

Polygenic prediction of body mass index and obesity through the life course and across ancestries

In the format provided by the
authors and unedited

FULL ACKNOWLEDGEMENTS (pg. 2-40)

CONSORTIUM AUTHORS (pg. 40-43)

FULL ACKNOWLEDGEMENTS

Cohort acknowledgements and detailed funding information

23andMe, Inc.

We would like to thank the research participants and employees of 23andMe for making this work possible. Participants provided informed consent and volunteered to participate in the research online, under a protocol approved by the external AAHRPP-accredited IRB, Ethical & Independent (E&I) Review Services. As of 2022, E&I Review Services is part of Salus IRB (<https://www.versiticlinicaltrials.org/salusirb>). The following members of the 23andMe Research Team contributed to this study: Stella Aslibekyan, Adam Auton, Robert K. Bell, Katelyn Kukar Bond, Zayn Cochinwala, Sayantan Das, Kahsaia de Brito, Emily DelloRusso, Chris Eijsbouts, Sarah L. Elson, Chris German, Julie M. Granka, Barry Hicks, David A. Hinds, Reza Jabal, Yunxuan Jiang, Aly Khan, Matthew J. Kmiecik, Alan Kwong, Yanyu Liang, Keng-Han Lin, Matthew H. McIntyre, Shubham Saini, Anjali J. Shastri, Jingchunzi Shi, Suyash Shringarpure, Qiaojuan Jane Su, Vinh Tran, Joyce Y. Tung, Catherine H. Weldon, Wanwan Xu.

1958BC-WTCCC and 1958BC-T1DGC

This work made use of data and samples generated by the 1958 Birth Cohort (NCDS), which is managed by the Centre for Longitudinal Studies at the UCL Institute of Education. The authors are deeply grateful to the 1958 birth cohort participants for their longstanding commitment and support, and to all staff for cohort coordination and data collection. The management of the 1958 Birth Cohort is funded by the Economic and Social Research Council (grant number ES/M001660/1). Access to these resources was enabled via the 58READIE Project funded by Wellcome Trust and Medical Research Council (grant numbers WT095219MA and G1001799). DNA collection was funded by MRC grant G0000934 and cell-line creation by Wellcome Trust grant 068545/Z/02. This study makes use of data generated by the Wellcome Trust Case-Control Consortium. A full list of investigators who contributed to generation of the data is available from the Wellcome Trust Case-Control Consortium website. Funding for the project was provided by the Wellcome Trust under the award 076113. This research used resources provided by the Type 1 Diabetes Genetics Consortium, a collaborative clinical study sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institute of Allergy and Infectious Diseases, National Human Genome Research Institute, National Institute of Child Health and Human Development, and Juvenile Diabetes Research Foundation International (JDRF) and supported by U01 DK062418. E.Hy. is supported as a National Health and Medical Research Council Leadership Investigator (GNT 2025349). M.I.McC. was a Wellcome Investigator and NIHR Senior Investigator. This work was supported by: NIDDK (U01-DK105535) and Wellcome (090532, 098381, 106130, 203141, 212259).

Age, gene/environment susceptibility Reykjavik study (AGES-RS)

We want to thank the study participants for their participation. Age, Gene/Environment Susceptibility-Reykjavik Study (AGES) was funded by NIH contract N01-AG-1-2100 and HHSN271201200022C, the NIA Intramural Research Program, Hjartavernd (the Icelandic Heart Association), and the Althingi (the Icelandic Parliament).

Age-related diseases: Understanding Genetic and non-genetic influences - a study at the University of Regensburg (AugUR)

The AugUR study was supported by grants from the German Federal Ministry of Education and Research (BMBF 01ER1206, BMBF 01ER1507 to I.M.H.) and by the German Research Foundation (DFG; HE 3690/7-1 to I.M.H., BR 6028/2-1 to Ca.B.).

Aneurysm-Express (AAA)

Claudia Tersteeg, Krista den Ouden, Mirjam B. Smeets, and Loes B. Collé are graciously acknowledged for their work on the DNA extraction. Astrid E.M.W. Willems, Evelyn Velema, Kristy M. J. Vons, Sara Bregman, Timo R. ten Brinke, Sara van Laar, Louise M. Catanzariti, Joyce E.P. Vrijenhoek, Sander M. van de Weg, Arjan H. Schoneveld, Arnold Koekman, Arjan Boltjes, Petra H. Homoed-van der Kraak, and Aryan Vink are graciously acknowledged for their past and continuing work on the Aneurysm-Express Biobank Study. We would also like to thank all the (former) employees involved in the Aneurysm-Express Biobank Study of the Departments of Surgery of the St. Antonius Hospital Nieuwegein and University Medical Center Utrecht for their continuing work. Lastly, we would like to thank all participants of the Aneurysm-Express Biobank Study; without you these kinds of studies would not be possible. S.W.v.d.L. is funded through EU H2020 TO_AITON (grant number: 848146), EU HORIZON NextGen (grant number: 101136962), EU HORIZON MIRACLE (grant number: 101115381), and Health~Holland PPP Allowance 'Getting the Perfect Image'. We are thankful for the support of the Leducq Fondation 'PlaQOmics' and 'AtheroGen'. The research for this contribution was made possible by the AI for Health working group of the EWUU alliance (<https://aiforhealth.ewuu.nl/>). The collaborative project 'Getting the Perfect Image' was co-financed through use of PPP Allowance awarded by Health~Holland, Top Sector Life Sciences & Health, to stimulate public-private partnerships.

Anglo-Scandinavian Cardiac Outcomes Trial (ASCOT, UK and SC)

We thank all ASCOT trial participants, physicians, nurses, and practices in the participating countries for their important contribution to the study. In particular we thank Clare Muckian and David Toomey for their help in DNA extraction, storage, and handling. We also acknowledge support from the NIHR Barts Biomedical Research Centre and Queen Mary University of London, UK. This work was supported by Pfizer, New York, NY, USA, for the ASCOT study and the collection of the ASCOT DNA repository; by Servier Research Group, Paris, France; and by Leo Laboratories, Copenhagen, Denmark. H.R.W. acknowledges funding from the NIHR Cardiovascular Biomedical Research Centre at Barts and QMUL. We also acknowledge support from the NIHR Barts Biomedical Research Centre and Queen Mary University of London, UK for genotyping. J.R. acknowledges funding from the European Union's Horizon 2020 research and innovation programme under the Marie Skłodowska-Curie grant agreement No 786833.

Asian Indian Diabetic Heart Study/Sikh Diabetes Study (AIDHS/SDS)

The AIDHS/SDS gratefully acknowledges the contributions of the participants and of the study staff. AIDHS/SDS was funded by NIH Grants (R01DK118427, R21DK105913).

Athero-Express (AE)

Claudia Tersteeg, Krista den Ouden, Mirjam B. Smeets, and Loes B. Collé are graciously acknowledged for their work on the DNA extraction. Astrid E.M.W. Willems, Evelyn Velema, Kristy M. J. Vons, Sara Bregman, Timo R. ten Brinke, Sara van Laar, Louise M. Catanzariti, Joyce E.P. Vrijenhoek, Sander M. van de Weg, Arjan H. Schoneveld, Arnold Koekman, Arjan Boltjes, Petra H. Homoed-van der Kraak, and Aryan Vink are graciously acknowledged for their past and continuing work on the Athero-Express Biobank Study. We would also like to thank all the (former) employees involved in the Athero-Express Biobank Study of the Departments of Surgery of the St. Antonius Hospital Nieuwegein and University Medical Center Utrecht for their continuing work. Lastly, we would like to thank all participants of the Athero-Express Biobank Study; without you these kinds of studies would not be possible. S.W.v.d.L. is funded through EU H2020 TO_AITON (grant number: 848146), EU HORIZON NextGen (grant number: 101136962), EU HORIZON MIRACLE (grant number: 101115381), and Health~Holland PPP Allowance 'Getting the Perfect Image'. We are thankful for the support of the Leducq Fondation 'PlaQOmics' and 'AtheroGen'. The research for this contribution was made possible by the AI for Health working group of the EWUU alliance (<https://aiforhealth.ewuu.nl/>). The collaborative project 'Getting

the Perfect Image' was co-financed through use of PPP Allowance awarded by Health~Holland, Top Sector Life Sciences & Health, to stimulate public-private partnerships.

Atherosclerosis Risk in Communities Study (ARIC)

ARIC is a prospective epidemiologic study conducted in four U.S. communities (Williams OD. The Atherosclerosis Risk in Communities (Arice) Study - Design and Objectives. *American Journal of Epidemiology*. 1989;129(4):687-702. PubMed PMID: WOS:A1989T805200005). It is designed to investigate the causes of atherosclerosis and its clinical outcomes, and variation in cardiovascular risk factors, medical care, and disease by race, gender, location, and date. ARIC includes two parts: the Cohort Component and the Community Surveillance Component. The Cohort Component began in 1987, and each ARIC field center randomly selected and recruited a cohort sample of approximately 4,000 individuals aged 45-64 from a defined population in their community, to receive extensive examinations, including medical, social, and demographic data. Follow-up currently occurs semi-annually, by telephone, to maintain contact and to assess health status of the cohort. The authors thank the staff and participants of the ARIC study for their important contributions. ARIC: The Atherosclerosis Risk in Communities study has been funded in whole or in part with Federal funds from the National Heart, Lung, and Blood Institute, National Institutes of Health, Department of Health and Human Services (contract numbers HHSN268201700001I, HHSN268201700002I, HHSN268201700003I, HHSN268201700004I and HHSN268201700005I), R01HL087641, R01HL086694; National Human Genome Research Institute contract U01HG004402; and National Institutes of Health contract HHSN268200625226C. Infrastructure was partly supported by Grant Number UL1RR025005, a component of the National Institutes of Health and NIH Roadmap for Medical Research. The datasets used for the analyses described in this manuscript were obtained from dbGaP under accession phs000223. M.Gr. is supported by R01 HL163262-01A1.

Austrian Stroke Prevention Study (ASPS), Austrian Stroke Prevention Family Study (ASPS-Fam)

The Austrian Stroke Prevention Study (ASPS): The authors thank the staff and the participants for their valuable contributions. We thank Birgit Reinhart for her long-term administrative commitment, Elfi Hofer for the technical assistance at creating the DNA bank, Ing. Johann Semmler and Anita Harb for DNA sequencing and DNA analyses by TaqMan assays and Irmgard Poelzl for supervising the quality management processes after ISO9001 at the biobanking and DNA analyses. The research reported in this article was funded by the Austrian Science Fond (FWF) grant number P20545-P05 and P13180 and supported by the Austrian National Bank Anniversary Fund, P15435, the Austrian Ministry of Science under the aegis of the EU Joint Programme-Neurodegenerative Disease Research (JPND)-www.jpnd.eu and by the Austrian Science Fund P20545-B05. The Medical University of Graz supports the databank of the ASPS.

Australian Familial AF Study (DFAust)

D.F. is supported by the Victor Chang Cardiac Research Institute, NSW Health, and the National Health and Medical Research Council of Australia (1186500).

Avon Longitudinal Study of Parents and Children (ALSPAC)

The UK Medical Research Council and Wellcome (Grant ref: 217065/Z/19/Z) and the University of Bristol provide core support for ALSPAC. This publication is the work of the authors and R.A.J.S., R.J.F.L., K.H.W., and N.J.T. will serve as guarantors for the contents of this paper. A comprehensive list of grants funding is available on the ALSPAC website (<http://www.bristol.ac.uk/alspac/external/documents/grant-acknowledgements.pdf>). Genomewide genotyping data was generated by Sample Logistics and Genotyping Facilities at Wellcome Sanger Institute and LabCorp (Laboratory Corporation of America) using support from 23andMe. We are extremely grateful to all the families who took part in this study, the midwives for their help in recruiting them, and the whole ALSPAC team, which includes interviewers, computer and laboratory technicians,

clerical workers, research scientists, volunteers, managers, receptionists and nurses. N.J.T. is a Wellcome Trust Investigator (202802/Z/16/Z), is the PI of the Avon Longitudinal Study of Parents and Children (MRC & WT 217065/Z/19/Z), is supported by the University of Bristol NIHR Biomedical Research Centre (BRC-1215-2001), the MRC Integrative Epidemiology Unit (MC_UU_00011/1) and works within the CRUK Integrative Cancer Epidemiology Programme (C18281/A29019). R.E.Mi. is a member of the MRC Integrative Epidemiology Unit at the University of Bristol funded by the MRC (MC_UU_00011/1). S.J.H. is supported by the UK National Institute for Health Research Academic Clinical Fellowship. K.H.W. is supported by the University of Bristol and, for this project, was funded by the Elizabeth Blackwell Institute for Health Research, University of Bristol and the Wellcome Trust Institutional Strategic Support Fund [204813] and Cancer Research UK (RCCPDF\100007).

B-Vitamins for the PRevention Of Osteoporotic Fractures (BPROOF)

The authors gratefully thank all study participants, and all co-workers who helped to succeed this trial, especially P.H. in 't Veld, M. Hillen-Tijdink, A. Nicolaas-Merkus, N. Pliester, S. Oliai Araghi, and S. Smits. They also thank Prof. Dr. H.A.P. Pols for obtaining funding. The generation and management of GWAS genotype data for the BPROOF study was executed by the Human Genotyping Facility of the Genetic Laboratory of the Department of Internal Medicine, Erasmus MC, Rotterdam. We thank Carolina Medina, Ph.D. and Jard de Vries for their help in creating the GWAS database and for the creation and analysis of imputed data. B-PROOF is supported and funded by The Netherlands Organization for Health Research and Development (ZonMw, Grant 6130.0031), The Hague; unrestricted grant from NZO (Dutch Dairy Association), Zoetermeer; NCHA (Netherlands Consortium Healthy Ageing) Leiden/Rotterdam; Ministry of Economic Affairs, Agriculture and Innovation (project KB-15-004-003), the Hague; Wageningen University, Wageningen; VU University Medical Center, Amsterdam; Erasmus MC, Rotterdam.

Beijing Eye Study (BES)

Beijing Municipal of Health Reform and Development Project #2019-4.

BioMe

The Mount Sinai BioMe Biobank is supported by The Andrea and Charles Bronfman Philanthropies. We thank all participants and all our recruiters who have assisted and continue to assist in data collection and management. This work was supported in part through the computational and data resources and staff expertise provided by Scientific Computing and Data at the Icahn School of Medicine at Mount Sinai and supported by the Clinical and Translational Science Awards (CTSA) grant UL1TR004419 from the National Center for Advancing Translational Sciences. Research reported in this publication was also supported by the Office of Research Infrastructure of the National Institutes of Health under award number S10OD026880 and S10OD030463. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. R.J.F.L. is supported by the NIH (R01DK110113; R01DK075787; R01DK107786; R01HL142302; R01HG010297; R01DK124097; R01HL151152, U01HG011723) and NNF20OC0059313. This work was supported by a grant from the Novo Nordisk Foundation (NNF18CC0034900, NNF23SA0084103). R.A.J.S. was supported by a NWO/ZonMw Rubicon grant (452182321). M.G.-M. was supported by a research grant from the Danish Cardiovascular Academy, which is funded by the Novo Nordisk Foundation, grant number NNF20SA0067242 and the Danish Heart Foundation.

Blue Mountains Eye Study (BMES) / Lions Eye Institute (LEI)

The Westmead/Sydney samples were collected in three studies that were supported by the National Health and Medical Research Council (NHMRC), Australia: Grant IDs 974159, 211069, 457349 and 512423 supported the Blue Mountains Eye Study that provided population-based controls; Grant ID 302010 supported the Cataract Surgery and Risk of Age-related Macular Degeneration study that

provided clinic-based early and late AMD cases and controls; and Grant ID 571013 supported the Genes and Environment in late AMD study that provided clinic-based late AMD cases. The NHMRC had no role in the design or conduct of these studies. A.W.H. is supported by an NHMRC Practitioner Fellowship (GNT1103329). D.A.M. is supported by an NHMRC Practitioner Fellowship (GNT1154518).

Bone Mineral Density in Childhood Study (BMDCS)

We appreciate the dedication of the BMDCS study participants and their families, and the support of Dr. Karen Winer, Scientific Director of this effort. This study was funded by R01 HD58886, R01 HD100406, the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) contracts (N01-HD-1-3228, -3329, -3330, -3331, -3332, -3333), and the CTSA program Grant 8 UL1 TR000077. S.F.A.G. is supported by the Daniel B. Burke Endowed Chair for Diabetes Research, R01 HD056465 and UM1 DK126194.

Breast Cancer Association Consortium (BCAC)

BCAC is funded by the European Union's Horizon 2020 Research and Innovation Programme (grant numbers 634935 and 633784 for BRIDGES and B-CAST respectively), and the PERSPECTIVE I&I project, funded by the Government of Canada through Genome Canada and the Canadian Institutes of Health Research, the Ministère de l'Économie et de l'Innovation du Québec through Genome Québec, the Quebec Breast Cancer Foundation. The EU Horizon 2020 Research and Innovation Programme funding source had no role in study design, data collection, data analysis, data interpretation or writing of the report. Additional funding for BCAC is provided via the Confluence project which is funded with intramural funds from the National Cancer Institute Intramural Research Program, National Institutes of Health. Genotyping of the OncoArray was funded by the NIH Grant U19 CA148065, and Cancer UK Grant C1287/A16563 and the PERSPECTIVE project supported by the Government of Canada through Genome Canada and the Canadian Institutes of Health Research (grant GPH-129344) and, the Ministère de l'Économie, Science et Innovation du Québec through Genome Québec and the PSRSIIRI-701 grant, and the Quebec Breast Cancer Foundation. Funding for iCOGS came from: the European Community's Seventh Framework Programme under grant agreement n° 223175 (HEALTH-F2-2009-223175) (COGS), Cancer Research UK (C1287/A10118, C1287/A10710, C12292/A11174, C1281/A12014, C5047/A8384, C5047/A15007, C5047/A10692, C8197/A16565), the National Institutes of Health (CA128978) and Post-Cancer GWAS initiative (1U19 CA148537, 1U19 CA148065 and 1U19 CA148112 - the GAME-ON initiative), the Department of Defence (W81XWH-10-1-0341), the Canadian Institutes of Health Research (CIHR) for the CIHR Team in Familial Risks of Breast Cancer, and Komen Foundation for the Cure, the Breast Cancer Research Foundation, and the Ovarian Cancer Research Fund.

British 1958 birth cohort (B58C)

We acknowledge use of phenotype and genotype data from the British 1958 Birth Cohort DNA collection, funded by the Medical Research Council grant G0000934 and the Wellcome Trust grant 068545/Z/02. Genotyping for the B58C-WTCCC subset was funded by the Wellcome Trust grant 076113/B/04/Z. The B58C-T1DGC genotyping utilized resources provided by the Type 1 Diabetes Genetics Consortium, a collaborative clinical study sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), National Institute of Allergy and Infectious Diseases (NIAID), National Human Genome Research Institute (NHGRI), National Institute of Child Health and Human Development (NICHD), and Juvenile Diabetes Research Foundation International (JDRF) and supported by U01 DK062418. B58C-T1DGC GWAS data were deposited by the Diabetes and Inflammation Laboratory, Cambridge Institute for Medical Research (CIMR), University of Cambridge, which is funded by Juvenile Diabetes Research Foundation International, the Wellcome Trust and the National Institute for Health Research Cambridge Biomedical Research Centre; the CIMR is in receipt of a Wellcome Trust Strategic Award (079895). The B58C-GABRIEL genotyping was supported by a

contract from the European Commission Framework Programme 6 (018996) and grants from the French Ministry of Research.

