

MARCO BARCHI

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- URL for web site: <https://www.phd-medical-biotechnology-and-translational-medicine-anat.it/anatomy-lab-team-members>

- Academic age (from first publication): 27

CURRENT AND PREVIOUS POSITIONS

- Associate Professor of Human Anatomy (2022 to date)
- Assistant Professor (researcher) at University of Rome Tor Vergata (2006-2021)
- Post-Doc at Columbia University in the City of New York, USA (2001-2002)
- Post-doc at Memorial Sloan-Kettering Cancer Center, USA (2002-2006)
- Ph.D. Student at University of Rome Tor Vergata (1996-2000)

PRIZES AND AWARDS

- 2008 - Research prize Award from the Department of Public Health and Cell Biology, University of Rome Tor Vergata (code 020902081).
- 2005, "Rientro dei Cervelli" n. 155, from MUR
- 2003-2005, Fellowship from "American-Italian Cancer Foundation", at Memorial Sloan-Kettering Cancer Center, USA. Mentor: Maria Jasin.
- 2003-2005, Fellowship from "The Lalor Foundation", at Memorial Sloan-Kettering Cancer Center, New York, USA. Mentor: Maria Jasin.
- 1999, Short Term Mobility Fellowship from the National Research Center (CNR) of Italy, at University of California UC Davis, USA. Mentor: Richard Nuccitelli.

TEACHING ACTIVITIES (Current)

- Teacher of Human Anatomy at:
- CLM Medicina e Chirurgia, University of Rome Tor Vergata (2008- to date)
- CLM of Odontoiatria e Protesi Dentaria, University Nostra Signora del Buon Consiglio, Tirana, Albania (2007- to date)
- Degree course of Medicine and Surgery (2025 to date)

PHD SUPERVISION AT THE UNIVERSITY OF ROME TOR VERGATA (PRESENT AND PAST):

- Martina Emili (XXXIX)
- Completed PhD dissertation in my laboratory:
- Francesca Cavallo (XXIV)
- Cristina Antinozzi (XXIV)
- Monica Faieta (XXVII)
- Erika Testa (XXXI)
- Teresa Giannattasio (XXXV)
- Matteo Lampitto (XXXVIII)

NATIONAL SCIENTIFIC QUALIFICATIONS ISSUED (ASN), ITALIAN MINISTRY AND UNIVERSITY

- 2023, Full Professor in Human Anatomy
- 2023, Full Professor in Veterinary Anatomy
- 2016, Full Professor in Human Anatomy
- 2016, Full Professor in Applied Biology
- 2013, Associate Professor in Human Anatomy
- 3. 2013, Associate Professor in Histology
- 2013, Associate Professor in Genetics
- 2012, Associate Professor in Applied Biology
- 2012, Associate Professor in Molecular Biology

NATIONAL AND INTERNATIONAL COLLABORATIONS:

- Scott Keeney, Memorial Sloan-Kettering Cancer Center (USA). Project: investigating DSB formation in the PAR of mouse genetic models
- Scott Keeney, Memorial Sloan-Kettering Cancer Center (USA). Project: Identification of the functional role of ZNF451 in meiosis
- Nicola Silva, Masayk University (CZ). Project: Identification of new functional partners of mouse SPO11, through Mass Spectrometry
- Willy Baarends, Erasmus Mc, Nederland. Project: Investigating the role of Mouse Brca2 Exons 12-14 in Meiotic Homologous Recombination.

ADMINISTRATIVE ROLE AND POSITION RESPONSIBILITY

- Elected Member of the AQ commission of the University of Rome Tor Vergata (ongoing)
- Elected Member of the AQ commission, Department of Biomedicine and Prevention (ongoing)
- Elected member of the Faculty of Medicine Council (ongoing)
- November 2022-2025, elected committee member of the Interdepartmental centre for Research and Education (CIFAPPS), University of Rome Tor Vergata.
- September 2020, ANVUR selected member of the commission GEV 05/Biological Science, for the evaluation of the quality of the Italian Universities (VQR).
- Jun 30 2020, Committee member of the board of the final exam for the Doctoral degree in Biologia Umana e Genetica Medica, University of Rome, "La Sapienza".
- January 2019-2022, elected member of the Faculty of Medicine Council
- January 2019-2022, elected member of the Department of Biomedicine and Prevention council
- December 2018, Committee member of the board of the final exam for the Doctoral degree in Morphogenesis and tissue engineering, University of Rome, "La Sapienza".
- July 2018, President of the commission board of the final exam of the Doctoral degree in Science of nutrition, metabolism, aging and gender disease, Cattolica University of Rome.
- 2014-2016, elected committee member of Central Election Commission of the University of Rome "Tor Vergata"

