

# PAOLO TIERI, PhD

## CURRICULUM VITÆ ET STUDIORUM

EU & Italian citizen

### *Affiliation*

#### **CNR Consiglio Nazionale delle Ricerche**

*IAC Istituto per le Applicazioni del Calcolo*

Via dei Taurini 19, 00185 Roma

ITALIA

**email:** paolo.tieri@cnr.it - p.tieri@iac.cnr.it - p.tieri@unibo.it

**website:** <http://www.iac.rm.cnr.it/~tieri/>

**tel** +39 06 49 93 73 49

## *EDUCATION*

- **Università di Bologna, Italy, 2006-2009** *Philosophiæ Doctor* in Systems Biology & Experimental Pathology, final dissertation: Reconstruction and analysis of the NF- $\kappa$ B pathway interactome: a systems biology approach
- **Università di Bologna, Italy, 1999** *Laurea magistralis* (4-yrs M.Sc. equiv.) in Physics, final thesis in Biomedical Physics

## *PROFESSIONAL ACTIVITIES*

- **CNR National Research Council  
IAC Institute for Computing Applications  
Rome, Italy, 2011-now** Staff Scientist, Computational Immunology & Systems Biology  
<http://www.iac.cnr.it>
- **PICB CAS-MPG Partner Institute  
for Computational Biology  
Shanghai, China, Mar-Sep 2012** Visiting Scientist, Network Biology of Rheumatoid Arthritis (CAS-Awarded)  
<http://www.picb.ac.cn>
- **Università di Bologna, Italy, 2003-2011** Research fellowship, Systems Biology & Systems immunology; lecturing activity for the Biotechnology M.Sc. courses at UNIBO  
<http://www.dimes.unibo.it/>
- **Harvard Medical School, Dana Farber  
Cancer Institute, Vidal Lab, Boston,  
USA, Oct 2005-Feb 2006** Visiting Research Fellow, mathematical models for protein-protein interaction networks  
<http://ccsb.dfci.harvard.edu/>
- **ENEA National Research Agency,  
Bologna, Italy, 2000-2002** Technology Transfer Specialist,  
EU-funded Tech-Transfer Project Manager  
<http://www.enea.it/>

- “**Mario Negri Sud**” **Research Institute** Trainee in the Radiation protection Unit,  
**S. Maria Imbaro, Italy, 1998** Dept. Cell Biology and Oncology  
<http://tinyurl.com/negrissud-2006>

## *POSTGRADUATE COURSES*

- **2000, CINECA supercomputing center**, Bologna (I), Summer school in Parallel Computing
- **2002, Inst. Theor. Biol., Humboldt Univ.** Berlin (D), Autumn school of theoretical biology
- **2003, Dept. Mathematics, Firenze Univ.** (I), School of mathematical modelling for biology
- **2003, Biocomputing Lab, Bologna Univ.** (I), 4<sup>th</sup> Winter school “Hot topics in structural genomics”
- **2004, Biocomputing Lab, Bologna Univ.** (I), 5<sup>th</sup> Winter school “State of the art of protein-protein interaction: the role of *in silico* approach”
- **2005, Biocomputing Lab, Bologna Univ.** (I), 6<sup>th</sup> Winter school “How complex is functional genomics?”
- **2006, Gulbenkian Inst.** Lisboa (PT), course “Aging Research with Bioinformatic Methods”

## *MAIN PROJECTS AND GRANTS* as Proposer/Principal Investigator/co-PI

- **COST** Cooperation in Science and Technology, 2016-2020, Action **CA 15120 OpenMultiMed** Open Multiscale Systems Medicine science network, management committee member, scientific missions coordinator [http://www.cost.eu/COST\\_Actions/ca/CA15120](http://www.cost.eu/COST_Actions/ca/CA15120)
- **European Union FP7**, 2013-2015, **MISSION-T2D** Multiscale Immune System Simulator for the ONset of Type 2 Diabetes integrating genetic, metabolic and nutritional data, P.I. for WP6 Model Integration <http://www.mission-t2d.eu/>
- **Chinese Academy of Sciences**, 2012, **Visiting Fellowship Award**, in collaboration with Prof C Nardini group, P.I. network biology approach in rheumatoid arthritis
- **EU FP7**, 2012-2014, **KEPAMOD** Knowledge exchange in processing and analysis of multi-omic data, Marie Curie Action, grant no. 294935, co-P.I.

