5th International Research Conference on

MULTIPLE HEREDITARY EXOSTOSES
(MULTIPLE OSTEOCHONDROMA)

The Hanley Center, St. Mary's Medical Center
West Palm Beach, Florida

May 19 – 22, 2016

ORGANIZERS:

Jeffrey D. Esko
University of California

Sarah Ziegler
The MHE Research Foundation

Dror Paley
Paley Institute

6:15 PM TRANSPORT FROM THE HYATT

6:45 – 7:00 PM **Welcome and Opening Remarks** [HANLEY CENTER]
Jeffrey D. Esko ▪ Dror Paley ▪ Craig Eaton

Keynote Address:
7:00 – 7:45 PM **Why don't all cancer causing mutations cause cancer?**
Matthew L. Warman

8:00 – 9:30 PM **Reception** [PALEY INSTITUTE]

9:30 PM TRANSPORT TO THE HYATT

8:00 AM — TRANSPORT FROM THE HYATT

8:30 – 9:00 AM — CATERED BREAKFAST [HANLEY CENTER]

Session 1: MHE and Heparan Sulfate

CHAIR: Andrea Vortkamp

9:00 – 9:30 AM — **Marion Kusche-Gullberg**
EXT-dependent regulation of heparan sulfate structure and function

9:30 – 10:00 AM — **Matthew Hilton**
Heparanase and heparan sulfate in osteochondroma development

10:00 – 10:30 AM — **Jian Liu**
Investigation of the biological function of heparan sulfate using a chemoenzymatic synthetic approach

10:30 – 11:00 AM — BREAK

11:00 – 11:30 AM — **H. Joseph Yost**
HSPGs regulate immunological lineages and wound responses

11:30 – 12:00 PM — **Anne Q. Phan**
Ext deficiency and tissue regeneration

12:00 – 12:30 PM — **Andrea Vortkamp**
Heparan sulfate in osteoarthritis

12:30 – 2:00 PM — CATERED LUNCH

Session 2: Bone and Cartilage Development

CHAIR: David Ornitz

2:00 – 2:30 PM — **David M. Ornitz**
FGFs: Regulating the balance between osteogenesis and chondrogenesis to regulate skeletal growth

2:30 – 3:00 PM — **Karen M. Lyons**
TGFβ signaling in the growth plate regulates the formation of condyles

3:00 – 3:30 PM — **Yingzi Yang**
Coordination of directional outgrowth and patterning by Wnt5a and Fgf signaling interaction

3:30 – 4:00 PM — BREAK

2:00 – 5:30 PM — **Maureen McGargill**
Novel immune checkpoints in cartilage homeostasis

2:00 – 5:30 PM — **Elazar Zelzer**
Proprioceptive mechanosensors mastermind spinal alignment: Novel insight into the etiology of AIS

2:00 – 5:30 PM — **Wentian Yang**
SHP2 Regulates Chondrogenesis via Modifying SOX9 Expression

5:45 PM — TRANSPORT TO THE HYATT ▪ SPEAKER DINNER

8:00 AM TRANSPORT FROM THE HYATT

8:30 – 9:00 AM CATERED BREAKFAST

Session 3: MHE and Cancer CHAIR: Judith Bovée

9:00 – 9:30 AM **Benjamin A. Alman**
IDH mutations and what they teach us about cartilaginous neoplasia

9:30 – 10:00 AM **Ernest (Chappie) Conrad**
Cartilage tumors & the assessment of malignancy—Challenges under the microscope

10:00 – 10:30 AM **Joanna Phillips**
Heparan sulfate modifications in glioblastoma

10:30 – 11:00 AM BREAK

11:00 – 11:30 AM **Ralph D. Sanderson**
The heparanase/syndecan-1 axis in cancer: Mechanisms and therapy

11:30 – 12:00 PM **Judith Bovée**
Molecular targets in cartilage tumors

12:00 – 12:30 PM **Yang Chai**
Craniofacial mesenchymal stem cells in bone tissue homeostasis and repair

12:30 – 2:00 PM CATERED LUNCH

Session 4: MHE and Stem Cells CHAIR: T. Michael Underhill

2:00 – 2:30 PM **Véronique M. Lefebvre**
Cell fate specification in skeletogenesis and MHE

2:30 – 3:00 PM **T. Michael Underhill**
Mesenchymal progenitors in tissue renewal and regeneration

3:00 – 3:30 PM **April Craft**
Human pluripotent stem cell-derived progenitors of articular and growth plate cartilage

3:30 – 4:00 PM BREAK

2:00 – 5:30 PM **Hiroshi Nakato**
Control of stem cell activity by heparan sulfate: Insights from Drosophila models

2:00 – 5:30 PM **Noriaki Ono**
Defining resting chondrocytes in the postnatal growth plate as a novel type of skeletal stem cells

2:00 – 5:30 PM **Catherine Merry**
Modeling MO in 3D in vitro culture to uncover tissue specific disease mechanisms

5:45 PM TRANSPORT TO THE HYATT *Free Evening*

SUNDAY MAY 22

8:00 AM — TRANSPORT FROM THE HYATT

8:30 – 8:50 AM — CATERED BREAKFAST

Session 5: Therapeutic Approaches — CHAIR: Jeffrey D. Esko

8:50 – 9:00 AM — **Jeffrey D. Esko**
Drug discovery for Multiple Hereditary Exostoses

9:00 – 9:30 AM — **Laurence Legeai-Mallet**
Novel strategies to correct skeleton development

9:30 – 10:00 AM — **Noriyuki Tsumaki**
Application of iPSC technology to disease modeling for chondrodysplasia

10:00 – 10:30 AM — **José L. Millán**
Mechanisms of initiation of skeletal mineralization - druggable targets for soft tissue calcification

10:30 – 11:00 AM — BREAK

11:00 – 11:30 AM — **Yu Yamaguchi**
BMP signaling as a potential therapeutic target for MHE

11:30 – 12:00 PM — **Maurizio Pacifici**
Pathogenic mechanisms and therapeutic opportunities for Hereditary Multiple Exostoses

12:00 – 1:00 PM — SCIENTIFIC MEETING CONCLUSION AND CATERED LUNCH [HANLEY CENTER]

1:15 PM — TRANSPORT TO THE HYATT

1:00 – 5:00 PM — **Session 6: Clinical Session** — CHAIR: Sarah Ziegler

Jeffrey D. Esko
Summary of Scientific Meeting

Dror Paley, Craig Robbins, David Feldman
Clinical Case Review Discussions (Live Patient Clinic)

2:30 – 2:45 PM — BREAK

Dror Paley
Upper Extremity Deformities in MHE/MO, Best Treatment Strategies

David Feldman
The Spine in MHE/MO; How to Restore Motion of the Hip

Craig Robbins
Guiding Curved Legs to Straight in MHE/MO (Guided Growth)

Jason Weisstein
Neurovascular and Tumor-Related Issues in MHE

5:15 – 6:15 PM — CATERED DINNER ▪ 6:30 PM TRANSPORT TO THE HYATT