

PROGRAM

MONDAY, October 24—7:00 PM

Opening Remarks

KEYNOTE LECTURE I

Introduced by
Yingzi Yang, Harvard University

Bjorn Olsen [35'+10']
Harvard Medical School, Boston, Massachusetts

MONDAY, October 24—8:00 PM

SESSION 1 **SKELETAL STEM CELLS I**

Chairperson: **Thomas Pap**, University of Münster, Münster, Germany

Stem cells of the suture mesenchyme in craniofacial bone development, repair and regeneration

Takamitsu Maruyama, Tzong-Jen Sheu, Wei Hsu [20'+5']
Presenter affiliation: University of Rochester Medical Center,
Rochester, New York.

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The superficial cells of articular cartilage maintain their population via symmetric cell divisions and facilitate renewal and reshaping of articular cartilage

Andrei S. Chagin, Lei Li, Phillip T. Newton, Thibault Boudierlique, Meng Xie, Igor Adameyko, Marie Sejnohova, Tomas Zikmund, Jozef Kaiser, Hong Qian, Vyacheslav Dyachuk, Andrew B. Lassar, Matthew L. Warman, Bjorn Barenus [10'+5']
Presenter affiliation: Karolinska Institutet, Stockholm, Sweden.

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TUESDAY, October 25—9:00 AM

KEYNOTE LECTURE II

Introduced by

Sakae Tanaka, University of Tokyo, Tokyo, Japan

Yan Jin [35'+10']

Fourth Military Medical University, Xi'an, China.

“Dysfunction of MSCs affected by inflammatory microenvironment during bone aging” 3

TUESDAY, October 25—9:45 AM

SESSION 2 NEW HORIZON OF BONE CELL BIOLOGY

Chairperson: **Sakae Tanaka**, University of Tokyo, Tokyo, Japan

Mesenchymal stem cells in bone remodeling and osteoarthritis

Xu Cao [20'+5']

Presenter affiliation: Johns Hopkins University, Baltimore, Maryland. 4

Osteoblast-targeting peptide-modified nanoparticles for small RNA delivery

Mingxiang Cai, Yao Sun, Xiaogang Wang [10'+5']

Presenter affiliation: Hospital of Stomatology, Shanghai, China; Shanghai Engineering Research Center of Tooth Restoration and Regeneration, Shanghai, China. 5

Coffee Break

Genome-wide mapping of promoter and enhancer elements for RANKL-induced osteoclastogenesis

Sakae Tanaka [20'+5']

Presenter affiliation: The University of Tokyo, Tokyo, Japan. 6

Sex-dependent control of cortical bone formation (corticalization) depends on cytokine signalling in osteocytes

Natalie A. Sims [20'+5']

Presenter affiliation: St. Vincent's Institute of Medical Research, Melbourne, Australia; The University of Melbourne, Melbourne, Australia.

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Hedgehog signaling in bone regulates whole body energy metabolism through a bone-adipose endocrine relay mediated by PTHrP and adiponectin

Xu Zhang, Qianni Cheng, Po Sing Leung, Kingston Mak [20'+5']

Presenter affiliation: The Chinese University of Hong Kong, Hong Kong, Hong Kong.

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How can brown adipose tissue (BAT) regulate marrow adipose tissue (MAT) and bone metabolism?

Ting Wang [10'+5']

Presenter affiliation: Southern Medical University, Guangzhou, China.

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TUESDAY, October 25—2:00 PM

SESSION 3 POSTER SESSION

Small ubiquitin related modifier-1 (SUMO-1) regulates osteoclast differentiation

Svetlana Frank, David J. de Gorter, Daniel Umlauf, Olli A. Jänne, Berno Dankbar, Thomas Pap

Presenter affiliation: University Hospital Münster, Münster, Germany.

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Cartilage-specific and CRE-dependent NKX3.2 overexpression in vivo causes skeletal dwarfism by delaying cartilage hypertrophy

Da-Un Jeong, June Myoung Kim, Je-Yong Choi, Dae-Won Kim

Presenter affiliation: Yonsei University, Seoul, South Korea.

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Bromodomain and extra-terminal proteins (BET) inhibitors suppress chondrocyte differentiation and restrain bone growth

Ningning Niu, Rui Shao, Guang Yan, Weiguo Zou

Presenter affiliation: Institute of Biochemistry and Cell Biology, Shanghai, China.

