

GIANT Consortium 2010, Speliotes *et al.*

Elizabeth K Speliotes^{1,2}, Cristen J Willer³, Sonja I Berndt⁴, Keri L Monda⁵, Gudmar Thorleifsson⁶, Anne U Jackson³, Hana Lango Allen⁷, Cecilia M Lindgren^{8,9}, Jian'an Luan¹⁰, Reedik Mägi⁸, Joshua C Randall⁸, Sailaja Vedantam^{1,11}, Thomas W Winkler¹², Lu Qi^{13,14}, Tsegaselassie Workalemahu¹³, Iris M Heid^{12,15}, Valgerdur Steinthorsdottir⁶, Heather M Stringham³, Michael N Weedon⁷, Eleanor Wheeler¹⁶, Andrew R Wood⁷, Teresa Ferreira⁸, Robert J Weyant³, Ayellet V Segrè¹⁷⁻¹⁹, Karol Estrada²⁰⁻²², Liming Liang^{23,24}, James Nemesh¹⁸, Ju-Hyun Park⁴, Stefan Gustafsson²⁵, Tuomas O Kilpeläinen¹⁰, Jian Yang²⁶, Nabila Bouatia-Naji^{27,28}, Tõnu Esko²⁹⁻³¹, Mary F Feitosa³², Zoltán Kutalik^{33,34}, Massimo Mangino³⁵, Soumya Raychaudhuri^{18,36}, Andre Scherag³⁷, Albert Vernon Smith^{38,39}, Ryan Welch³, Jing Hua Zhao¹⁰, Katja K Aben⁴⁰, Devin M Absher⁴¹, Najaf Amin²⁰, Anna L Dixon⁴², Eva Fisher⁴³, Nicole L Glazer^{44,45}, Michael E Goddard^{46,47}, Nancy L Heard-Costa⁴⁸, Volker Hoesel⁴⁹, Jouke-Jan Hottenga⁵⁰, Åsa Johansson^{51,52}, Toby Johnson^{33,34,53,54}, Shamika Ketkar³², Claudia Lamina^{15,55}, Shengxu Li¹⁰, Miriam F Moffatt⁵⁶, Richard H Myers⁵⁷, Narisu Narisu⁵⁸, John R B Perry⁷, Marjolein J Peters^{21,22}, Michael Preuss⁵⁹, Samuli Ripatti^{60,61}, Fernando Rivadeneira²⁰⁻²², Camilla Sandholt⁶², Laura J Scott³, Nicholas J Timpson⁶³, Jonathan P Tyrer⁶⁴, Sophie van Wingerden²⁰, Richard M Watanabe^{65,66}, Charles C White⁶⁷, Fredrik Wiklund²⁵, Christina Barlassina⁶⁸, Daniel I Chasman^{69,70}, Matthew N Cooper⁷¹, John-Olov Jansson⁷², Robert W Lawrence⁷¹, Niina Pellikka^{60,61}, Inga Prokopenko^{8,9}, Jianxin Shi⁴, Elisabeth Thiering¹⁵, Helene Alavere²⁹, Maria T Salibrandi⁷³, Peter Almgren⁷⁴, Alice M Arnold^{75,76}, Thor Aspelund^{38,39}, Larry D Atwood⁴⁸, Beverley Balkau^{77,78}, Anthony J Balmforth⁷⁹, Amanda J Bennett⁹, Yoav Ben-Shlomo⁸⁰, Richard N Bergman⁶⁶, Sven Bergmann^{33,34}, Heike Biebertmann⁸¹, Alexandra I F Blakemore⁸², Tanja Boes³⁷, Lori L Bonnycastle⁵⁸, Stefan R Bornstein⁸³, Morris J Brown⁸⁴, Thomas A Buchanan^{66,85}, Fabio Busonero⁸⁶, Harry Campbell⁸⁷, Francesco P Cappuccio⁸⁸, Christine Cavalcanti-Proença^{27,28}, Yii-Der Ida Chen⁸⁹, Chih-Mei Chen¹⁵, Peter S Chines⁵⁸, Robert Clarke⁹⁰, Lachlan Coin⁹¹, John Connell⁹², Ian N M Day⁶³, Martin den Heijer^{93,94}, Jubao Duan⁹⁵, Shah Ebrahim^{96,97}, Paul Elliott^{91,98}, Roberto Elosua⁹⁹, Gudny Eiriksdottir³⁸, Michael R Erdos⁵⁸, Johan G Eriksson¹⁰⁰⁻¹⁰⁴, Maurizio F Facheris^{105,106}, Stephan B Felix¹⁰⁷, Pamela Fischer-Posovszky¹⁰⁸, Aaron R Folsom¹⁰⁹, Nele Friedrich¹¹⁰, Nelson B Freimer¹¹¹, Mao Fu¹¹², Stefan Gaget^{27,28}, Pablo V Gejman⁹⁵, Eco J C Geus⁵⁰, Christian Gieger¹⁵, Anette P Gjesing⁶², Anuj Goel^{8,113}, Philippe Goyette¹¹⁴, Harald Grallert¹⁵, Jürgen Gräßler¹¹⁵, Danielle M Greenawalt¹¹⁶, Christopher J Groves⁹, Vilmundur Gudnason^{38,39}, Candace Guiducci¹, Anna-Liisa Hartikainen¹¹⁷, Neelam Hassanali⁹, Alistair S Hall⁷⁹, Aki SHavulinna¹¹⁸, Caroline Hayward¹¹⁹, Andrew C Heath¹²⁰, Christian Hengstenberg^{121,122}, Andrew A Hicks¹⁰⁵, Anke Hinney¹²³, Albert Hofman^{20,22}, Georg Homuth¹²⁴, Jennie Hui^{71,125,126}, Wilmar Igl⁵¹, Carlos Iribarren^{127,128}, Bo Isomaa^{103,129}, Kevin B Jacobs¹³⁰, Ivonne Jarick¹³¹, Elizabeth Jewell³, Ulrich John¹³², Torben Jørgensen^{133,134}, Pekka Jousilahti¹¹⁸, Antti Jula¹³⁵, Marika Kaakinen^{136,137}, Eero Kajantie^{101,138}, Lee M Kaplan^{2,70,139}, Sekar Kathiresan^{17,18,140-142}, Johannes Kettunen^{60,61}, Leena Kinnunen¹⁴³, Joshua W Knowles¹⁴⁴, Ivana Kolcic¹⁴⁵, Inke R König⁵⁹, Seppo Koskinen¹¹⁸, Peter Kovacs¹⁴⁶, Johanna Kuusisto¹⁴⁷, Peter Kraft^{23,24}, Kirsti Kvaløy¹⁴⁸, Jaana Laitinen¹⁴⁹, Olivier Lantieri¹⁵⁰, Chiara Lanzani⁷³, Lenore J Launer¹⁵¹, Cecile Lecoeur^{27,28}, Terho Lehtimäki¹⁵², Guillaume Lettre^{114,153}, Jianjun Liu¹⁵⁴, Marja-Liisa Lokki¹⁵⁵, Mattias Lorentzon¹⁵⁶, Robert N Luben¹⁵⁷, Barbara Ludwig⁸³, MAGIC¹⁵⁸, Paolo Manunta⁷³, Diana Marek^{33,34}, Michel Marre^{159,160}, Nicholas G Martin¹⁶¹, Wendy L McArdle¹⁶², Anne McCarthy¹⁶³, Barbara