

CURRICULUM VITAE

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PROFESSIONAL ACTIVITIES

Current: associate professor at Padova University, Department of Molecular Medicine.

Research activity: microbiology, bioinformatics, genomics/metagenomics and transcriptomics/metatranscriptomics analyses of bacteria and viruses, search for structural motifs in the primary DNA sequence, phylogenetic analyses, development of methods for protein function prediction.

Teaching activity: Medical Biotechnologies, Master's Degree in "Bioengineering" (48 hrs per year, official language: English); Microbiology, Master's Degree in "Medicine and Surgery" (60 hrs per year), Clinical Microbiology, graduate school in Internal Medicine (10 hrs per year).

March 2017 – February 2020: researcher at Padova University, Department of Molecular Medicine.

April 2012 – March 2017: post-doctoral fellow at Padova University, Department of Molecular Medicine.

March 2011 - March 2012: post-doctoral fellow at Padova University Hospital, Operating Unit of Microbiology and Virology.

January 2010 - December 2010: post-doctoral fellow at Padova University, Department of Histology, Microbiology and Medical Biotechnologies.

March 2010: PhD in Biology e Regenerative Medicine, Padova University.

EDUCATION

September 2006: Second level University Degree in "Medical Biotechnologies", University of Padova, Italy (110 with honors).

July 2004: First level University Degree in "Health Biotechnologies", University of Padova, Italy (104).

2001: High school degree (L.S.S. E. Fermi, Padova).

ACHIEVEMENTS AND GRANTS

2025: recipient of a 75000 euros PRIN grant as co-PI of the project “More than meets the I-motif and G-quadruplex: light-up probes for sensing non-canonical DNA structures in cells”.

2022: recipient of a collective grant of 1,8 million euros as one of the PIs of the project “INF-ACT One health basic and translational research actions addressing unmet needs on emerging infectious diseases”, in the context of the national PNRR.

2022: I was declared eligible to obtain a “Full Professor” position in MED/07 scientific sector (Microbiology and Clinical Microbiology).

2021: awarded with the prize “Antonio Feltrinelli giovani” for Virology, conferred unanimously for the high scientific profile and the study of SARS-CoV-2 transmission dynamics published in Nature in 2020.

2021: recipient of a 50,000 euros grant as PI of the project “SARS-CoV-2 in the highly characterized population of Vo’: a thorough investigation at genomic and serological levels”. It is a two-year project funded by the Dept. of Molecular Medicine of the University of Padova, Italy.

2020: recipient of 59,800 euros grant as co-PI of the project “A LIPSTIC screening system to identify tumor neoantigens”. It is a three-year project funded by the Ministry of Health; the team is led by Prof. Giulia Pasqual.

2020: I obtained an Associate Professor position at the University of Padova.

2019: recipient of a 140,000 euros grant as PI of the project “Identification of a new Secondary Structure in Mycobacterium Tuberculosis genome as a potential pharmacological target (ISSMYTH)”. It is a two-year project funded by the University of Padova in the context of the STARS Consolidator grants program.

2019: recipient of a 453,850.00 euros grant as co-PI of the project “Versatile Emerging Infectious disease Observatory (VEO)”, (Call: H2020-SC1-2019-Single-Stage-RTD, ProjectID 874735). The project involves 20 European institutions for 5 years, for a total of 14,994,726.25 euros. The University of Padova unit is led by Prof. Luisa Barzon.

2017: I was declared eligible to obtain a “Associate Professor” position in MED/07 scientific sector (Microbiology and Clinical Microbiology).

2016: I was selected for a three-year, tenure-track Researcher position at the University of Padova.

2015: I was selected for a senior two-year post-doc position at the University of Padova with a project entitled “Digging into the microbiota: improving its comprehension by implementing taxonomic information, protein function prediction, and metabolic pathway reconstruction.”.

2014: I was selected as the recipient of a 24,000 euros grant, paid by the University of Padova as a contribute to the same research project.

2013: I was selected for a senior two-year post-doc position at the University of Padova with a project entitled “Using functional space to predict function: exploring new approaches to annotate genes and proteins”.

2011: I participated, together with the team “Argot2”, to the Critical Assessment of Function Annotation (CAFA), an international challenge for function prediction software. The team was ranked second best overall.

