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**Paolo Vineis - CV
Homepage**

SUMMARY OF ACHIEVEMENTS

H-index 138 (Google scholar), 81,000 citations. In the top 20 most cited Imperial College scientists (<https://scholar.google.com/citations?hl=en&user=h0SIOB4AAAAJ>)

Professor PaoloVineis 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. His latest research activities focus on investigating biomarkers from omic platforms (including metabolomics and epigenetics) in large epidemiological studies. He has more than 1,000 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).

EDUCATION

1976 MD Medicine, University of Torino
1979 PhD in Occupational Health, University of Torino

PROFESSIONAL EXPERIENCE

1984-1990 Adjunct Professor of Epidemiology, Post-doctoral School of Biometrics and Medical Statistics, University of Milano
1998-2011- Associate Professor of Biostatistics, Faculty of Medicine, University of Torino
1999-2010 Head, Section of Epidemiology and Life Sciences, Foundation "Institute for Scientific Interchange"(ISI),Torino
2001- Adjunct Professor of Epidemiology, J Mailman School of Public Health, Columbia University, New York
2004- Chair of Environmental Epidemiology, Imperial College, London, UK
2010- Head, Molecular and Genetic Epidemiology Unit, Human Genetics Foundation (HuGeF), Torino
2019- Visiting Professor, Italian Institute of Technology

POSITIONS AND HONOURS

1992-94 President, Italian Association of Epidemiology
1995-98 Member, Scientific Council, International Agency for Research on Cancer
2003- Member, Italian Association for Cancer Research, Scientific Committee
2005-2010 Committee on carcinogenicity of chemicals of the UK Department of Health (COC)

2007-2010 Member, Consiglio Superiore di Sanità (Department of Health, Italy)



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
2019- Vice-President, Consiglio Superiore di Sanità (High Council of Health, Department of Health, Italy)

PhD students at Imperial College, last 10 years

Mansour Taghavi - hired at Imperial College; Aneire Khan - working in Bangladesh; Iacopo Baussano - hired at IARC; Pauline Scheelbeek - hired at LSHTM; Karin Van Veldhoven - hired at LSHTM; Neil Murphy - hired at IARC; Chiara Scocianti - hired at IARC; Rachel Kelly - hired at Harvard University; Francesca Galea 2019; Annelie Johansson 2019; Francesca De Donato 2018; Sophie Hamilton – current; Aina Roca Barcelo' – current

Breakthroughs in last 10 years

I have 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. I have been active also 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.

SELECTED GRANTS (FROM MOST RECENT)

2018-2022 *STOP - Science and Technology in childhood Obesity Policy*, European Commission (co-PI) (£378,305)
2019 -2021 *Colt – Are unstable jobs such as the growing “gig economy” associated with biological age acceleration? The Colt Foundation (principal investigator)* (£184,249)
2015-2019 *Lifepath – Socio-economic status, omics and ageing*; European Commission (principal investigator) (€ 5,990,000)
2014-2016 *Epigenair – Methylation and air pollution*; European Commission (principal investigator) (€ 230,000)
2012-2016 *Exposomics - Environmental exposures and omics in Europe*; European Commission (principal investigator) (€ 8,740,000)
2012-2017 *Towards personalised cancer care: circulating nucleic acids for early detection and monitoring of breast cancer*, Cancer Research UK (co-investigator) (£ 1,314,013)
2010-2012 *Molecular Epidemiology of Cancer, including epigenetics*; Compagnia di San Paolo, Torino, HuGeF Foundation (principal investigator) (€ 998,000 over 5 years)
2010-2013 *Transphorm - Air pollution mitigation in Europe*; European Commission (co-investigator) (€ 244,000)
2009-2012 *EnviroGenoMarkers - Biomarkers in environmental cancer*, European Commission (co-investigator) (€ 437,000)

2008-2012 *ESCAPE Burden of air pollution related diseases in Europe*; European Commission (co-investigator) (€ 420,000)



Ten representative publications

Raaschou-Nielsen O, (...) Vineis P, Hoek G. Air pollution and lung cancer incidence in 17 European cohorts: prospective analyses from the European Study of Cohorts for Air Pollution Effects (ESCAPE). *Lancet Oncol.* 2013 Aug;14(9):813-22. This is a landmark paper in the study of lung cancer associated to air pollution, based on the observation and accurate exposure assessment of 800K individuals in Europe. I was the PI of the working group that led to the paper, and I also led the Working Group of the International Agency for Research on Cancer that (based on this paper and others) concluded that ambient air pollution is carcinogenic to humans.

