



Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:

Jiang, X;Finucane, HK;Schumacher, FR;Schmit, SL;Tyrer, JP;Han, Y;Michailidou, K;Lesseur, C;Kuchenbaecker, KB;Dennis, J;Conti, DV;Casey, G;Gaudet, MM;Huyghe, JR;Albanes, D;Aldrich, MC;Andrew, AS;Andrulis, IL;Anton-Culver, H;Antoniou, AC;Antonenkova, NN;Arnold, SM;Aronson, KJ;Arun, BK;Bandera, EV;Barkardottir, RB;Barnes, DR;Batra, J;Beckmann, MW;Benitez, J;Benlloch, S;Berchuck, A;Berndt, SI;Bickeböllner, H;Bien, SA;Blomqvist, C;Bocchia, S;Bogdanova, NV;Bojesen, SE;Bolla, MK;Brauch, H;Brenner, H;Brenton, JD;Brook, MN;Brunet, J;Brunnström, H;Buchanan, DD;Burwinkel, B;Butzow, R;Cadoni, G;Caldés, T;Caligo, MA;Campbell, I;Campbell, PT;Cancel-Tassin, G;Cannon-Albright, L;Campa, D;Caporaso, N;Carvalho, AL;Chan, AT;Chang-Claude, J;Chanock, SJ;Chen, C;Christiani, DC;Claes, KBM;Claessens, F;Clements, J;Collée, JM;Correa, MC;Couch, FJ;Cox, A;Cunningham, JM;Cybulski, C;Czene, K;Daly, MB;deFazio, A;Devilee, P;Diez, O;Gago-Dominguez, M;Donovan, JL;Dörk, T;Duell, EJ;Dunning, AM;Dwek, M;Eccles, DM;Edlund, CK;Edwards, DRV;Ellberg, C;Evans, DG;Fasching, PA;Ferris, RL;Liloglou, T;Figueiredo, JC;Fletcher, O;Fortner, RT;Fostira, F;Franceschi, S;Friedman, E;Gallinger, SJ;Ganz, PA

Title:

Publisher Correction: Shared heritability and functional enrichment across six solid cancers (Nature Communications, (2019), 10, 1, (431), 10.1038/s41467-018-08054-4)

Date:

2019-12-01

Citation:

Jiang, X., Finucane, H. K., Schumacher, F. R., Schmit, S. L., Tyrer, J. P., Han, Y., Michailidou, K., Lesseur, C., Kuchenbaecker, K. B., Dennis, J., Conti, D. V., Casey, G., Gaudet, M. M., Huyghe, J. R., Albanes, D., Aldrich, M. C., Andrew, A. S., Andrulis, I. L., Anton-Culver, H. ,... Ganz, P. A. (2019). Publisher Correction: Shared heritability and functional enrichment across six solid cancers (Nature Communications, (2019), 10, 1, (431), 10.1038/s41467-018-08054-4). Nature Communications, 10 (1), <https://doi.org/10.1038/s41467-019-12095-8>.

Persistent Link:

<https://hdl.handle.net/11343/246558>

License:
CC BY

<https://doi.org/10.1038/s41467-019-12095-8>

OPEN

Publisher Correction: Shared heritability and functional enrichment across six solid cancers

Xia Jiang et al.[#]

Correction to: *Nature Communications* <https://doi.org/10.1038/s41467-018-08054-4>, published online 25 January 2019.

The original version of this Article contained an error in the author affiliations.

Affiliation 46 incorrectly read 'Fondazione Policlinico Universitario A. Gemelli IRCCS, 00168 Roma, Italy.'

This has now been corrected in both the PDF and HTML versions of the Article.

Published online: 23 September 2019



Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>.

© The Author(s) 2019

Xia Jiang^{1,2}, Hilary K. Finucane^{3,4}, Fredrick R. Schumacher^{5,6}, Stephanie L. Schmit^{7,8}, Jonathan P. Tyrer⁹, Younghun Han¹⁰, Kyriaki Michailidou^{11,12}, Corina Lesueur^{13,14}, Karoline B. Kuchenbaecker^{15,16}, Joe Dennis¹¹, David V. Conti¹⁷, Graham Casey^{18,19}, Mia M. Gaudet²⁰, Jeroen R. Huyghe²¹, Demetrius Albanes²², Melinda C. Aldrich²³, Angeline S. Andrew²⁴, Irene L. Andrulis^{25,26}, Hoda Anton-Culver²⁷, Antonis C. Antoniou¹¹, Natalia N. Antonenkova²⁸, Susanne M. Arnold²⁹, Kristan J. Aronson³⁰, Banu K. Arun³¹, Elisa V. Bandera³², Rosa B. Barkardottir^{33,34}, Daniel R. Barnes¹¹, Jyotsna Batra^{35,36}, Matthias W. Beckmann³⁷, Javier Benitez^{38,39}, Sara Benlloch^{11,40}, Andrew Berchuck⁴¹, Sonja I. Berndt²², Heike Bickeböllner⁴², Stephanie A. Bien^{21,43}, Carl Blomqvist^{44,45}, Stefania Boccia^{46,47}, Natalia V. Bogdanova^{28,48,49}, Stig E. Bojesen^{50,51,52}, Manjeet K. Bolla¹¹, Hiltrud Brauch^{53,54,55}, Hermann Brenner^{55,56,57}, James D. Brenton⁵⁸, Mark N. Brook⁴⁰, Joan Brunet⁵⁹, Hans Brunnström^{60,61}, Daniel D. Buchanan^{62,63,64}, Barbara Burwinkel^{65,66}, Ralf Butzow⁶⁷, Gabriella Cadoni^{46,47}, Trinidad Caldés⁶⁸, Maria A. Caligo⁶⁹, Ian Campbell^{70,71}, Peter T. Campbell²⁰, Géraldine Cancel-Tassin^{72,73}, Lisa Cannon-Albright^{74,75}, Daniele Campa^{76,77}, Neil Caporaso²², André L. Carvalho^{78,79},

Correspondence and requests for materials should be addressed to X.J. (email: xiajiang@hsph.harvard.edu) or to P.K. (email: pkraft@hsph.harvard.edu) or to S.L. (email: saralind@uw.edu). [#]A full list of authors and their affiliations appears at the end of the paper.

