific component of the meeting began with late-breaking topics on the matrix, chaired by Professors Lilliana Schaeffer (Germany) and Sylvie Ricard-Blum (France). Professor Schaeffer presented on the role of the small leucine rich proteoglycan (SLRP) biglycan signalling in monocytes and how their group had investigated this using human monocytes from septic patients. They showed that expression of CD16 in monocytes was associated with increased levels of soluble biglycan in the blood of septic patients. Second was a presentation from Prof Ricard-Blum who described their determination of the structure of the matrix cross-linking enzyme lysyl oxidase (LOX). Using various methods, including circular dichroism, dynamic light scattering, mass photometry and negative-stain electron microscopy they showed that LOX formed an oligomeric structure. Importantly, they found that the catalytic domain of the protein was within a flexible hinge region that was highly dynamic and explained how LOX was able to accommodate substrates of various sizes. Next, Professor Karamanos (Greece) presented data on the tumour microenvironment and novel approaches to target this including sulfated hyaluronan (HA) which they showed could modulate the functional properties of breast cancer cells.

The fourth talk of the session saw Prof Ulf Anderegg (Germany) share their data on an inducible HA-synthase (*Has*) total knock-out (KO) mouse. The Anderegg group had characterised this mouse model and shown that in the *Has* total KO, dermal fat thickness was increased along with expression of adipose tissue-related genes (including *Retn, Lep, Adipoq, Vistafatin*). The KO mouse was also associated with a pro-inflammatory phenotype (compared to controls) - indicated by increased levels of TNFα and NFKβ. Next, PhD student Adam Duxfield from Newcastle presented data from their recently published paper on the role of CREDL2 as a modulator of calcium release and NFAT signalling during osteoclast differentiation and bone resorption. The next talk was from Dr Pilecki (Denmark) who shared data on the role of microfibrillar-associated protein 4 (MFAP4). MFAP4 protein levels are increased in retinol diseases, however the exact role of this protein was unclear. Dr Pilecki's data showed MFAP4 could promote VEGF-dependent retinal epithelial cell (REC) proliferation and migration, and this was dependent on αvβ3 integrin (the most common integrin in RECs). Importantly, the group had found that blocking of MFAP4 with antibody could minimise laser-induced eye damage in mice and this was better than anti-VEGF treatment (the current gold standard). The final talk of the session was from Alexander Dityatev (Germany) on the importance of neural ECM remodelling. Here we heard about the relationship between levels of neural ECM and ageing and depression - in aged mice, they found that expression of ECM components was increased while expression of the degrading enzyme ADAMTS5 was decreased. Furthermore, over-expression of ADAMTS5 in mice was associated with improvements in hippocampus dependent memory.

Following the late-breaking session, Professor Suneel Apte and Nikos Karamanos chaired the Rupert Timpl Award session, which saw the 2020 award winner, Dr Paul Hiebert and the 2022 winners Dr Joan Chang (UK) and Dr Julie Di Martino (USA) each present their lectures. Dr Hiebert discussed his work on the NRF2 transcription factor, its role in extracellular matrix regulation and association with age-related skin weakening. Dr Joan Chang

shared her work on the circadian control of collagen fibrillogenesis - they found that Col I is only rhythmic at the protein level, not the transcript level and that this is mediated by a rhythmic secretory and turnover pathway. Looking at tissue from idiopathic pulmonary fibrosis, they found that Col I and secretory machinery were co-localised at the fibroblastic foci or disease edge and suggested that enhanced endocytic recycling of collagen may represent a disease mechanism in fibrosis. Third, Dr Julia Di Martino gave a recorded lecture on her work on seed/soil theory of cancer metastasis and the contribution of ECM here. Dr Di Martino shared data showing that a dormant tumour microenvironment was associated with increased Collagen III. The opening day of the conference ended with a welcome drinks reception in the courtyard of the museum where colleagues and friends could finally catch-up following the pandemic.

