

Graziano Pesole

Curriculum Vitae

Affiliation: Department of Biosciences, Biotechnology and Environment, Campus "E. Quagliariello", via Orabona 4, 70125 Bari, Italy.

Position: Full Professor of Molecular Biology – Associate Researcher of the Institute of Biomembranes, Bioenergetics and Molecular Biotechnologies of Consiglio Nazionale delle Ricerche (IBIOM-CNR)

Bibliometric Links

WoS ResearcherID: <http://www.researcherid.com/rid/E-9051-2014>

Google Scholar: <https://scholar.google.it/citations?user=KXj1IFAAAAAJ&hl=it>

ORCID ID: <http://orcid.org/0000-0003-3663-0859>

Research Gate: https://www.researchgate.net/profile/Graziano_Pesole2

Scopus Author ID: <http://www.scopus.com/authid/detail.url?authorId=7005831630>

Education

I received a degree in Chemistry, Summa cum Laude, at the University of Bari in April 1983, after completing a special internship at the Institute of Biological Chemistry at the same University, discussing a thesis on: "The concentration of the mitochondrial transcripts in rat liver", supervised by the professors Palmiro Cantatore and Cecilia Saccone Quagliariello.

Professional experience

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|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| Dec. 2005 – present: | Full Professor of Molecular Biology at the Department of Biosciences, Biotechnology and Biopharmaceutics (University of Bari "A. Moro", Italy) |
| Feb 2010 – July 2019 | Director of the Institute of Biomembranes, Bioenergetics and Molecular Biotechnologies, National Research Council, Bari, Italy |
| Dec. 2002 – Nov. 2005: | Full Professor of Molecular Biology at the Department of Biomolecular Science and Biotechnology (University of Milan, Italy) |

- Nov. 1998 – Nov. 2002: Associate Professor of Molecular Biology at the Department of General Physiology and Biochemistry (University of Milan, Italy)
- March 1996 – October 1998: Research Associate (Ricercatore) in Biochemistry at the Department of Biology D.B.A.F. (University of Basilicata, Italy)
- Jan. 1989 - Feb. 1996 : Research Assistant (Tecnico Laureato) at the Department of Biochemistry and Molecular Biology (University of Bari, Italy)
- Sept.1986 - January 1989 : full teacher of Chemistry in the high school.
- May 1986 - September 1986: researcher at the ENICHEM VALBASENTO Labs (Pisticci - MT) for a research project on carbon fibers.
- January 1985 - May 1986 : Scholarship at the Centro Ricerche Bonomo (Bari - Italy) for a research project in food science.
- October 1983 - January 1985 : National Service as chemist officer at the Stabilimento Militare Nucleare - Fisico - Chimico in Civitavecchia (Rome).

Research activity

Bioinformatics, comparative genomics and molecular evolution are the major topics of the research activity carried out within my interdisciplinary research team including molecular biologists, computer scientists and statisticians.

In particular, my interests include: i) molecular evolution and computational approaches for the structural and functional analysis of nucleotide sequences, particularly focused on the identification of regulatory elements in non-coding genome regions; ii) epigenomics; iii) transcriptome profiling, including the study of alternative splicing and RNA editing; iv) functional analysis of untranslated regions of eukaryotic mRNAs; v) assessment and functional characterization of the microbiome in clinical and environmental samples.

Within my studies on molecular evolution, I carried out several studies on the evolution of mitochondrial genome at the intra-species level, in order to clarify some aspects of the origin of modern man, and at the inter-species level to reconstruct mammal phylogeny and to study the evolutionary dynamics of the mitochondrial genome of Tunicata.

More recently, I am focusing on bioinformatics application for the management and integrative analysis of next generation sequencing data generated by both second (e.g. Illumina) and third

generation (e.g. PacBio, Nanopore) platforms, up to the single cell level, also using machine learning and artificial intelligence approaches, including:

- i) eukaryotic and prokaryotic genomes assembly and annotation;
- ii) investigation of the nucleo-mitochondrial cross-talk through reconstruction of complete mitochondrial genomes, variants annotation, and quantification of their relative abundance through the analysis of whole genome (WGS) or exome (WES) sequence data;
- iii) transcriptome profiling of the protein coding and non-coding portion of the genomes (e.g. miRNAs, lincRNAs, circRNAs), including the characterization of novel splicing isoforms, to investigate gene expression in healthy and disease conditions and identify diagnostic and prognostic molecular biomarkers;
- iv) Detection and functional assessment of disease-causative mutations;
- v) ChIP-Seq analysis for the characterization of epigenetic signatures in healthy and disease conditions;
- vi) RNA editing studies for the assessment of its functional role in health and disease;
- vii) Metagenomics to investigate the microbial composition of clinical and environmental samples and its functional role.

