Robert J. Noble
robijohnnoble.github.io
scholar.google.com/citations?user=lDDprHkAAAAJ

Research interests
Using mathematical and computational models to investigate the evolution and ecology of cancer.

Academic employment
2020- Department of Mathematics, City, University of London
Lecturer in Applied Mathematics
2018-2020 Department of Evolutionary Biology and Environmental Studies, University of Zurich
Postdoctoral researcher (20% contract) advised by Hanna Kokko
2017-2020 Department of Biosystems Science and Engineering, ETH Zurich
Postdoctoral researcher (80% contract from May 2018) advised by Niko Beerenwinkel
2014-2017 Institut des Sciences de l’Evolution de Montpellier (ISEM)
Postdoctoral researcher advised by Michael Hochberg

Education
2009-2014 DPhil, Mathematical biology, University of Oxford
Supervisors: Sunetra Gupta and Mario Recker
1999-2003 Master of Mathematics (First Class), University of York

Publications
* denotes equal contributions

Accepted

Inferring the dynamic of mutated hematopoietic stem and progenitor cells induced by IFNα in myeloproliferative neoplasms
Mosca M*, Hermange G*, Tisserand A*, Noble R*, ..., Plo I

2021
Paracrine behaviors arbitrate parasite-like interactions between tumor subclones
Noble R, Walther V, Roumestand C, Hochberg ME, Hibner U, Lassus P

2021
A theoretical analysis of tumour containment
Viossat Y, Noble R

2020
Identifying key questions in the ecology and evolution of cancer
Dujon A, ..., Noble R, ..., Thomas F, Ujvari B

2020
When, why and how clonal diversity predicts survival
Noble R*, Burley JT*, Le Sueur C, Hochberg ME

2017
Spatial competition constrains resistance to targeted cancer therapy
Bacevic K*, Noble R*, Soffar A, Ammar OW, Boszonyik B, Prieto S, Vincent C, Hochberg ME, Krasinska L, Fisher D

2017
Antibiotic stress selects against cooperation in the pathogenic bacterium Pseudomonas aeruginosa
Vasse M*, Noble R*, Akhmetzhanov AR, Torres-Barceló C, Gurney J, Simon Benateau, Gouat-Barbera C, Kaltz O, Hochberg ME

2017
A framework for how environment contributes to cancer risk
Hochberg ME, Noble R

2016
Overestimating the role of environment in cancers
Noble R, Kaltz O, Nunney L, Hochberg ME

2015
Peto's paradox and human cancers
Noble R, Kaltz O, Hochberg ME

2013
The antigenic switching network of Plasmodium falciparum and its implications for the immuno-epidemiology of malaria

Blood
Front. Ecol. Evol. 9:675638
Nature Ecol. Evol. 5, 826-35
Evol. Appl. eva.13190
Evol. Appl. eva.13057
Nature Commun. 8, 1995
PNAS 114, 546-51
Ecol. Lett. 20, 117-34
Cancer Prev. Res. 9, 773-6
Phil. Trans. B 370, 20150104
eLife 2013.2:e01074
Noble R*, Christodoulou Z*, Pinches R, Kyes S, Recker M, Newbold CI

2012 Erasing the Epigenetic Memory and Beginning to Switch—The Onset of Antigenic Switching of var Genes in Plasmodium falciparum PLoS ONE 7, e34168
Fastman Y, Noble R, Recker M, Dzikowski R

2012 A statistically rigorous method for determining antigenic switching networks PLoS ONE 7, e39335
Noble R, Recker M

Submitted for publication

Submitted Drug-induced resistance evolution necessitates less aggressive treatment bioRxiv 10.1101/2020.10.07.330134
Kuosmanen T, Cairns J, Noble R, Beererwinkel N, Mononen T, Mustonen V
Submitted Spatial structure governs the mode of tumour evolution bioRxiv 10.1101/586735
Noble R, Burri D, Le Sueur C, Lemant J, Viossat Y, Kather JN, Beererwinkel N

