

# ELIZABETH A.V. JONES

## **ACADEMIC EMPLOYMENT**

- |                        |   |
|------------------------|---|
| Jan 2014 - present     | <b>Associate Professor</b> , Department of Cardiovascular Science, KU Leuven, Leuven, Belgium   |
| Jan 2014 - present     | <b>Adjunct Professor</b> , Department of Chemical Engineering, Department of Biomedical Engineering & Lady Davis Institute, McGill University, Montreal, Qc |
| June 2013 – Dec 2013   | <b>Associate Professor</b> , Department of Chemical Engineering, McGill University, Montreal, Qc  |
| August 2010 – Dec 2013 | <b>Associate Member</b> , Department of Biomedical Engineering, McGill University, Montreal, Qc   |
| August 2007 – Jun 2013 | <b>Assistant Professor</b> , Department of Chemical Engineering, McGill University, Montreal, Qc  |

## **EDUCATION**

### **College de France**

*Post-doctoral Scholar (2005- 2007)*

- Research into the role of fluid flow in specification of arterial venous identity.
- Corresponding author from all papers from my post-doctorate.

### **California Institute of Technology**

*M.S. (2000-2002), PhD (2002-2005)*

- Research into effects of hemodynamic on developing mouse embryos.
- Developed culture technique to allow time-lapse microscopy of embryonic development.
- Developed techniques to measure the velocity profile of the blood in the early vasculature.
- Invited to write several book chapters on these techniques.

### **University of Waterloo**

*B.A.Sc. (1994-1999)*

- Consistently held average above 80% as well as achieving Dean's List for 3 terms.
- Placed first in class in two semesters.

## **SCHOLARSHIPS AND AWARDS**

- Canada Research Chair, valued at 500,000 CDN over 5 years. Held from August 2007, for a five-year period.
- Marie Curie Mobility Incoming International Fellowship, valued at 67,000 Euros. Held from July 2006, for a two-year period.
- Lefoulon Delalande Post-Doctoral Fellowship, valued at 27,480 Euros. Held from September 2005, for a one year period.
- America Heart Association Predoctoral Fellowship award, valued at 21,500 USD per year. Held from June 2003, for a two year period.
- Shell Doctoral Fellowship, covering 19,743 USD in tuition and a stipend of 15,000 USD. Held for the 2000-2001 academic year.

**PUBLICATIONS**

Peer-reviewed (Students under my supervision are underlined)

- Peacock HM, Caolo V, Jones EAV. "Arteriovenous malformations in Hereditary Haemorrhagic Telangiectasia: looking beyond ALK1-NOTCH interactions" **Cardiovasc Res**, accepted.
- Ghaffari S, Leask R, Jones EAV. "Flow Dynamics Control The Location of Sprouting and Direct Elongation During Developmental Angiogenesis." **Development**, accepted.
- Ghaffari S, Leask R, Jones EAV (2015). Simultaneous imaging of blood flow dynamics and vascular remodelling during development. **Development**, ePub, art.nr. dev.127019.
- Jahnsen E, Trindade A, Zaun H, Lehoux S, Duarte A, Jones EAV. (2015). Notch1 is pan-endothelial at the onset of flow and regulated by flow. **PLoS One**, 10 (4): e0122622.
- Vandersmissen I, Craps S, Depypere M, Coppiello G, van Gastel N, Maes F, Carmeliet G, Schrooten J, Jones EAV, Umans L, Devlieger R, Koole M, Gheysens O, Zwijsen An, Aranguren XL and Lutun A (2015) "Endothelial Msx1 transduces hemodynamic changes into an arteriogenic remodeling response" **J Cell Biol** 210(7): 1239-56.
- Praht C(\*), Kasaai B(\*), Moraes F, Jahnsen ED, Larrivee B, Villegas D, Pardanaud L, Pibouin-Fragner L, Zhang F, Zaun HC, Eichmann A(\*), Jones EA(\*) (2014) "The H2.0-like homeobox transcription factor modulates yolk sac vascular remodeling in mouse embryos" **Arterioscler Thromb Vasc Biol** 34(7): 1468-76. (\* equal contribution)
- Cooper S, Jonak P, Chouinard-Pelletier G, Coulombe S, Jones E, Leask RL (2013) "Permeabilization of Adhered Cells Using an Inert Gas Jet." **J Vis Exp** (79), e50612, doi:10.3791/50612.
- Cui C, Filla MB, Jones EA, Lansford R, Chevront T, Al-Roubaie S, Rongish BJ, Little CD (2013) "Embryogenesis of the First Circulating Endothelial Cells." **PLoS One** 8(5): e60841.
- Chouinard-Pelletier G, Jahnsen ED, Jones EAV (2013) "Increased Shear Stress Inhibits Sprouting Angiogenesis in Veins and Not Arteries" **Angiogenesis** 16(1): 71-83.
- Chouinard-Pelletier G, Leduc M, Guay D, Coulombe S, Leask RL, Jones EAV (2012) "Use of inert gas jets to measure the forces required for mechanical gene transfection." **Biomed Eng Onl** 11(67).
- Al-Roubaie S, Hughes J, Fila M, Lansford R, Lehoux S, Jones EAV (2012) "Imaging Macrophages During Embryonic Vascular Development." **Dev Dyn** 241 (9), 1423-1431.
- Henderson-Toth CE, Al-Roubaie S, Jamarani R, Jahnsen ED, Jones EAV (2012) "The Glycocalyx is Present As Soon as Blood Flow is Initiated and is Required for Normal Vascular Development." **Dev Biol** 369 (2), 330-339.
- Al-Roubaie S, Jahnsen ED, Henderson-Toth C, Jones EAV (2011) "Rheology of Embryonic Avian Blood" **Am J Physiol Heart Circ Physiol**. 301(6): H2473-81.
- Jones EA (2011) "The Initiation of Blood Flow and Flow Induced Events in Early Vascular Development" **Semin Cell Dev Biol**, 22(9):1028-35.
- Jones EA (2011) "Mechanical factors in the development of the vascular bed" **Respir Physiol Neurobiol** 178(1):59-65.
- Jones EA (2010) "Mechanotransduction And Blood Fluid Dynamics in Developing Blood Vessels" **Can J Chem Eng** 88: 136-143.
- Jones EAV (2009) "Vascular remodelling requires hemodynamic forces." **Jap Journ Exp Med** 27(11).
- Jones EA, Yuan, L., Breant, C., Watts, R. J. and Eichmann, A. (2008) "Separating genetic and hemodynamic defects in neuropilin 1 knockout embryos." **Development** 135: 2479-88.

