Curriculum Vitae

Name: Ana Patricia Gomes

Address: 12902 Magnolia Drive, SRB 22037 Tampa FL 33612

Contact: ana.dasilvagomes@moffitt.org; O: 813-745-3502 T: 617-429-3658

Education

Ph.D. in Cell and Molecular Biology, January 2013
University of Coimbra, Portugal
Thesis: Unraveling new roles for SIRT1 in mitochondrial biology
Advisor: David A. Sinclair (Harvard Medical School) and Carlos M. Palmeira (University of Coimbra)

B.S. in Biology, 2008
University of Coimbra, Portugal

Professional Experience

Vice-Chair and Associate Member, January 2025- Present
H. Lee Moffitt Cancer Center and Research Institute
Department of Tumor Microenvironment and Metastasis
Breast Oncology Department
Senior Adult Oncology Program
Cancer Biology and Evolution Program

Assistant Member, June 2020-December 2024
H. Lee Moffitt Cancer Center and Research Institute
Department of Molecular Oncology
Cancer Biology and Evolution Program
Senior Adult Oncology Program

Research Experience

Postdoctoral Fellow, 2014-2020
Laboratory of John Blenis, Weill Cornell Medicine
Field of Cancer Biology

Postdoctoral Fellow, 2013
Laboratory of David A. Sinclair, Harvard Medical School
Field of Aging Biology

Visiting Doctoral Student, 2009-2012
Laboratory of David A. Sinclair, Harvard Medical School
Field of Cell and Molecular Biology with a concentration in Aging Biology

Internship in Mitochondrial Biology, 2008
Laboratory of Carlos M. Palmeira, University of Coimbra, Portugal
Field of Cell and Molecular Biology

Honors and Awards

2026 Research Educator of the Year, Moffitt Cancer Center

2024 Junior Faculty of the Year, Moffit Cancer Center

2023 NCI Rising Scholar

2023 ACS Scholar

2021 NIH New Innovator Award (DP2)

2021 Forbeck Scholar

2021 Rising Star in Cancer Metabolism and Signaling, New York Academy of Sciences

2020 Tri-Institutional Breakout Prize for Junior Investigators
Tri-Institute: MSKCC, Rockefeller and Weill Cornell Medicine

2019 Cancer Research UK Scholarship
Keystone Symposia – Cancer Metastasis: The Role of Metabolism, Immunity and the Microenvironment

2017 NIH Pathway to Independence Award (K99/R00)

2017 Susan G. Komen Postdoctoral Fellowship

2017 STAT Wunderkind

2017 Finalist of the Regeneron Prize for Creative Innovation
One out of 5 finalists of a US-wide search

2017 Winner of the Tri-Institutional Shark Thank "Bench to Beside Initiative"
Tri-Institute: MSKCC, Rockefeller and Weill Cornell Medicine

2009 Portuguese Foundation for Science and Technology Graduate Student Fellowship

Service, Professional Memberships and Editorial Boards

2026- Member of AACR Annual Meeting 2027 Program Committee

2026- Member of AACR Special Conference Aging and Cancer Organizing Comittee

2026 Ad Hoc Member NIH ZRG1 ACT-P (81) Special Emphasis Study Section

2026 Ad Hoc Member NIH ZRG1 BCMT-E (80) Special Emphasis Study Section

2026- Member of the Editorial Board of Cell Press Blue

2025- Editor, Cancer Research

2025 Ad Hoc Member of Department of Defense BCRP Grant Review Panel

2025 Ad Hoc Member NCI Mechanisms of Cancer Therapeutics C Study Section

2025 Member AACR Cancer Progress Report 2025 Steering Committee

2025 Ad Hoc Member Tumor Microenvironment and Metastasis Grant Review Panel, American Cancer Society

2025 Ad Hoc Member NCI Gene Regulation in Cancer Study Section

2025 Ad Hoc Member Postdoctoral Fellowships Grant Review Panel, American Cancer Society

2025 Member Tumor Microenvironment and Metastasis Faculty Search Committee, Moffitt

2025 Organizing Committee "Stress as a Risk Factor for Premature Aging and Cancer: An AACR Roadmap Summit", November 1-4, 2025 Pasadena, CA

2024 Ad Hoc Member National Science Centre Poland Grant Review Panel

2024 Ad Hoc Member Austrian Science Fund Grant Review Panel

2024 Ad Hoc Member Tumor Microenvironment and Metastasis Grant Review Panel, American Cancer Society

2024 Member NCI Think Thank on Systemic Effects of Cancer

2024 Ad Hoc Member NCI Gene Regulation in Cancer Study Section

2024- Member of the Editorial Board of Cancer and Metastasis Reviews

2024 Ad Hoc Member Breast Cancer Now UK Research Center Review Committee

2024 AACR Annual Meeting 2024 Scientific Program Subcommittee in Tumor Biology and Microenvironment

2023- Member Hevolution Foundation Geroscience Research Grant Review Panel

2023 Member Molecular Biosciences Genome Instability Faculty Search Committee, USF

2023- Standing Member Qualifying Exam Committee, Moffitt

2023 Member Cancer Metabolism and Physiology Chair Search Committee, Moffitt

2022- Member AACR Aging and Cancer Task Force

2022- Co-Chair Basic Science Grand Rounds Organizing Committee, Moffitt

2022 Member Metabolism Program Leader Search Committee, Moffitt

2022 Florida Academic Cancer Center (FACCA) Grant Review Committee

2021- Active Member of the Metastasis Research Society (MRS)

