

CURRICULUM VITAE

Name: Paolo Ettore **Surname:** Porporato

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EDUCATION AND TRAINING

- **2004-2009/06/29:** PhD in Molecular Medicine at the Dept. of Medical Sciences of University of Piemonte Orientale, Novara, Italy.
- **2004:** Master Degree in Medical Biotechnologies ("laurea specialistica", 5 years program equivalent to master degree) at the University of Torino, Italy, 110/110 cum laude.
- **2001-2004/07/23:** Thesis in the laboratory of "Medicina e Oncologia Molecolare" (Azienda Ospedaliera San Luigi Gonzaga di Orbassano) Dept. Of Medical Sciences and Biology, University of Torino, under the supervision of the Prof. Clara Camaschella
- **1999:** high school diploma (classical/humanities lyceum)

SCIENTIFIC ACTIVITY

- **2020 - :** Associate Professor in Experimental Biology at the Molecular Biotechnology Center, Research group "Cancer Metabolism and Cachexia", University of Torino (UniTO) Torino, Italy.
- **2016-2019:** as Assistant Professor in Experimental Biology at the Molecular Biotechnology Center, Research group "Cancer and Cachexia", University of Torino (UniTO) Torino, Italy.
- **2013- 2016:** *Chargé de Recherche* at the Unit of Pharmacology & Therapeutics, Research group 'Cancer and Metabolism, University of Louvain (UCL) Medical School, Brussels, Belgium.
- **2010- 2013:** as *post-doctoral fellow* at the Unit of Pharmacology & Therapeutics, Research group 'Cancer and Metabolism, University of Louvain (UCL) Medical School, Brussels, Belgium.
 - (i) Identification of lactate signaling as a main mediator of angiogenesis, wound healing and tumor growth
 - (ii) Characterization of metabolic mediators of EMT and metastasis
- **2004-2009:** as *doctoral student* at the Dept. of Medical Sciences of University of Piemonte Orientale, Novara, Italy
 - (i) Role of Diacylglycerol Kinase alpha activities in the transduction of oncogenic and differentiative signaling. Signal transduction mechanisms in the regulation of tumoral and metastatic phenotype, of inflammation, differentiation and cell migration.
 - (ii) Role of the novel hormones, ghrelin and des-acyl ghrelin, in the mechanisms of skeletal muscle differentiation, repair and atrophy protection.
- **2000-2004:** as thesis student in the laboratory of "Medicina e Oncologia Molecolare" (Azienda Ospedaliera San Luigi Gonzaga di Orbassano) Dept. Of Medical Sciences and Biology, University of Torino (Prof. Clara Camaschella)
Study of the molecular determinants of iron overload-related pathologies such hemochromatosis.

COMMISSIONS OF TRUST AND PAST APPOINTMENTS

- **2022-2023:** Deputy Director of the Department of Molecular Biotechnology and Health Science, delegate for research
- **2022-2023:** President of the International Society for Cancer Metabolism (ISCAM). www.iscam.net
- **2018-2023:** Deputy Director of the PhD School "Biomedical Science and Oncology" University of Turin
- **2016-2020: Treasurer and Board Member** (2016) of the International Society for Cancer Metabolism (ISCAM). www.iscam.net
- **2015:** visiting Professor at the Faculty of Medicine of the University of Piemonte Orientale "A. Avogadro" of Novara, Italy.

- **2008-2009:** teaching contract in Structural Biochemistry (24 hours) at the faculty of -Medicine of the University of Piemonte Orientale "A.Avogadro" of Novara, Italy.
- **2006-2008:** tutor during the practical exercitation of Biochemical Methods at the Faculty of Biotechnology of the University of Piemonte Orientale "A.Avogadro" of Novara, Italy.
- **2006-2008:** Scientific lecturer activity for high school students at the Biotechnologies Foundation of Torino (Fobiotech)

Selected reviewer for different international scientific journals (i.e. PNAS, Oncogene, Science Signalling, Oncotarget, Trends in Cancer, Journal of Traslational Medicine, Frontiers in Oncology, IJMS, Cancer Res). Grant reviewer for ERC, CRUK (UK), ANR (France), KFG (Austria), FNR (Luxemburg).

