

Research title

Integrated omics approaches to understand complex diseases: shock, cancer and metabolic disorders

Approcci proteomici integrati per capire malattie complesse: shock, tumori e dismetabolismi

Tutor

Gabriella Tedeschi

Contact details

Università degli Studi di Milano

Dipartimento di

E-mail: gabriella.tedeschi@unimi.it

ORCID 0000-0003-2082-6443

<http://www.dimevet.unimi.it/ecm/home>

State of the art and aims of the project

High-throughput technologies have revolutionized human and veterinary medical research. Omics technologies, such as proteomics and metabolomics, are now often incorporated into the everyday methodology of biological researchers. In the project **multi factorial diseases** such as shock, cancer, neurodegeneration and mental disorder will be addressed by multi-omics approaches **to establish an integrated pipeline** that can be applied to understand the etiology and the mechanism of different complex pathologies.

Recent publications of the tutor in the field

- 1, Taverna E, De Bortoli M, Maffioli E, Corno C, Trivulzio S, Ciusani E, Pinelli A, Tedeschi G, Perego P, Bongarzone I. Alterations of RNA metabolism by proteomic analysis of breast cancer cells exposed to malyrcin, a new optically active porphyrin. *Curr Mol Pharmacol*. (2019) Epub ahead of print
2. Maida De Bortoli, Elena Taverna¹, Elisa Maffioli, Patrizia Casalini, Francesco Crisafi, Vikas Kumar, Claudio Caccia, Dario Polli, Gabriella Tedeschi and Italia Bongarzone. Lipid accumulation in human breast cancer cells injured by iron depletors. *Journal of Experimental & Clinical Cancer Research* (2018) 37:75
3. J. Bauza-Martinez , F. Aletti, B. B. Pinto, V. Ribas, M. A. Odena, R. Di'az, E. R. Medina, R. Ferrer, E. B. Kistler, G. Tedeschi, G. W. Schmid-Schonbein , A. Herpain, K. Bendjelid, and E. de Oliveira (2018) Proteolysis in septic shock patients: plasma peptidomic patterns are associated with mortality. *British Journal of Anaesthesia*, 1e10 (2018).
4. Dell'Orco M, Milani P, Arrigoni L, Pansarasa O, Sardone V, Maffioli E, Polveraccio E, Bordoni M, Diamanti L, Ceroni M, Peverali FA, Tedeschi G, Cereda C. (2016) Hydrogen peroxide-mediated induction of SOD1 gene transcription is independent from Nrf2 in a cellular model of neurodegeneration *Biochimica et Biophysica Acta*, vol. 1859 p. 315–323
5. Zanotti L, Angioni R, Cali B, Soldani C, Ploia C, Moalli F, Gargasha M, D'Amico G, Elliman S, Tedeschi G, Maffioli E, Negri A, Zacchigna S, Sarukhan A, Stein JV, Viola A. (2016) Mouse mesenchymal stem cells inhibit high endothelial cell activation and lymphocyte homing to lymph nodes by releasing TIMP-1. *Leukemia*. Vol. 30(5), p. 1143-54