

Alessandra Breschi

Data scientist in functional genomics seeking a career in personalized medicine

EXPERIENCE HIGHLIGHTS

- Collaborated in several international scientific consortium projects: ENCODE and Mouse ENCODE (with Prof. Thomas Gingeras), Blueprint, GTEx
- Explored integrative analyses of multiple omics layers from Next Generation Sequencing data
- Comparative transcriptomics analysis of RNA-seq data, gene expression and splicing
- Explored methods for analysis automation - pipeline development and visualization tools
- Benchwork experience in cellular and molecular biology

WORK EXPERIENCE

2016-	Center for Genomic Regulation (Barcelona, Spain)	Postdoctoral Researcher Genomics and Bioinformatics Group (PI: Roderic Guigó)
2011-2016	Center for Genomic Regulation (Barcelona, Spain)	PhD Researcher Genomics and Bioinformatics Group (PI: Roderic Guigó)

EDUCATION

2011-2016	University Pompeu Fabra (Barcelona, Spain)	PhD programme in Biomedicine (Grade: <i>Excellent cum laude</i>)
2009-2011	University Pompeu Fabra (Barcelona, Spain)	International MSc in Bioinformatics for Health Sciences
2009-2011	University of Bologna (Italy)	International MSc in Bioinformatics (Grade: <i>110/110 cum laude</i>)
2006-2009	University of Florence (Italy)	BSc in Biology (Grade: <i>110/110 cum laude</i>)

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Computer Skills

Main - python, R, LaTeX, shell scripting, awk/sed, ggplot2

Intermediate - matlab/octave, HPC (Sun Grid engine), pipeline development (Nextflow)

Beginner - JavaScript, HTML, CSS, d3.js, SQL

Bioinformatics Software

Genome Browsers (UCSC, Ensembl), NGS pipelines and tools (RNA-seq, ChIP-seq, ATAC-seq, DNase-seq), Bioconductor, Sequence alignment tools, PyMOL

General Skills

Genomics, Data Analysis, Data Visualization, Biostatistics, Machine Learning, Network Analysis, Time-series analysis

Personal Skills

Analytical, Detail-oriented, Teamwork, Dedicated, Time management, Communication, Presentation

INTERNSHIPS

2015 4 mos.	University of California Irvine	Visiting Doctoral Student Developmental and Cell Biology (PI: Ali Mortazavi)
2011 6 mos.	University Pompeu Fabra (Barcelona, Spain)	Master Student Intern Structural Bioinformatics Group (PI: Prof. Baldo Oliva)
2009 4 mos.	University of Florence (Italy)	Undergraduate Student Intern Department of Biochemistry (PI: Dr. Paolo Paoli)

GRANTS AND AWARDS

- FPI Doctoral fellowship for short research stay in foreign institution (Spanish Ministry for Education, 2015)
- FPI Doctoral fellowship (Spanish Ministry for Education, 2012)
- Graduate scholarship for developing Master thesis abroad (EU, 2011)
- Undergraduate merit scholarship (University of Florence, 2009)

CONFERENCES AND MEETINGS

Selected talk: Annual ENCODE consortium meeting - San Diego 2016
The Biology of Genomes - Cold Spring Harbor 2015
Annual ENCODE consortium meeting - Stanford 2014
BluePrint Analysis Working Group meeting - Hinxton 2014
BluePrint Analysis Working Group meeting - Amsterdam 2013

Poster: Annual ENCODE consortium meeting - Cold Spring Harbor 2015
Annual BluePrint consortium meeting - Rome 2014
Intelligent Systems for Molecular Biology (ISMB) - Boston 2014
Annual BluePrint consortium meeting - Berlin 2013

TEACHING

Theoretical and practical introductory course on RNA-seq - Center for Genomic Regulation 2013, 2015
Practical course on Gibson cloning - Center for Genomic Regulation 2013, 2014
Project supervisor for the Bioinformatics course of the Biology BSc - University Pompeu Fabra 2012, 2013

OTHER ACTIVITIES

Online courses: Machine Learning (Coursera, 2014), Kaggle R Tutorial on Machine Learning (DataCamp, 2015), Big Data Analytics with Revolution R Enterprise (DataCamp, 2015)

Languages: Italian, English, Spanish, Catalan, French (basic)

Hobbies: Theatre, Music (playing the piano), Cooking, Yacht Sailing, Stand-up Paddling, Crowdttesting bug tester

Driver's licence: B, Skipper Licence

PUBLICATIONS

- **Alessandra Breschi**, Thomas R Gingeras, and Roderic Guigó. Comparative transcriptomics in human and mouse. *Nature Reviews Genetics*, Accepted
- **Alessandra Breschi**, Sarah Djebali, and Jesse Gillis et al. Gene specific patterns of expression variation across organs and species. *Genome Biology*, 17(1):151, 2016
- Dmitri D. Pervouchine*, Sarah Djebali*, **Alessandra Breschi***, and Carrie A. Davis* et al. Enhanced transcriptome maps from multiple mouse tissues reveal evolutionary constraint in gene expression for thousands of genes. *Nature communications*, 6, 2015
- Yue Feng*, Yong Chen*, **Alessandra Breschi***, Jeff Vierstra*, Weisheng Wu*, Tyrone Ryba*, Richard Sandstrom*, Zhihai Ma*, Carrie A. Davis*, Benjamin D. Pope*, and Yin Shen* et al. A comparative encyclopedia of dna elements in the mouse genome. *Nature*, 515(7527):355–364, 2014
- Shin Lin, Yiing Lin, Joseph R. Nery, Mark A. Urich, and **Alessandra Breschi** et al. Comparison of the transcriptional landscape between human and mouse tissues. *Proceedings of the National Academy of Sciences*, 111(48):17224–17229, 2014
- Lu Chen, Myrto Kostadima, Joost H.A Martens, ..., and **Alessandra Breschi** et al. Transcriptional diversity during lineage commitment of human blood progenitors. *Science*, 345(6204):1251033, 2014

*equally contributing authors