2021 Member Integrated Mathematical Oncology Faculty Search Committee, Moffitt

2020-2024 Member Faculty Wellness Committee, Moffitt Cancer Center

2020- Active Member of the American Association for Cancer Research (AACR)

2020-2024 Member of the Flanders Research Foundation (FWO) Review College

2017-2020 Associate member of the American Association for Cancer Research (AACR)

Patents

NAD biosynthesis and precursors for the treatment and prevention of cancer and proliferation
Patent Application Number: US9877981B2
Status: Active

Invited Presentations

Forbeck Forum: Cancer and Aging – Convergent and Opposing Forces, Asilomar, CA, 2026
Metastatic Disease through the Lens of Old Age

8th Annual Tumor Biology Symposium Aging and Cancer, Sylvester Comprehensive Cancer Center, Miami, FL, 2026
Understanding Cancer through the Lens of Old Age

Department of Cell Systems & Anatomy, University of Texas Health, San Antonio, TX, 2026
Understanding Cancer through the Lens of Old Age

Department of Physiology and Biophysics, University of Illinois at Chicago, Chicago, IL, 2025
Understanding Cancer through the Lens of Aging

Stress as a Risk Factor for Premature Aging and Cancer: An AACR Roadmap Summit, Pasadena, CA, 2025
Tumor-Infiltrating CD8 T Cells Through the Lens of Old Age

Einstein Cancer Dormancy and Tumor Microenvironment Institute, Einstein College of Medicine, New York, NY, 2025
Understanding Cancer through the Lens of Aging

Huntsman Cancer Center, University of Utah, Salt Lake City, UT, 2025
Understanding Cancer through the Lens of Aging

Duke University School of Medicine, Department of Pharmacology and Cancer Biology, Durham, NC, 2025
Understanding Cancer through the Lens of Aging

Siteman Cancer Center Seminar Series, WashU, St. Louis, Missouri, 2025
Understanding Cancer through the Lens of Aging

Abcam Conference: Cancer and Metabolism, Austin, Texas, 2025
Metabolic Reprogramming: A Bridge Between Aging and Cancer

13th AACR-JAC Joint Conference: From Cancer Discovery to Therapeutic Innovation, Maui, Hawaii, 2025
Metabolic Reprogramming: A Bridge Between Aging and Cancer

Cancer Innovation Laboratory Seminar Series, NCI, Frederick-Fort Detrick, Maryland, 2024
Understanding Cancer through the Lens of Aging

Champalimaud Research Symposium, Champalimaud Foundation, Lisbon, Portugal, 2024
Metabolic reprogramming: a bridge between aging and tumorigenesis

FASEB SRC in Transcription, Chromatin and Epigenetics in Aging, Melbourne, Florida, 2024
Epigenetic Bottlenecks of Tumor Progression

Annual JAX Short Course on Experimental Models of Cancer, Bar Harbor, Maine, 2024
Modeling cancer in the context of aging

FASEB SRC in Molecular Metabolism, Sturbridge, Massachusetts, 2024
Metabolic Reprogramming: A Bridge Between Aging and Cancer

NCI Think Tank on Systemic Effects of Cancer, Rockville, Maryland, 2024
Modulators And Drivers of Systemic Effects in Cancer

Annual Congress of the European Association of Urology, Paris, France, 2024
The impact of aging on cancer progression and therapeutic response

Keystone Tumor Metabolism, Banff, Canada, 2024
Metabolic reprogramming: a bridge between aging and tumorigenesis

University of South Florida, Department of Molecular Biosciences Seminar Series, Tampa, Florida 2024
Epigenetic and metabolic bottlenecks of tumor progression and metastasis

University of California at Irvine Cancer Research Institute Seminar Series, Irvine, California, 2024
Epigenetic and metabolic bottlenecks of tumor progression and metastasis

NCI Rising Scholars: Cancer Research Seminar Series, Online, 2023
Altered propionate metabolism contributes to tumor progression and aggressiveness

The Gerontology Society of America Annual Meeting, Tampa, Florida, 2023
Age-induced systemic reprogramming drives drug resistance in lung cancer

Loyola University, Cancer Biology Seminar Series, Chicago, Illinois, 2023
Understanding cancer in the context of aging

Annual Fox Chase Cancer Center Scientific Symposium: Aging & Cancer, 2023
Metabolic reprogramming: a bridge between aging and cancer

Systems Immunology in Aging and Complex Diseases, Jackson Laboratories, 2023
Metabolic reprogramming: a bridge between aging and tumorigenesis

Annual JAX Short Course on Experimental Models of Cancer, Bar Harbor, Maine, 2023
Modeling cancer in the context of aging

Tish Cancer Center Seminar Series, Mount Sinai, New York, New York 2023
Epigenetic and metabolic bottlenecks of tumor progression and metastasis

Harvard/Paul F. Glenn Symposium on Aging, Boston, Massachusetts, 2023
Metabolic Reprogramming: Bridging aging and tumorigenesis