Within my research activity in the field of Bioinformatics, I developed several specialised databases, including:

D1) **UTRdb/UTRsite** (<http://utrdb.ba.itb.cnr.it/>), collecting mRNA untranslated sequences and related regulatory motifs involved in the post-transcriptional regulation of gene expression.

D2) **ASPicDB** (http://_srv00.recas.ba.infn.it/ASPicDB/), collecting alternative splicing full-length variants of genes from human and other species.

D3) **SpliceAid-F** (<http://srv00.recas.ba.infn.it/SpliceAidF/>), collecting information on splicing factors and their binding sites.

D4) **ITSoneDB** (<http://itsonedb.cloud.ba.infn.it/>), a curated collection of eukaryotic ribosomal RNA Internal Transcribed Spacer 1 (ITS1) sequences aimed at supporting metagenomic surveys of environmental communities.

D5) **REDIportal** (<http://srv00.recas.ba.infn.it/atlas/>), a comprehensive collection of A-to-I RNA editing events in human and other organisms.

I also developed several algorithms and software for sequence analysis, devoted to the identification and characterization of regulatory elements in non coding genome regions and to the analysis of next-generation sequencing data (NGS), including:

- S1) **PatSearch**, for the detection of regular expression patterns and structural motifs in nucleotide sequences;
- S2) **CSTminer/GenoMiner**, for the blind identification of coding and non coding conserved sequence tags through the pairwise comparison of genome sequences;
- S3) **Weeder**, for the discovery of promoter and other regulatory elements, by detecting over-represented nucleotide patterns in nucleotide sequences;
- S4) **RNAprofile**, for the discovery of conserved sequence/structural motifs in unaligned RNA sequences;
- S5) **Exalign**, for comparative analysis of exon-intron gene structures;
- S6) **ExpEdit and REDITOOLS**: for exploring RNA editing from NGS data;
- S7) **WEP/CoVaCS**: for the characterization of nucleotide sequence variations through the analysis of whole-exome sequence data;
- S8) **RAP and NGS-Trex**: for transcriptome profiling and differential expression analysis from RNA-Seq data;
- S9) **BioMaS**: a modular pipeline for Bioinformatic analysis of Metagenomic AmpliconS;
- All tools above are available as standalone software or through web browsers (see the relevant publications in the list below);
- S10) **Metashot**: a modular pipeline for Bioinformatic analysis of shotgun Metagenomic data, specifically designed for human clinical samples;
- S11) **A-GAME**: a Galaxy-based web service for Bioinformatic analysis of functional metahgenomics data;
- S12) **VYNIL**, a software tool for pathogenic variants prioritization.
- S13) **aSCAN**, a software tool per allele -specific analysis of gene expression;
- S14) **CorGAT**, a software tool for the functional annotation of SARS-Cov-2 genomes and the identification “in silico” of variants of concerns for infectivity, immune escape and pathogenicity.

The long standing and intense research activity carried out in the last three decades in a very stimulating international and multidisciplinary context supports my **deep knowledge of the national and international research system.**

Bibliometric indicators

I authored over 340 publications on peer-reviewed International Journals (h-index=80 (Google Scholar) or 66 (Scopus), average citations per item>90, total cites ≥24,000.

Books

- Principi di Bioinformatica. Gnocchi editore (Napoli, 1997)
- Introduzione alla Bioinformatica. Zanichelli editore (Bologna, 2003)
- Handbook of Comparative and Evolutionary Genomics. Wiley Ed. (New York, 2003)
- Biologia Molecolare, Ambrosiana & Zanichelli Ed. (I edizione Milano, 2010; II edizione Milano, 2014, III edizione Milano, 2018)
- Fondamenti di Bioinformatica, Zanichelli Ed. (Milano, 2018)
- Tecniche e metodi di Biologia Molecolare, CEA Ed. (Milano 2021)