Andrew T. Chan^{80,81}, Jenny Chang-Claude^{76,82}, Stephen J. Chanock²², Chu Chen⁸³, David C. Christiani³, Kathleen B.M. Claes⁸⁴, Frank Claessens⁸⁵, Judith Clements^{35,36}, J. Margriet Collée⁸⁶, Marcia Cruz Correa⁸⁷, Fergus J. Couch⁸⁸, Angela Cox⁸⁹, Julie M. Cunningham⁸⁸, Cezary Cybulski⁹⁰, Kamila Czene⁹¹, Mary B. Daly⁹², Anna deFazio^{93,94}, Peter Devilee^{95,96}, Orland Diez⁹⁷, Manuela Gago-Dominguez^{98,99}, Jenny L. Donovan¹⁰⁰, Thilo Dörk⁴⁹, Eric J. Duell¹⁰¹, Alison M. Dunning⁹, Miriam Dwek¹⁰², Diana M. Eccles¹⁰³, Christopher K. Edlund¹⁰⁴, Digna R. Velez Edwards¹⁰⁵, Carolina Ellberg¹⁰⁶, D. Gareth Evans¹⁰⁷, Peter A. Fasching^{37,108}, Robert L. Ferris¹⁰⁹, Triantafillos Liloglou¹¹⁰, Jane C. Figuereido^{111,112}, Olivia Fletcher¹¹³, Renée T. Fortner⁷⁶, Florentia Fostira¹¹⁴, Silvia Franceschi¹¹⁵, Eitan Friedman^{116,117}, Steven J. Gallinger^{118,119,120}, Patricia A. Ganz¹²¹, Judy Garber¹²², José A. García-Sáenz⁶⁸, Simon A. Gayther^{123,124,125}, Graham G. Giles^{126,127,128}, Andrew K. Godwin¹²⁹, Mark S. Goldberg^{130,131}, David E. Goldgar¹³², Ellen L. Goode¹³³, Marc T. Goodman^{134,135}, Gary Goodman¹³⁶, Kjell Grankvist¹³⁷, Mark H. Greene¹³⁸, Henrik Gronberg⁹¹, Jacek Gronwald⁹⁰, Pascal Guénel¹³⁹, Niclas Håkansson¹⁴⁰, Per Hall^{91,141}, Ute Hamann¹⁴², Freddie C. Hamdy¹⁴³, Robert J. Hamilton¹⁴⁴, Jochen Hampe¹⁴⁵, Aage Haugen¹⁴⁶, Florian Heitz^{147,148}, Rolando Herrero¹⁴⁹, Peter Hillemanns⁴⁹, Michael Hoffmeister⁵⁶, Estrid Høgdall^{150,151}, Yun-Chul Hong¹⁵², John L. Hopper¹²⁷, Richard Houlston¹⁵³, Peter J. Hulick^{154,155}, David J. Hunter¹, David G. Huntsman^{156,157,158}, Gregory Idos¹⁷, Evgeny N. Imyanitov¹⁵⁹, Sue Ann Ingles¹⁷, Claudine Isaacs¹⁶⁰, Anna Jakubowska^{90,161}, Paul James^{71,162}, Mark A. Jenkins^{62,127}, Mattias Johansson¹⁴, Mikael Johansson¹⁶³, Esther M. John¹⁶⁴, Amit D. Joshi^{3,165}, Radka Kaneva¹⁶⁶, Beth Y. Karlan¹⁶⁷, Linda E. Kelemen¹⁶⁸, Tabea Kühl¹⁶⁹, Kay-Tee Khaw¹⁷⁰, Elza Khusnutdinova^{171,172}, Adam S. Kibel¹⁷³, Lambertus A. Kiemeny¹⁷⁴, Jeri Kim¹⁷⁵, Susanne K. Kjaer^{150,176}, Julia A. Knight^{177,178}, Manolis Kogevinas^{39,179,180,181}, Zsafia Kote-Jarai⁴⁰, Stella Koutros¹⁸², Vessela N. Kristensen^{183,184,185}, Jolanta Kupryjanczyk¹⁸⁶, Martin Lacko¹⁸⁷, Stephan Lam¹⁸⁸, Diether Lambrechts^{189,190}, Maria Teresa Landi¹⁹¹, Philip Lazarus¹⁹², Nhu D. Le¹⁹³, Eunjung Lee¹²³, Flavio Lejbkowitz¹⁹⁴, Heinz-Josef Lenz¹⁰⁴, Goska Leslie¹¹, Davor Lessel¹⁹⁵, Jenny Lester¹⁶⁷, Douglas A. Levine^{196,197}, Li Li^{198,199}, Christopher I. Li²⁰⁰, Annika Lindblom²⁰¹, Noralane M. Lindor²⁰², Geoffrey Liu²⁰³, Fotios Loupakis²⁰⁴, Jan Lubiński⁹⁰, Lovise Maehle²⁰⁵, Christiane Maier²⁰⁶, Arto Mannermaa^{207,208,209}, Loic Le Marchand²¹⁰, Sara Margolin²¹¹, Taymaa May²¹², Lesley McGuffog¹¹, Alfons Meindl²¹³, Pooja Middha^{76,214}, Austin Miller²¹⁵, Roger L. Milne^{126,127}, Robert J. MacInnis^{126,127}, Francesmary Modugno^{216,217}, Marco Montagna²¹⁸, Victor Moreno²¹⁹, Kirsten B. Moysich²²⁰, Lorelei Mucci³, Kenneth Muir^{221,222}, Anna Marie Mulligan^{223,224}, Katherine L. Nathanson²²⁵, David E. Neal^{58,143,226}, Andrew R. Ness²²⁷, Susan L. Neuhausen²²⁸, Heli Nevanlinna²²⁹, Polly A. Newcomb^{21,43}, Lisa F. Newcomb^{21,230}, Finn Cilius Nielsen²³¹, Liene Nikitina-Zake²³², Børge G. Nordestgaard^{50,51,52}, Robert L. Nussbaum²³³, Kenneth Offit^{234,235}, Edith Olah²³⁶, Ali Amin Al Olama^{11,237}, Olufunmilayo I. Olopade²³⁸, Andrew F. Olshan^{239,240}, Håkan Olsson¹⁰⁶, Ana Osorio^{38,39}, Hardev Pandha²⁴¹, Jong Y. Park²⁴², Nora Pashayan^{243,244}, Michael T. Parsons²⁴⁵, Tanja Pejovic^{246,247}, Kathryn L. Penney⁸¹, Wilbert H.M. Peters²⁴⁸, Catherine M. Phelan²⁴², Amanda I. Phipps^{21,249}, Dijana Plaseska-Karanfilska²⁵⁰, Miranda Pring²⁵¹, Darya Prokofyeva¹⁷¹, Paolo Radice²⁵², Kari Stefansson²⁵³, Susan J. Ramus^{254,255}, Leon Raskin²⁵⁶, Gad Rennert²⁵⁷, Hedy S. Rennert²⁵⁷, Elizabeth J. van Rensburg²⁵⁸, Marjorie J. Riggan⁴¹, Harvey A. Risch²⁵⁹, Angela Risch^{260,261,262}, Monique J. Roobol²⁶³, Barry S. Rosenstein^{264,265}, Mary Anne Rossing^{83,266}, Kim De Ruyck²⁶⁷, Emmanouil Saloustros²⁶⁸, Dale P. Sandler²⁶⁹, Elinor J. Sawyer²⁷⁰, Matthew B. Schabath²⁴², Johanna Schleutker^{271,272,273}, Marjanka K. Schmidt^{274,275}, V. Wendy Setiawan²⁷⁶, Hongbing Shen²⁷⁷, Erin M. Siegel⁷, Weiva Sieh²⁷⁸, Christian F. Singer²⁷⁹,