Board member As Associate Editor at Frontiers in Oncology; Molecular and Cellular Oncology. Guest editor IJMS,.

Scientific organizer of the ISCAM congress (Bruxelles 2016, Bertinoro 2017, Bratislava 2018, Torino 2022) and MMF-Metabolism Meets Function congresses (Bari 2018, Bari 2023)

PATENTS

20-Oct-2022 **PCT/IB2022/050175**

MODULATORS OF THE BMP/SMAD AXIS AND USES THEREOF

19-May-2016 **WO2016075161A1**

ANTIMETASTATIC COMPOSITION COMPRISING AT LEAST ONE FLAVANOL-TYPE COMPOUND
WO2016075161A1

SUPERVISING RESPONSIBILITIES

Thesis supervisor:

- **2020-:** **Erica Mina**, PhD Student in Biomedical Sciences and Oncology, University of Torino, Italy
- **2018- :** Myriam Hsu, PhD Student in Biomedical Sciences and Oncology, University of Torino, Italy
- **2017- :** Elisabeth Wyart, PhD Student in Biomedical Sciences and Oncology, University of Torino, Italy
- **2013-2017:** Payen Valery, PhD Student in Pharmaceutical and Biomedical Sciences, University of Louvain (UCL) Medical School, Unit of Pharmacology & Therapeutics, Brussels, Belgium. *Co-supervision with Prof. Pierre Sonveaux.*

Undergraduated students:

- 2021.: Francesca Siviero, Biotechnology Student at the University of Torino
- 2020: Erica Mina, Master Degree in Biotechnologies for in vitro diagnostic at the University of Torino
- 2019.: Silvia Tomaino, biotechnology Student at the University of Torino
- 2018- : David Revuelta, biotechnology Student, Erasmus Student (Spain) at the university of Torino
- **2017- :** Erica Mina, biotechnology Student at the university of Torino
- **2011-2012:** Payen Valery, Pharmacy student at the University of Louvain Medical School, Unit of Pharmacology & Therapeutics, Brussels, Belgium. *Mentoring as Post-Doc of the group of Prof. Pierre sonveaux.*
- **2006-2009:** Reano Simone, Pharmaceutical Biotechnology Student at the University of Piemonte Orientale, Novara, Italy. *Mentoring as PhD student of the group of Prof. Andrea Graziani.*
- **2006-2009:** Locatelli Irene, Medical Biotechnology Student at the University of Piemonte Orientale, Novara, Italy. *Mentoring as PhD student of the group of Prof. Andrea Graziani.*
- **2005-2008:** Ranaldo Gabriella, Medical Biotechnology Student at the University of Piemonte Orientale, Novara, Italy. *Mentoring as PhD student of the group of Prof. Andrea Graziani.*

GRANTS AND AWARD

- **Eliezer Rachmilewitz Prize Recipient, (2019)**
- **Bando MFAG-AIRC My First AIRC Grant (2019),**
- **Bando Cariplo Starting Grant (2016)**
- **Fondo Rita Levi-Montalcini (2016)**
- **Prix d'Alvarenga, de Piauhy (2015)**

- **Fond Joseph Maisin (2014)**
- **FNRS-FRS Fond National Recherche Scientifique (2014)**
- **FEBS-EMBO travel (2013)**
- **Seahorse travel award (2013)**
- **Best scientific poster at the Biowin day (2012).**
- **Aegean Conference Trainee Award (2012).**

SELECTED PUBLICATIONS

Total #: 71; Google Scholar: H-Index: 34; Citations: 5200;

Mina E, Wyart E, Sartori R, Angelino E, Zaggia I, Rausch V, Maldotti M, Pagani A, Hsu MY, Friziero A, Sperti C, Menga A, Graziani A, Hirsch E, Oliviero S, Sandri M, Conti L, Kautz L, Silvestri L, **Porporato PE**. FK506 bypasses the effect of erythroferrone in cancer cachexia skeletal muscle atrophy. **Cell Rep Med**. 2023 Dec 19;4(12):101306.