Dick Heinegård Award session

Thursday started with the Dick Heinegård Young Investigator Award, with five inspiring talks by some of the most promising young matrix biologists from Europe. Dr. Amro Hussien from the Swiss Society for Matrix Biology started the session off with some new data on the impact of cell environment stiffness on tenocyte expression and remodelling of the extracellular matrix in the context of early and late tendon healing with an elegant in vitro system for substrate stiffness control. Dr. Claire Leclech (French Society for Matrix Biology) followed with a very visual talk on the impact of substrate topography on cellular behaviour and in particular, the impact of microgrooves and their dimensions on endothelial cells alignment as well as focal adhesions, cell protrusions, and matrix deposition along with a sneak peek of her work recording antiparallel patterns of cell trajectories of endothelial cells on microgrooved substrates. Next, Dr. Neil Marr from our very own British Society for Matrix Biology presented his work interrogating the multipotency potential of tendon interfascicular matrix CD146+ cells and charactering their niche with some elegant 2D and 3D imaging of vascular networks and components of the basement membrane in tendon interfascicular matrix. Dr. Julian Nüchel (German Society for Matrix Biology) followed with a talk around his novel work on the unconventional protein secretion of cargo proteins under GRASP55 control and insights in the role of TANGO1 in the secretion of bulky rigid ECM proteins such as COL1A2. The session was concluded with Dr. Arianna Parnigoni (Italian Society for Matrix Biology) with an interesting talk on the role of HAS2-AS1 in triple-negative breast cancer cells and in particular in the regulation of apoptosis independently from hyaluronan metabolism.

At the conclusion of the conference on Friday evening the winner of the session was announced with Dr. Julian Nüchel chosen by an international panel of experts to receive the prestigious Dick Heinegård Young Investigator Award for his inspiring work.

(photo: Julian Nüchel receiving the prestigious Dick Heinegård Young Investigator Award)

"Matrix in remodelling and synthesis" (Workshop A)

The first of the parallel sessions, "Matrix in remodelling and synthesis" was hosted in the Brunelleschi room and was chaired by Profs Florence Rugerio (France) and Anthony Day (UK). Prof Rugerio opened the session with a talk on the use of zebrafish as a model to study the role of ECM synthesis, architecture and mechanics in motor axon pathfinding. Next, Prof Anthony Day (UK) discussed heavy-chain-hyaluronan complexes and their roles in both normal physiology and various lung pathologies. Prof Day shared structural and biophysical data showing how individual interactions of between specific heavy chains (e.g. HC1, HC2 or HC3) and other matrix proteins (PTX3) can contribute to different HA matrices. Staying with hyaluronan, Dr Tanya Suvorara (Germany) then discussed the role of the HA synthase, Has3 in production of HA associated with vascular pathologies such as atherosclerosis. Dr Suvorara shared data that showed an association between endothelial HA and eNOS signalling which was implicated in pathology.

In the first of the selected abstracts for this workshop, Dr Michael Davies (Denmark) shared their proteomics analysis of symptomatic atherosclerotic carotid plaques which can lead to myocardial infarction or stroke. Using LC-MS, they identified differences in ECM proteins (mainly collagens and fibronectin) detected in either hard or soft areas of the plaques. Furthermore, they showed that soft plaques were enriched in levels of ECM proteolytic enzymes, suggesting a role for such enzymes in plaque deterioration and highlighting potential routes for therapeutic intervention. Next, Dr Mukti Singh (UK) shared her data on the matrix protein ADAMTSL2. Using several biophysical and structural analysis methods they had determined that ADAMTSL2 interacted specifically with the heparin binding region of fibronectin, which suggests that ADAMTSL2 has a role in matrix assembly. The third abstract was presented by Chiara Gramenga Tota (Italy) who discussed the role of the calcium activated nucleotidase 1 (CANT1) in proteoglycan synthesis and its implication in the chondrodysplasia DBQD1. Using a $Cant1^{-/-}$ KO mouse model they showed that without CANT1, proteoglycan secretion from chondrocytes was reduced. Furthermore, they noticed ER enlargement in these mice, which was not associated with increased ER stress signals but instead, suggested implicated impaired GAG synthesis in the Golgi. The final talk of the session was given by Dr Julia Etich (Germany) who discussed the link between a previously undefined cilia-associated protein and the WNT signalling pathway in the disease osteogenesis imperfecta (OI). Dr Etich and team had identified a novel OI-associated gene that encoded a cilium protein was further linked to secreted frizzled receptor protein 1 (sFRP1). The sFRP1 pathway is a known inhibitor of WNT signalling required for normal bone remodelling.