Dana Farber Cancer Institute Susan Swerling Lectures, Boston, Massachusetts, 2023
Metabolic Reprogramming: Bridging aging and tumorigenesis

Memorial Sloan Kettering Cancer Center Druckenmiller Center for Lung Cancer Research, New York, 2023
Understanding lung cancer in the context of the aged host

AACR Annual Meeting, Orlando, Florida 2023

- **Major Symposium: Role of Aging in Cancer**
  Metabolic reprogramming: a bridge between aging and tumor progression
- **Education Session: How Does the Niche Regulate Disseminated Tumor Cell Dormancy and Metastasis?**
  Epigenetic control of dormancy

ASBMB Annual Meeting, Seattle, Washington, 2023
De novo NADP+ synthesis powers breast cancer metastatic outgrowth

OHSU Knight Cancer Institute Basic & Translational Science Seminar Series, Portland, Oregon, 2023
Lessons from Aging: Novel Metabolic Adaptations of Breast Cancer Metastasis

AACR Special Conference: Aging and Cancer, San Diego, California, 2022
Age-induced metabolic reprogramming: A bridge between the aging process and tumorigenesis

33rd Annual Usha Mahajani Symposium on Molecular Medicine, Salk Institute, San Diego, California 2022
Epigenetic bottlenecks of the metastatic cascade

The Folate, Vitamin B12, and One-Carbon Metabolism FASEB Conference, Asheville, North Carolina, 2022
Vitamin B12 and propionate metabolism as a bridge between aging and tumor progression

University of Southern California Leonard David School of Gerontology, Los Angeles, California, 2022
Age-induced circulatory changes: A bridge between the aging process and tumorigenesis

AACR Annual Meeting, New Orleans, Louisiana, 2022
Education Session: Considerations of tissue-specific aging in cancer research
Age-induced circulatory changes: A bridge between the aging process and tumorigenesis

Keystone Symposia: Cancer: Aging in the Driver's Seat, Snowbird, Utah,2022
Accumulation of Cortisol Drives Chemotherapy Resistance in Lung Cancer

Penn State University, Virtual, 2022
Novel Metabolic Requirements of Breast Cancer Metastasis

Johns Hopkins All Children's Hospital, St. Pete, Florida, 2022
Novel Metabolic Requirements of Breast Cancer Metastasis

AACR Annual Meeting, Virtual, 2021
Education Session: Understanding Mechanisms of Aging in Cancer Development in Human Populations
Old Tricks, New Stance: The Effects of Age-Induced Systemic Alterations on Tumorigenesis

Northwestern University, Virtual, 2021
Old Tricks, New Stance: How aging affects tumor progression

Cancer Genome Project Ghana: Systemic Effects of Cancer, Virtual, 2021
Metabolites as Cancer Biomarkers

Florida Academic Cancer Center Alliance, 2020
Old Tricks, New Stance: How aging affects tumor progression

New York Academy of Sciences: Systemic Effects of Metastatic Cancer, 2020
Old Tricks, New Stance: How aging affects tumor progression

Cell Symposia: Hallmarks of Cancer, 2019
Age-induced methylmalonic acid accumulation promotes aggressiveness and metastatic colonization

Keystone Symposia: Cancer Metastasis: The Role of Metabolism, Immunity and the Microenvironment, 2019
Age-induced methylmalonic acid accumulation promotes aggressiveness and metastatic colonization

2nd Annual University of Florida Health Cancer Center Cancer Research Showcase, 2018
Lessons from Aging: Histone H3 variants as determinants of tumor progression

Keystone Symposia: Epigenetics and Human Disease: Progress from Mechanisms to Therapeutics, 2017
CAF-1 regulates tumor progression through re-distribution of histone H3.3

Tri-State Cancer Metabolism Symposia, Princeton University, 2014
Pseudohypoxia disrupts nuclear-mitochondrial communication during aging: risk factor for age-related cancer development?

Boston Aging Symposia, Harvard Medical School, 2014
Insights into the reversibility of age-related disorders

Molecular Mechanisms of Aging, Cold Spring Harbor Laboratories, 2013
Pseudohypoxia-induced genome asynchrony disrupts mitochondrial homeostasis during aging

Current Research Support

BCRP Breakthrough Award Level 2 BC251034 (Gomes)
CDMRP, Department of War
06/01/2026-05/31/2031 $2,100,216.00
Targeting Age-Driven Metastatic Vulnerabilities in Triple Negative Breast Cancer
(Pending activation)

DP2 AG077698 (Gomes)
NIH/OD/NIA
09/30/2021 – 09/29/2026 $2,470,500
Aging as a selective pressure that drives tumor progression

R01 CA279023 (Gomes)
NIH/NCI
07/01/2024 – 06/31/2029 $3,737,781
Epigenetic and Metabolic Bottlenecks of Tumorigenesis

Research Scholar Grant (Gomes)
ACS RSG-22-164-01-MM
01/01/2023 – 12/31/2026 $792,000
Epigenetic Mechanisms that Underlie Breast Cancer Dormancy

Bankhead-Coley, State of Florida (Gomes)
Discovery Science
5/1/2024 – 4/30/2027 $576,000
Metabolic Factors that condition breast cancer metastasis