Shenker NS, Ueland PM, Polidoro S, van Veldhoven K, Ricceri F, Brown R, Flanagan JM, Vineis P. DNA methylation as a long-term biomarker of exposure to tobacco smoke. *Epidemiology.* 2013 Sep;24(5):712-6. This was the first paper to provide a direct molecular measure of prior exposure to tobacco that can be performed using a quantitative DNA methylation-based approach. Epigenetic changes that are detectable in blood may more generally act as molecular biomarkers for other exposures that are also difficult to quantify in epidemiological studies.

Vineis P, Wild CP. Global cancer patterns: causes and prevention. *Lancet.* 2014 Feb 8;383(9916):549-57. This is an invited review paper that addresses cancer as a global and growing, but not uniform, problem in the world. We argue that primary prevention is a particularly effective way to fight cancer, with between a third and a half of cancers being preventable on the basis of present knowledge of risk factors.

Chadeau-Hyam M, Tubert-Bitter P, Guihenneuc-Jouyaux C, Campanella G, Richardson S, Vermeulen R, De Iorio M, Galea S, Vineis P. Dynamics of the risk of smoking-induced lung cancer: a compartmental hidden Markov model for longitudinal analysis. *Epidemiology.* 2014 Jan;25(1):28-34. This is an original development by my group at Imperial College, including leading biostatisticians, that proposes an innovative compartmental model, which enabled us to identify time-varying predictors of risk and provided us with insights into the dynamics of smoking-induced lung carcinogenesis.

Fasanelli F, Baglietto L, (...) Vineis P. Hypomethylation of smoking-related genes is associated with future lung cancer in four prospective cohorts. *Nat Commun.* 2015 Dec 15;6:10192. doi: 10.1038/ncomms10192. DNA hypomethylation in certain genes is associated with tobacco exposure. In this prospective epigenome-wide study of DNA from pre-diagnostic blood we showed for the first time that hypomethylation of relevant CpG sites may mediate the effect of tobacco on lung cancer risk.

Fiorito G, (...) Vineis P. Social adversity and epigenetic aging: a multi-cohort study on socioeconomic differences in peripheral blood DNA methylation. *Sci Rep.* 2017 Nov 24;7(1):16266. doi: 10.1038/s41598-017-16391-5. This was the first paper in a series by my team suggesting that age acceleration (AA) based on DNA methylation is associated with socio-economic position (SEP). The associations were only partially modulated by the unhealthy lifestyle habits of individuals with lower SEP

Vineis P, Chatziioannou A, Cunliffe VT, Flanagan JM, Hanson M, Kirsch-Volders M, Kyrtopoulos S. [Epigenetic memory in response to environmental stressors.](#) *FASEB J.* 2017 Mar 9. pii:

fj.201601059RR. doi: 10.1096/fj.201601059RR. This is a speculative paper I am very proud of. The purpose is to explain the effects of early life experiences (such as famine and exposures to other stressors) on the long-term persistence of specific patterns of epigenetic modifications, such as DNA methylation. We propose an analogy with immune memory. We propose that an epigenetic memory can be established and maintained in self-renewing stem cell compartments.

van Veldhoven K, (...) Vineis P. Impact of short-term traffic-related air pollution on the metabolome - Results from two metabolome-wide experimental studies. *Environ Int.* 2019 Feb;123:124-131. doi: 10.1016/j.envint.2018.11.034. Epub 2018 Dec 3. This is the first paper (with a cross-over randomized design) to show that air pollution at relatively low levels has an effect of the metabolome. The study was conducted in two cities with different levels of pollution, London and Barcelona.

Vineis P. Public Health and Independent Risk Assessment. *Am J Public Health.* 2019 Jul;109(7):978-980. doi: 10.2105/AJPH.2019.305142. This is an invited Editorial on conflicts of interest in public health, with examples and some proposals for their regulation.

Saltelli A., (...) Vineis P. Five Ways to ensure that models serve society: a manifesto. *Nature.* 2020 Jun;582(7813):482-484. doi: 10.1038/d41586-020-01812-9. In the paper we present a manifesto for best practices for responsible mathematical modelling. Though many groups before us have described the best ways to apply modelling insights to policies, including for diseases, we distil five simple principles to help society demand the quality it needs from modelling.

Research monographs - US National Academy of Sciences. Using 21st century science to improve risk-related evaluations. The National Academy Press, Washington, 2017 ; "Health without borders: epidemics in the era of globalization". Springer, 2017

Prizes/ Awards/ Academy memberships - 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, Torino Italy

London, 27 March 2020