Patents

1. GeneUP algorithm to search optimal primers for RNA fingerprinting (Pat. No. 08/925,816/Sep 5th 1997 entitled to Michael McClelland and Graziano Pesole).
2. Method for the preparation and amplification of representative and strand- specific libraries of cDNA for high throughput sequencing, use thereof, kit and cartridges for automation kit - Application Numbers & Dates: EP11738288 2011-05-30 [2011EP-0738288] A1 (Brevetto italiano n. RM2010A000293/2010) -Applicant/Assignee: CONSIGLIO NAZIONALE DELLE RICERCHE [IT]

Editorial Activity

- Section Editor of “BMC Bioinformatics”
- Member of the Editorial Board of “Briefings in Bioinformatics”
- Member of the Editorial Board of “Nucleic Acids Research - Genomics and Bioinformatics”
- Member of the Editorial Board of “BMC Genomics”
- Member of the Editorial Board of “Nature Scientific Reports”
- Member of the Editorial Board of “Computational Biology and Chemistry”
- Member of the Editorial Board of “Comparative and Functional Genomics”
- Member of the Editorial Board of “International Journal of Evolutionary Biology”
- Member of the Editorial Board of “Frontiers in Genetics”
- Member of the Editorial Board of “Genes”
- Member of the Editorial Board of “Microorganisms”

Responsibility as coordinator of Research programs of great national and international relevance (2013 – 2022)

I coordinated several research programs funded by national (MIUR, CNR, Telethon, AIRC, AISM, ARISLA) and international (EU, NIH) agencies. Below the list of the research projects in the last five years (total budget > 20 M €):

- HORIZON-INFRA-2021-EOSC-01-04 - 2022-2025- EuroScienceGateway: Leveraging the European compute infrastructures for data-intensive research guided by FAIR principles (GA 101057388) (Project Research Unit Coordinator)

- DIGITAL-2021-CLOUD-AI-01 - 2022-2026 -Genome Data Infrastructure (GA 101081813) (Project Research Unit Coordinator)
- Italy-India NoE - 2022-2024 - Investigating and translating genomics evidence for public health response to SARS-Cov-2 (INSIDE SARS-Cov-2) (Project Research Unit Coordinator)
- Progetto MISE H-STEEP - 2022-2023 - Human STaminal cell Extraction and Expansion Process (Project Research Unit Coordinator)
- PNRR CN3 - 2022-2025 National Center for Gene Therapy and Drugs based on RNA Technology (Spoke leader)
- PNRR IR ELIXIRxNextGenIT - 2022-2025 - Consolidation of ELIXIR-IT, Consolidation of the Italian Infrastructure for Omics data and Bioinformatics (Project Research Unit Coordinator)
- RF-2021-12374963 - 2023 - 2025 -Less Genes more genomes: modeling the implementation of integrative Omics as a first line tool in the clinical practice (Project Research Unit Coordinator)
- PNRR - Complementary Investments DARE - 2023 - 2026 - Digital Lifelong Prevention (Project Research Unit Coordinator)
- FISM - 2018-2021 - "Epstein-Barr virus genotypes in multiple sclerosis and their functional relevance in the disease etiology" (Project Research Unit coordinator)
- Fondazione Fibrosi Cistica - 2021-2023 - "Enhancing the prediction of clinical responses to CFTR modulators by in-vitro assays using patient-derived tissues under conditions mimicking native status of CF airways" (Project Research Unit coordinator)
- PON ARS01_00906 - 2021-2023 - "TITAN - Nanotecnologie per l'immunoterapia dei tumori" (Project Research Unit coordinator)
- HORIZON-INFRA-2021-EMERGENCY-01 - 2021-2024 - "BYCOVID - Beyond Covid (GA 101046203)" (Project Research Unit coordinator)
- HORIZON-INFRA-2021-EOSC-01-04 - 2022-2025 - "EuroScienceGateway: Leveraging the European compute infrastructures for data-intensive research guided by FAIR principles" (Project Research Unit coordinator)
- INTERREG V-A Regione Puglia - 2021- "Study of viral clusters and gene variants related to the SARS-Cov-2 host response in the Apulia and Epirus regions" (Project coordinator)
- H2020-SC1-DTH-2019-2 - 2020-2022 - Beyond 1M Genomes (B1MG) (GA 951724) (Project Research Unit coordinator)
- H2020-INFRAEOSC-2018-3 - 2019-2022 - EOSC-Pillar - Coordination and Harmonisation of National Initiatives, Infrastructures and Data services in Central and Western Europe (GA 857650) (Project Research Unit coordinator)
- H2020-INFRADEV-2019-2 - 2020-2023 - ELIXIR-CONVERGE: Connect and align ELIXIR Nodes to deliver sustainable FAIR life-science data management services (GA 871075) (Project Research Unit coordinator)
- H2020-BG-2018-2020 - 2020-2023 - NewTechAqua: New Technologies, Tools and Strategies for a Sustainable, Resilient and Innovative European Aquaculture (Project Research Unit coordinator)
- H2020-SC1-BHC-2018-2020 - 2019-2023 - European Joint Programme on Rare Diseases (GA 825575) (Project Research Unit coordinator)
- H2020-INFRAEOSC-2018-2020 EOSC-Life (2019-2023)- Providing an open collaborative space for digital biology in Europe (Project Research Unit coordinator)
- FISM 2017 (2019-2020) - Epstein-Barr virus genotypes in multiple sclerosis and their functional relevance in the disease etiology (Project Research Unit coordinator)
- Cluster Tecnologici Regione Puglia (2015-2017) - "DICLIMAX: Strumentazione per diagnostica clinica basata su next generation sequencing di acidi nucleici" (Project Research Unit coordinator)
- H2020-INFRA-SUPP-2014-2 GLOBIS-B (2015-2018)- GLOBal Infrastructures for Supporting Biodiversity research (Project Research Unit coordinator)

