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Education and work experiences

2007-present: Senior Researcher at IRCCS Galeazzi Orthopaedic Institute, Milan - Italy

March 2017: Italian National Scientific Qualification as Associate Professor in General and Clinical Pathology

July 2017: Italian National Scientific Qualification as Associate Professor in Applied Biology

In the past:

- Research Fellowship Telethon Istituto Auxologico Italiano, Milan, Italy.
- Research Contract (Assegno di Ricerca D.R. n. 199539 04/07/2000), University of Milan, Italy.
- Post-Doctoral research fellow, University of Milan, Italy.
- Research Fellowship at the Institute of General Pathology from “Fondazione Anna Villa Rusconi”.
- PhD in Experimental Pathology University of Milan, Italy.
- Stage at the “Insitut für Biochemie und Molekularbiologie” University of Bern, Switzerland.
- Degree in Biological Sciences at the University of Milan, Italy

Research experiences

Present: -Molecular and cellular mechanisms that favour the bone tropism and the development of osteolytic metastases from breast cancer;

-Role played by biological (HGF and TGF β) and physical (hypoxia) stimuli in the invasive growth and in bone metastases formation;

-Epigenetic regulation of gene expression responsible for the plasticity of tumour cells

-Interaction of tumour cells with stromal cells.

Past: -Acute-phase response in the liver;

- Liver heat-shock response;
- Ischemia-reperfusion injury in the liver;
- Liver prolactin response;
- Signal transduction mechanisms induced from leptin in peripheral tissue;
- In vivo heat-shock response in the brain.

Scientific productivity

Author of more than 50 papers in International peer-reviewed journal and attendee as author to 35 international and national conferences.

Editorial activities

Editorial Board member of:

IUBMB Life

Biomedicines

Ad hoc reviewer for several high impact international journals.

Professional membership

Member of Italian Society of Pathology and Translational Medicine (SiPMeT)

Technical skills and competencies

Experiences in the field of molecular biology, biochemistry, cellular biology and *in vivo* experiments (manipulations of mice, xenograft model preparation and treatment). Histological and immunohistochemical analysis; immunofluorescence techniques; stable and transient transfection; ELISA; luciferase activity assay.

Bibliometric indices (December 2018)