McKnight⁷⁵, Thomas Meitinger^{164,165}, Olle Melander¹⁶⁶, David Meyre^{27,28}, Kristian Midthjell¹⁴⁸, Grant W Montgomery¹⁶⁷, Mario A Morken⁵⁸, Andrew P Morris⁸, Rosanda Mulic¹⁶⁸, Julius S Ngwa⁶⁷, Mari Nelis²⁹⁻³¹, Matt J Neville⁹, Dale R Nyholt¹⁶⁹, Christopher J O'Donnell^{141,170}, Stephen O'Rahilly¹⁷¹, Ken K Ong¹⁰, Ben Oostra¹⁷², Guillaume Paré¹⁷³, Alex N Parker¹⁷⁴, Markus Perola^{60,61}, Irene Pichler¹⁰⁵, Kirsi H Pietiläinen^{175,176}, Carl GP Platou^{148,177}, Ozren Polasek^{145,178}, Anneli Pouta^{117,179}, Suzanne Rafelt¹⁸⁰, Olli Raitakari^{181,182}, Nigel W Rayner^{8,9}, Martin Ridderstråle¹⁶⁶, Winfried Rief¹⁸³, Aimo Ruokonen¹⁸⁴, Neil R

Robertson^{8,9}, Peter Rzehak^{15,185}, Veikko Salomaa¹¹⁸, Alan R Sanders⁹⁵, Manjinder S Sandhu^{10,16,157}, Serena Sanna⁸⁶, Jouko Saramies¹⁸⁶, Markku J Savolainen¹⁸⁷, Susann Scherag¹²³, Sabine Schipf^{110,188}, Stefan Schreiber¹⁸⁹, Heribert Schunkert¹⁹⁰, Kaisa Silander^{60,61}, Juha Sinisalo¹⁹¹, David S Siscovick^{45,192}, Jan H Smit¹⁹³, Nicole Soranzo^{16,35}, Ulla Sovio⁹¹, Jonathan Stephens^{194,195}, Ida Surakka^{60,61}, Amy J Swift⁵⁸, Mari-Liis Tammesoo²⁹, Jean-Claude Tardif^{114,153}, Maris Teder-Laving^{30,31}, Tanya M Teslovich³, John R Thompson^{196,197}, Brian Thomson¹, Anke Tönjes^{198,199}, Tiinamaija Tuomi^{103,200,201}, Joyce B J van Meurs²⁰⁻²², Gert-Jan van Ommen^{202,203}, Vincent Vatin^{27,28}, Jorma Viikari²⁰⁴, Sophie Visvikis-Siest²⁰⁵, Veronique Vitart¹¹⁹, Carla I G Vogel¹²³, Benjamin F Voight¹⁷⁻¹⁹, Lindsay LWaite⁴¹, Henri Wallaschofski¹¹⁰, GBragi Walters⁶, Elisabeth Widen⁶⁰, Susanna Wiegand⁸¹, Sarah H Wild⁸⁷, Gonneke Willemsen⁵⁰, Daniel R Witte²⁰⁶, Jacqueline CWittman^{20,22}, Jianfeng Xu²⁰⁷, Qunyuan Zhang³², Lina Zgaga¹⁴⁵, Andreas Ziegler⁵⁹, Paavo Zitting²⁰⁸, John P Beilby^{125,126,209}, I Sadaf Farooqi¹⁷¹, Johannes Hebebrand¹²³, Heikki V Huikuri²¹⁰, Alan L James^{126,211}, Mika Kähönen²¹², Douglas F Levinson²¹³, Fabio Macciardi^{68,214}, Markku SNIeminen¹⁹¹, Claes Ohlsson¹⁵⁶, Lyle J Palmer^{71,126}, Paul MRidker^{69,70}, Michael Stumvoll^{198,215}, Jacques S Beckmann^{33,216}, Heiner Boeing⁴³, Eric Boerwinkle²¹⁷, Dorret I Boomsma⁵⁰, Mark J Caulfield⁵⁴, Stephen J Chanock⁴, Francis S Collins⁵⁸, L Adrienne Cupples⁶⁷, George Davey Smith⁶³, Jeanette Erdmann¹⁹⁰, Philippe Froguel^{27,28,82}, Henrik Grönberg²⁵, Ulf Gyllenstein⁵¹, Per Hall²⁵, Torben Hansen^{62,218}, Tamara B Harris¹⁵¹, Andrew T Hattersley⁷, Richard B Hayes²¹⁹, Joachim Heinrich¹⁵, Frank B Hu^{13,14,23}, Kristian Hveem¹⁴⁸, Thomas Illig¹⁵, Marjo-Riitta Jarvelin^{91,136,137,179}, Jaakko Kaprio^{60,175,220}, Fredrik Karpe^{9,221}, Kay-Tee Khaw¹⁵⁷, Lambertus A Kiemeny^{40,93,222}, Heiko Krude⁸¹, Markku Laakso¹⁴⁷, Debbie A Lawlor⁶³, Andres Metspalu²⁹⁻³¹, Patricia B Munroe⁵⁴, Willem H Ouwehand^{16,194,195}, Oluf Pedersen^{62,223,224}, Brenda WPenninx^{193,225,226}, Annette Peters¹⁵, Peter P Pramstaller^{105,106,227}, Thomas Quertermous¹⁴⁴, Thomas Reinehr²²⁸, Aila Rissanen¹⁷⁶, Igor Rudan^{87,168}, Nilesh J Samani^{180,196}, Peter EH Schwarz²²⁹, Alan R Shuldiner^{112,230}, Timothy D Spector³⁵, Jaakko Tuomilehto^{143,231,232}, Manuela Uda⁸⁶, André Uitterlinden²⁰⁻²², Timo T Valle¹⁴³, Martin Wabitsch¹⁰⁸, Gérard Waeber²³³, Nicholas J Wareham¹⁰, Hugh Watkins^{8,113}, on behalf of Procardis Consortium, James F Wilson⁸⁷, Alan F Wright¹¹⁹, MCarola Zillikens^{21,22}, Nilanjan Chatterjee⁴, Steven A McCarroll¹⁷⁻¹⁹, Shaun Purcell^{17,234,235}, Eric E Schadt^{236,237}, Peter M Visscher²⁶, Themistocles L Assimes¹⁴⁴, Ingrid B Borecki^{32,238}, Panos Deloukas¹⁶, Caroline S Fox²³⁹, Leif C Groop⁷⁴, Talin Haritunians⁸⁹, David J Hunter^{13,14,23}, Robert C Kaplan²⁴⁰, Karen L Mohlke²⁴¹, Jeffrey R O'Connell¹¹², Leena Peltonen^{16,60,61,234,242}, David Schlessinger²⁴³, David P Strachan²⁴⁴, Cornelia Mvan Duijn^{20,22}, H-Erich Wichmann^{15,185,245}, Timothy M Frayling⁷, Unnur Thorsteinsdottir^{6,246}, Gonçalo R Abecasis³, Inês Barroso^{16,247}, Michael Boehnke³, Kari Stefansson^{6,246}, Kari E North^{5,248}, Mark I McCarthy^{8,9,221}, Joel N Hirschhorn^{1,11,249}, Erik Ingelsson²⁵ & Ruth J F Loos¹⁰

