

Marta Kovatcheva, PhD

Marta Kovatcheva, Ph.D.
Group Leader (Assistant Professor equivalent)

Laboratory of Cell Plasticity & Aging

IFOM, Milan, IT

POSITIONS HELD:

March 2024-present **Group Leader** (Tenure Track)

IFOM, Milan, Italy

EDUCATION & RESEARCH TRAINING:

2017-2024 **Postdoctoral Research Fellow**

IRB Barcelona, Barcelona, Spain
Laboratory of **Manuel Serrano**

2010-2017 **Ph.D.** in Cancer Biology

MSKCC, New York, NY, USA
Gerstner Sloan Kettering Graduate
School of Biomedical Sciences
Laboratory of **Andrew Koff**

2006-2010 **Hon. B.Sc.** with High Distinction in Molecular Genetics

University of Toronto, Toronto, ON,
Canada
Undergraduate thesis Laboratory of
Daniel Durocher

PUBLICATIONS:

Preprints:

Miro-Blanch J, Capellades J, Balvay C, Maudet M, **Kovatcheva M**, Raineri S, Rabot S, Mellor J, Serrano M, and Yanes O. A targeted metabolomic method to detect epigenetically relevant metabolites. *bioRxiv*; submitted to *Molecular Metabolism*. doi: 10.1101/2023.11.30.569455. [Original research article](#).

Published Works:

Fissoun C and **Kovatcheva M**.(2025) Vitamin B12 in cell plasticity and repair. *DNA Cell Biol*, doi: 10.1089/dna.2025.0037. [Review article](#).

Aggarwal SS, Andreani C, Deng Z, Frede J, Kameneva P, **Kovatcheva M**, Micevic G, Nicolson F, Puschhof J, Roberts M, Wang G, Watson DC. (2024) The 2024 Generation. *Nature Cancer*, doi: 10.1038/s43018-024-00866-2. [Review article](#).

Alcon C, **Kovatcheva M**, Morales-Sanchez P, López-Polo V, Torres T, Puig S, Lu A, Samitier J, Enrich C, Serrano M, and Montero J. (2024) HRK downregulation and augmented BCL-xL binding to BAK confer

apoptotic protection to therapy-induced senescent melanoma cells. *Cell Death and Differentiation*, doi: 10.1038/s41418-024-01417-z. [Original research article](#).

Ramponi V, Richart L, **Kovatcheva M**, Stephan-Otto Attolini C, Capellades J, Lord AE, Yanes O, Ficiz G, and Serrano M. (2024) H4K20me3-Mediated Repression of Inflammatory Genes is a Characteristic and Targetable Vulnerability of Persister Cancer Cells. *Cancer Research*, doi: <https://doi.org/10.1158/0008-5472.CAN-24-0529>. [Original research article](#).

Protasoni M, López-Polo V, Stephan-Otto Attolini C, Brandariz J, Herranz N, Mateo J, Ruiz S, Fernandez-Capetillo O, **Kovatcheva M***, and Serrano M*. (2024). Cyclophilin D plays a critical role in the survival of senescent cells. *EMBO J*, doi: 10.1038/s44318-024-00259-2. *co-corresponding authors. [Original research article](#).

López-Polo V, Maus M, Zacharioudakis E, Lafarga M, Stephan-Otto Attolini C, DM Marques F, **Kovatcheva M**, Gavathiotis E, and Serrano M. (2024) Release of mitochondrial dsRNA promotes the inflammatory phenotype of senescent cells. *Nature Communications*, doi: 10.1038/s41467-024-51363-0. [Original research article](#).

Kovatcheva M*, Melendez E, Chondronasiou D, Pietrocola F, Bernad R, Caballe A, Junza A, Capellades J, Holguin-Horcajo A, Prats N, Durand S, Rovira M, Yanes O, Stephan-Otto Attolini C, Kroemer G, and Serrano M*. (2023) Vitamin B12 is a limiting factor for cellular plasticity and tissue repair. *Nature Metabolism* doi: 10.1038/s42255-023-00916-6. *co-corresponding authors. [Original research article](#).

