MUZIO GIULIANA Curriculum vitae

Personal details

Born in CASALE MONFERRATO (al)
Nationality: ITALIAN
Email: giuliana.muzio@unito.it
Website:
ORCID ID: 0000-0003-2730-1957; Scopus ID: 7003693301; Researcher ID: GFW-1768-2022; DIJ-9808-2022; AFL-8474-2022

Educations

- Graduated in Biological Science, since 1981 (Turin University).
- PhD in "Experimental and Molecular Pathology", since 1987 (Turin University).

- ****

Professional experiences and current position

****

- Technician of Turin University (1988-2002).
- Researcher of Turin University (2002-2021)
- Associate Professor of Turin University (2021 until today)

Participation to Directive Boards of Scientific Societies and/or Institutions:

In 2012 founding member of ANTHEC (Academy of Non Transfusional Hemo-Components), Cremona, Italy.

Teaching activity:

At the present:

1) General Pathology - Master Degree in Dentistry - University of Turin
2) General Pathology - Master's Degree in Medicine and Surgery - University of Turin
3) General Pathophysiology, Immunology, General Pathology – Degree Course in Nursery – University of Turin, Asti
4) General Patology (Oncology) - Specializzation School in Clinical Pathology & Clinical Biochemistry
5) General Pathology - Master in Periodontology - University of Turin
6) Immunology – Master in Oral Medicine & Oral Oncology – University of Turin
7) Anatomy & Pathology of the Stomatognatic System – Master in Oral surgery University of Turin
8) Anemias – Master in Transfusion Medicine - University of Turin

Research main topics

Main fields of research activity: Oncology and Tissue regeneration

"ONCOLOGY" FIELD

The researches of Dr Muzio deeply investigated the role played by fatty acids, lipid peroxidation, and lipid peroxidation products in cancer development and progression. In particular, in all the specific topics the attention has been focused on the role played by Peroxisome Proliferator-Activated Receptors (PPARs) as known modulators of lipid metabolism and several cellular functions.

Specific topics in experimental models:

1) Characterisation of lipid composition in membranes from different types of cancer cells and effect of enrichment with both ω-6 and ω-3 polyunsaturated fatty acids (PUFAs) on lipid peroxidation, proliferation, viability and detoxifying enzyme activities.
2) Effect of ω-6 and ω-3 PUFAs and of the importance of ω-6/ω-3 ratio on proliferation, viability, and cytokine production in human lung tumour cells.
3) Effect of the activation of PPARs with both natural or synthetic ligands in normal and cancer cells.
4) Effect of PUFAs and their lipid peroxidation products on muscle cell differentiation in an "in vitro" model of cancer cachexia.
5) Preparation of superparamagnetic nanoparticles (SPIONs) functionalized with PUFAs to be used for target breast cancer therapy: PPARs as modulators of SPIONs/PUFA anti-tumor effects.

Specific topics in clinical studies:
1) Determination of fatty acids content in phospholipids e neutral lipids in plasma and biopsies from patients with colon cancer.
2) Effect of ω-3 PUFAs on nutritional, anthropometric and biological parameters in cachectic patients with advanced lung cancer.
3) Effect of different ω-3/ω-6 PUFA ratio on pro-inflammatory properties of bronchoalveolar lavage fluid (BALF) from patients with acute respiratory distress syndrome (ARDS).

"TISSUE REGENERATION" FIELD
Studies have been performed as part of an interdisciplinary collaboration involving engineers, material chemists, physicists, dentists, orthopedists and small and medium-sized enterprises of the medical sector.

Specific topics of this research area:
1) Study of biological factors involved in osteointegration of oral implants: experimental and clinical studies.
2) Evaluation of biocompatibility and ability in stimulating bone formation of new biomimetic materials.
3) Evaluation of biocompatibility and bioactivity of new prostheses for abdominal hernia repair
4) Effect of superpulsed laser irradiation on osteoblasts "in vitro", and on post extraction socket healing in healthy subjects and patients waiting for transplantation.
5) Effect of shock waves on activity and differentiation of osteoblasts seeded on scaffold for bone regeneration.
6) Evaluation of role played by soft tissues in the induction of jaw osteonecrosis after bisphosphonate treatment.
7) Effect of platelet rich plasma administration on healing process in dentistry.