Martha L. Slattery²⁸⁰, Karina Dalsgaard Sorensen^{281,282}, Melissa C. Southey^{283,284}, Amanda B. Spurdle²⁴⁵, Janet L. Stanford^{21,249}, Victoria L. Stevens²⁰, Sebastian Stintzing²⁸⁵, Jennifer Stone^{127,286}, Karin Sundfeldt²⁸⁷, Rebecca Sutphen²⁸⁸, Anthony J. Swerdlow^{40,289}, Eloiza H. Tajara^{290,291}, Catherine M. Tangen²⁹², Adonina Tardon²⁹³, Jack A. Taylor^{269,294}, M. Dawn Teare²⁹⁵, Manuel R. Teixeira^{296,297}, Mary Beth Terry²⁹⁸, Kathryn L. Terry^{299,300}, Stephen N. Thibodeau⁸⁸, Mads Thomassen³⁰¹, Line Bjørge^{302,303}, Marc Tischkowitz^{304,305}, Amanda E. Toland³⁰⁶, Diana Torres^{142,307}, Paul A. Townsend³⁰⁸, Ruth C. Travis³⁰⁹, Nadine Tung³¹⁰, Shelley S. Tworoger^{3,242}, Cornelia M. Ulrich^{21,311}, Nawaid Usmani^{312,313}, Celine M. Vachon¹³³, Els Van Nieuwenhuysen³¹⁴, Ana Vega^{39,315}, Miguel Elías Aguado-Barrera³¹⁵, Qin Wang¹¹, Penelope M. Webb³¹⁶, Clarice R. Weinberg³¹⁷, Stephanie Weinstein²², Mark C. Weissler³¹⁸, Jeffrey N. Weitzel³¹⁹, Catharine M.L. West³²⁰, Emily White^{321,322}, Alice S. Whittemore^{323,324}, H-Erich Wichmann^{325,326,327}, Fredrik Wiklund⁹¹, Robert Winqvist^{328,329}, Alicja Wolk^{140,330}, Penella Woll³³¹, Michael Woods³³², Anna H. Wu¹²³, Xifeng Wu³³³, Drakoulis Yannoukakos¹¹⁴, Wei Zheng²⁵⁶, Shanbeh Zienolddiny¹⁴⁶, Argyrios Ziogas²⁷, Kristin K. Zorn³³⁴, Jacqueline M. Lane^{4,335}, Richa Saxena^{4,335}, Duncan Thomas¹²³, Rayjean J. Hung^{177,178}, Brenda Diergaarde^{336,337}, James McKay³³⁸, Ulrike Peters²⁴⁹, Li Hsu²¹, Montserrat García-Closas²², Rosalind A. Eeles^{40,339}, Georgia Chenevix-Trench²⁴⁵, Paul J. Brennan¹⁴, Christopher A. Haiman¹⁷, Jacques Simard³⁴⁰, Douglas F. Easton^{9,11}, Stephen B. Gruber¹²³, Paul D.P. Pharoah^{9,11}, Alkes L. Price^{1,3,4}, Bogdan Pasaniuc³⁴¹, Christopher I. Amos³⁴², Peter Kraft^{1,3} & Sara Lindström^{21,249}

