

PERSONAL INFORMATIONS

Daniele Lettieri Barbato

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Sex M | Date of birth 18 February 1979 | Nationality Italian

POSITIONS HELD Tenure Track RTDb (BIO/09)
Dept. Biology,
University of Rome Tor Vergata

TITLE OF STUDY PhD in Cellular and Molecular Biology
Dept. Biology,
University of Rome Tor Vergata

PROFESSIONAL
EXPERIENCE

From 2021 to date Group Leader, Lab of Integrative Physiology and Metabolism, Dept. Biology/University of Rome Tor Vergata (Rome, Italy)

From 2019-to date Principal Investigator, IRCCS Fondazione Santa Lucia, Rome, Italy

2010-2022 Research Associate, Dept. Biology/University of Rome Tor Vergata (Rome, Italy)

2010-2022 Lab Technician, Dept. Biology/University of Rome Tor Vergata (Rome, Italy)

2009-2010 Research Fellow, University of Rome La Sapienza

INSTITUTIONAL
RESPONSIBILITIES

2022- Reviewer Board of European Foundation for the Study of Diabetes (EFSD)

2021- Member of PhD Course in Evolutionary Biology, Dept. Biology/University of Rome Tor Vergata (Rome, Italy)

EDUCATION AND
TRAINING

2013 PhD in Cellular and Molecular Biology at University of Rome Tor Vergata

2009 Degree in Human Nutrition at University of Rome Tor Vergata

NATIVE LANGUAGE

Italian

OTHER LANGUAGES

English

UNDERSTANDING		SPEAKING		WRITING
LISTENING	READING	SPOKEN INTERACTION	SPOKEN PRODUCTION	
C2	C2	C2	C2	C1

Levels: A1 / A2: Basic level - B1 / B2: Intermediate level - C1 / C2: Advanced level

SCIENTIFIC ACTIVITY My research investigates the impact of environmental perturbations (cold exposure, nutrient modulation) in mediating health and lifespan. A major focus of my research is to decipher the physiological phenotype of responses to temperature changes or dietary restrictions/excess. In the last years, my research is moving to understanding the adaptations to hormonal-dependent and independent thermogenesis of adipose depots. To achieve these goals, my research is currently supported by European Foundation for the Study of Diabetes (EFSD) and Italian Ministry of Health.

Productivity and Impact Author of n. 54 publications in peer-reviewed international journals, of n. 1 book chapters of 32 publications on conference proceedings. He has an *h* index of 26 and about 5000 citations (Scopus).

Editorial activities

- Topic Editor for *Life*
- Topic Editor for *Cells*
- Guest Associate Editor for *Frontiers in Physiology*
- Guest Associate Editor for *Frontiers in Pharmacology*

Reviewer activities

- Reviewer of projects and VQR for the Ministry of Education of the University and Research;
- Grant Reviewer for Italian Ministry of University and Research.
- Grant Reviewer for National Science Center, Poland
- Grant Reviewer for Israel Science Foundation.
- Review Editor for *Nature Metabolism, Cell Reports, Molecular Metabolism, Metabolism*;

Society memberships

- Member of the Italian Society of Human Nutrition (SINU)
- Member of the Italian Cell Culture Association (AICC)
- Member of European Foundation for the Study of Diabetes (EFSD)
- Society for Redox Biology and Medicine (SfRBM)

IT SKILLS Microsoft operating systems (Windows, Word, Excel, Power Point) and graphics / image and data processing (Corel Draw, Photoshop, Image J, GraphPad). Software and consultation of specific online databases for bioinformatics analysis of transcriptomics, proteomics, metabolomics (Cytoscape, Funrich, Enricher, David, MetaboAnalyst, String, Panther).

GRANT SUPPORTS

- 2022-2024** Role: Principal Investigator. EFSD/Boehringer Ingelheim European Research Programme on “Multi-System Challenges in Diabetes” 2021.
- 2022-2024** Role: Principal Investigator. General Research Grant 2021 - Testing the efficacy of dietary butyrate in ameliorating ataxic symptoms in Friedreich’s ataxia mouse models – FARA (Friedreich’s Ataxia Research Alliance), US.
- 2019-2023** Role: Principal Investigator. Young Researcher Grant (Project No: GR-2018-12367588).

