

Dr Alexander Fletcher

THE UNIVERSITY OF OXFORD

e-mail: alexander.fletcher@maths.ox.ac.uk

Modelling biological systems in Chaste: an overview

Computational models of a variety of biological processes have been implemented within the Chaste framework (<http://web.comlab.ox.ac.uk/chaste>). In this, the second talk of the mini-symposium, we provide an overview of this work, focusing in particular on models of the intestinal crypt. We discuss how multiscale modelling may be used to gain insight into processes such as crypt homeostasis, monoclonal conversion and the effect of dysregulated proliferation and adhesion on crypt dynamics. We also demonstrate how the generality of the Chaste framework allows a quantitative comparison to be made of different cell-based modelling frameworks. We conclude with a discussion of other biological systems that are being modelled within Chaste.