

# Annual Meeting of the German Society for Matrix Biology (GSMB)



*Regensburg*  
*28-30 March, 2019*



*Organizers*  
Susanne Grässel  
Attila Aszódi

*Keynote Speaker: Danny Chan*



## Topics and Speakers

Cell-Cell and Cell-Matrix Interactions: Carsten Grashoff

ECM and Signaling: Kim Midwood

Tissue Engineering and Regenerative Medicine: Brian Johnstone

Stem Cells and Differentiation: Yuval Rinkevich

Tissue Injury and Repair: Michael Zeisberg

Vascular and Tumor Biology: Anna Mandinova

ECM Structure and Function: Johanna Myllyharju

Inflammation and ECM: Michael Sixt

Young Investigator Award

Excarbon DFG Research Group Session



The German Society for Matrix Biology and the organizers acknowledge the following companies and funding organizations for their generous support to the 2019 Annual Meeting of DGMB in Regensburg.

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## General Information

### Conference Chairs:

Susanne Grässel, Dept. of Orthopedics, University of Regensburg

Attila Aszodi, Dept. of Trauma Surgery, Ludwig-Maximilians-University Munich

### Organizing Committee:

Paolo Alberton, Dept. of Trauma Surgery, Ludwig-Maximilians-University Munich

Denitsa Docheva, Dept. of Trauma Surgery, University of Regensburg

Beate Eckes, Translational Matrix Biology, University of Cologne

Dominique Muschter, Dept. of Orthopedics, University of Regensburg

Girish Pattappa, Dept. of Trauma Surgery, University of Regensburg

Liliana Schäfer, Inst. of Pharmacology and Toxicology, Goethe University of Frankfurt

### Local Organizing Team:

Mandy Vogel, Dept. of Orthopedics, University of Regensburg

Anja Pasoldt, Dept. of Orthopedics, University of Regensburg

Tanja Späth, Dept. of Orthopedics, University of Regensburg

### Internet:

**Taking pictures of posters and recording of talks is prohibited without permission of the authors!**



## Conference Venue

### University Hospital Main Building

*Universitätsklinikum Regensburg  
Franz-Josef-Strauß-Allee 11  
93053 Regensburg*

All sessions will be taking place in the lecture hall in building **A2**, ground floor, at the Entrance West (Kuno Café).

The Young Investigator Pre-Meeting (Wednesday and Thursday) will be taking place in building **A2** the seminar rooms **K1/K2/K3** on the 1st floor.

Poster sessions will be taking place in the seminar rooms **K1/K2/K3**.

## How to get to Regensburg

- By plane via the airports of Munich (85 km) and Nuremberg (110 km). From there you can take the Airportliner shuttle directly to Regensburg.

Airportliner: phone number: +49 – 0941/ 22 22-0 or book online:

[www.airportliner.com](http://www.airportliner.com)

- By train via the central station of Regensburg
- By bus or by car via the Highway A 3 (Köln - Frankfurt – Nürnberg – Regensburg – Passau – Wien), the highway A 93 (München – Regensburg – Weiden – Hof – Dresden) and via the parkway B8, B15 and B16.

## How to get to the Venue sites

*By bus and train:* The University Hospital lies on the routes of the bus numbers 6 ("Klinikum") und 19 ("Lengfeld / Bad Abbach"). The journey from the bus stops near the Central Station ("Bustreff Albertstraße") takes around 10 minutes. Please note that bus no. 6 leaves just around the corner of Albert Street at Galgenberg Bridge. You should disembark at the terminal bus stop "Klinikum" for the main entrance. During peak-hours from 7 to 10 a.m. and 3 to 6 p.m., buses run every ten minutes; during off-peak hours, buses run every 20 minutes and after 8 p.m. every 30 minutes. From midnight to 6 a.m., no bus service is available.





## Conference Dinner

The Conference Dinner will be hold in the “Salzstadel”, a historical building situated at the “Steinerne Brücke” (Stony bridge) in Regensburg Old Town.