Main projects as PI:
- 2004, 2007, 2008, 2009: Ricerca Sanitaria Finalizzata, regione Piemonte
- 2003-present: Local Research founds (RILO), University of Tyrin
- 2017: Basic Research activity – MIUR
- 2011, 2014, 2019: Research Contracts signed with DIPRO MEDICAL DEVICES, San Mauro Torinese: Evaluation of biocompatibility of new materials for medical devices for hernia repair.
- 2022: Research Contract signed with STUDIO BALDI SRLS, Genova: Biomolecular analyses of osteointegration process of dental implants after preparation of implant sites with different instrumentations.

Bibliometry (1984-present)
SCOPUS: 99 *documents;* **2,724** Citations by ***2,258*** documents; ***h index: 28***

Publications in the last 10 years
1. Canuto R.A., Pol R., Martinasso G., Muzio G., Gallesio G.., Mozzati M. Hydroxyapatite paste Ostim(®) , without elevation of full-thickness flaps, improves alveolar healing stimulating BMP- and VEGF-mediated signal pathways: an experimental study in humans. Clin Oral Implants Res., 24 Suppl A100, 42-48, 2013.
2. Mozzati M., Martinasso G., Maggiora M., Scoletta M., Zambelli M., Carossa S., Oraldi M., **Muzio G**, Canuto R.A. Oral mucosa produces cytokines and factors influencing osteoclast activity and endothelial cell proliferation, in patients with osteonecrosis of jaw after treatment with zoledronic acid. Clin Oral Investig., 17, 259-266, 2013.
3. Oraldi M., Maggiora M., Paiuzzi E., Canuto R.A, Muzio G. CLA Reduces Inflammatory Mediators from A427 Human Lung Cancer Cells and A427 Conditioned Medium Promotes Differentiation of C2C12 Murine Muscle Cells. Lipids, 48, 29-38, 2013.
4. Canuto R.A., Saracino S., Oraldi M., Festa V., Festa F., Muzio **G.**, Chiaravalloti A. Colonization by human fibroblasts of polypropylene prosthesis in a composite form for hernia repair. Hernia, 17, 241-248, 2013.
5. Mozzati M., Maggiora M.., Scoletta M., Vasta A, Canuto R.A., Muzio G. Preventive oral surgery before bisphosphonate administration to reduce osteonecrosis of the jaws. Oral Dis., 20, 809-814, 2014.
6. Muzio G., Martinasso G., Baino F., Frairia R., Vitale-Brovarone C., Canuto R.A. Key role of the expression of bone morphogenetic proteins in increasing the osteogenic activity of osteoblast-like cells exposed to shock waves and seeded on bioactive glass-ceramic scaffolds for bone tissue engineering. J Biomater Appl., 29, 728-736, 2014.