"Matrix Immunity and Autoimmunity" (Workshop B)

The 'Matrix immunity and autoimmunity' parallel session was hosted in the Poccetti room and was chaired by Kim Midwood and Irit Sagi. The talks were initiated by Professor Kim Midwood, who presented her groups work on innate immune memory and autoimmune diseases, more specifically rheumatoid arthritis. They showed that in healthy individuals there is a controlled immune response, with immunomodulatory matrix molecules such as Tenascin-C exhibiting restricted expression. In contrast, these molecules are

persistently expressed in rheumatoid arthritis and other autoimmune diseases. Midwood group demonstrated that the use of antibodies targeting proinflammatory signals was able to prevent disease progression in rheumatoid arthritis, providing another approach to treat this disease. The next speaker was Professor Irit Sagi, who enlightened us about the use of patient derived auto-antibodies to target MMP14 and stop tumour progression. Increased MMP14 is correlated with cancer development, as it increases cell migration and degrades cell surface receptors needed for cell adhesion. They showed that the advantage of using an inhibitory MMP14 autoantibody compared to other MMP inhibitors is that it is more specific and can better penetrate the protective ECM environment of tumours. Interestingly, these MMP14 antibodies are abundantly expressed on tumour cell surface; However, Irit group showed that due to low levels of natural killer cells, tumour inhibition was not successful.

The third speaker for this session was Prof Viola Vogel, who demonstrated that fibronectin, a major binding ECM component, could be found stretched or relaxed depending on immunity state. They showed that stretching fibronectin exposes more binding sites or stops binding of other proteins, making it a mechano-regulated ON/OFF switch. Using a bacterial peptide method, Vogel's group showed that there is more relaxed fibronectin in tumour tissue compared to healthy tissue. Similarly, viral infection leads to relaxation of fibronectin. They revealed that IL7 which is normally bound to the stretched form of fibronectin dissociates upon viral infection causing the release of cytokines, which might provide insight into the mechanism of COVID19. The fourth speaker Prof Tracy Hussell was not able to be physically there, so she presented her talk focusing on 'matrix composition in lungs following influenza infection' over Zoom. It was previously thought that after acute inflammation the matrix returns to a reasonable homeostatic state. However, Hussell's group discovered that post influenza virus infection the lung extracellular matrix undergoes long term alteration, particularly with reduced basement membrane (BM) components such as collagen IV and laminin. This altered matrix composition in turn impacts the inflammatory tone of the lung immune system.

The next speaker Prof Daniel Hargbøl Madsen shared the role that collagen density plays in cancer. He revealed that increased collagen density in tumour specific ECM is associated with poor prognosis and is immunosuppressive in nature. They showed that high collagen density did not affect T-cell response, but instead greatly reduced their proliferation. High collagen density was also associated with downregulation of T-cell activity markers and upregulation of their regulatory (inhibitory) elements. Furthermore, T-cells were shown to be less efficient at eliminating cancer cells, in higher collagen density. To further confirm this correlation, collagen knock down mice, presented slower growing tumours, increased natural killer cells and decreased CD4/CD8 ratio. The opposite was found to be true with mice that have mutation that causes collagen to be more resistant to collagen degradation.

The final part of this session was for reserved for abstracts selected for talks. The first speaker was PhD student Priyanka Hirani who showed that the ECM component versican was increased in triple negative breast cancer tissue. She further revealed that this correlated with increased suppression of immune system and disease progression, making versican an ideal therapeutic target. The final speaker Rebecca Sohn presented about how Autonomic neurotransmitters influence

human osteoarthritic chondrocyte function. The two branches of the autonomic nervous system sympathetic (SNS) and the parasympathetic nervous system (PNS) exhibit opposing effects and are needed to be balanced for normal chondrocyte cell function. However, in pathological conditions this balance can be disturbed. Sohn interestingly showed that SNS/PNS activity modulates the cellular effect of cytokine IL-1β in chondrocytes.

