

BIOGRAPHICAL SKETCH

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NAME: Vineis, Paolo

eRA COMMONS USER NAME (credential, e.g., agency login)

POSITION TITLE: Chair in Environmental Epidemiology, Imperial College London, UK

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Torino, Italy	M.D.	07/1976	Medicine
University of Torino, Italy	Ph.D.	07/1979	Occupational Health

A. Personal Statement

Professor Paolo Vineis is a leading researcher in the fields of molecular epidemiology and non-communicable diseases (NCD). He is Chair of Environmental Epidemiology at Imperial College, London and Visiting Professor at the Italian Institute of Technology, Genova. He is ranked in the top 20 most cited Imperial College scientists with nearly >120,000 citations. His latest research activities focus on investigating biomarkers from omic platforms (including metabolomics and epigenetics) in large epidemiological studies. He has more than 1,100 publications (many as leading author) in journals such as Nature, Science, Lancet, Lancet Oncology. He is a member of various international scientific and ethics committees (including the Committee of the US National Academy of Sciences on 21st Century Risk Assessment) and vice-chair of the Ethics Committee at the International Agency for Research on Cancer (IARC, WHO). Professor Vineis has extensive experience in leading international projects. He has coordinated the European Commission FP7-funded Exposomics project and the Horizon 2020-funded project Lifepath. He has been the director of the Unit of Molecular and Genetic Epidemiology at the Italian Institute for Genomic Medicine, Torino, Italy and leads the Exposome and Health theme of the MRC-PHE Centre for Environment and Health at Imperial College (<http://www1.imperial.ac.uk/medicine/people/p.vineis>). He has published several books including "Health without borders: epidemics in the era of globalization". Springer, 2017. He is engaged in policy-making as Vice-President of the High Council of Health (Consiglio Superiore di Sanita', advisor to the Health Minister) in Italy, and as a member of Cancer Prevention Europe (affiliated with Cancer Mission Europe). In 2020 he has been an advisor of the Piedmont Region for COVID-19 and has contributed to the development of mathematical models and containment policies (see Saltelli et al, Nature 2020). Most notably, he has contributed to the marriage between large population studies and new biomarker and omic technologies. The main breakthroughs have been (a) the demonstration of a number of molecular alterations (miRNA, metabolomics) associated with exposure to air pollution, able to predict disease outcomes according to the concept of "meet-in-the-middle"; (b) the development of biomarkers of smoking, including the first demonstration of a methylation signature, and mutational fingerprints; (c) the development for application in epidemiological studies of "biological clocks" based on DNA methylation and metabolomics to measure biological ageing; (d) the successful promotion of the interaction between social sciences and life sciences in a large consortium on health inequalities and ageing, that applied on a large scale omic technologies to social inequalities in health. He has also been active in the field of climate change and health, with original research conducted in Bangladesh that demonstrated an increased risk of hypertension in relation to salinity in drinking water due to sea level rise.

B. Positions and Honors

Positions and Employment

1984-1990	Adjunct Professor, Epidemiology, Post-doctoral School of Biometrics and Medical Statistics, University of Milano, Milan, Italy
1998-2005	Associate Professor, Biostatistics, Faculty of Medicine, University of Torino, Turin, Italy
1999-2010	Head, Section of Epidemiology and Life Sciences, Foundation "Institute for Scientific Interchange" (ISI), Turin, Italy
2001-	Adjunct Professor, Epidemiology, Mailman School of Public Health, Columbia University, New York, NY, USA
2004-	Chair, Environmental Epidemiology, Imperial College London, London, UK
2010-	Head, Unit of Molecular and Genetic Epidemiology, Human Genetics Foundation (HuGeF Foundation) – now Italian Institute for Genomic Medicine, Turin, Italy
2017-	Honorary Professor, Molecular Epidemiology, London School of Hygiene and Tropical Medicine, London, UK
2019-	Visiting Professor, Italian Institute of Technology, Genoa, Italy

Professional Membership

1992-1994	President, Italian Association of Epidemiology
1995-1998	Member, Scientific Council, International Agency for Research on Cancer
2000-	Member, Ethical Committee, College of Physicians, Turin, Italy
2003-2019	Member, Italian Association for Cancer Research, Scientific Committee
2004-2009	Member, UK Molecular Epidemiology Group Advisory Board
2005-2012	Member, Committee on carcinogenicity of chemicals of the UK Department of Health (COC)
2007-2010	Member, Consiglio Superiore di Sanità, Department of Health, Italy
2007-2011	Member, Operational Committee Grantham Institute for Climate Change, Imperial College London
2008-	Member, Scientific Advisory Board, Canceropole Paris Ile-de-France
2009-	PI, Exposome and Health section, MRC-PHE Centre for Environment and Health at ICL and King's College
2008-2013	Member, Ethics and Governing Council, UK Biobank, Wellcome Trust
2010-	Vice Chair, Ethical Committee, International Agency for Research on Cancer
2015-2016	Member, US National Academy of Science Committee on 21st Century Risk Assessment
2019-	Vice President, Consiglio Superiore di Sanità, High Council of Health, Department of Health, Italy

