

Prof Marco Vanoni CV

LS1 Molecules of Life: Biological Mechanisms, Structures and Functions
LS1_2 Biochemistry
LS2_13 Systems Biology
LS3_1 Cell Cycle, Cell Division and Cell Growth
LS4_9 Metabolism and metabolic disorders, including diabetes and obesity
LS9_4 Microbial biotechnology and bioengineering

Bibliometric indicators

<https://orcid.org/0000-0002-8690-2587>
IF total: 621
Google Scholar: Citations: 4957; H index: 41; i10-index: 102
Scopus: Citations: 3333; H index: 34

Publications

128 papers on peer-review international journals ((Including Biotechnology Advances, Current Opinions in Biotechnology, Frontiers in Physiology, International Journal of Molecular Sciences, Cell Reports, Nature, Nature Communications, Scientific Reports, J Biol Chem, BBA, BMC Bioinformatics, Cells, Cancers, Cancer & Metabolism, Biomaterials, Lab on a Chip and many others)
12 papers on books;
More than 100 oral communications or poster presentations in national and international congresses
Relator or co-relator of over 100 thesis (Bachelor and Master degree) and 10 PhD-thesis.

Editorial activities

Member of the Editorial Board of Frontiers in Physiology (section Systems Biology) and Annals of Research in Oncology
Co-editor of the Biotechnology Advances (2012) issue on "Systems Biology for Biomedical Innovation"
Co-editor of the issue on Systems Biology of Current Opinion in Biotechnology (2020)
Grant evaluator for Italian, European (French, Belgian, Dutch, Austrian...) and US (NSF) Granting agencies
Reviewer for international journals of Biochemistry, Molecular Biology, Bioinformatics and Systems Biology
Advisor for patent attorneys on biotech-related patents

Positions and Education

2020-current	Coordinator of the Group "Computational and Systems Biochemistry" of the Italian Society of Biochemistry and Systems Biology and member of the Scientific Committee of the Italian Society of Biochemistry and Systems Biology
2018-current	Scientific Coordinator of the Project of Excellence Chronos at the University of Milano Bicocca
2004-2018	Coordinator of the PhD Program in Biotechnology/Life Sciences
2001-ongoing	Full Professor (General and Systems Biochemistry), University of Milano-Bicocca
2000-2001	Member of the Senate of the University of Milano Bicocca
1993-1999	Vice-Coordinator of the Advanced School in Biotechnology of the University of Milano
1992-2001	Associate Professor (Industrial Biochemistry), University of Milano and Milano-Bicocca
1991	Visiting Scientist Ecole Polytechnique, Dept of Biochemistry Paris, France USA
1988	Visiting Scientist Albert Einstein College of Medicine, Dept of Biochemistry New York USA
1988-1992	Junior Faculty University of Milano
1986-1989	Research fellow, University of Milano
1984-1986	Post-doctoral fellow Albert Einstein College of Medicine, Dept of Biochemistry, New York USA
1982-1983	Research fellow, University of Milano
1983	Specialization in Biological research (cum laude) at the University of Milano
1980	Laurea in Biology (cum laude) at the University of Milano

Scientific activities

Molecular and computational studies on protein structure and function, mainly conducted on proteins of biotechnological interest, such as proteins from thermophilic organisms, and proteins involved in signal transduction pathways in eukaryotes. Molecular and computational studies in the field of systems biology of signal transduction, proliferation and cell metabolism in lower (S. cerevisiae) and higher eukaryotes (mammalian cells in culture) with particular applications to study of the interrelations between metabolism and altered cell growth, drug resistance and early events of metastasis in cultured tumor cells.

