

13th International Conference on Bone Morphogenetic Proteins

Dubrovnik, Croatia October 8-12, 2022

Venue: Valamar Hotels Dubrovnik

Lacroma Conference Hall



PRELIMINARY PROGRAM

(The time used in the program is Central European Summer Time – UTC+2:00)

DAY 1 (8th October 2022, Saturday)

From 10:00 – Registration

- 15:00 **Opening Remarks** - Slobodan Vukicevic, Zagreb/Croatia
 Welcome on behalf of the Croatian Academy of Sciences and Arts
 Marko Pecina, Zagreb/Croatia
 **Welcome and opening of the conference by the Croatian Minister of Science
and Education**
 Radovan Fuchs, Zagreb/Croatia
- 15:45 – 16:45 **Marshall Urist Lecture** - Peter ten Dijke, Leiden/Netherlands
 TGF- β family receptor signaling and disease
 Introduction by A. Hari Reddi, Sacramento/US
- 16:45 – 18:15 **Bone: diseases and regeneration**
 Chair: Yuji Mishina, Michigan/US and Vicky Rosen, Boston/US
- LT1 22min presentation - Vicki Rosen, Boston/US
 BMP regulation of skeletal stem cell niches
- LT2 22min presentation – Yuji Mishina, Michigan/US
 *New modes for spatio-temporal coupling of bone formation and bone
resorption governed by osteoclasts*
- ST1 12min presentation - Susumu Itoh, Tokyo/Japan
 *Involvement of mitogen and stress activated protein kinase (MSK)1 in BMP-
induced chondrocyte differentiation*
- ST2 12min short presentation - Shingo Maeda, Kagoshima/Japan ([online](#))
 Role of the transcription factor ATOH8 in BMP-regulated osteoclastogenesis
- LT3 22min presentation - Mihaela Peric, Zagreb/Croatia
 Translational aspects of rhBMP6-based drug development
- 19:30 **Welcome cocktail**

DAY 2 (9th October 2022, Sunday)

8:00 – 9:30 **BMP From Structure to Function**

Chair: Tom Thompson, Cincinnati/US; Christian Siebold/UK

- LT4 22min presentation – Tom Thompson, Cincinnati/US
Molecular Differences in Ligand:Receptor Interactions Drives Specificity
- LT5 22min presentation – Hilary Ashe, Manchester/UK
Interpretation of the BMP gradient at single cell resolution
- ST3 12min short presentation - Erich Goebel, Tarryton/US
The orphan ligand, Activin C, signals through activin receptor-like kinase 7
- ST4* 12min short presentation - Wiktor Burdzinski, Berlin/Germany
Ligand Surface Binding Analysis (LSBA) as a tool for characterization of BMP ligand:receptor interactions
- LT6 22min presentation – Andrew Hinck, Pittsburgh/US
Structural basis for the potentiation of InhA and InhB antagonism of activin by the coreceptors TbrIII and TbrIII-like

9:30 – 10:00 **Coffee break**

10:00 – 11:30 **BMPs in Cancer**

Chair: Carl-Hendrik Heldin, Uppsala/Sweden and Toril Holien, Trondheim/Norway

- LT7 22min presentation – Aris Moustakas, Uppsala/Sweden
Cancer stemness under the control of BMP and TGF- β signaling
- LT8 22min presentation – Toril Holien, Trondheim/Norway
FKBP12 is a major regulator of ALK2 activity in multiple myeloma cells
- ST5 12min presentation - Qiaoran Xi, Beijing/China
ALK2 mutations in pediatric brain tumor DIPG
- ST6* 12min presentation – Derek Brazil, Belfast/UK
New Insights into the Signalling of GREM1, a BMP Antagonist, in colorectal cancer
- LT9 22min presentation – Kohei Miyazono, Tokyo/Japan
Mechanisms of the differentiation of glioma-initiating cells by BMPs