- H2020-INFRADEV-1-2015-1 ELIXIR-EXCELERATE (2015-2019) - Fast-track ELIXIR implementation and drive early user exploitation across the life sciences (Project Research Unit coordinator)
- H2020-BG-2014-2 INMARE (2015-2019) - Industrial Applications of Marine Enzymes: Innovative screening and expression platforms to discover and use the functional protein diversity from the sea (Project Research Unit coordinator)
- H2020-INFRADEV-1-2014-1 EMBRIC (2015-2019)- European Marine Biological Research Infrastructure Cluster to promote the Blue Bioeconomy (Project Research Unit coordinator)
- H2020-EINFRA-2014-2 INDIGO (2015-2017) - INTeegrating Distributed data Infrastructures for Global ExpLOitation (Project Research Unit coordinator)
- ERC HomeoGUT (2014-2019) - Immune mechanisms that control the homeostasis of the gut and that are deregulated in intestinal pathologies (G.A: 615735) (Project research unit coordinator)
- FP7 INFRASTRUCTURES-2011-2 - BioVel (2011-2014) - Biodiversity Virtual e-laboratory - (GRANT AGREEMENT FP7 N. 283359) (Project research unit coordinator)
- FP7 INFRASTRUCTURES-2011-2 - CReATIVE-B (2011-2014) - Coordination of Research e-Infrastructures Activities Toward an International Virtual Environment for Biodiversity (GRANT AGREEMENT FP7 N. 284441) (Project research unit coordinator)
- FISM (2011-2014) - High-throughput investigation of Multiple Sclerosis associated infectious agents by unbiased cDNA deep sequencing (Project coordinator)
- FISM (2010-2013) - Characterization of Epstein-Barr virus genotypes in multiple sclerosis through next generation sequencing approaches (FISM 2011/R/31) (Project research unit coordinator)
- PO FESR 2007-2013 - PON02_00186_34147512 (2012-2015) - Strumenti Innovativi per il Miglioramento della Sicurezza Alimentare (S.I.Mi.S.A.) (Project research unit coordinator)
- ARISLA - REDISALS - RNA editing landscape of motor neurons in sporadic ALS by massive transcriptome sequencing (Project coordinator)
- PO FESR 2007-2013 - VIRTUALAB PON 01_01297 (2011-2015) - Sistemi avanzati di Meccatronica Biomedicale di Diagnosi di Terapia Medica basati su Realtà Virtuale e Aumentata, Microelettronica, e su Laboratori robotizzati ad elevato throughput (Project research unit coordinator)
- PO FESR 2007-2013 - MICROMAP PON 01_02589 (2011-2015) - Sviluppo di una piattaforma tecnologica multiplex per diagnostica molecolare, portatile ed automatizzata, basata sulla logica strumentale del lab-on-chip, in grado di consentire applicazioni multiparametriche in campo infettivologico. (Project research unit coordinator)
- PO FESR 2007-2013 - BIOforIU PONa3_00025 (2012-2015) - Infrastruttura multidisciplinare per lo studio e la valorizzazione della Biodiversità marina e terrestre nella prospettiva della "Innovation Union" (Project coordinator)
- Progetto ESFRI ELIXIR (2012-2023) - European infrastructure for biological data (Project coordinator)
- Progetto ESFRI Lifewatch (2012-2023) - European infrastructure for Molecular Biodiversity (Project research unit coordinator)
- Eu-JPI ENPADASI (2015-2016) - the European Nutrition Phenotype Assessment and Data Sharing Initiative (Project research unit coordinator)