"Matrix in development and ageing" (Workshop C)

The "Matrix in development and ageing" workshop was chaired by Profs Dimitrios Kletsas (Greece) and Joan Marini (USA). The session was opened by Prof Joan Marini (USA) with a presentation on melorheostosis, a rare sclerotic bone dysostosis with asymmetric exuberant bone formation, and its two forms associated with *MAP2K1*-activating mutations and *SMAD3* mutations. Next was Prof Dimitrios Kletsas (Greece) with a talk on the interaction of cancer with its stroma and in particular senescent stromal cells and the implications of various stresses on this interaction. The third talk was given by Cora Demler (USA) on gut development and the asymmetric extracellular matrix of the dorsal mesentery and its effect on gut looping. Distinct roles for hyaluronan in the dorsal mesentery were proposed with the right side enriched with modified hyaluronan by TSG6 and the left side hyaluronan interacting with versican and with a basement membrane midline structure preventing diffusion of signals between the left and right side of the dorsal mesentery. Prof Paolo Bonaldo (Italy) followed with the presentation of a new zebrafish col6a1 knockout line which presented with neuromuscular defects and motor dysfunctions during embryonic and larval development that persisted in adult fish which displayed defective muscle organization and impaired swimming capabilities, making this col6a1 null zebrafish a valuable in vivo tool to model COL6-related myopathies. The next talk was given by Dr. Jessica Llewellyn (USA) about the compositional and functional changes during the development of the interstitium of extrahepatic bile duct. Dr. Rotem Kalev-Altman (Israel) followed with a presentation on the expression of gelatinases MMP2 and MMP9 in avian and murine embryo neural crest cells and their conserved role in the embryonic migration of neural crest cells. The final presentation was given by Prof Mona Pedersen (Norway) about the effect of avian Eggshell membrane powder on inflammation and skeletal muscle aging.

"Cell-ECM signalling and regulation" (Workshop D)

In the Poccetti Room, Profs Paraskevi and Theocharis chaired the Cell-ECM signalling and regulation session. Prof Theocharis (Greece) opened the session with a presentation on the proteoglycan, serglycin as a regulator of tumour cell phenotype. This included data on the role of serglycin in promoting tumour cell stemness and its association with more aggressive tumours. The second chair, Prof Heldin (Sweden) then presented her groups work on CD44, the major cell surface signalling receptor for hyaluronan. Prof Heldin's work is focused on unravelling the signalling cascades downstream of CD44-Hyaluronan and how targeting of this axis can be used to suppress chronic inflammation. Prof Colin Ewald (Switzerland) then presented on the use of C. elegans as a model organism to study the role of mechanotransduction in matrix protein homeostasis. C.elegans has 181 different collagens and therefore represents an ideal model system to study how mechanotransduction affects these matrix proteins during the life course. Dr Gertraud Orend (France) then presented on tenascin-C as a regulator of an immune-suppressive tumour microenvironment. Next Francesca Tonelli (Italy) gave the first

of the short talks selected from abstracts on the use of a zebrafish model to study the role of trimeric intracellular cation (TRIC) channel B in cell homeostasis. Professor Clair Baldock then presented her groups work on unravelling the complexes between latent TGFβ binding proteins (LTBPs) and fibrillin. Using structural and biochemical analyses they found that specific LTBPs were covalently cross-linked to fibrillin fibres via transglutaminase-2 activity and that this cross-linking could enhance the activation of TGFβ in cell-based assays. The third selected abstract was presented by Karoline Bjarnesdatter Rypdal and discussed the protective role of ADAMTSL3 in heart failure. They found that ADAMTSL3 was upregulated in patients with heart failure; ADAMTSL3 KO mice also developed worse heart failure. Gene expression analysis showed that loss of ADAMTSL3 led to increased TFGβ signalling and increased matrix expression, contributing to a fibrotic phenotype. The final talk of the session was given by Prof Jacek Drobnik (Poland) who discussed the role of cell environment stiffness in fibrosis. Using human myofibroblasts cultured in gels of different stiffness they found that stiff substrates were associated with less intracellular collagen accumulation – furthermore, they found that myofibroblasts on stiff substrates also secreted less TIMP4.

