

Personal Information

Roberto Gambari



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Sex Male | Date of birth 29/07/1952 | Nationality Italian

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PRESENT POSITION

Full Professor of Biochemistry, Department of Life Sciences and Biotechnology, Ferrara University, Italy

WORK EXPERIENCE

November 2001-Present

Full Professor of Biochemistry – University of Ferrara, Italy
Roberto Gambari (Italy)

Studies on regulation of globin gene expression - development of fetal hemoglobin inducers in thalassemia - transgenic animals - microRNAs and fetal hemoglobin production.

November 1981-November 2001

Associate Professor in Applied Biochemistry –University of Ferrara, Italy
Roberto Gambari (Italy)

Studies on regulation of globin gene expression

January 1978 – July 1979

Post-doctoral fellow – Columbia University, Cancer Research Center, New York, NY, USA
Roberto Gambari (United States)

Erythroid induction of Murine Erythroleukemia cells a.

EDUCATION AND TRAINING

1977-1978

Post-doctoral fellow at Columbia University, Cancer Research Center, New York, USA (Director: Prof. Paul A. Marks)

1976

Degree in Biological Sciences, vote: 110/110 cum laude
University “La Sapienza”, Rome, Italy

1973-1976

University “La Sapienza” Rome. Course Biological Science

PERSONAL SKILLS

Mother tongue(s)	Italian				
Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken Interaction	Spoken Production	
English	C1	C1	C1	C1	C1

Expertise	Fields of study are Erythroid differentiation of K562 cells; Regulation of gene expression; DNA methylation; Expression of the human HLA-DRA gene in transgenic mice; Sequencing of the upstream and downstream untranscribed HLA-DRA gene regions; DNA-binding drugs: antitumor and antiviral activities; Peptide nucleic acids (PNA) and PNA-DNA chimeras as decoy molecules; Triple-helix forming oligonucleotides; SPR-based molecular diagnosis of genetic diseases; Lab-on-a-chip technology; microRNA in erythroid differentiation; Delivery of biodrugs; Gene editing; Cystic Fibrosis, Thalassemia, development of anti-cancer agents.
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Management Activity Faculty of Pharmacy-Course Degree on Pharmaceutical Biotechnology: (a) Chairman; (b) Director of the Degree Course in Biotechnology; (c) Director of the Biotechnology Center, Ferrara University; (d) Member of Senate, Ferrara University; (e) Member of the Research Council, Ferrara University; (f) Vice-President of the Research Council, Ferrara University; (g) Member of the Committee of the Internuniversity Consortium of Biotechnology (CIB, cibitech.it); (h) Scientific Secretary of C.I.B. (2006-present); (i) Vice-Director of C.I.B. (2015-present) (l) Member of the Board of directors, Ferrara University; (m) Director of the PhD Course in Biochemistry, Molecular Biology and Biotechnology.

Highlights Roberto Gambari is full Professor of Biochemistry (Degree in Chemical and Pharmaceutical Technologies, CTF, Ferrara University, Faculty of Pharmacy) since 2001. He is chairman of PhD course in Biotechnology and is Director of the Biotechnology Center of Ferrara University. In September 1991 he was elected as member of the Council of European Tissue Culture Society (ETCS). Prof. Gambari is member of the Scientific Committee of the Interuniversity Consortium for Biotechnologies (C.I.B.). Chief-Editor of the Journal Minerva Biotechnologica. Roberto Gambari is member of American Society for Biochemistry and Molecular Biology. Member of the Editorial Board of the American Journal of Pharmacogenomics, Technology in Cancer Research and Treatment, International Journal of Oncology, Drugs Design Reviews. Referee of the following Journals: FASEB J., Biochemical Pharmacology, Human Gene Therapy, BioTechniques, Biological Chemistry, J. of Clinical Investigations, Nucleic Acids Research, J. Agricultural and Food Chemistry. Chairman of Workshops on Synthetic Oligonucleotides in Biotechnology and Molecular Biology, Ferrara 1992-1995. Coordinator of several Research Projects, including Target Project Genetic Engineering (1992-1995), ISS-AIDS (1992-1993), Telethon, Target Project ACRO (1992-1995), Fondazione Italiana per la Guarigione dalla Thalassemia, AIRC (1992-1994; 2003). Coordinator of the Network "Use of PNA, ribozymes and peptides for the study of gene functions and possible diagnostic and therapeutic applications" (COFIN-1998). Coordinator of the Network "Applications of a dielectrophoresis-based Lab-on-a-chip to diagnosis and drug research and development" (COFIN-2002). Referee for the ERC UE program. Referee of funding agencies (AIFA, MIUR, UAEU). More than 450 papers, published by Roberto Gambari, are present in MedLine. Authored more than 12 patents. H-INDEX = 47 Web of Science (<http://apps.isiknowledge.com/>).