11:30 – 12:30 **The EMBO Lecture**

Carl-Henrik Heldin, Uppsala/Sweden

The role of TGF-beta signalling in promoting tumor progression

Chair: Slobodan Vukicevic, Zagreb/Croatia

12:30 -13.00 Poster - flash talks 1

13:00 – 14:30 **Lunch break & Poster Session 1**

14:30 – 16:00 **Vascular BMP signalling I**

Chair: Sabine Bailly, Grenoble/France and Paul Yu, Boston/US

LT10 22min presentation – Mark Ormiston, Kingston/Canada

Regulation of endothelial function by BMPR2-derived circRNAs

LT11 22min presentation- Christophe Guignabert, Paris/France

Key roles of the TGF- β superfamily in the integrity of the pulmonary vascular bed

ST7 12min presentation - Rozenn Quarck, Leuven/Belgium

Drugs targeting endothelial dysfunction partially restore sprouting angiogenesis in bmp2-silenced pulmonary microvascular endothelial cells

ST8 12min presentation - Fumiko Itoh, Tokyo/Japan

BMP, but not TGF- β , signal is important for vascular homeostasis

LT12 22min presentation – An Zwijsen, Leuven/Belgium

Lymphatic vessel type-specific functions of BMP signaling

16:30 **ARBORETUM tour** – Visit and tour at Arboretum Trsteno (owned by Croatian Academy of Sciences and Arts) –the oldest (15th century) arboretum in this part of the world (transportation by bus; refreshment included).

20:45 – 22:15 **Young Investigator Award Lectures: New voices in BMP Research**

Chair: A. Hari Reddi, Sacramento/US; Rik Derynck, San Francisco/US

LT13 22 min presentation by Rik Derynck, San Francisco/US

Directing your research toward impact

Y1 15min presentation- Tim Herpelinck, Leuven/Belgium

An integrated single-cell atlas of the skeleton from development through adulthood

Y2 15min presentation – Gonzalo Sanchez-Duffhues, Leiden/Netherlands

BMP Young Investigator Award Lecture: Modelling endothelial function through TGF- β signalling

Y3 15min presentation – Nikola Stokovic, Zagreb/Croatia

Synthetic ceramics as a scaffold in BMP-mediated bone formation

Y4 15min presentation– Johanna Bolander, Winston-Salem/US

Pro-regenerative Immune Cells Direct Articular Repair in Post Traumatic Osteoarthritis through BMP-signalling

DAY 3 (10th October 2022, Monday)

8:00 – 9:30 **BMP receptors, co-receptors and pro-domains**

Chair: Mary Mullins, Philadelphia/US; Wei Li, Cambridge/UK

LT14 22min presentation – Christian Siebold, Oxford/UK

title pending

LT15 22min presentation – Wei Li, Cambridge

Molecular basis of ALK1:BMP10:BMPRII signalling complex and its implication in pulmonary arterial hypertension

ST9 12 min short presentation – Yoav Henis, Tel Aviv/Israel

Regulation of Smad signaling pathways by competition between type I receptors for ACVR2

ST10* 12 min presentation – Paul-Lennard Mendez, Berlin/Germany

Atheroprone fluid shear stress regulated ALK1-Endoglin-SMAD signaling originates from early endosomes

LT16 22min presentation – Mary Mullins, Philadelphia/US

GS domain regulatory constraints in wild-type and mutant FOP ACVR1 receptors in BMP signaling

9:30 – 10:00 **Coffee break**

10:00 – 11:30 **BMPs in patterning and organoids**

Chair: Diana Monsivais, Houston/US; John Lees-Shepard, Tarrytown/US

LT17 22min presentation – Diana Monsivais, Houston/US

Modeling the regenerative potential of the endometrium with 3D organoid cultures

LT18 22min presentation - Gudrun Valdimarsdottir, Reykjavik/Iceland

The role of transient SMAD1/5 activation in trophoblast invasion of maternal spiral arteries