British Genetics of Hypertension (BRIGHT) study

The BRIGHT study is extremely grateful to all the patients who participated in the study and the BRIGHT nursing team. This work formed part of the research themes contributing to the translational research portfolio for the NIHR Barts Cardiovascular Biomedical Research Centre. The funders had no role in study design, data collection and analysis. This work was funded by the Medical Research Council of Great Britain (grant number: G9521010D).

CARDIA (Coronary Artery Risk Development in Young Adults)

The Coronary Artery Risk Development in Young Adults Study (CARDIA) is conducted and supported by the National Heart, Lung, and Blood Institute (NHLBI) in collaboration with the University of Alabama at Birmingham (HHSN268201800005I & HHSN268201800007I), Northwestern University (HHSN268201800003I), University of Minnesota (HHSN268201800006I), and Kaiser Foundation Research Institute (HHSN268201800004I).

Cardio-metabolic Genome Epidemiology (CAGE) Network

The CAGE Network studies were supported by grants for the Core Research for Evolutional Science and Technology (CREST) from the Japan Science Technology Agency; the Program for Promotion of Fundamental Studies in Health Sciences, National Institute of Biomedical Innovation Organization (NIBIO); and the Grant of National Center for Global Health and Medicine (NCGM).

CARDIOGENICS

The main sponsor of Cardiogenics was the EU (LSHM-CT-2006-037593). Work supported by the Barts Biomedical Research Centre funded by the UK National Institute for Health Research (NIHR).

Cardiovascular Health Improvement Project (CHIP)

C.J.W. is supported by NIH grant R-35-HL135824.

Cardiovascular Health Study (CHS)

This CHS research was supported by NHLBI contracts HHSN268201200036C, HHSN268200800007C, HHSN268200960009C, HHSN268201800001C, N01HC55222, N01HC85079, N01HC85080, N01HC85081, N01HC85082, N01HC85083, N01HC85086, 75N92021D00006; and NHLBI grants U01HL080295, R01HL085251, R01HL087652, R01HL105756, R01HL103612, R01HL120393, R01HL172803, and U01HL130114 with additional contribution from the National Institute of Neurological Disorders and Stroke (NINDS). Additional support was provided through R01AG023629 from the National Institute on Aging (NIA). A full list of principal CHS investigators and institutions can be found at CHS-NHLBI.org. The provision of genotyping data was supported in part by the National Center for Advancing Translational Sciences, CTSI grant UL1TR001881, and the National Institute of Diabetes and Digestive and Kidney Disease Diabetes Research Center (DRC) grant DK063491 to the Southern California Diabetes Endocrinology Research Center. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.

Catholic University Incheon ST Mary's Hospital Eye Study (EYE)

The EYE gratefully acknowledges the contributions of the participants and of the study staff. Y.S.C. acknowledges support from the National Research Foundation of Korea (NRF) Grant (RS-2023-00245960)

Cebu Longitudinal Health and Nutrition Survey (CLHNS)

We thank the entire staff of the Office of Population Studies (OPS) Foundation, Inc. of the University of San Carlos in Cebu for their long term work on the CLHNS. The CLHNS was supported by US National Institutes of Health grants DK078150, TW005596, HL085144; pilot funds from RR020649, ES010126, and DK056350; and OPS. Additional support for data analysis was provided by US NIH R01DK072193. C.N.S. is supported by American Heart Association postdoctoral fellowships 15POST24470131 and 17POST33650016, American Diabetes Association Jr Faculty Development 11-22-JDFPM-06, and NIH/NIDDK R01DK118011 and R01DK136671.

Children's Hospital of Philadelphia (CHOP)

This research was financially supported by an Institute Development Award from the Children's Hospital of Philadelphia, a Research Development Award from the Cotswold Foundation, the Children's Hospital of Philadelphia Endowed Chair in Genomic Research, the Daniel B. Burke Endowed Chair for Diabetes Research and NIH grant R01 HD056465. The authors thank the network of primary care clinicians and the patients and families for their contribution to this project and to clinical research facilitated by the Pediatric Research Consortium (PeRC) at The Children's Hospital of Philadelphia. R. Chiavacci, E. Dabaghyan, A. (Hope) Thomas, K. Harden, A. Hill, C. Johnson-Honesty, C. Drummond, S. Harrison, F. Salley, C. Gibbons, K. Lilliston, C. Kim, E. Frackelton, F. Mentch, G. Otieno, K. Thomas, C. Hou, K. Thomas and M.L. Garris provided expert assistance with genotyping and/or data collection and management. The authors would also like to thank S. Kristinsson, L.A. Hermannsson and A. Krisbjörnsson of Raförnninn ehf for extensive software design and contributions.

China Health and Nutrition Survey (CHNS)

We thank the participants, researchers and staff who contributed to the China Health and Nutrition Survey (CHNS). We are grateful to research grant funding from the National Institute for Health (NIH), the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD) for R01 HD30880, National Institute on Aging (NIA) for R01 AG065357, National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) for R01DK104371 and R01HL108427, the NIH Fogarty grant D43 TW009077 since 1989, and the China-Japan Friendship Hospital, Ministry of Health for support for CHNS 2009, Chinese National Human Genome Center at Shanghai since 2009, and Beijing Municipal Center for Disease Prevention and Control since 2011. We thank the National Institute for Nutrition and Health, China Center for Disease Control and Prevention. Additional support for data analysis was provided by US NIH R01DK072193. C.N.S. is supported by American Heart Association postdoctoral fellowships 15POST24470131 and 17POST33650016, American Diabetes Association Jr Faculty Development 11-22-JDFPM-06, and NIH/NIDDK R01DK118011 and R01DK136671.

China Kadoorie Biobank (CKB)

CKB acknowledges the contribution of participants in the study and the members of the survey teams in each of the 10 regional centres, as well as the project development and management teams based at Beijing, Oxford, and the 10 regional centres. China Kadoorie Biobank was supported as follows: Baseline survey: Hong Kong Kadoorie Charitable Foundation; long-term follow-up, study support and maintenance: UK Wellcome Trust (212946/Z/18/Z, 202922/Z/16/Z, 104085/Z/14/Z, 088158/Z/09/Z), National Natural Science Foundation of China (91846303), and National Key Research and Development Program of China (2016YFC 0900500, 0900501, 0900504, 1303904). DNA extraction and genotyping: GlaxoSmithKline, UK Medical Research Council (MC_PC_13049, MC-PC-14135). The UK Medical Research Council (MC_UU_00017/1, MC_UU_12026/2, MC_U137686851), Cancer Research UK (C16077/A29186, C500/A16896) and the British Heart Foundation (CH/1996001/9454), provide core funding to the Clinical Trial Service Unit and Epidemiological Studies Unit at Oxford University for the project.

Cilento study (CILENTO)

The Cilento gratefully acknowledges the population for their participation and the study staff. The Cilento study was funded by grants from the Italian Ministry of Universities, the Assessorato Ricerca Regione Campania (POR CAMPANIA 2000/2006 MISURA 3.16) the CNR project FOE-2021 DBA.AD005.225 NUTRAGE; the National Recovery and Resilience Plan (NRRP), Mission 4 Component 2 Investment 1.4 - Call for tender No. 3138 of 16 December 2021, rectified by Decree n.3175 of 18 December 2021 of Italian Ministry of University and Research funded by the European Union – NextGenerationEU; Project code CN_00000033, Concession Decree No. 1034 of 17 June 2022 adopted by the Italian Ministry of University and Research, CUP B83C22002930006, Project title "National Biodiversity Future Center – NBFC."

Cleveland Family Study (CFS)

The Cleveland Family Study has been supported by National Institutes of Health grants [R01-HL046380, KL2-RR024990, R35-HL135818, and R01-HL113338]. Su.R. was funded by NHLBI R35HL135818; HL 046389; HL113338. B.E.C. was funded by NIH grants [K01 HL135405, R03 HL154284].

Cohorte Lausannoise (CoLaus)

The authors would like to thank all the people who participated in the recruitment of the participants, data collection and validation, particularly Nicole Bonvin, Yolande Barreau, Mathieu Firmann, François Bastardot, Julien Vaucher, Panagiotis Antiochos, Cédric Gubelmann, Marylène Bay, Benoit Delabays and Adelin Barrier. The CoLaus study was supported by research grants from GlaxoSmithKline, the Faculty of Biology and Medicine of Lausanne, the Swiss National Science Foundation (grants 33CSO-122661, 33CS30-139468, 33CS30-148401, 33CS30_177535, 3247730_204523 and 320030_220190) and the Swiss Personalized Health Network (grant 2018DRI01).

Cooperative health research in the region of Augsburg (KORA)

The KORA study was initiated and financed by the Helmholtz Zentrum München–German Research Center for Environmental Health, which is funded by the German Federal Ministry of Education and Research (BMBF) and by the State of Bavaria.

CROATIA-KORCULA

The CROATIA studies gratefully acknowledge the contributions of the participants and of the many students and members of staff who supported the field work, including but not limited to those from the University of Split and Zagreb Medical Schools, the Institute for Anthropological Research in Zagreb, the Croatian Institute for Public Health. We are grateful to administrative teams in Croatia and Edinburgh. We acknowledge the Helmholtz Zentrum München, Neuherberg, Germany where the array-genotyping was performed. CROATIA studies were funded by grants from the Medical Research Council UK (<https://mrc.ukri.org/>), in particular MRC Programme Grants to the Human Genetics Unit, "QTL in health and disease", currently MC_UU_00007/10, the Republic of Croatia Ministry of Science, Education and Sports research grants to I.R. (108-1080315-0302), and European Commission Framework 6 project EUROSPAN (Contract No. LSHG-CT-2006-018947). V.V. is supported by the MRC Programme Grant to the Human Genetics Unit, "QTL in health and disease", currently MC_UU_00007/10.

CROATIA-VIS

The CROATIA studies gratefully acknowledge the contributions of the participants and of the many students and members of staff who supported the field work, including but not limited to those from The University of Split and Zagreb Medical Schools, the Institute for Anthropological Research in Zagreb, the Croatian Institute for Public Health. We are grateful to administrative teams in Croatia and Edinburgh and acknowledge staff at the Wellcome Trust Clinical Research Facility, Edinburgh, UK for performing the array-genotyping. CROATIA studies were funded by grants from the Medical Research

Council UK (<https://mrc.ukri.org/>), in particular MRC Programme Grants to the Human Genetics Unit, "QTL in health and disease", currently MC_UU_00007/10, the Republic of Croatia Ministry of Science, Education and Sports research grants to I.R. (108-1080315-0302), and European Commission Framework 6 project EUROSPAN (Contract No. LSHG-CT-2006-018947). A.F.W. was supported by the MRC (<https://mrc.ukri.org/>) Programme Grant to the Human Genetics Unit, "QTL in health and disease".

CTMM: Circulating Cells (CTMM)

S.W.v.d.L. is funded through EU H2020 TO_AITON (grant number: 848146), EU HORIZON NextGen (grant number: 101136962), EU HORIZON MIRACLE (grant number: 101115381), and Health~Holland PPP Allowance 'Getting the Perfect Image'. We are thankful for the support of the Leducq Fondation 'PlaQOmics' and 'AtheroGen'. The research for this contribution was made possible by the AI for Health working group of the EWUU alliance (<https://aiforhealth.ewuu.nl/>). The collaborative project 'Getting the Perfect Image' was co-financed through use of PPP Allowance awarded by Health~Holland, Top Sector Life Sciences & Health, to stimulate public-private partnerships.

Danish National Birth Cohort (DNBC)

We are very grateful to all DNBC families who took part in the study. We would also like to thank everyone involved in data collection and biological material handling. The Danish National Birth Cohort (DNBC) is a result of major grants from the Danish National Research Foundation, the Danish Pharmacists' Fund, the Egmont Foundation, the March of Dimes Birth Defects Foundation, the Augustinus Foundation, and the Health Fund of the Danish Health Insurance Societies. The DNBC biobank is a part of the Danish National Biobank resource, which is supported by the Novo Nordisk Foundation. The generation of GWAS genotype data for the DNBC samples was carried out within the Gene Environment Association Studies (GENEVA) consortium with funding provided through the National Institutes of Health's Genes, Environment, and Health Initiative (U01HG004423; U01HG004446; U01HG004438). B.F. received support from an Oak Foundation fellowship and a Novo Nordisk Foundation grant (12955). Xueping.L. received support from the Nordic Center of Excellence in Health-Related e-Sciences.

Danish study of Functional Disorders (DanFund)

This study was supported by TrygFonden (7-11-0213), the Lundbeck Foundation (R155-2013-14070), Novo Nordisk Foundation (NNF15OC0015896).

deCODE

We thank participants in deCODE cardiovascular- and obesity studies and collaborators for their cooperation.

DIAbetes COHoRtE (DIACORE)

Cohort recruiting and management was funded by the KfH Stiftung Präventivmedizin e.V. (C.A.B.). Genome-wide genotyping was funded the Else Kröner-Fresenius-Stiftung (2012_A147), the KfH Stiftung Präventivmedizin and the University Hospital Regensburg. The Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) supported this work – Project-ID 387509280 – SFB 1350 (Subproject C6 to I.M.H.) and I.M.H. and C.A.B. received funding by DFG BO 3815/4-1. This project has received funding from the Innovative Medicines Initiative 2 Joint Undertaking under grant agreement No 115974. This Joint Undertaking receives support from the European Union's Horizon 2020 research and innovation programme and EFPIA with JDRF (BEAT-DKD).

Diabetes Genetics Initiative (DGI)

DGI (nested in the Botnia Study) was principally supported by Novartis Institute for Biomedical Research, as well as grants from the Sigrid Juselius Foundation, The Folkhälsan Research Foundation,

Nordic Center of Excellence in Disease Genetics, EU (EXGENESIS), Perklén Foundation, Ollqvist Foundation, Finnish Diabetes Research Foundation, Finnish Medical Society, Helsinki University Central Hospital Research Foundation, Närpes Health Care Foundation as well as the Municipal Health Care Center and Hospital in Jakobstad and Health Care Centers in Vasa, Närpes and Korsholm. The work in Malmö, Sweden, was also funded by a Linné grant from the Swedish Research Council (349-2006-237). Additionally supported by NIH R01DK075787. The original leadership of Leif Groop and the contribution of the Botnia and Skara research teams is gratefully acknowledged.

Diabetes Prevention Program (DPP)

The Diabetes Prevention Program (DPP) was conducted by the DPP Research Group and supported by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), the General Clinical Research Center Program (GCRC), the National Institute of Child Health and Human Development (NICHD), the National Institute on Aging (NIA), the Office of Research on Women's Health (ORWH), the Office of Research on Minority Health (ORMH), the Centers for Disease Control and Prevention (CDC), and the American Diabetes Association (ADA). The data from the DPP were supplied by NIDDK Central Repository (NIDDK-CR). This manuscript was not prepared under the auspices of the DPP Research Group and does not represent analyses or conclusions of the DPP Research Group, the CDC, NIDDK-CR, or NIH. Generation of the GWAS data in DPP was supported in part by a grant from the Novo Nordisk Foundation.

DiscovEHR (DiscovEHR and MyCode Community Health Initiative)

We thank all the participants of the MyCode Community Health Initiative Study (MyCode) and the MyCode Research Team. We thank the members of the Geisinger-Regeneron DiscovEHR Collaboration who have been critical in the generation of the genomic data used in this study. A.E.J. was supported in part by NIH grants R01DK122503, R01DK135938, K99/R00 HL130580. G.C. was supported by NIH grant R01DK122503.

Duke CATHeterization GENetics Study (CATHGEN)

R.W.M. is supported by NIH grant R01HL160689.

EAST-AFNET 4 biosample study (AFNET)

We would like to thank all investigators and patients participating in the EAST - AFNET 4 trial. EAST - AFNET 4 was supported by AFNET, EHRA, German Centre for Cardiovascular Research (DZHK), German heart Foundation (DSF), Sanofi, and Abbott. P.Ki. was partially supported by European Union MAESTRIA (grant agreement 965286), British Heart Foundation (AA/18/2/34218), German Center for Cardiovascular Research supported by the German Ministry of Education and Research (DZHK, grant numbers DZHK FKZ 81X2800182, 81Z0710116, and 81Z0710110), German Research Foundation (Ki 509167694), Dutch Heart Foundation (DHF), the Accelerating Clinical Trials funding stream in Canada, and the Else Kröner-Fresenius Foundation.

Electronic Medical Records and Genomics Network (eMERGE)

The eMERGE network gratefully acknowledges the contributions of the participants and of the study staff at each eMERGE site. This phase of the eMERGE Network was initiated and funded by the NHGRI through the following grants: U01HG008657 (Group Health Cooperative/University of Washington); U01HG008685 (Brigham and Women's Hospital); U01HG008672 (Vanderbilt University Medical Center); U01HG008666 (Cincinnati Children's Hospital Medical Center); U01HG006379 (Mayo Clinic); U01HG008679 (Geisinger Clinic); U01HG008680 (Columbia University Health Sciences); U01HG008684 (Children's Hospital of Philadelphia); U01HG008673 (Northwestern University); U01HG008701 (Vanderbilt University Medical Center serving as the Coordinating Center); U01HG008676 (Partners Healthcare/Broad Institute); U01HG008664 (Baylor College of Medicine); and U54MD007593 (Meharry Medical College).

Epidemiologisch Preventief Onderzoek Zoetermeer (EPOZ)

We are grateful to the contributions of the EPOZ study participants. H.H.H.A. was supported by ZonMW grant number 916.19.151.

Epihealth

The study was funded by Ministry of Education, Sweden.

Erasmus Rucphen Family study (ERF)

We are grateful to all study participants and their relatives, general practitioners and neurologists for their contributions and to P. Veraart for her help in genealogy, J. Vergeer for the supervision of the laboratory work, both S.J. van der Lee and A. van der Spek for collection of the follow-up data and P. Snijders M.D. for his help in data collection of both baseline and follow-up data. Erasmus Rucphen Family (ERF) was supported by the Consortium for Systems Biology (NCSB), both within the framework of the Netherlands Genomics Initiative (NGI)/Netherlands Organisation for Scientific Research (NWO). ERF study as a part of EUROSPAN (European Special Populations Research Network) was supported by European Commission FP6 STRP grant number 018947 (LSHG-CT-2006-01947) and also received funding from the European Community's Seventh Framework Programme (FP7/2007-2013)/grant agreement HEALTH-F4-2007-201413 by the European Commission under the programme "Quality of Life and Management of the Living Resources" of 5th Framework Programme (No. QLG2-CT-2002-01254) as well as FP7 project EUROHEADPAIN (nr 602633).

