

Curriculum vitae Letizia Lanzetti

Personal details

Born in Torino

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Educations

1995 Degree in Biological Sciences, summa cum laude, University of Torino, Turin, Italy.

1995 Board certification in Biology

Professional experiences and current position

1995-1997 Research fellow, Department of Medical Genetics, University of Torino, Italy

1997-2003 Fellow, Department of Experimental Oncology, European Institute of Oncology, Milan, Italy

1999 Visiting scientist, European Molecular Biology Laboratory, Heidelberg, Germany.

2003-2008 Senior Research Fellow, Department of Oncology, Candiolo Cancer Institute, Turin, Italy.

2008-present Head, Membrane Trafficking Laboratory, Candiolo Cancer Institute, Turin, Italy

2012-2014 Faculty, PhD School in “complex systems for life sciences”, University of Torino.

2011-2022 Assistant Professor, Medical School, University of Torino.

2021-present Provost to Privacy, Department of Oncology, Medical School, University of Torino.

2022-present Associate Professor, Faculty of Medicine, University of Torino.

Participation to Directive Boards of Scientific Societies and/or Institutions:

2016 PhD Evaluation Board, University La Sapienza, Rome, Italy.

2017 Organizational Committee Italian Association of Cell biology and Differentiation

2017-present Member of the Board of the Italian Association of Cell biology and Differentiation

2018 PhD Evaluation Board, University of Oslo, Norway

2019 Evaluation Board for applications on the program of “Converging Environments”,
University of Oslo, Norway.

2021 Chair, Virtual meeting “Distinguished Lecture Series” of the Italian Association of Cell biology
and Differentiation

2023 Chair, Biennial Congress of the Italian Association of Cell biology and Differentiation.

Honors

2009 Winner of the START UP Program of the Associazione Italiana per la Ricerca sul Cancro.

Ad hoc reviewer for: Nature Cell Biology, Cancer Research, EMBO Journal, Breast Cancer, FASEB,
Scientific reports, BBA-Molecular Cell Research, Molecular Cancer

Guest Editor of a Research Topic for “Frontiers”: GTPases regulate mitotic cell logistic.

Teaching activity:

2012-2018 CL Infermieristica, modulo di Biochimica nel corso di Struttura e Morfologia del Corpo
Umano (Canali A e B) CFU 2

2018-present CL Infermieristica, modulo di Biochimica nel corso di Struttura e Morfologia del Corpo
Umano (Canale A) CFU 1

CL Tecniche Audiometriche ed Audioprotesiche, modulo di Biochimica nel corso di Scienze
Biomediche CFU 2

Scuola di Specialità in Oncologia, Facoltà di Medicina, modulo di Biochimica.

CFU1

Artificial intelligence for biomedicine and healthcare, Cell signaling and metabolism CFU3

Research main topics

- Mechanisms of integration of endomembrane dynamics and signal transduction pathways.
- Crosstalk between membrane trafficking and cell metabolism.
- Translating the knowledge in basic molecular oncology into clinical tools for the amelioration of cancer patient management.

Main projects as PI:

- 2004-2007 European Network FP6-2002-LIFESCIHEALTH, "Signalling and Membrane Trafficking in Transformation and Differentiation".
- 2004-2006 AICR, Association of International Cancer Research (now Worldwide Cancer Research), "Role of the Rab5-GAP, RN-tre, in signaling and mitosis".
- 2006-2007 AICR, Association of International Cancer Research (now Worldwide Cancer Research), "Role of the GTPase Rab5 in the maintenance of centrosome cohesion and in spindle assembly".
- 2008-2010 AICR, Association of International Cancer Research (now Worldwide Cancer Research), "Identification of a novel Rab5-based signaling pathway in centrosome cohesion".
- 2009-2013 AIRC (Italian Association for Cancer Research), "Endocytic proteins in cell polarity and division".
- 2009-2013 Italian Ministry of Health, Targeted Research, "Investigations on molecular pathways involved in mammary gland morphogenesis and role of their functional subversion in human breast carcinogenesis".
- 2015-2017 AIRC (Italian Association for Cancer Research), Investigator grant "Role of endocytic proteins in breast cancer cell signaling and in mitosis".
- 2018-2021 FPRC 5x1000 Italian Ministry of Health, Project STRATEGY, "Fighting challenging cancers".
- 2018-2019 University of Torino, Department of Oncology. "Harnessing endocytic pathways for triple-negative breast cancer treatment".
- 2015-2017 AIRC (Italian Association for Cancer Research), Investigator grant "Exploiting alterations of membrane trafficking proteins to tackle metabolic reprogramming in cancer".
- 2020-2022 Italian Ministry of Health, Project SEE-HER, "Multidisciplinary research platform on breast cancer".
- 2021-2023 Italian Ministry of Research, PRIN "A transcriptomic interrogation of the metabolic status of breast cancers for patient stratification and identification of novel therapeutic targets".

