

BIOGRAPHICAL SKETCH

NAME: Rita Romani

POSITION TITLE: Researcher, Perugia University

EDUCATION/TRAINING

INSTITUTION AND LOCATION	DEGREE	Date	FIELD OF STUDY
University of Perugia, Perugia, Italy	MSc	03/1992	Biological Sciences
Differenciacion Cellulaire et Croissance INRA, Montpellier, France	PhD visiting student	1998	Biochemistry, toxicology
University of Perugia, Perugia, Italy	PhD	03/1999	Experimental Medicine
University of Perugia, Perugia, Italy	Research Fellow	2000-2001	Biochemistry,
University of Perugia, Perugia, Italy	Research	2002-2025	toxicology
			Biochemistry, <u>Stem Cell Biology,</u> <u>Immunoregulatory</u>
University of Perugia, Perugia, Italy	Associated Professor	2026	Biochemistry, <u>Stem Cell Biology,</u> <u>Immunoregulatory</u>

A. Personal Statement

Rita Romani's research interests focus on the study of stem cells and the extracellular vesicles they release, with potential applications in cell therapy. She pays particular attention to human stem cells derived from amniotic fluid. This current line of research has led to the development of a new procedure for isolating stem cells from

human amniotic fluid collected at the end of the first trimester of pregnancy. This innovation has been patented (patent number PCT/IT2011/000270). I am a researcher with extensive experience in the isolation, molecular, and functional characterization of stem cells and the vesicles they release. My primary focus is to investigate the mechanisms by which stem cells and the extracellular vesicles they produce contribute to restoring tissue homeostasis. I possess broad expertise in molecular techniques for the identification and quantification of proteins and RNAs in biological samples, as well as in immunohistochemistry and electron microscopy.

B. Positions, Scientific Appointments, and Honors

Teaching Positions (University of Perugia)

From AA1998–99 to the present Lecturer in Applied Biology on the Bachelor’s Degree Course in Sports Science, University of Perugia

From AA2002-03 to AA2025-06 Lecturer in Applied Biology on the Bachelor’s Degree Course in Physiotherapy, University of Perugia

From AA 2015-16 to the present Lecturer in Applied Biology on the Bachelor’s Degree Course in Pharmaceutical Biotechnology Master's, University of Perugia

From AA 2025-26 to the present Lecturer in Applied Biology on the Bachelor’s Degree Course in Medicine and Surgery, University of Perugia

From AA 2026-27 Lecturer in Applied Biology on the Bachelor’s Degree Course in Biomedical Laboratory Technician, Speech and language therapy, Radiology Techniques for Imaging and Radiotherapy, University of Perugia

Advanced Training Courses:

September 24, 2021: Advanced training course with ECM credits organized by the FA.BE.SA, CI. School of Advanced Training (Pharmacies for the well-being and health of citizens), titled “Nutritional Supplements for Sport, Motor Activity, and Health.”Lecture title: “Effects of Physical Activity on Inflammation, Oxidative Stress, and Gene Expression.”

Mentor for PhD students:

2012: PhD in Experimental Medicine, University of Perugia.

thesis titled “*Role of miRNAs in genomic syndromes and analysis of the transcriptome and 'mirnome' in 22q11.2 microdeletion syndrome.*”

2012: PhD in Experimental Medicine, University of Perugia.

thesis titled “*Isolation and characterization of stem cells isolated from human amniotic fluid.*”

Research grants in the past 10 years

2025 Tumor ecosystem connections with the metabolic modifier IL4i1: unveiling pathways for tumor resilience and recovery. Type of grant IG 2024 Principal Investigator: Francesca Fallarino

2024: P.N.R.R. “National Center for Gene Therapy and Drugs Based on RNA Technology” – Advanced Strategies for Assessing and Educating Immune Responses to Gene Therapy Vectors for Hemophilia Treatment. Principal Investigator: Francesca Fallarino

2024: P.N.R.R. “Innovation, Digitalization, and Sustainability for the Diffuse Economy in Central Italy” – VITALITY – Spoke 10. Principal Investigator: Luca Gammaitoni

2023: University Research Fund 2022, WP1.1 – Innovative Animal and Human Organoid Platform to Advance Understanding of Vesicle-Induced Microenvironment in Pathology Throughout the Life Course – ORGANOMICROLIFE. Principal Investigator: Teresa Zelante

2022: P.R.I.N. – Extracellular Vesicles in Slowing Down the Ticking Clock of Aging – VISTA. Principal Investigator: Ilaria Bellezza

2021: University Research Fund 2021, WP1.1 – Regulation of Inflamm-Aging: Development of a Multidisciplinary Platform for Decoding the Interaction Network of Extracellular Vesicles – REGENIA. Principal Investigator: Francesca Fallarino.