Collaborations and scientific Roberto Gambari authored with more than 630 researchers.

leadership According to the scientific profile published on BioMedExperts (www.biomedexperts.com/), Roberto Gambari is the top-ranked scientist on studies on the human leukemia K562 cell system. Roberto Gambari participated to two EU FP6 Grants, ITHANET (Electronic Infrastructure for the Thalassemia Research Network) and COCHISE (Cell-on-chip Biosensor for detection of cell-to-cell interactions). Roberto Gambari is recognized as one of the expert in HbF induction in Thalassemia. Supporting this, Roberto Gambari has been invited to join the sub-committee on Foetal Haemoglobin (coordinated by Jeff Miller and Yogen Sauntharajah) at the recent NIH-NIDDK workshop on “Thalassaemia: Clinical Priorities and Clinical Trials” (www.nhlbi.nih.gov/workshops/thal_workshop.htm), responsible of preparing the guidelines for the clinical trials focusing on HbF induction in Thalassemia. He was the coordinator of the FP7 THALAMOSS Project (THALAssaemia Modular Stratification System for personalized therapy of beta thalassemia; grant no. 306201-FP7-Health-2012- INNOVATION-1) and leads University of Ferrara in an HORIZON-2020 project ULTRAPLACAD (ULTRAsensitive PLASmonic devices for early CANCER DIAGNOSIS). He is part of the supporter team of the EU Program Restore <https://www.restore-horizon.eu/>

Partecipation to dissemination activities: Scientific Journals Roberto Gambari is the Chief Editor of the Journal “Minerva Biotecnologica”. Roberto Gambari was member of the Editorial Board of the following journals: American Journal of Pharmacogenomics, Technology in Cancer Research and Treatment, International Journal of Oncology, Drugs Design Reviews, Molecular Diagnosis and Therapy, Medicinal Chemistry, Current Medicinal Chemistry, International Journal of Biomedical and Health Sciences, Experimental and Therapeutic Medicine. Roberto Gambari was the Guest Editor of the Special Issue of Current Drugs Targets “Biochemical Modulation of Gene Expression” (2004); and of the Special Issue of the Journal of Molecular Diagnosis & Therapy “Theranostics of Genetic Disease”

Dissemination activities: PhD Courses. Roberto Gambari served as chairmen of the PhD course in Biochemistry, Molecular Biochemistry and Biotechnology from 2004 to 2009.

Direction of Infrastructures a) Roberto Gambari is Director of the “Laboratory for the development of pharmacogenomic and gene therapy of thalassemia” (ThalLab, ww.talassemiaricerca.unife.it) since 2001. The activity of ThalLab has been reported within the special report Italian Biotech, NATURE BIOTECHNOLOGY, volume 25, number 11, November 2007, b) Director of the Biotechnology Center, Ferrara University; c) Director of Department of Life Sciences and Biotechnology, Ferrara University, Italy

