Scientific Program

WEDNESDAY SEPTEMBER 7

8:30 - 8:40 **WELCOME REMARKS**
Margherita Cantorna (Pennsylvania State University) – Scientific Chair
Mark Meyer (University of Wisconsin, Madison) – Assistant Scientific Chair

SESSION 1: IMMUNE KEYNOTE (Moderator: Mark Meyer)
8:40 - 9:25 **George Georgiou (UT-Austin) -** *Molecular level decomposition of the identity, dynamics and function of the constituent antibodies comprising the serum antibody repertoire in response to infection or vaccination.*
9:25 - 9:30 Discussion

SESSION 2: IMMUNOREGULATION: FROM AUTOIMMUNITY TO INFECTION (Moderators: Margherita Cantorna & Isabelle Piec)

9:30 - 10:00 **John White (McGill University)** *Recent updates on the role of vitamin D signaling in innate and adaptive immunity.*
10:00 - 10:05 Discussion
10:05 - 10:25 **Lori Plum (University of Wisconsin, Madison)** *Antibody production does not require vitamin D or its receptor.*
10:25 -10:30 Discussion

COFFEE BREAK

10:45 - 10:55 **Juhi Arora (Pennsylvania State University)** *Vitamin D and the ability to produce 1,25(OH)2D are critical for protection from viral infection of the lungs.*
10:55 - 11:00 Discussion
11:00 - 11:10 **Isabelle Piec (University of East Anglia)** *Vitamin D status was associated with better immune response to SARS-COV-2 immunisation.*
11:10 - 11:15 Discussion
11:15 - 11:35 **Behdad Afzali (NIDDK)** *Regulation of T cells by complement activation of a vitamin D system.*
11:35 - 11:40 Discussion

FLASH POSTER TALKS 1 (Moderator: JoEllen Welsh)
11:40 - 11:45 **Introduction**
11:45 - 11:48 **Nicole Froelich (Pennsylvania State University)** *Developmental control of the vitamin D receptor in T cells.*
11:48 - 11:51 **Chin May Teoh (Texas State University)** *Methyl-donor nutrients supplemented to a high-fat diet during pregnancy and lactation alters colonic vitamin D signaling and inflammatory status among offspring rats.*
11:51 - 11:54 **Vanessa McGaughey (University of Miami)** *Mechanisms of vitamin D-dependent presentation of tumor-targeting neoantigens in osteosarcoma.*
11:54 - 11:57 **Megan Rodgers (Medical University of South Carolina)** *Early vitamin D sufficiency is associated with long term neurodevelopmental improvements in 4-6 year old children.*
11:57 - 12:00 **Yuko Nakamichi (Matsumoto Dental University)** *The vitamin D receptor in osteoblastic cells is crucial for the proresorptive activity, hypercalcemia, and soft tissue calcification induced by $1\alpha,25(OH)_2D_3$.*

LUNCH & POSTER VIEWING

12:00 - 2:00 **POSTER SESSION 1** - ROOMS 2.110 AND 2.120

SESSION 3: LIFE CYCLE – PREGNANCY (Moderators: John White & Megan Knuth)

2:00 - 2:20 **Margherita Cantorna (Pennsylvania State University)** *The role of the VDR and the effect of vitamin D deficiency on the development of immune cells.*
2:20 - 2:25 Discussion
2:25 - 2:35 **Carol Wagner (Medical University of South Carolina)** *The effect of maternal vitamin D status during lactation on the human milk proteome.*
2:35 - 2:40 Discussion
2:40 - 2:50 **Sonya Ketchens (Medical University of South Carolina)** *Supplementation of vitamin D in black American pregnant to decrease adverse pregnancy outcomes.*
2:50 - 2:55 Discussion
2:55 - 3:15 **Jane K. Cleal (University of South Hampton)** *Placental uptake and metabolism of 25(OH)vitamin D determines its activity within the fetoplacental unit.*
3:15 - 3:20 Discussion

COFFEE BREAK

SESSION 4: LIFE CYCLE - AGING AND METABOLISM (Moderator: Carlos Bernal-Mizrachi)

3:35 - 3:55 **Philip Atherton (University of Nottingham)** *The vitamin D receptor and skeletal muscle proteostasis.*
3:55 - 4:00 Discussion
4:00 - 4:10 **Megan Knuth (University of North Carolina Chapel Hill)** *Developmental vitamin D deficiency alters adult liver energy metabolism pathways.*
4:10 - 4:15 Discussion
4:15 - 4:35 **Jeffrey Roizen (Children's Hospital of Philadelphia)** *High dose dietary vitamin D enhances energy sensing and allocates surplus calories to build muscle and increase linear growth by decreasing myostatin and enhancing leptin signaling.*
4:35 - 4:40 Discussion
4:40 - 4:50 **Shelby Bollen (University of Nottingham)** *Vitamin D receptor and vitamin D binding protein polymorphisms are associated with skeletal muscle function and physiology in elite master athletes.*
4:50 - 4:55 Discussion