Grants as principal Investigator

CNR

Progetto Finalizzato Biotecnologie: Regulators of Ras Small G proteins (1996-1998)

MIUR

PI of the Excellence Grant of the Department of Biotechnology and Biosciences of the University of Milan-Bicocca (Competitive grant awarded by the National Ministry of University and Research), devoted to systems analysis of multi-factorial diseases (8 Million euros)

ITALBIONET (2011-2012), PI of UNIMIB unit, Systems Biology of cell cycle

PRIN 2006 Coordinator of the project (Sensing extracellulare e intracellulare dei nutrienti e progressione del ciclo cellulare nel lievito *Saccharomyces cerevisiae*)

PRIN 2002 PI of UNIMIB unit (Analisi integrata comparativa della modulazione calcio-dipendente di trascrittoma, proteoma e del controllo del ciclo cellulare in lievito e cellule di mammifero)

Regione Lombardia

NEDD, PI of a UNIMIB unit (2009-2012)

Ingenio Regione Lombardia-finlombarda (2006) Project on "Cell cycle, Systems biology and tumor inhibitors".

EU

FP7 (Unicellsys, systems biology of the model organism *S. cerevisiae*, P.I. of a UNIMIB unit, 2008-2013) ca. 400.000 euros

H2020 (Marie Curie Training Network, Epipredict, co-P.I. UNIMIB unit 2015-2018) 350000 euros

H2020 (Amplitude, P.I. UNIMIB Unit 2020- current) 340000

Era-Net ITFoC (2017-2022), co-PI of UNIMIB unit 225000

COMPANIES

Norpharma (199-2001) Kexin Proteases

Keyros (2002-2004) Production and purification of hGH in *E. coli*

Creabilis (2008-2010) Dominant-Negative GEFs as antitumor agents

Creabilis (2011-2012) HMB1 interactors as drug targets

ADIENNE (2013-2014) Interaction Begegin-CD26

PRIMM (2013-2104) Characterization of antibodies directed towards metabolic and cancer markers