Dominguez-Lopez I*, **Kovatcheva M***, Casas R, Toledo E, Fito M, Ros E, Estruch R, Serrano M, and Lamuela-Raventos RM. (2023) Higher circulating vitamin B12 is associated with lower levels of inflammatory markers in individuals at high cardiovascular risk and in naturally aged mice. *J Sci Food Agric*. doi:10.1002/jsfa.12976. Original research article. *authors contributed equally. [Original research article](#).

Gleason CE, Dickson MA, Klein Dooley ME, Antonescu CR, Gularte-Mérida R, Benitez M, Delgado JI, Kataru RP, Tan MWY, Bradic M, Adamson TE, Seier K, Richards AL, Palafox M, Chan E, D'Angelo SP, Gounder MM, Keohan ML, Kelly CM, Chi P, Movva S, Landa J, Crago AM, Donoghue MTA, Qin LX, Serra V, Turkecul M, Barlas A, Firester DM, Manova-Todorova K, Mehrara BJ, Kovatcheva M, Tan NS, Singer S, Tap WD, Koff A. (2023) Therapy-Induced Senescence Contributes to the Efficacy of Abemaciclib in Patients with Dedifferentiated Liposarcoma. *Clinical Cancer Research*. doi: 10.1158/1078-0432.CCR-23-2378. [Original research article](#).

Marin, I, Boix O, Garcia-Garijo A, Sirois I, Caballe A, Zarzuela E, Ruano I, Stephan-Otto Attolini C, Prats N, Lopez-Dominguez JA, **Kovatcheva M**, Garralda E, Munoz J, Caron E, Abad M, Gros A, Pietrocola F, and Serrano M. (2023) Cellular senescence is immunogenic and promotes anti-tumor immunity. *Cancer Discovery*. doi: 10.1158/2159-8290.CD-22-0523 [Original research article](#).

Chondronasiou D, Martinez J, Melendez E, Lynch C, del Pozo N, **Kovatcheva M**, Aguilera M, Prats N, Real FX, and Manuel Serrano. (2022) Deciphering the roadmap of in vivo reprogramming toward pluripotency. *Stem Cell Reports*, 17: 2501-2517. doi: 10.1016/j.stemcr.2022.09.009 [Original research article](#).

Meyer K, López-Domínguez JA, Maus M, **Kovatcheva M**, and Serrano M. (2022) Senescence as a therapeutic target: current state and future challenges Cellular Senescence in Disease. *Elsevier*. pp.425-442. ISBN 978-0-12-822514-1. [Book chapter](#)

Klein ME, **Kovatcheva M**, Davies LE, Tap WD, and Koff A. (2018). CDK4/6 inhibitors: The mechanism of action may not be as simple as once thought. *Cancer Cell*, 34(1):9-20. doi: 10.1016/j.ccell.2018.03.023 [Review article](#).

Kovatcheva M, Klein ME, Tap WD, and Koff A. (2017). Mechanistic understanding of the role of ATRX in senescence provides new insight for combinatorial therapies with CDK4 inhibitors. *Molecular and Cellular Oncology*, 5(1):e1384882. doi: 10.1080/23723556.2017.1384882 [Review article](#).

Kovatcheva M, Liao W, Klein ME, Robine, N, Geiger H, Crago AM, Dickson MA, Tap WD, Singer S, and Koff A. (2017). ATRX is a regulator of therapy induced senescence in human cells. *Nature Communications*, 8(1):386. doi: 10.1038/s41467-017-00540-5. [Original research article](#).

Kovatcheva M, Liu DD, Dickson MA, Klein ME, O'Connor R, Wilder FO, Socci ND, Tap WD, Schwartz GK, Singer S, Crago AM, and Koff A. (2015). MDM2 turnover and expression of ATRX determine the choice between quiescence and senescence in response to CDK4 inhibition. *Oncotarget*, 6(10): 8226-43. doi: 10.18632/oncotarget.3364 [Original research article](#).