“Matrix in Cancers” (Workshop E)

The ‘Matrix in Cancers” session was hosted in the Brunelleschi room and was chaired by Karin Forsberg-Nilsonn and Martin Gotte. The talks were initiated by Dr Martin Gotte, who presented his work on syndecan-1 protein as multifunctional regulator in breast cancer. In particular, he demonstrated that syndecan-1 is a novel potential therapeutic target in the aggressive triple-negative subtype of breast cancer, for which no targeted therapies are currently available. Professor Valerio Izzi talked about the analysis of extracellular matrix network dynamics in cancer by using the MatriNet database. This database aims to offer new insights into the relation between tumour-ECM proteins for the identification of similarities and differences between cancers. His group developed this first database offering a systematic view of the ECM interactome. Other exciting talks were presented by Dr Peter Friedi about the ECM degradation using an invasion model in vivo and Dr Karin Forsberg-Nilsson who focuses on the proteoglycans protein as targets in the brain tumours metastasis. Then, Dr Stephane Brezillon from France showed an interesting work about the differential MMP-14 targeting sLRPs unravelled using a silico approach. The aims of his study was to model the interactions between MMP-14 and peptides derived from lumican. This study established a methodology to identify key residues of the active site of MMP-14 and the biological assays validated the prediction of the in-silico study. Next, Dr Marco Franchi presented an interesting talk about colon cancer cells morphology, EMT markers and matrix effector related. His group is focused on heparinase, an enzyme involved in cancer initiation and progression, basement membrane together with collagen and fibronectin etc. During his talk, he showed some interesting data on colorectal cancer cell phenotype and matrix effectors related to the time of culturing and cell motion.

Finally, Dr Ilona Kovalszky covered a talk linked to the liver cancer. Her work showed an interesting insight regarding the spock-1 protein which supports the development of the hepatocellular cancer and its competition with syndecan-1 protein. In fact, her talk was showing that the enhancement of Spock-1 level in the advancement of liver cancer is an important contributor to the hepatocarcinogenesis and its progression. Surprisingly, she showed the presence of this protein in the mitrochrondrial compartment raising the possibility that it has a currently unidentified physiological function in normal hepatocytes.

"Matrix in degenerative diseases" (Workshop F)

In the "Matrix in degenerative diseases" workshop on Friday morning, Prof. Tom Van Agtmael started the session presenting key findings on the role of collagen IV and collagen IV mutations and variants in haemorrhagic events. Collagen IV mutations were reported to have an impact on the extracellular matrix with defects and thickening of the basement membrane resulting in vasodilation amongst others but also to impact on intracellular pathways. Dr. Alexander Nystrom followed with his talk on fibrosis in genetic extracellular matrix disease and in particular, collagen VII deficiency in recessive dystrophic epidermolysis bullosa during which a pro-fibrotic environment is created. Interestingly, extracellular matrix changes in recessive dystrophic epidermolysis bullosa did not involve altered abundance of extracellular matrix, such as collagen I, but altered organisation of the extracellular matrix. Furthermore, attenuated fibrosis was noted when testing an angiotensin peptide, Ang-(1-7), to disrupt the observed inflammation loop in recessive dystrophic epidermolysis bullosa. The next talk was pre-recorded by Dr. Soma Meran presenting her recent work on hyaluronan matrix and progressive kidney disease. Kidney disease presents with an increase of hyaluronan which is associated with renal outcomes and Dr. Soma Meran investigates targets related to hyaluronan and its binding proteins to reverse fibrosis. Prof. Jess Snedeker gave an exciting overview of his recent work on matrix mechanics and metabolism in tendon disease with insights in the role of the PIEZO1 receptor in the response of tenocytes to mechanical stimulation and the effect of glycation, occurring in aged tendons, on the PIEZO1 receptor and the detection of mechanical stimulation. Prof. Jess Snedeker also touched on vascularisation and hypoxia in tendon disease and the role of HIF1a and VEGFA was noted in particular.

