PERSONAL INFORMATION Marina Caldara

RESEARCH EXPERIENCE, MAIN PROJECTS DEVISED AND MANAGED

Oct.07- Sept. 08

Post-doctoral researcher

In the laboratory of Prof. K. Verstrepen's lab at the FAS Center for Systems Biology, Harvard University Cambridge, MA, USA.
Project title: investigating the functional role of tandem repeats present in promoters and within the coding region of adhesion proteins in the yeast *Saccharomyces cerevisiae*.

Oct.08 - Jan.10

Post-doctoral researcher

In the laboratory of Prof. K. Ribbeck's lab in collaboration with prof. K. Foster's lab at FAS Center for Systems Biology, Harvard University, Cambridge, MA, USA.
Project title: "*Pseudomonas aeruginosa* infection of the CF lung: a mechanistic analysis". The salary and the research were sponsored thanks to a scholarship given by the American Cystic Fibrosis Foundation (CFF).

Feb.10 – Aug.11

Post-doctoral researcher

In the laboratory of Prof. K. Ribbeck's lab at department of Biological Engineering, MIT, Cambridge, MA, USA and in collaboration with Prof. K. Foster's lab (later at Oxford University, Dep. of at Zoology).
Project title: "*Pseudomonas aeruginosa* infection of the CF lung: a mechanistic analysis". The salary and the research were sponsored thanks to a scholarship given by the American Cystic Fibrosis Foundation (CFF).

Oct.11 - Dec.12

Post-doctoral researcher

Within the laboratory of Prof. J. Winderickx's, laboratory of Functional Biology, Dep. of Biology, at the KU Leuven.
Project title: "Systematic analysis of tau-membrane and tau-actin interactions in humanized yeast models". The salary was covered by a personal scholarship awarded by the Flemish Research council (FWO).

Gen. 13-Feb.14

Maternity leave

Feb.14 - Dec.15

Post-doctoral researcher

In the laboratory of Prof. N. Marmiroli , Dep. of Life Science, Parma.
Project title: Development of new genomic and proteomic methods to study the allergenicity, proteomic and nutritional value of common foods.

Dec.15-now

Senior researcher position in applied biology
In the laboratory of Prof. N. Marmiroli , Dep. of Life Science, Parma.
The research is focussed on applied biology and on the integration of omics data in a systems biology view. Research indeed, is based on: transcriptomics, porteomics and metabolomics.

Education and Training

Sept.97-Feb.03

Laurea magistrale/ master degree in Industrial Biotechnology
Universita' degli studi di Milano Bicocca, Italy

Jun.01-Mar.02

Research for the thesis project in the laboratory of Prof. E. Martegani, Laboratory of Molecular Biology, Dept of Biotechnology and Life Science, Università degli Studi di MilanoBicocca

Mar.02-Dec.02

Research for the thesis project as an Erasmus student in the laboratory of Prof. J.M. Thevelein, Laboratory of Molecular and Cell Biology, laboratory of Molecular microbiology and biotechnology, KU Leuven, Belgium.

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Jun. 03-May.07	**PhD in bioscience engineering, field of study: applied biological sciences** Vrije Universiteit Brussel (VUB), Belgio Title of the thesis: "A systems biology approach for the study of arginine biosynthesis in *Escherchica coli*: transcriptome analysis, experimental perturbation and mathematical modeling." Final marks: greatest distinction

PERSONAL SKILLS

Mothe toungue	Italian
English	Proficient
Dutch	Basic user

Computer skills

- deep knowledge of Microsoft Office
- good knowledge of PhotoShop, Illustrator, EndNote, ImageJ, SPSS

GRANTS	
Oct. 11 - Dec.12	PI for the research grant funded by FWO (Belgium) with title: "Systematic analysis of tau-membrane and tau-actin interactions in humanized yeast. The grant lasted 3 years, but was terminated earlier for personal reasons
Apr. 17- Apr.18	PI for research funded by FIL (Quota incentivante, University of Parma, Italy) "The gut-brain axis: effects of Central Nervous Systems drugs on opportunistic pathogens residing in the microbiota".
Dec. 17	Winner of FABBR: Grant for basic research (MIUR, Italy)

PUBLICATIONS

Caldara, M., Graziano, S., Gullì, M., Cadonici, S., Marmiroli, N. (2017) Off-Target Effects of Neuroleptics and Antidepressants on Saccharomyces cerevisiae. Tox. Sciences

Rosseels, J. Van den Brande, M. Violet ,D. Jacobs , P. Grognet, J. Lopez ,I. Huvent , M. Caldara , E. Swinnen, A. Papegaey ,R. Caillierez,V. Buée-Scherrer, S. Engelborghs,G. Lippens, M. Colin, L. Buée, M.C. Galas, E.Vanmechelen and J. Winderickx (2015). Tau monoclonal antibody generation based on humanized yeast models: impact on Tau oligomerization and diagnostics. J. Biol. Chem.

