Eliseo Papa

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Interested in		Opportunities at the intersection of computing and medicine.

Education

2013	**MBBS, Imperial College London**	
	Medicine & Surgery	
2006–2012	**Ph.D, Harvard Medical School/Massachusets Institute of Technology**	
	Medical Engineering & Medical Physics, Harvard/MIT HST Institute	
	Thesis: High-throughput experimental and computational tools for exploring immunity and the microbiome	
2008	**Sc.M., Massachusets Institute of Technology**	
	Mechanical Engineering	
2005	**BASc (Honors), University of Toronto**	
	Engineering Science, Biomedical Option	

Professional Experience

2014	**Chief Scientist, Klappo,** London,UK	
	tech startup focused on semantic technologies, cognitive computing, machine learning to craft context-aware food recommendations.	
	management team responsible for the business plan and investor relations	
	medical and scientific direction	
2014	**F2 doctor, Imperial College NHS Trust**, Hillingdon Hospital, Uxbridge, Middlesex, UK	
	General Practice	
2013–2014	**F1 doctor, Imperial College NHS Trust**, Hillingdon Hospital, Uxbridge, Middlesex, UK	
	Care of Elderly, orthopaedic outreach	
	Anaesthetics & ITU	
	Gastroenterology & Acute medical take	
2013	**Theoretical System Biology group, Prof. M. Stumpf**, Imperial College	
	Integrative analysis of nitrogen stress response in e.coli	
	Chip-seq, RNAseq and transcriptomics data	
2012	**Consultant, SERES Health,** Cambridge, MA	
	Computationally designed and predicted fitness of synthetic microbial communities intended for therapeutic transplantation.	
	Provided strategic input and scientific advice.	
2009–2013	**Alm Laboratory for Microbiology, Prof. Eric J. Alm**, MIT	
	Machine learning for the analysis of Human Microbiome Project genomics data	
	Microbial evolution, phylogenetics	
2009	**Founder, Enumeral diagnostics,** Cambridge, MA	
	MIT $100K Entrepeneurship competition semifinalist	
	Developed high-throughput data acquisition and analysis platforms, scaling the technology to production levels.	
	Contributed to the development of the microfluidic platform at the core of the company intellectual property	
2006–2009	**Laboratory of Hidde L. Ploegh**, Whitehead Institute, MIT	
	Affinity and isotype mapping of antibody secretion in individual primary B cells.	
	Development of computational and statistical tools to monitor and predict evolution of immune responses	
	Murine antibody cloning and expression; fluorescence tagging	
	Real time fluorescence microcopy; advanced image analysis	
2004–2005	**Biomedical Nanotechnology Group, Prof. W C. Chan**, University of Toronto	

Nanoparticles cytotoxicity
Quantum Dots synthesis and characterization (TEM, Absorption, PL, X-IRD)
Real time fluorescence microscopy, single molecule spectroscopy and
  biophysics.

2003   **Biomaterials Group, Prof. M.C.Tanzi**, Politecnico di Milano, Italy
Synthesis of biocompatible polymeric scaffolds for tissue engineering
  applications.
Morphological, mechanical and functional characterization of polyurethane
  scaffolds.

Fellowships & Awards

2012   Bursary recipient, Exploring Human Host-Microbiome Interactions in Health
and Disease, Wellcome Trust Scientific Conferences

2010–2011   Postgraduate D Scholarship, National Science Engineering Research Council,
Canada

2008–2009   Poitras pre-doctoral fellowship

2007   Martino Scholar, Harvard/MIT Health Science Tech. Inst.

2008   Martha Gray Prizes for Excellence in Research, Annual Forum, Harvard/MIT
Health Science Tech. Inst.

2008   Competition Semifinalist, MIT 100k Business Plan

2005–2008   Postgraduate M Scholarship, National Science Engineering Research Council,
Canada

2004   University of Toronto Life Sciences Award, University of Toronto

2004   NSERC Summer Research Award, National Science Engineering Research Council,
Canada

2003   OUA Academic Achievement Award, Ontario, Canada

2003   #2 Canadian Army University Course Undergrad Scholarship,University of
Toronto

2002–04   Silver T – academic athletic excellence, University of Toronto

2001   Ontario Scholar, Government of Ontario, Canada

Computing skills

Python - ipython,scikit-learn, numpy, matplotlib, seaborne, pandas, lxml,
NLTK, requests, sqlite3.
R - gbm, lasso, randomforest, etc.; ggplot2, knitr, shiny.
Web development - HTML/CSS/JS, D3, dc.js, crossfilter.
Linux - Git, bash/zsh, sge/torque/pbs, docker/vagrant.
Familiar with agile and test-driven development.