Total Citations 1549

Total IF 195.43

H-index (Scopus) 22

PUBLICATIONS

1. R. Piccoletti, P. Bendinelli, D. Arienti, P. Maroni, and A. Bernelli-Zazzera. "Phosphorylation pattern of liver proteins during the early stages of the acute-phase response". **Cell Biol. Int.** (1993)17: 425-432.
2. R. Piccoletti, P. Bendinelli, P. Maroni, L. Tacchini, and A. Bernelli-Zazzera. "Protein kinase C and gene expression in prolactin-stimulated post-ischemic livers". **Ann. N. Y. Acad. Sci.** (1994) 723: 454-456 ed. Dipak K. Das.
3. R. Piccoletti, P. Maroni, P. Bendinelli and A. Bernelli-Zazzera. "Mitogen-activated protein kinase of rat liver is rapidly stimulated by prolactin". **Biochem. J.** (1994) 303(2): 429-433.
4. A. Brunani, C. Invitti, A. Dubini, R. Piccoletti, P. Bendinelli, P. Maroni, G. Pezzoli, G. Ramella, A. Calogero and F. Cavagnini. "Cerebrospinal fluid and plasma concentration of SRIH, beta-endorphin, CRH, NPY and GHRH in obese and normal weight subjects". **Int. J. Obesity** (1995) 19: 17-21.
5. C. Invitti, A. Brunani, L. Pasqualinotto, A. Dubini, P. Bendinelli, P. Maroni and F. Cavagnini. "Plasma galanin concentrations in obese, normal weight and anorectic women". **Int. J. Obesity** (1995) 19: 347-349.
6. P. Bendinelli, R. Piccoletti, P. Maroni and A. Bernelli-Zazzera. "The liver response to in vivo heat shock involves the activation of MAP kinases and Raf and the tyrosine phosphorylation of SHC proteins". **Biochem. Biophys Res. Commun.** (1995) 216(1): 54-61.
7. A. Tasinato, D. Boscoboinik, G-M. Bartoli, P. Maroni and A. Azzi. "d- α -tocopherol inhibition of vascular smooth muscle cell proliferation occurs at physiological concentrations, correlates with protein kinase C inhibition and is dependent of its antioxidant properties". **Proc. Natl. Acad. Sci. USA** (1995) 92: 12190-12194.
8. P. Bendinelli, R. Piccoletti, P. Maroni and A. Bernelli-Zazzera. "The MAP kinase cascades are activated during post-ischemic liver reperfusion". **FEBS Lett.** (1996) 398(2-3): 193-197.
9. R. Piccoletti, P. Bendinelli and P. Maroni. "Signal transduction pathway of prolactin in rat liver". **Mol. Cell. Endocrinol.** (1997) 135: 169-177.
10. A. Azzi, D. Boscoboinik, A. Fazzio, D. Marilley, P. Maroni, N.K. Özer, S. Spycher and A. Tasinato. "RRR- α -tocopherol regulation of gene transcription in response to the cell oxidant status". **Z. Ernährungswiss.** (1998) 37: Suppl 1, 21-28.
11. A. Azzi, R. Ricciarelli, P. Maroni, N. Özer. "Protein kinase C, collagenase (matrix metalloproteinase type 1), α -tocopherol and skin aging". **Pathophysiology.** (1998) 5: suppl 1, 87-87.
12. C. Invitti, F. Pecori-Giraldi, A. Dubini, P. Maroni, M. Losa, R. Piccoletti and F. Cavagnini. "Galanin is released by ACTH secreting pituitary adenomas in vivo and in vitro". **J. Clin. Endocrinol. Metab.** (1999) 84: 1351-1356.
13. R. Ricciarelli, P. Maroni, N. Özer, J-M. Zingg and A. Azzi. "Age-dependent increase of collagenase expression can be reduced by α -tocopherol via protein kinase C inhibition". **Free Rad. Biol. Med.** (1999) 27: 729-737.
14. P. Maroni, P. Bendinelli, C. Zuccorononno, L. Schiaffonati and R. Piccoletti. "Cellular signaling after in vivo heat shock in the liver". **Cell Biol. Int.** (2000) 24 (3):145-152.
15. P. Bendinelli*, P. Maroni*, F. Pecori Giraldi and R. Piccoletti. "Leptin activates Stat3, Stat1 and AP-1 in mouse adipose tissue". (* equally contributing authors) **Mol. Cell. Endocrinol.** (2000) 168: 11-20.
16. L. Schiaffonati, P. Maroni, P. Bendinelli, L. Tiberio and R. Piccoletti. "Hyperthermia induces gene expression of heat shock protein 70 and phosphorylation of mitogen activated protein kinases in the rat cerebellum". **Neurosci Lett.** (2001) 312(2): 75-78.
17. I. Terruzzi, S. Allibardi, P. Bendinelli, P. Maroni, R. Piccoletti, F. Vesco, M. Samaja and L. Luzi. "Amino acid-and lipid-induced insulin resistance in rat heart: molecular mechanisms". **Mol. Cell. Endocrinol.** (2002) 190(1-2): 135-145.