Beltrà M, Pöllänen N, Fornelli C, Tonttila K, Hsu MY, Zampieri S, Moletta L, Corrà S, **Porporato PE**, Kivelä R, Viscomi C, Sandri M, Hulmi JJ, Sartori R, Pirinen E, Penna F. NAD⁺ repletion with niacin counteracts cancer cachexia. *Nat Commun*. 2023 Apr 3;14(1):1849.

De Santis MC, Gozzelino L, Margaria JP, Costamagna A, Ratto E, Gulluni F, Di Gregorio E, Mina E, Lorito N, Bacci M, Lattanzio R, Sala G, Cappello P, Novelli F, Giovannetti E, Vicentini C, Andreani S, Delfino P, Corbo V, Scarpa A, **Porporato PE**, Morandi A, Hirsch E, Martini M. Lysosomal lipid switch sensitises to nutrient deprivation and mTOR targeting in pancreatic cancer. **Gut** . 2023 Feb;72(2):360-371.

Wyart E, Hsu MY, Sartori R, Mina E, Rausch V, Pierobon ES, Mezzanotte M, Pezzini C, Bindels LB, Lauria A, Penna F, Hirsch E, Martini M, Mazzone M, Roetto A, Geninatti C, Prenen H, Sandri M, Menga A, **Porporato PE**. Iron supplementation is sufficient to rescue skeletal muscle mass and function in cancer cachexia. **EMBO Rep** . 2022 Apr 5;23(4):e53746.

Fiorito V, Allocco AL, Petrillo S, Gazzano E, Torretta S, Marchi S, Destefanis F, Pacelli C, Audrito V, Provero P, Medico E, Chiabrando D, **Porporato PE**, Cancelliere C, Bardelli A, Trusolino L, Capitano N, Deaglio S, Altruda F, Pinton P, Cardaci S, Riganti C, Tolosano E. The heme synthesis-export system regulates the tricarboxylic acid cycle flux and oxidative phosphorylation. **Cell Rep**. 2021 Jun 15;35(11):109252.

Rausch V, Sala V, Penna F, **Porporato PE***, Ghigo A. Understanding the common mechanisms of heart and skeletal muscle wasting in cancer cachexia. **Oncogenesis**. 2021 Jan 8;10(1):1.
*co-last

hibaut MM, Sboarina M, Roumain M, Pötgens SA, Neyrinck AM, Destrée F, Gillard J, Leclercq IA, Dachy G, Demoulin JB, Tailleux A, Lestavel S, Rastelli M, Everard A, Cani PD, **Porporato PE**, Loumaye A, Thissen JP, Muccioli GG, Delzenne NM, Bindels LB. Inflammation-induced cholestasis in cancer cachexia. **T J Cachexia Sarcopenia Muscle**. 2021 Feb;12(1):70-90

Hsu MY, Mina E, Roetto A, **Porporato PE**. Iron: An Essential Element of Cancer Metabolism. **Cells**. 2020 Dec 3;9(12):2591.

Anemone A, Consolino L, Conti L, Irrera P, Hsu MY, Villano D, Dastrù W, Porporato PE, Cavallo F, Longo DL. Tumour acidosis evaluated in vivo by MRI-CEST pH imaging reveals breast cancer metastatic potential. **Br J Cancer**. 2021 Jan;124(1):207-216.

Wyart E, Bindels LB, Mina E, Menga A, Stanga S, Porporato PE. Cachexia, a Systemic Disease beyond Muscle Atrophy. **Int J Mol Sci**. 2020 Nov 14;21(22):8592.

Menga A, Serra M, Todisco S, Riera-Domingo C, Ammarah U, Ehling M, Palmieri EM, Di Noia MA, Gissi R, Favia M, Pierri CL, Porporato PE, Castegna A, Mazzone Glufosinate constrains synchronous and metachronous metastasis by promoting anti-tumor macrophages. **M. EMBO Mol Med**. 2020 Oct 7;12(10):e11210.

