

## PERSONAL INFORMATION

Paola Bendinelli

## POSITION

Assistant Professor in General Pathology

## PERSONAL STATEMENT

Degree in Biological Sciences  
PhD in Experimental Pathology

## WORK EXPERIENCE

1995-2018

**Assistant Professor in General Pathology, Department of Biomedical Sciences for Health**

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

Research interest

2007-present. Study of the molecular events involved in the colonization of bone tissue by breast carcinoma cells: evaluation of the transcription factors and of the intracellular signals that regulate the plasticity of metastatic cells in response to biological and physical stimuli of the microenvironment. Study of the therapy of bone metastases (with cyclooxygenase inhibitors, DNA methylation inhibitors), using a xenograft model of osteolytic bone metastases. Research of diagnostic and prognostic markers of the progression of breast cancer, through the use of biopsies and plasma of patients with bone metastases and biopsies of the corresponding primary tumors.2002-2007. Study of the mechanisms of signal transduction of leptin in mouse peripheral tissues in vivo and in vitro.

May 2001-May 2002

Research assignment by CNR "Centro di Studio sulla Patologia Cellulare" for research "Study of the signal transduction in the heat stress"

Research interest

1995-2002. Study of the mechanisms that allow cells to transduce stress signals, such as thermal stress, in biochemical and molecular changes that result in the reprogramming of the gene expression.1992-1995. Study of intracellular signals triggered in rat liver during reperfusion after non-necrogenic ischemia. Study of the signal transduction of prolactin in rat liver.

1994

PhD in Experimental Pathology

Research interest

1989-1994. Study of intracellular signals triggered in the rat liver during the acute phase response.

1992

Researcher in General Pathology

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Degree in Biological Sciences

Research interest

Study of functional modifications of the protein synthesis apparatus in the rat liver during the acute phase response

EDUCATION AND TRAINING

- 1995-present Assistant Professor in General Pathology, Sector MED/04, Università degli Studi di Milano
- March 2017 National Scientific Qualification as Associate Professor in General and Clinical Pathology (06/A2)
- December 2010 Head of Animal Care, Department of Biomedical sciences for Health
- May 2001-May2002 Research assignment by CNR "Centro di Studio sulla Patologia Cellulare" for research "Study of the signal transduction in the heat stress"
- 1994 PhD in Experimental Pathology, Università degli Studi of Firenze
- 1992 Researcher in General Pathology, Università degli Studi di Milano
- 1990 Professional qualification of Biologist
- 1988 Degree in Biological Sciences

PERSONAL SKILLS

Mother tongue(s)  
Other language(s)

Italian

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1	C1	C1	C1	C1

Communication skills

- Teaching Activity
- Degree course: Medicina e Chirurgia

<i>Academic year</i>	<i>Teaching activity</i>
2012/2013-present	Lessons of Patologia e Fisiopatologia Generale (1 CFU)
1992/1993-present	Histopathology tutorials Patologia e Fisiopatologia Generale (2 CFU)
1992/1993-present	Member of the Board of Examiners Patologia e Fisiopatologia Generale

- Head of the following courses

<i>Academic year</i>	<i>Teaching</i>	<i>Degree Course</i>
20027/2003-present	Patologia Generale	Assistenza Sanitaria
2001/2002-present	Patologia Generale	Podologia
2012/2013-present	Corso di Patologia Generale	Tecniche della Prevenzione nell'Ambiente e nei Luoghi di Lavoro
2000/2001-2005-2006	Patologia Generale	Igiene Dentale
2001/2002 2002/2003	Elementi di Patologia Generale	Graduate School in Igiene

Organisational / managerial skills

Head of Animal Care, Department of Biomedical Sciences for the Health  
 “Commissione Paritetica” Degree Course in Tecniche della Prevenzione nell'Ambiente e nei Luoghi di Lavoro

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Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Independent User	Independent User	Independent User	Basic user	Basic user

Driving licence B

ADDITIONAL INFORMATION

Publications

- 50 Papers in International peer-reviewed Journals, 2 Chapters of book
- H index: 20 (Scopus)
- Citations 1236 (Scopus)