(photo: Prof. Jess Snedeker giving his talk on "Matrix mechanics and metabolism in tendon disease")

Followed talks by Dr. Michele Scuruchi on endocan elevated expression in osteoarthritis and the impact of silencing endocan in activated chondrocytes, Dr. Danae Zamboulis on the heterogeneity of cell populations in the interfascicular matrix of the tendon and the presence of senescence in specific interfascicular matrix populations in aged tendon, Dr. Federico Soria on the matrix remodelling observed in parkinsonian mice and its impact on diffusion in the brain extracellular matrix, and Dr. Colman Marlies with insights in the defective collagen biosynthesis in

kyphoscoliotic Ehlers-Danolos syndrome due to pathogenic variants of PLOD1 and collagen chaperone FKBP14.

“Matrix in stem cells and tissue regeneration” (Workshop G)

The parallel sessions continued, with Dr. Fransiska Malfait and Prof Qing-Jun Meng chairing the ‘Matrix in stem cells and tissue regeneration’ session in the Brunelleschi room. The first speaker Dr. Fransiska Malfait centred her talk around chronic pain in Ehlers Danlos syndrome (EDS) patients and its relation to ECM defects. One of the major complaints of individuals suffering from EDS is chronic pain. Fransiska and her team investigated temporal summation of pressure pain, conditioned pain modulation for pressure stimuli, and exercise induced hypoalgesia in EDS patients. The results showed evidence of central sensitisation of pain in EDS patients, possibly due to changes in the endogenous pain system. They further discovered that the disorganised ECM seen in EDS leads to altered gene transcription and protein expression in the neuronal pathways. Which provides evidence that ECM could drive pain in EDS. The next speaker Prof Qing-Jun Meng continued the topic of circadian rhythm and ECM previously presented by Dr. Joan Chang in the Rupert Timpl award session. The circadian clock controls large amount of the transcriptome and proteasome and are regulated by environmental factors such as sunlight and temperature. The circadian clock has been shown to be affected in some cancers and dampen with age. Qing-Jun Meng team revealed that mice that have mutation in circadian genes have altered ECM, particularly with regards to collagen architecture. Demonstrating that the circadian clock is a critical temporal regulatory mechanism for ECM organisation. The third speaker for this session, Dr. Maurizio Mongiat presented his work on multemerin-2, the gatekeeper of vascular stability. Multimerin-2 exerts angiostatic function by binding and sequestering VEGFA reducing its receptor activation. Maurizio team showed that MMP2 and MMP9 degrade multimerin-2 and that its loss is associated with endothelial cell junction instability. In line with this, they further revealed that multimerin-2 KO mice presented vascular defects, increased vascular permeability and impairment of drug therapy. The next speaker Prof Tommaso Pizzorusso presented the method through which he and his team were able to fully map the brain. Through this they were able to study Perineuronal nets and their involvement in brain plasticity. The fourth speaker Dr. Mourad Bekhouche presented his work on dental pulp engineering. Hydrogel-based regenerative endodontic procedure is an encouraging therapeutic avenue to replace irreversible inflamed dental pulp. Residual bacteria, however, that may persist after disinfection, could contaminate the hydrogel. To combat this issue Dr. Mourad Bekhouche incorporated CLIN-PLA-NP nanoparticles into the fibrin hydrogel and was able to give the latter material antibacterial properties. The fifth speaker Dr. Tomonobu Ezure gave an impressive presentation of a new method to observe whole skin using electron-conductive treatment to produce a 3D image that is then color-coded via artificial intelligence software. He demonstrated that N-cadherin connects fibroblast in young skin, but this network is lost through age. Which further implies that the loss of this network induces senescence.