Selected publications

1. Campioni G., Pasquale V., Busti S., Ducci G., Sacco E., Vanoni M. (2022). An Optimized Workflow for the Analysis of Metabolic Fluxes in Cancer Spheroids Using Seahorse Technology. *CELLS*, vol. 11, 866, ISSN: 2073-4409, doi: 10.3390/cells11050866 - **Articolo in rivista**
2. Di Filippo M., Pescini D., Galuzzi B. G., Bonanomi M., Gaglio D., Mangano E., Consolandi C., Alberghina L., Vanoni M., Damiani C. (2022). INTEGRATE: Model-based multi-omics data integration to characterize multi-level metabolic regulation. *PLOS COMPUTATIONAL BIOLOGY*, vol. 18, e1009337, ISSN: 1553-734X, doi: 10.1371/journal.pcbi.1009337 - **Articolo in rivista**
3. Caruso, Arnaldo, Caccuri, Francesca, Bugatti, Antonella, Zani, Alberto, Vanoni, Marco, Bonfanti, Paolo, Cazzaniga, Marina Elena, Perno, Carlo Federico, Messa, Cristina, Alberghina, Lilia (2021). Methotrexate inhibits SARS-CoV-2 virus replication "in vitro". *JOURNAL OF MEDICAL VIROLOGY*, vol. 93, p. 1780-1785, ISSN: 0146-6615, doi: 10.1002/jmv.26512 - **Articolo in rivista**
4. Crippa, Martina, Bersini, Simone, Gilardi, Mara, Arrigoni, Chiara, Gamba, Sara, Falanga, Anna, Candrian, Christian, Dubini, Gabriele, Vanoni, Marco, Moretti, Matteo (2021). A microphysiological early metastatic niche on a chip reveals how heterotypic cell interactions and inhibition of integrin subunit $\beta 3$ impact breast cancer cell extravasation. *LAB ON A CHIP*, vol. 21, p. 1061-1072, ISSN: 1473-0197, doi: 10.1039/d0lc01011a - **Articolo in rivista**
5. Gilardi, Mara, Bersini, Simone, Valtorta, Silvia, Proietto, Marco, Crippa, Martina, Boussommier-Calleja, Alexandra, Labelle, Myriam, Moresco, Rosa Maria, Vanoni, Marco, Kamm, Roger D. (2021). The driving role of the Cdk5/Tln1/FAK5732 axis in cancer cell extravasation dissected by human vascularized microfluidic models. *BIOMATERIALS*, vol. 276, 120975, ISSN: 0142-9612, doi: 10.1016/j.biomaterials.2021.120975 - **Articolo in rivista**
6. Tsopra R., Fernandez X., Luchinat C., Alberghina L., Lehrach H., Vanoni M., Dreher F., Sezerman O. U., Cuggia M., de Tairac M., Miklasevics E., Itu L. M., Geanta M., Ogilvie L., Godey F., Boldisor C. N., Campillo-Gimenez B., Cioroboiu C., Ciudel C. F., Coman S. (2021). A framework for validating AI in precision medicine: considerations from the European ITFoC consortium. *BMC MEDICAL INFORMATICS AND DECISION MAKING*, vol. 21, 274, ISSN: 1472-6947, doi: 10.1186/s12911-021-01634-3 - **Articolo in rivista**
7. Damiani C., Gaglio D., Sacco E., Alberghina L., Vanoni M. (2020). Systems metabolomics: from metabolomic snapshots to design principles. *CURRENT OPINION IN BIOTECHNOLOGY*, vol. 63, p. 190-199, ISSN: 0958-1669, doi: 10.1016/j.copbio.2020.02.013 - **Articolo in rivista**
8. Daniela Gaglio., Marcella Bonanomi, Silvia Valtorta, Rohit Bharat, Marilena Ripamonti, Federica Conte, Giulia Fiscon, Nicole Righi, Elisabetta Napodano, Federico Papa, Isabella Raccagni, Seth J Parker, Ingrid Cifola, Tania Camboni, Paola Paci, Anna Maria Colangelo, Marco Vanoni, Christian M Metallo, Rosa Maria Moresco, Lilia Alberghina (2020). Disruption of redox homeostasis for combinatorial drug efficacy in K-Ras tumors as revealed by metabolic connectivity profiling. *CANCER & METABOLISM*, vol. 8, 22, ISSN: 2049-3002, doi: 10.1186/s40170-020-00227-4 - **Articolo in rivista**
9. Damiani, C, Maspero, D, Di Filippo, M, Colombo, R, Pescini, D, Graudenzi, A, Westerhoff HV, Alberghina, L, Vanoni, M, Mauri, G (2019). Integration of single-cell RNA-seq data into population models to characterize cancer metabolism. *PLOS COMPUTATIONAL BIOLOGY*, vol. 15, e1006733, ISSN: 1553-7358, doi: 10.1371/journal.pcbi.1006733 - **Articolo in rivista**
10. Maspero, Davide, Damiani, Chiara, Antoniotti, Marco, Graudenzi, Alex, Di Filippo, Marzia, Vanoni, Marco, Caravagna, Giulio, Colombo, Riccardo, Ramazzotti, Daniele, Pescini, Dario (2019). The Influence of Nutrients Diffusion on a Metabolism-driven Model of a Multi-cellular System. *FUNDAMENTA INFORMATICA*, vol. 171, p. 279-295, ISSN: 0169-2968, doi: 10.3233/FI-2020-1883 - **Articolo in rivista**
11. Bersini, Simone, Gilardi, Mara, Ugolini, Giovanni S., Sansoni, Veronica, Talò, Giuseppe, Perego, Silvia, Zanotti, Simona, Ostano, Paola, Mora, Marina, Soncini, Monica (2018). Engineering an Environment for the Study of Fibrosis: A 3D Human Muscle Model with Endothelium Specificity and Endomysium. *CELL REPORTS*, vol. 25, p. 3858-3868.e4, ISSN: 2211-1247, doi: 10.1016/j.celrep.2018.11.092 - **Articolo in rivista**
12. Damiani, C, Colombo, R, Gaglio, D, Mastroianni, F, Pescini, D, Westerhoff, H, Mauri, G, Vanoni, ME, Alberghina, L. (2017). A metabolic core model elucidates how enhanced utilization of glucose and glutamine, with enhanced glutamine-dependent lactate production, promotes cancer cell growth: The

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WarburQ effect. PLOS COMPUTATIONAL BIOLOGY, vol. 13, p. 1-29, ISSN: 1553-734X, doi: 10.1371/journal.pcbi.1005758 - **Articolo in rivista**

