Marco Gnugnoli

Date of birth: 20/04/1991 | **Nationality:** Italian

WORK EXPERIENCE

RESEARCH TECHNICIAN – UNIVERSITY OF MILAN - BICOCCA – 14/09/2023 – Current – MILAN, ITALY

Technician for the Department of Biotechnology and Biosciences. Responsibile for:

- Management and maintenance of the yeast and bacterial strain archive, including mutant libraries;
- Support for experimental design, protocol development, and the execution of high-throughput phenotypic analyses of mutant yeast strains;
- Support for the validation of results obtained from phenotypic analyses through tetrad dissection of mutant yeast strains;
- Management of equipment and regular verification of its proper functioning; management of laboratory material supply;
- Supervision of the hazardous waste of the department.

ASSISTANT LECTURER – UNIVERSITY OF MILAN - BICOCCA – 01/01/2025 – 01/07/2025 – MILAN, ITALY

Professor in "Laboratorio di Tecnologie Abilitanti Genetiche", Teaching Lab techniques of Yeast genetics and manipulation to 2nd year Bachelor students in Biotechnology.

POSTDOCTORAL RESEARCHER – UNIVERSITY OF MILAN - BICOCCA – 01/11/2018 – 13/09/2023 – MILAN, ITALY

Post-Doc fellowship in Prof. Maria Pia Longhese's Genome Stability Lab.
I worked on the role of proteasomal function and chromatin romedelling in the DNA double strand breaks (DSBs) repair mechanisms modulation.

Experienced in:

- Chromatin Immunoprecipitation;
- DNA extraction and amplification;
- Southern blot;
- Real-time PCR primers and probe design;
- Protein extraction and western blot;
- Yeast genetic analysis.

ASSISTANT LECTURER – UNIVERSITY OF MILAN - BICOCCA – 01/01/2019 – 31/07/2019 – MILAN, ITALY

Professor in "Laboratorio di Tecnologie Abilitanti Genetiche", Teaching Lab techniques of Yeast genetics and manipulation to 2nd year Bachelor students in Biotechnology.

DOCTORAL RESEARCHER – UNIVERSITY OF MILAN - BICOCCA – 01/11/2015 – 31/10/2018 – MILAN, ITALY

PhD fellowship in Prof. Marco Vanoni's Biochemistry Lab.
I studied the intersections between carbon and nitrogen metabolism with a systems biology approach consisting of experimental and computational methods.

Experienced in:

- Microbial cell culture in flasks and bioreactors;
- Flow cytometry;
- Transcriptomics and metabolomics data collection and interpretation;
- DNA/RNA extraction and amplification;
- Computational metabolic modelling;

- Use of FRET-based probes in microplate reader;
- Tutoring Master Thesis students.

EDUCATION AND TRAINING

31/10/2015 – 08/02/2019 Milano, Italy

PHD IN BIOLOGY AND BIOTECHNOLOGY University of Milan Bicocca

Field of study Natural sciences, mathematics and statistics |

Thesis Glutamate, a nutrient at the crossroad of carbon and nitrogen assimilation

09/2013 – 13/10/2015 Milano, Italy

MASTER'S DEGREE IN INDUSTRIAL BIOTECHNOLOGY University of Milan Bicocca

Main courses attended:
- Advanced molecular biology
- Molecular and human genetics
- Cancer biology
- Bioinformatics, with laboratory experiences
- Organic chemistry applied to biotechnologies
- Scientific communication

Students' representative in the Biotechnology council.

Final grade 110/110 | **Thesis** Role of the Rad53 kinase in DNA double-strand breaks resection in S.cerevisiae

LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C2	C2	C1	C1	C1
FRENCH	A2	A2	A2	A1	A1
PORTUGUESE	C1	C1	B2	B2	B1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DRIVING LICENCE

Driving Licence: B

CONFERENCES AND SEMINARS

Conferences

- XIV Congress of the Italian Federation of Life Sciences (FISV). Rome, Italy - 20/09/2016-23/09/2016 (Poster)
  Brambilla L, Gnugnoli M, Damiani C, Colombo R, Alberghina L, Porro D, Vanoni M
  "Why glutamate cannot be used as both a carbon and nitrogen source in budding yeast?"

- 28th International Conference on Yeast Genetics and Molecular Biology. Prague, Czech Republic - 27/08/2017-01/09/2017 (Poster)
  Gnugnoli M, Brambilla L, Nicastro R, Gotti L, Airoldi C, Damiani C, Colombo R, Pescini D, Alberghina L, Porro D, Vanoni M "Glutamate greatly influences yeast transcription and metabolism causing an enhanced growth phenotype."

- 13th Edition of the International «Levures, Modèles et Outils» Conference. Rheinau, Switzerland - 11/09/2018-14/09/2018 (Poster)
  Gnugnoli M, Brambilla L, Nicastro R, Frascotti G, Gotti L, Airoldi C, Damiani C, Colombo R, Pescini D, Alberghina L, Porro D, Vanoni M "Glutamate is a multi-purpose nutrient able to sustain yeast growth in harsh times."

- BtBsDay 2019, University of Milan Bicocca, Milan, Italy - 22/11/2021 (Poster)
  Casari E, Gnugnoli M, Ratti S, Esposito F, Clerici M, Longhese MP. "Regulation of DNA double-strand breaks repair by chromatin remodelers."

- AGI Congress 2021 - Online, 22/09/2021-24/09-2021 (Poster)
  Gnugnoli M, Casari E, Longhese MP "The chromatin remodeler Chd1 supports MRX and Exo1 functions in resection of DNA double-strand breaks."

