



IMPC 10th Anniversary Conference

Mouse Genetics and Genomic Medicine

Virtual Conference

September 23-24, 2021



Keynote Speaker
Professor Mario Capecchi
Utah, USA

SCIENTIFIC PROGRAM

DAY 1 (23rd September)

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| 14:00 - 14:10 (10 minutes) | WELCOME - Radislav Sedláček and Steve Brown |
| 14:10 - 14:50 (40 minutes) | KEYNOTE Mario Capecchi (Salt Lake City, USA) Mouse Genetics and Genomic Medicine |
| 14:50 - 16:30 | SESSION I - Delivering the challenges of genomic medicine – The role of mouse genetics CHAIR: Radislav Sedláček |
| 14:50 - 15:15 (25 minutes) | Chris Austin (Boston, USA) From mouse genetics to human genomics to translational medicine |
| 15:15 - 15:40 (25 minutes) | Kym Boycott (Ottawa, Canada) Canada's experience linking rare disease gene discovery to mechanism |
| 15:40 - 16:05 (25 minutes) | Rob Williams (Memphis, USA) How To Build Robust Platforms for Experimental Precision Medicine Using Mice and Rats—Members of the Supraprimate Superorder |
| 16:05 - 16:30 (25 minutes) | Steve Brown (Harwell, UK) International Mouse Phenotyping Consortium: the generation of a comprehensive catalogue of gene function for genomic medicine |
| 16:30 - 16:45 (15 minutes) | Break E-poster viewing in the virtual E-POSTER AREA Charles River Laboratories and Tecniplast video viewing in the CORPORATE PARTNERS' VIDEO SHOWCASE |
| 16:45 – 18:50 | GENES, PHYSIOLOGY, AND DISEASE SESSION II: Big data and mouse genetics Approaches to the analysis, integration, and application of data on gene function CHAIR: Colin Fletcher |
| 16:45 – 17:10 (25 minutes) | Tudor Oprea (Albuquerque, USA) Illuminating the Rare Disease Proteome |
| 17:10 – 17:35 (25 minutes) | Damian Smedley (London, UK) Application of IMPC data to rare disease diagnostics and discovery |
| 17:35 – 18:00 (25 minutes) | Daria Julkowska (Paris, France) The European Joint Programme on Rare Diseases – the power of multistakeholder collaboration for the benefit of rare diseases patients |
| 18:00 – 18:25 (25 minutes) | Malte Spielmann (Seattle, USA) Single cell “whole embryo” phenotyping of developmental disorders |
| 18:25 – 18:45 (20 minutes) | Henrik Westerberg (Harwell, UK) Exploring the IMPC embryo pipeline phenoscape with automatically annotated abnormal organ volumes |
| 18:45-19:35 (50 minutes) | Break E-poster viewing in the virtual E-POSTER AREA Charles River Laboratories and Tecniplast video viewing in the CORPORATE PARTNERS' VIDEO SHOWCASE |



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| 19:35 - 20:20 | SESSION III: Essential genes in mammals Essential genes in mouse and humans and the power of developmental analyses of essential genes and haploessential genes in the mouse for the identification of disease genes CHAIR: Mary Dickinson |
| 19:35 - 19:50 (15 minutes) | Evangelia Petsalaki (Cambridge, UK) Using CRISPR to dissect context-dependent cancer signaling networks |
| 19:50 - 20:05 (15 minutes) | Ignatia Van Den Veyver (Houston, USA) Fetal precision medicine and the value of mouse models and transdisciplinary collaboration |
| 20:05 - 20:20 (15 minutes) | Damaris Lorenzo (Chapel Hill, USA) Pathological mechanisms of the SPTBN1 syndrome |
| 20:20 - 20:35 (15 minutes) | Pilar Cacheiro (London, UK) Early lethal genes in humans |
| 20:35 - 20:50 (15 minutes) | Break E-poster viewing in the virtual E-POSTER AREA Charles River Laboratories and Tecniplast video viewing in the CORPORATE PARTNERS' VIDEO SHOWCASE |
| 20:50 - 22:45 | SESSION IV: Behaviour, sensory, and pain A wide-ranging session discussing the power of mouse genetics to generate novel translational insights into neurological pathways with wide implications across a variety of neurological disease domains CHAIR: Colin McKerlie |
| 20:50 - 21:05 (15 minutes) | Erin Young (Kansas City, USA) Genetic Determinants of inflammatory hypersensitivity: From systems genetics to clinical translation |
| 21:05 - 21:20 (15 minutes) | Jinchuan Xing (Piscataway, USA) The combination of multiple types of evidence to prioritize candidate genes for Tourette's Disorder |
| 21:20 - 21:35 (15 minutes) | Jason Lerch (Oxford, UK) Using mouse models to understand convergence and divergence in autism |
| 21:35 - 21:50 (15 minutes) | Jacqui White (Bar Harbor, USA) Identifying genetic determinants of inflammatory pain in mice |
| 21:50 - 22:05 (15 minutes) | Silvia Mandillo (Rome, Italy) The potential of home cage monitoring to screen mice for sleep disturbances |
| 22:05 - 22:20 (15 minutes) | Elissa Chesler (Bar Harbor, USA) Network based prioritization of human GWAS candidates for schizophrenia using IMPC behavioral phenotypes |
| 22:20 - 22:35 (15 minutes) | Sabine Hoelter-Koch (Munich, Germany) PREMOS: the European Brain Research Area Cluster on predictive model systems |
| 22:35 - 22:45 (10 minutes) | Day 1 Wrap-up and Adjourn - Colin McKerlie |