¹Program in Genetic Epidemiology and Statistical Genetics, Harvard T.H. Chan School of Public Health, 677 Huntington Ave, Boston, MA 02115, USA. ²Unit of Cardiovascular Epidemiology, Institute of Environmental Medicine, Karolinska Institutet, Nobels vagen 13, 17177 Stockholm, Sweden. ³Department of Epidemiology, Harvard T.H. Chan School of Public Health, 677 Huntington Ave, Boston, MA 02115, USA. ⁴Program in Medical and Population Genetics, Broad Institute of MIT and Harvard, 75 Ames St, Cambridge, MA 02142, USA. ⁵Department of Population and Quantitative Health Sciences, Case Western Reserve University, 10900 Euclid Avenue, Cleveland, OH 44106, USA. ⁶Seidman Cancer Center, University Hospitals, Cleveland, OH 44106, USA. ⁷Department of Cancer Epidemiology, H. Lee Moffitt Cancer Center and Research Institute, 12902 Magnolia Dr. MRC-CANCONT, Tampa, FL 33612, USA. ⁸Department of Gastrointestinal Oncology, H. Lee Moffitt Cancer Center and Research Institute, 12902 Magnolia Dr. MRC-CANCONT, Tampa, FL 33612, USA. ⁹Centre for Cancer Genetic Epidemiology, Department of Oncology, University of Cambridge, 2 Worts' Causeway, Cambridge CB1 8RN, UK. ¹⁰Department of Biomedical Data Science, The Geisel School of Medicine at Dartmouth, 1 Medical Center Drive, Lebanon, NH 03756, USA. ¹¹Centre for Cancer Genetic Epidemiology, Department of Public Health and Primary Care, University of Cambridge, 2 Worts' Causeway, Cambridge CB1 8RN, UK. ¹²Department of Electron Microscopy/Molecular Pathology, The Cyprus Institute of Neurology and Genetics, 1683 Nicosia, Cyprus. ¹³Genetic Epidemiology Group, International Agency for Research on Cancer, 150 Cours Albert Thomas, 69008 Lyon, France. ¹⁴Section of Genetics, International Agency for Research on Cancer, 150 cours Albert Thomas, 69008 Lyon, France. ¹⁵Division of Psychiatry, University College London, Maple House, 149 Tottenham Court Road, London W1T 7NF, UK. ¹⁶UCL Genetics Institute, University College London, Gower Street, London WC1E 6BT, UK. ¹⁷Department of Preventive Medicine, Keck School of Medicine, University of Southern California Norris Comprehensive Cancer Center, Los Angeles, CA 48109, USA. ¹⁸Public Health Sciences, University of Virginia, P.O. Box 800717 Charlottesville, VA 22908, USA. ¹⁹Center for Public Health Genomics, University of Virginia, P.O. Box 800717 Charlottesville, VA 22908, USA. ²⁰Epidemiology Research Program, American Cancer Society, 250 Williams Street NW, Atlanta, GA 30303, USA. ²¹Public Health Sciences Division, Fred Hutchinson Cancer Research Center, 1100 Fairview Ave. N., Seattle, WA 98109-1024, USA. ²²Division of Cancer Epidemiology and Genetics, National Cancer Institute, 9609 Medical Center Dr, Rockville, MD 20850, USA. ²³Department of Thoracic Surgery, Division of Epidemiology, Vanderbilt University Medical Center, 609 Oxford House, Nashville, TN 37232, USA. ²⁴Department of Neurology, Dartmouth-Hitchcock Medical Center, 7927 Ruben Building, Room 860, One Medical Center Drive, Lebanon, NH 3756, USA. ²⁵Fred A. Litwin Center for Cancer Genetics, Lunenfeld-Tanenbaum Research Institute of Mount Sinai Hospital, 600 University Avenue, Toronto, ON M5G1X5, Canada. ²⁶Department of Molecular Genetics, University of Toronto, 1 King's College Circle, Toronto, ON M5S1A8, Canada. ²⁷Department of Epidemiology, Genetic Epidemiology Research Institute, University of California Irvine, 224 Irvine Hall, Irvine, CA 92617, USA. ²⁸NNAlexandrov Research Institute of Oncology and Medical Radiology, Settlement of Lesnoy-2, 223040 Minsk, Belarus. ²⁹Markey Cancer Center, University of Kentucky, 800 Rose Street, cc445, Lexington, KY 40508, USA. ³⁰Department of Public Health Sciences, and Cancer Research Institute, Queen's University, 10 Stuart Street, Kingston, ON K7L 3N6, Canada. ³¹Department of Breast Medical Oncology, University of Texas MD Anderson Cancer Center, 1155 Pressler St, Houston, TX 77030, USA. ³²Cancer Prevention and Control Program, Rutgers Cancer Institute of New Jersey, 195 Little Albany Street, Room 5568, New Brunswick, NJ 08903, USA. ³³Department of Pathology, Landspítali University Hospital, Hringbraut, Reykjavík 101, Iceland. ³⁴BMC (Biomedical Centre), Faculty of Medicine, University of Iceland, Vatnsmyrarveggi 16, Reykjavík 101, Iceland. ³⁵Australian Prostate Cancer Research Centre-Qld, Translational Research Institute, 37 Kent St, Woolloongabba, QLD 4102, Australia. ³⁶Institute of Health and Biomedical Innovation and School of Biomedical Science, Queensland University of Technology, 60 Musk Ave, Kelvin Grove, QLD 4059, Australia. ³⁷Department of Gynecology and Obstetrics, Comprehensive Cancer Center Erlangen Nuremberg, University Hospital Erlangen, Friedrich-Alexander-University Erlangen-Nuremberg, Universitaetsstrasse 21-23, 91054 Erlangen, Germany. ³⁸Human Cancer Genetics Programme, Spanish National Cancer Research Centre (CNIO), Calle de Melchor Fernández Almagro, 3, 28029 Madrid, Spain. ³⁹Biomedical Network on Rare Diseases (CIBERER), AvMonforte de Lemos, 3-5Pabellón 11Planta 0, 28029 Madrid, Spain. ⁴⁰Division of Genetics and Epidemiology, The Institute of Cancer

