Giulia Nicole Baldrighi

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Education

Bachelor's degree in biological sciences July 2019
University of Pavia

- **Institute: Molecular Genetic Institute (LL Cavalli Sforza), CNR**: Identification of sex-biased expression of protein-coding and long non-coding genes in the whole blood tissue

Master's degree in biostatistics October 2021
University of Milano Bicocca

- **Brain and Behavioral Sciences**: Protein level heritability estimation in a sample of Sardinian families with multiple sclerosis cases

Ph.D. programme in datascience in biomedicine 2021-2024
University of Pavia

- **Genomic Statistics, BBS**: Fine mapping of SNPs within MYO1D-ASIC2 genes: investigating a promising candidate region for multiple sclerosis using the knockoff filter method on a sample of Sardinian trios

Experience

Bioinformatics, data analysis September 2018 – May 2019
Molecular Genetics, CNR ***University of Pavia***
Topics: RNA-sequencing analysis, programming

Tutoring activity March 2019 – June 2024
University of Pavia

- Optical microscopy in botany (Environmental sciences, 2019, 20hh)
- Applied statistics and informatics for medical research (Faculty of Dentistry, September 2021 -April 2022, 10hh)
- Applied statistics and informatics for medical research (Faculty of Dentistry, September 2022-April 2023, 75hh)
- Advanced statistics, medicine enhanced by engineering technologies course (MEET, March-April 2023, 10hh)
- Statistics and informatics applied for medical research (Faculty of Dentistry, September 2023-April 2024, 75hh)

Academic teaching October 2022 – June 2023
University of Pavia

- Genetic statistics and imputation methods for genetic data (Second level Master in Genomic Data Science, 2022, 8hh)
- Genetic statistics and imputation methods for genetic data (Second level Master in Genomic Data Science, 2023, 8hh)
- Genetic statistics and GWAS analysis (Second level Master in Genomic Data Science, 2023, 8hh)
- Software for genetics (Second level Master in Genomic Data Science, 2023, 4hh)

Visitng Ph.D. student April 2022 – August 2022
Public Health, University of Copenhagen ***University of Copenhagen***

Erasmus Traineeship Ph.D. student March 2023 – September 2023
Center for basic and metabolic research, University of Copenhagen ***University of Copenhagen***

Advanced formation

- **Reproducibility in bioinformatics**: Physalia-courses, July 2022
- **Developing R/Bioconductor packages**: Physalia-courses, November 2023

Languages

Italian (native language), **English** (B2), **Spanish**(B1), **German** (A1), **Danish** (A1)

Technical Skills

Programming skills: Bash, R, Python, SAS, Markdown, HTLM
Software for bioinformatics: PLINK, Galaxy, Genome Browser

Awards

- **2022 Collegio Ghislieri Alumna**: Accomodation at Ca' della Paglia College (Ghislieri Foundation, Pavia)
- **2023 Collegio Ghislieri Alumna**: Accomodation at Ca' della Paglia College (Ghislieri Foundation, Pavia)

Conferences

Italian Society of Human Genetics, SIGU Congress Sept, 2022
Trieste, Italy

* **Poster 1st author**: Heritability estimation of multiple sclerosis related plasma protein levels in Sardinian families with Immunochip genotyping data

Genomic of brain disorders conference- Wellcome Connecting Science Campus May, 2023
Cambridge, UK

* **Poster 1st author**: Epigenetics in Multiple Sclerosis: a multi-level analysis combining DNA methylation pattern, age acceleration, epigenetic drift using public datasets

European Society of Human Genetics, ESHG Congress June, 2023
Glasgow, UK

* **Poster 1st author**: A knockoff filter selection study of SNPs associated with multiple sclerosis in a highly dense region of chromosome 17

European Society of Human Genetics, ESHG Congress June, 2024
Berlin, Ger

* **Poster 1st author**: Fine mapping of SNPs within MYO1D-ASIC2 genes: investigating a promising candidate region for multiple sclerosis using the knockoff filter method on a sample of Sardinian trios
* **Poster**: Epigenetics in Multiple Sclerosis: a multi-level analysis combining DNA methylation pattern, age acceleration, epigenetic drift using public datasets
* **Poster**: A retrospective study on allelic distribution for recessive diseases in an Italian cohort

Publications

2022

Nova A, Baldrighi GN, Fazia T, Graziano F, Saddi V, Piras M, Beecham A, McCauley JL, Bernardinelli L. Heritability Estimation of Multiple Sclerosis Related Plasma Protein Levels in Sardinian Families with Immunochip Genotyping Data. Life (Basel). 2022 Jul 21;12(7):1101. doi: 10.3390/life12071101. PMID: 35888189; PMCID: PMC9317284

Valenzuela PL, Mateo-March M, Muriel X, Zabala M, Lucia A, Barranco-Gil D, Mille GP, Brocherie F, Burtscher J, Burtscher M, Ryan BJ, Gioscia-Ryan RA, Perrey S, Rodrigo-Carranza V, González-Mohíno F, González-Ravé JM, Santos-Concejero J, Denadai BS, Greco CC, Casado A, Foster C, Mazzolari R, Baldrighi GN, Pastorio E, et al.; Commentaries on Viewpoint: Using Vo2max as a marker of training status in athletes - can we do better? J Appl Physiol (1985). 2022 Jul 1;133(1):148-164. doi: 10.1152/japplphysiol.00224.2022. PMID: 35819399

Baldrighi, G.N.; Nova, A.; Bernardinelli, L.; Fazia, T. A Pipeline for Phasing and Genotype Imputation on Mixed Human Data (Parents-Offspring Trios and Unrelated Subjects) by Reviewing Current Methods and Software. Life 2022, 12, 2030. https://doi.org/10.3390/life12122030

2023

Fazia T, Baldrighi GN, Nova A, Bernardinelli L. A systematic review of Mendelian randomization studies on multiple sclerosis. Eur J Neurosci. 2023 Aug;58(4):3172-3194. doi: 10.1111/ejn.16088. Epub 2023 Jul 18. PMID: 37463755.

2024

Nova A, Di Caprio G, Baldrighi GN, Galdiolo D, Bernardinelli L, Fazia T. Investigating the Influence of Oral Contraceptive Pill use on Multiple Sclerosis Risk using UK Biobank data. Fertil Steril. 2024 Aug 2:S0015-0282(24)01931-9. doi: 10.1016/j.fertnstert.2024.07.999. Epub ahead of print. PMID: 39098539.

Baldrighi, G.N.; Nova, A.; Bernardinelli, L.; Fazia, T. Fine mapping of SNPs within MYO1D-ASIC2 genes: investigating a promising candidate region for multiple sclerosis using the knockoff filter method on a sample of Sardinian trios. BMC Genomic Data. *Under review*

Baldrighi, G. N.; Cavagnola, R.; Sacco D.; Costantino, L.; Bernardinelli, L.; Gentilini, D. Exploring the complexities of epigenetics in multiple sclerosis: a study involving meta-analysis of DNA methylation profiles, epigenetic drift and rare epivariations. Multiple Sclerosis, Exp Trans and Clinical. *Under review*

Sacco D.; Brambilla, P.; Calzari, L., Cavagnola, R.; Baldrighi, G. N.; Costantino, L.; Ferrara, F.; Signorini, S.; Besana, S.; Siracusa, C.; Cattaneo, K.; Leoni, V.; Mocarelli, P.; Gentilini, D. Exploring DNA Methylation Patterns in Adult Men Exposed in Utero to Dioxin. Minerva Endocrinol. *Under review*