Management activities and experience in the direction of structures of high scientific of technological relevance

- CIB (Consorzio Interuniversitario Biotecnologie) – Director (2020-present)
- Head of the Italian node of ELIXIR, the ESFRI infrastructure for biological data (2012-present)
- President of the Scientific Board (Comitato Tecnico Scientifico) of the Technological District for Health Biotechnology in the Apulia Region (2013-present)
- Member of the Scientific Board (Comitato Tecnico Scientifico) of the ALISEI cluster (2022-present)
- Director of the Institute of Biomembranes, Bioenergetics and Molecular Biotechnologies, CNR, Bari (2010-2019)
- Member of the Steering Committee of SIBBM (società Italiana di Biofisica e Biologia Molecolare (2021- present)
- Chair of MoBiLab (Molecular Biodiversity Laboratory) of the ESFRI infrastructure for Biodiversity “LifeWatch” (2013-present).

Foreign Languages

English (level C2 for listening, reading, writing)

Experience in human resource management

I gained substantial experience in human resource management during my direction of the Institute of Biomembranes, Bioenergetics and Molecular Biotechnologies of Consiglio Nazionale delle Ricerche (IBIOM-CNR) from February 2010 to July 2019. In addition, I am currently the head of ELIXIR Italy, the Italian Node of the European Infrastructure for Life Science, including 23 academic, research and technological institutions across Italy and involving over 100 contributing people (<http://elixir-italy.org>).

Currently, I lead a large multidisciplinary research team of over 20 people including molecular and cellular biologists, bioinformaticians, statisticians and computer scientists from the Universities of Bari and Milan and IBIOM-CNR.

Ability to develop public-private collaboration relationships in the research sector

I coordinated several research projects in collaboration with large (e.g. Bayer, Novozyme) and medium-sized (e.g. Masmec, Eusoft) enterprises within international (H2020), national (PON, MISE) and regional (PO-FESR) frameworks. Some of these projects allowed the development of prototype devices for genomic analyses currently on the market (e.g. OMNIA LH100 liquid handler from Masmec srl). In addition, I coordinated several third-party research contracts between University of Bari or IBIOM-CNR and private partners to provide expertise and services for biotechnological and biomedical applications. Within activities of ELIXIR-Italy I organized an Industry Forum in 2019 to promote cross-match between public and private partners in the field of Biotechnology and Precision Medicine (<https://elixir-europe.org/events/sme-2019-milan>).

Experience in evaluating the results of national and international research

I have a consolidated experience of reviewer for both manuscripts and research programs from several prestigious publishers (e.g. Nature, Science, Cell Press, Elsevier etc.) and funding agencies. In particular, I reviewed >200 manuscripts and >30 research grants in the last decade (2011-2019).

In addition, I acted ad PC Member for several international conferences:

BIOINFORMTICS 2022
AICoB 2019
BITS 2011, 2012, 2013, 2014
CCGRID 2014
ECCB 2010, 2016, 2018
IWBBIO 2016
NETTAB 2015, 2018
NGS 2017

Awards

- Associazione “G. Quagliariello” Award (1999)
- Member of Academia Scientiarum Instituti Bononiensis – Alma Mater Studiorum (2019-present)

Membership of Scientific Societies and Consortia (2010-present)

- Italian Bioinformatics Society (Founder and Past-President)
- Italian Society for Molecular Biology and Biophysics (SIBBM)
- ISCB (International Society of Computational Biology)
- INBB (Istituto Nazionale di Biostrutture e Biosistemi)
- CIB (Consorzio Interuniversitario Biotecnologie)
- CEGBA (Centro di Eccellenza in Genomica Comparata), Bari, Italy

Invited Presentations (2011-present, selected)