Research, 15 Cotswold Road, London SM2 5NG, UK. ⁴¹Department of Obstetrics and Gynecology, Duke University Medical Center, 25171 Morris Bldg, Durham, NC 27710, USA. ⁴²Department of Genetic Epidemiology, University Medical Center Goettingen, Humboldtallee 32, 37073 Goettingen, Germany. ⁴³School of Public Health, University of Washington, 1959 NE Pacific Street, Health Science Building, F-350, Seattle, WA 98195, USA. ⁴⁴Department of Oncology, Helsinki University Hospital, University of Helsinki, Haartmaninkatu 4, 00290 Helsinki, Finland. ⁴⁵Department of Oncology, Örebro University Hospital, 70185 Örebro, Sweden. ⁴⁶Fondazione Policlinico Universitario A. Gemelli IRCCS, 00168 Roma, Italy. ⁴⁷Università Cattolica del Sacro Cuore, 00168 Roma, Italy. ⁴⁸Department of Radiation Oncology, Hannover Medical School, Carl-Neuberg-Straße 1, 30625 Hannover, Germany. ⁴⁹Gynaecology Research Unit, Hannover Medical School, Carl-Neuberg-Straße 1, 30625 Hannover, Germany. ⁵⁰Copenhagen General Population Study, Herlev and Gentofte Hospital, Copenhagen University Hospital, Herlev Ringvej 75, 2730 Herlev, Denmark. ⁵¹Department of Clinical Biochemistry, Herlev and Gentofte Hospital, Copenhagen University Hospital, Herlev Ringvej 75, 2730 Herlev, Denmark. ⁵²Faculty of Health and Medical Sciences, University of Copenhagen, Blegdamsvej 3B, 2200 Copenhagen, Denmark. ⁵³DrMargarete Fischer-Bosch-Institute of Clinical Pharmacology, Auerbachstr12, 70376 Stuttgart, Germany. ⁵⁴University of Tübingen, Geschwister-Scholl-Platz, 72074 Tübingen, Germany. ⁵⁵German Cancer Consortium (DKTK), German Cancer Research Center (DKFZ), Im Neuenheimer Feld 280, 69120 Heidelberg, Germany. ⁵⁶Division of Clinical Epidemiology and Aging Research, German Cancer Research Center (DKFZ), Im Neuenheimer Feld 280, 69120 Heidelberg, Germany. ⁵⁷Division of Preventive Oncology, German Cancer Research Center (DKFZ) and National Center for Tumor Diseases (NCT), Im Neuenheimer Feld 280, 69120 Heidelberg, Germany. ⁵⁸Cancer Research UK Cambridge Institute, University of Cambridge, Li Ka Shing Centre, Robinson Way, CB2 0RE Cambridge, UK. ⁵⁹Genetic Counseling Unit, Hereditary Cancer Program, IDIBGI (Institut d'Investigació Biomèdica de Girona), Catalan Institute of Oncology, CIBERONC, AvFraça s/n, 17007 Girona, Spain. ⁶⁰Clinical Sciences, Lund University, Box 117, 221 00 Lund, Sweden. ⁶¹Department of Genetics and Pathology, Division of Laboratory Medicine, 221 85 Lund, Sweden. ⁶²University of Melbourne Centre for Cancer Research, Victorian Comprehensive Cancer Centre, Parkville, VIC 3010, Australia. ⁶³Colorectal Oncogenomics Group, Department of Clinical Pathology, The University of Melbourne, Parkville, VIC 3010, Australia. ⁶⁴Genomic Medicine and Family Cancer Clinic, Royal Melbourne Hospital, Parkville, VIC 3010, Australia. ⁶⁵Department of Obstetrics and Gynecology, University of Heidelberg, Im Neuenheimer Feld 440, 69120 Heidelberg, Germany. ⁶⁶Molecular Epidemiology Group, C080, German Cancer Research Center (DKFZ), Im Neuenheimer Feld 280, 69120 Heidelberg, Germany. ⁶⁷Department of Pathology, University of Helsinki and Helsinki University Hospital, Biomedicum Helsinki 4th Floor, Haartmaninkatu 8, 00029 Helsinki, Finland. ⁶⁸Medical Oncology Department, Hospital Clínico San Carlos, Instituto de Investigación Sanitaria San Carlos (IdISSC), Centro Investigación Biomédica en Red de Cáncer (CIBERONC), Calle del Prof Martín Lagos, 28040 Madrid, Spain. ⁶⁹Section of Genetic Oncology, Department of Laboratory Medicine, University and University Hospital of Pisa, via Roma 67, 56126 Pisa, Italy. ⁷⁰Peter MacCallum Cancer Center, 305 Grattan Street, Melbourne, VIC 3000, Australia. ⁷¹Sir Peter MacCallum Department of Oncology, The University of Melbourne, 305 Grattan Street, Melbourne, VIC 3000, Australia. ⁷²Sorbonne Université, GRC N°5 ONCOTYPE-URO, Tenon Hospital, 75020 Paris, France. ⁷³CeRePP, Tenon Hospital, 75020 Paris, France. ⁷⁴Division of Genetic Epidemiology, Department of Medicine, University of Utah School of Medicine, Salt Lake City, UT 84112, USA. ⁷⁵George E.Wahlen Department of Veterans Affairs Medical Center, Salt Lake City, UT 84112, USA. ⁷⁶Division of Cancer Epidemiology, German Cancer Research Center (DKFZ), Im Neuenheimer Feld 280, 69120 Heidelberg, Germany. ⁷⁷Department of Biology, University of Pisa, 56126 Pisa, Italy. ⁷⁸Molecular Oncology Research Center, Barretos Cancer Hospital, Rua Antenor Duarte Villela, 1331, Barretos, SP 784-400, Brazil. ⁷⁹Head and Neck Surgery Department, Barretos Cancer Hospital, Pio XII, 1331, Antenor Duarte Villela St, Barretos, SP 14784-400, Brazil. ⁸⁰Division of Gastroenterology, Massachusetts General Hospital, 55 Fruit Street, Boston, MA 02114, USA. ⁸¹Channing Division of Network Medicine, Department of Medicine, Brigham and Women's Hospital, Harvard Medical School, 181 Longwood Avenue, Boston, MA 02115, USA. ⁸²Cancer Epidemiology Group, University Cancer Center Hamburg (UCCH), University Medical Center Hamburg-Eppendorf, Martinistraße 52, 20246 Hamburg, Germany. ⁸³Program in Epidemiology, Division of Public Health Sciences, Fred Hutchinson Cancer Research Center, 1100 Fairview Ave N, Seattle, WA 98109, USA. ⁸⁴Centre for Medical Genetics, Ghent University, De Pintelaan 185, 9000 Gent, Belgium. ⁸⁵Molecular Endocrinology Laboratory, Department of Cellular and Molecular Medicine, KU Leuven, Leuven 3000, Belgium. ⁸⁶Department of Clinical Genetics, Erasmus University Medical Center, Wytemaweg 80, 3015 Rotterdam, CN, The Netherlands. ⁸⁷University of Puerto Rico Medical Sciences Campus and Comprehensive Cancer Center, San Juan, PR 00936, USA. ⁸⁸Department of Laboratory Medicine and Pathology, Mayo Clinic, 200 First StSW, Rochester, MN 55905, USA. ⁸⁹Sheffield Institute for Nucleic Acids (SInFoNiA), Department of Oncology and Metabolism, University of Sheffield, Western Bank, Sheffield S10 2TN, UK. ⁹⁰International Hereditary Cancer Center, Department of Genetics and Pathology, Pomeranian Medical University, ulUnii Lubelskiej 1, 71-252 Szczecin, Poland. ⁹¹Department of Medical Epidemiology and Biostatistics, Karolinska Institutet, Karolinska Univ Hospital, 171 76 Stockholm, Sweden. ⁹²Department of Clinical Genetics, Fox Chase Cancer Center, 333 Cottman Ave, Philadelphia, PA 19111, USA. ⁹³Centre for Cancer Research, The Westmead Institute for Medical Research, The University of Sydney, 176 Hawkesbury Rd, Sydney, NSW 2145, Australia. ⁹⁴Department of Gynaecological Oncology, Westmead Hospital, Hawkesbury Rd & Darcy Rd, Sydney, NSW 2145, Australia. ⁹⁵Department of Pathology, Leiden University Medical Center, Albinusdreef 2, 2333 ZA Leiden, The Netherlands. ⁹⁶Department of Human Genetics, Leiden University Medical Center, Albinusdreef 2, 2333 ZA Leiden, The Netherlands. ⁹⁷Oncogenetics Group, Clinical and Molecular Genetics Area, Vall d'Hebron Institute of Oncology (VHIO), University Hospital, Vall d'Hebron, Passeig de la Vall d'Hebron 119-129, 08035 Barcelona, Spain. ⁹⁸Genomic Medicine Group, Galician Foundation of Genomic Medicine, Instituto de Investigación Sanitaria de Santiago de Compostela (IDIS), Complejo Hospitalario Universitario de Santiago, SERGAS, Travesía da Choupana S/N, 15706 Santiago de Compostela, Spain. ⁹⁹Moore's Cancer Center, University of California, San Diego, 3855 Health Sciences Drive, La Jolla, CA 92037, USA. ¹⁰⁰School of Social and Community Medicine, University of Bristol, Bristol BS8 1TH, UK. ¹⁰¹Unit of Nutrition and Cancer, Cancer Epidemiology Research Program, Catalan Institute of Oncology (ICO-IDIBELL), AvGran Via 199-203, L'Hospitalet de Llobregat, 08908 Barcelona, Spain. ¹⁰²Department of Biomedical Sciences, Faculty of Science and Technology, University of Westminster, 309 Regent Street, London W1B 2HW, UK. ¹⁰³Cancer Sciences Academic Unit, Faculty of Medicine, University of Southampton, Tremona Road, Southampton SO16 6YD, UK. ¹⁰⁴Department of Medicine, Keck School of Medicine, University of Southern California, Los Angeles, CA 90033, USA. ¹⁰⁵Vanderbilt Epidemiology Center, Vanderbilt Genetics Institute, Department of Obstetrics and Gynecology, Vanderbilt University Medical Center, 2525 West End Avenue, Suite 600, Nashville, TN 37203, USA. ¹⁰⁶Department of Cancer Epidemiology, Clinical Sciences, Lund University, Bargatan 4, Skånes universitetssjukhus, 222 42 Lund, Sweden. ¹⁰⁷Manchester Centre for Genomic Medicine, Division of Evolution and Genomic Sciences, University of Manchester, St Mary's Hospital, Central Manchester University Hospitals NHS Foundation Trust, Oxford Road, Manchester M13 9WL, UK. ¹⁰⁸David Geffen School of Medicine, Department of Medicine Division of Hematology and Oncology, University of California at Los Angeles, 10833 Le Conte Ave, Los Angeles, CA 90095, USA. ¹⁰⁹Department of Otolaryngology, UPMC Hillman Cancer Center, Cancer Pavilion, University of Pittsburgh, Suite 500, 5150 Centre Avenue, Pittsburgh, PA 15232, USA. ¹¹⁰Molecular and Clinical Cancer Medicine, Roy Castle Lung Cancer Research Programme, The University of Liverpool Institute of Translational Medicine, The William Duncan Building, 6 West Derby Street, Liverpool L69 3BX, UK. ¹¹¹Samuel Oschin Comprehensive Cancer Institute, Cedars-Sinai Medical Center, 8700 Beverly Boulevard, Los Angeles, CA 90048, USA. ¹¹²Keck School of Medicine,