- BtBsDay 2021, University of Milan Bicocca, Milan, Italy - 15/12/2021 (Poster)
  Gnugnoli M, Casari E, Longhese MP "The chromatin remodeler Chd1 supports MRX and Exo1 functions in resection of DNA double-strand breaks."

- BtBsDay 2024, University of Milan Bicocca, Milan, Italy - 08/02/2024 (Poster)
  Casari E, Pizzul P, Rinaldi C, Gnugnoli M, Clerici M, Longhese MP "The PP2A phosphatase counteracts the function of the 9-1-1 axis in checkpoint activation."

SKILLS

Digital skills

Microsoft Office / Windows / Linux / Snapgene / R / Bioinformatics tools / Blast / Clustal Omega / Pymol

Laboratory skills

Lab Stock management / Bacterial and Yeast cultures / Real-time PCR / DNA and RNA extraction and handling / Molecular Biology / Flow cytometry / Biochemistry / Genetic interaction analysis / Omics data analysis /

Other skills

Group work / Negotiation abilities / Work under pressure / Great communication skills / Public speaking and presentations / Scientific writing / Adaptability

COURSES

Writing of Scientific papers

Innovation Management Methodology - Theory and Practice

1st SYSBIO.IT School on Computational Systems Biology

2nd SyBSyM Como School – Systems Biology and Systems Medicine: Towards a Precision Medicine

PUBLICATIONS

Scientific articles

1. Casari E*, Gnugnoli M*, Pizzul P, Tisi R, Longhese MP (2025) Sae2 integrates CDK and checkpoint phosphorylation to coordinate MRX cleavage with checkpoint attenuation. Commun Biol. doi: 10.1038/s42003-025-09424-7. *contributed equally
2. Colombo CV, Casari E, Gnugnoli M, Corallo F, Tisi R, Longhese MP (2024) Functional and molecular insights into the role of Sae2 C-terminus in the activation of MRX endonuclease. Nucleic Acids Res. 52(22):13849-13864. doi: 10.1093/nar/gkae1049.
3. Gnugnoli M, Rinaldi C, Casari E, Pizzul P, Bonetti D, Longhese MP (2024) Proteasome-mediated degradation of long-range nucleases negatively regulates resection of DNA double-strand breaks. iScience 27(7):110373. doi: 10.1016/j.isci.2024.110373
4. Pizzul P, Casari E, Rinaldi C, Gnugnoli M, Mangiagalli M, Tisi R, Longhese MP (2024) Rif2 interaction with Rad50 counteracts Tel1 functions in checkpoint signalling and DNA tethering by releasing Tel1 from MRX binding. Nucleic Acids Res. 52(5):2355-2371. doi: 10.1093/nar/gkad1246
5. Casari E, Pizzul P, Rinaldi C, Gnugnoli M, Clerici M, Longhese MP (2023) The PP2A phosphatase counteracts the function of the 9-1-1 axis in checkpoint activation. Cell Rep. 42(11):113360. doi: 10.1016/j.celrep.2023.113360
6. Casari E*, Gnugnoli M*, Rinaldi C, Pizzul P, Colombo CV, Bonetti D, Longhese MP (2022) To Fix or Not to Fix: Maintenance of Chromosome Ends Versus Repair of DNA Double-Strand Breaks. Cells 11(20):3224. doi: 10.3390/cells11203224 *contributed equally
7. Pizzul P, Casari E, Gnugnoli M, Rinaldi C, Corallo F and Longhese MP (2022), The DNA damage checkpoint: A tale from budding yeast. Front. Genet. 13:995163. doi: 10.3389/fgene.2022.995163

8. Colombo S, Longoni E, Gnugnoli M, Busti S, Martegani E (2022) Fast detection of PKA activity in Saccharomyces cerevisiae cell population using AKAR fluorescence resonance energy transfer probes. Cell Signal. 92:110262. doi: 10.1016/j.cellsig.2022.110262
9. Gnugnoli M, Casari E, Longhese MP (2021). The chromatin remodeler Chd1 supports MRX and Exo1 functions in resection of DNA double-strand breaks. PLoS Genet 17(9):e1009807. doi: 10.1371/journal.pgen.1009807
10. Casari E, Gobbini E, Gnugnoli M, Mangiagalli M, Clerici M, Longhese MP (2021) Dpb4 promotes resection of DNA double-strand breaks and checkpoint activation by acting in two different protein complexes. Nat Commun. 12(1):4750. doi: 10.1038/s41467-021-25090-9
11. Colombo CV, Gnugnoli M, Gobbini E, Longhese MP (2020) How do cells sense DNA lesions? Biochem Soc Trans.; 48(2):677-691. doi: 10.1042/BST20191118
12. Casari E, Rinaldi C, Marsella A, Gnugnoli M, Colombo CV, Bonetti D, Longhese MP (2019) Processing of DNA Double-Strand Breaks by the MRX Complex in a Chromatin Context. Front Mol Biosci. 6:43. doi: 10.3389/fmolb.2019.00043
13. Graudenzi A, Maspero D, Di Filippo M, Gnugnoli M, Isella C, Mauri G, Medico E, Antoniotti M, Damiani C (2018) Integration of transcriptomic data and metabolic networks in cancer samples reveals highly significant prognostic power. J Biomed Inform. 87:37-49. doi: 10.1016/j.jbi.2018.09.010.
14. Gobbini E, Villa M, Gnugnoli M, Menin L, Clerici M, Longhese MP (2015) Sae2 Function at DNA Double-Strand Breaks Is Bypassed by Dampening Tel1 or Rad53 Activity. PLoS Genet. 11(11):e1005685. doi: 10.1371/journal.pgen.1005685