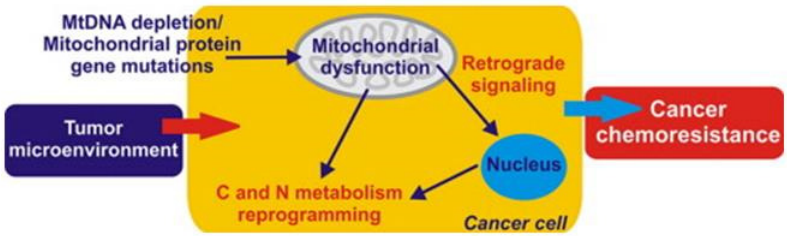
Gruppo: BIOCHIMICA-BIOLOGIA CELLULARE E TUMORALE
Sede: Istituto di Biomembrane e Bioenergetica, CNR, Via Amendola 165/A, 70126 Bari

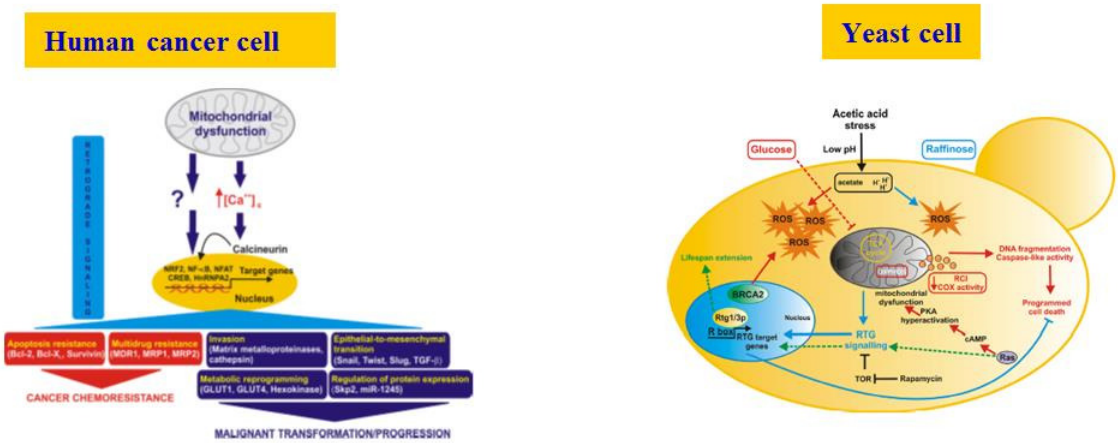
CONTATTI: s.giannattasio@ibbe.cnr.it; l.moro@ibbe.cnr.it

Componenti del Gruppo:
Sergio Giannattasio, Primo ricercatore CNR
Loredana Moro, Ricercatore CNR
Nicoletta Guaragnella, Ricercatore CNR
Luna Laera, assegnista CNR
Alessandra Costanza, co.co.co

Key-words: Cancer chemoresistance, Mitochondria, Mitochondria-to-nucleus signaling, Metabolic reprogramming, Cell stress response, BRCA2

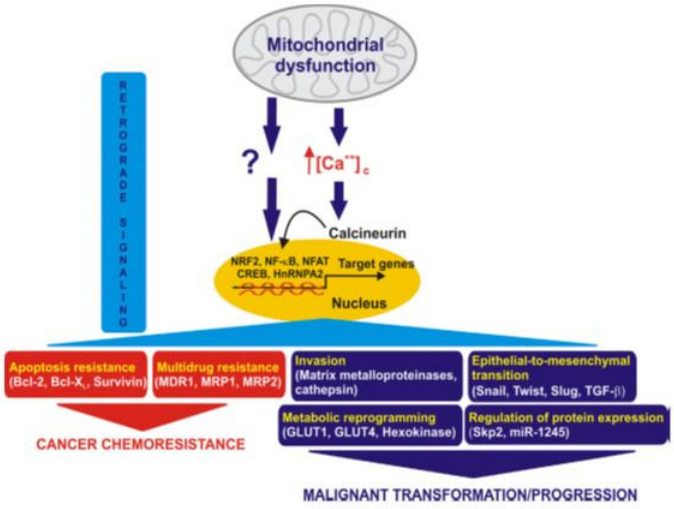


Focus of our research activity is the study of the molecular mechanisms involved in programmed cell death (PCD) and cell stress response, using *S. cerevisiae* and human epithelial cell lines (normal and cancer), as experimental model systems. In particular, our group investigates the mitochondrial structure and function as well as the role of mitochondria-to-nucleus cross-talk (mitochondrial retrograde signaling) during PCD evasion and metabolic reprogramming. Recently, we have also started to dissect the role of the tumor suppressor *BRCA2* in the regulation of PCD induced by different stimuli. We are now analyzing the response of chemoresistant cancer cells to several analogs of clinically-approved drugs, and its dependence on a functional BRCA2 protein.