University of Southern California, 1450 Biggy Street, Los Angeles, CA 90033, USA. ¹¹³The Breast Cancer Now Toby Robins Research Centre, The Institute of Cancer Research, 123 Old Brompton Road, London SW7 3RP, UK. ¹¹⁴Molecular Diagnostics Laboratory, INRASTES, National Centre for Scientific Research 'Demokritos', Neapoleos 10, AgParaskevi, Athens 15310, Greece. ¹¹⁵Section of Infections, International Agency for Research on Cancer, 150 cours Albert Thomas, 69008 Lyon, France. ¹¹⁶The Susanne Levy Gertner Oncogenetics Unit, Chaim Sheba Medical Center, Emek HaEla St 1, 52621 Ramat Gan, Israel. ¹¹⁷Sackler Faculty of Medicine, Tel Aviv University, Haim Levanon 30, 69978 Ramat Aviv, Israel. ¹¹⁸Department of Surgery, Mount Sinai Hospital, 600 University Avenue, Toronto, ON M5G 1X5, Canada. ¹¹⁹Samuel Lunenfeld Research Institute, 600 University Avenue, Toronto, ON M5G 1X5, Canada. ¹²⁰University Health Network Toronto General Hospital, 200 Elizabeth St, Toronto, ON M5G 2C4, Canada. ¹²¹Schools of Medicine and Public Health, Division of Cancer Prevention & Control Research, Jonsson Comprehensive Cancer Centre, UCLA, 650 Charles Young Drive South, Los Angeles, CA 90095-6900, USA. ¹²²Cancer Risk and Prevention Clinic, Dana-Farber Cancer Institute, 450 Brookline Avenue, Boston, MA 02215, USA. ¹²³Department of Preventive Medicine, Keck School of Medicine, University of Southern California, 1975 Zonal Ave, Los Angeles, CA 90033, USA. ¹²⁴Center for Cancer Prevention and Translational Genomics, Samuel Oschin Comprehensive Cancer Institute, Cedars-Sinai Medical Center, Spielberg Building, 8725 Alden Dr, Los Angeles, CA 90048, USA. ¹²⁵Department of Biomedical Sciences, Cedars-Sinai Medical Center, Spielberg Building, 8725 Alden Dr, Los Angeles, CA 90048, USA. ¹²⁶Cancer Epidemiology & Intelligence Division, Cancer Council Victoria, 615 St Kilda Road, Melbourne, VIC 3004, Australia. ¹²⁷Centre for Epidemiology and Biostatistics, Melbourne School of Population and Global Health, The University of Melbourne, Level 1, 723 Swanston Street, Melbourne, VIC 3010, Australia. ¹²⁸Department of Epidemiology and Preventive Medicine, Monash University, Melbourne, VIC, Australia. ¹²⁹Department of Pathology and Laboratory Medicine, University of Kansas Medical Center, 3901 Rainbow Blvd, Kansas City, KS 66160, USA. ¹³⁰Department of Medicine, McGill University, 1001 Decarie Boulevard, Montréal, QC H4A3J1, Canada. ¹³¹Division of Clinical Epidemiology, Royal Victoria Hospital, McGill University, 1001 Decarie Boulevard, Montréal, QC H4A3J1, Canada. ¹³²Department of Dermatology, Huntsman Cancer Institute, University of Utah School of Medicine, 2000 Circle of Hope, Salt Lake City, UT 84112, USA. ¹³³Department of Health Sciences Research, Mayo Clinic, 200 First StSW, Rochester, MN 55905, USA. ¹³⁴Cancer Prevention and Control, Samuel Oschin Comprehensive Cancer Institute, Cedars-Sinai Medical Center, 8700 Beverly Blvd, Room 1537, Los Angeles, CA 90048, USA. ¹³⁵Community and Population Health Research Institute, Department of Biomedical Sciences, Cedars-Sinai Medical Center, 8700 Beverly Blvd, Room 1537, Los Angeles, CA 90048, USA. ¹³⁶Public Health Sciences Division, Swedish Cancer Institute, 1221 Madison StSte 300, Seattle, WA 98109, USA. ¹³⁷Unit of Clinical Chemistry, Department of Medical Biosciences, Umeå University, By 6M van 2, Sjukhusområdet, Umea universitet, 901 85 Umea, Sweden. ¹³⁸Clinical Genetics Branch, National Cancer Institute, DCEG, 9609 Medical Center Dr, Bethesda, MD 20850-9772, USA. ¹³⁹Cancer & Environment Group, Center for Research in Epidemiology and Population Health (CESP), INSERM, University Paris-Sud, University Paris-Saclay, 94805 Villejuif, France. ¹⁴⁰Department of Environmental Medicine, Division of Nutritional Epidemiology, Karolinska Institutet, Nobels väg 13, SE-171 77, SE-171 Stockholm, Sweden. ¹⁴¹Department of Oncology, Södersjukhuset, Sjukhusbacken 10, 118 83 Stockholm, Sweden. ¹⁴²Molecular Genetics of Breast Cancer, German Cancer Research Center (DKFZ), Im Neuenheimer Feld 580, 69120 Heidelberg, Germany. ¹⁴³Nuffield Department of Surgical Sciences, Faculty of Medical Science, John Radcliffe Hospital, University of Oxford, Oxford OX1 2JD, UK. ¹⁴⁴Department of Surgical Oncology, Princess Margaret Cancer Centre, 610 University Avenue, Toronto, Ontario M5G2M9, Canada. ¹⁴⁵Department of Internal Medicine 1, University Hospital Dresden, Technische Universität Dresden (TU Dresden), 01307 Dresden, Germany. ¹⁴⁶National Institute of Occupational Health (STAMI), Gydas vei 8, 0033 Oslo, Norway. ¹⁴⁷Department of Gynecology and Gynecologic Oncology, DrHorst Schmidt