N. Billings , M. Ramirez Millan , M. Caldara , R. Rusconi , Y. Tarasova , R. Stocker and K. Ribbeck (2013). The extracellular matrix component Psl provides fast-acting antibiotic defense in Pseudomonas aeruginosa biofilms. Plos pathogens

M. Caldara*, R. S. Friedlander*, N.L. Kavanaugh, J. Aizenberg, K. R. Foster and K. Ribbeck (2012). Mucin biopolymers prevent bacterial aggregation by retaining cells in the free-swimming state. Current Biology .*authors contributed equally to the work.

S.Van Rossom, K. Op de Beeck, Va. Franssens, E. Swinnen, A. Schepers, R. Ghillebert, M. Caldara, G. Van Camp, J. Winderickx (2012) The splicing mutant of the human tumor suppressor protein DFNA5 induces programmed cell death when expressed in the yeast Saccharomyces cerevisiae. Frontiers in Molecular and cellular Oncology. doi: 10.3389/fonc.2012.00077

O. Lieleg*, M. Caldara*, R. Baumgaertel, K. Ribbeck (2011). Mechanical robustness of *Pseudomonas aeruginosa* biofilms. *Soft matter*. **7**, 3307-3314.*authors contributed equally to the work.

M.D. Vinces*, M. Legendre*, M. Caldara, M. Hagihara & K.J. Verstrepen (2009). Unstable tandem repeats in promoters confer transcriptional evolvability. *Science* 324 (5931): 1213-6.*authors contributed equally to the work

S. Smukalla,* M. Caldara*, N. Pochet*, A. Beauvais, S. Guadagnini, C. Yan, M.D. Vinces, A. Jansen., M.C. Prevost, J.P. Latge', G.R. Fink, K.R. Foster & K.J. Verstrepen (2008). Flo1 is a variable green beard gene that drives biofilm-like cooperation in budding yeast. Cell **135 (4)**, 726-37*authors contributed equally to the work

M. Caldara*, G. Dupont*, F. Leroy, A.Goldbeter, L.DeVuyst & R.Cunin (2008). Arginine biosynthesis in Escherichia coli: experimental perturbation and mathematical modeling. Journal of Biological Chemistry **283 (10)**, 6347-58*authors contributed equally to the work

M. Caldara*, P.Nguyen Le Minh*, S. Bostoen, J.Massant & D.Charlier (2007) ArgR-dependent repression of arginine and histidine transport genes in Escherichia coli K-12.Journal of Molecular Biology **373,** 251-267.*authors contributed equally to the work

M.Caldara, D.Charlier & R.Cunin (2006). The arginine regulon of Escherichia coli. Whole system transcriptome analysis discovers new genes and provides an integrated view of arginine regulation. Microbiology **152**, 3343-3354

Libri e capitoli in libri

M. Caldara, PhD Thesis, Title of the thesis: *A systems biology approach for the study of arginine biosynthesis in Escherichia coli: transcriptional analysis, experimental perturbation and mathematical modeling*. Vrije Universiteit Brussel, Brussels- Belgium , 31st May 2007

M. Caldara, J. Winderickx, V. Franssens (2014). Title of the chapter: '*Protein aggregation in unicellular eukaryotes". To be published as a contribution to the book: Protein aggregation in bacteria: functional and structural properties of inclusion bodies in bacterial cells*." Editors: S.M. Doglia and M. Lotti. Publisher: John Wiley & Sons, Inc. **ISBN: 978-1-118-44852-6**

PATENTS:

Inventors: Caldara M., Kavanaugh N., Friedlander R.S., Foster K.R. and Ribbeck K

Title of the invention: Methods of inhibiting surface attachment of microorganisms

Specifications:
United States Provisional Application No.61/744,838, filed October 3, 2012;
Patent Cooperation Treaty Application, International Application No. PCT/US2013/032507, filed March 15, 2013,which designates the United States of America