- Pesole G.** Comparative and evolutionary genomics of SARS-Cov2, “23th Bologna Winter School, February 25, 2022 (online)
- Pesole G.** Comparative and evolutionary genomics of SARS-Cov2, International Genomics Conference of the Iranian Academy of Science, October 1st, 2020 (online)
- Pesole G.** Comparative and evolutionary genomics of SARS-Cov2, International FISV Symposium on SARS-Cov-2 Biology and Covid-19, September 16, 2020 (online)
- Pesole G.** Gene complexity in the post-genomic era: computational approaches for the functional assessment of transcription isoforms, Oxford Global, SynGen Series, 7-8 November 2019, London (UK)
- Pesole G.** Metagenomics: High-Throughput profiling of Microbiome-Host interactions, Globis-B, Fourth International Workshop on Essential Biodiversity Variables, Bari, 26 February, 2018
- Pesole G.** Single cell transcriptomics reveals specific RNA editing signatures in the human brain. 9th Annual Next Generation Sequencing Congress, 5th Annual Single Cell Analysis Congress and 3rd Annual Genome Editing Congress. 9-10 November 2017, Novotel London West Hotel, London, UK
- Pesole G.** Computational investigation of epigenetic regulation mechanisms by simultaneous analysis of genome and transcriptome data. SMBE satellite meeting on RNA modifications and its implications on adaption and evolution. Valencia (Spain) May 17-20 2016
- Pesole G.** BioMas: a cloud-based web service for the analysis of DNA meta-barcoding amplicons – The case study of harmful microalgae. Open bridges for life science data. Metagenomics: bridging between environment and life. 18 November 2015, Hinxton (UK)

- Pesole G.** Elixir: an european infrastructure for biological data. Workshop on Italian-German Cooperation in Biological and Medical Research Infrastructures. Berlin, 16-17. December 2014 Italian Embassy, Tiergartenstrasse 22.
- Pesole G.** BioMas: a cloud-based service facility for the analysis of DNA meta-barcoding amplicons. Joint 2014 Annual Meeting British Ecological Society and Société Française d'Ecologie. 9 – 12 December 2014, Grand Palais, Lille, France
- Pesole G.** High-throughput investigation of RNA editing in Amiotrophic Lateral Sclerosis. NGS and non-coding RNA data analysis. SeqAhead COST Action Workshop. Bari (Italy), 17-18 April 2013
- Pesole G.** Experimental and computational strategies for large scale investigation of human mutations involved in genetic diseases through whole exome sequencing: implications for early diagnosis and personalized therapies. 6th Foresight Training Course, Biotech and Innovative Science to meet patient needs. Bari (Italy), 30th September 2013
- Pesole G.** Identification of tumor-associated cassette exons in human cancer through exon array and RNA-Seq data analysis. Post-GWAS Horizons in Molecular Epidemiology: Digging deeper into the environment. 11-14 November 2012, Westin Diplomat Resort, Hollywood, FL, USA.
- Pesole G,** ASPicDB a database of annotated transcript and protein variants generated by alternative splicing. First Post-EURASNET Symposium, Regulation of Gene Expression through RNA splicing, Trieste (Italy), 24-27 March 2012
- Pesole G.** High-throughput sequencing for transcriptome profiling and alternative splicing pattern analysis. 12th Bologna Winter School. Deep Sequencing Analysis Data: a challenge for personalized medicine. Bologna, 7-11 February 2011
- Pesole G.** De novo detection of RNA editing changes by RNA deep-sequencing. 12th Bologna Winter School. Deep Sequencing Analysis Data: a challenge for personalized medicine. Bologna, 7-11 February 2011

List of publications in peer-reviewed journals (2018-present)