Adipose-derived vesicles: immunomodulators and biomarkers during anti-inflammatory therapy in multiple sclerosis. MINISTRY OF HEALTH, IT.

- 2017-2019 Role: Principal Investigator. Young Researcher Grant (EFSD/Lilly_2017). ProBATION: Mapping nanovesicles-vehicled Proteins released from Brown Adipose Tissue. Funded by EUROPEAN FOUNDATION FOR THE STUDIES ON DIABETES (EFSD).
- 2016-2018 Role: Principal Investigator. (Project No: 2016-R03). Title: Effects of nut-derived miRNAs on inflammatory and metabolic profile of fat cells (miRNUTs). Funded by INTERNATIONAL WORLD FORUM FOR NUTRITION RESEARCH, US

PUBLICATIONS

(last 10 years,
complete publication list:
<https://pubmed.ncbi.nlm.nih.gov/?term=aquilano+k&sort=date>)

- [1] Rosina M, Ceci V, Turchi R, Chuan Li, Borcharding N, Sánchez-Díaz M, Karlinsey K, Fuoco C, Giwa R, Field RL, Audano M, Sciarretta F, Arena S, Tortolici F, Palma A, Riccio F, Shamsi F, Renzone G, Verri M, Crescenzi A, Rizza S, Faienza F, Chiurchiù V, Filomeni G, Kooijman S, Rufini S, AF de Vries Antoin, Scaloni A, Mitro N, Tseng YH, Hidalgo A, Zhou B, Brestoff JR, Aquilano K, **Lettieri-Barbato D**. Ejection of damaged mitochondria and their removal by macrophages ensure efficient thermogenesis in brown adipose tissue. *Cell Metabolism*. doi: 10.1016/j.cmet.2022.02.016.
- [2] **Lettieri Barbato D**, Aquilano K, Punziano C, Minopoli G, Minopoli G, Faraonio F. (2022) MicroRNAs, Long Non-Coding RNAs, and Circular RNAs in the Redox Control of Cell Senescence. *Antioxidants*. **11**: 480. doi:10.3390/antiox11030480
- [3] Palumbo C, Mecchia A, Bocedi A, Aquilano K, **Lettieri-Barbato D**, Rosina M, Di Venere A, Rodolfo C, Caccuri AM. (2022) Revisited role of TRAF2 and TRAF2 C-terminal domain in endoplasmic reticulum stress-induced autophagy in HAP1 leukemia cells. *Int J Biochem Cell Biol*. **45**: 106193. doi: 10.1016/j.biocel.2022.106193.
- [4] Campione E, Mazzilli S, Di Prete M, Dattola A, Cosio T, **Lettieri Barbato D**, Costanza G, Lanna C, Manfreda V, Gaeta Schumak R, Prignano F, Coniglione F, Ciprani F, Aquilano K, Bianchi L. (2022) The Role of Glutathione-S Transferase in Psoriasis and Associated Comorbidities and the Effect of Dimethyl Fumarate in This Pathway. *Front Med*. **9**: 760852. doi:10.3389/fmed.2022.760852.
- [5] Carotti S, **Lettieri-Barbato D**, Piemonte F, Ruggiero S, Rosina M, Zalfa F, Zingariello M, Arciprete F, Valentini F, Francesconi M, D'Amico J, De Vincentis A, Baiocchini A, Perrone G, Antonelli-Incalzi R, Morini S, Picardi A, Aquilano K, Vespasiani-Gentilucci U. (2021) Molecular and histological traits of reduced lysosomal acid lipase activity in the fatty liver. *Cell Death Dis*. **12**: 1092. doi: 10.1038/s41419-021-04382-4. *Co-cast author
- [6] La Rosa P, Petrillo S, Turchi R, Berardinelli F, Schirinzi T, Vasco G, **Lettieri-Barbato D**, Fiorenza MT, Bertini ES, Aquilano K, Piemonte F. (2021) The Nrf2 induction prevents ferroptosis in Friedreich's Ataxia. *Redox Biol*. **38**: 101791. doi: 10.1016/j.redox.2020.101791.
- [7] **Lettieri-Barbato D**, Ventura N, Faraonio R, Aquilano K. (2020) Editorial: Advances in Metabolic Mechanisms of Aging and Its Related Diseases. *Front. Physiol*. **11**: 594974. doi: 10.3389/fphys.2020.594974.
- [8] Turchi R, Faraonio R, Lettieri-Barbato D, Aquilano K. (2020) An Overview of the Ferroptosis Hallmarks in Friedreich's Ataxia. *Biomolecules* **10**: E1489. doi: 10.3390/biom10111489.