2020 Fondazione Cassa di Risparmio di Perugia “Searching for microbiota in Human Amniotic Fluid through a new enrichment method” code: 2019.0377.029 Principal Investigator Rita Romani

2019: Basic Research Fund RB2019IL – Glycolytic Metabolon in Extracellular Vesicles from Amniotic Fluid Stem Cells: Role in Controlling Inflammasome Activation. Principal Investigator: Ilaria Bellezza

2019 PRIN 2017 protocol 2017RSAFK7_001settore ERC LS2. “Immunomodulatory properties of the Amniotic Stromal cell SEcretome: from Multi-omics profiling to nanotechnology-aided delivery for controlled release in osteoarthritis [Acronym ASSEMBLe]”. Principal Investigator Ornella Parolini.

2017: Cassa di Risparmio di Perugia Foundation, Project Code 2017.0189.021 – Validation of the Enzyme Indoleamine 2,3-Dioxygenase 1 (IDO1) as a Biomarker of Inhibitor Risk in Hemophilia Patients. Principal Investigator: Vincenzo Nicola Talesa

C. Contributions to Science

My research over all these years has contributed to the phenotypic characterization of amniotic fluid stem cells and the extracellular vesicles they release. The focus of the research was to understand which molecules were responsible for their immunoregulatory properties and the different molecular mechanisms they determine in the target cells.

General quality indicators of scientific production:

H-index Google Scholar 22, 5343 citations updated – June 2026.

H-index WOS 20– June 2026.

Selected publications of original research articles in the past 10 years

- Guzzetti M, Mezzasoma L, Chiasserini D, Macchioni L, Davidescu M, di Michele A, Gargaro M, Di-Iacovo N, Manni G, Muzi G, Proietti I, Bevacqua G, Becattini E, Conti C, Talesa VN, **Romani R**, Bellezza I, Grespi V. Molecular and functional characterization of GMP-manufactured neural stem cells and their extracellular vesicles for innovative therapeutic applications. *Stem Cell Res Ther.* 2026 Jan 9. doi: 10.1186/s13287-026-04904-x

- Ragni E, **Romani R**, Grespi V, Scattini G, Severi G, Lucarelli E, Grolli S, Mastrogiacomo M, Dotti S, Silini AR, Muraca M, Piccinini F, Pozzobon M, de Girolamo L, Ferrero I, Torre ML, Pessina A, Pascucci L. A comprehensive summary of the GISM annual meeting 2025. *Extracell Vesicles Circ Nucl Acids.* 2025 Aug 14;6(3):504-515. doi: 10.20517/evcna.2025.61

- Sabbatini P, Cipriani S, Biagini A, Sallicandro L, Arcuri C, Romani R, Prontera P, Mirarchi A, Gentile R, Bianco DD, Gliozheni E, Gerli S, Giardina I, Arduini M, Favilli A, Malvasi A, Tinelli A, Fioretti B.

Potassium Current Signature of Neuronal/Glial Progenitors in Amniotic Fluid Stem Cells.

Cells. 2025 Jan 4;14(1):50. doi: 10.3390/cells14010050.

- Foti MRS, Tedesco MG, Colavito D, Rogaia D, Mencarelli A, Schippa M, Gradassi C, Romani R, Ardisia C, Prontera P. **A New De Novo Missense Variant of the TET3 Gene in a Patient with Epilepsy and Macrocephaly.** *Int J Mol Sci.* 2024 Sep 6;25(17):9676. doi: 10.3390/ijms25179676.

-Welsh JA, Goberdhan DCI, O'Driscoll L, Buzas EI, Blenkiron C, Bussolati B, Cai H, Di Vizio D, Driedonks TAP, Erdbrügger U, Falcon-Perez JM, Fu QL, Hill AF, Lenassi M, Lim SK, Mahoney MG, Mohanty S, Möller A, Nieuwland R, Ochiya T, Sahoo S, Torrecilhas AC, Zheng L, Zijlstra A, Abuelreich S, Bagabas R, Bergese P, Bridges EM, Brucale M, Burger D, Carney RP, Cocucci E, Crescitelli R, Hanser E, Harris AL, Haughey NJ, Hendrix A, Ivanov AR, Jovanovic-Talisman T, Kruh-Garcia NA, Ku'ulei-Lyn Faustino V, Kyburz D, Lässer C, Lennon KM, Lötvall J, Maddox AL, Martens-Uzunova ES, Mizenko RR, Newman LA, Ridolfi A, Rohde E, Rojalin T, Rowland A, Saftics A, Sandau US, Saugstad JA, Shekari F, Swift S, Ter-Ovanesyan D, Tosar JP, Useckaite Z, Valle F, Varga Z, van der Pol E, van Herwijnen MJC, Wauben MHM, Wehman AM, Williams S, Zendrini A, Zimmerman AJ; MISEV Consortium; Théry C, Witwer KW

Minimal information for studies of extracellular vesicles (MISEV2023): From basic to advanced approaches. *J Extracell Vesicles.* 2024 Feb;13(2):e12404. doi: 10.1002/jev2.12404.