R21 AG083720 (Gomes)
NIH/NIA
07/01/2023 – 06/30/2026 $463,375
Adaptations of breast cancer metastasis to the aging lung

American Lung Association Catalyst Award (Lazure, Mentor: Gomes, Flores)
09/01/2025 – 08/31/2027
Mechanisms of aging-induced differential evolution of KRAS-driven lung adenocarcinoma

NCI K99 CA304508 (Drapela, Mentor: Gomes, Czerniecki, Rodriguez)
07/17/2025 – 07/16/2027
Mechanisms of dormant breast cancer cell communication with their environment

American Cancer Society Postdoctoral Fellowship (Zelenka, Mentor: Gomes, Cleveland)
01/01/2025 – 12/31/2027
Mechanisms of age-induced regulation of tumor infiltrating T cells

Completed Research Support

American Cancer Society Postdoctoral Fellowship (Drapela, Mentor: Gomes, Lynch)
01/01/2025 – 12/31/2027 (terminated in 07/2025 due to K99/R00 acceptance)
Age-dependent targeting of TNBC metastasis

American Cancer Society TLC Award (Gomes, Smalley)
07/01/2024 – 06/30/2025 $61,000
How the aging tumor microenvironment affects outgrowth of leptomeningeal metastases

METAvivor (Gomes)
04/01/2023 – 03/31/2025 $100,000
Metabolic vulnerabilities of dormant disseminated breast cancer cells

R00 CA218686 (Gomes)
NIH/NCI
9/10/2020-8/31/2024 $747,000

Propionate metabolism as an essential metabolic adaptation for tumor progression

Phi Beta Psi Sorority (Gomes)
08/01/2022 – 07/31/2024 $140,501
NAD+: A missing link between aging and pancreatic tumorigenesis

Bankhead-Coley, State of Florida (MPIs: DeNicola, Gomes, Gardell)
Discovery Science
5/1/2021 – 4/30/2024 $547,715
Pyridine Nucleotides: Missing Link between Aging and Lung Tumorigenesis

Moffitt Intramural Funding Opportunity (Jaeger, Gomes)
Molecular Oncology Award
12/01/2022-06/30/2024 $100,000
Unraveling the contribution of aging in cancer specific antigen presentation

Moffitt Intramural Funding Opportunity (Gomes, Smalley)
Melanoma Center of Excellence
07/01/2023 – 06/30/2024 $75,000
Mapping the age-related changes in cerebrospinal fluid of melanoma leptomeningeal disease

Moffitt Intramural Funding Opportunity (Gomes, Jiang)
Metabolism Program Pilot Funds
07/01/2023 – 06/30/2024 $50,000
Defining the age-induced metabolic liabilities of lung adenocarcinoma

Miles for Moffitt Postdoctoral Fellowship (Drapela, Mentor: Gomes)
01/01/2023 – 12/31/2023
Metabolic reprogramming that enables breast cancer recurrent metastasis

Moffitt Intramural Funding Opportunity (Gomes)
Miles for Moffitt
12/01/2022-31/08/2023 $100,000
FGF-19 as a mechanistic link that enable metastasis in old hosts

American Lung Association (Gomes)
Innovation Award
07/01/2021 – 06/30/2023 $150,000
Mechanisms of age-induced chemotherapeutic resistance in lung cancer

Moffitt Intramural Funding Opportunity (West, Gomes)
Evolutionary Therapy Center of Excellence
11/01/2022-06/30/2023 $75,000
Investigating the feasibility of a first-strike, second-strike extinction therapy in ER+ breast cancer

Florida Breast Cancer Foundation (Gomes)
07/01/2021 – 06/30/2022 $100,000
NADK as an essential metabolic adaptation of metastatic triple negative breast cancer

Moffitt Intramural Funding Opportunity (Andor, Gomes)
Evolutionary Therapy Center of Excellence
02/01/2022-01/30/2023 $175,000
Evaluating aneuploidy as a biomarker of cell fate in response to energetic fluctuations in triple negative breast cancer

R00 CA218686-04S1 (Gomes)
NIH/NCI
01/01/2022-12/31/2022 $100,000
Vitamin B12 supplementation as novel therapeutic strategy to improve cancer-associated outcomes

Moffitt Intramural Funding Opportunity (Gomes, DeNicola)
George Edgecomb Society
03/01/2021 – 02/27/2022 $75,000

Mitochondrial DNA diversity: Missing link between African Americans and Lung Cancer disparity

Publications

In Preparation

Drapela S, Megino Luque C, Chimeh Rad R, Canan F, Raizada D, Chaudhary N, Sarigul N, Czerniecki B, Bravo-Cordero J, **Gomes AP**. Chromatin remodeling through dynamic H3.3 deposition controls entry and exit from dormancy in disseminated cancer cells. *In preparation for submission to Nature*

Raizada D, Lazure D, Sarigul N, Tejero J, Ilter D, Drapela S, Haura E, **Gomes AP**. Aging rewires glucocorticoid signaling to promote therapy resistance in KRAS-mutant lung cancer. *In preparation for submission to Nature*