- [9] **Lettieri-Barbato D**, Minopoli G, Caggiano R, Izzo R, Santillo M, Aquilano K, Faraonio R. (2020) Fasting Drives Nrf2-Related Antioxidant Response in Skeletal Muscle. *Int. J. Mol. Sci*. **21**: 7780. doi: 10.3390/ijms21207780.
- [10] Aquilano K, Sciarretta F, Turchi R, Li, B-H, Rosina M, Ceci V, Guidobaldi G, Arena S, D'Ambrosio C, Audano M, Salvatori I, Colella B, Faraonio R, Panebianco C, Pazienza V, Caruso D, Mitro N, Di Bartolomeo S, Scaloni A, Li J-Y, **Lettieri-Barbato D** (2020) Low-protein/high-carbohydrate diet induces AMPK-dependent canonical and non-canonical thermogenesis in subcutaneous adipose tissue. *Redox Biol*. **36**: 101633. doi: 10.1016/j.redox.2020.101633.
- [11] Carotti S, Aquilano K, Valentini F, Ruggiero S, Alletto F, Morini S, Picardi A, Antonelli-Incalzi R, **Lettieri-Barbato D**, Vespasiani-Gentilucci U. (2020) An overview of deregulated lipid metabolism in nonalcoholic fatty liver disease with special focus on lysosomal acid lipase. *Am. J. Physiol. Gastrointest. Liver Physiol*. doi: 10.1152/ajpgi.00049.2020.
- [12] **Lettieri-Barbato D**, Aquilano K. (2020) Aging and Immunometabolic Adaptations to Thermogenesis. *Ageing Res. Rev*. **63**: 101143. doi: 10.1016/j.arr.2020.101143.
- [13] Carotti S, Aquilano K, Zalfa F, Ruggiero S, Valentini F, Zingariello M, Francesconi M, Perrone G, Alletto F, Antonelli Incalzi R, Picardi A, Morini S, **Lettieri-Barbato D**, Vespasiani-Gentilucci U. (2020) Lipophagy impairment is associated with disease progression in NAFLD. *Front. Physiol*. **11**: 850. doi: 10.3389/fphys.2020.00850
- [14] Menduti G, Vitaliti A, Capo CR, **Lettieri-Barbato D**, Aquilano K, Malaspina P, Rossi L. (2020) SSADH Variants Increase Susceptibility of U87 Cells to Mitochondrial Pro-Oxidant Insult. *Int. J. Mol. Sci*. **21**: E4374. doi: 10.3390/ijms21124374
- [15] Turchi R, Tortolici F, Guidobaldi G, Iacovelli F, Falconi M, Rufini S, Faraonio R, Casagrande V, De Angelis L, Federici M, Carotti S, Francesconi M, Zingariello M, Morini S, Bernardini R, Mattei M, La Rosa PG, Piemonte F, **Lettieri-Barbato D**, Aquilano K (2020) Frataxin deficiency induces lipid accumulation and affects thermogenesis in brown adipose tissue. *Cell Death Dis*. **11**: 51. doi: 10.1038/s41419-020-2253-2.
- [16] Aquilano K, Ceci V, Gismondi A, De Stefano S, Iacovelli F, Faraonio R, Di Marco G, Poerio N, Minutolo A, Minopoli G, Marcone A, Fraziano M, Tortolici F, Sennato S, Casciardi S, Potestà M, Bernardini R, Mattei M, Falconi M, Montesano C, Rufini S, Canini A, **Lettieri-Barbato D**. (2019) Adipocyte metabolism is improved by TNF receptor-targeting small RNAs identified from dried nuts. *Commun. Biol*. **2**:317. doi: 10.1038/s42003-019-0563-7.
- [17] La Rosa P, Russo M, D'Amico J., Petrillo S, Aquilano K, **Lettieri-Barbato D**, Turchi R, Bertini ES, Piemonte F. (2019) Nrf2 induction re-establishes a proper neuronal differentiation program in Friedreich's Ataxia Neural Stem Cells. *Front. Cell Neurosci*. **13**:356. doi: 10.3389/fncel.2019.00356.
- [18] **Lettieri-Barbato D**, Ioannilli L, Aquilano K, Ciccarone F, Rosina M, Ciriolo MR (2019). FoxO1 localizes to mitochondria of adipose tissue and is affected by nutrient stress. *Metabolism*. **95**: 84-92. doi: 10.1016/j.metabol.2019.04.006.
- [19] Sciarretta F, Fulci C, Palumbo C, Aquilano K, Pastore A, Iorio E, **Lettieri-Barbato D**, Cicconi R, Minutolo A, Parravano M, Gilardi M, Varano M, Caccuri AM (2019) Glutathione transferase P silencing promotes neuronal differentiation of retinal R28 cells. *J. Cell Physiol*. doi: 10.1002/jcp.28246