## *PUBLICATIONS*

- Mendez T, Castiglione F, **Tieri P**, Felicori L. Systems and Synthetic Biology applied to Health. 2016, Elsevier, in press
- Castiglione F, **Tieri P**, Palma A, Jarrah AS. Statistical ensemble of gene regulatory networks of macrophage differentiation. 2016. BMC Bioinformatics, in press
- Bartoletti-Stella A, Chiaro G, Calandra-Buonaura G, Contin M, Scaglione C, Barletta G, Cecere A, Garagnani P, **Tieri P**, Ferrarini A, Piras S, Franceschi C, Delledonne M, Cortelli P, Capellari S. (2015) *A patient with PMP22-related hereditary neuropathy and DBH-gene-related dysautonomia*. J Neurol. PubMed PMID: 26410747
- **Tieri P**, Nardini C, Dent JE, eds (2015) *Multi-omic Data Integration* (ebook), Publisher: Frontiers Media SA, ISBN: 978-2-88919-648-7
- Nardini C, Dent J, **Tieri P** (2015). *Editorial: Multi-omic Data Integration*. Front. Cell Dev. Biol. 3:46. doi: 10.3389/fcell.2015.00046
- Cappuccio A, **Tieri P**, Castiglione F. (2015) *Multi-scale modeling in immunology, a review*. Brief Bioinform. 10.1093/bib/bbv012
- **Tieri P**, Prana V, Colombo T, Santoni D, Castiglione F. (2014) *Multi-scale Simulation of T Helper Lymphocyte Differentiation*. In: Campos S, editor. Advances in Bioinformatics and Computational Biology. Lecture Notes in Computer Science. 8826: Springer International Publishing; p. 123-34 doi: 10.1007/978-3-319-12418-6\_16

- **Tieri P**, Zhou XY, Zhu L, Nardini C. (2014) *Multi-omic landscape of rheumatoid arthritis: re-evaluation of drug adverse effects*. *Front. Cell Dev. Biol.* , 2:59. doi: 10.3389/fcell.2014.00059
- Grignolio A, Mishto M, Faria AMC, Garagnani P, Franceschi C, **Tieri P** (2014) *Towards a liquid self: how time, geography, and life experiences reshape the biological identity*. *Front. Immunol.* 5:153. doi: 10.3389/fimmu.2014.00153
- Castiglione F, **Tieri P**, De Graaf A, Franceschi C, Liò P, Van Ommen B, Mazzà C, Tüchel A, Bernaschi M, Samson C, Colombo T, Castellani GC, Capri M, Garagnani P, Salvioli S, Nguyen VA, Bobeldijk-Pastorova I, Krishnan S, Cappozzo A, Sacchetti M, Morettini M, Ernst M (2013) *The onset of type 2 diabetes: proposal for a multi-scale model*. *JMIR Res Protoc.* 2(2):e44. doi: 10.2196/resprot.2854
- **Tieri P**, Nardini C (2013) *Signalling Pathway Database Usability: Lessons Learned*. *Mol Biosystems* 9(10), 2401-7. doi: 10.1039/c3mb70242a
- Garagnani P, Giuliani C, Pirazzini C, Olivieri F, Bacalini MG, Ostan R, Mari D, Passarino G, Monti D, Bonfigli AR, Boemi M, Ceriello A, Genovese S, Sevini F, Luiselli D, **Tieri P**, Capri M, Salvioli S, Vijg J, Suh Y, Delledonne M, Testa R, Franceschi C (2013) *Centenarians as super-controls to assess the biological relevance of genetic risk factors for common age-related diseases: A proof of principle on type 2 diabetes*. *Aging* 5(5), 373-85
- **Tieri P**, Bellavista E, Termanini A, Salvioli S, Capri M, Franceschi C (2012) *Charting the NF- $\kappa$ B interactome map*. *PLoS ONE* 7(3): e32678. doi:10.1371/journal.pone.0032678
- **Tieri P**, de la Fuente A, Termanini A, Franceschi C (2011) *Integrating omics data for signaling pathways, interactome reconstruction, and functional analysis*. *Methods Mol. Biol.* 719, 415-33  
**rated "must read" by  FACULTY of 1000**
- **Tieri P**, Grignolio A, Zaikin A, Mishto M, Remondini D, Castellani GC, Franceschi C (2010) *Network, degeneracy and bow tie: integrating paradigms and architectures to grasp the complexity of the immune system*. *Theoretical Biology and Medical Modelling*, 7, 32
- Termanini A, **Tieri P**, Franceschi C (2010) *Encoding the states of interacting proteins to facilitate biological pathways reconstruction*. *Biology Direct*, 5, 52 
- Grignolio A, **Tieri P**, Castellani GC (2010) *Networks, Degeneracy and Bow ties: A Unifying Perspective of Immunological Paradigms and Architectures*, in: *Immunology Today - Three Historical Perspectives under Three Theoretical Horizons*, Grignolio A Ed., Bononia University Press, *Quaderni del CIG series*, 2, 53-68
- Cevenini E, Bellavista E, **Tieri P**, Castellani G, Lescai F, Francesconi M, Mishto M, Santoro A, Valensin S, Salvioli S, Capri M, Zaikin A, Monti D, de Magalhães JP, Franceschi C (2010) *Systems Biology and Longevity: an emerging approach to identify innovative anti-aging targets and strategies*, *Curr. Pharm. Des.*, 16, 802-813
- **Tieri P**, Grignolio A, (2009) *Paradigms and architectures in the immune system: from degeneracy to bow ties*, in: *ACUME2 Living Texts conference series proceedings*, PNW Polish Scientific Publishers, 57-70
- Capri M, Salvioli S, Cevenini E, Celani L, Sevini F, Bellavista E, Lanzarini C, Lukas S, Lescai F, **Tieri P**, Monti D, Franceschi C (2009) *Aging and Longevity in Animal Models and Humans*, in: *Life-Span Extension, Aging Medicine*, Sell C et al. eds., Springer/Humana Press, DOI: 10.1007/978-1-60327-507-1\_11, 175-191
- **Tieri P** (2008) *The immune system: look who's talking*, in: *Biocomplexity at the cutting edge of Physics, Systems Biology and Humanities*, Bononia University Press, *Quaderni del CIG series*, 1, 145-154
- Cevenini E, Invidia L, Lescai F, Salvioli S, **Tieri P**, Castellani GC, Franceschi C (2008) *Human models of aging and longevity*. *Expert Opin. Biol. Ther.* 8 (9), 1393-1405