Most Relevant Publications

Kashfi H, Ilter D, Nicolaci A. Lockhart J, Drapela S, Lazure F, Raizada D, Sarigul N, Spegel J, Ward N, Dutta T, Gardell S, Binning J, Flores E, DeNicola GM, **Gomes AP**. Quinolinic acid phosphoribosyl transferase moonlights as an apoptosis regulator to empower lung cancer progression. bioRxiv. 2026 https://doi.org/10.64898/2026.04.01.715697. *In Revision at Cancer Research*

Lazure F, Drapela S, Liu X, Lockhart JH, Kashfi H, Sarigul N, Ilter D, Flores ER, Wang X, Smalley I, Jaeger A, Yu X, **Gomes AP**. Aging directs the differential evolution of KRAS-driven lung adenocarcinoma. bioRxiv. 2025 Jan 24:2025.01.20.633951. *In Revision at Nature Aging*

Raizada S, **Gomes AP**. Metabolic adaptations of the tumor macroenvironment and their role in cancer progression and survivorship. *Under review; invited by Genes&Development*

De Martino D, Zapatería B, Dunne JB, Drapela S, Matteson K, Oruko D, Humphrey T, Jonhston T, Varghese BA, Riggio AI, Tiwary K, Bresnahan E, Barra J, Sowa A, Jenssen W, Sidoli S, Welm AL, Barroso M, Stallaert W, **Gomes AP,** Angel PM, Arias E, Bravo-Cordero JJ. Collagen hydroxylation couples NAD+/NADH dynamics to tumor dormancy and reactivation. Res Sq. 2025 Jul 10;. doi: 10.21203/rs.3.rs-6986228/v1. PubMed PMID: 40671813; PubMed Central PMCID: PMC12265173.

Cole AR, Buj R, Uboveja A, Levasseur E, Wang H, Kedziora KM, Chatoff A, Huacachino AA, Marcinkiewicz MM, Amalric A, Yang B, Tangudu NK, Danielson J, Elwah A, White S, Li D, Wallace CT, Lazure F, Elishaev E, Borho L, Jazwinska DE, Laird MS, Atiya H, Bitler BG, Dangaj D, Coffman LG, Tseng G, Oesterreich S, **Gomes AP**, Gurkar AU, Schopfer FJ, Modugno F, Watkins SC, Zervantonakis IK, Stallaert W, Hempel N, Snyder NW, Aird KM. The chemotherapy-induced senescence-associated secretome promotes cell detachment and metastatic dissemination through metabolic reprogramming. bioRxiv. 2025 Aug 12;. doi: 10.1101/2023.12.02.569652. PubMed PMID: 40832218; PubMed Central PMCID: PMC12363692.

Drapela S, Rad RC, Ilter D, **Gomes AP**. Protocol for the utilization of murine interstitial fluid extract to model breast cancer in the context of old age in vitro. *STAR* Protoc. 2025 Oct 30;6(4):104178. doi: 10.1016/j.xpro.2025.104178. Online ahead of print

Lazure F, **Gomes AP**. Cancer progression through the lens of age-induced metabolic reprogramming. Nat Rev Cancer. 2025 Jul 11;. doi: 10.1038/s41568-025-00845-4.

Tejero JD, Hesterberg RS, Drapela S, Ilter D, Raizada D, Lazure F, Kashfi H, Liu M, Fernandez-Garcia J, Asara JM, Fendt S-M, Cleveland JL, **Gomes AP**. Methylmalonic acid induces metabolic abnormalities and exhaustion in CD8+ T cells to suppress anti-tumor immunity. Oncogene. 2025 Jan;44(2):105-114.

Beck RJ, Tagal V, Amin S, Bakhoum SF, Maley CC, Verhaak RGW, **Gomes AP**, Andor N. Energetics of whole genome doubling and genomic instability. Cancer Lett. 2025 Oct 10;630:217878.

Ramamoorthi G, Lee MC, Farrell CM, Snyder C, Garg SK, Aldrich AL, Lok V, Dominguez-Viqueira W, Olson-Mcpeek SK, Rosa M, Gautam N, Pilon-Thomas S, Cen L, Kodumudi KN, Wiener D, Oskarsson T, **Gomes AP**, Gatenby RA, Czerniecki BJ. Antitumor CD4+ T Helper 1 Cells Target and Control the Outgrowth of Disseminated Cancer Cells. Cancer Immunol Res. 2025 May 2;13(5):729-748.

Elkholi IE, Robert A, Malouf C, Wu JL, Kuasne H, Drapela S, Macleod G, Hébert S, Pacis A, Calderon V, Kleinman CL, Gomes AP, Alvarez JV, Aguirre-Ghiso JA, Park M, Angers S, Côté JF. Targeting the Dependence on PIK3C3-

mTORC1 Signaling in Dormancy-Prone Breast Cancer Cells Blunts Metastasis Initiation. Cancer Res. 2025 Jun 16;85(12):2179-2198.

Nowicka Z, Rentzeperis F, Beck R, Tagal V, Pinto AF, Scanu E, Veith T, Cole J, Ilter D, Viqueira WD, Teer JK, Maksin K, Pasetto S, Abdalah MA, Fiandaca G, Prabhakaran S, Schultz A, Ojwang M, Barnholtz-Sloan JS, Farinhas JM, **Gomes AP**, Katira P, Andor N. Interactions between ploidy and resource availability shape clonal interference at initiation and recurrence of glioblastoma. Cancer Res. 2025 Apr 15;85(8):1544-1559.