¹Metabolism Initiative and Program in Medical and Population Genetics, Broad Institute, Cambridge, Massachusetts, USA. ²Division of Gastroenterology, Massachusetts General Hospital, Boston, Massachusetts, USA. ³Department of Biostatistics, Center for Statistical Genetics, University of Michigan, Ann Arbor, Michigan, USA. ⁴Division of Cancer Epidemiology and Genetics, National Cancer Institute, National Institutes of Health, Department of Health and Human Services, Bethesda, Maryland, USA. ⁵Department of Epidemiology, School of Public Health, University of North Carolina at Chapel Hill, Chapel Hill, North Carolina, USA. ⁶deCODE Genetics, Reykjavik, Iceland. ⁷Genetics of Complex Traits, Peninsula College of Medicine and Dentistry, University of Exeter, Exeter, UK. ⁸Wellcome Trust Centre for Human Genetics, University of Oxford, Oxford, UK. ⁹Oxford Centre for Diabetes, Endocrinology and Metabolism, University of Oxford, Oxford, UK. ¹⁰Medical Research Council (MRC) Epidemiology Unit, Institute of Metabolic Science, Addenbrooke's Hospital, Cambridge, UK. ¹¹Divisions of Genetics and Endocrinology and Program in Genomics, Children's Hospital, Boston, Massachusetts, USA. ¹²Regensburg University Medical Center, Department of Epidemiology and Preventive Medicine, Regensburg, Germany. ¹³Department of Nutrition, Harvard School of Public Health, Boston,

Massachusetts, USA. ¹⁴Channing Laboratory, Department of Medicine, Brigham and Women's Hospital and Harvard Medical School, Boston, Massachusetts, USA. ¹⁵Institute of Epidemiology, Helmholtz Zentrum München-German Research Center for Environmental Health, Neuherberg, Germany. ¹⁶Wellcome Trust Sanger Institute, Hinxton, Cambridge, UK. ¹⁷Center for Human Genetic Research, Massachusetts General Hospital, Boston, Massachusetts, USA. ¹⁸Program in Medical and Population Genetics, Broad Institute of Harvard and Massachusetts Institute of Technology, Cambridge, Massachusetts, USA. ¹⁹Department of Molecular Biology, Massachusetts General Hospital, Boston, Massachusetts, USA. ²⁰Department of Epidemiology, Erasmus Medical Center (MC), Rotterdam, The Netherlands. ²¹Department of Internal Medicine, Erasmus MC, Rotterdam, The Netherlands. ²²Netherlands Genomics Initiative (NGI)-sponsored Netherlands Consortium for Healthy Aging (NCHA), Rotterdam, The Netherlands. ²³Department of Epidemiology, Harvard School of Public Health, Boston, Massachusetts, USA. ²⁴Department of Biostatistics, Harvard School of Public Health, Boston, Massachusetts, USA. ²⁵Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Stockholm, Sweden. ²⁶Queensland Statistical Genetics Laboratory, Queensland Institute of Medical Research, Queensland, Australia. ²⁷Centre National de la Recherche Scientifique (CNRS) UMR8199-IBL-Institut Pasteur de Lille, Lille, France. ²⁸University Lille Nord de France, Lille, France. ²⁹Estonian Genome Center, University of Tartu, Tartu, Estonia. ³⁰Estonian Biocenter, Tartu, Estonia. ³¹Institute of Molecular and Cell Biology, University of Tartu, Tartu, Estonia. ³²Department of Genetics, Washington University School of Medicine, St. Louis, Missouri, USA. ³³Department of Medical Genetics, University of Lausanne, Lausanne, Switzerland. ³⁴Swiss Institute of Bioinformatics, Lausanne, Switzerland. ³⁵Department of Twin Research and Genetic Epidemiology, King's College London, London, UK. ³⁶Division of Rheumatology, Immunology and Allergy, Brigham and Women's Hospital, Harvard Medical School, Boston, Massachusetts, USA. ³⁷Institute for Medical Informatics, Biometry and Epidemiology, University of Duisburg-Essen, Essen, Germany. ³⁸Icelandic Heart Association, Kopavogur, Iceland. ³⁹University of Iceland, Reykjavik, Iceland. ⁴⁰Comprehensive Cancer Center East, Nijmegen, The Netherlands. ⁴¹Hudson Alpha Institute for Biotechnology, Huntsville, Alabama, USA. ⁴²Department of Pharmacy and Pharmacology, University of Bath, Bath, UK. ⁴³Department of Epidemiology, German Institute of Human Nutrition Potsdam-Rehbruecke, Nuthetal, Germany. ⁴⁴Department of Medicine, University of