YOUNG INVESTIGATORS AWARD CEREMONY (JoEllen Welsh & Kyle Wandling on behalf of NIH and Heartland Assays)
4:55 - 5:05 Description of Awards
5:05 - 5:20 Presentation of Certificates

NETWORKING DINNER
5:30 Buses depart for The Saxon Pub
6:00 - 9:00 Dinner and Entertainment

THURSDAY SEPTEMBER 8TH

SESSION 5: VITAMIN D DOES THAT? (Moderators: Lori Plum & Sudaker Rao)

8:30 - 8:40 **Luke Peppone (University of Rochester Medical Center)** *High-dose vitamin D supplementation in patients with breast and prostate cancer to prevent cancer-treatment-induced bone loss.*
8:40 - 8:45 Discussion
8:45 - 8:55 **Sakoto Kise (Toyama Prefectural University)** *Functional analysis of vitamin D receptor (VDR) using adenovirus vector and its application to gene therapy for VDR KO rats.*
8:55 - 9:00 Discussion
9:00 - 9:10 **Dan Bikle (UCSF/VA Medical Center)** *Vitamin D receptor controls injury induced epidermal regeneration through cross-talk with P53/63 signaling.*
9:10 - 9:15 Discussion

SESSION 6: THE VDR AND THE SIGNALS WE KEEP - GENOMICS AND SIGNALING (Moderator: Moray Campbell)

9:15 - 9:35 **Ayse Kilic (Brigham and Women's Hospital, Harvard)** *Vitamin D mitigates allergic airway inflammation by modulating the expression of key genes on CHR17Q12-21.1.*
9:35 - 9:40 Discussion
9:40 - 9:50 **Morgan Ritter (North Carolina State University)** *Early disruption of vitamin D receptor signaling induces developmental behavior deficits in zebrafish.*
9:50 - 9:55 Discussion
9:55 - 10:05 **Nicole Ball (University of East Anglia)** *3'UTR structural elements are associated with CYP24A1-mediated abnormal calcium handling.*
10:05 - 10:10 Discussion

COFFEE BREAK

SESSION 7: WHAT THE GUT! MICROBES AND THE INTESTINE (Moderators: Sylvia Christakos & Seong Min Lee)

10:25 - 10:45 **Jim Fleet (University of Texas Austin)** *Integrating genomic and physiologic data to understand how vitamin D signaling regulates intestinal biology.*
10:45 - 10:50 Discussion
10:50 – 11:00 **Natalie Watkins (University of Texas Austin)** *Intestinal epithelial cell-deletion of CYP24A1 reduces renal CYP27B1 mRNA and enhances TRPV6 mRNA induction by low dietary calcium.*
11:00 - 11:05 Discussion
11:05 - 11:25 **Snehal Chaudhari (Harvard / UW-Madison)** *The role of vitamin D receptor in remodeling the gut-liver axis following bariatric surgery.*
11:25 - 11:30 Discussion

FLASH POSTER TALKS 2 (Moderator: Jim Fleet)

11:30 - 11:35 **Introduction**
11:35 - 11:38 **Thomas Lisse (University of Miami)** *Vitamin D inhibits the epithelial-mesenchymal transition (EMT) and migration of osteosarcoma cells via differential regulation of EMT and antioxidative genes and chromatin states.*
11:38 - 11:41 **Ganmaa Davaasambuu (Harvard School of Public Health)** *Maternal vitamin D intakes during pregnancy and child health outcomes.*

11:41 - 11:44 **Martyna Stachowicz-Suhs (Hirszfeld Institute)** *Crosstalk between macrophages and murine 4T1 breast cancer cells in the context of the vitamin D-induced metastasis: COX-2/ PGE-2/ IL-6 as the main factors driving this process.*

11:44 - 11:47 **Kirstin Krieger (University of Illinois Chicago)** *Vitamin D sufficiency enhances epithelial differentiation of mouse prostate organoids and cancer cell lines.*

11:47 – 11:50 **Steven Strugnell (OPKO Health)** *Extended-release calcifediol may accelerate resolution of respiratory symptoms and mitigate pneumonia risk in patients with mild-moderate COVID-19.*

LUNCH WITH POSTER VIEWING

12:00 - 2:00 **POSTER SESSION 2** - ROOMS 2.110 AND 2.120

SESSION 8: EXPANDING OUR UNDERSTANDING OF VITAMIN D METABOLISM (Moderators: Carmen Reynolds & Eva Liu)

2:00 - 2:20 **Mark B. Meyer (University of Wisconsin, Madison)** *The rapid genomic mechanisms controlling renal vitamin D metabolism.*