**The dinner begins at 20:00, 29-03-2019 (Friday).**



# Program of the Young Investigator Pre-Meeting

Wednesday, 27.03.2019

14.00 Registration

15.00 – 15.10 Welcome Address

## YIA Session I: ECM IN HOMEOSTASIS AND DEVELOPMENT

Chair: Ann-Christine Severmann (Duisburg-Essen)

15.10 – 15.30 **Tanja Niedermair**, Dept. of Orthopedics, University of Regensburg

*Absence of sensory neuropeptide  $\alpha$ -calcitonin gene-related peptide alters bone cell metabolism age-dependent (P#23)*

15.30 – 15.50 **Kristina Bubb**, Dept. of Pediatrics and Adolescent Medicine, University of Cologne

*Dysfunctional mitochondria in femoral head development (P#3)*

15.50 – 16.10 **Sebastian Reiprich**, Dept. of Trauma Surgery, LMU Munich

*Hyaluronan synthases: regulation, activity and their role for cell adhesion (P#30)*

16.10 – 16.40 **Coffee Break**

## YIA Session II: ROLE OF COLLAGEN IN THE ECM

Chair: Heiko Rödiger (Frankfurt)

16.40 – 17.00 **Carolin Freiburg**, Centre for Biochemistry, University of Cologne

*Structure and function of collagen VI in health and myopathy (P#12)*

17.00 – 17.20 **Mengjie Zhu**, Centre for Biochemistry, University of Cologne

*Role of Collagen XII in endochondral ossification process (p#48)*

17.20 – 17.40 **Wing Ying Chow**, Leibniz-Forschungsinstitut für Molekulare Pharmakologie, Berlin

*Using DNP-enhanced solid-state NMR to probe hydroxylysines in solid tissues and ECMs (P#5)*

17.40 – 17.50 **Short Break**

**Meet the professors** (Mentoring session with food and drinks)  
and get together

## Thursday, 28.03.2019

8.00 – 9.00 Registration

### YIA Session III: ECM IN DISEASES

Chair: Sara Steinmann (Regensburg)

9.00 – 9.20 **Patrick Seifer**, Center for Biochemistry, University of Cologne

*Role of matrilin-3 T298M mutation in the development of osteoarthritis (P#37)*

9.20 – 9.40 **Ping Li**, Dept. of Trauma Surgery, LMU, Munich

*Mice lacking the matrilin family of extracellular matrix proteins develop normal skeleton but are more susceptible for age-associated osteoarthritis (P#20)*

9.40 – 10.00 **Lutz Fleischhauer**, University of Applied Sciences, Munich

*The effect of the DMM/Sham model on the biomechanics of the medial articular cartilage (P#10)*

10.00 – 10.30 **Coffee Break**

### YIA Session IV: ECM IN CANCER

Chair: Temitope Esho (Cologne)

10.30 – 10.50 **Elke Pach**, Department of Dermatology, University of Cologne

*Deletion of fibroblast MMP-14 in the skin leads to reduced melanoma growth (P27)*

10.50 – 11.10 **Daniela Schulz**, MKG, University of Regensburg

*Differential localization and function of PD-L1 in radioresistant and radiosensitive cell lines of head and neck squamous cell carcinoma after irradiation (P#36)*

11.10 – 11.30 **Sabine Stöckl**, Dept. of Orthopedics, University of Regensburg

*The role of Sox9 in chondrosarcoma (P#40)*

11.30 – 12.15 **Closing Remarks/Discussion**



# Program Overview-Main Meeting

**Thursday, 28.03.2019**

- 11:00–18:00      Registration (at the University Hospital)
- 14:15–14:30      Welcome and Opening by Susanne Grässel and Attila Aszodi

## **Session I: ECM AND SIGNALING**

Chairs: Beate Eckes (Cologne) & Bent Brachvogel (Cologne)