Washington, Seattle, Washington, USA. ⁴⁵Cardiovascular Health Research Unit, University of Washington, Seattle, Washington, USA. ⁴⁶University of Melbourne, Parkville, Australia. ⁴⁷Department of Primary Industries, Melbourne, Victoria, Australia. ⁴⁸Department of Neurology, Boston University School of Medicine, Boston, Massachusetts, USA. ⁴⁹Technical University Munich, Chair of Biomathematics, Garching, Germany. ⁵⁰Department of Biological Psychology, Vrije Universiteit (VU) University Amsterdam, Amsterdam, The Netherlands. ⁵¹Department of Genetics and Pathology, Rudbeck Laboratory, University of Uppsala, Uppsala, Sweden. ⁵²Department of Cancer Research and Molecular Medicine, Faculty of Medicine, Norwegian University of Science and Technology (NTNU), Trondheim, Norway. ⁵³Clinical Pharmacology, William Harvey Research Institute, Barts and The London School of Medicine and Dentistry, Queen Mary, University of London, London, UK. ⁵⁴Clinical Pharmacology and Barts and The London Genome Centre, William Harvey Research Institute, Barts and The London School of Medicine and Dentistry, Queen Mary University of London, Charterhouse Square, London, UK. ⁵⁵Division of Genetic Epidemiology, Department of Medical Genetics, Molecular and Clinical Pharmacology, Innsbruck Medical University, Innsbruck, Austria. ⁵⁶National Heart and Lung Institute, Imperial College London, London, UK. ⁵⁷Department of Neurology, Boston University School of Medicine, Boston, Massachusetts, USA. ⁵⁸National Human Genome Research Institute, National Institutes of Health, Bethesda, Maryland, USA. ⁵⁹Institut für Medizinische Biometrie und Statistik, Universität zu Lübeck, Universitätsklinikum Schleswig-Holstein, Campus Lübeck, Lübeck, Germany. ⁶⁰Institute for Molecular Medicine Finland (FIMM), University of Helsinki, Helsinki, Finland. ⁶¹National Institute for Health and Welfare, Department of Chronic Disease Prevention, Unit of Public Health Genomics, Helsinki, Finland. ⁶²Hagedorn Research Institute, Gentofte, Denmark. ⁶³MRC Centre for Causal Analyses in Translational Epidemiology, Department of Social Medicine, Oakfield House, Bristol, UK. ⁶⁴Department of Oncology, University of Cambridge, Cambridge, UK. ⁶⁵Department of Preventive Medicine, Keck School of Medicine, University of Southern California, Los Angeles, California, USA. ⁶⁶Department of Physiology and Biophysics, Keck School of Medicine, University of Southern California, Los Angeles, California, USA. ⁶⁷Department of Biostatistics, Boston University School of Public Health, Boston, Massachusetts, USA. ⁶⁸University of Milan, Department of Medicine, Surgery and Dentistry,

Milano, Italy. ⁶⁹Division of Preventive Medicine, Brigham and Women's Hospital, Boston, Massachusetts, USA. ⁷⁰Harvard Medical School, Boston, Massachusetts, USA. ⁷¹Centre for Genetic Epidemiology and Biostatistics, University of Western Australia, Crawley, Western Australia, Australia. ⁷²Department of Physiology, Institute of Neuroscience and Physiology, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden. ⁷³University Vita-Salute San Raffaele, Division of Nephrology and Dialysis, Milan, Italy. ⁷⁴Lund University Diabetes Centre, Department of Clinical Sciences, Lund University, Malmö, Sweden. ⁷⁵Department of Biostatistics, University of Washington, Seattle, Washington, USA. ⁷⁶Collaborative Health Studies Coordinating Center, Seattle, Washington, USA. ⁷⁷INSERM Centre de recherche en Epidémiologie et Santé des Populations (CESP) Centre for Research in Epidemiology and Public Health U1018, Villejuif, France. ⁷⁸University Paris Sud 11, Unité Mixte de Recherche en Santé (UMRS) 1018, Villejuif, France. ⁷⁹Multidisciplinary Cardiovascular Research Centre (MCRC), Leeds Institute of Genetics, Health and Therapeutics (LIGHT), University of Leeds, Leeds, UK. ⁸⁰Department of Social Medicine, University of Bristol, Bristol, UK. ⁸¹Institute of Experimental Paediatric Endocrinology, Charité Universitätsmedizin Berlin, Berlin, Germany. ⁸²Department of Genomics of Common Disease, School of Public Health, Imperial College London, London, UK. ⁸³Department