- Lucitti J (\*), Jones EAV (\*), Huang C, Baron MH, Chen J, Fraser SE, Dickinson ME (2007) "Vascular remodeling of the mouse yolk sac requires hemodynamic force ." **Development** 134: 3317-3326 (\* shared first authors)
- Jones EAV, le Noble F, Eichmann A (2006) "What determines blood vessel structure? Genetic prespecification vs. hemodynamics." **Physiology** 21: 388-395.
- Jones EAV, Dickinson ME, Baron MH, Fraser SE (2004) "Dynamic In Vivo Imaging of Mammalian Hemato-Vascular Development Using Whole Embryo Culture" **Methods Mol Med** 105: 381-394.
- Fraser ST, Hadjantonakis AK, Sahr KE, Willey S, Kelly OG, Jones EA, Dickinson ME, Baron MH (2005) "Using a histone yellow fluorescent protein fusion for tagging and tracking endothelial cells in ES cells and mice." **Genesis** 42(3): 162-71.
- Jones EA, Baron MH, Fraser SE, Dickinson ME (2004) "Measuring hemodynamic changes during mammalian development." **Am J Physiol Heart Circ Physiol** 287(4): H1561-9.
- Jones EAV, Crotty D, Kulesa PM, Waters CW, Baron MH, Fraser SE, Dickinson ME (2002). "Dynamic in vivo imaging of postimplantation mammalian embryos using whole embryo culture;" **Genesis** 34(4):228-35.

#### Book Chapters

- Jones EAV, Hadjantonakis AK, Dickinson ME (2005) "Chapter 20: Imaging Mouse Embryonic Development" Imaging In Neuroscience and Development. Cold Spring Harbor Laboratory Press NY, Yuste R. (ed.).
- Jones EAV, Dickinson ME, Fraser SE (2002) "Static Culture of Postimplantation Embryos for Imaging", Manipulating the Mouse Embryo: A Laboratory Manual, Cold Spring Harbor Laboratory Press NY, Nagy A. et al. (ed.), pp244-246.

#### INVITED PRESENTATIONS

1. Department of Cardiovascular Research, Leeds University. Invited by Dr. D. Beech. September 2015.
2. Gordon Angiogenesis Conference. Invited by Dr. H. Gerhardt. August 2015.
3. 5<sup>th</sup> World Congress of Biomechanics. Invited by Dr. G. Dai. July, 2014.
4. 9<sup>th</sup> International Symposium on Biomechanics in Vascular Biology and Cardiovascular Disease Invited by Dr. S. Lehoux, April 2014
5. Canadian Association of Physicists Congress 2013 Invited by Dr. M. Martin. May 2013.
6. Experimental Biology 2013 Invited by Dr. G. Garcia-Cardenas. April 2013.
7. Steele Lab, Harvard Medical School. Invited by Dr. L. Munn. November, 2012.
8. Experimental Biology 2012 Invited by Dr. C. Little. April, 2012.
9. Cutting Edge Lecture Series 2011 This seminar series is open to the public and was created to foster communication between scientists in different disciplines as well as between scientists and the public. Invited by Ms. Kwadzo. October, 2011
10. Department of Chemical Engineering, Clarkson University. Invited by Professor R. Taylor. January, 2011.
11. INSERM U702, Hôpital Tenon. Invited by Dr. P. Ronco. December, 2010.
12. INSERM U833, College de France. Invited by Dr. A. Eichmann. December, 2010.
13. Department of Chemical Engineering, University of Waterloo, Invited by Dr. J. Soares. November, 2008.
14. Department of Anatomy and Cell Biology, Kansas City Medical Center. Invited by Dr. C. Little. September, 2008.
15. Instituto Gulbenkian de Ciencia. Invited by Ms. F. Morales. May, 2007.
16. 5<sup>th</sup> World Congress of Biomechanics. Invited by Dr. A. Pries. August, 2006.