European Genetic Database (EUGENDA)

The EUGENDA cohort was funded by grants from the Oogfonds, MaculaFonds, Landelijke Stichting voor Blinden en Slechtienden, Stichting Blindenhulp, Stichting A.F. Deutman Oogheelkunde Researchfonds, the Dutch Research Council (Vidi Innovative Research Award 016.096.309), and the European Research Council under the European Union's Seventh Framework Programme (FP/2007-2013) (ERC Grant Agreement no. 310644 MACULA). The EUGENDA samples were genotyped as part of the IAMDGX exome chip project supported by CIDR (contract number HHSN268201200008I) and funded by EY022310 (to Jonathan L. Haines, Case Western Reserve University, Cleveland) and 1 × 01HG006934-01 (to G.R.A (Gonçalo R. Abecasis), University of Michigan, Department of Biostatistics).

European Prospective Investigation into Cancer and Nutrition, Potsdam cohort (EPIC-Potsdam)

We thank the Human Study Centre (HSC) of the German Institute of Human Nutrition Potsdam-Rehbrücke, namely, the trustee and the data hub for the processing, and the participants for the provision of the data, the biobank for the processing of the biological samples, and the head of the HSC, Manuela Bergmann, for the contribution to the study design and leading the underlying processes of data generation. The recruitment phase of the EPIC-Potsdam Study was supported by the Federal Ministry of Science, Germany (01 EA 9401) and the European Union (SOC 95201408 05F02). The follow-up of the EPIC-Potsdam Study was supported by German Cancer Aid (70-2488-Ha I) and the European Community (SOC 98200769 05F02). This work was supported by a grant from the German Ministry of Education and Research (BMBF) and the State of Brandenburg (DZD grant 82DZD00302).

Ewha Womans University Hospital PCOS Study (pcosN)

The pcosN gratefully acknowledges the contributions of the participants and of the study staff. Y.S.C. acknowledges support from the National Research Foundation of Korea (NRF) Grant (RS-2023-00245960)

Exeter 10,000 Study (EXTEND)

EXTEND is supported by the National Institute for Health Research Exeter Clinical Research Facility.

Family Study Study (FamHS)

FamHS acknowledges the contributions of the participants and of the study staff. FamHS was funded by NIDDK R01-DK-089256 and NHLBI R01HL117078.

Finland-United States Investigation of NIDDM Genetics (FUSION)

We would like to thank the Finnish volunteers who generously participated in the FUSION study. Support for FUSION was provided by NIH grants R01-DK062370 (M.B.), R01-DK072193 (K.L.M.), and intramural project number 1Z01-HG000024 (F.S.C.). Genome-wide genotyping was conducted by the Johns Hopkins University Genetic Resources Core Facility SNP Center at the Center for Inherited Disease Research (CIDR), with support from CIDR NIH contract no. N01-HG-65403.

Finnish Twin Cohort Study (FTC)

We thank the twins for active participations and the staff of the study for their hard work. Phenotype and genotype data collection in the twin cohort has been supported by the Wellcome Trust Sanger Institute, the Broad Institute, ENGAGE – European Network for Genetic and Genomic Epidemiology, FP7-HEALTH-F4-2007, grant agreement number 201413, National Institute of Alcohol Abuse and Alcoholism (grants AA-12502, AA-00145, and AA-09203 to R. J. Rose and AA15416 and K02 AA018755 to D. M. Dick) and the Academy of Finland (grants 100499, 205585, 118555, 141054, 264146, 308248, and 312073 to J.K.). J.K. acknowledges support by the Academy of Finland (grants 336823, 352792).

FINRISK

The FINRISK surveys (FINRISK92, FINRISK97, FINRISK02, FINRISK07, FINRISK12) have been mainly funded by budgetary funds from THL. Additional funding has been obtained from the Academy of Finland and various domestic foundations. Ve.S. is supported by the Juho Vainio Foundation and Finnish Foundation for Cardiovascular Research.

Framingham Heart Study (FHS)

This research was conducted in part using data and resources from the Framingham Heart Study of the National Heart Lung and Blood Institute of the National Institutes of Health and Boston University Chobanian & Avedisian School of Medicine. The analyses reflect intellectual input and resource development from the Framingham Heart Study investigators participating in the SNP Health Association Resource (SHARe) project. This work was partially supported by the National Heart, Lung and Blood Institute's Framingham Heart Study (Contract Nos. N01-HC-25195 and HHSN268201500001I) and its contract with Affymetrix, Inc for genotyping services (Contract No. N02-HL-6-4278). A portion of this research utilized the Linux Cluster for Genetic Analysis (LinGA-II) funded by the Robert Dawson Evans Endowment of the Department of Medicine at Boston University Chobanian & Avedisian School of Medicine and Boston Medical Center. This research was partially supported by grant R01-DK089256 from the National Institute of Diabetes and Digestive and Kidney. X.D. supported by R01DK089256. Q.M. was supported by R01DK122503. C.-T.L. was supported by R01DK122503, R01DK089256.

Gene-Lifestyle Interactions and Complex Traits Involved in Elevated Disease Risk V2 (GLACIERV2)

We are grateful to the study participants, health professionals, investigators, data managers and support staff who have contributed to GLACIERV2 and to the Northern Sweden Health and Disease Study. We also wish to acknowledge support from the Swedish Research Council; European Research Council (CoG-2015_681742_NASCENT), Novo Nordisk Foundation, and Swedish Heart-Lung Foundation.

Generation Scotland (GS)

We are grateful to all the families who took part, the general practitioners and the Scottish School of Primary Care for their help in recruiting them, and the whole Generation Scotland team, which includes interviewers, computer and laboratory technicians, clerical workers, research scientists, volunteers, managers, receptionists, healthcare assistants and nurses. Generation Scotland received core support from the Chief Scientist Office of the Scottish Government Health Directorates [CZD/16/6] and the Scottish Funding Council [HR03006] and is currently supported by the Wellcome Trust [216767/Z/19/Z]. Genotyping of the GS:SFHS samples was carried out by the Genetics Core Laboratory at the Edinburgh Clinical Research Facility, University of Edinburgh, Scotland and was funded by the Medical Research Council UK and the Wellcome Trust (Wellcome Trust Strategic Award "STratifying Resilience and Depression Longitudinally" (STRADL) Reference 104036/Z/14/Z).

GeneRISK

The GeneRISK study was funded by Business Finland through the Personalized Diagnostics and Care program coordinated by SalWe Ltd (Grant No 3986/31/2013). Sa.R. was supported by the Academy of Finland Center of Excellence in Complex Disease Genetics (Grant No 312062), the Finnish Foundation for Cardiovascular Research, the Sigrid Juselius Foundation and University of Helsinki HiLIFE Fellow and Grand Challenge grants. E.W. was supported by the Finnish innovation fund Sitra and Finska Läkaresällskapet.

Genes for Good

Genes for Good gratefully acknowledges the generous contributions from its research participants and the work of its administrative staff for making the study possible. Genes for Good was funded through University of Michigan discretionary funds.

Genetic Epidemiology Network of Arteriopathy (GENOA)

Genotyping was performed at the Mayo Clinic (Stephen Turner, Mariza de Andrade, Julie Cunningham) and was made possible by the University of Texas Health Sciences Center (Eric Boerwinkle, Megan Grove-Gaona). We would also like to thank the families that participated in the GENOA study. Support for GENOA was provided by the National Heart, Lung and Blood Institute (U01 HL054457, U01 HL054464, U01 HL054481, R01 HL119443, and R01 HL087660) of the National Institutes of Health.

Genetic Epidemiology of Hypertension Network (HYPERGEN)

HyperGEN was funded by NIH cooperative agreement grants HL54471, HL54472, HL54473, HL54495, HL54496, HL54509, HL54515.

Genetic Overlap between Metabolic and Psychiatric traits (GOMAP)

We thank all participants for their important contribution. We are grateful to Georgia Markou, Laiko General Hospital Diabetes Centre, Maria Emetsidou and Panagiota Fotinopoulou, Hippokratio General Hospital Diabetes Centre, Athina Karabela, Dafni Psychiatric Hospital, Eirini Glezou and Marios Mangioros, Dromokaiteio Psychiatric Hospital, Eirini Marouli and Angela Rentari, Harokopio University of Athens, and Danielle Walker, Wellcome Trust Sanger Institute. This work was funded by the Wellcome Trust (098051).

Genetic Risk Assessment of Defibrillator Events (GRADE)

Supported through NIH-NHLBI R01 HL77398.

Genetics in Atrial Fibrillation (GENAF)

We thank all participants for contributing to the study and all study personnel for their important contributions to enrolment and administrative tasks. The GENAF study was funded by the South-Eastern Norway Regional Health Authority (2019122), the Research Council of Norway (287086), Vestre Viken Hospital Trust, afib.no - the Norwegian Atrial Fibrillation Research Network, and "Indremedisinsk

Forskningsfond" at Bærum Hospital. None of the funders had any part in planning of the study or writing of the manuscript.

Genetics of Diabetes Audit and Research in Tayside Scotland (GoDARTS)

We are grateful to all the participants in this study, the general practitioners, the Scottish School of Primary Care for their help in recruiting the participants, and to the whole team, which includes interviewers, computer and laboratory technicians, clerical workers, research scientists, volunteers, managers, receptionists, and nurses. The study complies with the Declaration of Helsinki. We acknowledge the support of the Health Informatics Centre, University of Dundee for managing and supplying the anonymised data and NHS Tayside, the original data owner. The Wellcome Trust United Kingdom Type 2 Diabetes Case Control Collection (GoDARTS) was funded by The Wellcome Trust (072960/Z/03/Z, 084726/Z/08/Z, 084727/Z/08/Z, 085475/Z/08/Z, 085475/B/08/Z). GoDARTS was funded by the Wellcome Trust (084727/Z/08/Z, 085475/Z/08/Z, 085475/B/08/Z) and as part of the EU IMI-SUMMIT program. M.I.McC. was a Wellcome Investigator and NIHR Senior Investigator. This work was supported by: NIDDK (U01-DK105535) and Wellcome (090532, 098381, 106130, 203141, 212259).

Genetics of Early-Onset Stroke (GEOS)

The research team gratefully acknowledges the contributions of the participants in the GEOS study. The GEOS Study was supported by the National Institutes of Health Genes, Environment and Health Initiative (GEI) Grant U01 HG004436, as part of the GENEVA consortium under GEI, with additional support provided by the Mid-Atlantic Nutrition and Obesity Research Center (P30 DK072488); and the Office of Research and Development, Medical Research Service, and the Baltimore Geriatrics Research, Education, and Clinical Center of the Department of Veterans Affairs. Genotyping services were provided by the Johns Hopkins University Center for Inherited Disease Research (CIDR), which is fully funded through a federal contract from the National Institutes of Health to the Johns Hopkins University (contract number HHSN268200782096C). Assistance with data cleaning was provided by the GENEVA Coordinating Center (U01 HG 004446; PI Bruce S Weir). Study recruitment and assembly of datasets were supported by a Cooperative Agreement with the Division of Adult and Community Health, Centers for Disease Control and Prevention, and by grants from the National Institute of Neurological Disorders and Stroke (NINDS) and the NIH Office of Research on Women's Health (R01 NS45012, U01 NS069208-01). J.W.C. was partially supported by an American Heart Association (AHA)-Bayer Discovery Grant (Grant 17IBDG33700328), the AHA Cardiovascular Genome-Phenome Study (Grant-15GPSPG23770000), NIH (Grants: R01-NS114045; R01-NS100178; R01-NS105150), and the US Department of Veterans Affairs.

Genetics of Lipid Lowering Drugs and Diet Network (GOLDN)

GOLDN acknowledges the contributions of the participants and of the study staff. GOLDN was funded by the NHLBI grants R01 HL09135701, R01 HL091357 and R01 HL104135.

German Chronic Kidney Disease Study (GCKD)

We are grateful for the willingness of the patients to participate in the GCKD study. The enormous effort of the study personnel of the various regional centers is highly appreciated. We thank the large number of nephrologists who provide routine care for the patients and collaborate with the GCKD study. The GCKD study was/is funded by grants from the Federal Ministry of Education and Research (BMBF, grant number 01ER0804, K.-U.E.) and the KfH Foundation for Preventive Medicine. Genotyping was supported by Bayer Pharma AG. The work of M.Wu. was supported by the German Research Foundation (DFG) - Project-ID 431984000 - SFB 1453.

German MI Family Study (GerMiFS)

The GerMiFS gratefully acknowledges the contributions of the participants and of the study staff.

GRAPHIC (Genetic Regulation of Arterial Pressure In humans in the Community)

C.P.N., P.S.B. and N.J.S. are supported by the National Institute for Health Research (NIHR) Leicester Cardiovascular Biomedical Research Centre (BRC-1215-20010)

Greek Recurrent Myocardial Infarction Cohort (GRMIC)

The GRMIC thanks all study participants who contributed to this study and all individuals who have contributed to patients' recruitments and sample collection. This work was supported by the British Heart Foundation (BHF) grant RG/14/5/30893 (Pa.D.) and forms part of the research themes contributing to the translational research portfolios of the Barts Biomedical Research Centre funded by the UK National Institute for Health Research (NIHR). O.G. received funding from the British Heart Foundation (BHF) (FS/14/66/3129).

Groningen Genetics of Atrial Fibrillation Study (GGAF)

The GGAF is supported by funding to the 5 sources that form GGAF. The AF RISK study is supported by the Netherlands Heart Foundation (grant NHS2010B233), and the Center for Translational Molecular Medicine. Both the Young-AF and Biomarker-AF studies are supported by funding from the University Medical Center Groningen. The GIPS-III trial was supported by grant 95103007 from ZonMw, the Netherlands Organization for Health Research and Development. The PREVEND study is supported by the Dutch Kidney Foundation (grant E0.13) and the Netherlands Heart Foundation (grant NHS2010B280). M.R. acknowledges support from the Dutch Heart Foundation and is conducted in collaboration with and supported by the Dutch CardioVascular Alliance, 01-002-2022-0118 EmBRACE, from ZonMW and the Dutch Heart Foundation; DECISION project 848090001, from the Netherlands Cardiovascular Research Initiative: an initiative with support of the Dutch Heart Foundation; RACE V (CVON 2014-9), RED-CVD (CVON2017-11), from Top Sector Life Sciences & Health to the Dutch Heart Foundation (PPP Allowance; CVON-AI (2018B017)), and from the European Union's Horizon 2020 research and innovation programme under grant agreement; EHRA-PATHS (945260).

Health (Health2006, Health2008, Health2010)

N.G. was supported by Novo Nordisk Foundation (Grant No. NNF18CC0034900 and NNF23SA0084103).

Health and Retirement Study (HRS)

HRS is supported by the National Institute on Aging (NIA U01AG009740). The genotyping was funded separately by the National Institute on Aging (RC2 AG036495, RC4 AG039029). Our genotyping was conducted by the NIH Center for Inherited Disease Research (CIDR) at Johns Hopkins University. Genotyping quality control and final preparation of the data were performed by the Genetics Coordinating Center at the University of Washington and the School of Public Health at the University of Michigan.

Health Professionals Follow-up Study (HPFS)

We are grateful to the participants and staff of the Health Professionals Follow-Up Study for their valuable contributions. The Health Professionals Follow-up Study was supported by grants U01 167552, CA141298, and P01CA055075.

Healthy Aging in Neighborhoods of Diversity across the Life Span (HANDLS)

We thank all HANDLS participants for their commitment to and participation in the study. HANDLS is funded by the NIA Intramural Research Program Project Number AG000513.

Heinz Nixdorf Recall Study (HNR)

The HNR study is indebted to all study participants and to both the dedicated personnel of the study center of the HNR study and to the investigative group. The HNR study thanks the Heinz Nixdorf Foundation for their generous support of this study. Parts of the study were also supported by the German Research Council (DFG) [DFG project: EI 969/2-3, ER 155/6-1;6-2, HO 3314/2-1;2-2;2-3;4-3, INST 58219/32-1, JO 170/8-1, KN 885/3-1, PE 2309/2-1, SI 236/8-1;9-1;10-1,], the German Ministry of Education and Science [BMBF project: 01EG0401, 01GI0856, 01GI0860, 01GS0820_WB2-C, 01ER1001D, 01GI0205], the Ministry of Innovation, Science, Research and Technology, North Rhine-Westphalia (MIWFT-NRW).

Hellenic Isolated Cohorts, MANOLIS and Pomak (HELIC-MANOLIS/Pomak)

The MANOLIS cohort is named in honour of Manolis Giannakakis, 1978-2010. We thank the residents of Anogia and surrounding Mylopotamos villages, and of the Pomak villages, for taking part. The HELIC study has been supported by many individuals who have contributed to sample collection (including Antonis Athanasiadis, Olinia Balafouti, Christina Batzaki, Georgios Daskalakis, Eleni Emmanouil, Chrisoula Giannakaki, Margarita Giannakopoulou, Anastasia Kaparou, Vasiliki Kariakli, Stella Koinaki, Dimitra Kokori, Maria Konidari, Hara Koundouraki, Dimitris Koutoukidis, Vasiliki Mamakou, Eirini Mamalaki, Eirini Mpamiaki, Maria Tsoukana, Dimitra Tzakou, Katerina Vosdogianni, Niovi Xenaki, Eleni Zengini), data entry (Thanos Antonos, Dimitra Papagrigoriou, Betty Spiliopoulou), sample logistics (Sarah Edkins, Emma Gray), genotyping (Robert Andrews, Hannah Blackburn, Doug Simpkin, Siobhan Whitehead), research administration (Anja Kolb-Kokocinski, Carol Smee, Danielle Walker) and informatics (Martin Pollard, Josh Randall). This work was funded by the Wellcome Trust (098051) and the European Research Council (ERC-2011-StG 280559-SEPI).