of Medicine III, University of Dresden, Dresden, Germany. ⁸⁴Clinical Pharmacology Unit, University of Cambridge, Addenbrooke's Hospital, Cambridge, UK. ⁸⁵Division of Endocrinology, Keck School of Medicine, University of Southern California, Los Angeles, California, USA. ⁸⁶Istituto di Neurogenetica e Neurofarmacologia del Consiglio Nazionale delle Ricerche (CNR), Monserrato, Cagliari, Italy. ⁸⁷Centre for Population Health Sciences, University of Edinburgh, Teviot Place, Edinburgh, Scotland, UK. ⁸⁸University of Warwick, Warwick Medical School, Coventry, UK. ⁸⁹Medical Genetics Institute, Cedars-Sinai Medical Center, Los Angeles, California, USA. ⁹⁰Clinical Trial Service Unit, Oxford, UK. ⁹¹Department of Epidemiology and Biostatistics, School of Public Health, Faculty of Medicine, Imperial College London, London, UK. ⁹²University of Dundee, Ninewells Hospital and Medical School, Dundee, UK. ⁹³Department of Epidemiology, Biostatistics and HTA, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands. ⁹⁴Department of Endocrinology, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands. ⁹⁵Northshore University Healthsystem, Evanston, Illinois, USA. ⁹⁶The London School of Hygiene and Tropical Medicine, London, UK. ⁹⁷South Asia Network for Chronic Disease, New Dehli, India. ⁹⁸MRC-Health Protection Agency (HPA) Centre for Environment and Health, London, UK. ⁹⁹Cardiovascular Epidemiology and Genetics, Institut Municipal D'investigacio Medica and Centro de Investigación Biomédica en Red CIBER Epidemiología y Salud Pública, Barcelona, Spain. ¹⁰⁰Department of General Practice and Primary Health Care, University of Helsinki, Helsinki, Finland. ¹⁰¹National Institute for Health and Welfare, Helsinki, Finland. ¹⁰²Helsinki University Central Hospital, Unit of General Practice, Helsinki, Finland. ¹⁰³Folkhalsan Research Centre, Helsinki, Finland. ¹⁰⁴Vasa Central Hospital, Vasa, Finland. ¹⁰⁵Institute of Genetic Medicine, European Academy Bozen-Bolzano (EURAC), Bolzano-Bozen, Italy, Affiliated Institute of the University of Lübeck, Lübeck, Germany. ¹⁰⁶Department of Neurology, General Central Hospital, Bolzano, Italy. ¹⁰⁷Department of Internal Medicine B, Ernst-Moritz-Arndt University, Greifswald, Germany. ¹⁰⁸Pediatric Endocrinology, Diabetes and Obesity Unit, Department of Pediatrics and Adolescent Medicine, Ulm, Germany. ¹⁰⁹Division of Epidemiology and Community Health, School of Public Health, University of Minnesota, Minneapolis, Minnesota, USA. ¹¹⁰Institut für Klinische Chemie und Laboratoriumsmedizin, Universität Greifswald, Greifswald, Germany. ¹¹¹Center for Neurobehavioral Genetics, University of California, Los Angeles, California, USA. ¹¹²Department of Medicine, University of Maryland School of Medicine, Baltimore, Maryland, USA. ¹¹³Department of Cardiovascular Medicine, University of Oxford, John Radcliffe Hospital, Headington, Oxford, UK. ¹¹⁴Montreal Heart Institute, Montreal, Quebec, Canada. ¹¹⁵Department of Medicine III, Pathobiochemistry, University of Dresden, Dresden, Germany. ¹¹⁶Merck Research Laboratories, Merck and Co., Inc., Boston, Massachusetts, USA. ¹¹⁷Department of Clinical Sciences, Obstetrics and Gynecology, University of Oulu, Oulu, Finland. ¹¹⁸National Institute for Health and Welfare, Department of Chronic Disease Prevention, Chronic Disease Epidemiology and Prevention Unit, Helsinki, Finland. ¹¹⁹MRC Human Genetics Unit, Institute for Genetics and Molecular Medicine, Western General Hospital, Edinburgh, Scotland, UK. ¹²⁰Department of Psychiatry and Midwest Alcoholism Research Center, Washington University School of Medicine, St. Louis, Missouri, USA. ¹²¹Klinik und Poliklinik für Innere Medizin II, Universität Regensburg, Regensburg, Germany. ¹²²Regensburg University Medical Center, Innere Medizin II, Regensburg, Germany. ¹²³Department of Child and Adolescent Psychiatry, University of Duisburg-Essen, Essen, Germany. ¹²⁴Interfaculty Institute for Genetics and Functional Genomics, Ernst-Moritz-Arndt-

