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## EDUCATION

***Current Position: Postdoc research*** ***1/9/2020 up to date***

Department of Biochemical Sciences “Rossi Fanelli”, Sapienza University of Rome-Italy.  
Research project: Dissecting the role of amino acids metabolism in brain metastases formation: *in cellula* and *in vivo* studies of brain invasion by disseminating cells.

***PhD degree in Life sciences*** ***01/11/ 2017 to 31/10/ 2020***

Department of Biochemical Sciences “Rossi Fanelli”, Sapienza University of Rome-Italy.  
PhD project: Role of one-carbon metabolism and cytosolic serine hydroxymethyltransferase in the brain metastatic potential of lung adenocarcinoma.  
Vote : admitted with honors

***Research Master degree in MOLECULAR AND CELLULAR BIOLOGY*** ***2016***  
***Specialty: BIOCHEMISTRY***

Faculty of Mathematical, Physical and Natural Sciences of Tunis, Tunisia.  
Thesis project: Impact of gadolinium administration in female mice ovary and brain. Faculty of Medicine of Tunis, Tunisia.  
Vote: very good

***Applied Bachelor degree in ANALYTICAL AND EXPERIMENTAL BIOLOGY*** ***2014***

Faculty of Mathematical, Physical and Natural Sciences of Tunis, Tunisia.  
Thesis project: Clinical and Statistical studies of 21 cases of megaloblastic anemia patients. Hematology Department, Military Hospital of Tunis- Tunisia.  
Vote: good

***High School Bachelor degree in Experimental Sciences*** ***2011***

Khaled Ibn Walid High School, Manouba-Tunisia.  
Vote: very good

## FELLOWSHIP AND AWARDS

- ✓ Winner of 3 years PHD FELLOWSHIP OF FOREIGN NATIONALS EDUCATED ABROAD - ACADEMIC YEAR 2017/2018 Sapienza University of Rome, Italy.
- ✓ Winner of the FEBS Youth Travel Funds (YTF) Awards for early-career scientists 2019.

## **FUNDING**

- ✓ “Avvio alla Ricerca” from Sapienza University, for the academic year 2018/2019.
- ✓ “Avvio alla Ricerca” from Sapienza University, for the academic year 2019/2020.

## **MEMBER OF RESERCH UNIT IN FUNDED PROJECTS**

- ✓ Participant to the project AIRC 2019 IG-23125 Dissecting Serine Hydroxymethyltransferase functions to target cancer metabolic reprogramming (3 years)
- ✓ Participant to the project Sapienza University 2018 RG11816430AF48E1 (3 years)

## **OTHER ACTIVITIES**

- ✓ Member of the organization committee of the StaPa International Retreat, 2019. ISTITUTO PASTEUR ITALIA FONDAZIONE CENCI BOLOGNETTI.

## **RESEARCH EXPERIENCE**

**Cancer metabolism Laboratory** **9/2017 to date**  
**Sapienza University of Rome-Italy**

Research Topic: Study of the role of one-carbon metabolism in fueling and reprogramming cancer metabolism, while investigating the role of a particular enzyme: serine hydroxymethyltransferase and its key intermediates serine and glycine in NSCLC metastases.

**Department of biomedical and neuromotor sciences** **28/11-5/12/2019**  
**Bologne university, Bologne, Italy**

Research Topic: Evaluation of the effect of the intracellular serine and glycine availability in ATP level and eventual metastases progression.

**Physiology Laboratory, Faculty of Medicine of Tunis-Tunisia** **4/2016- 3/2017**

Research Topic: In vivo ultrastructural study of the effect of lanthanide elements administration such as gadolinium, on subcellular organ deformation while clarifying the role of lysosomes in the intracellular concentration and detoxification of mineral elements.

**Laboratory of lipid biochemistry,** **2-3/2016**  
**Faculty of Sciences of Tunis-Tunisia.**

Research Topic: Evaluation of the lipid fraction and in particular fatty acids composition of different varieties of Tunisian wheat.