Castegna A, McVicar DW, Campanella A, Palmieri EM, Menga A, Porporato PE. Editorial: Metabolism Meets Function: Untangling the Cross-Talk Between Signaling and Metabolism. **Front Oncol**. 2020 Oct 20;10:607511.

Payen VL, Mina E, Van Hée VF, Porporato PE, Sonveaux P. Monocarboxylate transporters in cancer. **Mol Metab**. 2019 Jul 27

Porporato PE, Filigheddu N, Pedro JMB, Kroemer G, Galluzzi L. Mitochondrial metabolism and cancer. **Cell Res**. 2018 Mar;28(3):265-280

Wyart E, Reano S, Longo D, Ghigo A, Riganti C, Porporato PE. Metabolic characterization of a new model of PDAC-induced cancer cachexia, **Oxid Med Cell Longev**. 2018 Feb 26;2018:6419805.

Danhier P, Bański P, Payen VL, Grasso D, Ippolito L, Sonveaux P, Porporato PE. Cancer metabolism in space and time: Beyond the Warburg effect. **BBA** 2017

Porporato PE. Understanding cachexia as a cancer metabolism syndrome. **Oncogenesis**. 2016

Brisson L, Bański P, Sboarina M, Dethier C, Danhier P, Fontenille MJ, Van Hée VF, Vazeille T, Tardy M, Falces J, Bouzin C, Porporato PE, Frédérick R, Michiels C, Copetti T, Sonveaux P. Lactate Dehydrogenase B Controls Lysosome Activity and Autophagy in Cancer. **Cancer Cell** 2016

Porporato PE, Payen VL, Pérez-Escuredo J, De Saedeleer CJ, Danhier P, Copetti T, Dhup S, Tardy M, Vazeille T, Bouzin C, Feron O, Michiels C, Gallez B, Sonveaux P. A mitochondrial switch promotes tumor metastasis. **Cell Reports**. 2014 Aug 7;8(3):754-66.

De Saedeleer CJ, Porporato PE, Copetti T, Pérez-Escuredo J, Payen VL, Brisson L, Feron O, Sonveaux P. Glucose deprivation increases monocarboxylate transporter 1 (MCT1) expression and MCT1-dependent tumor cell migration. **Oncogene**. 2014 Jul 31;33(31):4060-8.

Porporato PE, Filigheddu N, Reano S, Ferrara M, Angelino E, Gnocchi V, Prodam F, Ronchi G, Fagoone S, Fornaro M, Chianale F, Chianale F, Baldanzi G, Sinigaglia F, Surico N, Perroteau I, Smith R, Sun Y, Geuna S, Graziani A. Acylated and UnAcylated Ghrelin impair skeletal muscle atrophy in Mice. **J Clin Invest**. 2013 Jan 2;123(2):611-22.

Porporato PE, Payen VL, De Saedeleer CJ, Prétat V, Thissen JP, Feron O, Sonveaux P. Lactate stimulates angiogenesis and accelerates the healing of superficial and ischemic wounds in mice. **Angiogenesis**. 2012 Jun 3;15(4):581-92.

Bindels LB, Porporato P, Dewulf EM, Verrax J, Neyrinck AM, Martin JC, Scott KP, Buc Calderon P, Feron O, Muccioli GG, Sonveaux P, Cani PD, Delzenne NM. Gut microbiota-derived propionate reduces cancer cell proliferation in the liver. **Br J Cancer**. 2012 Oct 9;107(8):1337-44.

Porporato PE, Dhup S, Dadhich RK, Copetti T, Sonveaux P. Anticancer targets in the glycolytic metabolism of tumors: a comprehensive review. **Front Pharmacol**. 2011;2:49.

Moon EJ, Sonveaux P, Porporato PE, Danhier P, Gallez B, Batinic-Haberle I, Nien YC, Schroeder T, Dewhirst MW. NADPH oxidase-mediated reactive oxygen species production activates hypoxia-inducible factor-1 (HIF-1) via the ERK pathway after hyperthermia treatment. **Proc Natl Acad Sci U S A**. 2010 Nov 23;107(47):20477-82.