

Eliseo Papa

Biomedical Engineer, Computational Biologist, Data Scientist

Current position

MBBS Candidate, Graduate Entry Medicine, Imperial College London
Researcher, [Alm lab](#), MIT

Areas of specialization

Medical Engineering, Analysis of large data sets, Microbiome, Machine learning, Immunology, Optics, Nano/microfabrication, Phylogenetics.

Research interests

Host-pathogen interactions at the level of microbiome and single cells. Human Microbiome Project. High-throughput diagnostics. Electronic health records. Emerging properties of networks in a biological and social context. Self-organized systems.

Languages

Italian: Mother tongue
English: Perfect oral & written fluency
French: Working knowledge

Education

2009–now	Imperial College London : MBBS Graduate Entry Medicine Programme
2006–2012	Harvard Medical School & Massachusetts Institute of Technology : PhD, Biomedical Engineering, Harvard/MIT Health Science & Technology Institute Thesis: High-throughput experimental and computational tools for exploring immunity and the microbiome Representative courses: <i>Harvard Medical School</i> - pathology, renal pathophysiology, respiratory pathophysiology, cardiac pathophysiology. <i>MIT</i> - biomechanics, statistical learning, systems microbiology, forces fields and flows in biological systems, fluid mechanics, heat transfer, numerical modeling.
2006–2008	Massachusetts Institute of Technology : SM in Mechanical Engineering
2001–2005	University of Toronto : BAsC (Honors) Engineering Science (Biomedical Option)

Fellowships

2010–2011	NSERC Postgraduate D Scholarship, National Science Engineering Research Council, Canada
2008–2009	Poitras pre-doctoral fellowship
2007	Martino Scholar, Harvard/MIT Health Science Tech. Inst.
2005–2008	NSERC Postgraduate M Scholarship, National Science Engineering Research Council, Canada
2005	OGS Postgraduate Scholarship (declined), Ontario Government, Canada
2004	NSERC Summer Research Award, National Science Engineering Research Council, Canada
2003	#2 Canadian Army University Course Undergrad Scholarship, University of Toronto

Honors & awards

2012	Bursary recipient, <i>Exploring Human Host-Microbiome Interactions in Health and Disease</i> , Wellcome Trust Scientific Conferences
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2008	Martha Gray Prizes for Excellence in Research, Annual Forum, Harvard/MIT Health Science Tech. Inst.
2008	Competition Semifinalist, MIT 100k Business Plan
2004	University of Toronto Life Sciences Award, University of Toronto
2002–04	Silver T – academic athletic excellence, University of Toronto
2003	OUA Academic Achievement Award, Ontario, Canada
2001	Ontario Scholar, Government of Ontario, Canada

Publications

Journal articles

- 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.
[Non-invasive mapping of the gastrointestinal microbiota identifies children with inflammatory bowel disease.](#) **PLoS One**. 2012;7(6):e39242.
- Rhiannon White, Sachiko Miyata, *Eliseo Papa*, Eric Spooner, Kleoniki Gounaris, Murray Selkirk, Katerina Artavanis-Tsakonas.
 Characterisation of the *Trichinella spiralis* deubiquitinating enzyme, TsUCH37, an evolutionarily conserved proteasome interaction partner. **PLoS Negl Trop Dis**. 2011 Oct;5(10):e1340.
- 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.
 The Tetraspanin CD82 is Specifically Recruited to Fungal and Bacterial Phagosomes Prior to Acidification. **Infection and Immunity** 2011 79(3):1098-106\
- Adebola Ogunniyi, Craig Story, *Eliseo Papa*, Eduardo Guillen, J. Christopher Love.
 Screening Individual Hybridomas by Microengraving to Discover Monoclonal Antibodies. **Nature Protocols** 2009 4(5):767-82
- Jehnna L. Ronan, Craig Story, *Eliseo Papa*, J. Christopher Love. Optimization of the surfaces used to capture antibodies from single hybridomas reduces the time required for microengraving. **Journal of Immunological Methods** 2009, 340(2):164-9\
- Craig Story*, *Eliseo Papa** (co-author), Chih-Chi Andrew Hu, Jehnna L Ronan, Hidde L Ploegh, J.Christopher Love.
 Profiling Antibody Responses by Multiparametric Analysis of Single B Cells. **PNAS** 2008 105(46):17902-7
- Hans Fischer, *Eli Papa*, Lichuan Liu, K. Sandy Pang, Warren C. W. Chan.
 Preliminary Results: Exploring the Interactions of Quantum Dots with Whole Blood Components. **SPIE Proceedings** 2005 5969,54
- Wen Jiang, *Eli Papa*, Hans Fischer, Sawitri Mardiyani, Warren C.W. Chan.
 Semiconductor quantum dots as contrast agents for whole animal imaging. **Trends in Biotechnology** 2004 22:12

