Chaste Cell–Based Modelling Workshop

## Department of Computer Science
## University of Oxford
4–6 January 2012

Overview Biological problems are intrinsically multi-scale, with processes occurring on many disparate spatial and temporal scales. Chaste is an open-source framework for the computational modelling of multi-scale biological systems. It is developed in object oriented C++ using an agile approach. All software is tested, robust, reliable and extensible. Chaste includes tools to visualise, analyse and automatically curate and store simulation results, thus expediting model development.

Goal This workshop will teach the basics of multi-cell, multi-scale modelling using Chaste. Via lectures and hands-on exercises, participants will learn how to implement and run simulations of several model biological systems. Time is also reserved for participants to receive help in how to use Chaste in their own research. By the end of the workshop, participants will know the functionality of Chaste and will be able to use it for their own simulations.
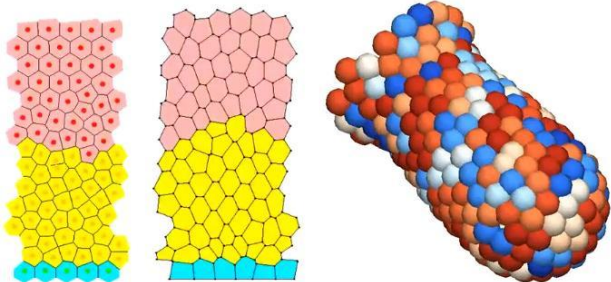
Fees and support There is no registration fee for the workshop. Workshop materials, lunches and workshop dinner will be provided. Partial support for travel and accommodation costs may be available

Registration Attendance at the workshop is limited and by application only. Please visit http://www.cs.ox.ac.uk/chaste/workshop.html to complete an application form, where further details for how to apply for financial support may also be found. Applications close on **1st October 2011**. For more information, please contact the workshop organisers at chaste_workshop@cs.ox.ac.uk.
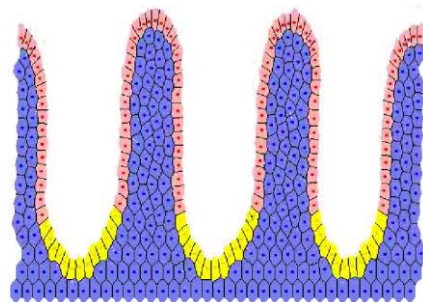
Format Day 1: Introduction to Chaste; configuring and running *in silico* experiments using a cell centre-based model of soft tissue. Day 2: Editing and writing Chaste code; exploring on-/off-lattice modelling paradigms with Chaste; how multiple rules may be defined for cell-cell/cell-substrate interactions and how these may be coupled to sub-cellular models. Day 3: Further work on tutorial examples; help on installing Chaste on participants' own computers; opportunity to use Chaste developers' expertise to begin writing computational models for use in participants' own research.

Target audience and background Mathematical and computational modellers and experimental scientists, who are interested in developing, or learning more about, multi-scale computational cell based models. To get the most out of the workshop participants should have a working knowledge of C++ and some experience of modelling in the life sciences; to aid participants, preparatory resources will be provided prior to the workshop.

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