- Manni G, Gargaro M, Ricciuti D, Fontana S, Padiglioni E, Cipolloni M, Mazza T, Rosati J, di Veroli A, Mencarelli G, Pieroni B, Silva Barcelos EC, Scalisi G, Sarnari F, di Michele A, Pascucci L, de Franco F, Zelante T, Antognelli C, Cruciani G, Talesa VN, Romani R, Fallarino F.

Amniotic fluid stem cell-derived extracellular vesicles educate type 2 conventional dendritic cells to rescue autoimmune disorders in a multiple sclerosis mouse model. *J Extracell Vesicles*. 2024 Jun;13(6):e12446. doi: 10.1002/jev2.12446.

- Manni G, Buratta S, Pallotta MT, Chiasserini D, Di Michele A, Emiliani C, Giovagnoli S, Pascucci L, Romani R, Bellezza I, Urbanelli L, Fallarino F. **Extracellular Vesicles in Aging: An Emerging Hallmark?** *Cells*. 2023 Feb 6;12(4):527. doi: 10.3390/cells12040527.

- Nunzi E, Mezzasoma L, Bellezza I, Zelante T, Orvietani P, Coata G, Giardina I, Sagini K, Manni G, Di Michele A, Gargaro M, Talesa VN, Di Renzo GC, Fallarino F, Romani R. **Microbiota-Associated HAF-EVs Regulate Monocytes by Triggering or Inhibiting Inflammasome Activation.** *Int J Mol Sci*. 2023 Jan 28;24(3):2527. doi: 10.3390/ijms24032527.

- Mezzasoma L, Bellezza I, Romani R, Talesa VN. **Extracellular Vesicles and the Inflammasome: An Intricate Network Sustaining Chemoresistance.** *Front Oncol*. 2022 Apr 22;12:888135. doi: 10.3389/fonc.2022.888135.

- Romani R, Talesa VN, Antognelli C. **The Glyoxalase System Is a Novel Cargo of Amniotic Fluid Stem-Cell-Derived Extracellular Vesicles.** *Antioxidants* (Basel). 2022 Aug 5;11(8):1524. doi:10.3390/antiox11081524.

- Mezzasoma L, Bellezza I, Orvietani P, Manni G, Gargaro M, Sagini K, Llorente A, Scarpelli P, Pascucci L, Cellini B, Talesa VN, Fallarino F, Romani R. **Amniotic fluid stem cell-derived extracellular vesicles are independent metabolic units capable of modulating inflammasome activation in THP-1 cells.** *FASEB J*. 2022 Apr;36(4):e22218. doi: 10.1096/fj.202101657R.

- Costanzi E, Romani R, Scarpelli P, Bellezza I. **Extracellular Vesicles-Mediated Transfer of miRNA Let-7b from PC3 Cells to Macrophages.** *Genes* (Basel). 2020 Dec 12;11(12):1495. doi: 10.3390/genes11121495.

- Romani R, Fallarino F, Pirisinu I, Calvitti M, Caselli A, Fiaschi T, Gamberi T, Matino D, Talesa VN, Donti E, Puccetti P, Modesti A, Magherini F. **Comparative proteomic analysis of two distinct stem-cell populations from human amniotic fluid.** *Mol Biosyst*. 2015 Jun;11(6):1622-32. doi: 10.1039/c5mb00018a.

- Romani R, Manni G, Donati C, Pirisinu I, Bernacchioni C, Gargaro M, Pirro M, Calvitti M, Bagaglia F, Sahebkar A, Clerici G, Matino D, Pomili G, Di Renzo GC, Talesa VN, Puccetti P, Fallarino F.

S1P promotes migration, differentiation and immune regulatory activity in amniotic-fluid-derived stem cells. *Eur J Pharmacol*. 2018 Aug 15;833:173-182. doi: 10.1016/j.ejphar.2018.06.005.

- Romani R, Pirisinu I, Calvitti M, Pallotta MT, Gargaro M, Bistoni G, Vacca C, Di Michele A, Orabona C, Rosati J, Pirro M, Giovagnoli S, Matino D, Prontera P, Rosi G, Grohmann U, Talesa VN, Donti E, Puccetti P, Fallarino F. **Stem cells from human amniotic fluid exert immunoregulatory function via secreted indoleamine 2,3-dioxygenase1.** *J Cell Mol Med*. 2015 Jul;19(7):1593-605. doi: 10.1111/jcmm.12534.