Drapela S, Garcia BM, **Gomes AP**, Correia AL. Metabolic landscape of disseminated cancer dormancy. Trends Cancer. 2025 Apr;11(4):321-333.

Gantner BN, Palma FR, Pankar MR, Sakiyama MJ, Ranago D, DeNicola GM, **Gomes AP**, Bonini MG. Metabolism and epigenetics: drivers of tumor cell plasticity and treatment outcomes. Trends Cancer. 2024 Nov;10(11):992-1008.

Palma FR, Coelho DR, Pulakanti K, Sakiyama MJ, Huang Y, Ogata FT, Danes JM, Meyer A, Furdui CM, Spitz DR, **Gomes AP**, Gantner BN, Rao S, Backman V, Bonini MG. Histone H3.1 is a chromatin-embedded redox sensor triggers by tumor cells developing adaptive phenotypic plasticity and multidrug resistance. Cell Rep. 2024 43(3):113897.

Drapela S, **Gomes AP**. The aging lung reawakens dormant tumor cells. Nat Cancer. 2023 4(4):442-443.

Tejero T, Lazure F, **Gomes AP**. Methylmalonic acid in aging and disease. Trends Endocrinol Metab. 2024 S1043-2760(23)00240-0.

Wu Q, Hatse S, Kenis C, Fernández-García J, Altea-Manzano P, Billen J, Planque M, Vandekeere A, Lambrechts Y, Richard F, Punie K, Neven P, Smeets A, Nevelsteen I, Floris G, Desmedt C, **Gomes AP**, Fendt SM, Wildiers H. Serum methylmalonic acid concentrations at breast cancer diagnosis significantly correlate with clinical frailty. Geroscience. 2024 46(2):1489-1498.

Wu Q, Hatse S, Kenis C, Fernandez-Garcia J, Altea-Manzano P, Billen J, Planque M, Vandekeere A, Lambrechts Y, Richard F, Punie K, Neven P, Smeets A, Nevelsteen I, Floris G, Desmedt C, **Gomes AP**, Fendt S-M, Wildiers H. Aging-accumulated methylmalonic acid serum levels at breast cancer diagnosis are not associated with distant metastasis. Breast Cancer Res Treat. 2024 Jun;205(3):555-565. doi: 10.1007/s10549-024-07260-7.

Ilter D, Drapela S, Schild T, Ward NP, Adhikari E, Low V, Asara J, Oskarsson T, Lau EK, DeNicola GM, McReynolds MR, **Gomes AP**. NADK-mediated *de novo* NADP(H) synthesis is a metabolic adaptation essential for breast cancer metastasis. Redox Biol. 2023 61:102627.

Drapela S, Ilter D, **Gomes AP**. Metabolic reprogramming: a bridge between aging and tumorigenesis. Mol Oncol. 2022 16(18):3295-3318.

Gomes AP*, Low V, Ilter D, Schild T, Endress JE, Rosenzweig A, Fernandez-Garcia J, Elia I, Broekaert D, Han J, Mutvei AP, Mullarky E, Lee G, Asara J, Cantley LC, Fendt S-M, Blenis J*. Altered propionate metabolism contributes to tumor progression and agressiveness. Nat Metab. 2022 4(4):435-443. *Co-corresponding authors

Drapela S, **Gomes AP**. Metabolic requirements of the metastatic cascade. Curr Opin Syst Biol. 2021 28:100381.

Schild T, McReynolds MR, Shea C, Low V, Schaffer BE, Asara JM, Piskounova E, Dephoure N, Rabinowitz JD, **Gomes AP***, Blenis J*. NADK is activated by oncogenic signaling to sustain pancreatic ductal adenocarcinoma. Cell Rep. 2021 35(11):109238. *Co-corresponding authors

Drapela S, **Gomes AP**. Metabolic requirements of the metastatic cascade. Curr Opin Syst Biol. 2021 28:100381.

Ilter D, **Gomes AP**. Age-induced metabolic reprogramming underlies cancer progression. Mol Cell Oncol. 2021 8(2):1876506

Gomes AP*, Ilter D, Low V, Endress JE, Fernandez-Garcia J, Rosenzweig A, Schild T, Broekaert D, Ahmed A, Planque M, Elia I, Han J, Kinzing C, Mullarky E, Mutvei AP, Asara J, de Cabo R, Cantley LC, Dephoure N, Fendt S-M, Blenis J*. Age-induced methylmalonic acid accumulation promotes tumor progression and aggressiveness. Nature. 2020 585(7824):283-287. *Co-corresponding authors

Gomes AP*, Ilter D, Low V, Rosenzweig A, Shen Z-J, Schild T, Rivas MA, Er EE, McNally DR, Mutvei AP, Han J, Ou Y-H, Cavaliere P, Mullarky E, Nagiec M, Shin S, Yoon S-O, Dephoure N, Massague J, Melnick AM, Cantley LC, Tyler JK, Blenis J*, 2019, Dynamic incorporation of histone H3 variants into chromatin is essential for acquisition of aggressive traits and metastatic colonization. Cancer Cell 36(4):402-417. *Co-corresponding authors

Rosenzweig A, Blenis J, **Gomes AP**, 2018, Beyond the Warburg effect: How do cancer cells regulate one-carbon metabolism? Frontiers in Cell and Developmental Biology 6:90.