FUNDING:

Grants obtained as PI:

2025-2027	European Association for Cancer Research, Rising Star Award (106 000€)
2024-2026	Impetus Foundation, Tracing the fate of partially reprogrammed cells in vivo (\$220 000)

Independent funding prior to PI position:

2018-2022	Asociación Española Contra el Cáncer (AECC) Postdoctoral Fellowship (170 000€)
2020	La Caixa & IRB Barcelona BiomedTec Grant for Early Stage Technologies (14 500€)
2018-2020	European Molecular Biology Organization (EMBO) Postdoctoral Long-Term Non-Stipendiary Fellow (renounced financial support for alternate fellowship) (75 000€)
2018	Barcelona Institute of Science and Technology (BIST) EU Horizon 2020 Postdoctoral Fellowship (terminated early to accept alternate fellowship) (108 000€)
2018	Juan de la Cierva Formación Postdoctoral Fellowship (renounced for alternate fellowship) (50 000€)
2012-2013	Grayer Fellowship, Grayer Foundation, New York, NY (\$36 000)
2011-2012	Postgraduate Scholarship-Master's, Natural Sciences and Engineering Research Council (NSERC) of Canada (\$15 000)

SCIENTIFIC PRESENTATIONS:

Invited seminars:

2025	2 nd International conference of the Spanish society of cellular senescence (SENCEL), Barcelona, Spain
2025	Spanish Society of Cell Biology (SEBC) Annual Meeting, Santiago de Compostela, Spain
2025	Autumn Lecture Series, University of Rzeszów, Rzeszów Poland
2025	International Cell Senescence Association (ICSA) 10 th Annual Meeting, Rome, Italy
2025	European Association for Cancer Research (EACR) Annual Conference, Lisbon, Portugal Invited Speaker for 3 individual talks/sessions
2025	American Aging Association (AGE) 53 rd Annual Meeting, Alaska, USA

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- 2025 Genome Integrity Italian Network (GiiN), **Online**
2025 The Center for Research in Molecular Medicine and Chronic Diseases (CiMUS), Santiago de Compostela, **Spain**
2024 Institut de genetique et de biologie molecular et cellular (IGBMC), Strasbourg, **France**
2024 FASEB B-Vitamins and One-Carbon Metabolism, Niagara Falls, **USA**
2024 The Young International Cell Senescence Association Oxford Symposium, Oxford, **United Kingdom. Keynote Speaker**

Abstract selected for oral presentation:

- 2024 *Dynamic BH3 profiling for improved senolysis strategies.* ICSA Conference 2024, Puerto Varas, **Chile.**
2022 *Vitamin B12 is a limiting factor for cellular reprogramming and tissue repair.* UNIA Cellular Plasticity in Homeostasis and Disease, Baeza, **Spain**
2022 *A CRISPR/Cas9-based screen to identify novel senolytic targets.* SENESTHERAPY-III. Spanish Network on Cell Senescence, Valencia, **Spain**
2022 *Vitamin B12 is a limiting factor for cellular reprogramming and tissue repair.* FASEB Transcription, Chromatin, and Epigenetics in Aging Conference, Catania, **Italy**
2022 *Vitamin B12 is a limiting factor for cellular reprogramming and tissue repair.* EMBO Developmental Circuits in Aging, Heraklion, **Greece**
2022 *Vitamin B12 is a limiting factor for cellular reprogramming and tissue repair.* CNIO-CaixaResearch Frontiers Meeting: Molecular, Cellular, and Organismal Drivers of Aging, Madrid, **Spain**
2021 *BH3 profiling for tissue-specific senolytic strategies.* 6th Annual Meeting of the Spanish Network on Cell Senescence, SENESTHERAPY-II. Spanish Network on Cell Senescence, Santiago de Compostela, **Spain**
2016 *ATRX: A new regulator of senescence,* ASCB NY Graduate Student Symposium on Cell & Cancer Biology, New York, NY, **USA**
2015 *ATRX: A new regulator of senescence,* ICSA Cell Senescence: From Physiology to Pathology, Santiago de Compostela, **Spain**
2013 *Bedside-to-bench: Clinical response to CDK4 inhibition uncovers a novel MDM2dependent, p53-independent senescence pathway,* AACR Frontiers in Basic Cancer Research, National Harbor, MD, **USA**
2012 *Bedside-to-bench: Clinical response to CDK4 inhibition uncovers a novel MDM2 dependent, p53-independent senescence pathway,* Cell Senescence in Cancer and Ageing, Wellcome Trust Genome Campus, Hinxton, Cambridge, **UK**
2012 *MDM2 is a mediator of senescence associated with CDK4 inhibition,* The Molecular Genetics of Aging, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY, **USA**

Poster presentations:

- 2024 *Vitamin B12 or transient Yamanaka Factor Expression enhances cell plasticity during recovery from ulcerative colitis and accelerates tissue repair,* FUSION Stem Cell-Niche Interactions in the Gastrointestinal Tract, Cancun, **Mexico**
2016 *ATRX is a new regulator of senescence,* ICSA Cell Senescence: From Mechanisms to

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- Therapeutic Opportunities, Rehovot, **Israel**
- 2014 *Using clinical insight to drive biologic discovery: MDM2 impinges on a novel, p53-independent pathway to senescence*, EMBO CONNECT Conference:
Ubiquitin and ubiquitin-like proteins: At the crossroads from chromatin to protein, Buenos Aires, **Argentina**
- 2013 *Bedside-to-bench: Clinical response to CDK4 inhibition uncovers a novel MDM2dependent, p53-independent senescence pathway*, AACR Frontiers in Basic Cancer Research, National Harbor, MD, **USA**
- 2012 *Dissecting senescence induced by CDK4 inhibition in liposarcoma*, Howard Hughes Medical Investigator Med into Grad Programs Northeast Peer Cluster Student Meeting, New York, NY, **USA**
- 2012 *MDM2 is a mediator of senescence associated with CDK4 inhibition*, The EMBO Meeting: Advancing the Life Sciences, Nice, **France**

PATENTS:

Enigma and CDH18 as companion diagnostics for CDK4 inhibitors, US1192116 **Granted:** March 5, 2024.

Companion diagnostics for CDK4 inhibitors, US9889135B2 **Granted:** February 13, 2018; EP2986740B1 **Granted:** January 15, 2020.

Methods for drug discovery, WO2016065044A1 **Published:** April 28, 2016.

ATRX as a companion diagnostic for CDK4 inhibitors, WO2016191740A1 **Published:** December 1, 2016.

SOCIETIES AND SCIENTIFIC COMMITTEES:

2025-present Scientific Direction Advisory Committee (SDAC) Member, IFOM, Milan, Italy

2024-present European Association for Cancer Research (EACR) Member

2024-present International Cell Senescence Association (ICSA) Steering Committee Member

2022-present Diversity, Equity & Inclusion (DEI) Working Group of the International Cell Senescence Association (ICSA); WG Chair since 2024

2018-2023 **President**, Young International Cell Senescence Association (yICSA)

2017-2023 Member, IRB Barcelona Postdoctoral Council

2012-2014 **Co-Chair**, Gerstner Sloan-Kettering Graduate School Student Council, New York, NY

MEETING ORGANIZATION:

2025 International Cell Senescence Association (ICSA) annual meeting, Rome, Italy

2025 IFOM Annual PI Retreat, Padenghe, Italy

2019-2023 International Cell Senescence Association (ICSA) annual meeting: yICSA invited speaker, poster prize judge, session moderator, & social events coordination, Athens, Greece; Osaka, Japan; and Groningen, The Netherlands

2020 International Cell Senescence Association (ICSA) Virtual Seminar Series, Global Online

2019 IRB Barcelona Postdoctoral Day, Barcelona, Spain

2018 Barcelona Institute of Science and Technology (BIST) Postdoctoral Day, CosmoCaixa, Barcelona, Spain

2012 HHMI Med Into Grad Northeast Peer Cluster Student Meeting, New York, NY

TECHNOLOGY TRANSFER, INDUSTRY RESEARCH CONTRACTS AND COLLABORATIONS:

2024-present Ad-hoc consultant. **With Lever Bio (Italy). Role:** Independently contracted consultant.
2019-2024 Small-molecule inhibitors as selective senolytic drugs to treat senescence-associated disorders, such as lung and kidney fibrosis. **With CD3 (Belgium). Role:** Lead Scientist & Project Coordinator
2023 Study in human dermal fibroblasts after the treatment with a proprietary compound. **With Mesoestetic (Spain). Role:** Principal Investigator & Consultant
2021-2022 Novel senolytic targets in inflammation and fibrosis. **With Galapagos NV (Belgium). Role:** Lead Scientist & Project Coordinator

REVIEWER WORK:

2021-present **Review Editor**, Frontiers in Aging
2018-present *Ad hoc* reviewer for Nature Aging, Cancer Discovery, Aging Cell, iScience, FEBS Journal
2019-2020 **Guest Editor**, Mechanisms of Ageing & Development (Special Issue: The bright and dark side of Cellular Senescence)