## PUBLICATIONS

1. Maroni P, [Bendinelli P](#), Matteucci E, Desiderio MA. 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 Dis* 9, e472, 2018.
2. Matteucci E, Maroni P, Nicassio F, Ghini F, [Bendinelli P](#), Desiderio MA. 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. *Int J Mol Sci* 19, 258-278, 2018.
3. Maroni P, Puglisi R, Mattia G, Carè A, Matteucci E, [Bendinelli P](#), Desiderio MA. In bone metastasis miR-34a-5p absence inversely correlates with Met expression, while Met oncogene is unaffected by miR-34a-5p in non-metastatic and metastatic breast carcinomas. *Carcinogenesis* 38, 492-503, 2017.
4. [Bendinelli P](#), Maroni P, Matteucci E, Desiderio MA. Epigenetic regulation of HGF/Met receptor axis is critical for the outgrowth of bone metastasis from breast carcinoma. *Cell Death Dis* 8, e2578, 2017.
5. 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* 18, 75-88, 2017.
6. 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 Regul Homeost Agents* 30, 1203-1208, 2016.
7. [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* 17, 706-716, 2016.
8. 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* 17, 443-458, 2016.
9. 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* 1863, 64-76, 2016.
10. Maroni P, [Bendinelli P](#), Morelli D, Drago L, Luzzati A, Perrucchini G, Bonini C, Matteucci E, 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* 16, 28108-28122, 2015.
11. [Bendinelli P](#), Maroni P, Matteucci E, Desiderio MA. HGF and TGF $\beta$ 1 differently influenced *Wwox* regulatory function on Twist program for mesenchymal-epithelial transition in bone metastatic versus parental breast carcinoma cells. *Mol Cancer* 14, 112-129, 2015.
12. Maroni P, Matteucci E, Drago L, Banfi G, [Bendinelli P](#), Desiderio MA. Hypoxia induced E-cadherin involving regulators of Hippo pathway due to HIF-1 $\alpha$  stabilization/nuclear translocation in bone metastasis from breast carcinoma. *Exp Cell Res* 330, 287-299, 2015.
13. 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 Dis* 5, e1005, 2014.
14. [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* 1843, 815-826, 2014.
15. Matteucci E, Maroni P, [Bendinelli P](#), Locatelli A, Desiderio MA. Epigenetic control of endothelin-1 axis affects invasiveness of breast carcinoma cells with bone tropism. *Exp Cell Res* 319, 1865-1874, 2013.
16. [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* 49, 2608-2618, 2013.
17. Matteucci E, Maroni P, Luzzati A, Perrucchini G, [Bendinelli P](#), Desiderio MA. Bone metastatic process of breast cancer involves methylation state affecting E-cadherin expression through TAZ and WWOX nuclear effectors. *Eur J Cancer* 49, 231-244, 2013.
18. Vitale G, Zappavigna S, Marra M, Dicitore A, Meschini S, Condello M, Arancia G, Castiglioni S, Maroni P, [Bendinelli P](#), Piccoletti R, van Koetsveld PM, Cavagnini F, Budillon A, Abbruzzese A, Hofland LJ, Caraglia M. The PPAR- $\gamma$  agonist troglitazone antagonizes survival pathways induced by STAT-3 in recombinant interferon- $M\beta$  treated pancreatic cancer cells. *Biotechnol Adv* 30, 169-184, 2012.
19. Maroni P, Brini AT, Arrigoni E, de Girolamo L, Niada S, Matteucci E, [Bendinelli P](#), Desiderio MA. 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* 428, 271-277, 2012.
20. [Bendinelli P](#), Maroni P, Matteucci E, Desiderio MA. Comparative role of acetylation along c-Src/Ets1 signaling pathway in bone metastatic and invasive mammary cell phenotypes. *Biochim Biophys Acta* 1813, 1767-1776, 2011.
21. Maroni P, Matteucci E, Luzzati A, Perrucchini G, [Bendinelli P](#), Desiderio MA. Nuclear co-localization and functional interaction of COX-2 and HIF-1 $\alpha$  characterize bone metastasis of human breast carcinoma. *Breast Cancer Res Treat* 129, 433-450, 2011.
22. [Bendinelli P](#), Matteucci E, Dogliotti G, Corsi MM, Banfi G, Maroni P, Desiderio MA. Molecular basis of anti-inflammatory action of platelet-rich plasma on human chondrocytes: mechanisms of NF- $\kappa$ B inhibition via HGF. *J Cell Physiol* 225, 757-766, 2010.