The next speaker Dr. Ko Tsutsui shared the significance of BM heterogeneity in distinct inter-tissue interactions, more specifically in hair follicle. He also identified two specialized BM structures in the hair germ (HG) and dermal papilla (DP) unit of hair follicle tissue. One was a protrusion that resembled a hook that fastened HG to DP which was named 'hook BM'. The other was a mesh-like deposition of perlecan within the DP, which was named 'mesh BM'. The session was concluded with the final talk presented by PhD student Laurie Nemoz-Billet, who expanded on the role that ECM plays in motor axon development and regeneration using zebrafish as an animal model.

"Matrix and pathologies" (Workshop H)

This parallel session was focused on the role of matrix in pathologies affecting a range of tissues including lung, heart and skeleton. The session was opened by Prof David Jackson (UK) who shared his groups beautiful imaging data that helps us understand how the HA receptors, LYVE-1 and CD44 coordinate immune cell trafficking into the lymph. Prof Jackson also discussed how, using biophysical methods, they had deciphered that these two HA receptors have different 'types' of interactions with HA – named either sliding (CD44) or sticking (LYVE1) - which are essential for their discrete functions either within tissues or the lymphatics. Dr Mauro Pavao (Brazil) shared an update on an interesting project that has seen the set-up of a living lab that allows production of heparin at scale which is essential to continue providing material for scientific and medical research. Dr Pavao had also shared data on the activity of an heparinase inhibitor isolated from mollusk.

In the first of the selected abstracts for this workshop, Dr. Valentina Masola (Italy) presented their data on the involvement of the heparinase enzyme in FGF2/FGF2 receptor-dependent epithelial to mesenchymal transition (EMT) which is associated with development of prostate cancer. Their studies had investigated the effects of several heparanase inhibitors in modulating expression of different FGFR isoforms in prostate cancer cell lines and the subsequent effects of this on EMT which can promote cancer progression. Next, Tiina Petaisto (Finland) shared data on their use of the Col18a1$^{-/-}$ mice to study the role of collagen in adipocyte basement membrane differentiation and its importance in lipid homeostasis. Using micro-CT analyses they showed that the Col18a1$^{-/-}$KO mice had reduced adipose tissue volumes and instead had elevated blood triglyceride levels, leading to symptoms similar to type 2 diabetes. Next, Dr Rebecca Dodd (UK) presented data on the role of the type 2 cytokine, IL-13 in hyaluronan accumulation in the lungs and discussed how they are aiming to study the contribution of this immune-matrix cross-talk in different lung pathologies where IL-13 and hyaluronan are increased. The final talk of the session was given by PhD student Chloe Rixon (Norway) on their studies of the protein lumican in cardiac fibrosis. They found that lumican associated with accumulated fibrillar collagen in mouse models of cardiac fibrosis and in human tissue. Using a specialised microscopy technique, dSTORM, they were able to determine specific regions of the cardiac ECM where collagen I and lumican were more associated.

"Matrix in translational medicine" (Plenary session)

The final session of MBE 2022 looked at matrix and translational medicine. The session was opened by Professor Renato Iozzo who gave an overview of their groups work on the proteoglycan decorin and its oncosupressive functions. This session saw talks from Renato Iozzo on the role of the proteoglycan decorin in oncosuppression

and Rashmin Savani on development of non-infectious models of influenza and SARS-COV2 infections (using TLR7 agonist) and identification of novel peptides that have therapeutic potential for Covid-19 treatment. Dr Christian Schmelzer (Germany) shared their data on elastin fibres next – they presented their novel approach to produce recombinant elastin (and the trials and tribulations that went along with this) and discussed their studies. Marcus Ilg (UK) then shared their data on the use of a phenotypic screen that they have used to identify novel potential treatments for fibrosis. Using cells from two different fibrotic disease models, they screened thousands of compounds (both alone and in synergy) and were able to identify several promising 'hits' which are now being investigated further for their potential as anti-fibrotic treatments. The final presentation of this workshop was given by Dr Tamar Wissing (Germany) on their collaborative project looking at the generation of tissue-engineered fibrous caps which better recapitulate the matrix of atherosclerotic plaques and are therefore useful tools in the study of the mechanisms of plaque rupture, something which has previously been poorly understood.