Hispanic Community Health Study / Study of Latinos (HCHS/SOL)

The Hispanic Community Health Study / Study of Latinos (HCHS/SOL) is a multi-center study of Hispanic/Latino populations with the goal of risk and protective factors for the development of cardiovascular and respiratory diseases, and to identify other traits that impact Hispanic/Latino health. The study is sponsored by the National Heart, Lung, and Blood Institute (NHLBI) and other institutes, centers, and offices of the National Institutes of Health (NIH). Recruitment began in 2006 with a target population of 16,000 persons of Cuban, Puerto Rican, Dominican, Mexican or Central/South American origin. Household sampling was employed as part of the study design. Participants were recruited through four sites affiliated with San Diego State University, Northwestern University in Chicago, Albert Einstein College of Medicine, and the University of Miami. Researchers from seven academic centers provided scientific and logistical support. Study participants who were self-identified Hispanic/Latino and aged 18-74 years underwent extensive psycho-social and clinical assessments during 2008-2011. A re-examination of the HCHS/SOL cohort were conducted during 2015-2017 and 2020-2024. Annual telephone follow-up interviews are ongoing since study inception to determine health outcomes of interest. (dbGaP study accession number: phs000555). Primary funding support to K.E.N. and colleagues is provided by U01HG007416. Additional support was provided via R01DK101855 and 15GRNT25880008. The Hispanic Community Health Study/Study of Latinos is a collaborative study supported by contracts from the National Heart, Lung, and Blood Institute (NHLBI) to the University of North Carolina (HHSN268201300001I / N01-HC-65233), University of Miami (HHSN268201300004I / N01-HC-65234), Albert Einstein College of Medicine (HHSN268201300002I / N01-HC-65235), University of Illinois at Chicago (HHSN268201300003I / N01-HC-65236 Northwestern Univ), and San Diego State University (HHSN268201300005I / N01-HC-65237). The following Institutes/Centers/Offices have contributed to the HCHS/SOL through a transfer of funds to the NHLBI: National Institute on Minority Health and Health Disparities, National Institute on Deafness and Other Communication Disorders, National Institute of Dental and Craniofacial Research, National Institute of Diabetes and Digestive and Kidney Diseases, National Institute of Neurological Disorders and Stroke, NIH Institution-Office of Dietary Supplements. The data used for the analyses described in this manuscript were obtained from dbGaP under accession phs000555. M.Gr. is supported by R01

HL163262-01A1. H.M.H. was supported by NIH grants HL129982 and T32 HL007055. A.E.J. was supported in part by NIH grants R01DK122503, R01DK135938, K99/R00 HL130580. K.E.N. was supported by R01HL142302, R01HL156991, R01HL163262, R01DK139598, R01HL151152, R01DK122503.

Hoorn Diabetes Care System Cohort study (Hoorn DCS Cohort)

The Hoorn DCS study was supported by a grant from the Foundation for the National Institutes of Health through the Accelerating Medicines Partnership (no. HART17AMP) and the Parelsnoer Initiative (PSI).

Hunter Community Study (HCS)

The authors would like to thank the men and women participating in the HCS as well as all the staff, investigators and collaborators who have supported or been involved in the project to date. The University of Newcastle provided \$300 000 from its Strategic Initiatives Fund, and \$600 000 from the Gladys M Brawn Senior Research Fellowship scheme; Vincent Fairfax Family Foundation, a private philanthropic trust, provided \$195 000; The Hunter Medical Research Institute provided media support during the initial recruitment of participants.

Hypertension Genetic Epidemiology Network Axiom chip data (HyperGEN-Axiom)

The HyperGen-Axiom was funded by NIH grant R01HL086718. X.Zhu was funded by NHGRI HG011052.

Indian Diabetes Consortium (INDICO)

The INDICO gratefully acknowledges the contributions of the participants and the study staff. INDICO was supported by Council of Scientific and Industrial Research (CSIR), Government of India through Centre for Cardiovascular and Metabolic Disease Research (CARDIOMED) project (Grant no. BSC0122); Also partially funded by Department of Science and Technology, Government of India through PURSE II CDST/SR/PURSE PHASE II/11 provide to Jawaharlal Nehru University, New Delhi, India.

Indian Diabetes Prevention Study 3 (IDPP3) (part of Genomic Research Cohorts for CCMB Diabetes Study (GRCCDS))

The IDPP3 gratefully acknowledges the participants of the volunteers in the study and the field staff who followed the volunteers on regular basis. Council of Scientific and Industrial Research, Ministry of Science and Technology, Govt. of India, New Delhi, India.

INGI-Friuli Venezia Giulia (INGI-FVG)

The authors gratefully acknowledge the participants from the INGI-FVG cohort. This work was supported by the Italian Ministry of Health, through the contribution given to the Institute for Maternal and Child Health IRCCS Burlo Garofolo, Trieste, Italy — RC 01/21 to M.P.C.

Inter99

The study was financially supported by research grants from the Danish Research Council, the Danish Centre for Health Technology Assessment, Novo Nordisk Inc., Research Foundation of Copenhagen County, Ministry of Internal Affairs and Health, the Danish Heart Foundation, the Danish Pharmaceutical Association, the Augustinus Foundation, the Ib Henriksen Foundation, the Becket Foundation, and the Danish Diabetes Association. Novo Nordisk Foundation Center for Basic Metabolic Research is an independent Research Center, based at the University of Copenhagen, Denmark and partially funded by an unconditional donation from the Novo Nordisk Foundation (www.cbmr.ku.dk) (Grant number NNF18CC0034900).

Intermountain Heart Study (INSPIRE_AF)

M.J.Cu. is supported by funding from the Dell Loy Hansen Heart Foundation.

Invecchiare in Chianti (InCHIANTI)

The InCHIANTI study baseline (1998-2000) was supported as a "targeted project" (ICS110.1/RF97.71) by the Italian Ministry of Health and in part by the U.S. National Institute on Aging (Contracts: 263 MD 9164 and 263 MD 821336); the InCHIANTI Follow-up 1 (2001-2003) was funded by the U.S. National Institute on Aging (Contracts: N.1-AG-1-1 and N.1-AG-1-2111)

iPSYCH

Analyses of the iPSYCH cohort was conducted on the GenomeDenmark and Computerome High Performance Computing facilities. iPSYCH was supported by The Lundbeck Foundation, the Stanley Medical Research Institute, the Aarhus and Copenhagen universities and university hospitals; the research was conducted using the Danish National Biobank resource, supported by the Novo Nordisk Foundation.

Jackson Heart Study (JHS)

The Jackson Heart Study (JHS) is supported and conducted in collaboration with Jackson State University (HHSN268201800013I), Tougaloo College (HHSN268201800014I), the Mississippi State Department of Health (HHSN268201800015I) and the University of Mississippi Medical Center (HHSN268201800010I, HHSN268201800011I and HHSN268201800012I) contracts from the National Heart, Lung, and Blood Institute (NHLBI) and the National Institute on Minority Health and Health Disparities (NIMHD). The authors also wish to thank the staffs and participants of the JHS. The views expressed in this manuscript are those of the authors and do not necessarily represent the views of the National Heart, Lung, and Blood Institute; the National Institutes of Health; or the U.S. Department of Health and Human Services. The project described was supported by the National Center for Advancing Translational Sciences, National Institutes of Health, through Grant KL2TR002490 (L.M.R.). L.M.R. was also supported by T32HL129982.

Japan PGx Data Science Consortium (JPDSC)

The authors thank the Japan PGx Data Science Consortium (JPDSC) for kindly providing genotype and phenotype data. The JPDSC was comprised of six pharmaceutical companies in Japan, namely Astellas Pharma, Inc.; Daiichi Sankyo Co., Ltd.; Mitsubishi Tanabe Pharma Corporation; Otsuka Pharmaceutical Co., Ltd.; Taisho Pharmaceutical Co., Ltd.; and Takeda Pharmaceutical Co., Ltd.

Johnston County Osteoarthritis Project (JoCoOA)

The investigators wish to thank the staff and participants in the Johnston County Osteoarthritis Project, without whom this work would not be possible. The JoCoOA is supported in part by S043, S1734, & S3486 from the CDC/Association of Schools of Public Health; 5-P60-AR30701, 5-P60-AR49465, & P30AR072580 from NIAMS/NIH, and U01 DP003206 from the CDC.

Justification for the Use of Statins in Primary Prevention: an Intervention Trial Evaluating Rosuvastatin (JUPITER)

The JUPITER trial (PI: Ridker) and its substudy for genetics (PIs: Chasman and Ridker) were funded by Astra-Zeneca.

Kangbuk Samsung Cohort Study (KSCS)

The KSCS gratefully acknowledges the contributions of the participants and of the study staff. We are thankful for the computing resources provided by the Global Science experimental Data hub Center (GSDC) Project and the Korea Research Environment Open NETwork (KREONET) of the Korea Institute

of Science and Technology Information (KISTI). H.-N.K. acknowledges support from the National Research Foundation of Korea (NRF) Grant (NRF-2023R1A2C2006416).

Kita-Nagoya Genome Epidemiology Study (CAGE-KING)

CAGE-KING was supported in part by Grants-in-Aid from MEXT (nos. 16H05250, 15K19242, 16H06277, 19K19434, 20K10514, 21H03206, 22H04923, 22H03350, 23K24608, 24K02690) as well as by a grant from the Funding Program for Next-Generation World-Leading Researchers (NEXT Program, no. LS056).

Korea Association REsource (KARE)

This study was conducted with bioresources from National Biobank of Korea, the Korea Disease Control and Prevention Agency, Republic of Korea. The Korean Association Resource (KARE) was supported by grants from National Institute of Health, Republic of Korea (4845–301, 4851–302, 4851–307) and intramural grants from the Korea National Institute of Health (2019-NG-053-02). In addition, this work was supported by an intramural grant from the National Institute of Health, Republic of Korea (2022-NI-067-02).

Korea National Diabetes Program (KNDP)

The KNDP gratefully acknowledges the contributions of the participants and of the study staff. This study was supported by a grant from the Korea Healthcare Technology R&D Project, Ministry of Health and Welfare, Republic of Korea (A102065).

Kuwait Obesity and Diabetes Genetics Programme (KODGP)

The KODGP gratefully acknowledges the contributions of the participants and of the study staff. The KODGP was supported by institutional funding by Kuwait Foundation for the Advancements of Sciences. T.A.T. was supported by Kuwait Foundation for the Advancement of Sciences (KFAS). F.A.-M. supported by the Kuwait Foundation for the Advancement of Sciences (KFAS).

Leicester BioResource (LBR)

C.P.N is funded by the BHF (SP/16/4/32697). C.P.N., P.S.B. and N.J.S. are supported by the National Institute for Health Research (NIHR) Leicester Cardiovascular Biomedical Research Centre (BRC-1215-20010).

LIFE-Adult

We thank all participants of the LIFE-Adult study for spending their time and blood samples. LIFE-Adult genotyping was performed at the Cologne Center for Genomics (CCG, University of Cologne, Peter Nuernberg and Mohammad R. Toliat). For genotype imputation, compute infrastructure provided by ScaDS (Dresden/Leipzig Competence Center for Scalable Data Services and Solutions) at the Leipzig University Computing Centre was used. LIFE-Adult is funded by the Leipzig Research Center for Civilization Diseases (LIFE). LIFE is an organizational unit affiliated to the Medical Faculty of Leipzig University. LIFE is funded by means of the European Union, by the European Regional Development Fund (ERDF) and by funds of the Free State of Saxony within the framework of the excellence initiative.

Living Biobank

We thank all participants, the study team and the investigators for their research contributions. The Living Biobank is supported by individual research and clinical scientist award schemes from the National Medical Research Council (NMRC) and the Biomedical Research Council (BMRC) of Singapore, and infrastructure funding from the Singapore Ministry of Health (Population Health Metrics and Analytics PHMA), National University of Singapore and National University Health System, Singapore. In addition, genotyping for Living Biobank was funded by the Agency for Science, Technology and Research, Singapore, and Merck Sharp & Dohme Corp., Whitehouse Station, NJ, USA.

London Life Sciences Prospective Population Study (LOLIPOP)

The LOLIPOP study is supported by the National Institute for Health Research (NIHR) Comprehensive Biomedical Research Centre Imperial College Healthcare NHS Trust. We acknowledge support of the MRC-PHE Centre for Environment and Health, and the NIHR Health Protection Research Unit on Health Impact of Environmental Hazards. The work was carried out in part at the NIHR/Wellcome Trust Imperial Clinical Research Facility. The views expressed are those of the author(s) and not necessarily those of the Imperial College Healthcare NHS Trust, the NHS, the NIHR or the Department of Health. We thank the participants and research staff who made the study possible. The LOLIPOP was funded by the British Heart Foundation (SP/04/002), the Medical Research Council (G0601966, G0700931), the Wellcome Trust (084723/Z/08/Z, 090532 & 098381) the NIHR (RP-PG-0407-10371), the NIHR Official Development Assistance (ODA, award 16/136/68), the European Union FP7 (EpiMigrant, 279143) and H2020 programs (iHealth-T2D, 643774). J.C.C. is supported by the Singapore Ministry of Health's National Medical Research Council under its Singapore Translational Research Investigator (STaR) Award (NMRC/STaR/0028/2017).

Long Life Family Study (LLFS)

LLFS acknowledges the contributions of the participants and of the study staff. LLFS was funded by NIA grants U01AG023746 and U19AG063893.

Look AHEAD (Action for Health in Diabetes)

This study is supported by the Department of Health and Human Services through the following cooperative agreements from the National Institutes of Health: DK57136, DK57149, DK56990, DK57177, DK57171, DK57151, DK57182, DK57131, DK57002, DK57078, DK57154, DK57178, DK57219, DK57008, DK57135, and DK56992. The following federal agencies have contributed support: National Institute of Diabetes and Digestive and Kidney Diseases; National Heart, Lung, and Blood Institute; National Institute of Nursing Research; National Center on Minority Health and Health Disparities; NIH Office of Research on Women's Health; and the Centers for Disease Control and Prevention. This research was supported in part by the Intramural Research Program of the National Institute of Diabetes and Digestive and Kidney Diseases. The Indian Health Service (I.H.S.) provided personnel, medical oversight, and use of facilities. The opinions expressed in this paper are those of the authors and do not necessarily reflect the views of the I.H.S. or other funding sources. Generation of the GWAS data in Look AHEAD was supported by the Innovative Medicines Initiative Joint Undertaking under grant agreement n°115317 (DIRECT), resources of which are composed of a financial contribution from the European Union's Seventh Framework Programme (FP7/2007-2013) and EFPIA companies' in kind contribution. Disclaimer: This work was prepared while J.M.Mc. (Jeanne M. McCaffery) was employed at University of Connecticut. The opinions expressed in this article are the author's own and do not reflect the view of the National Institutes of Health, the Department of Health and Human Services, or the United States government. M.R.C. was supported by the Novo Nordisk Foundation (NNF18CC0034900, NNF23SA0084103). In addition, M.R.C. was supported by a research grant from the Danish Diabetes Academy, which is funded by the Novo Nordisk Foundation, grant number NNF17SA0031406. T.O.K. is supported by the Novo Nordisk Foundation (NNF18CC0034900, NNF22OC0074128, NNF23SA0084103).

Ludwigshafen Risk and Cardiovascular Health Study (LURIC)

We thank the LURIC study team who were either temporarily or permanently involved in patient recruitment as well as sample and data handling, in addition to the laboratory staff at the Ludwigshafen General Hospital and the Universities of Freiburg, Ulm, and Heidelberg, Germany. LURIC was supported by the 7th Framework Program RiskyCAD (grant agreement number 305739) of the European Union and the H2020 Program TO_AITION (grant agreement number 848146) of the European Union. The work of G.E.D. is supported by the European Union's Horizon 2020 research and

innovation programme under the ERA-Net Cofund action N° 727565 (OCTOPUS project) and the German Ministry of Education and Research (grant number 01EA1801A).

Malmö Preventive Project atrial fibrillation and echo studies (MPP-AF & MPP-echo)

J.G.S. was supported by grants from the Swedish Heart-Lung Foundation (2022-0344, 2023-03332), the Swedish Research Council (2021-02273), the European Research Council (ERC-STG-2015-679242), Gothenburg University, Skåne University Hospital, governmental funding of clinical research within the Swedish National Health Service, a generous donation from the Knut and Alice Wallenberg foundation to the Wallenberg Center for Molecular Medicine in Lund, and funding from the Swedish Research Council (Linnaeus grant Dnr 349-2006-237, Strategic Research Area Exodiab Dnr 2009-1039) and Swedish Foundation for Strategic Research (Dnr IRC15-0067) to the Lund University Diabetes Center.

Massachusetts General Hospital Atrial Fibrillation Study (MGH_AF)

P.T.E. is supported by grants from the National Institutes of Health (R01HL092577, R01HL157635, R01HL177209), from the American Heart Association (961045), from the European Union (MAESTRIA 965286) and from the Fondation Leducq (24CVD01).

Massachusetts General Hospital Stroke Study (MGH Stroke)

S.A.Lu. was previously supported by NIH grants R01HL139731 and R01HL157635, and American Heart Association 18SFRN34250007.

Maywood Cohort (part of Genetics of Hypertension in Blacks)

Maywood cohort study was supported by NIH grants R37-HL045508, R01-HL074166, R01-HL086718 and R01-HG003054.

MESA (Multi-Ethnic Study of Atherosclerosis)

MESA and the MESA SHARe projects are conducted and supported by the National Heart, Lung, and Blood Institute (NHLBI) in collaboration with MESA investigators. Support for MESA is provided by contracts 75N92020D00001, HHSN268201500003I, N01-HC-95159, 75N92020D00005, N01-HC-95160, 75N92020D00002, N01-HC-95161, 75N92020D00003, N01-HC-95162, 75N92020D00006, N01-HC-95163, 75N92020D00004, N01-HC-95164, 75N92020D00007, N01-HC-95165, N01-HC-95166, N01-HC-95167, N01-HC-95168, N01-HC-95169, UL1-TR-000040, UL1-TR-001079, and UL1-TR-001420, UL1TR001881, DK063491, and R01HL105756. Funding for SHARe genotyping was provided by NHLBI Contract N02-HL-64278. Genotyping was performed at Affymetrix (Santa Clara, California, USA) and the Broad Institute of Harvard and MIT (Boston, Massachusetts, USA) using the Affymetrix Genome-Wide Human SNP Array 6.0. The authors thank the other investigators, the staff, and the participants of the MESA study for their valuable contributions. A full list of participating MESA investigators and institutes can be found at <http://www.mesa-nhlbi.org>.

Metabolic Syndrome in Men (METSIM)

The METSIM study was funded by the Academy of Finland (grant no.77299 and 124243).

Mexican hypertriglyceridemia (MexHTG)

The MexTG cohort gratefully acknowledges the contributions of the participants of the study staff. The MexTG cohort was funded by NIH grant R01 HL095056.

Mexico City 1 and Mexico City 2 (MC1 & MC2)

MC1 & MC2 gratefully acknowledge the contributions of the participants. We thank Miguel Alexander Vazquez Moreno, Daniel Locia and Araceli Méndez Padrón for technical support in Mexico. The Mexico City 1 and Mexico City 2 studies were supported in Mexico by the Fondo Sectorial de Investigación en Salud y Seguridad Social (SSA/IMSS/ISSSTECONACYT, project 150352), Temas Prioritarios de Salud

Instituto Mexicano del Seguro Social (2014-FIS/IMSS/PROT/PRI0/14/34), and the Fundación IMSS. In Canada, this research was enabled in part by two CIHR Operating grants to E.J.P., a CIHR New Investigator Award to E.J.P. and by support provided by Compute Ontario (www.computeontario.ca), and Compute Canada (www.compute.canada.ca).

MGH Cardiology and Metabolic Patient Cohort (CAMP)

S.A.Lu. was previously supported by NIH grants R01HL139731 and R01HL157635, and American Heart Association 18SFRN34250007. P.T.E. is supported by grants from the National Institutes of Health (R01HL092577, R01HL157635, R01HL177209), from the American Heart Association (961045), from the European Union (MAESTRIA 965286) and from the Fondation Leducq (24CVD01).