Software

2017 ggmuller: Create Muller Plots of Evolutionary Dynamics CRAN
2019 demon: Deme-based oncology model GitHub

Teaching

2020- Supervision (City, University of London)
PhD primary supervisor, Veselin Manojlovic
PhD primary supervisor, Blair Colyer
PhD secondary supervisor, Youssef Arafat
PhD secondary supervisor, Hasan Haq
Lecturing and tutoring as module leader (City, University of London)
Mathematical processes for finance (BSc)

2017- Supervision (ETH Zurich)
2020 Second year MSc thesis, Alexander Stein (next step: PhD at QMUL)
Second year MSc thesis, Jeanne Lemant (next step: research scientist at Swiss TPH)
Second year MSc thesis, Dominik Burri (next step: PhD at University of Basel)
Research internship (eight months), Cécile Le Sueur (next step: PhD at EMBL)
Lecturing and tutoring assistance (ETH Zurich)
Evolutionary dynamics (MSc three terms)

2016 Supervision (ISEM)
First year MEME MSc project, John Burley (next step: PhD at Brown University)

2010- Supervision (University of Oxford)
2013 Second year BSc project, Charlotte Ward
Tutoring (University of Oxford)
Quantitative Methods (BSc two terms)
Demonstrating (University of Oxford)
Quantitative Methods (BSc; three terms); Epidemiology (BSc; two terms); Epidemiological Models (MSc one term)

Funding and awards

$150K personal funding for 2020-2023 from the NCI, via the Arizona Cancer Evolution Center
Co-awardee of Fondation Mathématique Jacques Hadamard grant Optimization of a new type of cancer therapy (€5K to support international collaboration in 2019-2020)
Biotechnology and Biological Sciences Research Council PhD fellowship 2009-2013
Travel grants: Lorentz Center 2017; Moffitt Cancer Center 2015; ECMTB 2011
City University Images of Research Competition 2020-21: First prize (£250)
Professional activities

Elected Advisory Committee member of the International Society for Evolution, Ecology and Cancer 2018-21

Guest Associate Editor: PLoS Computational Biology

Reviewer: American Naturalist, Cancer Research, Evolutionary Applications, F1000Research, Frontiers Ecology and Evolution, Journal of Theoretical Biology, Nature Communications, Nature Ecology & Evolution, Nature Genetics, npj Genomic Medicine, PLoS Computational Biology, PNAS, Proceedings of the Royal Society B, Royal Society Open Science, Scientific Reports

Co-organizer: “Cancer Adaptive Therapy Models” workshop (2020); “Aging & cancer through the lens of evolution” symposium (ESEB conference 2019); “How does spatial structure affect tumour evolution?” symposium (MBE conference 2017)

Other employment

2008-2009 International HIV/AIDS Alliance: Communications

2004-2008 AVERT (HIV/AIDS charity): Science/health communication and web development

Invited departmental seminars

Sept 2020 Characterizing and forecasting tumour evolution
Cancer Research UK Cambridge Institute (virtual, hosted by Florian Markowetz)

Jun 2020 Characterizing and forecasting tumour evolution
Virtual Seminar on Modeling Biocomplexity (hosted by Andreas Deutsch)

May 2020 Characterizing and forecasting tumour evolution
Moffitt Cancer Center (virtual, hosted by David Basanta)

Jan 2020 Cancer: evolution, ecology and bad luck
University of Bath (hosted by Ben Ashby)

Dec 2019 The logic of containing tumours
University of Oxford (hosted by Eamonn Gaffney)

Sep 2019 Cancer: evolution, ecology and bad luck
University of Southampton (hosted by Lindy Holden-Dyé)

Feb 2019 Characterising the evolutionary modes of cancer and normal tissue
TU Dresden (hosted by Andreas Deutsch)

Mar 2018 Characterising the evolutionary modes of cancer and normal tissue
University of Basel (hosted by Richard Neher)