Bibliometry (1994-present) (www.scopus.com)

Total peer reviewed paper 35

H-index Scopus 26

Citations 3215

publications

Endocytosis in the context-dependent regulation of individual and collective cell properties.

Sigismund S, **Lanzetti L**, Scita G, Di Fiore PP.

Nat Rev Mol Cell Biol. 2021 Jun 1. doi: 10.1038/s41580-021-00375-5

AMBRA1 regulates cyclin D to guard S-phase entry and genomic integrity.

Maiani E, Milletti G, Nazio F, Holdgaard SG, Bartkova J, Rizza S, Cianfanelli V, Lorente M, Simoneschi D, Di Marco M, D'Acunzo P, Di Leo L, Rasmussen R, Montagna C, Raciti M, De Stefanis C, Gabicagogeascoa E, Rona G, Salvador N, Pupo E, Merchut-Maya JM, Daniel CJ, Carinci M, Cesarini V, O'sullivan A, Jeong YT, Bordi M, Russo F, Campello S, Gallo A, Filomeni G, **Lanzetti L**, Sears RC, Hamerlik P, Bartolazzi A, Hynds RE, Pearce DR, Swanton C, Pagano M, Velasco G, Papaleo E, De Zio D, Maya-Mendoza A, Locatelli F, Bartek J, Cecconi F.

Nature. 2021 Apr 14. doi: 10.1038/s41586-021-03422-5.

Selective autophagy maintains centrosome integrity and accurate mitosis by turnover of centriolar satellites.

Holdgaard SG, Cianfanelli V, Pupo E, Lambughini M, Lubas M, Nielsen JC, Eibes S, Maiani E, Harder LM, Wesch N, Foged MM, Maeda K, Nazio F, de la Ballina LR, Dötsch V, Brech A, Frankel LB, Jäättelä M, Locatelli F, Barisic M, Andersen JS, Bekker-Jensen S, Lund AH, Rogov VV, Papaleo E, **Lanzetti L**, De Zio D, Cecconi F.

Nat Commun. 2019 Sep 13;10(1):4176. doi: 10.1038/s41467-019-12094-9.

KRAS-Driven Metabolic Rewiring Reveals Novel Actionable Targets in Cancer.

Pupo E, Avanzato D, Middonti E, Bussolino F, **Lanzetti L**.

Front Oncol. 2019 Aug 30;9:848. doi: 10.3389/fonc.2019.00848.

Kinesin-2 Controls the Motility of RAB5 Endosomes and Their Association with the Spindle in Mitosis.

Pupo E, Avanzato D, Scianna M, Oldani A, Serini G, **Lanzetti L.**

Int J Mol Sci. 2018 Aug 30;19(9). pii: E2575. doi: 10.3390/ijms19092575.

High USP6NL Levels in Breast Cancer Sustain Chronic AKT Phosphorylation and GLUT1 Stability Fueling Aerobic Glycolysis.

Avanzato D, Pupo E, Ducano N, Isella C, Bertalot G, Luise C, Pece S, Bruna A, Rueda OM, Caldas C, Di Fiore PP, Sapino A, **Lanzetti L.**

Cancer Res. 2018 Jul 1;78(13):3432-3444. doi: 10.1158/0008-5472.CAN-17-3018.

Sema4C/PlexinB2 signaling controls breast cancer cell growth, hormonal dependence and tumorigenic potential.

Gurrapu S, Pupo E, Franzolin G, **Lanzetti L,** Tamagnone L.

Cell Death Differ. 2018 Mar 19. doi: 10.1038/s41418-018-0097-4.

Emerging functions of the EGFR in cancer.

Sigismund S, Avanzato D, **Lanzetti L.**

Mol Oncol. 2018 Jan;12(1):3-20. doi: 10.1002/1878-0261.12155.

Behind the Scenes: Endo/Exocytosis in the Acquisition of Metastatic Traits.

Lanzetti L, Di Fiore PP.

Cancer Res. 2017 Apr 15;77(8):1813-1817. doi: 10.1158/0008-5472.CAN-16-3403.

Deep Sequencing Reveals a Novel miR-22 Regulatory Network with Therapeutic Potential in Rhabdomyosarcoma.