Michigan Genomics Initiative (MGI)

The authors acknowledge the Michigan Genomics Initiative participants, Precision Health at the University of Michigan, the University of Michigan Medical School Central Biorepository, and the University of Michigan Advanced Genomics Core for providing data and specimen storage, management, processing, and distribution services, and the Center for Statistical Genetics in the Department of Biostatistics at the School of Public Health for genotype data curation, imputation, and management in support of the research reported in this publication.

Minnesota Center for Twin and Family Research (MCTFR)

Work conducted within the MCTFR was supported by grants from the National Institutes of Health DA044283, DA042755, DA037904, AA009367, DA005147, and DA036216. In addition, by R01DA042755 and R01HG011035.

Montreal Heart Institute Biobank (MHIBB)

We thank all participants and staff of the André and France Desmarais MHI Biobank. The MHIBB was funded by the Montreal Heart Institute Biobank. G.L. funded by the Canadian Institutes of Health Research (PJT #156248), the Canada Research Chair Program, Genome Quebec and Genome Canada, and the Montreal Heart Institute Foundation.

MrOS Gothenburg

MrOS in Sweden is supported by the Swedish Research Council, the Swedish Foundation for Strategic Research, the ALF/LUA research grant in Gothenburg, the Lundberg Foundation, the Knut and Alice Wallenberg Foundation, the Torsten Soderberg Foundation, and the Novo Nordisk Foundation.

Myocardial Infarction Genetics Consortium (MIGEN)

Funding support was provided by grants 1K08HG010155 and 1U01HG011719 (to A.V.K.) from the National Human Genome Research Institute.

NAFLD study (NAFLD)

This Greek NAFLD study was financially supported in the context of the project entitled "Obesity and metabolic syndrome: dietary intervention with Greek raisins in NAFLD/NASH. Investigation of molecular mechanisms", approved by the Greek Secretariat for Research and Technology (Cooperation 890/2009), and by "Research Project for Excellence IKY/SIEMENS". O.G. received funding from the British Heart Foundation (BHF) (FS/14/66/3129).

National Survey of Health and Development (NSHD)

We thank the NSHD participants for their continued support and lifelong contribution to the study. The NSHD is funded by the UKRI Medical Research Council [MC_UU_00019/1]. A.W. is funded by the UKRI Medical Research Council [MR/Y014022/1]. N.C. is funded by the UKRI Medical Research Council [MR/Y014022/1].

Netherlands Epidemiology of Obesity Study (NEO)

We greatly appreciate all participants of the Netherlands Epidemiology of Obesity study, and all participating general practitioners for inviting eligible individuals. We furthermore thank P.R. van Beelen and all research nurses for collecting the data, P.J. Noordijk and her team for sample handling and storage and I. de Jonge, MSc for all data management of the NEO study. The NEO study is supported by the participating Departments, the Division and the Board of Directors of the Leiden University Medical Centre, and by the Leiden University, Research Profile Area 'Vascular and Regenerative Medicine'.

Netherlands Study of Cognition (NESCOG)

NESCOG research was part of Science Live, the innovative research program of science center NEMO that enables scientists to carry out their research using NEMO visitors as volunteers. The Netherlands Organization for Scientific Research (NWO) Division for the Social Sciences (MaGW) provided funding for this research through VIDI 016-065-318 to D.P.

New Hoorn Study

The GWAS in the new Hoorn study was supported by the Amsterdam University Medical Center, Location VUmc.

Nigeria Cohort (part of Genetics of Hypertension in Blacks)

The authors acknowledge the assistance of the research staff and participants in Igbo-Ora, Oyo State, Nigeria. Nigerian cohort study was supported by NIH grants R37-HL045508, R01-HL053353, R01-DK075787 and U01-HL054512.

Nijmegen Biomedical Study (NBS)

The Nijmegen Biomedical Study is a population-based survey conducted at the Department for Health Evidence and the Department of Laboratory Medicine of the Radboud university medical center. Principal investigators of the Nijmegen Biomedical Study are L.A.L.M. Kiemeny, A.L.M. Verbeek, D.W. Swinkels en B. Franke.

Norfolk Island Health Study (NIHS)

We gratefully acknowledge all participants and staff involved in the NIHS. The NIHS is a population based cohort study supported by Australian NHMRC and NHF funding.

Northern Finland Birth cohort 1966 (NFBC1966)

The authors are grateful to the late professor Paula Rantakallio (launch of NFBC1966), the participants in the 31- and 46-years-old study and the NFBC project center (www oulu.fi/nfbc). We thank all cohort members and researchers who participated in the 46 yrs study. We also wish acknowledge the work of the NFBC project center. NFBC1966 received financial support from University of Oulu Grant no. 24000692, Oulu University Hospital Grant no. 24301140, ERDF European Regional Development Fund Grant no. 539/2010 A31592, Academy of Finland (285547, EGEA).

Northern Ireland Cohort for Longitudinal Study of Ageing (NICOLA)

We are grateful to all the participants of the NICOLA Study, and the whole NICOLA team, which includes nursing staff, research scientists, clerical staff, computer and laboratory technicians, managers and receptionists. The authors alone are responsible for the interpretation of the data and any views or opinions presented are solely those of the authors and do not necessarily represent those of the NICOLA Study team. The Atlantic Philanthropies, the Economic and Social Research Council, the UKCRC Centre of Excellence for Public Health Northern Ireland, the Centre for Ageing Research and Development in Ireland, the Office of the First Minister and Deputy First Minister, the Health and Social

Care Research and Development Division of the Public Health Agency, the Wellcome Trust/Wolfson Foundation and Queen's University Belfast provide core financial support for NICOLA. The analysis of molecular biomarkers for NICOLA's Wave 1 was funded by the Economic and Social Research Council, award reference ES/L008459/1. Generic analysis of data was supported by ESRC (ES/L008459/1) and the Science Foundation Ireland-Department for the Economy (SFI-DfE) Investigator Program Partnership Award (15/IA/3152).

Nurses' Health Study (NHS)

The authors would like to thank the participants and staff of the Nurses Health Study for their valuable contributions. The Nurses' Health Study was supported by NIH grants UM1 CA186107, P01 CA87969 and R01 CA49449.

Nurses' Health Study II (NHS II)

The authors would like to thank the participants and staff of the Nurses' Health Study II for their valuable contributions. The Nurses' Health Study II was supported by NIH Grants U01 CA176726 and R01 CA67262.

Nutrition and Health of Aging Population in China (NHAPC)

We are grateful to all participants of the NHAPC study, and also thank our colleagues at the laboratory and local CDC staffs of Beijing and Shanghai for their assistance with data collection. The NHAPC study are supported by the Strategic Priority CAS Project (grant number XDB38000000), Shanghai Municipal Science and Technology Major Project (grant number 2017SHZDZX01), and the National Natural Science Foundation of China (grant number 81970684).

Ogliastro Genetic Park (OGP)

The OGP expresses its gratitude to all the study participants for their contributions and to the municipal administrations for their economic and logistic support. The OGP study was supported by grant from the Italian Ministry of Education, University and Research (MIUR) n°: 5571/DSPAR/2002.

Orkney Complex Disease Study (ORCADES)

DNA extractions were performed at the Edinburgh Clinical Research Facility, University of Edinburgh. We would like to acknowledge the invaluable contributions of the research nurses in Orkney, the administrative team in Edinburgh and the people of Orkney. The Orkney Complex Disease Study (ORCADES) was supported by the Chief Scientist Office of the Scottish Government (CZB/4/276, CZB/4/710), a Royal Society URF to J.F.W., the MRC Human Genetics Unit quinquennial programme "QTL in Health and Disease", Arthritis Research UK and the European Union framework program 6 EUROSPAN project (contract no. LSHG-CT-2006-018947). P.R.H.J.T. acknowledges funding from the Medical Research Council Doctoral Training Programme in Precision Medicine (MR/N013166/1).

Oxford Biobank (OxBB)

This research was funded by the National Institute for Health Research Oxford Biomedical Research Centre and the British Heart Foundation [RG/17/1/32663].

Pakistan Risk of Myocardial Infarction Study (PROMIS)

Funding support was provided by grants 1K08HG010155 and 1U01HG011719 (to A.V.K.) from the National Human Genome Research Institute. G.H. was funded by the Swedish Research Council grant 2016-06830.

Penn Medicine Biobank (PMBB)

The PMBB gratefully acknowledges the contributions of the participants and of the study staff. The Penn Medicine BioBank is funded by a gift from the Smilow family, the National Center for Advancing

Translational Sciences of the National Institutes of Health under CTSA Award Number UL1TR001878, and the Perelman School of Medicine at the University of Pennsylvania.

Physicians Health Study (PHS)

We are grateful to the participants and staff of the Physicians' Health Study for their valuable contributions. The Physicians Health Study was supported by grant CA141298.

Precocious Coronary Artery Disease (PROCARDIS)

PROCARDIS was supported by the European Community Sixth Framework Program (LSHM-CT-2007-037273), AstraZeneca, the Swedish Research Council, the Knut and Alice Wallenberg Foundation, the Swedish Heart-Lung Foundation, the Torsten and Ragnar Soderberg Foundation, the Strategic Cardiovascular Program of Karolinska Institutet and Stockholm County Council, the Foundation for Strategic Research and the Stockholm County Council (560283). Wellcome Trust core award (090532/Z/09/Z, 203141/Z/16/Z, 201543/B/16/Z); HEALTH-F2-2013-601456 (CVGenes@Target), the TriPartite Immunometabolism Consortium [TrIC]-Novo Nordisk Foundation's Grant number NNF15CC0018486, VIAgenomics (SP/19/2/344612) and support from the NIHR Oxford Biomedical Research Centre. The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health. H.W. is supported by the British Heart Foundation Centre for Research Excellence. M.S.-L. is supported by a Miguel Servet contract from the ISCIII Spanish Health Institute (CPII22/00007) and co-financed by the European Social Fund.

PROspective Study of Pravastatin in the Elderly at Risk for vascular disease (PROSPER)

The PROSPER study was supported by an investigator initiated grant obtained from Bristol-Myers Squibb. J.W.J. is an Established Clinical Investigator of the Netherlands Heart Foundation (grant 2001 D 032). Support for genotyping was provided by the seventh framework program of the European commission (grant 223004) and by the Netherlands Genomics Initiative (Netherlands Consortium for Healthy Aging grant 050-060-810).

Prostate cancer Genome-wide Association Study to Uncover Susceptibility loci (PEGASUS)

PEGASUS gratefully acknowledges contributions of the study participants. The content of this publication does not necessarily reflect the views or policies of the Department of Health and Human Services nor does mention of trade names, commercial products, or organization indicate endorsement by the U.S. Government. PEGASUS was supported by the Intramural Research Program of the Division of Cancer Epidemiology and Genetics, National Cancer Institute, NIH (ZIA CP010152-20).

Prostate, Lung, Colorectal and Ovarian (PLCO) Cancer Screening Trial

PLCO is supported by the Intramural Research Program of the Division of Cancer Epidemiology and Genetics, and contracts from the Division of Cancer Prevention, NCI, NIH, DHHS. The authors thank the NCI study management team, the screening center investigators, and staff at Information Management Services, Inc. and Westat, Inc. We thank Bill Wheeler for helping construct the PRS for PLCO. Most importantly, we thank the study participants for their contributions that made this study possible. The results reported here and the conclusions derived are the sole responsibility of the authors.

Pune Maternal Nutrition Study (PMNS) (part of GRCCDS)

The Pune Maternal Nutrition Study thanks all the participants and the study staff. C.S.Y. acknowledges support from the Wellcome Trust, London, MRC, UK, Department of Biotechnology, Govt of India, New Delhi. In addition, G.R.C. acknowledges support from the Council of Scientific and Industrial Research, Ministry of Science and Technology, Govt. of India, New Delhi, India.

QIMR Berghofer Genetic Epidemiology Cohort (QIMR)

QIMR gratefully acknowledges the contributions of the participants and their families. QIMR gratefully acknowledges funding from the Australian National Health and Medical Research Council (NHMRC; 241944, 389875, 389891, 389892, 389938, 442915, 442981, 496739, 496688, 552485, 613672, 613601, 1011506 and APP1172917), the US National Institutes of Health (AA07535, AA10248, AA014041, AA13320, AA13321, AA13326 and DA12854) and the Australian Research Council (ARC; DP0770096 and DP1093502). S.E.M. was supported by NHMRC Investigator Grant APP1172917.

Quebec Family Study (QFS)

Thanks are expressed to the participants in the Québec Family Study and the staff of the Physical Activity Sciences Laboratory at Université Laval for their contribution in this study. The Quebec Family Study was funded by multiple grants from the Medical Research Council of Canada and the Canadian Institutes of Health Research. This work was supported by a team grant from the Canadian Institutes of Health Research (FRN-CCT-83028).

Ragama Health Study (RHS)

The RHS was supported by the Grant of National Center for Global Health and Medicine (NCGM).

Relationship between Insulin Sensitivity and Cardiovascular disease Study (RISC)

The RISC Study was supported by European Union grant QLG1-CT-2001-01252 and AstraZeneca.

Rotterdam Study I, II, III

The generation and management of GWAS genotype data for the Rotterdam Study (RS I, RS II, RS III) was executed by the Human Genotyping Facility of the Genetic Laboratory of the Department of Internal Medicine, Erasmus MC, Rotterdam. We thank Pascal Arp, Mila Jhamai, Marijn Verkerk, Lizbeth Herrera and Marjolein Peters, PhD, and Carolina Medina-Gomez, PhD, for their help in creating the GWAS database and for the creation and analysis of imputed data. The GWAS datasets are supported by the Netherlands Organisation of Scientific Research NWO Investments (nr. 175.010.2005.011, 911-03-012), the Genetic Laboratory of the Department of Internal Medicine, Erasmus MC, the Research Institute for Diseases in the Elderly (014-93-015; RIDE2), the Netherlands Genomics Initiative (NGI)/Netherlands Organisation for Scientific Research (NWO) Netherlands Consortium for Healthy Aging (NCHA), project nr. 050-060-810.

SardiNIA

Intramural Research Program of the NIH, National Institute on Aging, with contracts N01-AG-1-2109 and HHSN271201100005C. Sardinian Autonomous Region (L.R. no. 7/2009) grant cRP3-154. Fondazione di Sardegna (grant U1301.2015/AI.1157. BE Prat. 2015-1651).

Shanghai breast cancer study (SBCS)

The generation and management of GWAS genotype data for the SBCS was supported by R01CA64277 and R01CA15847. Y.L. is supported by NIH R56HL150186, R01DK135938 and R01HL158884.

Shanghai Women's Health Study (SWHS)

The generation and management of GWAS genotype data for the SWHS was supported by UM1CA182910 and R01CA148677.

Silk Road (SR)

The authors gratefully acknowledge the participants from the SR cohort. This study is part of the scientific activities carried out within the scientific expedition Marcopolo 2010. We thank the Terramadre organization and the Terramadre communities who participated in the project. This study was funded by D70-RESRICGIROTT0 to G.G.

Singapore Chinese Health Study - Coronary Artery Disease (SCHS CAD)

We thank Siew-Hong Low of the National University of Singapore for supervising the field work of the Singapore Chinese Health Study. The Singapore Chinese Health Study (SCHS) was supported by the U.S. National Institutes of Health (Grant Numbers R01CA144034 and UM1 CA182876), and by the Singapore National Medical Research Council (Grant Number NMRC 1270/2010). Genotyping of the SCHS CAD subset was funded by the HUU-CREATE Programme of the National Research Foundation, Singapore (Project Number 370062002).

Singapore Chinese Health Study (SCHS-T2D)

The Singapore Chinese Health Study was supported by U.S. NIH/NCI grants: RO1 CA55069, R35 CA53890, R01 CA80205, and R01 CA144034.

Singapore Diabetic Cohort Study (DC)

We thank all participants, the study team and the investigators for their research contributions. The Diabetic Cohort is supported by individual research and clinical scientist award schemes from the National Medical Research Council (NMRC) and the Biomedical Research Council (BMRC) of Singapore, and infrastructure funding from the Singapore Ministry of Health (Population Health Metrics and Analytics PHMA), National University of Singapore and National University Health System, Singapore.

Singapore Epidemiology of Eye Diseases study (SEED): Singapore Chinese Eye Study (SCES) + Singapore Malay Eye Study (SiMES) + Singapore Indian Eye Study (SINDI)

The Singapore Chinese Eye Study (SCES), the Singapore Malay Eye Study (SiMES), and the Singapore Indian Eye Study (SINDI) are supported by the National Medical Research Council (NMRC), Singapore (grants 0796/2003, 1176/2008, 1149/2008, STaR/0003/2008, 1249/2010, CG/SERI/2010, CIRG/1371/2013, and CIRG/1417/2015), and Biomedical Research Council (BMRC), Singapore (08/1/35/19/550 and 09/1/35/19/616).

Singapore Prospective Study Program (SP2)

We thank all participants, the study team and the investigators for their research contributions. The Singapore Prospective Study Program is supported by individual research and clinical scientist award schemes from the National Medical Research Council (NMRC) and the Biomedical Research Council (BMRC) of Singapore, and infrastructure funding from the Singapore Ministry of Health (Population Health Metrics and Analytics PHMA), National University of Singapore and National University Health System, Singapore.

Slim Initiative in Genomic Medicine for the Americas (SIGMA) T2D Consortium

Acknowledges the contribution of the participants and study staff. SIGMA, MCDS RO1 24799 NIHHLB, CONACYT 2092, CONACYT M9303, CONACYT F677, CONACYT 251 M. A.H.-C. is supported by the American Diabetes Association grant 11-23-PDF-35.

SORBS

We thank all those who participated in the study. Sincere thanks are given to Dr. Knut Krohn (Leipzig University) for the genotyping support. This work was supported by grants from the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation – Projektnummer 209933838 – SFB 1052; B03, C01; SPP 1629 TO 718/2- 1).

Special Turku Coronary Risk Factor Intervention Project, Parents (STRIP-PARENTS)

We thank the study participants and their families as well as the research group who collected the data. STRIP was supported by Academy of Finland (grants 206374, 251360 and 276861); Juho Vainio

Foundation; Finnish Cardiac Research Foundation; Finnish Cultural Foundation; Finnish Ministry of Education and Culture; Sigrid Juselius Foundation; Yrjö Jahnsson Foundation; C.G. Sundell Foundation; Special Governmental Grants for Health Sciences Research, Turku University Hospital; Foundation for Pediatric Research; and Turku University Foundation.

Steno Diabetes Center T2D Cases (SDC)

Novo Nordisk Foundation Center for Basic Metabolic Research is an independent Research Center, based at the University of Copenhagen, Denmark and partially funded by an unconditional donation from the Novo Nordisk Foundation (www.cbmr.ku.dk) (Grant number NNF18CC0034900).