- Leoni C, Manzari C, Chiara M, Veronico P, Bruno GL, Pesole G, Ceci LR, Volpicella M. Chitinolytic Enzymes of the Hyperparasite Fungus *Aphanocladium album*: Genome-Wide Survey and Characterization of A Selected Enzyme. *Microorganisms*. 2023 May 22;11(5):1357. doi: 10.3390/microorganisms11051357. PMID: 37317333; PMCID: PMC10223446.
- Chiara M, Horner DS, Ferrandi E, Gissi C, Pesole G. HaploCoV: unsupervised classification and rapid detection of novel emerging variants of SARS-CoV-2. *Commun Biol*. 2023 Apr 22;6(1):443. doi: 10.1038/s42003-023-04784-4. PMID: 37087497; PMCID: PMC10122080.
- Algieri F, Tanaskovic N, Rincon CC, Notario E, Braga D, Pesole G, Rusconi R, Penna G, Rescigno M. *Lactobacillus paracasei* CNCM I-5220-derived postbiotic protects from the leaky-gut. *Front Microbiol*. 2023 Mar 20;14:1157164. doi: 10.3389/fmicb.2023.1157164. PMID: 37020718; PMCID: PMC10067918.
- García-García A, Pérez de Diego R, Flores C, Rinchai D, Solé-Violán J, Deyà-Martínez À, García-Solis B, Lorenzo-Salazar JM, Hernández-Brito E, Lanz AL, Moens L, Bucciol G, Almuqamam M, Domachowske JB, Colino E, Santos-Perez JL, Marco FM, Pignata C, Bousfiha A, Turvey SE, Bauer S, Haerynck F, Oejo-Vinyals JG, Lendinez F, Prader S, Naumann-Bartsch N, Pachlopnik Schmid J, Biggs CM, Hildebrand K, Dreesman A, Cárdenes MÁ, Ailal F, Benhsaien I, Giardino G, Molina-Fuentes A, Fortuny C, Madhavarapu S, Conway DH, Prando C, Schidlowski L, Martínez de Saavedra Álvarez MT, Alfaro R, Rodríguez de Castro F; ESID Registry Working Party; COVID Human Genetic Effort; Meyts I, Hauck F, Puel A, Bastard P, Boisson B, Jouanguy E, Abel L, Cobat A, Zhang Q, Casanova JL, Alsina L, Rodríguez-Gallego C. Humans with inherited MyD88 and IRAK-4 deficiencies are predisposed to hypoxemic COVID-19 pneumonia. *J Exp Med*. 2023 May 1;220(5):e20220170. doi: 10.1084/jem.20220170. Epub 2023 Mar 3. PMID: 36880831; PMCID: PMC9998661.
- Bucciol G; COVID Human Genetic Effort; Meyts I. Inherited and acquired errors of type I interferon immunity govern susceptibility to COVID-19 and multisystem inflammatory syndrome in children. *J Allergy Clin Immunol*. 2023 Apr;151(4):832-840. doi: 10.1016/j.jaci.2023.02.003. Epub 2023 Feb 24. PMID: 36841740; PMCID: PMC9951110.
- Martino NA, Picardi E, Ciani E, D'Erchia AM, Bogliolo L, Ariu F, Mastroiocco A, Temerario L, Mansi L, Palumbo V, Pesole G, Dell'Aquila ME. Cumulus Cell Transcriptome after Cumulus-Oocyte Complex Exposure to Nanomolar Cadmium in an In Vitro Animal Model of Prepubertal and Adult Age. *Biology (Basel)*. 2023 Feb 4;12(2):249. doi: 10.3390/biology12020249. PMID: 36829526; PMCID: PMC9953098.
- Theissing K, Fernandes C, Formenti G, Bista I, Berg PR, Bleidorn C, Bombarely A, Crottini A, Gallo GR, Godoy JA, Jentoft S, Malukiewicz J, Mouton A, Oomen RA, Paez S, Palsbøll PJ, Pampoulie C, Ruiz-López MJ, Secomandi S, Svardal H, Theofanopoulou C, de Vries J, Waldvogel AM, Zhang G, Jarvis ED, Bálint M, Ciofi C, Waterhouse RM, Mazzoni CJ,

- Höglund J; European Reference Genome Atlas Consortium. How genomics can help biodiversity conservation. *Trends Genet.* 2023 Jul;39(7):545-559. doi: 10.1016/j.tig.2023.01.005. Epub 2023 Feb 16. PMID: 36801111.
- Tangye SG; COVID Human Genetic Effort consortium. Impact of SARS-CoV-2 infection and COVID-19 on patients with inborn errors of immunity. *J Allergy Clin Immunol.* 2023 Apr;151(4):818-831. doi: 10.1016/j.jaci.2022.11.010. Epub 2022 Dec 13. PMID: 36522221; PMCID: PMC9746792.
- Amendolare A, Marzano F, Petruzzella V, Vacca RA, Guerrini L, Pesole G, Sbisà E, Tullo A. The Underestimated Role of the p53 Pathway in Renal Cancer. *Cancers (Basel).* 2022 Nov 22;14(23):5733. doi: 10.3390/cancers14235733. PMID: 36497215; PMCID: PMC9736171.
- Fonzino A, Pesole G, Picardi E. Profiling RNA Editing in Single Cells. *Methods Mol Biol.* 2023;2584:347-370. doi: 10.1007/978-1-0716-2756-3_18. PMID: 36495460.
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