

Robert J. Noble

robjohnnoble.github.io

scholar.google.com/citations?user=IDDprHkAAAAJ

Academic employment

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

Education

- Oct 2009- Department of Zoology, **University of Oxford**
Jan 2014 DPhil: *Antigenic variation and its evolution in P. falciparum malaria*
Supervisors: **Sunetra Gupta** and **Mario Recker**
- Oct 1999- University of York
Jul 2003 Master of Mathematics (First Class)

Publications

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|------|--|--|
| 2020 | <i>When, why and how clonal diversity predicts survival</i>
Noble R* , Burley JT*, Le Sueur C, Hochberg ME (* equal contributions) | Evol. Appl.
eva.13057 |
| 2017 | <i>Spatial competition constrains resistance to targeted cancer therapy</i>
Bacevic K*, Noble R* , Soffar A, Ammar OW, Boszonyik B, Prieto S, Vincent C, Hochberg ME, Krasinska L, Fisher D (* equal contributions) | Nature Commun.
8, 1995 |
| 2017 | <i>Antibiotic stress selects against cooperation in the pathogenic bacterium Pseudomonas aeruginosa</i>
Vasse M*, Noble R* , Akhmetzhanov AR, Torres-Barceló C, Gurney J, Simon Benateau, Gougat-Barbera C, Kaltz O, Hochberg ME (* equal contributions) | PNAS
114, 546-51 |
| 2017 | <i>A framework for how environment contributes to cancer risk</i>
Hochberg ME, Noble R | Ecology Letters
20, 117-34 |
| 2016 | <i>Overestimating the role of environment in cancers</i>
Noble R , Kaltz O, Nunney L, Hochberg ME | Cancer Prev. Res.
9, 773-6 |
| 2015 | <i>Peto's paradox and human cancers</i>
Noble R , Kaltz O, Hochberg ME | Phil. Trans. B
370, 20150104 |
| 2013 | <i>The antigenic switching network of Plasmodium falciparum and its implications for the immuno-epidemiology of malaria</i>
Noble R* , Christodoulou Z*, Pinches R, Kyes S, Recker M, Newbold CI (* equal contributions) | eLife
2013.2:e01074 |
| 2012 | <i>Erasing the Epigenetic Memory and Beginning to Switch—The Onset of Antigenic Switching of var Genes in Plasmodium falciparum</i>
Fastman Y, Noble R , Recker M, Dzikowski R | PLoS ONE
7, e34168 |

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

Submitted for publication

Submitted *Drug-induced resistance evolution necessitates less aggressive treatment* **bioRxiv** 10.1101/
 Kuosmanen T, Cairns J, **Noble R**, Beerenwinkel N, Mononen T, Mustonen V 2020.10.07.330134

In revision *The logic of containing tumors* **bioRxiv** 10.1101/
 Viossat Y, **Noble R** 2020.01.22.915355

Submitted *Spatial structure governs the mode of tumour evolution* **bioRxiv** 10.1101/
Noble R, Burri D, Le Sueur C, Lemant J, Viossat Y, Kather JN, 586735
 Beerenwinkel 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, Veselin Manojlovic

2017- **Supervision (ETH Zurich)**
 2020 Second year MSc thesis, Alexander Stein (next step: in progress)
 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 (ETH Zurich)
 Evolutionary dynamics (MSc three terms; group tutorials, setting and marking exercises, self-authored two-hour lecture)

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

€140K 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

Professional activities

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

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

Symposia: Co-organizer of “How does spatial structure affect tumour evolution?” (MBE conference 2017); co-organizer of “Aging & cancer through the lens of evolution” (ESEB conference 2019)

Other employment

Dec 2008- **International HIV/AIDS Alliance, Preece House, Hove, BN3 1RE**
Sep 2009 Communications

Aug 2004- **AVERT, 4 Brighton Road, Horsham, West Sussex, RH13 5BA**
Dec 2008 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-Dye)
- 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)
- May 2017 *Models for understanding tumour evolution and improving cancer therapy*
University of Edinburgh (hosted by Bartłomiej 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

- 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 virtual conference
- 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
- Mar 2015 *Modelling the evolution of tumour heterogeneity*
Invited talk at the Evolution and Cancer Conference, Montpellier
- 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