23. Previdi S, Maroni P, Matteucci E, Brogгинi M, Bendinelli P, Desiderio MA. Interaction between human-breast cancer metastasis and bone microenvironment through activated hepatocyte growth factor/Met and beta-catenin/Wnt pathways. *Eur J Cancer* 46, 1679-1691, 2010.
24. Bendinelli P, Matteucci E, Maroni P, Desiderio MA. NF- $\kappa$ B activation, dependent on acetylation/deacetylation, contributes to HIF-1 activity and migration of bone metastatic breast carcinoma cells. *Mol Cancer Res* 7, 1328-1341, 2009.
25. Matteucci E, Bendinelli P, Desiderio MA. Nuclear localization of active HGF receptor Met in aggressive MDA-MB231 breast carcinoma cells. *Carcinogenesis* 30, 937-945, 2009.
26. Maroni P, Citterio L, Piccoletti R, Bendinelli P Sam68 and ERKs regulate leptin-induced expression of OB-Rb mRNA in C2C12 myotubes. *Mol Cell Endocrinol* 309, 26-31, 2009.
27. Vitale G, Hoffland LJ, Maroni P, Zappavigna S, Bendinelli P, Marra M, Van Koetsveld P, Piccoletti R, Lamberts SW, Caraglia CM, Cavagnini F. PPAR-gamma areactivation by troglitazone potentiates antitumor activity of interferon-beta in human pancreatic cancer cells. *J Endocrinol Invest* 31, 17, 2008.
28. Matteucci E, Ridolfi E, Maroni P, Bendinelli P, Desiderio MA. 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* 5, 833-845, 2007.
29. Maroni P, Bendinelli P, Matteucci E, Desiderio MA. HGF induces CXCR4 and CXCL12-mediated tumor invasion through Ets1 and NF- $\kappa$ B. *Carcinogenesis* 28, 267-279, 2007.
30. Bendinelli P, Piccoletti R, Maroni P. Leptin rapidly activates PPARs in C2C12 muscle cells. *Biochem Biophys Res Commun* 332, 719-725, 2005.
31. Maroni P, Bendinelli P, Piccoletti R. Intracellular signal transduction pathways induced by leptin in C2C12 cells. *Cell Biol Int* 29, 542-550, 2005.
32. Maroni P, Bendinelli P, Tiberio L, Rovetta F, Piccoletti R, Schiaffonati L. In vivo heat-shock response in the brain: signalling pathway and transcription factor activation. *Mol Brain Res* 119, 90-99, 2003.
33. Bendinelli P, Maroni P, Piccoletti R. Early intracellular events induced by in vivo leptin treatment in mouse skeletal muscle. *Mol Cell Endocrinol* 201, 109-121, 2003.
34. Terruzzi I, Allibardi S, Bendinelli P, Maroni P, Piccoletti R, Vesco F, Samaja M, Luzi L. Amino acid-and lipid-induced insulin resistance in rat heart: molecular mechanisms. *Mol Cell Endocrinol* 190, 135-145, 2002.
35. Schiaffonati L, Maroni P, Bendinelli P, Tiberio L, Piccoletti R. Hyperthermia induces gene expression of heat shock protein 70 and phosphorylation of mitogen activated protein kinases in the rat cerebellum. *Neurosci Lett* 312, 75-78, 2001.
36. Bendinelli P, Maroni P, Pecori Giralardi F, Piccoletti R. Leptin activates Stat3, Stat1 and AP-1 in mouse adipose tissue. *Mol Cell Endocrinol* 168, 11-20, 2000.
37. Maroni P, Bendinelli P, Zuccorononno C, Schiaffonati L, Piccoletti R. Cellular signalling after in vivo heat shock in the liver. *Cell Biol Int* 24, 145-152, 2000.
38. Piccoletti R, Bendinelli P, Maroni P. Signal transduction pathway of prolactin in rat liver. *Mol Cell Endocrinol* 135, 169-177, 1997.
39. Bendinelli P, Piccoletti R, Maroni P, Bernelli-Zazzera A. The MAP kinase cascades are activated during post-ischemic liver reperfusion. *FEBS Lett* 398, 193-197, 1996.
40. Bendinelli P, Piccoletti R, Maroni P, Bernelli-Zazzera A. 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* 216, 54-61, 1995.
41. Invitti C, Brunani A, Pasqualinotto L, Dubini A, Bendinelli P, Maroni P, Cavagnini F. Plasma galanin concentrations in obese, normal weight and anorectic women. *Int J Obesity* 19, 347-349, 1995.
42. Brunani A, Invitti C, Dubini A, Piccoletti R, Bendinelli P, Maroni P, Pezzoli G, Ramella G, Calogero A, Cavagnini F. Cerebrospinal fluid and plasma concentration of SRIH, beta-endorphin, CRH, NPY and GHRH in obese and normal weight subjects. *Int J Obesity* 19, 17-21, 1995.
43. Piccoletti R, Maroni P, Bendinelli P, Bernelli-Zazzera A. Mitogen-activated protein kinase of rat liver is rapidly stimulated by prolactin. *Biochem J* 303, 429-433, 1994.
44. Piccoletti R, Bendinelli P, Maroni P, Tacchini L, Bernelli-Zazzera A. Protein kinase C and gene expression in prolactin-stimulated post-ischemic livers. *Ann N Y Acad Sci* () 723, 454-456, 1994.
45. Piccoletti R, Bendinelli P, Arienti D, Maroni P, Bernelli-Zazzera A. Phosphorylation pattern of liver proteins during the early stages of the acute-phase response. *Cell Biol Int* 17, 425-432, 1993.
46. Parola M, Muraca R, Dianzani I, Barrera G, Leonarduzzi G, Bendinelli P, Piccoletti R, Poli G. Vitamin E dietary supplementation inhibits transforming growth factor  $\beta$ 1 gene expression in the rat liver. *FEBS Lett* 3, 267-270, 1992.
47. Piccoletti R, Bendinelli P, Arienti D, Bernelli-Zazzera A. State and activity of protein kinase C in posts ischemic reperfused liver. *Exp Mol Pathol* 56, 219-228, 1992.
48. Piccoletti R, Bendinelli P, Arienti D, Bernelli-Zazzera A. Protein kinase C in the liver cell response to injury. In: "Experimental and Clinical Hepatology" P. Gentilini and M.U. Dianzani Eds., Elsevier Science Publishers pp.41-54, 1991.
49. Piccoletti R, Arienti D, Bendinelli P, Bernelli-Zazzera A. Rat liver eicosanoid synthesis during turpentine-induced inflammation. *Second Mess & Phosphoprot* 13, 141-155, 1991.