17. Institut Pasteur. Invited by Dr. J.F. Nicolas. January, 2006.

#### **EDITORSHIP**

##### **Canadian Journal of Chemical Engineering** (Sept 2009-September 2012)

- Guest editor for biomedical engineering.
- Special series on the role of chemical engineering in biomedical research.

#### **CONFERENCE ORGANIZATION/CHAIRING**

- Organizing committee of the 9<sup>th</sup> international symposium on biomechanics in vascular biology and cardiovascular disease.
  - Responsible for website and registration/abstract submission.
  - Member of committee for selection of keynotes and invited talks.
- Session organizer for Experimental Biology 2012 in San Diego, CA.
  - Recruited speakers, selected abstracts and chaired session entitled "Bioengineering Principles During Development".
- Member of the Organizing Committee for Montreal Light Microscopy Course
  - Light microscopy course includes both classroom instruction and hands-on experience.
  - Helped establish course content.
  - Teaching class on in vivo imaging and photo-toxicity.
- Organizing committee of the World Congress of Chemical Engineering held August 2009.
  - Developed undergraduate student program for conference.
  - Conference was attended by 350 students (approximately 25% of which are international students).
  - Organized 2<sup>nd</sup> International ChemE Car Competition which was also the first time Canada held this competition. Teams from 6 different countries are attended (Australia, Malaysia, Mexico, Iran, USA & Canada).

#### **PROFESSIONAL AFFILIATIONS**

- Belgian Society for Cell and Developmental Biology (2014-present)
- North American Vascular Biology Organization (2006-present)
- American Association of Anatomist (2010-present)
- Canadian Society of Atherosclerosis Thrombosis, and Vascular Biology (2008-2013)
- Ordre des Ingénieurs du Québec (OIQ# 123042, 2007- 2013)
- Canadian Society of Chemical Engineering (2003-2013)

#### **TEACHING**

##### **Courses Taught**

##### CHEE291 "Instrumentation and Measurement Labs" (Fall 2007-2011)

- Course teaches an introduction to instrumentation and consists of 3 hours per week of class time, 4 laboratory exercise and a final project in LabView.
- Class taken by first year undergraduates with a class size between 80-110 students.
- Developed and included a new LabView project in the class.

##### CHEE370 "Elements of Biotechnology" (Fall 2007-present)

- Course is the first in a series of two courses on biotechnology. It consists of 3 hours per week of class time and 1 laboratory exercise.
- Class taken by first year undergraduates with a class size between 80-100 students.
- Developed and included a new lab in the class.

CHEE562 “Engineering Principles in Physiology” (Winter 2008-present)

- This course teaches physiology to upper year engineers that are interested in biomedical engineering. It consists of 3 hours per week of class time and a final project.
- Class is taken by upper year undergraduates as a technical complementary or by graduate students. The class size between 15-25 students.
- New course, developed by myself

CHEE651 “Advanced Biochemical Engineering” (Winter 2011-present)

- This course teaches advanced biochemical engineering principles to graduate students. It consists of 3 hours per week of class time, a laboratory and a final project.
- The course is part of the “Chemical Engineering Fundamentals” courses which must be taken by graduate students.
- New course, developed by myself and Prof. Richard Leask.

**Guest Lecturing**

BIEN 320 Molecular, Cellular and Tissue Biomechanics

- Guest lecture (3h) on membrane potentials and how neurons fire.

BMDE 501 Selected Topics in Biomedical Engineering

- Taught biomechanics during development (one 90 minute class per year).
- Supervised one student’s final project.

PHGY516 Physiology of Blood

- Guest lecture (3h) on the role of circulating endothelial cells in blood.

**Awards, Distinctions, Coursework**

- Attended the Teaching and Learning Center’s Course Design Workshop (December 2010).
- Awarded Professor of the Year 2009 by the undergraduate student society.
- Nominated by the student for the Faculty Outstanding Teaching Award in 2010.
- Awarded Most Involved Professor 2011 by the undergraduate student society.