1. Busti S, Mapelli V, Tripodi F, Sanvito R, Magni F, Coccetti P, Rocchetti M, Nielsen J, Alberghina L, Vanoni M (2016). Respiratory metabolism and calorie restriction relieve persistent endoplasmic reticulum stress induced by calcium shortage in yeast. SCIENTIFIC REPORTS, 27942, ISSN: 2045-2322, doi: 10.1038/srep27942 - **Articolo in rivista**
2. DI FILIPPO, MARZIA, COLOMBO, RICCARDO, DAMIANI, CHIARA, PESCHINI, DARIO, GAGLIO, DANIELA, VANONI, MARCO ERCOLE, ALBERGHINA, LILIA, MAURI, GIANCARLO (2016). Zooming-in on cancer metabolic rewiring with tissue specific constraint-based models. COMPUTATIONAL BIOLOGY AND CHEMISTRY, vol. 62, p. 60-69, ISSN: 1476-9271, doi: 10.1016/j.compbiolchem.2016.03.002 - **Articolo in rivista**
3. Cazzaniga, P, DAMIANI, CHIARA, BESOZZI, DANIELA, COLOMBO, RICCARDO, NOBILE, MARCO SALVATORE, GAGLIO, DANIELA, PESCHINI, DARIO, Molinari, S, MAURI, GIANCARLO, ALBERGHINA, LILIA... (2014). Computational Strategies for a System-Level Understanding of Metabolism. METABOLITES, vol. 4, p. 1034-1087, ISSN: 2218-1989, doi: 10.3390/metabo4041034 - **Articolo in rivista**
4. Hasan, MdM, BROCCA, STEFANIA, SACCO, ELENA, SPINELLI, MICHELA, Papaleo, E, LAMBRUGH, MATTEO, ALBERGHINA, LILIA, VANONI, MARCO ERCOLE (2014). A comparative study of Whi5 and retinoblastoma proteins: From sequence and structure analysis to intracellular networks. FRONTIERS IN PHYSIOLOGY, vol. 4, 00315, ISSN: 1664-042X, doi: 10.3389/fphys.2013.00315 - **Articolo in rivista**
5. ALBERGHINA, LILIA, Mavelli, G, Drovandi, G, Palumbo, P, Pessina, S, TRIPODI, FARIDA, COCCETTI, PAOLA, VANONI, MARCO ERCOLE (2012). Cell growth and cell cycle In Saccharomyces cerevisiae: basic regulatory design and

- protein-protein interaction network. BIOTECHNOLOGY ADVANCES, vol. 30, p. 52-72, ISSN: 0734-9750, doi: 10.1016/j.biotechadv.2011.07.010 - **Articolo in rivista**
6. SACCO, ELENA, Farina, M, GRECO, CLAUDIO, Lamperti, S, Busti, S, DE GIOIA, LUCA, ALBERGHINA, LILIA, Liberati, D, VANONI, MARCO ERCOLE (2012). Regulation of hSos1 activity is a system-level property generated by its multi-domain structure. BIOTECHNOLOGY ADVANCES, vol. 30, p. 154-168, ISSN: 0734-9750, doi: 10.1016/j.biotechadv.2011.07.017 - **Articolo in rivista**
 7. SACCO, ELENA, Metalli, D, SPINELLI, MICHELA, Manzoni, R, Samalikova, M, GRANDORI, RITA, Morrione, A, Traversa, S, ALBERGHINA, LILIA, VANONI, MARCO ERCOLE (2012). Novel RasGRF1-derived Tat-fused peptides inhibiting Ras-dependent proliferation and migration in mouse and human cancer cells. BIOTECHNOLOGY ADVANCES, vol. 30, p. 233-243, ISSN: 0734-9750, doi: 10.1016/j.biotechadv.2011.05.011 - **Articolo in rivista**
 8. Barberis, M, Klipp, E, VANONI, MARCO ERCOLE, ALBERGHINA, LILIA (2007). Cell size at S Phase Initiation: an Emergent Property of the G1/S Network. PLOS COMPUTATIONAL BIOLOGY, vol. 3, ISSN: 1553-734X, doi: 10.1371/journal.pcbi.0030064 - **Articolo in rivista**