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# Skirting Mendel: Non-Classical Mechanisms of Phenotypic Variation, Inheritance and Disease

March 15–19, 2020

Whistler Conference Centre, British Columbia, Canada

Recently, there have been new developments in the understanding of mechanisms that control non-genetic phenotypic variation. Referred to also as plasticity, incomplete penetrance or noise, these processes can impose dramatic shifts upon simple and complex genetic traits. Popularized examples include inter- / trans-generational reprogramming paradigms, twin disease discordance, polyphenism in insects (e.g., queen and worker bee), evolutionary capacitance, as well as bi-stability in transcriptional and biological networks.

The impact of phenotypic plasticity extends from transcriptional control to population dynamics, and evolution. Finally, figuring out how these impacts affect patient responsiveness and variable disease susceptibility will also help to provide a foundation for modern personalized medicine.

One unique aspect of this conference is that it will bring geneticists, chromatin biologists, (epi)genomicists, developmental biologists, mathematicians, physiologists, and a growing community of clinical scientists together for the first time as these researchers all study a component of the molecular mechanisms that establish, buffer and control phenotypic variation. Bringing such diverse disciplines together will help to enable partnerships that will catalyze understanding of trait and disease heterogeneity.



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**IMPORTANT DEADLINES**

**Scholarship Application:**  
November 12, 2019

**Discounted Abstract:**  
November 12, 2019

**Abstract:**  
December 11, 2019

**Discounted Registration:**  
January 15, 2020

**MEETING ORGANIZERS**

J. Andrew Pospisilik  
Anne C. Ferguson-Smith  
Ben Lehner



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## PLENARY SESSION TOPICS INCLUDE:

- Non-Mendelian Variation in Humans
- The Repeat Genome, Heritability and the Stabilization of Phenotypes
- Modelling Bi-Stability, Buffering, Bursting
- Mechanisms of Tuning Variation I – Quantitative in vivo Systems
- Inter- / Trans-Generational Mechanisms
- Histone based Mechanisms of Rewiring and Feedback
- Mechanisms of Tuning Variation II: Buffering and Canalizing Genetic Programs
- Rewire the Germline - Rewire the Zygote

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