Bersani F, Lingua MF, Morena D, Foglizzo V, Miretti S, **Lanzetti L,** Carrà G, Morotti A, Ala U, Provero P, Chiarle R, Singer S, Ladanyi M, Tuschl T, Ponzetto C, Taulli R.

Cancer Res. 2016 Oct 15;76(20):6095-6106.

Rebound Effects Caused by Withdrawal of MET Kinase Inhibitor Are Quenched by a MET Therapeutic Antibody.

Pupo E, Ducano N, Lupo B, Vigna E, Avanzato D, Perera T, Trusolino L, **Lanzetti L,** Comoglio PM.

Cancer Res. 2016 Sep 1;76(17):5019-29. doi: 10.1158/0008-5472.CAN-15-3107.

Tankyrase inhibition impairs directional migration and invasion of lung cancer cells by affecting microtubule dynamics and polarity signals.

Lupo B, Vialard J, Sassi F, Angibaud P, Puliafito A, Pupo E, **Lanzetti L,** Comoglio PM, Bertotti A, Trusolino L.

BMC Biol. 2016 Jan 19;14:5. doi: 10.1186/s12915-016-0226-9.

Regulation of the microtubular cytoskeleton by Polycystin-1 favors focal adhesions turnover to modulate cell adhesion and migration.

Castelli M, De Pascalis C, Distefano G, Ducano N, Oldani A, **Lanzetti L,** Boletta A.

BMC Cell Biol. 2015 May 7;16:15. doi: 10.1186/s12860-015-0059-3.

TNF- α promotes invasive growth through the MET signaling pathway.

Bigatto V, De Bacco F, Casanova E, Reato G, **Lanzetti L,** Isella C, Sarotto I, Comoglio PM, Boccaccio C.

Mol Oncol. 2015 Feb;9(2):377-88. doi: 10.1016/j.molonc.2014.09.002.

The CDC42-interacting protein 4 controls epithelial cell cohesion and tumor dissemination.

Rolland Y, Marighetti P, Malinverno C, Confalonieri S, Luise C, Ducano N, Palamidessi A, Bisi S, Kajihito H, Troglio F, Shcherbakova OG, Dunn AR, Oldani A, **Lanzetti L,** Di Fiore PP, Disanza A, Scita G.

Dev Cell. 2014 Sep 8;30(5):553-68. doi: 10.1016/j.devcel.2014.08.006.

The GTPase-activating protein RN-tre controls focal adhesion turnover and cell migration.

Palamidessi A, Frittoli E, Ducano N, Offenhauser N, Sigismund S, Kajihō H, Parazzoli D, Oldani A, Gobbi M, Serini G, Di Fiore PP, Scita G, **Lanzetti L**.

Curr Biol. 2013 Dec 2;23(23):2355-64. doi: 10.1016/j.cub.2013.09.060.

Neuropilin-1-dependent regulation of EGF-receptor signaling.

Rizzolio S, Rabinowicz N, Rainero E, **Lanzetti L**, Serini G, Norman J, Neufeld G, Tamagnone L.

Cancer Res. 2012 Nov 15;72(22):5801-11. doi: 10.1158/0008-5472.CAN-12-0995.

The R-Ras/RIN2/Rab5 complex controls endothelial cell adhesion and morphogenesis via active integrin endocytosis and Rac signaling.

Sandri C, Caccavari F, Valdembrì D, Camillo C, Veltel S, Santambrogio M, **Lanzetti L**, Bussolino F, Ivaska J, Serini G.

Cell Res. 2012 Oct;22(10):1479-501. doi: 10.1038/cr.2012.110.

A novel function of Rab5 in mitosis.

Lanzetti L.

Small GTPases. 2012 Jul-Sep;3(3):168-72. doi: 10.4161/sgtp.19987.

Small GTPase Rab5 participates in chromosome congression and regulates localization of the centromere-associated protein CENP-F to kinetochores.

Serio G, Margaria V, Jensen S, Oldani A, Bartek J, Bussolino F, **Lanzetti L**.

Proc Natl Acad Sci U S A. 2011 Oct 18;108(42):17337-42. doi: 10.1073/pnas.1103516108.

Role of Varp, a Rab21 exchange factor and TI-VAMP/VAMP7 partner, in neurite growth.

Burgo A, Sotirakis E, Simmler MC, Verraes A, Chamot C, Simpson JC, **Lanzetti L**, Proux-Gillardeaux V, Galli T.

EMBO Rep. 2009 Oct;10(10):1117-24. doi: 10.1038/embor.2009.186.

Endocytosis and cancer: an 'insider' network with dangerous liaisons.