- [20] **Lettieri-Barbato D**, Aquilano K (2018) Pushing the limits of cancer therapy: the nutrient game. *Front. Oncol.* **8**: 148. doi: [10.3389/fonc.2018.00148](https://doi.org/10.3389/fonc.2018.00148)
- [21] **Lettieri-Barbato D**, Cannata SM, Casagrande V, Ciriolo MR, Aquilano K. (2018) Time-controlled fasting prevents aging-like mitochondrial changes induced by persistent dietary fat overload in skeletal muscle *PloS One.* **13**: e0195912. doi:[10.1371/journal.pone.0195912](https://doi.org/10.1371/journal.pone.0195912). WOS: 000362432400001.
- [22] Tatulli G, Mitro N, Cannata SM, Audano M, Caruso D, D'Arcangelo G, **Lettieri Barbato D**, Aquilano K (2018). Intermittent fasting applied in combination with rotenone treatment exacerbates dopamine neurons degeneration in mice. *Front. Cell Neurosci.* **12**: 4. doi: [10.3389/fncel.2018.00004](https://doi.org/10.3389/fncel.2018.00004)
- [23] **Lettieri-Barbato D**, D'Angelo F, Sciarretta F, Tatulli G, Tortolici F, Ciriolo MR, Aquilano K (2017) Maternal high calorie diet induces mitochondrial dysfunction and senescence phenotype in subcutaneous fat of newborn mice. *Oncotarget.* **8**: 83407-83418. doi: [10.18632/oncotarget.19948](https://doi.org/10.18632/oncotarget.19948). WOS:000413030900004
- [24] **Lettieri Barbato D**, Giovannetti E, Aquilano K. (2016) Effects of dietary restriction on adipose mass and biomarkers of healthy aging in human. *Aging (Albany NY).* **8**:3341-3355. doi: [10.18632/aging.101122](https://doi.org/10.18632/aging.101122).
- [25] **Lettieri Barbato D**, Aquilano K. (2016) Feast and famine: adipose tissue adaptations for healthy aging. *Aging Res. Rev.* **28**:85-93. doi: [10.1016/j.arr.2016.05.007](https://doi.org/10.1016/j.arr.2016.05.007); WOS: 000379098500008; Scopus: 2-s2.0-84969941112
- [26] Aquilano K, Baldelli S, La Barbera L, **Lettieri Barbato D**, Tatulli G, Ciriolo MR. (2016) Adipose triglyceride lipase decrement affects skeletal muscle homeostasis during aging through FAs-PPAR α -PGC-1 α antioxidant response. *Oncotarget.* **7**: 23019-23032. doi: [10.18632/oncotarget.8552](https://doi.org/10.18632/oncotarget.8552); WOS: 000377706200005; scopus; 2-s2.0-84966650439
- [27] Klionsky DJ, **Lettieri Barbato D**, Aquilano K, et al. (2016) Guidelines for the use and interpretation of assays for monitoring autophagy (3rd edition). *Autophagy* **12**:1-222. doi: [10.1080/15548627.2015.1100356](https://doi.org/10.1080/15548627.2015.1100356); WOS: 000373595400001
- [28] Lettieri Barbato D, Tatulli G, **Aquilano K***, Ciriolo MR (2015) Mitochondrial Hormesis Links Nutrient Restriction To Improved Metabolism In Fat Cells. *Aging-US.* **7**: 869. doi: [10.18632/aging.101003](https://doi.org/10.18632/aging.101003); WOS: 000366100800018