University Greifswald, Greifswald, Germany. ¹²⁵PathWest Laboratory of Western Australia, Department of Molecular Genetics, J Block, QEII Medical Centre, Nedlands, Western Australia, Australia. ¹²⁶Busselton Population Medical Research Foundation Inc., Sir Charles Gairdner Hospital, Nedlands, Western Australia, Australia. ¹²⁷Division of Research, Kaiser Permanente Northern California, Oakland, California, USA. ¹²⁸Department of Epidemiology and Biostatistics, University of California, San Francisco, San Francisco, California, USA. ¹²⁹Department of Social Services and Health Care, Jakobstad, Finland. ¹³⁰Core Genotyping Facility, SAIC-Frederick, Inc., National Cancer Institute (NCI)-Frederick, Frederick, Maryland, USA. ¹³¹Institute of Medical Biometry and Epidemiology, University of Marburg, Marburg, Germany. ¹³²Institut für Epidemiologie und Sozialmedizin, Universität Greifswald, Greifswald, Germany. ¹³³Research Centre for Prevention and Health, Glostrup University Hospital, Glostrup, Denmark. ¹³⁴Faculty of Health Science, University of Copenhagen, Copenhagen, Denmark. ¹³⁵National Institute for Health and Welfare, Department of Chronic Disease Prevention, Population Studies Unit, Turku, Finland. ¹³⁶Institute of Health Sciences, University of Oulu, Oulu, Finland. ¹³⁷Biocenter Oulu, University of Oulu, Oulu, Finland. ¹³⁸Hospital for Children and Adolescents, Helsinki University Central Hospital and University of Helsinki, Hospital District of Helsinki and Uusimaa (HUS), Helsinki, Finland. ¹³⁹Massachusetts General Hospital (MGH) Weight Center, Massachusetts General Hospital, Boston, Massachusetts, USA. ¹⁴⁰Cardiovascular Research Center and Cardiology Division, Massachusetts General Hospital, Boston, Massachusetts, USA. ¹⁴¹Framingham Heart Study of the National, Heart, Lung, and Blood Institute and Boston University, Framingham, Massachusetts, USA. ¹⁴²Department of Medicine, Harvard Medical School, Boston, Massachusetts, USA. ¹⁴³National Institute for Health and Welfare, Diabetes Prevention Unit, Helsinki, Finland. ¹⁴⁴Department of Medicine, Stanford University School of Medicine, Stanford, California, USA. ¹⁴⁵Andrija Stampar School of Public Health, Medical School, University of Zagreb, Zagreb, Croatia. ¹⁴⁶Interdisciplinary Centre for Clinical Research, University of Leipzig, Leipzig, Germany. ¹⁴⁷Department of Medicine, University of Kuopio and Kuopio University Hospital, Kuopio, Finland. ¹⁴⁸Nord-Trøndelag Health Study (HUNT) Research Centre, Department of Public Health and General Practice, Norwegian University of Science and Technology, Levanger, Norway. ¹⁴⁹Finnish Institute of Occupational Health, Oulu, Finland. ¹⁵⁰Institut inter-régional pour la santé (IRSA), La Riche, France. ¹⁵¹Laboratory of Epidemiology, Demography, Biometry, National Institute on Aging, National Institutes of Health, Bethesda, Maryland, USA. ¹⁵²Department of Clinical Chemistry, University of Tampere and Tampere University Hospital, Tampere, Finland. ¹⁵³Department of Medicine, Université de Montréal, Montreal, Quebec, Canada. ¹⁵⁴Human Genetics, Genome Institute of Singapore, Singapore, Singapore. ¹⁵⁵Transplantation Laboratory, Haartman Institute, University of Helsinki, Helsinki, Finland. ¹⁵⁶Department of Internal Medicine, Institute of Medicine, Sahlgrenska Academy, University of Gothenburg, Gothenburg, Sweden. ¹⁵⁷Department of Public Health and Primary Care, Institute of Public Health, University of Cambridge, Cambridge, UK. ¹⁵⁸On behalf of the MAGIC (Meta-Analyses of Glucose and Insulin-Related Traits Consortium) investigators. ¹⁵⁹Department of Endocrinology, Diabetology and Nutrition, Bichat-Claude Bernard University Hospital, Assistance Publique des Hôpitaux de Paris, Paris, France. ¹⁶⁰Cardiovascular Genetics Research Unit, Université Henri Poincaré-Nancy 1, Nancy, France. ¹⁶¹Genetic Epidemiology Laboratory, Queensland Institute of Medical Research, Queensland, Australia. ¹⁶²Avon Longitudinal Study of Parents and Children (ALSPAC) Laboratory, Department of Social Medicine, University of Bristol, Bristol, UK. ¹⁶³Division of Health, Research Board, An Bord Taighde Sláinte, Dublin, Ireland. ¹⁶⁴Institute of