GRUPPO BIOCHIMICA DEI TUMORI CHIARADONNA

RESPONSABILE: Dott. Ferdinando CHIARADONNA (ferdinando.chiaradonna@unimib.it)

Altri Componenti Gruppo: Dr.ssa Roberta PALORINI (assegnista)

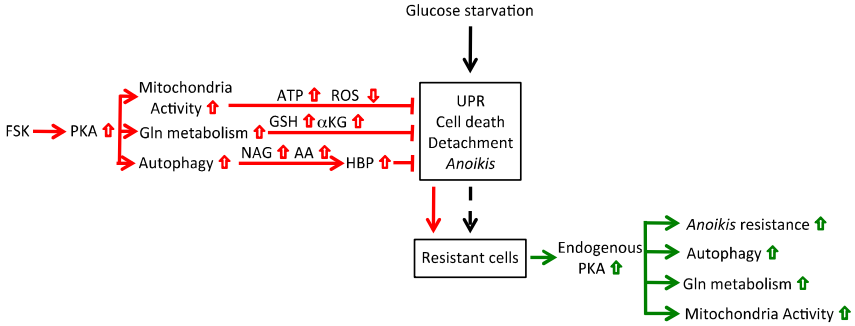
Dr.ssa Giuseppina VOTTA (assegnista)

Dr. Humberto DE VITTO (assegnista)

Dr.ssa Francesca RICCIARDIELLO (dottoranda)

SEDE: Dipartimento di Biotecnologie e Bioscienze, Università degli Studi di Milano Bicocca, Piazza della Scienza 2 - 20126 Milano, tel. 02 64483526

KEY WORDS: cancer cells, cancer metabolism, metabolic targeting, PKA, HBP, cell death



The group is currently pursuing three main lines of research, focusing on:

- The characterization in different cancer cell lines, mainly carrying K-ras mutations, of the cell death and survival mechanisms activated by glucose deprivation.
- Identification of the role of ER and mitochondria in the (de)regulation of the cell death and survival mechanisms under nutrient stress with a particular attention to the role of PKA on both cell compartments.
- Identification of the role of the Hexosamine pathway in cancer cell death/survival, migration and metastasis and identification of novel compounds able to attenuate HBP in cancer cells.

The group approaches these lines of research by using several methodologies that are able to address the relation between cancer cells proliferation, survival, migration and metabolism. The group may offer a long-standing expertise in cell metabolism. Moreover, we have knowledge regarding several bioinformatics tools necessary to analyze transcriptional, proteomic and metabolic data.

RECENT PUBLICATIONS

Palorini R, Votta G, Pirola Y, De Vitto H, De Palma S, Airoldi C, Vasso M, Ricciardiello F, Lombardi PP, Cirulli C, Rizzi R, Nicotra F, Hiller K, Gelfi C, Alberghina L, Chiaradonna F. Protein Kinase A Activation Promotes Cancer Cell Resistance to Glucose Starvation and Anoikis. PLoS Genet. 2016 Mar 15;12(3).

Chiaradonna F, Barozzi I, Miccolo C, Bucci G, Palorini R, Fornasari L, Botrugno OA, Pruneri G, Masullo M, Passafaro A, Galimberti VE, Fantin VR, Richon VM, Pece S, Viale G, Di Fiore PP, Draetta G, Pelicci PG, Minucci S, Chiocca S. Redox-Mediated Suberoylanilide Hydroxamic Acid Sensitivity in Breast Cancer. Antioxid Redox Signal. 2015 Jul 1;23(1):15-29.

Chiaradonna F, Cirulli C, Palorini R, Votta G, Alberghina L. New insights in the connection between HDACs, cell metabolism and cancer. Antioxid Redox Signal. 2015 Jul 1;23(1):30-50.

Palorini R, Votta G, Balestrieri C, Monestiroli A, Olivieri S, Vento R, Chiaradonna F. Energy metabolism characterization of a novel cancer stem cell-like line 3AB-OS. J Cell Biochem. 2014 Feb;115(2):368-79.

Palorini R, Cammarata FP, Balestrieri C, Monestiroli A, Vasso M, Gelfi C, Alberghina L, Chiaradonna F. Glucose starvation induces cell death in K-ras-transformed cells by interfering with the hexosamine biosynthesis pathway and activating the unfolded protein response. Cell Death Dis. 2013 Jul 18;4:e732.