SCIENTIFIC ORGANISATIONS/COORDINATION OF ACADEMIC ACTIVITIES

- Chairman at National Klinefelter Italian Group 2021" Congress, September 10th, Abano Terme, Italy.
- Conferences Organization Committee of the 16th European Testis Workshop

PARTICIPATION AT INTERNATIONAL/NATIONAL CONGRESSES AS INVITED OR SELECTED SPEAKER:

- 4th INTERNATIONAL WORKSHOP ON KLINEFELTER SYNDROME AND OTHER SUPERNUMERARY SEX CHROMOSOME ANEUPLOIDIES, Padova, 8/10/2025
- Congresso della Società Italiana delle Scienze Veterinarie, 10/05/2025
- Third congress of Klinefelter Italian Group (KING) della società Italiana di Andrologia e Medicina della Sessualità (SIAMS), 06/10/2023
- 3rd INTERNATIONAL WORKSHOP ON KLINEFELTER SYNDROME, TISOMY X, and XYY, Leiden, September 12-14, 2022 (selected)
- 74th Italian Society of Anatomy and histology congress, September 2021 (selected)
- . European Testis Workshop 2021, Symposia 7- Genetics and Epigenetics (selected)
- XV FISV Congress, University of Rome "La Sapienza", September 18-21, 2018 (invited)
- THE KLINEFELTER SYNDROME MEETING. Meeting of the Italian society of Andrology and Sexual Medicine (SIAMS), Padova September 16th 2017 (invited)
- XIV FISV national Congress, Rome 20-23 September, 2016 (selected)
- 17th European Testis Workshop. Stockholm April 20-24, 2012 (selected)
- EMBO conference Series, MEIOSIS, September 17-21, 2011, Capaccio/Paestum, Italy (invited)
- 16th European Testis Workshop, May 8-12, 2010, Elba Island, Italy (selected)
- VIII Congress of Italian Federation of Science (FISV). Riva del Garda, Italy, September 28, 2006 (invited)
- Italian National Center (CNR) "seminar events", 2006, Napoli, Italy, January 16th, 2006 (invited)
- 7th EMBO meeting on Meiosis, Spain September 13-18, 2005 (selected)

INTERNATIONAL AND NATIONAL GRANTS PEER REVIEWER:

- FAR 2022 PNR grant, University of Camerino, Italy
- FAR 2022 PNR grant, University of Camerino, Italy
- Fondation pour la Recherche Médicale (FRM), call 2020-2021
- KiKa grant 2021, n. 417
- Israel Science Foundation (ISF) and National Science Foundation of China (NSFC) joint program, grant n. 3425/20 (2020)
- FISR 2020 grant n. 03086
- FISR 2020 grant n. 03793
- FISR 2020 grant n. 04255
- University of Verona, Grant Call "Basic Research Grants 2019", protocol n. RBVR19SELH
- ISF, grant n. 1807/16 (2016)

- ISF, grant n. 854/13 (2013)

EDITORIAL ACTIVITY

- Editor, Methods in Molecular Biology (Springer-Nature) for the book entitled "Germ Cell Development" 2022-2023
- Guest Editor, for the Special issue on "Germ Cells Development and Genitourinary Cancers" (2021). International Journal of Molecular Science (IJMS) 2021
- Guest Editor, for the Special issue on "Germ Cells Development and Genitourinary Cancers" (2020). International Journal of Molecular Science (IJMS) 2020
- Guest Editor, for the Special Issue on "Recent advances in Meiotic Chromosome Structure, Recombination and Segregation". Chromosoma (2015-2016)
- Biomedicine & Prevention, Board Editor and Managing Editor (2016 to date)
- Ad hoc reviewer. PLOS Genetics, Developmental Biology, Chromosoma, Biomedicine & Prevention, Journal of Genetic Syndromes & Gene Therapy, Journal of Health & Medical Informatics, Journal of Visualized Experiments, Journal of Cell Science, Molecular Oncology, Frontiers, Cancers.