He L, **Gomes AP**, Wang X, Yoon SO, Lee G, Nagiec MJ, Cho S, Chavez A, Islan T, Yu Y, Asara JM, Kim BY, Blenis J, 2018, mTORC1 promotes metabolic reprogramming by the suppression of GSK3-dependent Foxk1 phosphorylation. Molecular Cell 70(5):949-960.

Schild T, Low V, Blenis J, **Gomes AP**, 2018, Unique metabolic adaptations dictate distal organ-specific metastatic colonization. Cancer Cell 33(3):347-354.

Gomes AP, Schild T, Blenis J, 2017. Adding Polyamine Metabolism to the mTORC1 toolkit in Cell Growth and Cancer. Development Cell 42(2):112-114.

Gomes AP, Blenis J, 2015, A nexus for cellular homeostasis: the interplay between metabolic and signal transduction pathways. Current Opinion in Biotechnology. 34:110-117.

Gomes AP, Sinclair DA, 2015, Measuring PGC-1α and its acetylation status in mouse primary myotubes. Methods in Molecular Biology. 1241:49-57.

Wu LE, **Gomes AP**, Sinclair DA, 2014, Geroncogenesis: Metabolic changes during aging as driver of tumorigenesis. Cancer Cell. 25(1): 12-9.

Gomes AP, Price NL, Ling AJY, Moslehi JJ, Montgomery MK, Rajman LA, White JP, Teodoro JS, Wrann CD, Hubbard BP, Mercken EM, Palmeira CM, de Cabo R, Rolo AP, Turner N, Bell EL, Sinclair DA, 2013, Declining NAD+ Induces a Pseudohypoxic State Disrupting Nuclear-Mitochondrial Communication during Aging. Cell. 155(7): 1624–1638.

Hubbard BP, **Gomes AP**, Dai H, Li J, Case AW, Considine T, Riera TV, Lee JE, E SY, Lamming DW, Pentelute BL, Schuman ER, Stevens LR, Ling AJY, Armour SM, Michan S, Zhao H, Jiang Y, Sweitzer SM, Blum CA, Disch JS, Ng PY, Howitz KT, Rolo AP, Hamuro Y, Moss J, Perni RB, Ellis JL, Vlasuk GP, Sinclair DA, 2013, Evidence for a common mechanism of SIRT1 regulation by allosteric activators. Science. 339(6124): 1216-19.

Price NL*, **Gomes AP***, Ling AJY, Martin-Montalvo A, North BJ, Hubbard BP, Agarwal B, Davis JG,Varamini B, Hafner A, Moaddel R, Rolo AP, Palmeira CP, Cabo R, Baur JA, Sinclair DA, 2012, SIRT1 is required for AMPK activation and the beneficial effects of resveratrol on mitochondrial function. Cell Metabolism. 15(5):675-90. *Both authors contributed equally for this work.

Gomes AP, Duarte FV, Nunes P, Hubbard BP, Teodoro JS, Varela AT, Jones JG, Sinclair DA, Palmeira CM, Rolo AP, 2012. Berberine protects against high fat diet-induced dysfunction in muscle mitochondria by inducing SIRT1-dependent mitochondrial biogenesis. Biochimica et Biophysica Acta - Molecular Basis of Disease. 1822: 185-195.

Remaining Publications

Ilter D, Blenis J, **Gomes AP**, 2020, Histone H3 variants at the root of metastasis. Mol Cell Oncol. 7(2):1684128.

Costford SR, Brouwers B, Hopf ME, Sparks LM, Dispagna M, **Gomes AP**, Cornnell HH, Petucci C, Phelan P, Xie H, Yi F, Walter GA, Osborne TF, Sinclair DA, Mynatt RL, Ayala JE, Gardell SJ, Smith SR, 2018, Skeletal muscle overexpression of nicotinamide phosphoribosyl transferase in mice coupled with voluntary exercise augments exercise endurance. Mol Metab. 7:1-11.

Teodoro JS, Varela AT, Duarte FV, **Gomes AP,** Palmeira CM, Rolo AP, 2018, Indirubin and NAD+ prevent mitochondrial ischemia/reperfusion damage in fatty livers. Eur J Clin Invest. 48(6):e12932.

Duarte FV, Amorim JA, Varela AT, Teodoro JS, **Gomes AP**, Cunha RA, Palmeira CM, Rolo AP, 2016, Adenosine receptor: regulatory players in the preservation of mitochondrial function induced by ischemic preconditioning of rat liver. Purinergic Signal. 2017 Jun;13(2):179-190.

Mullarky E, Lucki NC, Beheshti Zavareh R, Anglin JL, **Gomes AP**, Nicolay BN, Wong JC, Christen S, Takahashi H, Singh PK, Blenis J, Warren JD, Fendt SM, Asara JM, DeNicola GM, Lyssiotis CA, Lairson LL, Cantley LC, 2016, Identification of a small molecule inibitior of 3-phosphoglycerate dehydrogenase to target serine biosynthesis in cancers. Proc Natl Acad Sci USA. 113(11): E1585.