COLLABORATIONS

Jun. 03-May.07	Collaboration with Prof. L. De Vuyst (IMDO,VUB- Belgium). Aim: development of reliable methods for the measurement of aminoacids and nucleotides extracted from *E.coli.*
	Colleboration with Prof. A. Goldbeter and G. Dupont (Unit of Theoretical chronobiology, ULB- Belgium). Aim: development of a mathematical model that describes arginine metabolism and its regulation.
	Collaboration with the High resolution NMR center of the VUB (Belgium). Aim: dientification and quantification of arginine metabolies by NMR.
	Collaboration with Prof. L.D. Fairbanks (United Medical and Dental Schools of Guy's and St. Thomas' Hospitals, UK). Aim: development of a reliable method to measure carbamyl phosphate.
Oct. 07-Sept.08	Collaboration with Prof. K. Foster (FAS center for systems biology,Harvard University, USA and now Dep. Of Zoology, Oxford University, UK). Aim: Flo1 is a variable green beard gene that drives biofilm-like cooperation in budding yeast.
Oct. 08- Aug.11	Collaboration with Prof. K. Foster (FAS center for systems biology,Harvard University, USA and now Dep. Of Zoology, Oxford University, UK). Aim: *Pseudomonas aeruginosa* infection of the CF lung: a mechanistic analysis
Oct. 10- Aug.11	Collaboration with Prof. R. Stocker (Department of Civil and Environmental Engineering, MIT, USA). Aim: The extracellular matrix component Psl provides fast-acting antibiotic defense in *Pseudomonas aeruginosa* biofilms
Oct. 11- Dec.12	Collaboration with Prof. MC Galas and Prof. L. Buee (Inserm Alcheimer & Tauopathies, Jean- Pierre Aubert Reseacrh Center, lille, France). Aim: Requirements for tau-membrane interaction
Feb. 14- Gen.15	Partecipation and collaboration to the project "Allergotype: sviluppo e validazione di prototipi basati sul DNA per la rilevazione di specie allergeniche" at the Dept. SCVSA, University of Parma, Italy
Feb. 15 - Dec.15	Partecipation and collaboration to the project Filiere Avanzate per la produzione di frumenti speciali per l'industria alimentare "Special Wheat", (CRC2013) corrdinated by Prof. Amedeo Reyneri, University of Turin, Italy
2015 and 2016	Partecipation and collaboration EACEA TEMPUS: HUMAN Security (environment, quality of food, public health and society) on territories contaminated by radioactive agents" along with Partners from Russia, Ukraine and Belarus
SINCE 2016	Responsible for the research project: "Toxicity test in Saccharomyces cerevisiae and human cell lines" for which a research agreement was established between the University of Parma and Dr. Altschuler, CEO of CartiHeal (Israel)
SINCE 2016	Partecipation and collaboration to the project Integrazione di processi termochimici e reforming su biomasse di scarto e valorizzazione dei prodotti con un approccio a rifiuti zero, financed by PORr FESR projects
SINCE 2016	Collaboration iwth Prof. Lieleg for the study of "Candida albicans biofilms obtained by either SEM or light profilometry". In 2018, students will also be exchanged among labs.

CONFERENCES AND SEMINARS

Confrence organization	Support for the organization of "2nd Parma Nano-day", 3-4/12/15, Parma, Italy
	Steering Committee of the 3rd "Parma" NanoDay. 12-14/07/2017, Parma
Poster presentation	Vth International conference on Systems Biology, Heidelberg, Germania. 10-13/10/2004
	3rd International *Escherichia coli* alliance conference on Systems biology, Cheju, Korea. 30/8-3/11 2006
	5th Annual Boston Bacterial Meeting, Cambridge, MA, 18-19/6/2009
	EuroBiofilms 2009, Roma, Italia, 2-5/9/2009
	Seminar on "Responsible conduct of research", Oct.-Nov. 2009, Harvard University
	International Yeast Meeting on Apoptosis (IMYA), 16-20/09/2012, Roma, Italia with 3 posters
	3rd "Parma" NanoDay. 12-14/07/2017, Parma
Oral presentations	XIXth International conference on arginine and pyrimidines, Marburg, Germania. 31/8-4/9 2004
	XXth International conference on arginine and pyrimidines, Lund, Svezia. 17-20/8/2006
	BioScope-IT annual meeting, selected oral presentation, Ghent, Belgio. 24/11/ 2006
	Boston Bacterial Meeting, 17-18/6/2010, selected oral presentation
	Invited Lecture in the lab of Prof. Gottrand, Inserm U995 – Université Lille 2 – Faculté de Médecine Lille, Francia 21/09/2011.
Partecipation without contribution	Workshop "1st Parma Nano-day", 28/11/14, Parma, Italy
	Workshop "2nd Parma Nano-day", 3-4/12/15, Parma, Italy
	National meeting of AIBG (Associazione italiana di biologia e genetica), 30/09/16-1/10/16, Cagliari, Italia
	NanoInnoation, 26-29/09/2017 Rome, Italy

COURSES ATTENDED

1st FEBS Advanced Lecture Course: Systems Biology: From Molecules & Modeling to Cells, 12-18/3/ 2005, Gosau, Austria.