MEMBERSHIP OF SCIENTIFIC SOCIETIES

- Italian Society of Andrology and Sexual Medicine (SIAMS) - 2016 to date
- Klinefelter Italian Group (KING) - 2019 to date
- Italian Association of Environmental Mutagenesis and Genomics (SIMAG), 2016-2004
- European Society of Human Reproduction (ESHRE) - 2014/2015
- Italian Germ Cell Cancer Group (IGG) - 2019 to date

FUNDING (CURRENT AND PAST)

Year Project title, Funding organisation, role

2022	Fondo di Beneficienza Intesa Sanpaolo, Intesa Sanpaolo, PI
2020	Gruppi di Ricerca 2020 n. A0375E0185, Regione Lazio, COORDINATOR
2017	Finanziamento annuale individuale delle attività di base di ricerca, MUR, PI
2016	Mission Sustainability n. 141, University of Rome Tor Vergata, PI
2012	Telethon IG grant n. GGP12189, Telethon Foundation, COORDINATOR
2011	PRIN 2010-2011 n. 2010M4NEFY_004, MUR, PI of the local unit
2011	Cooperlink n. CII11RLETZ, MUR, COORDINATOR
2005	Rientro dei Cervelli n. 155, MUR, PI

- H-Index (Scopus): 24
- Total number of publications in peer-reviewed journals (Scopus): 46
- % first author publications (Scopus):25%
- % last author publications (Scopus):40%

- SELECTED PUBLICATIONS RELEVANT FOR THE PROJECT:

1. Recent advances in mechanisms ensuring the pairing, synapsis and segregation of XY chromosomes in mice and humans.

Lampitto M, Barchi M. *Cell Mol Life Sci.* 2024 Apr 23;81(1):194. doi: 10.1007/s00018-024-05216-0.
PMID: 38653846

2. Seeding the meiotic DNA break machinery and initiating recombination on chromosome axes.

Dereli I, Telychko V, Papanikos F, Raveendran K, Xu J, Boekhout M, Stanzione M, Neuditschko B, Imjeti NS, Selezneva E, Tuncay H, Demir S, Giannattasio T, Gentzel M, Bondarieva A, Stevense M, Barchi M, Schnittger A, Weir JR, Herzog F, Keeney S, Tóth A. *Nat Commun.* 2024 Apr 5;15(1):2941. doi: 10.1038/s41467-024-47020-1.
PMID: 38580643

3. The proper interplay between the expression of Spo11 splice isoforms and the structure of the pseudoautosomal region promotes XY chromosomes recombination. Giannattasio T, Testa E, Faieta M, Lampitto M, Nardozi D, di Cecca S, Russo A, Barchi M. *Cell Mol Life Sci.* 2023 Sep 8;80(10):279. doi: 10.1007/s00018-023-04912-7.
PMID: 37682311

4. The RNA-binding protein FUS/TLS interacts with SPO11 and PRDM9 and localize at meiotic recombination hotspots.

Giannattasio T, Testa E, Palombo R, Chellini L, Franceschini F, Crevenna Á, Petkov PM, Paronetto MP, Barchi M. *Cell Mol Life Sci.* 2023 Mar 26;80(4):107. doi: 10.1007/s00018-023-04744-5.
PMID: 36967403

5. Multi-color dSTORM microscopy in Hormad1^{-/-} spermatocytes reveals alterations in meiotic recombination intermediates and synaptonemal complex structure.

Koornneef L, Slotman JA, Sleddens-Linkels E, van Cappellen WA, Barchi M, Tóth A, Gribnau J, Houtsmuller AB, Baarends WM. *PLoS Genet.* 2022 Jul 20;18(7):e1010046. doi: 10.1371/journal.pgen.1010046.
eCollection 2022 Jul.
PMID: 35857787

6. Mouse ANKRD31 Regulates Spatiotemporal Patterning of Meiotic Recombination Initiation and Ensures Recombination between X and Y Sex Chromosomes.

Papanikos F, Clément JAJ, Testa E, Ravindranathan R, Grey C, Dereli I, Bondarieva A, Valerio-Cabrera S, Stanzione M, Schleiffer A, Jansa P, Lustyk D, Fei JF, Adams IR, Forejt J, Barchi M, de Massy B, Toth A. *Mol Cell.* 2019 Jun 6;74(5):1069-1085.e11. doi: 10.1016/j.molcel.2019.03.022. Epub 2019 Apr 15.
PMID: 31000436

7. H2AFX and MDC1 promote maintenance of genomic integrity in male germ cells.

Testa E, Nardozi D, Antinozzi C, Faieta M, Di Cecca S, Caggiano C, Fukuda T, Bonanno E, Zhenkun L, Maldonado A, Roig I, Di Giacomo M, Barchi M. *J Cell Sci.* 2018 Mar 20;131(6):jcs214411. doi: 10.1242/jcs.214411.
PMID: 29437857