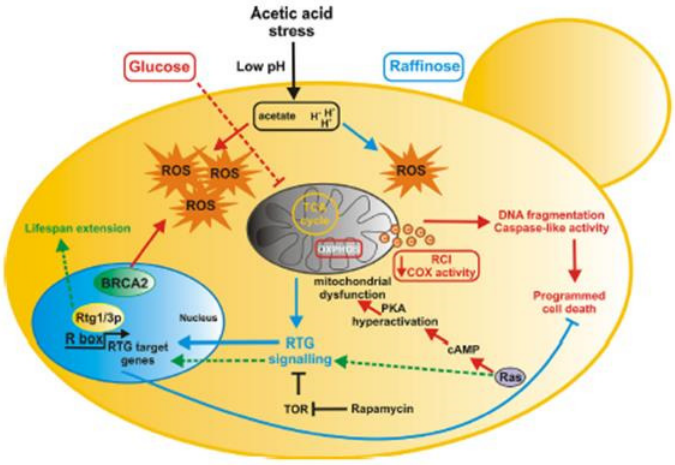


- Moro L, Guaragnella N, Giannattasio S. Silencing of BRCA2 to Identify Novel BRCA2-regulated Biological Functions in Cultured Human Cells. *J Vis Exp* (2015); :e52849. doi: 10.3791/52849.
- Guaragnella N, Giannattasio S, Moro L. Mitochondrial dysfunction in cancer chemoresistance. *Biochem Pharmacol* (2014); 92(1):62-72. doi: 10.1016/j.bcp.2014.07.027.
- Guaragnella N, Marra E, Galli A, Moro L, Giannattasio S. Silencing of BRCA2 decreases anoikis and its heterologous expression sensitizes yeast cells to acetic acid-induced programmed cell death. *Apoptosis* (2014); 19(9):1330-41. doi: 10.1007/s10495-014-1006-z.
- Guaragnella N, Palermo V, Galli A, Moro L, Mazzoni C, Giannattasio S. The expanding role of yeast in cancer research and diagnosis: insights into the function of the oncosuppressors p53 and BRCA1/2. *FEMS Yeast Res* (2014) 14(1):2-16. doi: 10.1111/1567-1364.12094.
- Guaragnella N, Zdralevic M, Lattanzio P, Marzulli D, Pracheil T, Liu Z, Passarella S, Marra E, Giannattasio S. Yeast growth in raffinose results in resistance to acetic-acid induced programmed cell death mostly due to the activation of the mitochondrial retrograde pathway. *Biochim Biophys Acta* (2013); 1833(12):2765-74. doi: 10.1016/j.bbamcr.2013.07.017.
- Arbini AA, Guerra F, Greco M, Marra E, Gandee L, Xiao G, Lotan Y, Gasparre G, Hsieh JT, Moro L. Mitochondrial DNA depletion sensitizes cancer cells to PARP inhibitors by translational and post-translational repression of BRCA2. *Oncogenesis* (2013); 16;2:e82. doi: 10.1038/oncsis.2013.45

Human cancer cell



Yeast cell



- Moro L, Guaragnella N, Giannattasio S. Silencing of BRCA2 to Identify Novel BRCA2-regulated Biological Functions in Cultured Human Cells. *J Vis Exp* (2015); :e52849. doi: 10.3791/52849.
- Guaragnella N, Giannattasio S, Moro L. Mitochondrial dysfunction in cancer chemoresistance. *Biochem Pharmacol* (2014); 92(1):62-72. doi: 10.1016/j.bcp.2014.07.027.
- Guaragnella N, Marra E, Galli A, Moro L, Giannattasio S. Silencing of BRCA2 decreases anoikis and its heterologous expression sensitizes yeast cells to acetic acid-induced programmed cell death. *Apoptosis* (2014); 19(9):1330-41. doi: 10.1007/s10495-014-1006-z.
- Guaragnella N, Palermo V, Galli A, Moro L, Mazzoni C, Giannattasio S. The expanding role of yeast in cancer research and diagnosis: insights into the function of the oncosuppressors p53 and BRCA1/2. *FEMS Yeast Res* (2014) 14(1):2-16. doi: 10.1111/1567-1364.12094.
- Guaragnella N, Zdralevic M, Lattanzio P, Marzulli D, Pracheil T, Liu Z, Passarella S, Marra E, Giannattasio S. Yeast growth in raffinose results in resistance to acetic-acid induced programmed cell death mostly due to the activation of the mitochondrial retrograde pathway. *Biochim Biophys Acta* (2013); 1833(12):2765-74. doi: 10.1016/j.bbamcr.2013.07.017.
- Arbini AA, Guerra F, Greco M, Marra E, Gandee L, Xiao G, Lotan Y, Gasparre G, Hsieh JT, Moro L. Mitochondrial DNA depletion sensitizes cancer cells to PARP inhibitors by translational and post-translational repression of BRCA2. *Oncogenesis* (2013); 16;2:e82. doi: 10.1038/oncsis.2013.45