ST11* 12min short presentation – Monika Horvat Mercnik, Graz/Austria

Endothelial to mesenchymal transition (EndoMT) of preeclamptic fetal-placental endothelial cells (PE fpEC) is governed by BMP signaling

ST12 12min short talk (TechTalk) – Christian Hiepen, Berlin/Germany

Stem cell resources and human organoids in BMP research - Perspective from a public databank

LT19 22min presentation – Menno Oudhoff, Trondheim/Norway ([online](#))

Intestinal-epithelial intrinsic BMP signalling as a feedback loop in gut type 2 immune responses

11.30 – 12.00 **Poster - flash talks 2**

12:00 – 13:30 **Lunch break & Poster Session 2**

13:30 – 15:00 **Genomic regulation by BMP signaling**

Chair: Maria Macias, Barcelona/Spain and Danny Huylebroeck, Rotterdam/Netherlands

LT20 22min presentation - Maria Macias, Barcelona/Spain

Structural insights into Smad function

ST13* 12min short presentation – Daniel Graf, Alberta/Canada

BMP7 exerts molecular control over tissue properties in craniofacial cartilages

ST14* 12min short presentation – Jay Chiorini, Bethesda/US

Lysosomal exocytosis of HSP70 stimulates monocytic BMP6 expression in Sjögren's syndrome

ST15 12min short presentation – Jerome Jatzlau, Berlin/Germany

BMP9 and Fluid Shear Stress regulate endothelial chromatin accessibility and expression of SMAD low affinity target genes

LT21 22min presentation – Danny Huylebroeck, Rotterdam/Netherlands

Genomic regulations during cell state transitions in cell differentiation in BMP-controlled development and repair

15.00 – 15:30 Coffee break

15:30 – 17:00 **Vascular BMP signalling II**

Chair: Petra Knaus, Berlin/Germany and Franck Lebrin Leiden/Netherlands

LT22 22min presentation – Sabine Bailly, Grenoble/France

BMP9 and BMP10 signaling in endothelial cells

LT23 22min presentation - Franck Lebrin, Leiden/Netherlands

Endoglin regulates cerebral blood flow by modulating TGF-B bioavailability

ST16 12min presentation - Elizabeth Jones, Leuven/Belgium

Role of SMAD signalling in early arterial differentiation

ST17* 12min short presentation – Tristin Schwartze, Pittsburgh/US

Structural basis for biosynthesis of BMP-9 and BMP-10 in a monomeric form

LT24 22min presentation – Paul Yu, Boston/US

BMP9/ALK1 in pulmonary vascular endothelial function

17.00-18:30 **BMP in Metabolism**

Chair: Jodie Babitt, Boston/US and Paul Yu, Boston/US

LT25 22min presentation - Jodie Babitt, Boston/US

BMP and iron regulation

10:30 – 12:00 **Round table – Translational medicine and clinical study testing of novel drugs for rare bone diseases**

Chair: Frank Luyten, Leuven/Belgium and Hermann Oppermann, Zagreb/Croatia

Presenters: Susan Rhee, Tarrytown/US
Katarina Oreskovic, Zagreb/Croatia
Radan Spaventi, Zagreb/Croatia
Frank Luyten, Leuven/Belgium

12:00-12:30 Poster - flash talks 3

12:30 – 14:00 **Lunch break & Poster Session 3**
BMP Steering Committee

14.00 -15:30 **Heterotopic ossifications**

Chair: Eileen Shore, Philadelphia/US and Nadine Großmann, Berlin/Germany

- LT30 22min presentation – Maurizio Pacifici, Philadelphia/US
Activin A promotes genetic and non-genetic heterotopic ossification and is targeted by Palovarotene
- LT31 22min presentation – Sarah Hatsell, Tarrytown/US
A new physiologically relevant mouse model of fibrodysplasia ossificans progressiva (FOP) that bypasses the need for conditionality
- ST23* 12min short presentation – Francesc Ventura, Barcelona/Spain
PI3Ka inhibition blocks osteoprogenitor specification and the hyper-inflammatory response to prevent heterotopic ossification
- ST24 12min presentation John Lees-Shepard, Tarrytown/US
Activin A-induced activation of ACVR1[R206H] drives skeletal patterning defects in fibrodysplasia ossificans progressiva (FOP) mice
- LT32 22min presentation – Takenobu Katagiri, Saitama/Japan ([online](#))
ALK2 in fibrodysplasia ossificans progressiva (FOP)