TATAA Biocenter Open course in QPCR, Ghent 14-17/3/2006

Seminar series on "Responsible conduct of research", Oct-Nov. 2009, Harvard University, USA

Write powerful convincing texts, 7/3/2012, Leuven, Belgio

HONORS AND AWARDS

FWO scholarship (2011) to support a post-doctoral mandate at the KULeuven in the laboratory for Functional Biology with Prof. J. Winderickx

Supporting grant (500 euro) given by ESCMID to support registration to EuroBiofilms 2009, Rome, Italy, 2-5/9/2009

FEBS travel grant (1000 euro) to support travel and registration to the Course: 1st FEBS Advanced Lecture Course: Systems Biology: From Molecules & Modeling to Cells, 12-18/3/ 2005, Gosau, Austria.

Erasmus grant (1500 euro) to support master thesis research in the laboratory of Prof. J. Thevelein at KU Leuven-Belgium

The article: "Off-target effects of neuroleptics and antidepressants on Saccharomyces cerevisiae" appeared among the Editor's Highlight in the journal Toxicological Sciences

TEACHING EXPERIENCE

2004/5/6	Assistant at the Vrije Universiteit Brussel (Belgium) for the laboratory course in Enzimology.
Jun. 09 - Aug. 09 E Jun. 08 - Aug. 08	Student guide for the summer program: "Undergraduate Summer Research Internships" at the FAS Centre for Systems Biology, Harvard University, Cambridge, MA, USA.
Sept.09- Jan.10	Project leader and teacher for the university "Life science research 100", at the Dep. of Molecular and Cell Biology Harvard University, Cambridge, MA. USA
Feb.10- May-10	Supervisor at the university course: Introduction to laboratory research", MCB91R Harvard University, Cambridge, MA, USA
Jan.10- Jul.11	Guide of research assistants in the laboratory of Prof. K. Ribbeck, at the Dep. of Bioengineering, MIT, Cambridge, MA,USA
Jan.10- Jul.11	Guide of PhD Students in the laboratory of Prof. K. Ribbeck at the Dep. of Bioengineering, MIT, Cambridge, MA,USA
Oct.11- Dec.12	Guide of PhD students and bachelor students in the laboratory of Prof. J. Winderickx, at the Dep. of Biology, KU Leuven, Belgium
Nov.12	Help with teaching the university course "basic Molecular Biology" at the KULeuven, Belgium

In Italy:

May.14-Sep.14	Temporary lecturer for the course: "Transgenic organisms for research and their applications"
	Temporary lecturer for the course: "Recombinant technologies and biotechnology laboratory II" and assistance for the laboratory course
2014-2015	Tutor of two PhD students within the project: "Advancing research in agricultural and food sciences at Faculty of Agriculture, University of Belgrade"(AREA); financed by the European Commission
2015	Tutor for teachers, master students, and PhD students form the Universities of Voronezh State University (Russia), Belarus State University (Byelorussia), Zhytomyr Technological State University (Ukraine), within the project: Human security on territories contaminated by radioactive agents (HUMAN), financed by EACEA Tempus
2015-2016	Lecturer for the course: "Systems biology"
	Lecturer for the course: "Recombinant technologies and biotechnology laboratory II"
	Lecturer for the course: "Transgenic organisms for research and their applications"
Since 2016	Lecturer for the course: "Systems biology"
	Lecturer for the course: "Biostatistics and data analysis"
Since 2016	Co-tutor to bachelor thesis, master thesis and PhD thesis

MEMBERSHIP

Member of Belgian Society of Biochemistry and Molecular Biology (2004-2005-2006)

Member of ESCMID (European Society of clinical microbiology and infection diseases (2009, 2010, 2016)

Member of AIBG (Italian association for biology and genetics) since 2016

PUBLIC ENGAGMENT

29 Sep. 2017	Organization within "Lanotte dei ricercatori" of "Stanza dei sensi"
17-19/11/2017	Organization of "Acquamarket" together with other colleagues of the same Department.