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- Cdh1 regulates craniofacial development via APC-dependent ubiquitination and activation of Gooseoid**
Rui Shao, Jia Liu, Guang Yan, Jinfang Zhang, Yujiao Han, Zhan Xu, Zhu Yuan, Lixin Wan, Wenyi Wei, Weiguo Zou
 Presenter affiliation: Shanghai Institutes for Biological Sciences, Chinese Academy of Sciences, Shanghai, China. 13
- S100A9 deficiency in TTP/S100A9 KO mice promotes a psoriatic arthritis phenotype**
Athanasios Stratis, Mareike Fröhling, Thomas Vogl, Karin Loser, Peter Paruzel, Perry J. Blakeshear, Debbie J. Stumpo, Johannes Roth, Thomas Pap
 Presenter affiliation: University Hospital Münster, Münster, Germany. 14
- Role of cilia gene *Ift140* in dentinogenesis**
 Gongchen Li, Yao Sun
 Presenter affiliation: School & Hospital of Stomatology, Tongji University, Shanghai, China; Shanghai Engineering Research Center of Tooth Restoration and Regeneration, Shanghai, China. 15
- Role of dentin matrix protein 1 glycosylation in cranial suture development**
 Shufan Zhang, Mingxiang Cai, Yao Sun
 Presenter affiliation: Shanghai Engineering Research Center of Tooth Restoration and Regeneration, Shanghai, China; Tongji University, Shanghai, China. 16
- MicroRNA-381 mimic resulted in a therapeutic effect on arthritis by controlling several functions of fibroblast-like synoviocytes**
Yoko Tanaka-Watanabe, Shuji Takada, Shin-ichi Miyazawa, Takayuki Furumatsu, Keiichiro Nishida, Hiroshi Asahara
 Presenter affiliation: Tokyo Medical and Dental University, Tokyo, Japan; Japan Society for the Promotion of Science, Tokyo, Japan. 17
- Newly formed heterotopic bone in Fibrodysplasia Ossificans Progressiva still requires Activin A for maintenance and expansion**
Liqin Xie, Lily Huang, Nanditha Das, Vincent Idone, Aris Economides, Sarah Hatsell
 Presenter affiliation: Regeneron Pharmaceuticals, Tarrytown, New York. 18

Gait analyses of surgically induced osteoarthritis model mice by motion capture system

Fengjun Xuan, Yuma Makii, Taku Saito, Dai Yanagihara, Sakae Tanaka

Presenter affiliation: The University of Tokyo, Tokyo, Japan.

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Suppression of Nkx3.2 by phosphatidylinositol-3-kinase signaling regulates cartilage development by modulating chondrocyte hypertrophy

Jeong-Ah Kim, Suhjean Im, Du-Ri Yang, Lewis C. Cantley, Dae-Won Kim

Presenter affiliation: Yonsei University, Seoul, South Korea.

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Runx1 contributes to articular cartilage maintenance through enhancement of cartilage matrix production and suppression of hypertrophic differentiation

Fumiko Yano, Taku Saito, Shinsuke Ohba, Sakae Tanaka, Ung-il Chung

Presenter affiliation: The University of Tokyo, Tokyo, Japan.

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mTORC1 prevents osteoclast precursor differentiation, in vitro and in mice

Yue Zhang, Xiaochun Bai

Presenter affiliation: The Third Affiliated Hospital of Southern Medical University, GuangZhou, China.

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TUESDAY, October 25—4:30 PM

Chinese Tea and Beer Tasting

TUESDAY, October 25—7:00 PM

SESSION 4 SKELETAL STEM CELLS II

Chairperson: **Thomas Pap**, University of Münster, Münster, Germany

Continuously-growing teeth as a model for mineralized tissue renewal

Ophir D. Klein [20'+5']

Presenter affiliation: UCSF, San Francisco, California.

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Wnt 4 prevents bone loss by inhibiting NF- κ B
Cun-Yu Wang [20'+5']
Presenter affiliation: UCLA, Los Angeles, California. 24

Nanosecond pulsed electric fields enhance chondrogenesis of mesenchymal stem cells (MSCs) partially via phosphorylation of P38- mitogen-activated protein kinase (MAPK)
Zigang Ge, Tong Ning [10'+5']
Presenter affiliation: Peking university, Beijing, China. 25

Analysis of cellular dynamics revealed stem cell niche formation in the postnatal epiphyseal growth plate
Phillip T. Newton, Xiaoyan Sun, Igor Adameyko, Lars Sävendahl, Maria Kasper, Andrei S. Chagin [10'+5']
Presenter affiliation: Karolinska Institute, Stockholm, Sweden; Karolinska University Hospital, Stockholm, Sweden. 26

WEDNESDAY, October 26—9:00 AM

SESSION 5 CHONDROCYTE HOMEOSTASIS IN HEALTH, DISEASE AND REGENERATION

Chairperson: **Thomas Pap**, University of Münster, Münster, Germany

Agrin, a signalling proteoglycan supporting cartilage homeostasis
Suzanne E. Eldridge, Francesco Dell'Accio [20'+5']
Presenter affiliation: Queen Mary, University of London, London, United Kingdom. 27