50. Piccoletti R, Aletti MG, Bendinelli P, Arienti D, Bemelli-Zazzera A. Biochemical events in the liver cell during the early stages of the acute-phase response. In: "Chronic liver damage" M.U. Dianzani and P. Gentilini. Eds., Elsevier Science Publishers pp.3-14, 1990.
51. Piccoletti R, Aletti MG, Bendinelli P, Arienti D., Bemelli-Zazzera A. Activity and distribution of protein kinase C in liver during the acute-phase response. Biochem Biophys Res Commun 167, 345-352, 1990.
52. Piccoletti R, Aletti MG, Rappocciolo E, Bendinelli P, Bemelli-Zazzera A. Liver albumin synthesis increases in free ribosomes during the acute-phase reaction. Biochem Biophys Res Commun 152, 744-752, 1988.

- Projects**
- 2018 Fondo di finanziamento per le attività base di ricerca (FFABR, MIUR)
  - From 1997 to 2009: PI of Grants from Ministero Università e Ricerca (60%, FIRS e PUR)
  - 2010: participates to Grant from Fondazione Cariplo dal titolo: "Ruolo dei network endocitici e del segnale lipidico nella plasticità della migrazione ed invasione tumorale" (PI Prof.ssa M.A. Desiderio)
  - 1998: participates to Ricerca Finalizzata del Ministero della Sanità "Studi e fattori che influenzano il comportamento alimentare e il consumo energetico". (PI Prof.ssa R. Piccoletti)
  - 2013–2017: participates to
    - Piano di Sviluppo dell'Ateneo UNIMI 2014-linea B
    - Piano di Sostegno alla Ricerca 2015-2017 Linea 2-1
    - Ministero della Salute, Ricerca Corrente L4069, 2013
    - Ministero della Salute, Ricerca Corrente L4071, 2014
    - Ministero della Salute, Ricerca Corrente L4077, 2015
    - Ministero della Salute, Ricerca Corrente L4084, 2016
    - Ministero della Salute, Ricerca Corrente L4101, 2017

**Personal information**

I authorize the handling of personal information in this curriculum, according to D.Lgs n. 196/03 and following modifications and Regulations EU 679/2016 (General Regulations concerning Data Protection or GRDP) and art. 7 of University Regulations concerning protection of personal information.

I authorize, according to D.Lgs 14/03/2013 n. 33 concerning transparency, in case of conferment of the position and of the fellowship, the publication of this curriculum in the web site of Università degli Studi di Milano in the section "Amministrazione trasparente", "Consulenti e collaboratori".

**Date**

November 16, 2018

**Signature**