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DAY 2 (24th September)

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| 14:00 - 14:05 (05 minutes) | WELCOME - Martin Hrabě de Angelis |
| 14:05 - 15:20 | SESSION V: Use of mouse resources during the COVID-19 Pandemic CHAIR: Ying Xu |
| 14:05 - 14:30 (25 minutes) | Josef Penninger (Vancouver, Canada) ACE2 - from fly hearts to the heart of a pandemic |
| 14:30 - 14:55 (25 minutes) | Paul McCray (Iowa City, USA) Mouse models of COVID-19 for studies of pathogenesis, preventions, and treatments |
| 14:55 - 15:20 (25 minutes) | Je Kyung Seong (Seoul, Korea) Large scale Preclinical Test for COVID-19 infection |
| 15:20-16:20 | SESSION VI: Cardiovascular Illuminating the role of mouse models and large-scale genetic screens to uncover novel genes and pathways involved with cardiovascular disease from development to the ageing adult CHAIR Je Kyung Seong |
| 15:20-15:35 (15 minutes) | Marc-Phillip Hitz (Kiel, Germany) Adams19 and the use of an IMPC mouse model |
| 15:35-15:50 (15 minutes) | Tara Rasmussen (Houston, USA) After the Pipeline: Identifying the Role of Glycogenin in Fetal Hearts |
| 15:50-16:05 (15 minutes) | Xiaolei Xu (Rochester, USA) SORBS2 and arrhythmogenic cardiomyopathy |
| 16:05-16:20 (15 minutes) | Nadine Spielmann (Munich, Germany) High-throughput mouse phenotyping in IMPC for the discovery of novel gene functions linked to human cardiovascular disease |
| 16:20 – 16.35 (15 minutes) | Break E-poster viewing in the virtual E-POSTER AREA Charles River Laboratories and Tecniplast video viewing in the CORPORATE PARTNERS' VIDEO SHOWCASE |
| 16:35 – 17:35 | SESSION VII: Metabolism Translational insights and developments from studies of novel mouse models of metabolism metabolism from diabetes to bone CHAIR: Martin Hrabě de Angelis |
| 16:35 – 16:50 (15 minutes) | Zhihao Jia (Suzhou, China) PRMT5 regulates fatty acid metabolism and lipid droplet biogenesis |
| 16:50 - 17:05 (15 minutes) | Oliver Fiehn (Davis, USA) Sex-dependent plasma metabolome and its association with IMPC mouse phenotypes |
| 17:05 -17:20 (15 minutes) | Korbinian Riedhammer (Munich, Germany) FOXD2 as a candidate gene for a syndromic congenital disease of the kidney and urinary tract (CAKUT) |
| 17:20 -17:35 (15 minutes) | Jan Rozman (Prague, Czech Republic) High-throughput mouse phenotyping in IMPC for the discovery of novel gene functions linked to human metabolic disease |
| 17:35 - 18:25 (50 minutes) | Break E-poster viewing in the virtual E-POSTER AREA Charles River Laboratories and Tecniplast video viewing in the CORPORATE PARTNERS' VIDEO SHOWCASE |



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18:25 – 20:05

Session VIII: Mouse Genetics and Precision medicine

The wider translation impact of mouse genetics on genomic and precision medicine, including the utility of bringing diverse mouse resources to bear for the analysis of disease systems

CHAIR: Kent Lloyd

18:25 - 18:50
(25 minutes)

Janet Rossant (Toronto, Canada)

The ongoing role of mouse genetics in human precision health

18:50 - 19:15
(25 minutes)

Lucia Monaco (Milan, Italy)

Fostering progression from basic research to accessible diagnosis and therapies for rare diseases: the IRDiRC perspective

19:15 - 19:40
(25 minutes)

Hugo Bellen (Houston, USA)

Strategies in flies to diagnose rare diseases and enabling preclinical studies

19:40 - 20:05
(25 minutes)

Yann Herault (Strasbourg, France)

Investigating copy number variant diseases using mouse models from genetic dissection to preclinical proof of concept

20:05 - 20:20
(15 minutes)

Break

E-poster viewing in the virtual **E-POSTER AREA**

Charles River Laboratories and Tecniplast video viewing in the **CORPORATE PARTNERS' VIDEO SHOWCASE**

20:20 – 22:15

SESSION IX: Future challenges towards 2030

Discussion and presentations on challenges and priorities, including the dark genome, non-coding variation, epigenetics, and the environment

CHAIR: Yann Herault

20:20 - 20:45
(25 minutes)

Yong Tian (Peking, China)

Deciphering novel noncoding genes in mouse genome

20:45 - 21:10
(25 minutes)

Monica Justice (Toronto, Canada)

Far To Go: Deciphering genomic communication and networks in mammals

21:10 - 21:35
(25 minutes)

Len Pennacchio (Los Angeles, USA)

In Vivo Studies of Human Genome Function

21:35 - 22:00
(25 minutes)

Radislav Sedláček (Prague, Czech Republic)

Beyond the null allele: from gene variants to gene networks and environmental impact

22:00 – 22:15
(25 minutes)

Day 2 Wrap-up, Concluding Remarks, and Closing the Conference

Steve Brown, Yann Herault and Radislav Sedláček