15:30 – 17.00 **Crosstalk between Smad2/3 and Smad1/5/8 signaling**

Chair: Aris Economides, Tarrytown/US; Peter ten Dijke, Leiden/Netherlands

- LT33 22min presentation- Aris Economides, Tarrytown/US
To signal or not to signal? A synthesis of the roles of signaling mediated by ACVR1
- LT34 22min presentation – TBA
- ST25* 12min short presentation – Alexander Löwer, Darmstadt/Germany
State- and stimulus-specific SMAD signaling in individual living cells

ST26* 12min short presentation – Ahmad Abdullah Nasir, Umeå/Sweden

Ligand specific regulation of BMP signalling by LRIG proteins

LT35 22min presentation –Caroline Hill, London/UK

The role of SMAD1/5 signaling in breast cancer metastasis

17:00 – 17:30 **Coffee break**

17:30 – 18:30 **Charles Huggings Lecture** - Eileen Shore, Philadelphia/US

Heterotopic ossification, tissue identity, and the BMP signaling pathway

Introduction by A. Hari Reddi, Sacramento/US

19:30 Gala Dinner (venue to be announced)

DAY 5 (12th October 2022, Wednesday)

8:00 – 9:30 **BMP in Translational and Clinical Medicine**

Chair: Mihaela Peric, Zagreb/Croatia and David Ke, Guangzhou/China

LT36 22 min Frank P. Luyten, Leuven/Belgium

Joint regeneration: From repairing symptomatic joint surface lesions to building a living joint prosthesis

ST27* 12min short presentation – Vera Kufner, Zagreb/Croatia

BMP1.3 protein as potential target in treatment of fibrosis

ST28* 12min short presentation – Sho Tsukamoto, Saitama/Japan (**online**)

Establishment of a novel mouse model of human fibrodysplasia ossificans progressive

ST29 12min short presentation - Alex Bullock, Oxford/UK (**online**)

Update on ALK2: clinical mutations and drug trials

ST30 12min short presentation Masato Morikawa, Tokyo/Japan (**online**)

Follistatin-like 3-based ligand trap increases muscle mass in mice

LT37 22 min Terence Capellini, Boston/US (**online**)

GDF5 and joint disease

9:30 – 10:00 **Coffee break**

10:00 – 12:00 **BMP in Clinical Development**

Chair: K. Sampath, Holliston/US and Daniel Graf, Alberta/Canada

LT38 22min presentation – Reinhard Windhager, Vienna/Austria

Clinical testing of OSTEOPROTECTIN family members in patients with long bone fractures, fracture nonunions and posterolateral spinal fusion

LT39 22 min presentation - Jasbir Sehra, Lexington/US

KER-012: A Novel, Investigational Activin Type II Receptor Ligand Trap Being Developed for the Treatment of Bone and Pulmonary Disorders

ST31* 12 min presentation – Nathan Remya, Lexington/US

A comparison of anabolic effects on muscle mass of wild-type ActRIIB-Fc and the novel ActRII-Fc ligand trap KER-065

LT40 22min presentation – Catherine Picart, Grenoble /France

Differential bioactivity of four BMP-family members as function of biomaterial stiffness.

LT41 22min presentation – Nick Morrell, Cambridge/UK ([online](#))

The vascular effects of BMP9

12:00 **Concluding Remarks and Closing Ceremony**