**Microbiology Department, Children's Hospital, Tunis-Tunisia** **9/2013**

Research Topic: Extraction and identification of bacterial infections in human samples using different microbiological analyses.

**Hematology Department, Military Hospital of Tunis- Tunisia** **2-4/2014**

**Hematology Department, Orthopedic Hospital, Tunis-Tunisia** **15/6-15/7/2013**

Research Topic: learning different hematological technics and analyses to explore clinic aspects of pathological cases in particular megaloblastic anemia patients.

## TECHNICAL SKILLS

### Cell Biology

- ✓ **Standard cell biology:** cells handling, cell counting, trypan blue exclusion assay, protein quantification, protein gel electrophoresis, western blot.
- ✓ **Flow cytometry:** cell cycle analysis and apoptosis (PI, BRDU and Annexin V staining)  
**Cell metabolism:** measurement of energy *metabolism* in real time (Seahorse) measurement of Redox parameters (ROS, GSH), ATP levels.
- ✓ **Cell migration:** Boyden chamber motility/invasion assay, immunofluorescence analysis.
- ✓ **Molecular biology (*in cellula*):** siRNA and plasmid transfections, DNA/RNA purification, gene quantification using RT PCR.

### Histology and microscopy

Samples preparation (Ultra-microtome) and visualization (Transmission Electron Microscopy, Photonic Microscopy, Fluorescence Microscopy).

### Molecular Biology

Cloning, site-directed mutagenesis. PCR, bacteria transformation and growth, DNA extraction and purification, DNA gel electrophoresis.

### Mouse handling

Mice breeding, intraperitoneal injections, mice anesthesia. Mice brain and ovary extraction. Ultrastructural study.

### Biochemistry

Gas chromatography, thin layer chromatography, Soxhlet.

### Clinical research

Antibiogram, Gram staining, ECBU, API, blood draw and smears, blood cell counting and formulation.

## SCIENTIFIC PUBLICATIONS

1/- Cutruzzolà F, Bouzidi A, Liberati FR, Spizzichino SH, Boumis G, Macone A, Rinaldo S, Giardina G, Paone A. The Emerging Role of Amino Acids of the Brain Microenvironment in the Process of Metastasis Formation. *Cancers* 2021, 13, 2891.

2/- Paone A, Bouzidi A, Rinaldo S, Giardina G, Cutruzzolà F. Importance of amino acids in brain parenchyma invasion by cancer cells. *Oncoscience*, 2021.

3/- Bouzidi A Magnifico M C, Paiardini A, Macone A, Boumis G, Giardina G, Rinaldo S, Liberati FR, Lauro C, Limatola C, Lanzillotta C, Tramutola A, Perluigi M, Sgarbi G, Solaini G, Baracca A, Paone A, Cutruzzolà F. Cytosolic Serine Hydroxymethyltransferase controls lung adenocarcinoma cells migratory ability by modulating AMP Kinase activity. *Cell Death and Disease*. 2020. 11:1012.

4/- Guiducci G, Paone A, Tramonti A, Giardina G, Rinaldo S, Bouzidi A, Magnifico MC, Marani M, Menendez JA, Fatica A, Macone A, Armaos A, Tartaglia GG, Contestabile R, Paiardini A, Cutruzzolà F. 2019. The moonlighting RNA-binding activity of cytosolic serine hydroxymethyltransferase contributes to control compartmentalization of serine metabolism. *Nucleic Acids Research*, Vol.47, No. 8

5/- Magnifico MC, Macone A, Marani M, Bouzidi A, Giardina G, Rinaldo S, Cutruzzolà F, Paone A. Linking Infection and Prostate Cancer Progression: Toll-like Receptor3 Stimulation Rewires Glucose Metabolism in

Prostate Cells. Anticancer Res. 2019 Oct;39(10):5541-5549.