- Salvioli S, Capri M, **Tieri P**, Laroni J, Barbi C, Invidia L, Altília S, Santoro A, Pirazzini C, Pierini M, Bellavista E, Alberghina L, Franceschi C (2008) *Different types of cell death in organismal aging and longevity: state of the art and possible systems biology approach*, *Curr. Pharm. Des.*, *14*, 226-236
- Salvioli S, **Tieri P**, Castellani GC, Capri M, Barbi C, Santoro A, Altília S, Invidia L, Pierini M, Bellavista E, Monti D, Franceschi C (2007) *Longevity genes across species: conservation versus evolvability*, *Inv. Surviv. J.*, *4*, 112-118
- Remondini D, Neretti N, Sedivy JM, Franceschi C, Milanesi L, **Tieri P**, Castellani GC (2007) *Networks from gene expression time series: characterization of correlation patterns*, *Int. J. Bifurcat. Chaos*, *17* (7), 2477-2483
- **Tieri P**, Castellani GC, Remondini D, Valensin S, Laroni J, Salvioli S, Franceschi C (2007) *Capturing Degeneracy in the Immune System*, in: *In silico Immunology*, D. Flower and J. Timmis Eds., Springer Verlag, New York, ISBN 9780387392387, pp 109-118
- Remondini D, **Tieri P**, Valensin S, Verondini E, Franceschi C, Bersani F, Castellani GC (2006) *A general learning rule for network modeling of neuroimmune interactome*, in: *Neural Nets, WIRN/NAIS 2005 Proceedings, Lecture Notes in Computer Science*, Springer Verlag, **3931**, pp 286-292
- Salvioli S, Capri M, Valensin S, **Tieri P**, Monti D, Ottaviani E, Franceschi C (2006) *Inflamm-aging, Cytokines and Aging: state of the art, new hypotheses on the role of mitochondria and new perspectives from systems biology*, *Curr. Pharm. Des.*, *12*, 3161-71
- **Tieri P**, Valensin S, Latora V, Castellani GC, Marchiori M, Remondini D, Franceschi C (2005) *Quantifying the relevance of different mediators in the human immune cell network*, *Bioinformatics*, *21*, 1639-1643
- **Tieri P**, Valensin S, Franceschi C, Morandi C, Castellani GC (2003) *Memory and selectivity in evolving scale-free immune networks*, in *Artificial Immune Systems, ICARIS 2003 Proceedings, Lecture Notes in Computer Science*, Springer-Verlag, **2787**, pp.93-101