Leadership in preparation of young investigators Roberto Gambari was the scientific coordinator of several university students and PhD students. This is the list of relevant researchers, with their present position in parenthesis: Roberta Piva (Associate Professor, Ferrara University, Italy), Claudio Nastruzzi (Associate Professor, Perugia/Ferrara University, Italy), Carlo Mischiati (Associate Professor, Ferrara University, Italy), Giordana Feriotto (Associate Professor, Ferrara University, Italy), Monica Borgatti (Associate Professor, Ferrara University, Italy), Stefano Volinia (Associate Professor, Ferrara University, Italy), Nicoletta Bianchi (RTD, Ferrara University, Italy), Letizia Penolazzi (RTD, Ferrara University, Italy), Laura Breda (Associate Researcher, Cornell University, New York, USA), Sara Gardenghi (Associate Researcher, Cornell University, New York, USA), Cristiano Chiarabelli (Researcher, Roma III University, Italy), Marco Tripodi (Full Professor, Rome University, Italy), Rita Cortesi (Associate Professor, Ferrara University).

ADDITIONAL INFORMATION

Publications Demonstrating specificity of bioactive peptide nucleic acids (PNAs) targeting microRNAs for practical laboratory classes of applied biochemistry and pharmacology. Gasparello J, Papi C, Zurlo M, Corradini R, Gambari R, Finotti A. PLoS One. 2019 Sep 11;14(9):e0221923. doi: 10.1371/journal.pone.0221923.

Increased frequency of activated CD8+ T cell effectors in patients with psoriatic arthritis. Diani M, Casciano F, Marongiu L, Longhi M, Altomare A, Pigatto PD, Secchiero P, Gambari R, Banfi G,

Manfredi AA, Altomare G, Granucci F, Reali E.
Sci Rep. 2019 Jul 26;9(1):10870. doi: 10.1038/s41598-019-47310-5.

A Peptide Nucleic Acid (PNA) Masking the miR-145-5p Binding Site of the 3'UTR of the Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) mRNA Enhances CFTR Expression in Calu-3 Cells. Sultan S, Rozzi A, Gasparello J, Manicardi A, Corradini R, Papi C, Finotti A, Lampronti I, Reali E, Cabrini G, Gambari R, Borgatti M.
Molecules. 2020 Apr 5;25(7):1677. doi: 10.3390/molecules25071677.

The role of reactive oxygen species in the biological activity of antimicrobial agents: An updated mini review. Lam PL, Wong RS, Lam KH, Hung LK, Wong MM, Yung LH, Ho YW, Wong WY, Hau DK, Gambari R, Chui CH.
Chem Biol Interact. 2020 Apr 1;320:109023. doi: 10.1016/j.cbi.2020.109023. Epub 2020 Feb 22.

Peptide Nucleic Acids for MicroRNA Targeting. Gambari R, Gasparello J, Fabbri E, Borgatti M, Tamanini A, Finotti A.
Methods Mol Biol. 2020;2105:199-215. doi: 10.1007/978-1-0716-0243-0_12.

High Levels of Apoptosis Are Induced in the Human Colon Cancer HT-29 Cell Line by Co-Administration of Sulforaphane and a Peptide Nucleic Acid Targeting miR-15b-5p. Gasparello J, Gambari L, Papi C, Rozzi A, Manicardi A, Corradini R, Gambari R, Finotti A.
Nucleic Acid Ther. 2020 Jun;30(3):164-174. doi: 10.1089/nat.2019.0825. Epub 2020 Feb 17.

Detection of the sickle hemoglobin allele using a surface plasmon resonance based biosensor. Breveglieri G, D'Aversa E, Cosenza LC, Boutou E, Balassopoulou A, Voskaridou E, Gambari R, Borgatti M.
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Efficient Delivery of MicroRNA and AntimiRNA Molecules Using an Argininocalix[4]arene Macrocycle. Gasparello J, Lomazzi M, Papi C, D'Aversa E, Sansone F, Casnati A, Donofrio G, Gambari R, Finotti A.
Mol Ther Nucleic Acids. 2019 Dec 6;18:748-763. doi: 10.1016/j.omtn.2019.09.029. Epub 2019 Oct 11.