Kliniken Wiesbaden, Ludwig-Erhard-Straße 100, 65199 Wiesbaden, Germany. ¹⁴⁸Department of Gynecology and Gynecologic Oncology, Kliniken Essen-Mitte/EvangHuysens-Stiftung/Knappschaft GmbH, Henricistrasse 92, 45136 Essen, Germany. ¹⁴⁹Early Detection and Prevention Section, International Agency for Research on Cancer, 150 cours Albert Thomas, 69008 Lyon, France. ¹⁵⁰Department of Virus, Lifestyle and Genes, Danish Cancer Society Research Center, Strandboulevarden 49, DK-2100 Copenhagen, Denmark. ¹⁵¹Molecular Unit, Department of Pathology, Herlev Hospital, University of Copenhagen, Herlev Ringvej 75, DK-2730 Herlev, Denmark. ¹⁵²Preventive Medicine, Seoul National University College of Medicine, 1 Gwanak-ro, Gwanak-gu, Seoul 151 742, Korea. ¹⁵³German Research Center for Environmental Health, Institute for Cancer Research, Ingolstadter Landstr1, London SM2 5NG, UK. ¹⁵⁴Center for Medical Genetics, NorthShore University HealthSystem, 1000 Central St, Evanston, IL 60201, USA. ¹⁵⁵The University of Chicago Pritzker School of Medicine, 924 E 57th St, Chicago, IL 60637, USA. ¹⁵⁶British Columbia's Ovarian Cancer Research (OVCARE) Program, Vancouver General Hospital, BC Cancer Agency and University of British Columbia, #3427-600 West 10th Avenue, Vancouver, BC V5Z 4E6, Canada. ¹⁵⁷Department of Molecular Oncology, BC Cancer Agency Research Centre, #3427-600 West 10th Avenue, Vancouver, BC V5Z 4E6, Canada. ¹⁵⁸Department of Pathology and Laboratory Medicine, University of British Columbia, #3427-600 West 10th Avenue, Vancouver, BC V5Z 4E6, Canada. ¹⁵⁹NNPetrov Institute of Oncology, Leningradskaya ul, 68, StPetersburg, Russia 197758. ¹⁶⁰Lombardi Comprehensive Cancer Center, Georgetown University, 3800 Reservoir Road, Washington, DC 20007, USA. ¹⁶¹Independent Laboratory of Molecular Biology and Genetic Diagnostics, Pomeranian Medical University, Rybacka 1, 70-204 Szczecin, Poland. ¹⁶²Parkville Familial Cancer Centre, Peter MacCallum Cancer Center, 305 Grattan Street, Melbourne, VIC 3000, Australia. ¹⁶³Department of Radiation Sciences, Umeå University, By 6M van 2, Sjukhusområdet, Umea universitet, 901 85 Umea, Sweden. ¹⁶⁴Department of Medicine, Division of Oncology and Stanford Cancer Institute, Stanford University School of Medicine, 780 Welch Rd, Stanford, CA 94304, USA. ¹⁶⁵Clinical and Translational Epidemiology Unit, Massachusetts General Hospital, 02114 Boston, MA, USA. ¹⁶⁶Molecular Medicine Center, Department of Medical Chemistry and Biochemistry, Medical Faculty, Medical University of Sofia, Sofia 1504, Bulgaria. ¹⁶⁷Women's Cancer Program at the Samuel Oschin Comprehensive Cancer Institute, Cedars-Sinai Medical Center, 8700 Beverly Boulevard, Los Angeles, CA 90048, USA. ¹⁶⁸Hollings Cancer Center and Department of Public Health Sciences, Medical University of South Carolina, 68 President Street Bioengineering Building, MSC955, Charleston, SC 29425, USA. ¹⁶⁹Cancer Epidemiology, University Cancer Center Hamburg (UCCH), University Medical Center Hamburg-Eppendorf, Martinistraße 52, 20246 Hamburg, Germany. ¹⁷⁰Clinical Gerontology, Department of Public Health and Primary Care, University of Cambridge, 2 Worts' Causeway, Cambridge CB1 8RN, UK. ¹⁷¹Department of Genetics and Fundamental Medicine, Bashkir State University, ulZaki Validi 32, Ufa, Russia 450076. ¹⁷²Institute of Biochemistry and Genetics, Ufa Scientific Center of Russian Academy of Sciences, 71 prosp Oktyabrya, Ufa, Russia 450054. ¹⁷³Division of Urologic Surgery, Brigham and Womens Hospital, Boston, Massachusetts 02115, USA. ¹⁷⁴Radboud Institute for Health Sciences, Radboud University Medical Center, Geert Grooteplein 21, 6525 EZ Nijmegen, The Netherlands. ¹⁷⁵Department of Genitourinary Medical Oncology, University of Texas MD Anderson Cancer Center, 1155 Pressler St, Houston, TX 77030, USA. ¹⁷⁶Department of Gynaecology, Rigshospitalet, University of Copenhagen, Blegdamsvej 9, DK-2100 Copenhagen, Denmark. ¹⁷⁷Prosserman Centre for Population Health Research, Lunenfeld-Tanenbaum Research Institute, Sinai Health System, 60 Murray Street, Toronto, Ontario M5T 3L9, Canada. ¹⁷⁸Division of Epidemiology, Dalla Lana School of Public Health, University of Toronto, 155 College Street, Toronto, ON M5T3M7, Canada. ¹⁷⁹Centre for Research in Environmental Epidemiology (CREAL), ISGlobal, 08036 Barcelona, Spain. ¹⁸⁰IMIM (Hospital del Mar Research Institute), Barcelona 08003, Spain. ¹⁸¹Universitat Pompeu Fabra (UPF), Barcelona 08002, Spain. ¹⁸²Division of Cancer Epidemiology and Genetics, National Cancer Institute, Department of Health and Human Services, National Institutes of Health, 9609 Medical Center Dr, Bethesda,