- 14:30-15:00      **Invited Lecture: Kim Midwood**, Kennedy Institute of Rheumatology, University of Oxford, UK
- Decoding inflammatory signals from the extracellular matrix to develop new immunotherapies*
- 15:00-15:15      **Christin Adamo**, Center for Biochemistry, University of Cologne
- Effects of EMILIN-1 deficiency on collagen homeostasis (P#1)*
- 15:15–15:30      **Stefanie E. Heumüller**, Center for Biochemistry University of Cologne
- C-terminal proteolytic cleavage of the collagen VI  $\alpha 3$  chain by BMP-1 and proprotein convertase(s): Endotrophin is released in fragments of different size (P#15)*
- 15:30–15:45      **Alexander Nyström**, Dept. of Dermatology, University of Freiburg
- Identification of disease-progressing mechanisms allows for novel targeted symptom-relief therapies for dystrophic epidermolysis bullosa (P#26)*
- 15:45–16:00      **Katrin Hildebrandt**, Center for Biochemistry, University of Cologne
- Microenvironmental regulation of muscle homeostasis by supramolecular collagen VI and fibrillin-2 networks (P#16)*
- 16:00–16:30      **Coffee Break**

## Session II: CELL-CELL AND CELL-MATRIX INTERACTIONS

Chairs: Katja Schenke-Layland (Tübingen) & Johannes Eble (Münster)

- 16:30-17:00      **Invited Lecture: Carsten Grashoff**, Dept. of Quantitative Cell Biology, Institute of Molecular Cell Biology, University of Münster,  
  
*Piconewton-sensitive biosensors to investigate molecular forces during cell adhesion*
- 17:00-17:15      **Johannes Eble**, Inst. of Physiological Chemistry and Pathobiochemistry, University of Münster  
  
*The spatial molecular pattern of integrin recognition sites and their immobilization to colloidal nanobeads determine  $\alpha 2 \beta 1$  integrin-dependent platelet activation (P#7)*
- 17:15-17:30      **Aline Zbinden**, Dept of Women's Health Eberhard-Karls-University, Tübingen  
  
*Nidogen-1 supports human pseudo-islets in hypoxia via integrin  $\alpha v \beta 3$  in vitro (P#47)*
- 17:30-17:45      **Adelheid Korb-Pap**, Inst. of Experimental Musculoskeletal Medicine University of Münster  
  
*Integrin  $\alpha 11 \beta 1$  mediates joint destruction in an arthritic mouse model (P#18)*
- 17:45-18:00      **Short Break**

## 18:00-19:00      Keynote Lecture: Danny Chan (University of Hong Kong)

*"The inside out of extracellular matrix protein-related skeletal abnormalities and therapy"*

Chair: Attila Aszodi (Munich)

## 19:00-22:00      Welcome Reception and Poster Session



**Friday, 29.03.2019**

**Session III: TISSUE INJURY AND REPAIR**

Chairs: Liliana Schäfer (Frankfurt) & Kay Grobe (Münster)

- 09:00-09:30      **Invited Lecture: Michael Zeisberg**, DZHK, University of Göttingen  
  
*From growth factors to chromatin modifications: tracking down kidney fibrosis*
- 09:30-09:45      **Tanja Niedermair**, Dept. of Orthopedics, University of Regensburg  
  
*Effects of sensory neuropeptides substance P and  $\alpha$ -calcitonin gene-related peptide on osteoporotic fracture healing (P#24)*
- 09:45-10:00      **Jana Riegger**, Dept. of Orthopedics, University of Ulm  
  
*Pathogenetic implication and therapeutic targeting of the hexosamine pathway after cartilage trauma (P#33)*
- 10:00-10:15      **Herbert Tempfer**, Paracelsus Medical University Salzburg, Salzburg, Austria  
  
*A novel rat model of overuse tendinopathy (P#43)*
- 10:15-10:40      **Coffee Break**

**Session IV: STEM CELLS AND DIFFERENTIATION**

Chairs: Wiltrud Richter (Heidelberg) & Gerd Klein (Tübingen)

- 10:45-11:15      **Invited Lecture: Yuval Rinkevich**, Institute of Lung Biology and Disease Helmholtz Zentrum, Munich  
  