A new amido-phosphine of dichloroacetic acid as an active ligand for metals of pharmaceutical interest. Synthesis, characterization and tests of antiproliferative and pro-apoptotic activity. Marvelli L, Ferretti V, Bertolasi V, Lampronti I, Gambari R, Trapella C, Turrin G, Bonotto F, Moriello A, Bergamini P.
J Inorg Biochem. 2019 Oct;199:110787. doi: 10.1016/j.jinorgbio.2019.110787.

Surface plasmon resonance based analysis of the binding of LYAR protein to the rs368698783 (G>A) polymorphic $\text{A}\gamma$ -globin gene sequences mutated in β -thalassemia. Gemmo C, Breveglieri G, Marzaro G, Lampronti I, Cosenza LC, Gasparello J, Zuccato C, Fabbri E, Borgatti M, Chilin A, Finotti A, Gambari R.
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Development and characterization of cellular biosensors for HTS of erythroid differentiation inducers targeting the transcriptional activity of γ -globin and β -globin gene promoters. Breveglieri G, Salvatori F, Finotti A, Cosenza LC, Zuccato C, Bianchi N, Breda L, Rivella S, Bresciani A, Bisbocci M, Borgatti M, Gambari R.
Anal Bioanal Chem. 2019 Jul 4. doi: 10.1007/s00216-019-01959-z.

Targeting miR-155-5p and miR-221-3p by peptide nucleic acids induces caspase-3 activation and apoptosis in temozolomide-resistant T98G glioma cells. Milani R, Brognara E, Fabbri E, Manicardi A, Corradini R, Finotti A, Gasparello J, Borgatti M, Cosenza LC, Lampronti I, Dehecchi MC, Cabrini G, Gambari R.
Int J Oncol. 2019 Jul;55(1):59-68. doi: 10.3892/ijo.2019.4810.

Altered erythroid-related miRNA levels as a possible novel biomarker for detection of autologous blood transfusion misuse in sport. Gasparello J, Lamberti N, Papi C, Lampronti I, Cosenza LC, Fabbri E, Bianchi N, Zambon C, Dalla Corte F, Govoni M, Reverberi R, Manfredini F, Gambari R, Finotti A.
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- MicroRNAs and Long Non-coding RNAs in Genetic Diseases. Finotti A, Fabbri E, Lampronti I, Gasparello J, Borgatti M, Gambari R. *Mol Diagn Ther*. 2019 Apr;23(2):155-171. doi: 10.1007/s40291-018-0380-6.
- Targeting DNA Binding for NF- κ B as an Anticancer Approach in Hepatocellular Carcinoma. Chung PY, Lam PL, Zhou YY, Gasparello J, Finotti A, Chilin A, Marzaro G, Gambari R, Bian ZX, Kwok WM, Wong WY, Wang X, Lam AK, Chan AS, Li X, Ma JY, Chui CH, Lam KH, Tang JC. *Cells*. 2018 Oct 22;7(10). pii: E177. doi: 10.3390/cells7100177.
- Synthesis of new allyl palladium complexes bearing purine-based NHC ligands with antiproliferative and proapoptotic activities on human ovarian cancer cell lines. Scattolin T, Caligiuri I, Canovese L, Demitri N, Gambari R, Lampronti I, Rizzolio F, Santo C, Visentin F. *Dalton Trans*. 2018 Oct 2;47(38):13616-13630. doi: 10.1039/c8dt01831f.
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- Molecular Mechanism of Action of Trimethylangelicin Derivatives as CFTR Modulators. Laselva O, Marzaro G, Vaccarin C, Lampronti I, Tamanini A, Lippi G, Gambari R, Cabrini G, Bear CE, Chilin A, Dececchi MC. *Front Pharmacol*. 2018 Jul 4;9:719. doi: 10.3389/fphar.2018.00719.
- T Cell Hierarchy in the Pathogenesis of Psoriasis and Associated Cardiovascular Comorbidities. Casciano F, Pigatto PD, Secchiero P, Gambari R, Reali E. *Front Immunol*. 2018 Jun 19;9:1390. doi: 10.3389/fimmu.2018.01390.
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- UPF1 silenced cellular model systems for screening of read-through agents active on β 039 thalassemia point mutation. Salvatori F, Pappadà M, Breveglieri G, D'Aversa E, Finotti A, Lampronti I, Gambari R, Borgatti M. *BMC Biotechnol*. 2018 May 15;18(1):28. doi: 10.1186/s12896-018-0435-0.
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- PLCB3 Loss of Function Reduces Pseudomonas aeruginosa-Dependent IL-8 Release in Cystic Fibrosis. Rimessi A, Bezzerri V, Salvatori F, Tamanini A, Nigro F, Dececchi MC, Santangelo A, Prandini P, Munari S, Provezza L, Garreau de Loubresse N, Muller J, Ribeiro CMP, Lippi G, Gambari R, Pinton P, Cabrini G. *Am J Respir Cell Mol Biol*. 2018 Oct;59(4):428-436. doi: 10.1165/rcmb.2017-0267OC.
- Design, synthesis and biological evaluation of novel trimethylangelicin analogues targeting nuclear factor κ B (NF- κ B). Marzaro G, Lampronti I, D'Aversa E, Sacchetti G, Miolo G, Vaccarin C, Cabrini G, Dececchi MC, Gambari R, Chilin A. *Eur J Med Chem*. 2018 May 10;151:285-293. doi: 10.1016/j.ejmech.2018.03.080.
- Changes in hemoglobin profile reflect autologous blood transfusion misuse in sports. Lamberti N, Finotti A, Gasparello J, Lampronti I, Zambon C, Cosenza LC, Fabbri E, Bianchi N, Dalla Corte F, Govoni M, Reverberi R, Gambari R, Manfredini F. *Intern Emerg Med*. 2018 Jun;13(4):517-526. doi: 10.1007/s11739-018-1837-7.