Human Genetics, Klinikum rechts der Isar der Technischen Universität München, Munich, Germany. ¹⁶⁵Institute of Human Genetics, Helmholtz Zentrum München-German Research Center for Environmental Health, Neuherberg, Germany. ¹⁶⁶Department of Clinical Sciences, Lund University, Malmö, Sweden. ¹⁶⁷Molecular Epidemiology Laboratory, Queensland Institute of Medical Research, Queensland, Australia. ¹⁶⁸Croatian Centre for Global Health, School of Medicine, University of Split, Split, Croatia. ¹⁶⁹Neurogenetics Laboratory, Queensland Institute of Medical Research, Queensland, Australia. ¹⁷⁰National Heart, Lung, and Blood Institute, National Institutes of Health, Framingham, Massachusetts, USA. ¹⁷¹University of Cambridge Metabolic Research Laboratories, Institute of Metabolic Science, Addenbrooke's Hospital, Cambridge, UK. ¹⁷²Department of Clinical Genetics, Erasmus MC, Rotterdam, The Netherlands. ¹⁷³Department of Pathology and Molecular Medicine, McMaster University, Hamilton, Ontario, Canada. ¹⁷⁴Amgen, Cambridge, Massachusetts, USA. ¹⁷⁵Finnish Twin Cohort Study, Department of Public Health, University of Helsinki, Helsinki, Finland. ¹⁷⁶Obesity Research Unit, Department of Psychiatry, Helsinki University Central Hospital, Helsinki, Finland. ¹⁷⁷Department of Medicine, Levanger Hospital, The Nord-Trøndelag Health

Trust, Levanger, Norway. ¹⁷⁸Gen-Info Ltd, Zagreb, Croatia. ¹⁷⁹National Institute for Health and Welfare, Oulu, Finland. ¹⁸⁰Department of Cardiovascular Sciences, University of Leicester, Glenfield Hospital, Leicester, UK. ¹⁸¹Research Centre of Applied and Preventive Cardiovascular Medicine, University of Turku, Turku, Finland. ¹⁸²The Department of Clinical Physiology, Turku University Hospital, Turku, Finland. ¹⁸³Clinical Psychology and Psychotherapy, University of Marburg, Marburg, Germany. ¹⁸⁴Department of Clinical Sciences and Clinical Chemistry, University of Oulu, Oulu, Finland. ¹⁸⁵Ludwig-Maximilians-Universität, Institute of Medical Informatics, Biometry and Epidemiology, Chair of Epidemiology, Munich, Germany. ¹⁸⁶South Karelia Central Hospital, Lappeenranta, Finland. ¹⁸⁷Department of Clinical Sciences and Internal Medicine, University of Oulu, Oulu, Finland. ¹⁸⁸Institut für Community Medicine, Greifswald, Germany. ¹⁸⁹Christian-Albrechts-University, University Hospital Schleswig-Holstein, Institute for Clinical Molecular Biology and Department of Internal Medicine I, Kiel, Germany. ¹⁹⁰Universität zu Lübeck, Medizinische Klinik II, Lübeck, Germany. ¹⁹¹Division of Cardiology, Cardiovascular Laboratory, Helsinki University Central Hospital, Helsinki, Finland. ¹⁹²Departments of Medicine and Epidemiology, University of Washington, Seattle, Washington, USA. ¹⁹³Department of Psychiatry, Instituut voor Extramuraal Geneeskundig Onderzoek (EMGO) Institute, VU University Medical Center, Amsterdam, The Netherlands. ¹⁹⁴Department of Haematology, University of Cambridge, Cambridge, UK. ¹⁹⁵National Health Service (NHS) Blood and Transplant, Cambridge Centre, Cambridge, UK. ¹⁹⁶Leicester NIHR Biomedical Research Unit in Cardiovascular Disease, Glenfield Hospital, Leicester, UK. ¹⁹⁷Department of Health Sciences, University of Leicester, University Road, Leicester, UK. ¹⁹⁸Department of Medicine, University of Leipzig, Leipzig, Germany. ¹⁹⁹Coordination Centre for Clinical Trials, University of Leipzig, Leipzig, Germany. ²⁰⁰Department of Medicine, Helsinki University Central Hospital, Helsinki, Finland. ²⁰¹Research Program of Molecular Medicine, University of Helsinki, Helsinki, Finland. ²⁰²Department of Human Genetics, Leiden University Medical Center, Leiden, The Netherlands. ²⁰³Center of Medical Systems Biology, Leiden University Medical Center, Leiden, The Netherlands. ²⁰⁴Department of Medicine, University of Turku and Turku University Hospital, Turku, Finland. ²⁰⁵INSERM Cardiovascular Genetics team, Centre Investigation Clinique (CIC) 9501, Nancy, France. ²⁰⁶Steno Diabetes Center, Gentofte, Denmark. ²⁰⁷Center for Human Genomics, Wake Forest University, Winston-Salem, North Carolina, USA. ²⁰⁸Department of