2:20 - 2:25 Discussion

2:25 - 2:35 **Glenville Jones (Queen's University)** *R396W mutation of CYP24A1: a humanized preclinical model of infantile hypercalcemia Type I.*

2:35 - 2:40 Discussion

2:40 - 2:50 **Etienne Sochett (Hospital for Sick Children, Toronto)** *Rifampin use in children with idiopathic infantile hypercalcemia.*

2:50 – 2:55 Discussion

2:55 - 3:15 **Martin Kaufmann (Queen's University)** *Clinical Utility of measuring the serum vitamin D metabolome including 24,25(OH)2D3 by liquid chromatography-tandem mass spectrometry (LC-MS/MS).*

3:15 - 3:20 Discussion

COFFEE BREAK

SESSION 9: THE BONES HAVE IT (Moderators: Tom Thacher/Madhu Biyani)

3:35 – 3:55 **Eva Liu (Brigham and Women's Hospital/Harvard)** *Role of 1,25 dihydroxyvitamin D in regulating enthesopathy development in the HYP mouse model of XLH.*

3:55 - 4:00 Discussion

4:00 - 4:10 **Stefanie Doms (KU Leuven)** *The vitamin D3 analog, WY1048, affects cortical bone directly through VDR induced signaling in osteoblast precursors.*

4:10 - 4:15 Discussion

4:15 - 4:25 **Seong Min Lee (University of Wisconsin, Madison)** *A complex genomic mechanism governs the regulation of fibroblast growth factor 23 expression in response to 1,25-dihydroxyvitamin D3, phosphate and inflammation.*

4:25 - 4:30 Discussion

4:30 - 4:40 **Serra Ucer Ozgurel (University of Texas Austin)** *Male LRP5 A214V mutant mice with genetically programmed high bone mass have disruption of the vitamin D endocrine system.*

4:40 - 4:45 Discussion

4:45 – 4:55 **Lieve Verlinden (KU Leuven)** *Osteoblast-specific deletion of neuropilin 2 results in trabecular and cortical bone loss in male mice.*

4:55 – 5:00 Discussion

5:00 - 5:10 **Sudhaker Rao (Henry Ford Health)** *Effect of vitamin D metabolites on bone histomorphometry in health black and white women: an attempt to unravel the so-called Vitamin D Paradox in blacks.*

5:10 - 5:15 Discussion

FRIDAY SEPTEMBER 9TH

SESSION 10: CANCER - HEALTH DISPARITIES AND TREATMENTS (Moderators: Sue Ingles & Thomas Lisse)

8:30 - 8:50 **Clayton Yates (Tuskegee University)** *Prostate cancer and vitamin D - GWAS, skin color and health disparities.*
8:50 - 8:55 Discussion
8:55 - 9:05 **Madhu Biyani (Kanazawa University)** *A novel DNA aptamer for CYP24 inhibition exerts a therapeutic effect by enhancing anti-proliferative function of vitamin D in lung cancer cells.*
9:05 - 9:10 Discussion
9:10 - 9:20 **Cydney Dennis (Virginia Commonwealth University)** *24R,25(OH)2D3 induces its anti-apoptotic effect in laryngeal cancer cells through a PLD mediated mechanism.*
9:20 - 9:25 Discussion
9:25 - 9:35 **Rocio Garcia-Becerra (Universidad Nacional Autonoma de Mexico)** *Re-establishment of the antitumoral effects of antiestrogens by calcitriol in triple-negative breast cancer models.*
9:35 - 9:40 Discussion

COFFEE BREAK

SESSION 11: NOT JUST ANOTHER MICRONUTRIENT - NUTRITION AND VITAMIN D (Moderators: Dan Bikle & Snehal Chaudhari)

9:55 - 10:15 **Susan A. Lanham-new (University of Surrey, UK)** *Differential effects of vitamin D2 and vitamin D3 on vitamin D metabolism in health and disease.*
10:15 - 10:20 Discussion
10:20 - 10:30 **Tom Thacher (Mayo Clinic)** *Serum 1,25-dihydroxyvitamin D and the pathogenesis of vitamin D/calcium deficiency rickets – a multivariable re-analysis.*
10:30 - 10:35 Discussion
10:35 - 10:45 **Sue Shapses (Rutgers University)** *Vitamin D deficiency in older mice causes excess weight gain and compromises the biomechanical strength of bone without a decrease in BMD.*
10:45 - 10:50 Discussion
10:50 - 11:00 **Sophie Davies (University of Bath)** *25(OH)D3 expenditure does not differ meaningfully between active, lean and sedentary overweight adults.*
11:00 - 11:05 Discussion
11:05 - 11:25 **Roger Bouillon (Leuven, Belgium)** *Calcifediol as a treatment option for hypovitamin D.*
11:25 - 11:30 Discussion

CLOSING REMARKS

NETWORKING LUNCH - Mingle on the patio or Grab & Go