

BIOGRAPHICAL SKETCH

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NAME Napolitano, Gennaro		POSITION TITLE Associate Professor of Medical Genetics	
eRA COMMONS USER NAME (credential, e.g., agency login)			
EDUCATION/TRAINING (Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable.)			
INSTITUTION AND LOCATION	DEGREE (if applicable)	MM/YY	FIELD OF STUDY
University of Naples "Federico II", Italy	BS	07/2005	Gene regulation - Genomics
University of Naples "Federico II", Italy	PHD	01/2009	Cell Biology, Signal Transduction
University of California, San Diego	Postdoctoral fellow	10/2011	Cell Biology, Signal Transduction
The Scripps Research Institute, La Jolla (CA)	Research associate	06/2014	Lysosome biology, Lysosomal storage disorders
TIGEM, Pozzuoli (NA), Italy	Research associate	08/2020	Cell metabolism, Nutrient signaling

A. Personal Statement

My research is focused on the study of metabolic signaling pathways and how their aberrant activation underlies the pathogenesis of human genetic diseases. I am particularly interested in the study of the lysosome, a key organelle with nutrient sensing and signaling functions, which I have been studying for more than 10 years. Deregulation of lysosomal activity and metabolic signaling, such as the mTORC1 signaling pathway, is often observed in different Human diseases, ranging from inherited metabolic diseases to neurodevelopmental disorders and cancer. On the other hand, mutations of genes important for the activity of the lysosome lead to a class of diseases, defined as lysosomal storage disorders (LSDs), which are characterized by alterations in metabolite availability and signaling. Our research employs cell biology, gene editing, and -omics approaches to understand how deregulation of lysosomal signaling impairs metabolic homeostasis and promotes disease pathogenesis. Our ultimate goal is to leverage these findings for the discovery of novel therapeutic targets in inherited metabolic diseases and cancer.

B. Positions and Honors**Positions and Scientific Appointments**

2004 - 2005	Undergraduate, Institute of Genetics and Biophysics, CNR, Naples, Italy
2005 - 2009	Grad. Student, Institute of Genetics and Biophysics, CNR, Naples, Italy
2009 - 2011	Postdoc. Fellow, University of California, San Diego (CA)
2011 - 2014	Res. associate, The Scripps Research Institute, La Jolla (CA)
2014 - 2020	Res. associate, Telethon Institute of Genetics and Medicine (TIGEM), Pozzuoli, Italy
2017	Visiting scientist, Janelia Research Institute, Ashburn, VA
2016 - 2019	Research Fellow (RTDA), University of Naples Federico II", Italy
2019 - 2022	Assistant Professor (RTDB), University of Naples Federico II, Italy

Principal Investigator (Last, First, Middle): Napolitano, Gennaro

2020 - Pres. Assistant Investigator, TIGEM, Italy (*First faculty appointment*)
2022 - Pres. Associate Professor, University of Naples Federico II, Italy

Honors

2005 Magna cum laude, University of Naples Federico II, Italy.
2005 Institute of Genetics and Biophysics fellowship for the PhD program
2009 DBPCM research fellowship
2010 - 2011 AIRC postdoctoral fellowship
2011 American Italian Cancer Foundation postdoctoral fellowship
2011 - 2014 Cystinosis Research Foundation postdoctoral fellowship
2014 - 2015 DTI-IMPORT/Marie Curie COFUND postdoctoral fellowship
2016 - 2017 Horizon 2020 EU - Marie Skłodowska-Curie postdoctoral fellowship
2019 - 2021 Junior Principal Investigator STAR Grant

