

PERSONAL INFORMATION Vincenzo Zappavigna

📍 Department of Life Sciences, University of Modena and Reggio Emilia,
Via G. Campi 213d, 41125 Modena (Italy)

☎ +390592055537 📠 +393381530801

✉ vzappavigna@unimore.it

🔗 [Scopus Author's ID_ 6701637573_](#)

Sex M | Date of birth 09/11/1960 | Nationality Italian

Current Position: Full Professor in Molecular Biology (SSD BIO/11)

PhD awarded less than 10 Years ago: No

Scientific Profile:

Vincenzo Zappavigna is full professor in molecular biology at the University of Modena and Reggio Emilia. His research accomplishments include the cloning and characterization of the expression patterns of among the first human *HOX* genes to be identified, *HOX* genes which have subsequently revealed to be crucial players in many oncogenic processes. Ensuing achievements of his have mainly concerned the characterization of HOX protein function in the regulation of transcription, in particular the mechanisms underlying the specificity of action of HOX proteins in controlling transcription. Aspects that are critical also to cancer research, as they are relevant to the understanding of gene regulatory networks involving *HOX* genes. In the past years, his interests and results have been focused on the role of NUP98-HOX oncogenic fusions, in cell proliferation and in particular in the control of APC/C and mitotic spindle checkpoint function. A novel mechanism was established linking NUP98 fusion oncoproteins to the perturbation of APC/C function and the generation of whole chromosome instability. More recently, his interests have been drawn also to the study of the role of non-coding RNAs (ncRNAs) in the control of differentiation and cell fate. In particular, the mechanisms controlling the expression of the HOX-embedded *miR-196* miRNA family are being studied as these miRNAs have been found to play important roles both in development and in cancer.

GOLDEN PARAGRAPH

Bibliometric Indicators:

Publications: 55; # Citations 3038; H index 32; H Index (5 y) 5

3 most relevant publications or patents:

- The miR-196b miRNA inhibits the GATA6 intestinal transcription factor and is upregulated in colon cancer patients. Fantini, S., Salsi, V., Reggiani, L., Maiorana, A., Zappavigna, V. *Oncotarget*, 2017, 8(3), pp. 4747–4759

-MicroRNA-196b is transcribed from an autonomous promoter and is directly regulated by Cdx2 and by posterior Hox proteins during embryogenesis
Fantini, S., Salsi, V., Vitobello, A., Rijli, F.M., Zappavigna, V. *Biochimica et Biophysica Acta - Gene Regulatory Mechanisms*, 2015, 1849(8), pp. 1066–1080

-HOX cluster-embedded micro-RNAs and cancer
Fantini, S., Salsi, V., Zappavigna, V.
Biochimica et Biophysica Acta - Reviews on Cancer, 2018, 1869(2), pp. 230–247.

ROLE IN THE PROJECT

Expert in the control of *Hox* gene expression and in transcriptional regulation by HOX proteins in normal and cancer cells. Expert in the control of gene expression by miRNAs originating from Hox gene clusters and controlling HOX protein expression in normal and cancer cells.

WORK EXPERIENCE

1991-1992

Staff scientist, Laboratory of Hematology, Istituto Scientifico S. Raffaele, Milano, Italy.

1992-1996

Staff scientist, Laboratory of Gene Expression, DIBIT HS Raffaele, Milano, Italy.

1996-1998

Project Leader, Gene Expression in Development Project, TIGET, Telethon Institute of Gene Therapy, Istituto Scientifico HS Raffaele, Milano, Italy.

1999-2002

Group Leader, Transcriptional Regulation in Development, Department of Pathology and Molecular Medicine, Istituto Scientifico HS Raffaele, Milano, Italy.

2002-2013

Associate Professor in Molecular Biology, Department of Animal Biology, University of Modena and Reggio Emilia, Modena, Italy.

2005-2013

Adjunct Associate Professor, Department of Cell and Developmental Biology, Weill Cornell Medical College, Cornell University, New York, NY.

2013-

Full Professor in Molecular Biology, Università di Modena e Reggio Emilia, Modena, Italy.