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A Peptide Nucleic Acid against MicroRNA miR-145-5p Enhances the Expression of the Cystic Fibrosis Transmembrane Conductance Regulator (CFTR) in Calu-3 Cells. Fabbri E, Tamanini A, Jakova T, Gasparello J, Manicardi A, Corradini R, Sabbioni G, Finotti A, Borgatti M, Lampronti I, Munari S, Dehecchi MC, Cabrini G, Gambari R.
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Differential Effects of Angelicin Analogues on NF- κ B Activity and IL-8 Gene Expression in Cystic Fibrosis IB3-1 Cells. Lampronti I, Manzione MG, Sacchetti G, Ferrari D, Spisani S, Bezzeri V, Finotti A, Borgatti M, Dehecchi MC, Miolo G, Marzaro G, Cabrini G, Gambari R, Chilin A.
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An $\text{A}\gamma$ -globin G \rightarrow A gene polymorphism associated with β 039 thalassemia globin gene and high fetal hemoglobin production. Breveglieri G, Bianchi N, Cosenza LC, Gamberini MR, Chiavilli F, Zuccato C, Montagner G, Borgatti M, Lampronti I, Finotti A, Gambari R.
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Development of phyllanthin containing microcapsules and their improved biological activity towards skin cells and Staphylococcus aureus. Lam PL, Gambari R, Yip J, Yuen MC, Lam KH, Wong RS, Wang XW, Tang JC, Kok SH, Chui CH. Bioorg Med Chem Lett. 2012 Jan 1;22(1):468-71. doi: 10.1016/j.bmcl.2011.10.097.

Projects

Roberto Gambari participated to two EU FP6 Grants, ITHANET (Electronic Infrastructure for the Thalassemia Research Network) and COCHISE (Cell-on-chip Biosensor for detection of cell-to-cell interactions). Roberto Gambari is recognized as one of the expert in HbF induction in Thalassemia. Supporting this, Roberto Gambari has been invited to join the sub-committee on Foetal Haemoglobin (coordinated by Jeff Miller and Yogen Sauntharajah) at the recent NIH-NIDDK workshop on "Thalassaemia: Clinical Priorities and Clinical Trials" (www.nhlbi.nih.gov/workshops/thal_workshop.htm), responsible of preparing the guidelines for the clinical trials focusing on HbF induction in Thalassemia. He is the coordinator of the FP7 THALAMOSS Project (THALAssaemia MODular Stratification System for personalized therapy of beta-thalassemia; grant no. 306201-FP7-Health-2012- INNOVATION-1) and leads University of Ferrara in an HORIZON-2020 project ULTRAPLACAD (ULTRAsensitive PLAsmonic devices for early CANcer Diagnosis). Restore

