**Computational Cardiovascular Science Workshop**

**www.cs.ox.ac.uk/ccs**

**Computational Technologies in Biomedicine and Pharmacology**

September 17th, 2014

Lecture Theatre B, Department of Computer Science, Oxford

**9:00-9:15. *Welcome and Introduction.***

**Blanca Rodriguez**, Wellcome Trust Senior Research Fellow in Basic Biomedical Science,

Professor of Computational Medicine, Department of Computer Science, University of Oxford.

**9:15- 10:45. *In vivo* Human Cardiovascular Science. Chair: Pier Lambiase,** Reader in Cardiac Electrophysiology, The Heart Hospital, University College London.

*9:15-9:35. In vivo human electrophysiology in healthy and diseased ventricles.*

**Peter Taggart**,Professor of Cardiac Electrophysiology,The Heart Hospital, University College London

*9:35-9:55. Multi-modalities Cardiac Imaging in Hypertrophic Cardiomyopathy.*

**Rina Ariga**,Cardiologist, Cardiovascular Medicine, John Radcliffe Hospital, University of Oxford

*9:55-10:25. Computational Imaging for Ventricular Structural Characterisation.*

**Vicente Grau,** Associate Professor in Computational Imaging, Institute of Biomedical Engineering, University of Oxford

*10:25-10:45. Human ECG computational analysis and modelling.*

**Ana Minchole**, Marie Curie Fellow, Department of Computer Science, University of Oxford

**10:45-11:15. BREAK**

**11:15- 13:15. *In vitro/In Silico* Human Cardiovascular Science. Chair: Andy Tinker,** Chair of Cardiac Electrophysiology, Queen Mary, University of London.

*11:15-11:35. Human Ventricular Tissue Electrophysiology and Pharmacology.*

**Andras Varro**,Head of Pharmacology,University of Szeged

*11:35-11:55. Experimentally-calibrated Human Ventricular Populations of Models and the Virtual Assay software.*

**Oliver Britton**,DPhil Student, Department of Computer Science, University of Oxford

*11:55-12:15. Stem cells for inherited cardiac disease.*

**Matt Daniels**, Wellcome Trust Intermediate Clinical Fellow, Radcliffe Department of Medicine, University of Oxford

*12:15-12:35. Computer models of stem cells and mutations.*

**Stefano Severi**, Associate Professor of Biomedical Engineering, University of Bologna

*12:35-12:50. Stem cell Research and Safety Pharmacology at Janssen: focus on drug-induced chronic cardiac effects.*

**Ivan Kopljar**, Postdoctoral Researcher, Janssen Pharmaceuticals

*12:50-13:10. Successes and challenges of employing in-silico models for investigating the cardiotoxic potential of novel therapeutics.*

**Najah Abi Gerges,** Associate Principal Scientist, AstraZeneca

**13:10-14:15. LUNCH BREAK**

**14:15- 15:45. Arrhythmias: Mechanisms and Biomarkers. Chair: Alfonso Bueno-Orovio, Senior Scientist, Department of Computer Science, University of Oxford.**

*14:15-14:35. Potassium channels, mutations and Arrhythmias.*

**Stephen Harmer**, British Heart Foundation Fellow, Queen Mary, University of London

*14:35-14:50. Class III Drugs in acute ischaemia: Anti-arrhythmic and pro-arrhythmic mechanisms.*

**Sara Dutta**,PhD Student, Department of Computer Science, University of Oxford. Food and Drug Administration, Division of Drug Safety Research, USA.

*14:50-15:05. Computational detection of arrhythmia episodes in Electrocardiograms.*

**Julien Oster,** Postdoctoral Researcher, Institute of Biomedical Engineering, University of Oxford

*15:05-15:20. Human calcium dynamics and alternans in repolarization.*

**Xin Zhou**, PhD Student, Department of Computer Science, University of Oxford

*15:20-15:45. A new, non-invasive and translational biomarker- index of cardiac electrophysiological balance (iCEB) in drug and ischemia-induced cardiac arrhythmias and in genetic LQTs and Brugada syndrome.*

**Hua Rong Lu**,Principal Scientist,Janssen Pharmaceutical NV

**15:45-16:15. BREAK**

**16:15- 17:30. Beyond the human ventricles. Chair: Mark Davies. Senior Scientist, Department of Computer Science, University of Oxford.**