7. Miola M.., Brovarone C.V., Maina G., Rossi F., Bergandi L., Ghigo D., Saracino S., Maggiora M.., Canuto R.A., **Muzio G.**, Vernè E. In vitro study of manganese-doped bioactive glasses for bone regeneration. Mater Sci Eng C Mater Biol Appl., 38, 107-118, 2014.
8. Zabel D, Kalish E, Conway M, Belgrade J, Köhler BP, Moreno FG, Sotomayor S, Rodríguez M, Pascual G, Bellón JM, Pappalardo V, Origi M, Veronesi P, Moroni M, Militello P, Frattolillo F, Varale R, Zuliani W, Munipalle P, Khan S, Etherson K, Viswanath P, Latham L, Livraghi L, Menegat N, Berselli M, Agrusti S, Cotronea C, Farassino L, Galvanin J, Borghi F, Ambrosoli A, Crespi A, Cocozza E, María FJ, Alós AR, Bellver BG, Castaño CS, Hernández M, Glover M, Glass J, Franklin M, Gossetti F, Ceci F, Manzi E, Mattia S, D'Amore L, Negro P, Hernandez M, Ferzoco S, de Bruin BJ, Bettinger CJ, Bonjer HJ, Bruggeman JP, Muzio G, Paiuzzi E, Festa V, Festa F, Chiaravalloti A, Buemi C, Canuto RA, Cossa JP, Bizet G, Ji Z, Gu Y, Liu ZN, Yang Z, Zhou ZY, Song ZC, Wang HC, Yang JJ, Tang R. Topic: Mesh and Prosthesis. Hernia, 19 Supp l 1, S305-312, 2015.
9. Cotogni P., Trombetta A., Muzio G., Maggiora M., Canuto R.A. The Omega-3 Fatty Acid Docosahexaenoic Acid Modulates Inflammatory Mediator Release in Human Alveolar Cells Exposed to Bronchoalveolar Lavage Fluid of ARDS Patients. Biomed Res Int., 2015;2015:642520. doi: 10.1155/2015/642520.
10. Barrera G., Gentile F.., Pizzimenti S., Canuto R.A., Daga M., Arcaro A., Cetrangolo G.P., Lepore A., Ferretti C.., Dianzani C, Muzio G. Mitochondrial Dysfunction in Cancer and Neurodegenerative Diseases: Spotlight on Fatty Acid Oxidation and Lipoperoxidation Products. Antioxidants (Basel). 2016 Feb 19;5(1). pii: E7. doi: 10.3390/antiox5010007.
11. Muzio G., Ricci M., Traverso N., Monacelli F., Oraldi M., Maggiora M, Canuto R.A. 4-Hydroxyhexenal and 4-hydroxynonenal are mediators of the anti-cachectic effect of n-3 and n-6 polyunsaturated fatty acids on human lung cancer cells. Free Radic Biol Med., 99, 63-70, 2016.
12. **Muzio G.**, Perero S., Miola M., Oraldi M., Ferraris S., Vernè E, Festa F., Canuto R.A., Festa V., Ferraris M. Biocompatibility versus peritoneal mesothelial cells of polypropylene prostheses for hernia repair, coated with a thin silica/silver layer. J Biomed Mater Res B Appl Biomater., 105, 1586-93, 2016.
13. Muzio G., Miola M., Ferraris S., Maggiora M., Bertone E.., Puccinelli M.P., Ricci M., Borroni E., Canuto R.A., Verné E., Follenzi A. Innovative superparamagnetic iron-oxide nanoparticles coated with silica and conjugated with linoleic acid: Effect on tumor cell growth and viability. Mater Sci Eng C Mater Biol Appl., 76, 439-47, 2017.
14. Muzio, G., Miola, M, Perero S., Oraldi M., Maggiora M., Ferraris, S., Vernè, E., Festa V., Festa F., Canuto R.A., Ferraris M. Polypropylene prostheses coated with silver nanoclusters/silica coating obtained by sputtering: Biocompatibility and antibacterial properties. Surface Coatings Tech., 319, 326-334, 2017.
15. Ricci M., Miola M., Multari C., Borroni E., Canuto R.A., Congiusta N., Vernè E., Follenzi A., Muzio G. PPARs are mediators of anti-cancer properties of superparamagnetic iron oxide nanoparticles (SPIONs) functionalized with conjugated linoleic acid. Chem Biol Interact., 292, 9-14, 2018.
16. Pizzimenti S, Ribero S, Cucci MA, Grattarola M, Monge C, Dianzani C, Barrera G, Muzio G. Oxidative Stress-Related Mechanisms in Melanoma and in the Acquired Resistance to Targeted Therapies. Antioxidants (Basel) 10(12):1942,2021.
17. Muzio G, Barrera G, Pizzimenti S. Peroxisome Proliferator-Activated Receptors (PPARs) and Oxidative Stress in Physiological Conditions and in Cancer. Antioxidants (Basel) 10(11):1734, 2021.
18. Barrera G, Cucci MA, Grattarola M, Dianzani C, Muzio G, Pizzimenti S. Control of Oxidative Stress in Cancer Chemoresistance: Spotlight on Nrf2 Role. Antioxidants (Basel) 10(4):510, 2021.
19. Schierano G, Baldi D, Peirone B, Mauthe von Degerfeld M, Navone R, Bragoni A, Colombo J, Autelli R, Muzio G. Biomolecular, Histological, Clinical, and Radiological Analyses of Dental Implant Bone Sites Prepared Using Magnetic Mallet Technology: A Pilot Study in Animals. Materials (Basel) 14(22):6945, 2021.
20. Schierano G, Canuto RA, Mauthe von Degerfeld M, Navone R, Peirone B, Preti G, Muzio G. Role of rhBMP-7, Fibronectin, And Type I Collagen in Dental Implant Osseointegration Process: An Initial Pilot Study on Minipig Animals. Materials (Basel) 14(9):2185, 2021.
21. Actis C, Muzio G, Autelli R. Autophagy Triggers Tamoxifen Resistance in Human Breast Cancer Cells by Preventing Drug-Induced Lysosomal Damage. Cancers (Basel) 12;13(6):1252, 2021.
22. Giuntoli G, Muzio G, Actis C, Ganora A, Calzone S, Bruno M, Ciardelli G, Carmagnola I, Tonda-Turo C. In-vitro Characterization of a Hernia Mesh Featuring a Nanostructured Coating. Frontiers in Bioengineering and Biotechnology 8, 589223, 2021.

The results of research activity have been object of 108 full-length publications on peer-reviewed international journals and 120 meeting communications.
Author of 21 chapters in National and International books and editor in scientific books.