6/- Giardina G, Paone A, Tramonti A, Lucchi R, Marani M, Magnifico MC, Bouzidi A, Pontecorvi V, Guiducci G, Zamparelli C, Rinaldo S, Paiardini A, Contestabile R, Cutruzzola F. The catalytic activity of serine hydroxymethyltransferase is essential for de novo nuclear dTMP synthesis in lung cancer cells. The FEBS Journal. 2018. (285) 3238–3253.

7/- Tramonti A, Paiardini A, Paone A, Bouzidi A, Giardina G, Guiducci G, Magnifico MC, Rinaldo S, McDermott L, Menendez JA, Contestabile R, Cutruzzola F. Differential inhibitory effect of a pyrazolopyran compound on human serine hydroxymethyltransferase-amino acid complexes. Arch Biochem Biophys. 2018.1;653:71-79.

### MEETINGS and WORKSHOPS ATTENDED

- ✓ **61° SIB MEETING Virtual Edition** 23-24 September 2021. Short talk: One carbon metabolism controls lung adenocarcinoma metastatic potential.
- ✓ **The 45th FEBS Virtual Congress** / 3-8 July 2021. Poster presentation: Serine metabolism controls lung adenocarcinoma cells migratory ability.
- ✓ **Spetses summer school, Molecular Mechanisms in Signal Transduction and Cancer FEBS meeting.** 16-24/08/19. Greece. **Poster Presentation** Title: Control of serine and glycine metabolism supports the metastatic potential of lung adenocarcinoma cells.
- ✓ **ABCD pre-Congress and congress Meeting** 18-21 September 2019. Bologne. **Poster Presentation** Title: Serine and glycine rewire lung adenocarcinoma metastases metabolism.
- ✓ **StaPa International Retreat.** 12-15/06/2019. Institut Pasteur, Rome. Selected for an **Oral Presentation**, Title: Serine and glycine mediate the dissemination of lung adenocarcinoma metastatic signal into the brain.
- ✓ **The 9th BeMM Symposium.** 13/10/2018. Sapienza University of Rome.
- ✓ **EMBO Workshop: Molecular biology of mitochondrial gene expression.** 20-24/5/2018, Sweden. **Poster Presentation** Title: Impact of the inhibition of the mitochondrial Serine hydroxymethyltransferase enzyme in mitochondrial respiration and cancer cell growth.
- ✓ **One day conference: Metabolic Regulation of the Immune Regulation. June 8, 2018. CNR. Rome**
- ✓ **XV FISV Congress.** 18-21/9/2018. Sapienza University of Rome. Selected for an **Oral Presentation**, Title: Impact of the inhibition of the mitochondrial Serine hydroxymethyltransferase enzyme in mitochondrial respiration and cancer cell growth.

### COURSES

- ✓ **5th international course viruses and human cancers.** 8-13/7/19. Institut Pasteur, Rome, Italy.  
Oral Presentation Title: Persistent KSHV Infection Increases EBV-Associated Tumor Formation In Vivo via Enhanced EBV Lytic Gene Expression.
- ✓ **Course Introduction to Immunology** 18/3-25/6/2019. Sapienza University of Rome.
- ✓ **Scientific English course** by Prof. Lewis Baker 6-7/2018. Sapienza University of Rome.
- ✓ **Membranes, Membrane Proteins and their Interactions Course.** 22-24/1/2018. Prof. Filippo Mancia. Sapienza University of Rome.
- ✓ **Fundamentals of enzyme kinetics Course.** Prof. Francesco Malatesta, Prof. Serena Rinaldo. 21/11 to 5/12/2017- Sapienza University of Rome.

### LANGUAGES KNOWLEDGE

- ✓ **English:** Advanced
- ✓ **French:** Advanced
- ✓ **Italian:** Advanced
- ✓ **Arabic:** Native speaker