*16:15-16:35. CiPA and Cardiovascular Challenges in Safety Pharmacology and Toxicology.*

**Jean Pierre Valentin**, Senior Director, Head of Investigative Toxicology,UCB

*16:35-16:55. High speed, high resolution optical mapping of cardiac-neuronal networks.*

**Rebecca Burton**, Sir Paul Nurse Jr Research Fellow, Department of Physiology, Anatomy and Genetics, University of Oxford

*16:55-17:15. Human-relevant safety and efficacy data at the preclinical stage.*

**Andrea Ghetti**, CEO, AnaBios Corporation.

**17:15-18:00. FINAL DISCUSSIONS AND CLOSING REMARKS. Chair: Annamaria Carusi. Associate Professor of Philosophy of Medical Science and Technology**

**20:00. DINNER**

**PARTICIPANTS**

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| **AnaBios Corporation**Andrea Ghetti**AstraZeneca**Najah Abi-Gerges, James Sidaway**Audacter Consulting**Rob Towart, Hillary Little**Eisai Co., Ltd.**Megumi Ikemori (Kawada)**Fraunhofer Chalmers Centre**Mikael Wallman**GlaxoSmithKline**Kate Harris**Isis Innovation**Fred Kemp, Matthew Carpenter**Janssen Pharmaceuticals**Hua Rong Lu, Ivan Kopljar**Kings College London**Pablo Lamata**MedImmune**Mark Penney**Notocord**Philippe Zitoun, Eliot Tixier**Novartis**Berengere Dumotier**Oxford Computing Consultants**Neil Bevis, James Greig, Reynold Greenlaw; Robert Pym, Mariana Morris, Mark Tolley**Polytechnic University of Valencia**Alejandro Liberos, Javier Saiz**Queen Mary University, London**Stephen Harmer, Andrew Tinker**UCB**Jean Pierre Valentin, Parsa Akbari | **University College London, The Heart Hospital**Ben Hanson, Pier LambiaseMichele Orini, Peter Taggart, Stefan Van Duijvenboden**University of Copenhagen**Annamaria Carusi**University of Zaragoza**Pablo Laguna, Esther Pueyo**University of Bologna**Elisa Passini, Stefano Severi**University of Szeged**Andras Varro**University of Oxford, Department of Cardiovascular Medicine, John Radcliffe Hospital**Rina Ariga, Erica Dall'Armellina, Matthew Daniels, Dan Liu, Xing Liu, Darryl Mcclymont, Irvin The, Cameron Turtle**University of Oxford, Department of Pharmacology**Derek Terrar**University of Oxford, Department of Physiology, Anatomy and Genetics**Suhail Aslam, Rebecca Burton, Rebecca Capel, Neil Herring, Hege Larsen, Dan Li, Julia Shanks, Yrsa Sverrisdottir**University of Oxford, Institute of Biomedical Engineering, Department of Engineering**Jo Bates, Valentina Carapella, Ramon Casero, Alexander Corbett, Johanna Ernst, Vicente Grau, Chris Kelly, Julien Oster**University of Oxford, Department of Computer Science**Patricia Benito, Oliver Britton, Alfonso Bueno-Orovio, Louie Cardone-Noott, Mark Davies, Sara Dutta, Phil Gemmel, Asger Haugaard, Ana Minchole, Anna Muszkiewicz, Andrew Parker, Blanca Rodriguez, Frances Wheare, Xin Zhou**University of Oxford, MPLS Business Development**Samantha Gallagher**Tampere University**Michelangelo Paci |

**POSTER PRESENTATONS**

***“Probabilistic Computational Assessment of Arrhythmic Risk in Post-Myocardial Infarction
Human Ventricles****”. M. Wallman, A. Bueno and B. Rodriguez.*

**“Image-based electromechanical models of the left ventricle: relating structure to function”.** V. Carapella. *R. Bordas, P. Pathmanathan, M. Lohezic, J. E. Schneider, P. Kohl, K. Burrage, V. Grau*

**"Late Sodium Block Counteracts Alternans and EADs in Human Hypertrophic Cardiomyopathy"** E. Passini, A. Bueno-Orovio, A. Minchole , R. Coppini, E. Cerbai, S. Severi and B. Rodriguez.

**“Constructing Human Atrial Electrophysiological Models Mimicking a Patient-Specific Cell Group”**

A. Muszkiewicz, A. Bueno-Orovio, X. Liu, B. Casadei, and B. Rodriguez