Workshop III: Angiogenesis, NeoVascularization and Morphogenesis

Monday May 8, 2006

8:00–8:45 *Check-In/Light Breakfast (Hosted by IPAM)*

8:45–9:00 *Welcome and Opening Remarks*

9:00–10:00 **Howard Levine** (Iowa State University)
Angiogenesis-A biochemical/mathematical perspective

10:00–10:30 *Break*

10:30–11:30 **Celeste Simon** (University of Pennsylvania)
Hypoxia, HIF, and Angiogenesis

11:30–2:00 *Lunch (on your own)*

2:00–3:00 **Mary Wheeler** (University of Texas at Austin)
Finite Element Modeling of Angiogenesis I

3:00–3:30 *Break*

3:30–4:30 **Mandri Obeyesekere** (University of Texas M. D. Anderson Cancer Center)
Finite Element Modeling of Angiogenesis II

4:30–5:30 **Daphne Manoussaki** (Vanderbilt University)
A mathematical study of vascular network formation

5:30–7:00 *Reception (Location: IPAM Lobby)*

Tuesday May 9, 2006

8:00–9:00 *Continental Breakfast*

9:00–10:00 **Steven McDougall** (Heriot-Watt University, Riccarton Campus)
Mathematical Modelling of Dynamic Adaptive Tumour-Induced Angiogenesis: Clinical Implications and Therapeutic Targeting Strategies

10:00–10:30 *Break*

10:30–11:30 **Didier Stainer** (University of California, San Francisco)

11:30–2:00 *Lunch (on your own)*

2:00–3:00 **Roeland Merks** (Ghent University)
Cell-centered modeling of blood vessel development: how do endothelial cells self-organize into vascular patterns?

3:00–3:30 *Break*

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3:30–4:30 **Charles Little** (University of Kansas Medical Center)
THE EFFECTS OF TISSUE DEFORMATIONS ON MESODERMAL CELL MIGRATION AND VASCULAR PATTERNING DURING EARLY EMBRYOGENESIS

4:30–5:30 **Nathaniel Whitaker** (University of Massachusetts Amherst)
A Mathematical Model of Tumor Growth with inhibitors

Wednesday May 10, 2006

8:00–9:00 *Continental Breakfast*

9:00–10:00 **John Dallon** (Brigham Young University)
Modeling Cell-Cell Interactions and Motion with Discrete Viscoelastic Ellipsoids

10:00–11:00 **Rocio Sierra-Honigmann** (Cedars-Sinai Medical Center)
Wound Healing: The Archetype of Regulated Angiogenesis

11:00–11:30 *Break*

11:30–12:30 **Jeffrey Essner** (Iowa State University)
Cell signaling, endothelial migration, and zebrafish: a simplified model for angiogenesis

12:30–2:00 *Lunch (on your own)*

2:00–3:00 **Bill Tawil** (Baxter BioSurgery)
Fibrin in Angiogenesis/ Wound Healing

3:00–3:30 *Break*

3:30–4:30 **Aleksander Popel** (Johns Hopkins University)
Building multi-scale integrative computational models of angiogenesis

4:30–6:00 *Dinner (Hosted by IPAM)*

Thursday May 11, 2006

8:00–9:00 *Continental Breakfast*

9:00–10:00 **Alexander Anderson** (University of Dundee)
From Continua to Cells: Applications of the Hybrid Modelling Technique in Cancer

10:00–10:30 *Break*

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10:30–11:30 **Luisa Iruela-Arispe** (UCLA)
Architecture of a Vascular Network: wide or thin, slim or branchy. What are the factors that regulate vascular patterning?

11:30–2:00 *Lunch (on your own)*

2:00–3:00 **Sharon Lubkin** (North Carolina State University)
Quantifying vasculature: old measures reinterpreted

3:00–3:30 *Break*

3:30–4:30 **Bruce Ayati** (Southern Methodist University)
Computational Methods and Results for Structured Multiscale Models of Tumor Invasion

4:30–5:30 **Victoria Bautch** (University of North Carolina)
Integration of Cell Division and Morphogenesis in Developing Vessels

Friday May 12, 2006

8:00–9:00 *Continental Breakfast*

9:00–10:00 **Don Sakaguchi** (Iowa State University)
Manipulating the microenvironment to influence neural stem cell differentiation

10:00–10:15 *Break*

10:15–11:15 **George Davis** (Texas A&M University - College Station)
Endothelial cell tube formation and stabilization in 3D matrices

11:15–11:30 *Break*

11:30–12:30 **Yi Jiang** (Los Alamos National Laboratory)
A Cell-Based Model of Tumor Induced Angiogenesis