Miranda MX, van Tits LJ, Lohmann C, Arsiwala T, Winnik S, Tailleux A, Stein S, **Gomes AP**, Suri V, Ellis JL, Lutz TA, Hottiger MO, Sinclair DA, Auwerx J, Schoonjans K, Staels B, Lüscher TF, Matter CM, 2015, The Sirt1 activation SRT3025 provides atheroprotection in Apoe-/- mice by reducing hepatic Pcsk9 secretion and enhancing Ldlr expression. European Heart Journal. 36(1): 51-59.

Mercken EM, Mitchell SJ, Martin-Montalvo A, Minor RK, Almeida M, **Gomes AP**, Scheibye-Knudsen M, Palacios HH, Licata JJ, Zhang Y, Becker KG, Khraiwesh H, González-Reyes JA, Villalba JM, Baur JA, Elliott P, Westphal C, Vlasuk GP, Ellis JL, Sinclair DA, Bernier M, de Cabo R, 2014, SRT2104 extends survival of male mice on a standard diet and preserves bone and muscle mass. Aging Cell. 13(5): 787-796

Teodoro JS, Zouhar P, Flachs P, Bardova K, Janovska P, **Gomes AP**, Duarte FV, Varela AT, Rolo AP, Palmeira CM, Kopecky J, 2013, Enhancement of brown fat thermogenesis using chenodeoxycholic acid in mice. Int J Obes. 38(8):1027-34.

Teodoro JS, Duarte FV, **Gomes AP**, Varela AT, Peixoto FM, Rolo AP, Palmeira CM, 2013, Berberine reverts hepatic mitochondrial dysfunction in high-fat fed rats: a possible role for SIRT3 activation. Mitochondrion, 13(6):637-646.

Duarte FV, **Gomes AP**, Teodoro JS, Varela AT, Moreno AJ, Role AP, Palmeira CM, 2013, Dibenzofuran-induced mitochondrial dysfunction: Interaction with ANT carrier. Toxicology in Vitro, 27(8):2160-2168.

Martin-Montalvo A, Mercken EM, Mitchell SJ, Palacios HH, Mote PL, Scheibye-Knudsen M, **Gomes AP**, Ward TM, Minor RK, Blouin MJ, Schwab M, Pollak M, Zhang Y, Yu Y, Becker KG, Bohr VA, Ingram DK, Sinclair DA, Wolf NS, Spindler SR, Bernier M, de Cabo R, 2013, Metformin improves healthspan and lifespan in mice. Nature Communications.4:2192

Hubbard BP, Loh C, **Gomes AP**, Li J, Lu Q, Doyle TL, Disch JS, Armor SM, Ellis JL, Vlasuc GP, Sinclair DA, 2013, Carboxamide SIRT1 inhibitors block DBC1 binding via an acetylation-independent mechanism. Cancer Cycle 12(14):2233-40.

Teodoro JS, **Gomes AP**, Varela AT, Duarte FV, Rolo AP, Palmeira CM, 2013, Uncovering the beginning of diabetes: the cellular redox status and oxidative stress as starting players in hyperglycemic damage. Molecular and Cellular Biochemistry. 376, 103-110.

Escande C, Nin V, Price NL, Capellini V, **Gomes AP**, Barbosa MT, O'Neil L, White TA, Sinclair DA, Chini EN, 2013, Flavonoid apigenin is an inhibitor of the NAD+ase CD38: implications for cellular NAD+ metabolism, protein acetylation, and treatment of metabolic syndrome. Diabetes. 62:1084-1093.

Minor RK, Baur JA, **Gomes AP**, Ward TM, Csiszar A, Mercken EM, Abdelmohsen K, Shin YK, Canto C, Scheibye-Knudsen M, Krawczyk M, Irusta PM, Martín-Montalvo A, Hubbard BP, Zhang Y, Lehrmann E, White AA, Price NL, Swindell WR, Pearson KJ, Becker KG, Bohr VA, Gorospe M, Egan JM, Talan MI,Auwerx J, Westphal CH, Ellis JL, Ungvari Z, Vlasuk GP, Elliott PJ, Sinclair DA, de Cabo R, 2011,SRT1720 improves survival and healthspan of obese mice. Scientic Reports.1:70.

Rolo AP, **Gomes AP**, Palmeira CM, 2011, Regulation of mitochondrial biogenesis in metabolic syndrome. Current Drug Targets. 12:872-878.

Hafner AV, Dai J, **Gomes AP**, Xiao CY, Palmeira CM, Rosenzweig A, Sinclair DA, 2010, Regulation of the mPTP by SIRT3-mediated deacetylation of CypD at lysine 166 supresses age-related cardiac hypertrophy. Aging. 2(12):914-23.

Varela AT, Simões AM, Teodoro JS, Duarte FV, **Gomes AP**, Palmeira CM, Rolo AP, 2010, Indirubin-3'-oxime prevents hepatic I/R damage by inhibiting GSK-3beta and mitochondrial permeability transition. Mitochondrion. 10: 456-463.

Varela AT*, **Gomes AP***, Simões AM, Teodoro JS, Duarte FV, Rolo AP, Palmeira CM, 2008, Indirubin-3'-oxime impairs mitochondrial oxidative phosphorylation and prevents mitochondrial permeability transition induction. Toxicology and Applied Pharmacology. 233: 179-185.* Both authors contributed equally