Awards

2005	Distinguished lectures in occupational and environmental epidemiology: "The integration of mechanistic data into the evaluation of environmental carcinogens", National Cancer Institute, Bethesda, USA
2010	Enrico Fermi Award for best Italian book on public understanding of science
2018	Knighted by the President of the Italian Republic for scientific merits; Member of the Academy of Science, Turin, Italy

C. Contributions to Science

1. Biomarkers and cancer. I have coordinated several international investigations on the use of biomarkers in epidemiological cohorts. I have given important contributions in the field of gene-environment interactions, (e.g., for bladder cancer).
 - a. P Vineis¹, H Bartsch, N Caporaso, A M Harrington, F F Kadlubar, M T Landi, C Malaveille, P G Shields, P Skipper, G Talaska, et al. Genetically based N-acetyltransferase metabolic polymorphism and low-level environmental exposure to carcinogens. **Nature** 1994 May 12;369(6476):154-6.
 - b. Vineis P, Airoldi L, Veglia F, Olgiati L, Pastorelli R, Autrup H, Dunning A, Garte S, Gormally E, Hainaut P, Malaveille C, Matullo G, Peluso M, Overvad K, Tjonneland A, Clavel-Chapelon F, Boeing H, Krogh V, Palli D, Panico S, Tumino R, Bueno-De-Mesquita B, Peeters P, Berglund G, Hallmans G, Saracci R, Riboli E. Environmental tobacco smoke and risk of respiratory cancer and chronic obstructive

pulmonary disease in former smokers and never smokers in the EPIC prospective study. *BMJ*. 2005 Feb 5;330(7486):277. doi: 10.1136/bmj.38327.648472.82.

2. **Exposome.** I have coordinated EU-funded exposome networks that led to several key findings concerning the effects of chemical mixtures and association of omic profile with disease outcomes.
 - a. Vineis P, Robinson O, Chadeau-Hyam M, Dehghan A, Mudway I, Dagnino S. What is new in the exposome? *Environ Int*. 2020 Oct;143:105887. doi: 10.1016/j.envint.2020.105887
 - b. Vineis P. From John Snow to omics: the long journey of environmental epidemiology. *Eur J Epidemiol*. 2018 Apr;33(4):355-363. doi: 10.1007/s10654-018-0398-4.
3. **Epigenetic clocks.** I have set up a network of researchers for the investigation of epigenetic and metabolomic clocks within cohorts.
 - a. Robinson O, Carter AR, Ala-Korpela M, Casas JP, Chaturvedi N, Engmann J, Howe LD, Hughes AD, Järvelin MR, Kähönen M, Karhunen V, Kuh D, Shah T, Ben-Shlomo Y, Sofat R, Lau CE, Lehtimäki T, Menon U, Raitakari O, Ryan A, Providencia R, Smith S, Taylor J, Tillin T, Viikari J, Wong A, Hingorani AD, Kivimäki M, Vineis P. Metabolic profiles of socio-economic position: a multi-cohort analysis. *Int J Epidemiol*. 2020 Nov 21:dyaa188. doi: 10.1093/ije/dyaa188
 - b. Robinson O, Chadeau Hyam M, Karaman I, Climaco Pinto R, Ala-Korpela M, Handakas E, Fiorito G, Gao H, Heard A, Jarvelin MR, Lewis M, Pazoki R, Polidoro S, Tzoulaki I, Wielscher M, Elliott P, Vineis P. Determinants of accelerated metabolomic and epigenetic aging in a UK cohort. *Aging Cell*. 2020 Jun;19(6):e13149. doi: 10.1111/accel.13149. Epub 2020 May 3
4. **Social inequalities and Health.** I have coordinated a large EU H2020 funded consortium on social inequalities and health.
 - a. Vineis P, Avendano-Pabon M, Barros H, Bartley M, Carmeli C, Carra L, Chadeau-Hyam M, Costa G, Delpierre C, D'Errico A, Fraga S, Giles G, Goldberg M, Kelly-Irving M, Kivimaki M, Lepage B, Lang T, Layte R, MacGuire F, Mackenbach JP, Marmot M, McCrory C, Milne RL, Muennig P, Nusselder W, Petrovic D, Polidoro S, Ricceri F, Robinson O, Stringhini S, Zins M. Special Report: The Biology of Inequalities in Health: The Lifepath Consortium. *Front Public Health*. 2020 May 12;8:118. doi: 10.3389/fpubh.2020.00118
 - b. Stringhini S, Carmeli C, Jokela M, Avendaño M, Muennig P, Guida F, Ricceri F, d'Errico A, Barros H, Bochud M, Chadeau-Hyam M, Clavel-Chapelon F, Costa G, Delpierre C, Fraga S, Goldberg M, Giles GG, Krogh V, Kelly-Irving M, Layte R, Lasserre AM, Marmot MG, Preisig M, Shipley MJ, Vollenweider P, Zins M, Kawachi I, Steptoe A, Mackenbach JP, Vineis P, Kivimäki M; LIFEPATH consortium. Socioeconomic status and the 25 × 25 risk factors as determinants of premature mortality: a multicohort study and meta-analysis of 1.7 million men and women. *Lancet*. 2017 Mar 25;389(10075):1229-1237. doi: 10.1016/S0140-6736(16)32380-7. Epub 2017 Feb 1
5. **Methodological developments.** I have contributed in several ways to the advancement of (molecular) epidemiology.
 - a. Wild C, Vineis O., Garte S. *Molecular Epidemiology of Chronic Diseases*, Wiley Publ., 2011
 - b. Andrea Saltelli, Gabriele Bammer, Isabelle Bruno, Erica Charters, Monica Di Fiore, Emmanuel Didier, Wendy Nelson Espeland, John Kay, Samuele Lo Piano, Deborah Mayo, Roger Pielke Jr, Tommaso Portaluri, Theodore M Porter, Arnald Puy, Ismael Rafols, Jerome R Ravetz, Erik Reinert, Daniel Sarewitz, Philip B Stark, Andrew Stirling, Jeroen van der Sluijs, Paolo Vineis. Five ways to ensure that models serve society: a manifesto. *Nature* 2020 Jun;582(7813):482-484. doi: 10.1038/d41586-020-01812-9