*A cell lineage perspective on scar development and its diversity*
- 11:15-11:30      **Justyna Buchert**, Research Center for Experimental Orthopaedics, University Hospital Heidelberg  
  
*ECM-related gene expression differences between iPS cell-derived and bone marrow-derived mesenchymal progenitor cells (P#4)*

**Evy Lundgren-Åkerlund**, Xintela AG, Lund, Sweden

*Integrin  $\alpha 10\beta 1$ -selected equine MSCs have improved chondrogenic differentiation, immunomodulatory and cartilage adhesion capacity (P#22)*

11:45-12:00

**Franziska Strunz**, Dept. of Trauma Surgery, University Regensburg

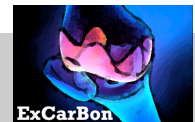
*Three-dimensional self-assembling nanofiber matrix enhances rejuvenation of human tendon stem/progenitor cells (P#42)*

12:00-14:00

**Lunch Break and Poster Session**

**Session V: EXCARBON-DFG RESEARCH GROUP**

Chairs: Susanne Grässel (Regensburg) & Brian Johnstone (Oregon)



14:00-14:15

**Paolo Alberton**, Dept. of Trauma Surgery, LMU, Munich

*Integrins in cartilage development, osteoarthritis and cartilage repair (P#Ex1)*

14:15-14:30

**Ann-Christine Severmann**, Dept. of Developmental Biology, University of Duisburg-Essen

*Heparan sulfates in osteoarthritis and articular cartilage maintenance (P#Ex6)*

14:30-14:45

**Wiltrud Richter**, Orthopaedic University Hospital Heidelberg,

*Mechanosensitive MiRs regulated by anabolic and catabolic loading of human cartilage (P#Ex5)*

14:45-15:00

**Dominique Muschter**, Dept. of Orthopedics, University of Regensburg

*Sensory nervous system impact on cartilage and subchondral bone pathology in a murine OA model (P#Ex3)*

15:00-15:15

**Shahed Taheri**, Clinic for Trauma Surgery & Orthopaedic Surgery, University of Göttingen

*Quantification of a network of microchannels connecting the epiphyseal spongiosa to the articular cartilage of the human femoral head (P#Ex7)*



- 15:15-15:30      **Girish Pattappa**, Dept. of Trauma Surgery, University of Regensburg  
*Physioxia preconditioned mesenchymal stem cells demonstrate improved cartilage regeneration for the treatment of early osteoarthritis defects (P#Ex4)*
- 15:30-15:45      **Karima El Bagdadi**, Orthopedic University Hospital Friedrichsheim gGmbH, Frankfurt/Main  
*The dual-and-opposing-effect of the sympathicus on cartilage degeneration and subchondral bone changes during osteoarthritis development (P#Ex2)*
- 15:45-16:15      **Coffee Break**

**Session VI: TISSUE ENGINEERING AND REGENERATIVE MEDICINE**

Chairs: Zsuzsa Jenei-Lanzl (Frankfurt) & Girish Pattappa (Regensburg)

- 16:15-16:45      **Invited Lecture: Brian Johnstone**, Oregon Health & Science University, Portland, USA  
*Making cells make the right matrix*
- 16:45-17:00      **Janine Lückgen**, Orthopaedic University Hospital Heidelberg,  
*The influence of osteoarthritic changes in chondrocytes on the response to mechanical stimulation (P#21)*
- 17:00–17:15      **Raphael Reuten**, BRIC, University of Copenhagen, Denmark  
*Deciphering native 3D ECM structures using an advanced decellularization protocol (P#32)*
- 17:15–17:30      **Short Break**

### Young Investigator Award

Chairs: Julia Etich & Dominique Muschter (Regensburg)