Identification of microRNAs-181a-5p and microRNA-4454 as mediators of facet cartilage degeneration
Akihiro Nakamura, Y. Raja Rampersaud, Anirudh Sharma¹, Stephen J. Lewis, Brian Wu, Poulami Datta, Kala Sundararajan, Helal Endisha, Evgeny Rossomacha, Jason S. Rockel, Igor Jurisica, Mohit Kapoor [20'+5']
Presenter affiliation: Arthritis Program, Krembil Research Institute, University Health Network, Toronto, Canada. 28

Lasp-1 regulates the dynamics of cell-matrix and cell-cell contacts in RASF

Denise Beckmann, Uwe Hansen, Hans P. Kiener, Catherine S. Chew, Thomas Pap, Adelheid Korb-Pap [10'+5']

Presenter affiliation: University Hospital Muenster, Muenster, Germany.

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Investigating and modulating the human embryonic stem cell niche for cartilage regeneration

Aixin Cheng, Rosie Griffiths, Stuart A. Cain, Pinyuan Tian, Timothy E. Hardingham, Susan J. Kimber [10'+5']

Presenter affiliation: University of Manchester, Manchester, United Kingdom.

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Regulation of TRPC6 calcium channel activity is required for phenotypic maintenance in chondrocytes

Joanna Sherwood, Jessica Bertrand, Francesco Dell'Accio, Thomas Pap [10'+5']

Presenter affiliation: University Hospital Münster, Münster, Germany.

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Coffee Break

WEDNESDAY, October 26—11:00 AM

SESSION 6 BONE BIOLOGY AND DISEASES

Chairperson: **Hong-Wei Ouyang**, Zhejiang University

The role of fibroblast-like synoviocytes in cartilage destruction and disease progression in rheumatoid arthritis

Thomas Pap, Denise Beckmann, Corinna Wehmeyer, Anja Hillmann, Berno Dankbar, Adelheid Korb-Pap [20'+5']

Presenter affiliation: University of Münster, Münster, Germany.

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Wnt signaling and diffuse idiopathic skeletal hyperostosis (DISH)

Di Chen [20'+5']

Presenter affiliation: Rush University Medical Center, Chicago, Illinois.

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Disrupted cell cycle progression in growth plate chondrocytes contributes to reduced bone growth in mucopolysaccharidoses VII

Zhirui Jiang, Clare Reichstein, Charne Rossouw, Ainslie Derrick-Roberts, Sharon Byers [10'+5']

Presenter affiliation: The University of Adelaide, Adelaide, Australia.

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WEDNESDAY, October 26—2:00 PM

Visit to Old Suzhou

WEDNESDAY, October 26—7:00 PM

SESSION 7 OSTEOARTHRITIS AND CARTILAGE BIOLOGY

Chairperson: **Hong-Wei Ouyang**, Zhejiang University, Hangzhou, China

Regulation of articular cartilage homeostasis and osteoarthritis development by the NF-kappaB signaling

Taku Saito [20'+5']

Presenter affiliation: The University of Tokyo, Tokyo, Japan.

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Chondrocyte hypertrophy control during endochondral ossification

Dae-Won Kim [20'+5']

Presenter affiliation: Yonsei University, Seoul, South Korea.

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Inhibition of BATF/JUN transcriptional activity protects against osteoarthritic cartilage destruction

Jinseol Rhee, Seo-Hee Park, Seul-Ki Kim, Jin-Hong Kim, Churl-Hong Chun, Chul-Won Ha, Jang-Soo Chun [10'+5']

Presenter affiliation: Gwangju Institute of Science and Technology (GIST), Gwangju, South Korea.

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Dietary saturated fats—An emerging player in the development of obesity and osteoarthritis

Sunderajhan Sekar, Indira Prasadam, Yin Xiao, Ross Crawford
[10'+5']

Presenter affiliation: Institute of Health and Biomedical Innovation,
Brisbane, Australia.

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Free Open Bar
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THURSDAY, October 27—9:00 AM

SESSION 8 SKELETAL DEVELOPMENT

Chairperson: **Hong-Wei Ouyang**, Zhejiang University, Hangzhou,
China

α_s signaling in development and diseases

Yingzi Yang [20'+5']

Presenter affiliation: Harvard School of Dental Medicine, Boston,
Massachusetts.

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Targeting angiogenesis for the treatment of RA

James R. Whiteford [20'+5']

Presenter affiliation: QMUL, London, United Kingdom.

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Lack of collagen binding Integrin $\alpha2\beta1$ leads to faster fracture healing due to increased matrix generation, faster differentiation and increased remodelling

Daniel Kronenberg, Jens Everding, Melanie Timmen, Heriburg Hidding, Beate Eckes, Lousia Wendler, Thomas Pap, Michael J. Raschke, Richard Stange [10'+5']

Presenter affiliation: University Muenster, Muenster, Germany.