Feb 2018 The mode and predictability of intra-tumour evolution
Wellcome Sanger Institute (hosted by Iñigo Martincorena)

Dec 2017 The mode and predictability of intra-tumour evolution
Boston University (hosted by Kirill Korolev)

Nov 2017 Spatial constraints on intratumour evolution
Harvard University (hosted by Martin Novak)

Mar 2017 Models for understanding tumour evolution and improving cancer therapy
University of Edinburgh (hosted by Bartlomiej Waclaw)

Mar 2017 Evolution, ecology, and cancer risk: from naked mole rats to modern humans
Chalmers University (hosted by Philip Gerlee)

Sep 2016 Cancer: evolution, ecology and bad luck
Harvard University (hosted by Martin Novak)

Feb 2015 Data-based modelling of tumour evolution
Moffitt Cancer Center (hosted by Robert Gatenby)

Conference talks

Jul 2021 The evolutionary logic of tumour containment
International Society for Evolution, Medicine & Public Health conference (virtual)

Jun 2021 The evolutionary logic of tumour containment
Evolution conference (virtual)

Jun 2021 Explaining modes of tumour evolution
Society for Mathematical Biology conference (virtual)

Dec 2020  *The logic of containing tumours*
Cancer Adaptive Therapy Models workshop (virtual)

Oct 2020  *Characterizing and forecasting tumour evolution*
International Symposium on Mathematical and Computational Oncology (virtual)

Aug 2020  *The logic of containing tumours*
Invited talk at the Society for Mathematical Biology conference (virtual)

Aug 2019  *Spatial competition constrains resistance to targeted cancer therapy*
International Society for Evolution, Medicine & Public Health conference, Zurich

Jul 2019  *Spatial structure governs the mode of tumour evolution*
Intelligent Systems for Molecular Biology / European Conference on Comp. Biology, Basel

Jun 2019  *Spatial structure governs the mode of tumour evolution*
Modelling Ecology & Evolution Zurich seminar, Zurich

Sep 2018  *Characterising the evolutionary modes of cancer and normal tissue*
Evolutionary Models of Structured Populations workshop, Plön

Dec 2017  *Spatial competition constrains resistance to targeted cancer therapy*
International Society for Evolution, Ecology and Cancer Conference, Tempe

Oct 2017  *Impact of tissue architecture on the nature and predictability of tumour evolution*
Satellite Symposium to the Louis-Jeantet Symposium, Geneva

Sep 2017  *Impact of tissue architecture on the nature and predictability of tumour evolution*
Basel Computational Biology Conference, Basel

Jul 2017  *Impact of tissue architecture on the nature and predictability of tumour evolution*
Intelligent Systems for Molecular Biology / European Conference on Comp. Biology, Prague

Apr 2017  *Evolutionary ecology of senescence and cancer risk: from naked mole rats to modern humans*
Modelling Biological Evolution conference, Leicester

Nov 2016  *Controlling drug resistance with adaptive therapy*
Invited talk at the second Modeling Tumour Evolution conference, Bielefeld

Sep 2016  *Cancer: evolution, ecology and bad luck*
Invited talk at the first Modelling Tumour Evolution conference, Bielefeld

Jul 2016  *Cancer risk: evolution, ecology and bad luck*
Joint Meeting of ESMTB & Society for Mathematical Biology, Nottingham

Dec 2015  *Peto's paradox and human cancers*
Third International Biannual Evolution and Cancer Conference, San Francisco

Sep 2015  *Modelling ecological interactions of cancer clones*
Cancer Evolution Through Space and Time workshop, Plön

Apr 2015  *Eco-evolutionary models of tumour heterogeneity*
Invited talk at the Modelling Biological Evolution conference, Leicester

June 2011  *Using iterative methods to determine an antigenic switching network in Plasmodium falciparum*
European Conference on Mathematical and Theoretical Biology, Krakow

May 2011  *Determining the switch pathway of the var gene repertoire of Plasmodium falciparum*
Biology and Pathology of the Malaria Parasite, Heidelberg