8. A surge of late-occurring meiotic double-strand breaks rescues synapsis abnormalities in spermatocytes of mice with hypomorphic expression of SPO11. Faieta M, Di Cecca S, de Rooij DG, Luchetti A, Murdocca M, Di Giacomo M, Di Siena S, Pellegrini M, Rossi P, Barchi M. Chromosoma. 2016 Jun;125(2):189-203. doi: 10.1007/s00412-015-0544-7. Epub 2015 Oct 6. PMID: 26440409

9. Numerical constraints and feedback control of double-strand breaks in mouse meiosis. Kauppi L, Barchi M, Lange J, Baudat F, Jasin M, Keeney S. Genes Dev. 2013 Apr 15;27(8):873-86. doi: 10.1101/gad.213652.113. Epub 2013 Apr 18. PMID: 23599345

10. Meiotic double strand breaks repair in sexually reproducing eukaryotes: we are not all equal. La Volpe A, Barchi M. Exp Cell Res. 2012 Jul 15;318(12):1333-9. doi: 10.1016/j.yexcr.2012.03.014. Epub 2012 Mar 27. PMID: 22480866

11. Sam68 marks the transcriptionally active stages of spermatogenesis and modulates alternative splicing in male germ cells. Paronetto MP, Messina V, Barchi M, Geremia R, Richard S, Sette C. Nucleic Acids Res. 2011 Jul;39(12):4961-74. doi: 10.1093/nar/gkr085. Epub 2011 Feb 25. PMID: 21355037

12. Distinct properties of the XY pseudoautosomal region crucial for male meiosis. Kauppi L, Barchi M, Baudat F, Romanienko PJ, Keeney S, Jasin M. Science. 2011 Feb 18;331(6019):916-20. doi: 10.1126/science.1195774. PMID: 21330546

13. Expression of a truncated form of KIT tyrosine kinase in human spermatozoa correlates with sperm DNA integrity. Muciaccia B, Sette C, Paronetto MP, Barchi M, Pensini S, D'Agostino A, Gandini L, Geremia R, Stefanini M, Rossi P. Hum Reprod. 2010 Sep;25(9):2188-202. doi: 10.1093/humrep/deq168. Epub 2010 Jul 3. PMID: 20601678

14. Isolation and analyses of enriched populations of male mouse germ cells by sedimentation velocity: the centrifugal elutriation. Barchi M, Geremia R, Magliozzi R, Bianchi E. Methods Mol Biol. 2009;558:299-321. doi: 10.1007/978-1-60761-103-5_18. PMID: 19685332

15. Sam68 regulates translation of target mRNAs in male germ cells, necessary for mouse spermatogenesis.

Paronetto MP, Messina V, Bianchi E, Barchi M, Vogel G, Moretti C, Palombi F, Stefanini M, Geremia R, Richard S, Sette C.

J Cell Biol. 2009 Apr 20;185(2):235-49. doi: 10.1083/jcb.200811138.

PMID: 19380878

16. ATM promotes the obligate XY crossover and both crossover control and chromosome axis integrity on autosomes.

Barchi M, Roig I, Di Giacomo M, de Rooij DG, Keeney S, Jasin M.

PLoS Genet. 2008 May 23;4(5):e1000076. doi: 10.1371/journal.pgen.1000076.

PMID: 18497861

17. Bub1 maintains centromeric cohesion by activation of the spindle checkpoint.

Perera D, Tilston V, Hopwood JA, Barchi M, Boot-Handford RP, Taylor SS.

Dev Cell. 2007 Oct;13(4):566-79. doi: 10.1016/j.devcel.2007.08.008.

PMID: 17925231

18. Surveillance of different recombination defects in mouse spermatocytes yields distinct responses despite elimination at an identical developmental stage.

Barchi M, Mahadevaiah S, Di Giacomo M, Baudat F, de Rooij DG, Burgoyne PS, Jasin M, Keeney S.

Mol Cell Biol. 2005 Aug;25(16):7203-15. doi: 10.1128/MCB.25.16.7203-7215.2005.

PMID: 16055729

19. Distinct DNA-damage-dependent and -independent responses drive the loss of oocytes in recombination-defective mouse mutants.

Di Giacomo M, Barchi M, Baudat F, Edelmann W, Keeney S, Jasin M.

Proc Natl Acad Sci U S A. 2005 Jan 18;102(3):737-42. doi: 10.1073/pnas.0406212102.

Epub 2005 Jan 7.

PMID: 15640358

20. Male infertility due to germ cell apoptosis in mice lacking the thiamin carrier, Tht1. A new insight into the critical role of thiamin in spermatogenesis.

Oishi K, Barchi M, Au AC, Gelb BD, Diaz GA.

Dev Biol. 2004 Feb 15;266(2):299-309. doi: 10.1016/j.ydbio.2003.10.026.

PMID: 14738878