EDUCATION AND TRAINING

Degree Doctor in Biological Sciences, summa cum laude.
 Institution University of Rome "La Sapienza", Faculty of Sciences
 Dates attended 1981-1984
 Year awarded 1984

1984-1985

Postdoctoral fellow, Laboratory of Hematology, Istituto Superiore di Sanità, Rome, Italy.

1986-1988

Fellow, Italian Association for Cancer Research (AIRC). Laboratory of Hematology and Oncology, Istituto Superiore di Sanità, Rome, Italy.

1989-1991

Postdoctoral fellow, Laboratory of Prof. Denis Duboule, Differentiation Programme, European Molecular Biology Laboratory, Heidelberg, Germany.

PERSONAL SKILLS

Organisational / managerial skills

He has a long-standing experience in the leadership of research groups both in non-academic and academic environments. At present he is also Dean of the Laurea Triennale in Biological Sciences at the Università di Modena and Reggio Emilia and part of the board of the Department of Life Sciences (Giunta di Dipartimento).

ADDITIONAL INFORMATION

Most relevant publications in the last 10 Years

Extracellular vesicles produced by irradiated endothelial or Glioblastoma stem cells promote tumor growth and vascularization modulating tumor microenvironment.

Castellani G, Buccarelli M, D'Alessandris QG, Ilari R, Cappannini A, Pedini F, Boe A, Lulli V, Parolini I, Giannetti S, Biffoni M, **Zappavigna V**, Marziali G, Pallini R, Ricci-Vitiani L. *Cancer Cell Int.* 2024 Feb 12;24(1):72. doi: 10.1186/s12935-024-03253-0.

The Capacity of Magnesium to Induce Osteoclast Differentiation Is Greatly Enhanced by the Presence of Zoledronate.

Ricchiuto S, Palumbo R, Lami F, Gavioli F, Caselli L, Montanari M, **Zappavigna V**, Anesi A, Zanocco-Marani T, Grande A. *Biology (Basel)*. 2023 Sep 29;12(10):1297. doi: 10.3390/biology12101297.

The NF-Y splicing signature controls hybrid EMT and ECM-related pathways to promote aggressiveness of colon cancer.

Rigillo G, Belluti S, Campani V, Ragazzini G, Ronzio M, Miserocchi G, Bigli B, Cuoghi L, Mularoni V, **Zappavigna V**, Dolfini D, Mercatali L, Alessandrini A, Imbriano C. *Cancer Lett.* 2023 Jul 28;567:216262. doi: 10.1016/j.canlet.2023.216262. Epub 2023 Jun 10.

'Building a perfect body': control of vertebrate organogenesis by PBX-dependent regulatory networks. Selleri L, **Zappavigna V**, Ferretti E. *Genes Dev.* 2019 Mar 1;33(5-6):258-275. doi: 10.1101/gad.318774.118.

HOX cluster-embedded micro-RNAs and cancer. Fantini S, Salsi V, **Zappavigna V**. *Biochim Biophys Acta Rev Cancer.* 2018 Apr;1869(2):230-247. doi: 10.1016/j.bbcan.2018.03.002.

The miR-196b miRNA inhibits the GATA6 intestinal transcription factor and is upregulated in colon cancer patients. Fantini S, Salsi V, Reggiani L, Maiorana A, **Zappavigna V**. *Oncotarget.* 2017 Jan 17;8(3):4747-4759. doi: 10.18632/oncotarget.

NUP98-fusion transcripts characterize different biological entities within acute myeloid leukemia: a report from the AIEOP-AML group. Bisio V, Zampini M, Tregnago C, Manara E, Salsi V, Di Meglio A, Masetti R, Togni M, Di Giacomo D, Minuzzo S, Leszl A, **Zappavigna V**, Rondelli R, Mecucci C, Pession A, Locatelli F, Basso G, Pigazzi M. **Leukemia.** 2017 Apr;31(4):974-977. doi: 10.1038/leu.2016.361.

NUP98 fusion oncoproteins interact with the APC/C(Cdc20) as a pseudosubstrate and prevent mitotic checkpoint complex binding. Salsi V, Fantini S, **Zappavigna V**. *Cell Cycle.* 2016 Sep;15(17):2275-87. doi: 10.1080/15384101.2016.1172156.