C. Selected Peer-reviewed Publications

1. Pasquier A, Pastore N, D'Orsi L, Colonna R, Esposito A, Maffia A, De Cegli R, Mutarelli M, Ambrosio S, Tufano G, Grimaldi A, Cesana M, Cacchiarelli D, Delalleau N, **Napolitano G***, and Ballabio A*. TFEB and TFE3 control glucose homeostasis by regulating insulin gene expression. *EMBO J*. 2023 Nov 2;42(21):e113928. doi: 10.15252/embj.2023113928. Epub 2023 Sep 15. ***Corresponding authors**
2. Esposito A, **Napolitano G***. Comment on PRDM10 RCC: A Birt-Hogg-Dubé-like Syndrome Associated With Lipoma and Highly Penetrant, Aggressive Renal Tumors Morphologically Resembling Type 2 Papillary Renal Cell Carcinoma. *Urology*. 2023 Sep;179:69-70. doi: 10.1016/j.urology.2023.04.037. ***Corresponding author**
3. Cui Z, **Napolitano G**, de Araujo MEG, Esposito A, Monfregola J, Huber LA, Ballabio A, Hurley JH. Structure of the lysosomal mTORC1-TFEB-Rag-Ragulator megacomplex. *Nature*. 2023 Feb;614(7948):572-579. doi: 10.1038/s41586-022-05652-7.
4. **Napolitano G***, Di Malta C*, Ballabio A*. Non-canonical mTORC1 signaling at the lysosome *Trends Cell Biol*. 2022 Nov;32(11):920-931. doi: 10.1016/j.tcb.2022.04.012 ***Corresponding authors**
5. **Napolitano G***, Di Malta C*, Esposito A, de Araujo EMG, Pece S, Bertalot S, Matarese M, Benedetti V, Zampelli A, Stasyk T, Siciliano D, Venuta A, Cesana M, Vilaro C, Nusco E, Monfregola J, Calcagni' A, Di Fiore PP, Huber LA and Ballabio A. A substrate-specific mTORC1 pathway underlies Birt-Hogg-Dubé' syndrome. *Nature*. 2020 Sep;585(7826):597-602. doi: 10.1038/s41586-020-2444-0. Epub 2020 Jul 1. ***Equal contribution**
6. **Napolitano G**, Esposito A, Choi H, Matarese M, Benedetti V, Di Malta C, Monfregola C, Medina DL, Lippincott-Schwartz J and Ballabio A. mTOR-dependent phosphorylation controls TFEB nuclear export. *Nature communications*. 2018 Aug 17;9(1):3312.
7. **Napolitano G**, Ballabio A. TFEB at a glance. *J Cell Sci*. 2016 Jul 1;129(13):2475-81. doi: 10.1242/jcs.146365. Epub 2016 Jun 1. Review.
8. Esposito E*, **Napolitano G***, Pescatore A, Calculli G, Incoronato MR, Leonardi A and Ursini MV. COMMD7 as a novel NEMO interacting protein involved in the termination of NF-κB signaling. *J Cell Physiol*, 2016 Jan;231(1):152-61. ***Equal contribution**
9. **Napolitano G**, Johnson JL, Rocca CJ, Monfregola J, Cherqui S and Catz SD Impairment of chaperone-mediated autophagy leads to selective lysosomal degradation defects in the lysosomal storage disease cystinosis. *EMBO Mol Med*. 2015 Jan 12;7(2):158-74.
10. Johnson JL*, **Napolitano G***, Monfregola J, Rocca CJ, Cherqui S and Catz SD Upregulation of the Rab27a-dependent trafficking and secretory mechanisms improves lysosomal transport, alleviates endoplasmic reticulum stress and reduces lysosome overload in cystinosis. *Mol Cell Biol*. 2013 Aug;33(15):2950-62. ***Equal contribution**

Principal Investigator (Last, First, Middle): Napolitano, Gennaro

11. **Napolitano G**, Karin M. Sphingolipids: The Oil on the TRAFire that Promotes Inflammation. *Sci. Signal.* 2010 Sep 28;3(141):pe34
12. **Napolitano G**, Mirra S, Monfregola J, Lavorgna A, Leonardi A, Ursini MV. NESCA: a new NEMO/IKKgamma and TRAF6 interacting protein. *J Cell Physiol.* 2009 Aug;220(2):410-417

BOOK CHAPTERS:

Napolitano G, Platt FM, Ballabio A. The lysosomal system: Physiology. *Lysosomal Storage Diseases Wiley Blackwell Book Chapter.* 2022 July 21; DOI:10.1002/9781119697312

BIBLIOMETRIC INDICATORS RELATED TO PUBLICATIONS AND CITATIONS:

Publications: 37 (April 2024)

SCOPUS: Citations= 7873 / H index= 24 / Documents= 37

GOOGLE SCHOLAR: Citations= 13715 / H index= 25 / I 10 index= 31

TOTAL IF: 598.7

D. Research Support

Ongoing Research Support:

PRIN - PNRR (Unit member)

11/2023 -10/2025

Ministero Italiano per l'Università e della Ricerca (MIUR)

“Defining the role of the mTORC1-TFEB axis in the control of immune tolerance in Multiple Sclerosis”

Funding: Eur 153,037

PRIN (Under 40 – Principal Investigator)

10/2023 -09/2025

Ministero Italiano per l'Università e della Ricerca (MIUR)

“Advanced Nanoengineered Materials for Automated Sensing of pH and Nutrient Dynamics”

Funding: Eur 105,360

World Cancer Research Fund International (Principal Investigator)

04/2023 – 03/2027

“Targeting metabolic vulnerabilities in pancreatic cancer”

Funding: Eur 366,346

My First AIRC Grant (MFAG 2019 - Principal Investigator)

01/2020 – 12/2024

Associazione Italiana Ricerca sul Cancro (AIRC)

“Non-canonical mTOR signaling in B-cell lymphoma”

Funding: Eur 497,195

PAST Research Support (completed within the last 3 years):

Telethon Core Grant (Principal Investigator)

09/2020 – 12/2023

“Deciphering dysfunctional metabolic pathways in nephropatic cystinosis”

Funding: Eur 250,000

PRIN (Young line - Principal Investigator)

08/2019 -08/2023

Principal Investigator (Last, First, Middle): Napolitano, Gennaro

Ministero Italiano per l'Università e della Ricerca (MIUR)

“4D molecular analysis on dynamic subcellular nanostructures by feedback-based imaging and tracking: the biochemistry of nutrient and energy sensing”

Funding: Eur 124,000

Orphazyme Grant (Co-Principal Investigator)

01/2021 – 06/2022

“Interplay Between the heat shock response and the CLEAR network”

Funding: Eur 150,975

Junior Principal Investigator STAR Grant (Principal Investigator)

03/2019 – 08/2021

Conoir/UNINA

“Nutrient-dependent non-canonical mTOR signaling”

Funding: Eur 85,000