MAJOR INTERNATIONAL COLLABORATIONS (only ongoing):

2025-present: Yasuhiro Murakawa (Kyoto University, **Japan**): Control of intestinal cell plasticity by transposable elements as a driver of transformation
2025-present: Giorgia Ramponi (University of Zurich, **Switzerland**) & Rachel Zwick (New York University, **USA**): Using reinforcement learning to predict cell identity in intestinal development, aging, and cancer
2024-present: Satomi Miwa (Newcastle University, **UK**): Sex-specific differences in aging and tissue degeneration
2022-present: Joan Montero (University of Barcelona, **Spain**): Dynamic BH3 profiling for personalized medicine and healthy aging

TEACHING, MENTORSHIP & SCIENTIFIC OUTREACH:

Current trainees (as PI):

2024-present *PhD students:* Devraj Parande, Saket Bhargava, Benedetta Mannelli; *Postdoctoral Scientists:* Valentina Ramponi, Christina Fissoun

PhD thesis committees:

2025-present Maria Chiara Rainone (SEMM, Milan, Italy; Supervisor: Sara Sigismund; **Role:** Internal thesis advisor)
2025 Cristina Castellan (SEMM, Milan, Italy; Supervisor: Vincenzo Costanzo; **Role:** External examiner)
2024 Marta LaLinde (VHIO, Barcelona, Spain; Supervisor: Joaquin Arribas; **Role:** External examiner)
2024 Daniel Sampaio Goncalves (IBMBM, Strasbourg, France; Supervisor: William Keyes **Role:** External examiner)

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Students trained (prior to PI):

- 2019-present *PhD students (co-supervisor):* Valentina Ramponi, Elena Melendez (PhD 2022); IRB Barcelona, Spain
- 2018-2019 *Master's student:* Vanessa Lopez. Thesis: A CRISPR/Cas9-based screening approach to identify novel senolytic targets; UPF/BIST, Barcelona, Spain
- 2013-2017 *Summer Undergraduate Students:* Vivien Wong, Hannah Millimet, Jossie Yasshinskie, Mary Klein; Memorial Sloan Kettering Cancer Center, NY, USA

Programs & courses I have led:

- 2021-present IRB Barcelona PhD-Postdoc Mentorship Program: Founder & Mentor
- 2019-present IRB Barcelona-Catalan Foundation La Pedrera: Crazy about Biomedicine Course Leader, Barcelona, Spain
- 2014-2017 Scientist Educator, Science Outreach Program at Rockefeller University, New York, NY
- 2012-2016 Preparing and Presenting a Scientific Poster, Memorial Sloan-Kettering Cancer Center Medical Student Summer Fellowship, New York, NY
- 2012-2016 Journal Club Leader, Gerstner Sloan-Kettering Graduate School Summer Undergraduate Program, New York, NY
- 2012-2014 Teaching Assistant, Gerstner Sloan-Kettering Graduate School of Biomedical Sciences Core Course, Memorial Sloan-Kettering Cancer Center, New York, NY
- 2011 New York Academy of Sciences STEM Tutor, New York, NY

COURSE WORK & CERTIFICATIONS:

- 2025 Newton Management & Leadership Academy, Milan, Italy
- 2022 Leadership Programme for Women in Science, IRB, Coach: Alicia Marin Muniesa
- 2019 Supervising Masters Students: Skills for Effective Supervision, Barcelona Institute of Science & Technology, Broad Associates Communication Collaboration Coach: Caroline Broad
- 2017 Pitch Coaching for Scientists, IRB, Coach: Beth Susanne

HONORS & AWARDS:

- 2025 International "Technovisionary®" Award, Women&Tech – Women and Technology Association
- 2024 European Association for Cancer Research (EACR) Rising Star Award
- 2017 Gerstner Sloan Kettering Graduate School of Biomedical Sciences Commencement Speaker
- 2016 American Society for Cell Biology (ASCB) New York Graduate School Symposium on Cell & Cancer Biology Oral Presentation Award
- 2015 Weill Cornell Graduate School & Gerstner Sloan Kettering Graduate School Three-Minute Thesis (3MT®) Competition Bronze Winner
- 2013 New York Academy of Sciences Science Education Fellowship Program Certificate