Relevant Patents

USP 7262175: "Synthetic oligonucleotides as inducers of erythroid differentiation". Inventors: Nicoletta Bianchi, Giordana Feriotto, Roberto Gambari, Carlo Mischiati. Publication Date: 08/28/2007.

USP 7659258: Double-stranded synthetic oligonucleotides useful for inducing apoptosis of osteoclasts for the treatment of osteopenic pathologies. Inventors: Roberto Gambari, Penolazzi Letizia, Roberta Piva.

USP 7396851: "Use of heterocyclic and benzoheterocyclic polyamides structurally related to the natural antibiotic distamycin A for the treatment of beta-thalassemia". Inventors: Pier Giovanni Baraldi, Nicoletta Bianchi, Giordana Feriotto, Roberto Gambari, Carlo Mischiati, Romeo Romagnoli. Publication Date: 07/08/2008.

USP 7541380: "Use of rapamycin and structural analogues thereof". Inventors: Nicoletta Bianchi, Monica Borgatti, Roberto Gambari, Carlo Mischiati. Publication Date: 06/02/2009.

USP 7572827: "A novel use of angelicin and structural analogues thereof". Inventors: Nicoletta Bianchi, Monica Borgatti, Roberto Gambari, Ilaria Lampronti.

US 9371295. Compounds for use in the treatment of disorders that are ameliorated by inhibition of HDAC. Inventors: Altamura, Sergio (Pomezia, IT), Bresciani, Alberto (Pomezia, IT), Breveglieri, Giulia (Ferrara, IT), Fabbrini, Danilo (Pomezia, IT), Gambari, Roberto (Ferrara, IT), Harper, Steven (Pomezia, IT), Laufer, Ralph (Pomezia, IT), Monteagudo, Edith (Pomezia, IT), Nizi, Emanuela (Pomezia, IT), Pace, Paola (Pomezia, IT), Summa, Vincenzo (Pomezia, IT). Filing date: 08/07/2013; Publication date: 06/21/2016.

US 9528981: Diagnostic and therapeutic application of CTL and NK functionally selected cells. Inventors: Roberto Gambari, Roberto Guerrieri. Publication Date: 12/27/2016; Filing Date: 04/12/2007.

USP 9321730: "Methods of making and adminstery quinoline derivates as anti-cancer agents" Inventors: Chan, Albert Sun-chi (Hong Kong, CN) Tang, Johnny Cheuk-on (Hong Kong, CN) Lam, Kim-hung (Hong Kong, CN) Chui, Chung-hin (Hong Kong, CN) Kok, Stanton Hon-lung (Kowloon, HK) Chan, Sau Hing (Hong Kong, CN) Cheung, Filly (Hong Kong, CN) Gambari, Roberto (Ferrara, IT) Cheng, Chor Hing (Hong Kong, CN). Publication date: 04/26/2016

USP 9283206: "Trimethylangelicin as CFTR correctr in bronchial epithelial cells". Inventors: Cabrini Giulio, Casavola Valeria, Gambari Roberto. Publication date: 03/15/2016

Technology Transfer

Orphan Drug Designation (ODD) of sirolimus by the European Medicinal Agency (EMA) for the treatment of b-thalassemia (code EU/3/15/1585) and of SCD (code EU/3/17/1970). ODD of sirolimus as HbF inducer in b-thalassemia and SCD was also obtained by the U.S. Food and Drug Administration (FDA).

Membership

Member of the Editorial Board of the Molecular Diagnosis and Therapy, Technology in Cancer Research and Treatment, International Journal of Oncology, Current Medicinal Chemistry.