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Coffee Break

Hong-Wei Ouyang [20'+5']

Presenter affiliation: Zhejiang University, Hangzhou, China

Mechanisms of hypertrophic chondrocyte adaptation and survival under ER stress

Kathryn S. Cheah, Cheng Wang, Zjijia Tan, Kwok Yeung Tsang, Nobuyuki Itoh, David Ron, Danny Chan [20'+5']

Presenter affiliation: University of Hong Kong, Hong Kong, Hong Kong. 42

Global directional cues in establishing planar cell polarity during skeletal morphogenesis

Bo Gao, Rieko Ajima, Chunyu Li, Hai Song, Matthew J. Anderson, Robert R. Liu, Mark B. Lewandoski, Terry P. Yamaguchi, Yingzi Yang [10'+5']

Presenter affiliation: The University of Hong Kong, Hong Kong, Hong Kong; National Human Genome Research Institute, NIH, Bethesda, Maryland. 43

Modified Wnt-signaling and its effects on degenerative and inflammatory joint alterations

Stefan Teufel, Petra Köckemann, Christine Hartmann [10'+5']

Presenter affiliation: Institute of Experimental Musculoskeletal Medicine, Münster, Germany. 44

Physiological stages of cancellous bone formation in the post-natal female C57Bl/6 mice lumbar-vertebrae: a micro-CT time-lapse study

Michael Zenzes, Emely L. Bortel, Frank Witte, Paul Zaslansky [10'+5']

Presenter affiliation: Charité-Universitätsmedizin Berlin, Berlin, Germany. 45

THURSDAY, October 27—2:00 PM

SESSION 9 CRANIOFACIAL BONE DEVELOPMENT

Chairperson: **Yingzi Yang**, Harvard University, Boston, Massachusetts, USA

In vivo identification and regulating niche of mesenchymal stem cells

Hu Zhao [20'+5']

Presenter affiliation: Texas A&M University, Dallas, Texas. 46

Activating endoplasmic reticulum stress in osteocytes results in hyperostosis consistent with craniodiaphyseal dysplasia

Wilson CW Chan, Kwok Yeung Tsang, Vivian CW Ng, Ray Boot-Handford, Alan Boyde, Kenneth MC Cheung, Kathryn SE Cheah, Danny Chan [20'+5']

Presenter affiliation: The University of Hong Kong, Hong Kong, China. 47

Xizhi Guo [20'+5']

Presenter affiliation: Shanghai Jiao Tong University, Shanghai, China.

Role of cilia gene *Ift140* in osteoclastogenesis

Huixuan Wan, Mingxiang Cai, Gongchen Li, Shufan Zhang, Chenyang Zhang, Yao Sun [10'+5']

Presenter affiliation: School & Hospital of Stomatology, Tongji University, Shanghai, China; Shanghai Engineering Research Center of Tooth Restoration and Regeneration, Shanghai, China. 48

THURSDAY, October 27—6:00 PM

COCKTAILS and BANQUET

FRIDAY, October 28—9:00 AM

SESSION 10 SIGNALING MECHANISMS IN CARTILAGE

Chairperson: **Yingzi Yang**, Harvard University, Boston, Massachusetts, USA

Regulation of rheumatoid synoviocyte invasiveness by the proteoglycan switch

Nunzio Bottini [20'+5']

Presenter affiliation: University of California San Diego, La Jolla, California. 49

The E3 ligase SMURF2 regulates bone homeostasis by disrupting VDR/SMAD3 interaction in osteoblasts

Zhan Xu, Matthew B. Greenblatt, Jun Sun, Heng Feng, Laurie H. Glimcher, Weiguo Zou [20'+5']

Presenter affiliation: Institute of Biochemistry and Cell Biology, Shanghai, China. 50

Myostatin-induced mechanisms of inflammatory bone destruction by synovial fibroblasts in RA

Michelle Fennen, Johanna Intemann, Peter Paruzel, Georg Varga, Thomas Pap, Berno Dankbar [10'+5']

Presenter affiliation: University Hospital Muenster, Muenster, Germany.

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Mechano-reception mediated by integrins $\alpha1\beta1$, $\alpha2\beta1$, and $\alpha10\beta1$ results from binding to non-collagenous components of the periphery of fibrils but not their collagen core

Uwe Hansen, Christian Woltersdorf, Johannes Eble, Jyrki Heino, Birgit Leitinger, Peter Bruckner [10'+5']

Presenter affiliation: University Hospital of Muenster, Muenster, Germany.

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Nkx3.2 induces lysosome-dependent degradation of HIF-1 α in chondrocyte

Suhjean Im, Hyekyoung Oh [10'+5']

Presenter affiliation: Yonsei University, Seoul, South Korea.

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Closing Remarks