Physiatics, Lapland Central Hospital, Rovaniemi, Finland. ²⁰⁹School of Pathology and Laboratory Medicine, University of Western Australia, Nedlands, Western Australia, Australia. ²¹⁰Department of Internal Medicine, University of Oulu, Oulu, Finland. ²¹¹School of Medicine and Pharmacology, University of Western Australia, Perth, Western Australia, Australia. ²¹²Department of Clinical Physiology, University of Tampere and Tampere University Hospital, Tampere, Finland. ²¹³Stanford University School of Medicine, Stanford, California, USA. ²¹⁴Department of Psychiatry and Human Behavior, University of California, Irvine (UCI), Irvine, California, USA. ²¹⁵Leipziger Interdisziplinärer Forschungskomplex zu molekularen Ursachen umwelt- und lebensstilassoziierter Erkrankungen (LIFE) Study Centre, University of Leipzig, Leipzig, Germany. ²¹⁶Service of Medical Genetics, Centre Hospitalier Universitaire Vaudois (CHUV) University Hospital, Lausanne, Switzerland. ²¹⁷Human Genetics Center and Institute of Molecular Medicine, University of Texas Health Science Center, Houston, Texas, USA. ²¹⁸Faculty of Health Science, University of Southern Denmark, Odense, Denmark. ²¹⁹New York University Medical Center, New York, New York, USA. ²²⁰National Institute for Health and Welfare, Department of Mental Health and Substance Abuse Services, Unit for Child and Adolescent Mental Health, Helsinki, Finland. ²²¹NIHR Oxford Biomedical Research Centre, Churchill Hospital, Oxford, UK. ²²²Department of Urology, Radboud University Nijmegen Medical Centre, Nijmegen, The Netherlands. ²²³Institute of Biomedical Sciences, University of Copenhagen, Copenhagen, Denmark. ²²⁴Faculty of Health Science, University of Aarhus, Aarhus, Denmark. ²²⁵Department of Psychiatry, Leiden University Medical Centre, Leiden, The Netherlands. ²²⁶Department of Psychiatry, University Medical Centre Groningen, Groningen, The Netherlands. ²²⁷Department of Neurology, University of Lübeck, Lübeck, Germany. ²²⁸Institute for Paediatric Nutrition Medicine, Vestische Hospital for Children and Adolescents, University of Witten-Herdecke, Datteln, Germany. ²²⁹Department of Medicine III, Prevention and Care of Diabetes, University of Dresden, Dresden, Germany. ²³⁰Geriatrics Research and Education Clinical Center, Baltimore Veterans Administration Medical Center, Baltimore, Maryland, USA. ²³¹Hjelt Institute, Department of Public Health, University of Helsinki, Helsinki, Finland. ²³²South Ostrobothnia Central Hospital, Seinajoki, Finland. ²³³Department of Internal Medicine, Centre Hospitalier Universitaire Vaudois (CHUV) University Hospital, Lausanne, Switzerland. ²³⁴The Broad Institute of Harvard and Massachusetts Institute of Technology (MIT), Cambridge,

Massachusetts, USA. ²³⁵Department of Psychiatry, Harvard Medical School, Boston, Massachusetts, USA. ²³⁶Pacific Biosciences, Menlo Park, California, USA. ²³⁷Sage Bionetworks, Seattle, Washington, USA. ²³⁸Division of Biostatistics, Washington University School of Medicine, St. Louis, Missouri, USA. ²³⁹Division of Intramural Research, National Heart, Lung, and Blood Institute, Framingham Heart Study, Framingham, Massachusetts, USA. ²⁴⁰Department of Epidemiology and Population Health, Albert Einstein College of Medicine, New York, New York, USA. ²⁴¹Department of Genetics, University of North Carolina, Chapel Hill, North Carolina, USA. ²⁴²Department of Medical Genetics, University of Helsinki, Helsinki, Finland. ²⁴³Laboratory of Genetics, National Institute on Aging, Baltimore, Maryland, USA. ²⁴⁴Division of Community Health Sciences, St. George's, University of London, London, UK. ²⁴⁵Klinikum Grosshadern, Munich, Germany. ²⁴⁶Faculty of Medicine, University of Iceland, Reykjavík, Iceland. ²⁴⁷University of Cambridge Metabolic Research Labs, Institute of Metabolic Science Addenbrooke's Hospital, Cambridge, UK. ²⁴⁸Carolina Center for Genome Sciences, School of Public Health, University of North Carolina Chapel Hill, Chapel Hill, North Carolina, USA. ²⁴⁹Department of Genetics, Harvard Medical School, Boston, Massachusetts, USA.