MicroRNA-196b is transcribed from an autonomous promoter and is directly regulated by Cdx2 and by posterior Hox proteins during embryogenesis. Fantini S, Salsi V, Vitobello A, Rijli FM, **Zappavigna V**. **Biochim Biophys Acta.** 2015 Aug;1849(8):1066-80.

NUP98 fusion oncoproteins promote aneuploidy by attenuating the mitotic spindle checkpoint. Salsi V, Ferrari S, Gorello P, Fantini S, Chiavolelli F, Mecucci C, **Zappavigna V**. **Cancer Res.** 2014 Feb 15;74(4):1079-90.

Emx2 is a dose-dependent negative regulator of Sox2 telencephalic enhancers. Mariani J, Favaro R, Lancini C, Vaccari G, Ferri AL, Bertolini J, Tonoli D, Latorre E, Caccia R, Ronchi A, Ottolenghi S, Miyagi S, Okuda A, **Zappavigna V**, Nicolis SK. **Nucleic Acids Res.** 2012 Apr 11.

Scapula development is governed by genetic interactions of Pbx1 with its family members and with Emx2 via their cooperative control of Alx1. Capellini TD, Vaccari G, Ferretti E, Fantini S, He M, Pellegrini M, Quintana L, Di Giacomo G, Sharpe J, Selleri L, **Zappavigna V**. **Development.** 2010 Aug 1;137(15):2559-69.

A G220V substitution within the N-terminal transcription regulating domain of HOXD13 causes a variant synpolydactyly phenotype. Fantini S, Vaccari G, Brison N, Debeer P, Tylzanowski P, **Zappavigna V**. **Hum Mol Genet.** 2009 Mar 1;18(5):847-60.

Projects/Grants

2005-2007

Principal investigator in the research project: "Le basi molecolari delle malformazioni negli arti: analisi funzionale di nuove mutazioni nei geni HOXA13 e HOXD13"
ASM- Associazione Italiana per lo Studio delle Malformazioni.

2005-2007

Principal investigator in the research project: "Analysis of the roles of Pbx1 and Emx2 in the development of the scapular and pelvis regions of the limbs" Fondazione TELETHON.

2006

Principal investigator in the research project: "Role of the Pbx1 TALE protein in the development of the pelvic and scapular regions of the limbs".
MIUR, PRIN.

2006-2008

Principal investigator in the research project: "The PBX1 gene and the E2A-Pbx1 oncogene: study of their regulatory functions in normal and neoplastic cells".
Associazione Italiana per la Ricerca sul Cancro, AIRC.

2005-2010

Coordinator of the research project: "Studio delle Vie di Regolazione a Monte e a Valle del Segnale di Sonic Hedgehog nel tessuto Neurale della Retina".
MIUR, FIRB Internazionalizzazione.

2009-2011

Principal investigator in the research project: "HOXD13 and the NUP98–HOXD13 oncogene: roles in DNA replication initiation and in the control of cell proliferation"
Associazione Italiana per la Ricerca sul Cancro, AIRC.

2010-2012

Principal investigator in the research project: "Unraveling the gene regulatory networks involved in limb girdle development: roles of the Emx2 and Pbx genes"
Progetti di Ricerca Internazionale, Fondazione Cassa di Risparmio di Modena.

2011-2014

Principal investigator in the research project: "Nup98 fusion oncoproteins and HOX proteins: roles in chromosome segregation and DNA replication licencing"
Associazione Italiana per la Ricerca sul Cancro, AIRC.

2016-2021

Responsible of Research Unit in the research project: " Molecular and functional analysis of patient-derived glioblastoma stem-like cells to identify new biomarkers and actionable targets for innovative therapeutic approaches." Ministero della Salute. Ricerca Finalizzata, RF-2016-02361089.

2023-2026

Responsible of Research Unit in the research project: " Health Extended Alliance for Innovative Therapies, Advanced Lab-research, and Integrated Approaches of Precision Medicine - HEAL ITALIA" tematica 6 "Innovative diagnostics and therapies in precision medicine" cod. Progetto PE0000019 –PIANO NAZIONALE DI RIPRESA E RESILIENZA (PNRR).

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV

Modena, July 2024

Signature

Vincenzo Zappavigna