18. P. Maroni, P. Bendinelli and R. Piccoletti. *“Early intracellular events induced by in vivo leptin treatment in mouse skeletal muscle”*. **Mol. Cell. Endocrinol.** (2003) 201: 109-121.
19. P. Maroni, P. Bendinelli, L. Tiberio, F. Rovetta, R. Piccoletti, L. Schiaffonati. *“In vivo heat-shock response in the brain: signalling pathway and transcription factor activation”*. **Mol. Brain Res.** (2003) 119: 90-99.
20. P. Maroni, P. Bendinelli and R. Piccoletti. *“Intracellular signal transduction pathways induced by leptin in C2C12 cells”*. **Cell Biol Int** (2005) 29: 542-550.
21. P. Bendinelli, R. Piccoletti and P. Maroni *“Leptin rapidly activates PPARs in C2C12 muscle cells”*. **Biochem. Biophys. Res. Commun.** (2005) 332: 719-725.
22. P. Maroni, P. Bendinelli, E. Matteucci, M.A. Desiderio. *“HGF induces CXCR4 and CXCL12-mediated tumor invasion through Ets1 and NF- κ B”*. *Carcinogenesis* (2007) 28: 267-279.
23. E. Matteucci, E. Ridolfi, P. Maroni, P. Bendinelli, M.A. Desiderio. *“c-Src/histone deacetylase 3 interaction is crucial for hepatocyte growth factor-dependent decrease of CXCR4 expression in highly invasive breast tumor cells”*. **Mol. Cancer Res.** (2007) 5, 1-13.
24. G. Vitale, P. Maroni, A.G. Ambrogio, F. Cavagnini. *“New perspectives in the treatment of neuroendocrine tumors”* **Rivista Medica** (2007) 13: 55-58.
25. E. Ridolfi, E. Matteucci, P. Maroni, M.A. Desiderio. *“Inhibitory effect of HGF on invasiveness of aggressive MDA-MB231 breast carcinoma cells, and role of HDACs”*. **Br. J. Cancer** (2008) 99, 1623-1634.
26. P. Bendinelli, E. Matteucci, P. Maroni, M.A. Desiderio. *“NF- κ B activation, dependent on acetylation/deacetylation, contributes to HIF-1 activity and migration of bone metastatic breast carcinoma cells”*. **Mol. Cancer Res.** (2009) 7, 1328-1341.
27. P. Maroni, L. Citterio, R. Piccoletti, P. Bendinelli. *“Sam68 and ERKs regulate leptin-induced expression of OB-Rb mRNA in C2C12 myotubes”*. **Mol Cell Endocrinol.** (2009) 309: 26-31.
28. G. Vitale, M. Caraglia, P.M. van Koetsveld, P. Maroni, M. Marra, A. Colao, S.W. Lamberts, F. Cavagnini, L.J. Hofland. *“Potential role of type I interferons in the treatment of pituitary adenomas”*. **Rev Endocr Metab Disord.** (2009) 10:125-133
29. S. Previdi*, P. Maroni*, E. Matteucci, M. Broggin, P. Bendinelli, M.A. Desiderio. *“Interaction between human-breast cancer metastasis and bone microenvironment through activated hepatocyte growth factor/Met and β -catenin/Wnt pathways”* (* equally contributing authors). **Eur J. Cancer** (2010) 46:1679-1691.
30. F. Pecori Giraldi, S. Pesce, P. Maroni, L. Pagliardini, G. Lasio, M. Losa, F. Cavagnini. *“Inhibitory effect of prepro-thyrotrophin-releasing hormone (178-199) adrenocorticotrophic hormone secretion by human corticotroph tumours”*. **J Neuroendocrinol.** (2010) 22: 294-300.
31. P. Bendinelli, E. Matteucci, G. Dogliotti, M.M. Corsi, G. Banfi, P. Maroni, M.A. Desiderio. *“Molecular basis of anti-inflammatory action of platelet rich plasma on human chondrocytes: Mechanisms of NF- κ B inhibition via HGF”*. **J Cell Physiol.** (2010) 225: 757-766.
32. P. Maroni, E. Matteucci, A. Luzzati, G. Perrucchini, P. Bendinelli, M.A. Desiderio. *“Nuclear colocalization and functional interaction of COX-2 and HIF-1 α characterize bone metastasis of human breast carcinoma”*. **Breast Cancer Res Treat.** (2011) 129: 433-450.
33. P. Bendinelli, P. Maroni, E. Matteucci, M.A. Desiderio. *“Comparative role of acetylation along c-SRC/ETS1 signaling pathway in bone metastatic and invasive mammary cell phenotypes”*. **Biochim Biophys Acta.** (2011) 1813: 1767-76.
34. G. Vitale, S. Zappavigna, M. Marra, A. Dicitore, S. Meschini, M. Condello, G. Arancia, S. Castiglioni, P. Maroni, P. Bendinelli, R. Piccoletti, P.M. van Koetsveld, F. Cavagnini, A. Budillon, A. Abbruzzese, L.J. Hofland, M. Caraglia. *“The PPAR- γ agonist troglitazone antagonizes survival pathways induced by STAT-3 in recombinant interferon- β treated pancreatic cancer cells”*. **Biotechnol Adv.** (2012) 30: 169-184.
35. P. Maroni, A.T. Brini, E. Arrigoni, L. de Girolamo, S. Niada, E. Matteucci, P. Bendinelli, M.A. Desiderio. *“Chemical and genetic blockade of HDACs enhances osteogenic differentiation of human*

adipose tissue-derived stem cells by oppositely affecting osteogenic and adipogenic transcription factors". **Biochem Biophys Res Commun.** (2012) 428: 271-277.

36. E. Matteucci, P. Maroni, A. Luzzati, G. Perrucchini, P. Bendinelli, MA Desiderio. "*Bone metastatic process of breast cancer involves methylation state affecting E-cadherin expression through TAZ and WWOX nuclear effectors*". **Eur J Cancer.** (2013) 49: 231-244.

37. Bendinelli P, Maroni P, Matteucci E, Luzzati A, Perrucchini G, Desiderio MA. "Hypoxia inducible factor-1 is activated by transcriptional co-activator with PDZ-binding motif (TAZ) versus WWdomain-containing oxidoreductase (WWOX) in hypoxic microenvironment of bone metastasis from breast cancer" **Eur J Cancer** (2013) 49: 2608-2618.

38. E. Matteucci, P. Maroni, P. Bendinelli, A. Locatelli, M. A. Desiderio "*Epigenetic control of endothelin-1 axis affects invasiveness of breast carcinoma cells with bone tropism*". **Exp. Cell Res** (2013) 319: 1865–1874.

39. Bendinelli P, Maroni P, Matteucci E, Luzzati A, Perrucchini G, Desiderio MA. "*Microenvironmental stimuli affect Endothelin-1 signaling responsible for invasiveness and osteomimicry of bone metastasis from breast cancer*". **Biochim Biophys Acta** (2014) 1843: 815-826.