Publications

Journals

2012   **_Eliseo Papa_**, Michael Docktor, Christopher Smillie, Sarah Weber, Sarah
Pacocha Preheim,Dirk Gevers,Georgia Giannoukos, Dawn Ciulla, Diana Tabbaa,
Jay Ingram, David B Schauer, Doyle V Ward, Joshua R Korzenik, Ramnik J
Xavier, Athos Bousvaros, Eric J Alm.
<u>Non-invasive mapping of the gastrointestinal microbiota identifies children
with inflammatory bowel disease.</u>
PLoS ONE 2012;7(6):e39242.

2011   Rhiannon White, Sachiko Miyata, **_Eliseo Papa_**, Eric Spooner, Kleoniki
Gounaris, Murray Selkirk, Katerina Artavanis-Tsakonas.
<u>Characterisation of the Trichinella spiralis deubiquitinating enzyme,
TsUCH37, an evolutionarily conserved proteasome interaction partner.</u>
PLoS Negl Trop Dis. 2011 Oct;5(10):e1340.

2011   Katerina Artavanis-Tsakonas, Pia V Kasperkovitz, **_Eliseo Papa_**, Michael L
Cardenas, Nida S Khan, Annemarthe G Van der Veen, Hidde L Ploegh and Jatin
M Vyas.
<u>The Tetraspanin CD82 is Specifically Recruited to Fungal and Bacterial
Phagosomes Prior to Acidification.</u>
Infection and Immunity 2011 79(3):1098-106\

2009   Adebola Ogunniyi, Craig Story, **_Eliseo Papa_**, Eduardo Guillen, J. Christopher

Love.
<u>Screening Individual Hybridomas by Microengraving to Discover Monoclonal Antibodies.</u>
Nature Protocols 2009 4(5):767-82

2009 Jehnna L. Ronan, Craig Story, ***Eliseo Papa***, J. Christopher Love.
<u>Optimization of the surfaces used to capture antibodies from single hybridomas reduces the time required for microengraving.</u>
Journal of Immunological Methods 2009, 340(2):164-9\

2008 Craig Story*, ***Eliseo Papa* (co-author)***, Chih-Chi Andrew Hu, Jehnna L Ronan, Hidde L Ploegh, J.Christopher Love.
<u>Profiling Antibody Responses by Multiparametric Analysis of Single B Cells.</u>
PNAS 2008 105(46):17902-7

2005 Hans Fischer, ***Eli Papa***, Lichuan Liu, K. Sandy Pang, Warren C. W. Chan.
<u>Preliminary Results: Exploring the Interactions of Quantum Dots with Whole Blood Components.</u>
SPIE Proceedings 2005 5969,54

2004 Wen Jiang, ***Eli Papa***, Hans Fischer, Sawitri Mardyani, Warren C.W. Chan.
<u>Semiconductor quantum dots as contrast agents for whole animal imaging.</u>
Trends in Biotechnology 2004 22:12

Posters   2012 White RR, Morrow M, Miyata S, Papa E, Spooner E, Selkirk M, Gounaris K, Das C, Artavanis-Tsakonas K
Characterisation of the Trichinella Spiralis Deubiquitinating Enzyme, TsUCH37
Molecular and Cellular Biology of Helminth Parasites VII

2012 Eliseo Papa, Michael Docktor, Christopher Smillie, Sarah Weber, Sarah P. Preheim, Dirk Gevers, Georgia Giannoukos, Dawn Ciulla, Diana Tabbaa, Jay Ingram, David B Schauer, Doyle V Ward, Joshua R Korzenik, Ramnik J Xavier, Athos Bousvaros, Eric J Alm.
<u>Diagnosing IBD from the fecal microbiome</u>
Exploring Human Host-Microbiome Interactions in Health and Disease, Wellcome Trust Scientific Conferences

2008 High-Throughput and High-Content Screening of Antibody Responses from Single Cells
AIChE annual meeting, Nanoscale Science Engineering Forum

2008 Applying Ligands to B Cell Receptors by Microfluidics
AIChE annual meeting, Engineering Fundamentals in Life Sciences

2008 Microengraving for high-throughput affinity mapping of humoral responses
Harvard/MIT HST Forum

2008 Multi-variate profiling of B cell immune responses
Novartis Vaccine Symposium

Patents   2009 Composition of an Array of Microwells with an Integrated Microfluidic System, USA Serial No. 12/390279

Volunteering   2005 **Field Operative, AISPO, San Raffaele del Monte Tabor Foundation.** Milan, Italy
Streamlined diagnostic routines, Kampala's Hospital & Gulu's outpost, Uganda
Consulted regarding the infrastructure, human resources and logistics of the Kampala's hospital

2004 **Engineers Without Borders.**
University of Toronto Conference delegate