2011: I was selected for attending the international training course entitled "EMBO Bioinformatics & Comparative Genome Analyses Course", June 27th – July 9th, 2011, Institute Pasteur, Paris, France.

PUBLICATIONS

I am author of 81 scientific publications on international peer-reviewed journals (total citations 6381, h-index=31).

CONFERENCES

I participated **as oral speaker** to the following national and international congresses:

- *La Next Generation sequencing e la Bioinformatica per lo studio di SARS-CoV-2*. Rare Disease Day in DIMED, online training course, September 7 – November 30 2020.

- *DNA Sequencing: from origins to single cell*. WebValley 2020, Bruno Kessler Foundation, Trento, Italy, August 18, 2020. **Invited speaker**.

- *La pandemia dove non l'aspetti: l'esperienza di Vo'*. Festival della statistica e della demografia, September 18-20 2020, Treviso, Italy.

- *Aspetti bioinformatici associati all'NGS: dalla metagenomica alla ricerca di varianti minoritarie*. Pre-congress course of XLVII Congresso Nazionale AMCLI (Associazione Microbiologi Clinici Italiani), 10-13 November 2018, Rimini, Italy. **Invited speaker**.

- *G-quadruplex forming sequences in the genome of all known human viruses: a comprehensive guide – International congress "Biology of non-canonical nucleic acids: from humans to pathogens" (BIONIC)*. September 26-28th, 2018, Padova, Italy.

- *A new model for 3D genome folding tested in Mycobacterium bovis* – DMM Scientific meeting, November 9-10 2017, Padova, Italy.

- *Analysis of NGS data to characterize viral variability: a case study applied to Human papillomavirus infections* - 5th Italian experience in biomedical research: young minds at work. October 20-21st, 2017, Desenzano del Garda (BS), Italy.

- *Phylogenetic characterization of Central-Southern European lineage 2 West Nile virus: Analysis of human outbreaks in Italy and Greece, 2013-2014* - 13th National Congress of the Italian Society of Virology. September 14-16 2015, Orvieto, Italy.

- *Eliciting the Functional Taxonomy from protein annotations and taxa* – Automated Function Prediction 2015, ISMB satellite meeting. July, 11th, 2015, Dublin, Ireland.

- *keeSeek: searching distant non-existing words in genomes for PCR-based applications* – Second Italian experience in biomedical research: young minds at work. October 24-25th, 2014, Desenzano del Garda (BS), Italy.

- Analysis of microRNA expression profiles in viral chronic hepatitis and development of bioinformatics tools for gene target prediction. - XVI FISMAD National Congress, march 6 – 9th, 2010, Verona, Italy.

- *Prediction of viral and host targets of human cytomegalovirus microRNAs* - 9th National Congress of the Italian Society of Virology. September 9-11th, 2009, Orvieto, Italy.

- *High-throughput Sequencing Technology Applications in Stem Cell Research* - Macroregional Network for cell therapy in Hematopoietic Stem Cell Transplant Recipients. April 26-27th, 2009. Bressanone, Italy.

- *Development of advanced therapies for the treatment of hepatic cancer* – Conference for the presentation of research of PhD students, cicle XXII, belonging to the Macroarea 4 (Medicine and Surgery). Padova, October 20th, 2008.

- *MicroRNA Deregulation in HCV-Associated Hepatocellular Carcinoma* - 8th National Congress of the Italian Society of Virology. September 21-23 2008, Orvieto, Italy.

THIRD MISSION

In the context of the Third Mission project of the Molecular Medicine Dept. (University of Padova), I regularly keep seminars in high schools (2-4 hrs per year) about next generation sequencing and bioinformatics.

REVIEWER OF INTERNATIONAL SCIENTIFIC JOURNALS

I was selected as a reviewer of scientific articles by the following international journals:

- Lancet Infectious Diseases
- Nature communications
- Bioinformatics
- Trends in Biotechnology
- Clinical Microbiology and Infection
- BMC Genomics
- BMC Bioinformatics
- PLoS Computational Biology
- Infection, Genetics and Evolution
- Journal of Clinical Virology
- Scientific Reports
- Genomics, Proteomics & Bioinformatics
- PLoS One
- Viruses

Padova, September 10th, 2025

In witness,

Dr. Enrico Lavezzo

I authorize the processing of my personal data according to Legislative Decree 30 June 2003, n. 196 "Code concerning the protection of personal data".