40. Maroni P, Bendinelli P, Matteucci E, Locatelli A, Nakamura T, Scita G, Desiderio MA. "*Osteolytic bone metastasis is hampered by impinging on the interplay among autophagy, anoikis and ossification*". **Cell Death and Dis.** (2014) 5:e1005.

41. Maroni P, Matteucci E, Drago L, Banfi G, Bendinelli P, Desiderio MA. "*Hypoxia induced Ecadherin involving regulators of Hippo pathway due to HIF-1 α stabilization/nuclear translocation in bone metastasis from breast carcinoma*". **Exp Cell Res.** (2015) 330: 287-299.

42. P Bendinelli*, P Maroni*, E Matteucci and MA Desiderio. "*HGF and TGF β 1 differently influenced Wwox regulatory function on Twist program for mesenchymal-epithelial transition in bone metastatic versus parental breast carcinoma cells*". (* equally contributing authors) **Mol. Cancer** (2015) 14: 112-128.

43. Maroni P, Bendinelli P, Morelli D, Drago L, Luzzati A, Perrucchini G, Bonini C, Matteucci E and Desiderio MA. "*High SPARC Expression Starting from Dysplasia, Associated with Breast Carcinoma, Is Predictive for Bone Metastasis without Enhancement of Plasma Levels*". **Int J. Mol. Sci.** (2015) 16: 20108-28122.

44. Matteucci E, Maroni P, Disanza A, Bendinelli P, Desiderio MA. "*Coordinate regulation of microenvironmental stimuli and role of methylation in bone metastasis from breast carcinoma*". **Biochim Biophys Acta** (2016) 1863: 64-76.

45. Maroni P, Bendinelli P, Resnati M, Matteucci E, Milan E, Desiderio MA. "*The Autophagic Process Occurs in Human Bone Metastasis and Implicates Molecular Mechanisms Differently Affected by Rab5a in the Early and Late Stages*". **Int J. Mol. Sci.** (2016) 17: pii: E443. doi: 10.3390/ijms17040443.

46. Bendinelli P, Maroni P, Matteucci E, Desiderio MA. "*Cell and Signal Components of the Microenvironment of Bone Metastasis Are Affected by Hypoxia.*" **Int J. Mol. Sci.** (2016) 17: pii: E706. doi: 10.3390/ijms17050706.

47. Galliera E, Marazzi MG, Vianello E, Drago L, Luzzati A, Bendinelli P, Maroni P, Tacchini L, Desiderio MA, Corsi Romanelli MM. "*Circulating sRAGE in the Diagnosis of Osteolytic Bone Metastasis*". **J. Biol. Reg. Homeos Ag.** (2016) 30(4):1203-1208

48. Bendinelli P, Maroni P, Matteucci E, Desiderio MA "*Epigenetic Regulation of HGF/Met Receptor Axis as Therapeutic Target of Bone Metastasis from Breast Carcinoma*". **Cell Death and Dis.** (2017) 8:e2578. doi: 10.1038/cddis.2016.403.

49. Maroni P, Matteucci E, Bendinelli P, Desiderio MA. "*Functions and Epigenetic Regulation of Wwox in Bone Metastasis from Breast Carcinoma: Comparison with Primary Tumors*". **Int J Mol Sci.** (2017) 18: pii: E75. doi: 10.3390/ijms18010075.

50. Maroni P, Puglisi R, Mattia G, Carè A, Matteucci E, Bendinelli P, Desiderio MA. "*miR34a absence in bone metastasis, and miR34a inactive towards Met in non-metastatic breast carcinoma correlate with Met expression during tumor progression*". **Carcinogenesis** (2017) doi 10.1093/carcin/bgx027.

51. Matteucci E*, Maroni P*, Nicassio F, Ghini F, Bendinelli P, MA Desiderio. *"Microenvironment Stimuli HGF and Hypoxia Differently Affected miR-125b and Ets-1 Function with Opposite Effects on the Invasiveness of Bone Metastatic Cells: A Comparison with Breast Carcinoma Cells"* (*equally contributing authors) **Int. J. Mol. Sci.** (2018) 19(1). pii: E258. doi: 10.3390/ijms19010258.
52. Maroni P, Bendinelli P, Matteucci E, MA Desiderio. *"The therapeutic effect of miR-125b is enhanced by the prostaglandin endoperoxide synthase 2/cyclooxygenase 2 blockade and hampers ETS1 in the context of the microenvironment of bone metastasis"* **Cell Death and Dis** (2018) 9:472. doi: 10.1038/s41419-018-0499-8.
53. Maroni P. "Megakaryocytes in bone metastasis: protection or progression?" **Cells** (2018) under review

Milan, 20th December 2018