Study of Health in Pomerania (SHIP)

SHIP is part of the Community Medicine Research net of the University of Greifswald, Germany, which is funded by the Federal Ministry of Education and Research (grants no. 01ZZ9603, 01ZZ0103, and 01ZZ0403), the Ministry of Cultural Affairs as well as the Social Ministry of the Federal State of Mecklenburg-West Pomerania, and the network 'Greifswald Approach to Individualized Medicine (GANI_MED)' funded by the Federal Ministry of Education and Research (grant 03IS2061A). Genome-wide data have been supported by the Federal Ministry of Education and Research (grant no. 03ZIK012) and a joint grant from Siemens Healthineers, Erlangen, Germany and the Federal State of Mecklenburg-West Pomerania. The University of Greifswald is a member of the Caché Campus program of the InterSystems GmbH. SHIP was funded by the Federal Ministry of Education and Research grants no. 01ZZ9603, 01ZZ0103, 01ZZ0403, 03IS2061A, and 03ZIK012.

Taiwan U.S. Diabetic Retinopathy Study (TUDR)

This study was supported by the National Eye Institute of the National Institutes of Health (EY014684) and ARRA Supplement (EY014684-03S1, -04S1), the National Institute of Diabetes and Digestive and Kidney Disease grant DK063491 to the Southern California Diabetes Endocrinology Research Center, the Eye Birth Defects Foundation Inc., the National Science Council, Taiwan (NSC 98-2314-B-075A-002-MY3) and the Taichung Veterans General Hospital, Taichung, Taiwan (TCVGH-1003001C). This study was supported by the National Health Research Institutes, Taiwan (MG-112-SP-09, MG-112-PP-18 and MG-113-GP-03).

The Cooperative Health Research In South Tyrol Study (CHRIS)

The CHRIS study was funded by the Department of Innovation, Research, and University of the Autonomous Province of Bolzano-South Tyrol. Full acknowledgements for the CHRIS study are reported here: <https://translational-medicine.biomedcentral.com/articles/10.1186/s12967-015-0704-9#Sec33>.

Fenland Study (Fenland)

We are grateful to all the volunteers and to the General Practitioners and practice staff for assistance with recruitment. We thank the Fenland Study Investigators, Fenland Study Co-ordination team and the Epidemiology Field, Data and Laboratory teams. The Fenland Study (10.22025/2017.10.101.00001) is funded by the Medical Research Council (MC_UU_12015/1). We further acknowledge support for genotyping from the Medical Research Council (MC_PC_13046).

The Finnish Cardiovascular Study (FINCAVAS)

The authors thank the staff of the Department of Clinical Physiology for collecting the exercise test data. The Finnish Cardiovascular Study (FINCAVAS) has been financially supported by the Competitive Research Funding of the Tampere University Hospital (Grant 9M048 and 9N035), the Finnish Cultural Foundation, the Finnish Foundation for Cardiovascular Research, the Emil Aaltonen Foundation, Finland, the Tampere Tuberculosis Foundation, EU Horizon 2020 (grant 755320 for TAXINOMISIS and grant 848146 for To Aition), and the Academy of Finland grant 322098.

The Health, Aging and Body Composition Study (Health ABC Study)

This research was supported by National Institute on Aging (NIA) Contracts N01-AG-6-2101; N01-AG-6-2103; N01-AG-6-2106; NIA grant R01-AG028050, and NINR grant R01-NR012459. This research was funded in part by the Intramural Research Program of the NIH, National Institute on Aging. E.M.S. is supported by Intramural Research Program, NIA, NIH.

The Hellenic study of Interactions between Single nucleotide polymorphisms and Eating in Atherosclerosis Susceptibility (THISEAS)

THISEAS is partially supported by a research grant (PENED 2003) from the Greek General Secretary of Research and Technology. Work supported by the Barts Biomedical Research Centre funded by the UK National Institute for Health Research (NIHR).

The Johns Hopkins University School of Medicine Atrial Fibrillation Genetics Study (JHU_AF)

S.N. is supported by grants from the US NIH/NHLBI, as well as Biosense Webster, ImriCor, and ADAS software.

The Nagahama study

We are extremely grateful to the Nagahama City Office and the nonprofit organization Zeroji Club for their help in performing the Nagahama study. The work was supported by a university grant, the Center of Innovation Program, the Global University Project from the Ministry of Education, Culture, Sports, Science and Technology of Japan; the Practical Research Project for Rare/Intractable Diseases (ek0109070, ek0109283, ek0109196, ek0109348), and the Program for an Integrated Database of Clinical and Genomic Information (kk0205008), from the Japan Agency for Medical Research and Development (AMED), Takeda Medical Research Foundation.

The Netherlands Study of Depression and Anxiety (NESDA)

For NESDA, funding was obtained from the Netherlands Organization for Scientific Research (Geestkracht program grant 10-000-1002); the Center for Medical Systems Biology (CSMB, NWO Genomics), Biobanking and Biomolecular Resources Research Infrastructure (BBMRI-NL), VU University's Institutes for Health and Care Research (EMGO+) and Neuroscience Campus Amsterdam, University Medical Center Groningen, Leiden University Medical Center, National Institutes of Health (NIH, R01D0042157-01A, MH081802, Grand Opportunity grants 1RC2 MH089951 and 1RC2 MH089995). Part of the genotyping and analyses were funded by the Genetic Association Information Network (GAIN) of the Foundation for the National Institutes of Health. Computing was supported by BiG Grid, the Dutch e-Science Grid, which is financially supported by NWO.

The Netherlands Twin Register (NTR)

We thank all twins and family members for their participation. We also thank SURFsara for the support in using the Lisa Compute Cluster. See also: <http://www.tweelingenregister.vu.nl/> for more information. Studies were approved by the Central Ethics Committee on Research Involving Human Subjects of the VU University Medical Centre, Amsterdam, an Institutional Review Board certified by the U.S. Office of Human Research Protections (IRB number IRB00002991 under Federal-wide Assurance-FWA00017598; IRB/institute codes, NTR 03-180). The Netherlands Twin Register acknowledges funding from the Netherlands Organization for Scientific research (NWO), including NWO-Grants NWO/SPI 56-464-14192 and 480-15-001/674: Netherlands Twin Registry Repository and the Biobanking and Biomolecular Resources Research Infrastructure (BBMRI-NL, 184.021.007 and 184.033.111); Amsterdam Public Health (APH) and Neuroscience Campus Amsterdam (NCA); the European Community 7th Framework Program (FP7/2007-2013): ENGAGE (HEALTH-F4-2007-201413) and ACTION (9602768) and European Research Council (ERC-230374). We also acknowledge The Rutgers University Cell and DNA Repository cooperative agreement (NIMH U24 MH068457-06); the

Collaborative Study of the Genetics of DZ twinning (NIH R01D0042157-01A1); the Developmental Study of Attention Problems in Young Twins (NIMH, RO1 MH58799-03); Major depression: stage 1 genome-wide association in population-based samples (MH081802); Determinants of Adolescent Exercise Behavior (NIDDK R01 DK092127-04); Grand Opportunity grants Integration of Genomics and Transcriptomics (NIMH 1RC2MH089951-01) and Developmental Trajectories of Psychopathology (NIMH 1RC2 MH089995); and the Avera Institute for Human Genetics, Sioux Falls, South Dakota (USA).

The Prostate Cancer Association Group to Investigate Cancer Associated Alterations in the Genome (PRACTICAL) Consortium

Genotyping of the OncoArray was funded by the US National Institutes of Health (NIH) [U19 CA 148537 for ELucidating Loci Involved in Prostate cancer Susceptibility (ELLIPSE) project and X01HG007492 to the Center for Inherited Disease Research (CIDR) under contract number HHSN268201200008I]. Additional analytic support was provided by NIH NCI U01 CA188392 (PI: Schumacher).

The PRACTICAL consortium was supported by Cancer Research UK Grants C5047/A7357, C1287/A10118, C1287/A16563, C5047/A3354, C5047/A10692, C16913/A6135, European Commission's Seventh Framework Programme grant agreement n° 223175 (HEALTH-F2-2009-223175), and The National Institute of Health (NIH) Cancer Post-Cancer GWAS initiative grant: No. 1 U19 CA 148537-01 (the GAME-ON initiative).

We would also like to thank the following for funding support: The Institute of Cancer Research and The Everyman Campaign, The Prostate Cancer Research Foundation, Prostate Research Campaign UK (now PCUK), The Orchid Cancer Appeal, Rosetrees Trust, The National Cancer Research Network UK, The National Cancer Research Institute (NCRI) UK. We are grateful for support of NIHR funding to the NIHR Biomedical Research Centre at The Institute of Cancer Research and The Royal Marsden NHS Foundation Trust.

This study would not have been possible without the contributions of the following:
Coordination team, bioinformatician and genotyping centres:
Genotyping at CCGE, Cambridge: Caroline Baines and Don Conroy

Additional funding and acknowledgments from studies in PRACTICAL:
Information of the PRACTICAL consortium can be found at
<http://practical.icr.ac.uk/>

AHS

This work was supported by the Intramural Research Program of the NIH, National Cancer Institute, Division of Cancer Epidemiology and Genetics (Z01CP010119).

APCB

The Australian Prostate Cancer BioResource (APCB) was supported by The National Health and Medical Research Council, Enabling Grant [614296] and the Prostate Cancer Foundation of Australia. The Australian Prostate Cancer BioResource (APCB) would like to acknowledge and sincerely thank the urologists, pathologists, coordinators, data managers, nurses and patient participants who have generously and altruistically supported the APCB.

ATBC

The ATBC Study is supported by the Intramural Research Program of the U.S. National Cancer Institute, National Institutes of Health, Department of Health and Human Services.

CCI

This work was awarded by Prostate Cancer Canada and is proudly funded by the Movember Foundation - Grant # D2013-36.

The CCI group would like to thank David Murray, Razmik Mirzayans, and April Scott for their contribution to this work.

CeRePP

COH

SLN is partially supported by the Morris and Horowitz Families Endowed Professorship.

COSM

COSM is funded by The Swedish Research Council (grant for the Swedish Infrastructure for Medical Population-based Life-course Environmental Research – SIMPLER), the Swedish Cancer Foundation.

EPICAP

The EPICAP study was supported by grants from Ligue Nationale Contre le Cancer; Institut National du Cancer (INCa); Fondation ARC; Fondation de France; Agence Nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail (ANSES); Ligue départementale du Val de Marne.

The EPICAP study group would like to thank all urologists, Antoinette Anger and Hasina Randrianasolo (study monitors), Anne-Laure Astolfi, Coline Bernard, Oriane Noyer, Marie-Hélène De Campo, Sandrine Margoline, Louise N'Diaye, Sabine Perrier-Bonnet (Clinical Research nurses).

ESTHER

The ESTHER study was supported by a grant from the Baden Württemberg Ministry of Science, Research and Arts.

The ESTHER group would like to thank Hartwig Ziegler, Sonja Wolf, Volker Hermann, Heiko Müller, Karina Dieffenbach, Katja Butterbach for valuable contributions to the study.

FHCRC

The FHCRC studies were supported by grants R01-CA080122, R01-CA056678, R01-CA082664, and R01-CA092579, and K05-CA175147 from the US National Cancer Institute, National Institutes of Health, with additional support from the Fred Hutchinson Cancer Research Center (P30-CA015704). We thank all the individuals who participated in these studies.

Hamburg-Zagreb

IMPACT

The IMPACT study was funded by The Ronald and Rita McAulay Foundation, CR-UK Project grant (C5047/A1232), Cancer Australia, AICR Netherlands A10-0227, Cancer Australia and Cancer Council Tasmania, NIHR, EU Framework 6, Cancer Councils of Victoria and South Australia, Philanthropic donation to Northshore University Health System.

We acknowledge support from the National Institute for Health Research (NIHR) to the Biomedical Research Centre at The Institute of Cancer Research and Royal Marsden Foundation NHS Trust.

We acknowledge the IMPACT study steering committee, collaborating centres and participants.

KULEUVEN

F.C. and S.J. are holders of grants from FWO Vlaanderen (G.0684.12N and G.0830.13N), the Belgian federal government (National Cancer Plan KPC_29_023), and a Concerted Research Action of the KU Leuven (GOA/15/017). TVDB is holder of a doctoral fellowship of the FWO.

MCC-Spain

The study was partially funded by the "Accion Transversal del Cancer", approved on the Spanish Ministry Council on the 11th October 2007, by the Instituto de Salud Carlos III-FEDER (PI08/1770, PI09/00773-Cantabria, PI11/01889-FEDER, PI12/00265, PI12/01270, PI12/00715, PI15/00069), by the Fundación Marqués de Valdecilla (API 10/09), by the Spanish Association Against Cancer (AECC) Scientific Foundation and by the Catalan Government DURSI grant 2009SGR1489. Samples: Biological samples were stored at the Parc de Salut MAR Biobank (MARBiobanc; Barcelona) which is supported by Instituto de Salud Carlos III FEDER (RD09/0076/00036). Also sample collection was supported by the Xarxa de Bancs de Tumors de Catalunya sponsored by Pla Director d'Oncologia de Catalunya (XBTC). ISGlobal acknowledges support from the Spanish Ministry of Science and Innovation through the "Centro de Excelencia Severo Ochoa 2019-2023" Program (CEX2018-000806-S), and support from the Generalitat de Catalunya through the CERCA Program.

We acknowledge the contribution from Esther Gracia-Lavedan in preparing the data. We thank all the subjects who participated in the study and all MCC-Spain collaborators.

MCCS

Melbourne Collaborative Cohort Study (MCCS) cohort recruitment was funded by VicHealth and Cancer Council Victoria. The MCCS was further augmented by Australian National Health and Medical Research Council grants 209057, 396414 and 1074383 and by infrastructure provided by Cancer Council Victoria. Cases and their vital status were ascertained through the Victorian Cancer Registry and the Australian Institute of Health and Welfare, including the Australian Cancer Database.

MEC

The MEC was supported by NIH grants CA063464, CA054281, CA098758, and CA164973.

MOFFITT

The Moffitt group was supported by the US National Cancer Institute (R01CA128813, PI: J.Y. Park).

PLCO

This PLCO study was supported by the Intramural Research Program of the Division of Cancer Epidemiology and Genetics, National Cancer Institute, NIH

The authors thank Drs. Christine Berg and Philip Prorok, Division of Cancer Prevention at the National Cancer Institute, the screening center investigators and staff of the PLCO Cancer Screening Trial for their contributions to the PLCO Cancer Screening Trial. We thank Mr. Thomas Riley, Mr. Craig Williams, Mr. Matthew Moore, and Ms. Shannon Merkle at Information Management Services, Inc., for their management of the data and Ms. Barbara O'Brien and staff at Westat, Inc. for their contributions to the PLCO Cancer Screening Trial. We also thank the PLCO study participants for their contributions to making this study possible.

PRAGGA

PRAGGA was supported by Programa Grupos Emergentes, Cancer Genetics Unit, CHUVI Vigo Hospital, Instituto de Salud Carlos III, Spain.

PRAGGA wishes to thank Victor Muñoz Garzón, Manuel Enguix Castelo, Sara Miranda Ponte, Carmen M Redondo, Manuel Calaza, Francisco Gude Sampedro, Joaquín González-Carreró and the staff of the Department of Pathology and Biobank of University Hospital Complex of Vigo, Instituto de Investigación Sanitaria Galicia Sur (IISGS), SERGAS, Vigo, Spain; Máximo Fraga, José Antúnez and the Biobank of University Hospital Complex of Santiago, Santiago de Compostela, Spain; and Maria Torres, Angel Carracedo and the Galician Foundation of Genomic Medicine.

PROFILE

We would like to acknowledge the support of the Ronald and Rita McAulay Foundation and Cancer Research UK. We also acknowledge support from the National Institute for Health Research (NIHR) to the Biomedical Research Centre at The Institute of Cancer Research and Royal Marsden Foundation NHS Trust. We acknowledge the Profile study steering committee and participants.

QLD

The QLD research is supported by The National Health and Medical Research Council (NHMRC) Australia Project Grants [390130, 1009458] and NHMRC Career Development Fellowship, Cancer Australia PdCCRS and Cancer Council Queensland funding to J Batra. The QLD team would like to acknowledge and sincerely thank the urologists, pathologists, data managers and patient participants who have generously and altruistically supported the QLD cohort.

SEARCH

SEARCH is funded by a programme grant from Cancer Research UK [C490/A10124] and supported by the UK National Institute for Health Research Biomedical Research Centre at the University of Cambridge. The University of Cambridge has received salary support in respect of PP from the NHS in the East of England through the Clinical Academic Reserve.

SFPCS

SFPCS was funded by California Cancer Research Fund grant 99-00527V-10182

SWOG-PCPT / SWOG-SELECT

SELECT and PCPT are funded by Public Health Service grants U10CA37429 and 5UM1CA182883 from the National Cancer Institute. The authors thank the site investigators and staff and, most importantly, the participants from PCPT who donated their time to this trial.

Toronto

Prostate Cancer Canada Movember Discovery Grant (D2013-17) to RJH; Canadian Cancer Society Research Institute Career Development Award in Cancer Prevention (2013-702108) to RJH.

UKGPCS

UKGPCS would also like to thank the following for funding support: The Institute of Cancer Research and The Everyman Campaign, The Prostate Cancer Research Foundation, Prostate Research Campaign UK (now Prostate Action), The Orchid Cancer Appeal, The National Cancer Research Network UK, The National Cancer Research Institute (NCRI) UK. We are grateful for support of NIHR funding to the NIHR Biomedical Research Centre at The Institute of Cancer Research and The Royal Marsden NHS Foundation Trust. UKGPCS should also like to acknowledge the NCRN nurses, data managers and Consultants for their work in the UKGPCS.

UKGPCS would like to thank all urologists and other persons involved in the planning, coordination, and data collection of the study. KM and AL were in part supported from the NIHR Manchester Biomedical Research Centre.

ULM

The Ulm group received funds from the German Cancer Aid (Deutsche Krebshilfe).

WUGS

WUGS would like to thank the following for funding support: The Anthony DeNovi Fund, the Donald C. McGraw Foundation, and the St. Louis Men's Group Against Cancer.

The Raine Study

The Raine Study was supported by the National Health and Medical Research Council of Australia [grant numbers 572613, 403981, 1059711, 1027449, 1044840, 1021858], the Canadian Institutes of Health Research [grant number MOP-82893]. The authors would like to acknowledge the Raine Study participants and their families for their ongoing participation in the study and the Raine Study team for cohort co-ordination and data collection. Specifically, in this study, body mass index (BMI) at 20 years of age follow-up of the Raine Study Gen2 study participants were examined. The authors also thank the NHMRC and the Raine Study Medical Research Foundation for their long term contribution to funding to the study over the last 30 years. The core management of the Raine Study is funded by The University of Western Australia, Curtin University, The Kids Research Institute Australia, Women and Infants Research Foundation, Edith Cowan University, Murdoch University, and The University of Notre Dame Australia. Funding was also generously provided by Safe Work Australia, WA Health, Government of Western Australia (WADOH) [Future Health WA G06302]. D.A.M. is supported by an NHMRC Practitioner Fellowship (GNT1154518). This work was supported by resources provided by the Pawsey Supercomputing Centre with funding from the Australian Government and Government of Western Australia.