Kiel Protease Symposium
CRC877 3rd International Symposium
'Protease World in Health and Disease'
Meeting Report
By Matthew Markham

The third international symposium of the DFG Collaborative Research Centre 877 (CRC877) was entitled 'Protease World in Health and Disease' and organised and hosted by the CRC877 at the University of Kiel. The aim of the CRC877 was to understand the involvement of proteolysis as a regulatory event in human pathophysiology and during the three days of the symposium, we heard from a broad range of projects aiming to approach this question from a variety of angles.

The symposium was opened by Stefan Rose-John (Spokesperson of the CRC877, University of Kiel) welcoming us to Kiel and introducing the aims of the research consortium that were put forward back in 2010 when the CRC was started and how the field has progressed in that time. The keynote lecture was given by Matthew Freeman (University of Oxford), where he talked about the multifunctionality of Rhomboid proteases and demonstrated three new approaches for systematic substrate identification and how they could be adapted to different types of proteases. The following two days were then made up of five sessions of talks with a combination of internationally renowned invited speakers and shorter presentations that together produced a compelling argument for the crucial role of proteolytic reactions in the regulation of many cellular systems and pathologies. The sessions of talks were broken up by a number of short poster sessions where over 60 posters were presented covering a diverse range of topics. The first session was entitled Methods and Biology and focused on new and advanced methods of substrate identification. The second session, Protease in Alzheimer's Disease, looked at the many ways in which proteases are involved in neurological development and degeneration and how this can be translated into therapeutic potential. In the final session of the day, Proteases in Disease, there were presentations on a range of topics looking at the pathological roles of certain proteases and how they might be targeted for therapeutic uses.

The second day of talks kicked off with a session focusing on the many ways by which both intra- and extra-cellular proteases can be regulated. A particular highlight of this

session for me was the talk by Rama Kokha (University of Toronto) concerning her work with TIMP knockout mice and how they had been used to investigate the tumour microenvironment. The symposium was brought to a close by a session entitled Proteases in the Cytokine World looking at how proteases contribute to signalling pathways with a number of the talks focusing on IL-6 signalling.

I would like to thank BSMB for their very generous support to allow me to attend this event. It was a fascinating, collaborative meeting and gave me a fantastic opportunity to present my research as a poster.

News from the International Society for Matrix Biology

Distinguished Investigator Award

The ISMB Council has elected Taina Pihlajaniemi (University of Oulu, Finland) as the ISMB Distinguished Investigator Awardee for 2023, in recognition of her outstanding contributions to matrix biology. Congratulations to Taina! She will receive the award at the 2023 ASMB Biennial Conference, October 22-25, 2023 in Salt Lake City, Utah (https://asip2023.asip.org/).

A list of all the winners is given at https://www.ismb.org/awards

Travel Funding

ISMB provides international travel grants (on average 500€ for young scientists (graduate students or postdocs up to 5 years after Ph.D.) to allow them to attend major meetings in matrix biology anywhere in the world. While priority will be given to meetings directly supported by ISMB (including Matrix Biology Europe, the American Society for Matrix Biology and the Pan Pacific Connective Tissue Societies Symposium), applications are accepted for any meeting, provided that the scope of the meeting agrees with the aims of the Society.

To apply for a travel grant, please submit your application via www.ismb.org and attach a single pdf file containing: (1) a letter giving information about the meeting, the amount requested and a detailed justification for support, (2) the abstract of your poster/short talk, (3) your curriculum vitae and list of publications. Please apply several months in advance of the meeting, before one of the following deadlines: January 1, April 1, July 1, October 1.

Candidates should be members of the ISMB and a graduate student or postdoc. up to 5 years after Ph.D., (with extensions for maternity leave, military service, etc).

Grants are for international travel only and will be awarded on the basis of scientific excellence and relevance to matrix biology. Successful candidates will be notified no more than one month after each deadline. Following the meeting, awardees will be expected to send to the ISMB a certificate of attendance as well as a short report (to appear on the ISMB web site with some selected for the ISMB newsletter) in the form of a personal perspective on their experience at the meeting.

Kim Midwood

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SEE YOU IN SHEFFIELD IN APRIL!

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Dr John Davis
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