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|-------------|--|
| 17:30–17:50 | <b>Julia Marzi</b> , Dept. of Women's Health Eberhard-Karls-University Tübingen<br><br><i>Non-destructive, label-free analysis of matrix structures in cardiovascular tissue engineering (P#YIA1)</i>  |
| 17:50–18:10 | <b>Julian Nüchel</b> , Biochemistry II, University of Cologne<br><br><i>Secretion of TGFB1 is executed by secretory autophagy in fibroblasts and macrophages (P#YIA2)</i>  |
| 18:10–18:30 | <b>Jana Riegger</b> , Dept. of Orthopedics, University of Ulm<br><br><i>The functional role of chondrogenic stem/progenitor cells: Novel evidence for immunomodulatory properties and regenerative potential after cartilage injury (P#YIA3)</i> |
| 18:30-19:30 | <b>Business Meeting of the German Society for Matrix Biology</b>   |
| 20:00       | <b>Conference Dinner at the Brückner Saal (Salzstadel) in Regensburg Center</b>  |

## Saturday, 30.03.2019

### Session VII: VASCULAR AND TUMOR BIOLOGY

Chairs: Denitsa Docheva (Regensburg) and Gertraud Orend, (Strasbourg)

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|-----------|---|
| 9:00–9:30 | <b>Invited Lecture: Anna Mandinova</b> , Massachusetts General Hospital and Harvard Medical School, USA<br><br><i>Skin stem cells: shaping the matrix in health and disease</i> |
| 9:30-9:45 | <b>William Erne</b> , INSERM, Strasbourg, France<br><br><i>Tenascin-C regulates TRAIL during tumor progression and metastasis (P#8)</i>   |



9:45–10:00

**Key Grobe**, Inst. of Physiological Chemistry and Pathobiochemistry, University of Münster

*Two-way direct interference with Sonic hedgehog solubilization and receptor binding by soluble Heparin and Heparan sulfate (P#13)*

10:00–10:15

**Alev Yilmaz**, INSERM, Strasbourg, France

*Role of the extracellular matrix molecule tenascin-C in promoting breast cancer lung metastasis involving epithelial-to-mesenchymal transition (P#45)*

10:15–10:45

**Coffee Break**

## Session VIII: ECM STRUCTURE AND FUNCTION IN HOMEOSTASIS AND DISEASES

Chairs: Rita Dreier (Münster) & Frank Zaucke (Frankfurt)

10:45–11:15

**Invited Lecture: Johanna Myllyharju**, Oulu Center for Cell-Matrix Research, University of Oulu, Finland

*Key collagen synthesis enzymes and ECM homeostasis*

11:15–11:30

**Paolo Alberton**, Dept. of Trauma Surgery, LMU, Munich

*Aggrecan hypomorphism compromises articular cartilage biomechanical properties and is associated with increased incidence of spontaneous osteoarthritis (P#2)*

11:30–11:45

**Thomas Imhof**, Center for Biochemistry, University of Cologne

*Tenascin-N deficiency leads to postnatal incisor growth failure (P#17)*

11:45–12:00

**Mirko Rehberg**, Children's Hospital, University of Cologne,

*The extracellular matrix in non-classical osteogenesis imperfecta (P#29)*

## Session XI: INFLAMMATION AND ECM

Chairs: Alexander Nyström (Freiburg) & Gerhard Sengle (Cologne)

- 12:15-12:45      **Invited Lecture: Michael Sixt**, Institute of Science and Technology, Klosterneuburg, Austria  
*Leukocyte navigation in complex environments*
- 12:45-13:00      **Sabine Stöckl**, Dept. of Orthopedics, University of Regensburg,  
*Influence of Substance P and  $\alpha$ CGRP on metabolism of articular chondrocytes from osteoarthritic patients (P#41)*
- 13:00-13:15      **Uwe Hansen**, Institute for Musculoskeletal Medicine, University of Münster  
*Keratoconus: New insights in the underlying pathomechanism (P#14)*
- 13:15-13:30      **Heiko Rödiger**, Inst. für Allgemeine Pharmakologie und Toxikologie Klinikum der Goethe-Universität, Frankfurt am Main  
*Biglycan switches between inflammation and autophagy by binding to either CD14 or CD44 (P#34)*
- 13:30              **End of Conference**