Lanzetti L, Di Fiore PP.

Traffic. 2008 Dec;9(12):2011-21. doi: 10.1111/j.1600-0854.2008.00816.x.

Phosphoinositide 3-kinase p110beta activity: key role in metabolism and mammary gland cancer but not development.

Ciraolo E, Iezzi M, Marone R, Marengo S, Curcio C, Costa C, Azzolino O, Gonella C, Rubinetto C, Wu H, Dastrù W, Martin EL, Silengo L, Altruda F, Turco E, **Lanzetti L**, Musiani P, Rückle T, Rommel C, Backer JM, Forni G, Wymann MP, Hirsch E.

Sci Signal. 2008 Sep 9;1(36):ra3. doi: 10.1126/scisignal.1161577.

Endocytic trafficking of Rac is required for the spatial restriction of signaling in cell migration.

Palamidessi A, Frittoli E, Garré M, Faretta M, Mione M, Testa I, Diaspro A, **Lanzetti L**, Scita G, Di Fiore PP.

Cell. 2008 Jul 11;134(1):135-47. doi: 10.1016/j.cell.2008.05.034.

Met-driven invasive growth involves transcriptional regulation of Arhgap12.

Gentile A, D'Alessandro L, Lazzari L, Martinoglio B, Bertotti A, Mira A, **Lanzetti L**, Comoglio PM, Medico E.

Oncogene. 2008 Sep 18;27(42):5590-8. doi: 10.1038/onc.2008.173.

The primate-specific protein TBC1D3 is required for optimal macropinocytosis in a novel ARF6-dependent pathway.

Frittoli E, Palamidessi A, Pizzigoni A, **Lanzetti L**, Garré M, Troglio F, Troilo A, Fukuda M, Di Fiore PP, Scita G, Confalonieri S.

Mol Biol Cell. 2008 Apr;19(4):1304-16. doi: 10.1091/mbc.E07-06-0594.

Actin in membrane trafficking.

Lanzetti L.

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Regulation of the Rab5 GTPase-activating protein RN-tre by the dual specificity phosphatase Cdc14A in human cells.

Lanzetti L, Margaria V, Melander F, Virgili L, Lee MH, Bartek J, Jensen S.
J Biol Chem. 2007 May 18;282(20):15258-70.

Src triggers circular ruffling and macropinocytosis at the apical surface of polarized MDCK cells.

Mettlen M, Platek A, Van Der Smissen P, Carpentier S, Amyere M, **Lanzetti L**, de Diesbach P, Tyteca D, Courtoy PJ.

Traffic. 2006 May;7(5):589-603.

Rab5 is a signalling GTPase involved in actin remodelling by receptor tyrosine kinases.

Lanzetti L, Palamidessi A, Areces L, Scita G, Di Fiore PP.

Nature. 2004 May 20;429(6989):309-14.

Modulation of Rab5 and Rab7 recruitment to phagosomes by phosphatidylinositol 3-kinase.

Vieira OV, Bucci C, Harrison RE, Trimble WS, **Lanzetti L**, Gruenberg J, Schreiber AD, Stahl PD, Grinstein S.

Mol Cell Biol. 2003 Apr;23(7):2501-14.

Pathways linking endocytosis and actin cytoskeleton in mammalian cells.

Lanzetti L, Di Fiore PP, Scita G.

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The Eps8 protein coordinates EGF receptor signalling through Rac and trafficking through Rab5.

Lanzetti L, Rybin V, Malabarba MG, Christoforidis S, Scita G, Zerial M, Di Fiore PP.

Nature. 2000 Nov 16;408(6810):374-7.

A novel SH3-containing human gene family preferentially expressed in the central nervous system.

Giachino C, Lantelme E, **Lanzetti L**, Saccone S, Bella Valle G, Migone N.

Genomics. 1997 May 1;41(3):427-34.

In the budding yeast Kluyveromyces marxianus, adenylate cyclase is regulated by Ras protein(s) in vitro.

Verzotti E, Geymonat M, Valetti F, **Lanzetti L**, Giunta C.

Yeast. 1994 Aug;10(8):993-1001.

Book Chapters

Endocytosis and exocytosis in signal transduction and in cell migration

Serini G., Sigismund S., **Lanzetti L**. INTECH open access publisher.

Book "Membrane Trafficking" ISBN 978-953-307-776-5.

Signaling from internalized receptors

Polo S., **Lanzetti L**. and Giordano S.

Endosomes (ed. Dikic I.) 2006. Springer, Landes Bioscience, pp. 89-100.