## *PRESENTATIONS, TALKS AND CONFERENCES*

- *The “omic” era: dalla ricerca di base alla medicina personalizzata*, 26 May 2016, Accademia Medica di Roma, Italy, talk “Integrazione di dati multi-omici e systems medicine”.
- *MMH2015 1st International Conference on Computational Modeling of Metabolic Health, Inflammation and Diabetes*, 6-7 October 2015, Computer Laboratory, University of Cambridge, UK, co-organizer.
- *Nautilus, the storytelling of science*, RAI Italian national public broadcasting company, Rome, May 2015, TV episode “I nemici della rete”, <http://tinyurl.com/nautilus-p-tieri>
- *The 2<sup>nd</sup> Intl. Conference on Mathematics and Statistics*, 2-5 April 2015, American University of Sharjia, UAE, talk “The multi-omic landscape of rheumatoid arthritis”.
- *Network Biology, a short course 2015*, Universidade Federal de Minas Gerais, 9-13 Feb 2015, Belo Horizonte, Brazil.
- *Seminars at PICB 2012*, Partner Institute for Computational Biology, Shanghai, 21 Mar 2012, talk title “Network Immunology”.
- *SBH SysBioHealth Symposium 2011*, Univ Bologna, IT, 14-15 Dec 2011, talk title “The immunological Self: a reappraisal”.
- *Network Biology, a short course 2010*, Univ Univ Bologna, IT, June 2011.
- *RecombSat 2010*, Columbia Univ, NYC, USA, 15-20 Nov. 2010, poster “Charting the NF-kB pathway interactome map”.

- *NetSci 2010*, MIT Boston, USA, 12-14 May 2010, talk title “Charting the NF-kB pathway interactome map”.
- *SBH SysBioHealth Symposium 2009*, Univ Milano Bicocca, Milan, IT, 25-27 November 2009, talk title “Reconstruction and analysis of the NF-kB pathway interactome”.
- *ICMSB'09, 11th International Conference on Molecular Systems Biology*, CAS-MPG PICB, Shanghai, China, 21-25 June 2009, talk title “Reconstruction of the NF-kB Interactome”.
- *SBH 2008, SysBioHealth Symposium 2008*, 'Galvani' Center, Univ Bologna, IT, 24-25 November 2008, keynote lecture “A systemic and evolutionary approach to immune responses”.
- *Living texts: interdisciplinary approaches and methodological commonalities in biology and textual analysis*, E-Science Institute, Edinburgh, UK, 16-17 Oct 2008, invited talk “Protocols, bow ties and the immune system”.
- *Biophys 08, Biology and Beyond 2008*, Arcidosso, IT, 10-12 Sept 2008, invited talk “Degeneracy in complex systems: a biological point of view”.
- *Immunology Day*, Institute of Advanced Studies & Academy of Sciences, Bologna, 7 May 2008, talk “Degeneracy and Complexity in the Immune System”.
- *SBH 2007, SysBioHealth Symposium 2007*, Univ Milano Bicocca, Milan, IT, 16-19 October 2007, poster and talk title “Towards an unifying perspective of the fundamental properties and structural principles governing the immune system”.
- *ARBM 2006, Aging Research with Bioinformatic Methods*, Gulbenkian Inst., Lisboa, PT, 6-9 November 2006, talk title “Network approaches in gene expression data & systems biology”.
- *ECI 2006, 1st Joint Meeting of European National Societies of Immunology*, Paris, F, 6-9 September 2006, poster title “Modeling of immune networks”.
- *SIMAI 2006, VII International conference of the Italian Society for Applied Mathematics*, Baia Samuele, Ragusa, IT, 22-26 May 2006, chair of the session “Mathematical and Computational Modeling in Bioinformatics and Systems Biology”.
- *BITS Italian Bioinformatics Society, Annual meeting*, Bologna, IT, 28-29 April 2006, talk title “Quantifying the relevance of different mediators in the human immune cell network”.
- *FGA 2006 Functional Genomics of Aging*, Palermo, IT, 29 March-2 April 2006, poster “Modeling and quantification of mediator relevance in immune cell network”.
- *Biocomplexity, a paradigm useful for other disciplines?* International Italo-Canadian workshop, Bologna, IT, 13-15 July 2005, talk title “Cytokine network modeling”.
- *ISMB2005 Intelligent Systems for Molecular Biology*, ISCB conference, Detroit, USA, 25-29 June 2005, poster “Quantifying the relevance of different mediators in the human immune cell network”.

## *OTHER PROFESSIONAL ACTIVITIES*

- **Frontiers in Cell and Developmental Biology: Systems Biology** Editor, Review Editor  
www.frontiersin.org/Systems\_Biology
- **Computation, MDPI**  
www.mdpi.com/journal/computation
- **RAI Radio3, Italian National Radio & Television Broadcasting Company** Author of Politics of Science & Research radiodocumentary programs
- **Il Domani di Bologna, daily newspaper, Bologna, Italy, 2003** Popular science writer
- **M.A.D. Environmental Dynamic Monitoring, Bologna, Italy, 2003** Winner of an *Emilia Romagna Region*-funded 1-yr bursary for a spin-off company study

## *OTHER INTERESTS*

- photography, amateur wine and olive oil maker, running, thai boxing, scuba diving, motorbiking, biking, professional cinema projectionist.