

# ARMI EXTERNAL SEMINAR SERIES 2019



10 YEARS  
2009-19



## Engineering stem cell fate and function

Dr. Peter Zandstra

University of British Columbia

### Bio

Dr. Peter Zandstra graduated with a Bachelor of Engineering degree from McGill University in the Department of Chemical Engineering, and obtained his Ph.D. degree from the University of British Columbia in the Department of Chemical Engineering and Biotechnology, under the supervision of Jamie Piret and Connie Eaves. He continued his research training as a Post-Doctoral Fellow in the field of Bioengineering at the Massachusetts Institute of Technology (with Doug Lauffenburger) before being appointed to the University of Toronto in 1999.

His vision is to translate the biological properties and potential of stem cells into useful applications that benefit society. Zandstra has focused his career on the development of, and contributions to, the field of "Stem Cell Bioengineering", a term first used in a 2001 article by Zandstra and Nagy and which is defined as an endeavor focused on the quantitative control of stem cell fate and the development of technologies for stem cell-based therapies. "I believe that significant health and economic benefits of regenerative medicine requires the application of fundamental engineering principles to stem cell biology", says Zandstra.

An advocate for bioprocess engineering strategies and how these strategies have enabled the manufacture of many biotechnological products has significantly advanced the understanding of stem cell biology, immunology, and tissue regeneration. Most suggestively, how these biotechnology products can be translated into cellular therapies that could cure debilitating degenerative disease.

Research in the Zandstra Laboratory is therefore, focused on the generation of functional tissue from adult and pluripotent stem cells. His groups' quantitative, bioengineering-based approach strives to gain new insight into the fundamental mechanisms that control stem cell fate and to develop robust technologies for the use of stem cells and their derivatives to treat disease. Specific areas of research focus include blood stem cell expansion and the generation of cardiac tissue and blood progenitors from pluripotent stem cells.

## EVENT DETAILS

### DATE:

Tuesday, 28<sup>th</sup> May

### TIME:

1:00pm

### VENUE:

G19  
Ground Floor  
15 Innovation Walk  
Monash University  
Clayton Campus



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