Posters

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| 2012 | White RR, Morrow M, Miyata S, Papa E, Spooner E, Selkirk M, Gounaris K, Das C, Artavanis-Tsakonas K
Characterisation of the <i>Trichinella Spiralis</i> Deubiquitinating Enzyme, TsUCH37
<i>Molecular and Cellular Biology of Helminth Parasites VII</i> |
| 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.
Diagnosing IBD from the fecal microbiome
<i>Exploring Human Host-Microbiome Interactions in Health and Disease, Wellcome Trust Scientific Conferences</i> |
| 2008 | High-Throughput and High-Content Screening of Antibody Responses from Single Cells
<i>AICHe annual meeting, Nanoscale Science Engineering Forum</i> |
| 2008 | Applying Ligands to B Cell Receptors by Microfluidics
<i>AICHe annual meeting, Engineering Fundamentals in Life Sciences</i> |

	2008	Microengraving for high-throughput affinity mapping of humoral responses <i>Harvard/MIT HST Forum</i>
	2008	Multi-variate profiling of B cell immune responses <i>Novartis Vaccine Symposium</i>
Patents	2009	Composition of an Array of Microwells with an Integrated Microfluidic System, USA Serial No. 12/390279
Research experience	2009–present	Researcher, Alm Laboratory for Microbiology, Prof. Eric J. Alm, MIT : - Human Microbiome Project - Bioinformatic analysis of large datasets - Microbial evolution, phylogenetics
	2006–2009	Researcher, 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	Researcher, 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	Researcher, 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.
Other employment	2006	ESL Teacher, Inlingua Language School, Brescia, Italy : - Teaching approx. 12hrs/week on individual basis and to large groups - Provided on site focussed training for companies
	2004–2005	Residence Don, St.Michael's College Residence, University of Toronto : - Mediate conflicts and provide academic or personal consulting. - Trained in cultural competence and conflict resolution - Responsible to enforce rules and to foster an accepting community
	2000–2002	IT Consultant System Admin, Ital Engineering s.a.s., Brescia, Italy : - Interviewed the customer and performed an organizational analysis - Regularly performed formal presentations to the management
	2000	Graphic Designer, Photo Image Studio, Brescia, Italy : - Assisted photographers in the preparation of gallery exhibitions and openings
Extracurricular	2006–2008	Collegiate Cycling. MIT Cycling Team : - National Collegiate Road Champions - Eastern Collegiate Cycling Conference Road Champions - <i>Captain</i> , Cyclocross, 2^{nd} US National Championship - Eastern Collegiate Cycling Conference Road Champions - Cyclocross, US National Champions
	2006	Competitive Triathlon. Team Atletica Desenzano : - 9th cat. at ITU Bardolino's International Triathlon
	2003–2004	Competitive Sailing. Italian sailing federation (FIV). : - 12th at European IMS Sailing Championship - 6th at Canadian J105 Championship
	2004	Engineers Without Borders. : - University of Toronto Conference delegate
	2002	University of Toronto Varsity Waterpolo. : - OUA Conference Champions
	1998–2001	Nuoto Club Brescia Swimming Club : - Regional level competitions
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

Interests

Listening avidly to Jazz music. International relations. Semiotics and its implications on mass psychology. Buddhism, Zen and oriental philosophies. Reading classics of Italian and English literature. Travelled by kayak along the major European rivers. Rock Climbing.