The Rare Variants for Hypertension in Taiwan Chinese (THRV)

The Rare Variants for Hypertension in Taiwan Chinese (THRV) is supported by the National Heart, Lung, and Blood Institute (NHLBI) grant (R01HL111249) and its participation in TOPMed is supported by an NHLBI supplement (R01HL111249-04S1). THRV is a collaborative study between Washington University in St. Louis, The Lundquist Institute at Harbor UCLA, University of Texas in Houston, Taichung Veterans General Hospital, Taipei Veterans General Hospital, Tri-Service General Hospital, National Health Research Institutes, National Taiwan University, and Baylor University. THRV is based (substantially) on the parent SAPPHIRE study, along with additional population-based and hospital-based cohorts. SAPPHIRE was supported by NHLBI grants (U01HL54527, U01HL54498) and Taiwan funds, and the other cohorts were supported by Taiwan funds.

The Religious Orders Study and the Rush Memory and Aging Project batch 1 (ROSMAP1)

Supported through NIA grant P30AG10161, P30AG72975, R01AG17917, RF1AG15819, R01AG30146, U01AG46152, U01AG61256; Translational Genomics Research Institute.

The Trøndelag Health Study (HUNT)

The Trøndelag Health Study (HUNT) is a collaboration between HUNT Research Centre (Faculty of Medicine and Health Sciences, NTNU, Norwegian University of Science and Technology), Trøndelag County Council, Central Norway Regional Health Authority, and the Norwegian Institute of Public Health. The genetic investigations of the HUNT Study is a collaboration between investigators from the HUNT study and University of Michigan Medical School and the University of Michigan School of Public Health. See also: *Brumpton et al. The HUNT study: A population-based cohort for genetic research. Cell Genom. 2022 Oct 12;2(10):100193. doi: 10.1016/j.xgen.2022.100193.*

Tracking Adolescents' Individual Lives Survey, Clinical and Population Cohorts (TRAILS CC/Pop)

We are grateful to all adolescents who participated in this research and to everyone who worked on this project and made it possible. TRAILS has been financially supported by grants from the Netherlands Organization for Scientific Research NWO (Medical Research Council program grant GB-MW 940-38-011; ZonMW Brainpower grant 100-001-004; ZonMw Risk Behavior and Dependence grant 60-60600-97-118; ZonMw Culture and Health grant 261-98-710; Social Sciences Council medium-sized investment grants GB-MaGW 480-01-006 and GB-MaGW 480-07-001; Social Sciences Council project grants GB-MaGW 452-04-314 and GB-MaGW 452-06-004; ZonMw Longitudinal Cohort Research on Early Detection and Treatment in Mental Health Care grant 636340002; NWO large-sized investment grant 175.010.2003.005; NWO Longitudinal Survey and Panel Funding 481-08-013 and 481-11-001; NWO Vici 016.130.002, 453-16-007/2735, and Vi.C.191.021; NWO Gravitation

024.001.003), the Dutch Ministry of Justice (WODC), the European Science Foundation (EuroSTRESS project FP-006), the European Research Council (ERC-2017-STG-757364 en ERC-CoG-2015-681466), Biobanking and Biomolecular Resources Research Infrastructure BBMRI-NL (CP 32); the Gratama foundation; the Jan Dekker foundation; the participating universities, and Accare Centre for Child and Adolescent Psychiatry. Statistical analyses were carried out on the Genetic Cluster Computer (<http://www.geneticcluster.org>), which is financially supported by the Netherlands Scientific Organization (NWO 480-05-003) along with a supplement from the Dutch Brain Foundation.

Tromsø-6 Migraine (TromsøMig)

We thank all participants that attended the Tromsø Study.

TwinGene

TwinGene is part of the Swedish Twin Registry, managed by Karolinska Institutet and receiving funding through the Swedish Research Council under the grant no 2017-00641.

TwinsUK (TUK)

We are grateful to the twins who took part in TwinsUK and the whole TwinsUK team, which includes academic researchers, clinical staff, laboratory technicians, administrative staff and research managers. TwinsUK receives funding from the Wellcome Trust (212904/Z/18/Z), Medical Research Council (AIMHY; MR/M016560/1) and European Union (H2020 contract #733100). TwinsUK and M.M. are supported by the National Institute for Health Research (NIHR)-funded BioResource, Clinical Research Facility and Biomedical Research Centre based at Guy's and St Thomas' NHS Foundation Trust in partnership with King's College London. P.C. is funded by the European Union (H2020 contract #733100).

General Population Cohort – Uganda Genome Resource (GPC-UGR)

We thank all participants who contributed to the GPC Uganda Genome Resource. This work was supported by the UK Medical Research Council (MRC) and the UK Department for International Development (DFID) under the MRC/DFID Concordat agreement, through core funding to the MRC/UVRI and LSHTM Uganda Research Unit. S.F. was supported by the Wellcome Trust grant number 220740/Z/20/Z and NIH grant numbers 1U01HL172180, and 1U01HG011717.

UK Biobank

We are grateful to UK Biobank participants. This research has been conducted in part using the UK Biobank Resource under project 12505. Lo.Y. was supported by the Australian Research Council (FT220100069). P.M.Vis. was funded by the Australian Research Council (FL180100072) and the Australian National Health and Medical Research Council (Grant #1113400).

Understanding Society: The UK Household Longitudinal Study (UKHLS)

The UK Household Longitudinal Study was funded by grants from the Economic & Social Research Council (ES/H029745/1) and the Wellcome Trust (WT098051). UKHLS is led by the Institute for Social and Economic Research at the University of Essex and funded by the Economic and Social Research Council. The survey was conducted by NatCen and the genome-wide scan data were analysed and deposited by the Wellcome Trust Sanger Institute. Information on how to access the data can be found on the Understanding Society website (<https://www.understandingsociety.ac.uk/documentation/omics/>).

VA Million Veteran Program (MVP)

The MVP gratefully acknowledges the contributions of the participants and of the study staff. I01-BX004821 (MVP 001, PIs P.W.F.W. and Kelly Cho). Y.V.S. was partly supported by NR013520 and DK125187 from NIH. We are grateful to all the MVP investigators; a list of MVP investigators can be found below. This project is supported by VA Merit Grant BX004821, BX003340, BX003362, and BX005831. This publication does not represent the views of the Department of Veterans Affairs or the

United States Government. This research has also been supported in part by the National Institutes of Health (NIH) grant HL154996.

MVP Program Office

- Sumitra Muralidhar, Ph.D., Program Director
US Department of Veterans Affairs, 810 Vermont Avenue NW, Washington, DC 20420
- Jennifer Moser, Ph.D., Associate Director, Scientific Programs
US Department of Veterans Affairs, 810 Vermont Avenue NW, Washington, DC 20420
- Jennifer E. Deen, B.S., Associate Director, Cohort & Public Relations
US Department of Veterans Affairs, 810 Vermont Avenue NW, Washington, DC 20420

MVP Executive Committee

- Co-Chair: Philip S. Tsao, Ph.D.
VA Palo Alto Health Care System, 3801 Miranda Avenue, Palo Alto, CA 94304
- Co-Chair: Sumitra Muralidhar, Ph.D.
US Department of Veterans Affairs, 810 Vermont Avenue NW, Washington, DC 20420
- J. Michael Gaziano, M.D., M.P.H.
VA Boston Healthcare System, 150 S. Huntington Avenue, Boston, MA 02130
- Elizabeth Hauser, Ph.D.
Durham VA Medical Center, 508 Fulton Street, Durham, NC 27705
- Amy Kilbourne, Ph.D., M.P.H.
VA HSR&D, 2215 Fuller Road, Ann Arbor, MI 48105
- Michael Matheny, M.D., M.S., M.P.H.
VA Tennessee Valley Healthcare System, 1310 24th Ave. South, Nashville, TN 37212
- Dave Oslin, M.D.
Philadelphia VA Medical Center, 3900 Woodland Avenue, Philadelphia, PA 19104
- Deepak Voora, MD
Durham VA Medical Center, 508 Fulton Street, Durham, NC 27705

MVP Co-Principal Investigators

- J. Michael Gaziano, M.D., M.P.H.
VA Boston Healthcare System, 150 S. Huntington Avenue, Boston, MA 02130
- Philip S. Tsao, Ph.D.
VA Palo Alto Health Care System, 3801 Miranda Avenue, Palo Alto, CA 94304

MVP Core Operations

- Jessica V. Brewer, M.P.H., Director, MVP Cohort Operations
VA Boston Healthcare System, 150 S. Huntington Avenue, Boston, MA 02130
- Mary T. Brophy M.D., M.P.H., Director, VA Central Biorepository
VA Boston Healthcare System, 150 S. Huntington Avenue, Boston, MA 02130
- Kelly Cho, M.P.H, Ph.D., Director, MVP Phenomics
VA Boston Healthcare System, 150 S. Huntington Avenue, Boston, MA 02130
- Lori Churby, B.S., Director, MVP Regulatory Affairs
VA Palo Alto Health Care System, 3801 Miranda Avenue, Palo Alto, CA 94304
- Scott L. DuVall, Ph.D., Director, VA Informatics and Computing Infrastructure (VINCI)
VA Salt Lake City Health Care System, 500 Foothill Drive, Salt Lake City, UT 84148
- Saiju Pyarajan Ph.D., Director, Data and Computational Sciences

- VA Boston Healthcare System, 150 S. Huntington Avenue, Boston, MA 02130
- Robert Ringer, Pharm.D., Director, VA Albuquerque Central Biorepository
New Mexico VA Health Care System, 1501 San Pedro Drive SE, Albuquerque, NM 87108
- Luis E. Selva, Ph.D., Director, MVP Biorepository Coordination
VA Boston Healthcare System, 150 S. Huntington Avenue, Boston, MA 02130
- Shahpoor (Alex) Shayan, M.S., Director, MVP PRE Informatics
VA Boston Healthcare System, 150 S. Huntington Avenue, Boston, MA 02130
- Brady Stephens, M.S., Principal Investigator, MVP Information Center
Canandaigua VA Medical Center, 400 Fort Hill Avenue, Canandaigua, NY 14424
- Stacey B. Whitbourne, Ph.D., Director, MVP Cohort Development and Management
VA Boston Healthcare System, 150 S. Huntington Avenue, Boston, MA 02130

MVP Publications and Presentations Committee

- Co-Chair: Themistocles L. Assimes, M.D., Ph. D
VA Palo Alto Health Care System, 3801 Miranda Avenue, Palo Alto, CA 94304
- Co-Chair: Adriana Hung, M.D.; M.P.H
VA Tennessee Valley Healthcare System, 1310 24th Ave. South, Nashville, TN 37212
- Co-Chair: Henry Kranzler, M.D.
Philadelphia VA Medical Center, 3900 Woodland Avenue, Philadelphia, PA 19104

Vanderbilt BioVU

Vanderbilt University Medical Center's BioVU projects are supported by numerous sources: institutional funding, private agencies, and federal grants. These include the NIH funded Shared Instrumentation Grant S10OD017985 and S10RR025141; CTSA grants UL1TR002243, UL1TR000445, and UL1RR024975. Genomic data have also been supported by investigator-led projects that include U01HG004798, R01NS032830, RC2GM092618, P50GM115305, U01HG006378, U19HL065962, R01HD074711; and additional funding sources listed at <https://victr.vumc.org/biovu-funding/>.

Vejle Biobank

The Vejle Diabetes Biobank was supported by The Danish Research Council for Independent Research and by Region of Southern Denmark.

Viking Health Study - Shetland (VIKING)

DNA extractions and genotyping were performed at the Edinburgh Clinical Research Facility, University of Edinburgh. We would like to acknowledge the invaluable contributions of the research nurses in Shetland, the administrative team in Edinburgh and the people of Shetland. VIKING was supported by the MRC Human Genetics Unit programme grant, "Quantitative traits in health and disease" (U. MC_UU_00007/10). K.A.K. acknowledges funding from the Medical Research Council Doctoral Training Programme in Precision Medicine (MR/N013166/1).

Wake Forest School of Medicine Study (WFSM)

WFSM gratefully acknowledges the contributions of the participants and of the study staff. Genotyping services were provided by the Center for Inherited Disease Research (CIDR). CIDR is fully funded through a federal contract from the National Institutes of Health to The Johns Hopkins University, contract number HHSC268200782096C. This work was supported by National Institutes of Health grants R01 DK087914, R01 DK066358, R01 DK053591, U01 DK105556 and by the Wake Forest School of Medicine grant M01 RR07122 and Venture Fund.

Wellcome Genetic (WELLGEN) (part of GRCCDS)

The WELLGEN is grateful and obliged to the study participants and other staff members who contributed to the study. Council of Scientific and Industrial Research, Ministry of Science and Technology, Govt. of India, New Delhi. India.

Wenzhou Medical University Biobank - Tibetans (WMUB-T)

The WMUB-T gratefully acknowledges the contributions of the participants and of the study staff.

Whitehall II (WHII)

We thank all the participating civil service departments and their welfare, personnel, and establishment officers; the British Occupational Health and Safety Agency; the British Council of Civil Service Unions; all participating civil servants in the Whitehall II study; and all members of the Whitehall II study team. The Whitehall II Study team comprises research scientists, statisticians, study coordinators, nurses, data managers, administrative assistants, and data entry staff, all of whom made this study possible. The Whitehall II study is supported by grants from the Wellcome Trust (221854/Z/20/Z), the UK Medical Research Council (MRC, K013351, R024227 and Y014154), the US National Institute on Aging (R01AG056477; R01AG034454), and the British Heart Foundation (32334). M.Ki. is supported by grants from the Wellcome Trust (221854/Z/20/Z), the UK Medical Research Council (MRC, R024227 and Y014154), the US National Institute on Aging (R01AG056477) and Academy of Finland (350426). M.Ku. is supported by grants from ESRC (ES/S007253/1; ES/T002611/1; ES/T014083/1).

Women's Genome Health Study (WGHS)

The WGHS is supported by the National Heart, Lung, and Blood Institute (HL043851 and HL080467) and the National Cancer Institute (CA047988 and UM1CA182913) to J.E.Bu. (Julie E. Buring) and I-Min Lee, with funding for genotyping provided by Amgen (PIs: P.M.R., D.I.C.).

Women's Health Initiative (WHI)

The WHI program is funded by the National Heart, Lung, and Blood Institute, National Institutes of Health, U.S. Department of Health and Human Services through contracts 75N92021D00001, 75N92021D00002, 75N92021D00003, 75N92021D00004, 75N92021D00005.

Yonsei Avellino Corneal Dystrophy Study (ACD)

The ACD gratefully acknowledges the contributions of the participants and of the study staff. We are thankful for the computing resources provided by the Global Science experimental Data hub Center (GSDC) Project and the Korea Research Environment Open NETwork (KREONET) of the Korea Institute of Science and Technology Information (KISTI).

Young Finns Study (YFS)

We thank the teams that collected data at all measurement time points; the persons who participated as both children and adults in these longitudinal studies; and biostatisticians Irina Lisinen, Johanna Ikonen, Noora Kartiosuo, Ville Aalto, and Jarno Kankaanranta for data management and statistical advice. The Young Finns Study has been financially supported by the Academy of Finland: grants 356405, 322098, 286284, 134309 (Eye), 126925, 121584, 124282, 129378 (Salve), 117797 (Gendi), and 141071 (Skidi); the Social Insurance Institution of Finland; Competitive State Research Financing of the Expert Responsibility area of Kuopio, Tampere and Turku University Hospitals (grant X51001); Juho Vainio Foundation; Paavo Nurmi Foundation; Finnish Foundation for Cardiovascular Research; Finnish Cultural Foundation; The Sigrid Juselius Foundation; Tampere Tuberculosis Foundation; Emil Aaltonen Foundation; Yrjö Jahnsson Foundation; Signe and Ane Gyllenberg Foundation; Diabetes Research Foundation of Finnish Diabetes Association; EU Horizon 2020 (grant 755320 for TAXINOMISIS and grant 848146 for To Aition); European Research Council (grant 742927 for MULTIEPIGEN project); Tampere University Hospital Supporting Foundation, Finnish Society of Clinical

Chemistry, the Cancer Foundation Finland, and pBETTER4U_EU (Preventing obesity through Biologically and bEhaviorally Tailored inTERventions for you; project number: 101080117).

Other

J.D.A. was supported by the National Institutes of Health. E.P.W. was supported by NIH R01 DK072193. V.L.B. was supported by R01HG010297 and R01HL151152. Kr.L. was supported by Estonian Research Council grants PUT 1371, EMBO Installation grant 3573, and The European Regional Development Fund. Kr.L. acknowledges the High-Performance Computing Center of University of Tartu. T.E was supported by Estonian Research Council grant PUT (PRG1291). A.M was supported by the European Union through the European Regional Development Fund for the development of CoEs (Project No. 2014-2020.4.01.16-0125). Support for title page creation and format was provided by AuthorArranger, a tool developed at the National Cancer Institute. The GIANT Consortium is supported by R01DK075787 to J.N.H. Tu.K. was supported by NNF20OC0062294.