- [29] **Lettieri Barbato D**, Tatulli G, Vegliante R, Cannata SM, Bernardini S, Ciriolo MR, Aquilano K. (2015) Dietary Fat Overload Reprograms Brown Fat Mitochondria. *Front. Physiol.* **5**: 272. doi: [10.3389/fphys.2015.00272](https://doi.org/10.3389/fphys.2015.00272); WOS: 000362432400001
- [30] Aquilano K, **Lettieri Barbato D**, Ciriolo MR (2015) The multifaceted role of nitric oxide synthases in mitochondrial biogenesis and cell differentiation. *Commun. Integr. Biol.* **8**: e1017158. doi: [10.1080/19420889.2015.1017158](https://doi.org/10.1080/19420889.2015.1017158);
- [31] **Lettieri Barbato D**, Tatulli G, Cannata SM, Bernardini S, Aquilano K, Ciriolo MR. (2015) Glutathione decrement drives thermogenic program in adipose cells. *Sci. Rep.* **5**: 13091. doi: [10.1038/srep13091](https://doi.org/10.1038/srep13091); WOS: 000359287700001
- [32] **Lettieri Barbato D**, Aquilano K, Ciriolo MR. (2014) FoxO1 at the nexus between fat catabolism and longevity pathways. *Biochim. Biophys. Acta.* **841**:1555-1560. doi: [10.1016/j.bbali.2014.08.004](https://doi.org/10.1016/j.bbali.2014.08.004); WOS: 000342864900023
- [33] **Lettieri Barbato D**, Tatulli G, Aquilano K, Ciriolo MR. (2014) Inhibition of age-related cytokines production by ATGL: a mechanism linked to the anti-inflammatory effect of resveratrol. *Mediators Inflamm.* **2014**:917698. doi: [10.1155/2014/917698](https://doi.org/10.1155/2014/917698); WOS: 000334761700001
- [34] **Lettieri Barbato D**, Aquilano K, Cannata SM, Bernardini S, Rotilio G, Ciriolo MR (2014) Proline oxidase-adipose triglyceride lipase pathway restrains adipose cell death and tissue inflammation. *Cell Death Diff.* **21**:113. doi: [10.1038/cdd.2013.137](https://doi.org/10.1038/cdd.2013.137); WOS: 000328622100013
- [35] **Lettieri Barbato D**, Tatulli G, Aquilano K, Ciriolo MR (2013) FoxO1 controls lysosomal acid lipase in adipocytes: implication of lipophagy during nutrient restriction and metformin treatment. *Cell Death Dis.* **4**:e861. doi: [10.1038/cddis.2013.404](https://doi.org/10.1038/cddis.2013.404); WOS: 000326967100047
- [36] **Lettieri Barbato D**, Baldelli S, Pagliei B, Aquilano K, Ciriolo MR. (2012) Caloric restriction and nutrient-sensing PGC-1 in mitochondrial homeostasis: new perspective in neurodegeneration. *Int. J. Cell Biol.* **2012**:759583. doi: [10.1155/2012/759583](https://doi.org/10.1155/2012/759583); *

According to law 679/2016 of the Regulation of the European Parliament of 27th April 2016, I hereby express my consent to process and use my data provided in this CV.

Rome, April 14, 2022

(Daniele Lettieri Barbato)