Complete List of Published Work in Pubmed:

<https://pubmed.ncbi.nlm.nih.gov/?term=vineis+p&sort=date>

D. Additional Information: Research Support and/or Scholastic Performance

Completed Research Support

Lifepath (Grant Agreement No. 633666)

Vineis(PI)

05/01/15-05/01/19

Funded by the European Commission's Horizon 2020 Research and Innovation Programme

Goal: To investigate the biological pathways underlying social differences in healthy ageing in Europe

Role: Principal Investigator

FP7-PEOPLE-2013-IEF Epigenair Funded by the European Commission Goal: To study the association between air pollution and methylation Role: Principal Investigator	Vineis (PI)	03/01/14-02/28/16
EXPOsOMICS Funded by the European Commission Goal: To develop a novel approach to the assessment of exposure to high priority environmental pollutants, by characterizing the external and the internal components of the exposome. Role: Principal Investigator	Vineis (PI)	11/01/12-10/31/16
Breast cancer early detection Funded by Cancer Research UK Goal: To examine circulating nucleic acids for early detection and monitoring of breast cancer and progress towards personalized cancer care Role: Co-Investigator	Vineis (Co-PI)	03/01/12-02/28/17
FOOD-CT-2010-266198 ECNIS2 Funded by the European Commission Goal: To study biomarkers in nutrition and cancer Role: Co-Investigator	Vineis (Co-PI)	05/01/11-04/30/13
TRICL Funded by the US National Cancer Institute U19 Goal: To study the molecular epidemiology of lung cancer Role: Co-Principal Investigator	Vineis (Co-PI)	06/30/10-07/08/14
Molecular epidemiology of cancer Funded by Compagnia di San Paolo, Torino, HuGeF Foundation Goal: To examine the molecular epidemiology of cancer Role: Principal Investigator	Vineis (PI)	01/01/10-12/31/13
Transphorm Funded by the European Commission Goal: To examine air pollution mitigation in Europe Role: Co-Investigator	Vineis (Co-PI)	01/01/10-12/31/13
1-Carbon metabolism and pancreatic cancer Funded by the World Cancer Research Fund Goal: To study the relationship between 1-carbon metabolism and pancreatic cancer. Role: Principal Investigator	Vineis (PI)	12/01/08-11/31/11
ESCAPE (European Study of Cohorts for Air Pollution Effects) Funded by the European Commission Goal: To examine the burden of air pollution-related diseases in Europe Role: Co-Investigator	Vineis (Co-PI)	06/01/08-05/31/12
INTARESE Funded by the European Commission Goal: To conduct an integrated assessment of health risks from environmental stressors in Europe.	Vineis (Co-PI)	01/01/05-04/30/10

Role: Co-Investigator