CONSORTIUM AUTHORS

23andMe Research Team

Stella Aslibekyan⁷³, Adam Auton⁷³, Robert K. Bell⁷³, Katelyn Kukar Bond⁷³, Zayn Cochinwala⁷³, Sayantan Das⁷³, Kahsaia de Brito⁷³, Emily DelloRusso⁷³, Chris Eijsbouts⁷³, Sarah L. Elson⁷³, Chris German⁷³, Julie M. Granka⁷³, Barry Hicks⁷³, David A. Hinds⁷³, Reza Jabal⁷³, Yunxuan Jiang⁷³, Aly Khan⁷³, Matthew J. Kmieciak⁷³, Alan Kwong⁷³, Yanyu Liang⁷³, Keng-Han Lin⁷³, Matthew H. McIntyre⁷³, Shubham Saini⁷³, Anjali J. Shastri⁷³, Jingchunzi Shi⁷³, Suyash Shringarpure⁷³, Qiaojuan Jane Su⁷³, Vinh Tran⁷³, Joyce Y. Tung⁷³, Catherine H. Weldon⁷³, Wanwan Xu⁷³

DiscovEHR (DiscovEHR and MyCode Community Health Initiative)

Geetha Chittoor¹⁸, Anne E. Justice^{18,19}, Jason E. Miller^{185,186}, Shefali S. Verma⁶⁷

eMERGE (Electronic Medical Records and Genomics Network)

Yuki Bradford⁵², Murray Brilliant⁵²¹, Wendy K. Chung^{522,523}, Paul K Crane⁵²⁴, Damien Croteau-Chonka⁶⁰, Todd Edwards^{61,525}, M. Geoffrey Hayes^{526,527,528}, Scott Hebbbring⁵²¹, George Hripsak⁵²⁹, Krzysztof Kiryluk⁵³⁰, Terrie Kitchner⁵³¹, Iftikhar J Kullo⁵³², Bahram Namjou⁵³³, Peggy Peissig⁵²¹, Marilyn D. Ritchie⁵², Ning Shang⁵³⁰, Digna Velez Edwards^{534,535}, Yogasudha Veturi²⁴¹, Chunhua Weng⁵²⁹, Xinyuan Zhang⁵²

GPC-UGR

Segun Fatumo^{403,517}, Joseph Mugisha⁵¹⁷, Allan Kalungi⁵¹⁷, Richard Mayanja⁵¹⁷, Christopher Kintu⁵¹⁷, Irene Namara⁵¹⁷, Ronald Makanga⁵¹⁷, Ayoub Kakande⁵¹⁷, Mariam Nakabuye¹³, Florence Nambaziira⁵¹⁷, Lilian Linda⁵¹⁷, Opeyemi Soremekun⁵¹⁷, Oyesola Ojewunmi⁴⁰³, Chisom Soremekun⁵¹⁷, Shakirah Namuli⁵¹⁷, Gloria Kirabo⁵¹⁷, Richard Mpango⁵¹⁷, Andrew Abaasa⁵¹⁷, Gershon Asiki⁵¹⁷, Robert Newton⁵¹⁷, Manj S Sandhu⁵³⁶, Pontiano Kaleebu⁵¹⁷, Moffat Nyirenda⁵¹⁷

The PRACTICAL Consortium

Sonja I. Berndt⁹, Rosalind A. Eeles^{505,537}, Zsolt Kote-Jarai⁵⁰⁵, Kenneth R. Muir⁵³⁸, UKGPCS collaborators⁵³⁹, Artitaya Lophatananon⁵³⁸, Catherine M. Tangen⁵⁴⁰, Phyllis J. Goodman⁵⁴⁰, Ian M. Thompson Jr.⁵⁴¹, Alicja Wolk⁵⁴², Niclas Håkansson⁵⁴³, Demetrius Albanes⁵⁴⁴, Stephanie Weinstein⁵⁴⁴, Nora Pashayan^{545,546}, Alison M. Dunning⁵⁴⁷, Maya Ghousaini⁵⁴⁸, Jyotsna Batra^{549,550,551}, APCB BioResource (Australian Prostate Cancer BioResource)^{552,553}, Suzanne Chambers^{554,555}, Judith A. Clements^{549,550,551}, Lisa Horvath^{556,557}, Gail P. Risbridger^{558,559}, Wayne Tilley⁵⁶⁰, Stephen Chanock⁵⁴⁴, Gerald L. Andriole⁵⁶¹, Robert N. Hoover⁵⁴⁴, Mitchell J. Machiela⁵⁴⁴, Stella Koutros⁵⁴⁴, Laura E. Beane Freeman⁵⁴⁴, Florence Menegaux⁵⁶², Thérèse Truong⁵⁶², Christopher A. Haiman⁵⁶³, Fredrick R.

Schumacher^{564,565}, Loic Le Marchand⁵⁶⁶, Xin Sheng⁵⁶³, Robert J. MacInnis^{567,568}, Melissa C. Southey^{569,567,570}, Graham G. Giles^{567,568,569}, Robert J. Hamilton^{571,572}, Neil E. Fleshner⁵⁷³, Antonio Finelli⁵⁷⁴, Manolis Kogevinas^{575,576,577,578}, Trinidad Dierssen-Sotos⁵⁷⁹, Gemma Castaño-Vinyals^{575,576,577,578}, Antonio Alcaraz⁵⁸⁰, Olivier Cussenot^{581,582}, Géraldine Cancel-Tassin^{582,581}, The IMPACT Study Steering Committee and Collaborators⁵⁸³, Janet L. Stanford^{584,585}, Adam S. Kibel⁵⁸⁶, Bettina F. Drake⁵⁸⁷, Hermann Brenner^{588,589,590}, Xin Gao⁵⁸⁸, Bernd Holleczek⁵⁹¹, Ben Schöttker⁵⁸⁸, Esther M. John⁵⁹², Jong Y. Park⁵⁹³, Hui-Yi Lin⁵⁹⁴, Nawaid Usmani^{595,596}, Matthew Parliament^{595,596}, Aswin Abraham⁵⁹⁵, Susan L. Neuhausen⁵⁹⁷, Yuan Chun Ding⁵⁹⁷, Linda Steele⁵⁹⁷, Jose Esteban Castelao⁵⁹⁸, Manuela Gago-Dominguez^{599,600}, Maria Elena Martinez⁶⁰⁰, Frank Claessens⁶⁰¹, Steven Joniau⁶⁰², Christiane Maier⁶⁰³, Thomas Schnoeller⁶⁰⁴, Marija Gamulin⁶⁰⁵, Davor Lessel⁶⁰⁶, Tomislav Kulis⁶⁰⁷, The Profile Study Steering Committee⁶⁰⁸

Understanding Society Scientific Group

Michaela Benzeval³⁹⁹, Jonathan Burton³⁹⁹, Annette Jäckle³⁹⁹, Meena Kumari³⁹⁹, Peter Lynn³⁹⁹, Stephen Pudney⁶⁰⁹, Birgitta Rabe³⁹⁹, Lorraine Southam²⁰⁸, Dieter Wolke⁶¹⁰, Eleftheria Zeggini^{208,503}

VA Million Veteran Program

Themistocles L. Assimes^{226,506}, Jessica V. Brewer⁶¹¹, Mary T. Brophy⁶¹¹, Kelly Cho⁶¹¹, Lori Churby⁶¹², Jennifer E. Deen⁶¹³, Scott L. DuVall⁶¹⁴, J. Michael Gaziano⁶¹¹, Elizabeth Hauser⁶¹⁵, Yuk-Lam Ho¹¹⁹, Jie Huang^{127,128}, Jennifer E. Huffman¹¹⁹, Qin Hui^{7,8}, Adriana Hung⁶¹⁶, Amy Kilbourne⁶¹⁷, Henry Kranzler⁶¹⁸, Michael Matheny⁶¹⁹, Jennifer Moser⁶¹³, Sumitra Muralidhar⁶¹³, Christopher J. O'Donnell^{509,60,45}, Dave Oslin⁶¹⁸, Saiju Pyarajan^{205,60,45}, Robert Ringer⁶²⁰, Luis E. Selva⁶¹¹, Shahpoor Shayan⁶¹¹, Brady Stephens⁶²¹, Yan V. Sun^{7,8}, Catherine Tcheandjie^{226,227}, Philip S. Tsao⁶¹², Deepak Voora⁶¹⁵, Stacey B. Whitbourne⁶¹¹, Peter W.F. Wilson^{7,495}

Affiliations – continued

⁵²¹Marshfield Clinic Research Institute, Marshfield, WI 54449, USA, ⁵²²Department of Pediatrics, Boston Children's Hospital, Boston, MA 02115 USA, ⁵²³Department of Pediatrics, Harvard Medical School, Boston, MA 02115 USA, ⁵²⁴Division of General Internal Medicine, Department of Internal Medicine, University of Washington School of Medicine, Seattle, WA 98195, USA, ⁵²⁵Vanderbilt Genetics Institute, Vanderbilt University Medical Center, Nashville, TN 37232, USA, ⁵²⁶Department of Medicine (Endocrinology), Feinberg School of Medicine, Northwestern University, Chicago, IL 60611, USA, ⁵²⁷Center for Genetic Medicine, Feinberg School of Medicine, Northwestern University, Chicago, IL 60611, USA, ⁵²⁸Department of Anthropology, Northwestern University, Evanston, IL 60208, USA, ⁵²⁹Department of Biomedical Informatics, Columbia University, New York, NY 10032, USA, ⁵³⁰Department of Medicine, Columbia University, New York, NY 10032, USA, ⁵³¹Marshfield Clinic Research Foundation, Marshfield, WI 54449, USA, ⁵³²Division of Cardiovascular Medicine, Mayo Clinic, Rochester Minnesota, USA, ⁵³³Center for Autoimmune Genomics and Etiology, Cincinnati Children's Hospital Medical Center, Cincinnati, Ohio; Department of Pediatrics, College of Medicine, University of Cincinnati, Cincinnati, Ohio 45229, USA, ⁵³⁴Department of Biomedical Informatics, Vanderbilt University Medical Center, Nashville, TN 37232, USA, ⁵³⁵Division of Quantitative and Clinical Science, Department of Obstetrics and Gynecology, Vanderbilt University Medical Center, Nashville, TN 37230, USA, ⁵³⁶Department of Epidemiology and Biostatistics, School of Public Health, Imperial College London, London, UK, ⁵³⁷Royal Marsden NHS Foundation Trust, London, SW3 6JJ, UK, ⁵³⁸Division of Population Health, Health Services Research and Primary Care, University of Manchester, Oxford Road, Manchester, M13 9PL, UK, ⁵³⁹<http://www.icr.ac.uk/our-research/research-divisions/division-of-genetics-and-epidemiology/oncogenetics/research-projects/ukgpcs/ukgpcs-collaborators>, ⁵⁴⁰SWOG Statistical Center, Fred Hutchinson Cancer Research Center, Seattle, WA, USA, ⁵⁴¹CHRISTUS Santa Rosa Hospital – Medical Center, San Antonio, TX, USA, ⁵⁴²Institute of Environmental Medicine, Karolinska Institutet, 177 77 Stockholm, Sweden, ⁵⁴³Unit of Cardiovascular

and Nutritional Epidemiology, Institute of Environmental Medicine, Karolinska Institutet, SE-171 77 Stockholm, Sweden, ⁵⁴⁴Division of Cancer Epidemiology and Genetics, National Cancer Institute, NIH, Bethesda, Maryland, 20892, USA, ⁵⁴⁵Department of Public Health & Primary Care, Strangeways Research Laboratory, Worts Causeway, Cambridge, CB1 8RN, ⁵⁴⁶Department of Applied Health Research, University College London, London, WC1E 7HB, UK, ⁵⁴⁷Centre for Cancer Genetic Epidemiology, Department of Oncology, University of Cambridge, Strangeways Laboratory, Worts Causeway, Cambridge, CB1 8RN, UK, ⁵⁴⁸Open Targets, Wellcome Sanger Institute, Hinxton, Saffron Walden, CB10 1SA, UK, ⁵⁴⁹School of Biomedical Sciences, Faculty of Health, Queensland University of Technology, Brisbane, Queensland, Australia, ⁵⁵⁰Centre for Genomics and Personalised Health, Queensland University of Technology, Brisbane, Queensland, Australia, ⁵⁵¹Translational Research Institute, QUT, Woolloongabba, Brisbane, Queensland, Australia, ⁵⁵²Centre for Genomics and Personalised Health, Queensland University of Technology, Brisbane; Prostate Cancer Research Program, Monash University, Melbourne; Dame Roma Mitchell Cancer Centre, University of Adelaide, Adelaide; Chris O'Brien Lifehouse and The Kinghorn Cancer Centre, Sydney, Australia, ⁵⁵³Translational Research Institute, Brisbane, Queensland 4102, Australia, ⁵⁵⁴Faculty of Health Sciences, Australian Catholic University, ⁵⁵⁵Cancer Council Queensland, Fortitude Valley, QLD 4006, Australia, ⁵⁵⁶Chris O'Brien Lifehouse (COBLH), Camperdown, Sydney, NSW 2010, Australia, ⁵⁵⁷Garvan Institute of Medical Research, Sydney NSW 2010, Australia, ⁵⁵⁸Department of Anatomy and Developmental Biology, Biomedicine Discovery Institute, Monash University, Melbourne, Victoria 3800, Australia, ⁵⁵⁹Prostate Cancer Translational Research Program, Cancer Research Division, Peter MacCallum Cancer Centre, Melbourne, VIC 3000, Australia, ⁵⁶⁰Dame Roma Mitchell Cancer Research Laboratories, University of Adelaide, Adelaide, South Australia, Australia, ⁵⁶¹The Washington University School of Medicine, 660 S. Euclid Avenue, Campus Box 8242, St. Louis, MO 63110, USA, ⁵⁶²"Exposome and Heredity", CESP (UMR 1018), Faculté de Médecine, Université Paris-Saclay, Inserm, Gustave Roussy, Villejuif, ⁵⁶³Center for Genetic Epidemiology, Department of Preventive Medicine, Keck School of Medicine, University of Southern California/Norris Comprehensive Cancer Center, Los Angeles, CA 90015, USA, ⁵⁶⁴Department of Population and Quantitative Health Sciences, Case Western Reserve University, Cleveland, OH 44106-7219, USA, ⁵⁶⁵Seidman Cancer Center, University Hospitals, Cleveland, OH 44106, USA., ⁵⁶⁶Epidemiology Program, University of Hawaii Cancer Center, Honolulu, HI 96813, USA, ⁵⁶⁷Cancer Epidemiology Division, Cancer Council Victoria, 200 Victoria Parade, East Melbourne, VIC, 3002, Australia, ⁵⁶⁸Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Grattan Street, Parkville, VIC 3010, Australia, ⁵⁶⁹Precision Medicine, School of Clinical Sciences at Monash Health, Monash University, Clayton, Victoria 3168, Australia, ⁵⁷⁰Department of Clinical Pathology, The Melbourne Medical School, The University of Melbourne, Melbourne, VIC 3010, Australia., ⁵⁷¹Dept. of Surgical Oncology, Princess Margaret Cancer Centre, Toronto ON M5G 2M9, Canada, ⁵⁷²Dept. of Surgery (Urology), University of Toronto, Canada, ⁵⁷³Dept. of Surgical Oncology, UHN Princess Margaret Cancer Centre, Toronto ON M5G 2M9, Canada, ⁵⁷⁴Division of Urology, Princess Margaret Cancer Centre, Toronto ON M5G 2M9, Canada, ⁵⁷⁵ISGlobal, Barcelona, Spain, ⁵⁷⁶IMIM (Hospital del Mar Medical Research Institute), Barcelona, Spain, ⁵⁷⁷Universitat Pompeu Fabra (UPF), Barcelona, Spain, ⁵⁷⁸CIBER Epidemiología y Salud Pública (CIBERESP), 28029 Madrid, Spain, ⁵⁷⁹University of Cantabria, 39005 Santander, Spain, ⁵⁸⁰Department and Laboratory of Urology. Hospital Clínic. Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS), Universitat de Barcelona. Spain. C/Villarroel 170; 08036 Barcelona, Spain, ⁵⁸¹Sorbonne Université, GRC n°5, AP-HP, Tenon Hospital, 4 rue de la Chine, F-75020 Paris, France, ⁵⁸²CeRePP, Tenon Hospital, F-75020 Paris, France., ⁵⁸³<http://impact.icr.ac.uk>, ⁵⁸⁴Division of Public Health Sciences, Fred Hutchinson Cancer Research Center, Seattle, Washington, 98109-1024, USA, ⁵⁸⁵Department of Epidemiology, School of Public Health, University of Washington, Seattle, Washington 98195, USA, ⁵⁸⁶Division of Urologic Surgery, Brigham and Womens Hospital, 75 Francis Street, Boston, MA 02115, USA, ⁵⁸⁷Washington University School of Medicine, 660 S. Euclid Avenue, Campus Box 8242, St. Louis, MO 63110, USA, ⁵⁸⁸Division of Clinical Epidemiology and Aging Research, German Cancer Research Center (DKFZ), D-

69120, Heidelberg, Germany, ⁵⁸⁹German Cancer Consortium (DKTK), German Cancer Research Center (DKFZ), D-69120 Heidelberg, Germany, ⁵⁹⁰Division of Preventive Oncology, German Cancer Research Center (DKFZ) and National Center for Tumor Diseases (NCT), Im Neuenheimer Feld 460, 69120 Heidelberg, Germany, ⁵⁹¹Saarland Cancer Registry, 66119 Saarbrücken, Germany, ⁵⁹²Departments of Epidemiology & Population Health and of Medicine, Division of Oncology, Stanford Cancer Institute, Stanford University School of Medicine, Stanford, CA 94304 USA, ⁵⁹³Department of Cancer Epidemiology, Moffitt Cancer Center, 12902 Magnolia Drive, Tampa, FL 33612, USA, ⁵⁹⁴School of Public Health, Louisiana State University Health Sciences Center, New Orleans, LA 70112, USA, ⁵⁹⁵Department of Oncology, Cross Cancer Institute, University of Alberta, 11560 University Avenue, Edmonton, Alberta, Canada T6G 1Z2, ⁵⁹⁶Division of Radiation Oncology, Cross Cancer Institute, 11560 University Avenue, Edmonton, Alberta, Canada T6G 1Z2, ⁵⁹⁷Department of Population Sciences, Beckman Research Institute of the City of Hope, 1500 East Duarte Road, Duarte, CA 91010, ⁵⁹⁸Genetic Oncology Unit, CHUVI Hospital, Complejo Hospitalario Universitario de Vigo, Instituto de Investigación Biomédica Galicia Sur (IISGS), 36204, Vigo (Pontevedra), Spain, ⁵⁹⁹Health Research Institute of Santiago de Compostela Foundation (FIDIS), Cancer Genetics and Epidemiology Group, Santiago de Compostela, Spain, ⁶⁰⁰University of California San Diego, Moores Cancer Center, Department of Family Medicine and Public Health, University of California San Diego, La Jolla, CA 92093-0012, USA, ⁶⁰¹Molecular Endocrinology Laboratory, Department of Cellular and Molecular Medicine, KU Leuven, BE-3000, Belgium, ⁶⁰²Department of Urology, University Hospitals Leuven, Herestraat 49, Box 7003 41, BE-3000 Leuven, Belgium, ⁶⁰³Humangenetik Tuebingen, Paul-Ehrlich-Str 23, D-72076 Tuebingen, Germany, ⁶⁰⁴Department of Urology, University Hospital Ulm, Germany, ⁶⁰⁵Department of Oncology, University Hospital Centre Zagreb, University of Zagreb, School of Medicine, 10 000 Zagreb, Croatia, ⁶⁰⁶Institute of Human Genetics, University Medical Center Hamburg-Eppendorf, D-20246 Hamburg, Germany, ⁶⁰⁷Department of Urology, University Hospital Center Zagreb, University of Zagreb School of Medicine, Zagreb, Croatia, ⁶⁰⁸<http://www.cancerresearchuk.org/about-cancer/find-a-clinical-trial/a-study-find-out-looking-gene-changes-would-be-useful-in-screening-for-prostate-cancer-profile-pilot>, ⁶⁰⁹Population Health, School of Medicine and Population Health, University of Sheffield, S1 4DA, ⁶¹⁰Division of Health Science, Warwick Medical School, University of Warwick, Coventry CV4 7AL, UK, ⁶¹¹VA Boston Healthcare System, Boston, MA 02130, USA, ⁶¹²VA Palo Alto Health Care System, Palo Alto, CA 94304, USA, ⁶¹³US Department of Veterans Affairs, Washington, DC 20420, USA, ⁶¹⁴VA Salt Lake City Health Care System, Salt Lake City, UT 84148, USA, ⁶¹⁵Durham VA Medical Center, Durham, NC 27705, USA, ⁶¹⁶VA Tennessee Valley Healthcare System, South Nashville, TN 37212, USA, ⁶¹⁷VA HSR&D, Ann Arbor, MI 48105, ⁶¹⁸Philadelphia VA Medical Center, Philadelphia, PA 19104, ⁶¹⁹VA Tennessee Valley Healthcare System, Nashville, TN 37212, ⁶²⁰New Mexico VA Health Care System, Albuquerque, NM 87108, ⁶²¹Canandaigua VA Medical Center, Canandaigua, NY 14424, USA