MD 20892, USA. ¹⁸³Department of Cancer Genetics, Institute for Cancer Research, Oslo University Hospital Radiumhospitalet, Ullernchausseen 70, 0379 Oslo, Norway. ¹⁸⁴Faculty of Medicine, Institute of Clinical Medicine, University of Oslo, Kirkeveien 166, 0450 Oslo, Norway. ¹⁸⁵Department of Clinical Molecular Biology, Oslo University Hospital, University of Oslo, Kirkeveien 166, 0450 Oslo, Norway. ¹⁸⁶Department of Pathology and Laboratory Diagnostics, the Maria Sklodowska-Curie Institute - Oncology Center, Roentgena 5, 02-781 Warsaw, Poland. ¹⁸⁷Head and Neck Surgery, Department of Otorhinolaryngology, Maastricht University Medical Center, PDebyelaan 25, POBox 5800, 6202 AZ Maastricht, The Netherlands. ¹⁸⁸Department of Integrative Oncology, British Columbia Cancer Agency, Room 10-111 675 West 10th Avenue, Vancouver, BC V5Z1L3, Canada. ¹⁸⁹VIB Center for Cancer Biology, VIB, Herestraat 49, 3001 Leuven, Belgium. ¹⁹⁰Laboratory for Translational Genetics, Department of Human Genetics, University of Leuven, Oude Markt 13, 3000 Leuven, Belgium. ¹⁹¹Integrative Tumor Epidemiology Branch, DCEG, National Cancer Institute, 9609 Medical Center Drive, Room SG/7E106, Rockville, MD 20850, USA. ¹⁹²College of Pharmacy, Washington State University, PBS 431 PO Box 1495, Spokane, WA 99210-1495, USA. ¹⁹³Cancer Control Research, BC Cancer Agency, 675 West 10th Avenue, Vancouver, BC V5Z 1L3, Canada. ¹⁹⁴Clalit Health Services, Clalit National Israeli Cancer Control Center, Carmel Medical Center, 2 Horev Street, 3436212 Haifa, Israel. ¹⁹⁵Institute of Human Genetics, University Medical Center Hamburg-Eppendorf, Martinstraße 52, 20246 Hamburg, Germany. ¹⁹⁶Gynecology Service, Department of Surgery, Memorial Sloan Kettering Cancer Center, 1275 York Avenue, New York, NY 10065, USA. ¹⁹⁷Gynecologic Oncology, Laura and Isaac Pearlmuter Cancer Center, NYU Langone Medical Center, 240 East 38th Street 19th Floor, New York, NY 10016, USA. ¹⁹⁸Department of Family Medicine and Community Health, Mary Ann Swetland Center for Environmental Health, Case Western Reserve University, Cleveland, OH 44106, USA. ¹⁹⁹Servicio Galego de Saude (SERGAS), Instituto de Investigación Sanitaria de Santiago de Compostela (IDIS), 15706 Santiago De Compostela, Spain. ²⁰⁰Translational Research Program, Fred Hutchinson Cancer Research Center, Seattle, WA 98109, USA. ²⁰¹Department of Molecular Medicine and Surgery, Karolinska Institutet, Karolinska Univ Hospital, 171 76 Stockholm, Sweden. ²⁰²Health Sciences Research, Mayo Clinic Arizona, 13400 E Shea Blvd, Scottsdale, AZ 85259, USA. ²⁰³Epidemiology Division, Princess Margaret Cancer Centre, 610 University Avenue, Toronto, ON M5G2M9, Canada. ²⁰⁴Unit of Oncology 1, Department of Clinical and Experimental Oncology, Istituto Oncologico Veneto IRCCS, 35122 Padua, Italy. ²⁰⁵Department of Medical Genetics, Oslo University Hospital, Kirkeveien 166, 0450 Oslo, Norway. ²⁰⁶Institute of Human Genetics, University Hospital Ulm, Prittwitzstrasse 43, 89075 Ulm, Germany. ²⁰⁷Translational Cancer Research Area, University of Eastern Finland, Yliopistonranta 1, 70210 Kuopio, Finland. ²⁰⁸Institute of Clinical Medicine, Pathology and Forensic Medicine, University of Eastern Finland, Kuopio Yliopistonranta 1, 70210, Finland. ²⁰⁹Imaging Center, Department of Clinical Pathology, Kuopio University Hospital, Puijonlaaksontie 2, 70210 Kuopio, Finland. ²¹⁰Epidemiology Program, University of Hawaii Cancer Center, 701 Ilalo St, Honolulu, HI 96813, USA. ²¹¹Department of Clinical Science and Education, Södersjukhuset, Karolinska Institutet, Stockholm 17177, Sweden. ²¹²Division of Gynecologic Oncology, University Health Network, Princess Margaret Hospital, 610 University Avenue, OPG Wing, 6-811, Toronto, ON M5G 2M9, Canada. ²¹³Division of Gynaecology and Obstetrics, Technische Universität München, Arcisstraße 21, 80333 Munich, Germany. ²¹⁴Faculty of Medicine, University of Heidelberg, Im Neuenheimer Feld 672, 69120 Heidelberg, Germany. ²¹⁵NRG Oncology, Statistics and Data Management Center, Roswell Park Cancer Institute, Elm & Carlton Streets, Buffalo, NY 14263, USA. ²¹⁶Womens Cancer Research Center, Magee-Womens Research Institute and Hillman Cancer Center, Pittsburgh, PA 15213, USA. ²¹⁷Division of Gynecologic Oncology, Department of Obstetrics, Gynecology and Reproductive Sciences, University of Pittsburgh School of Medicine, 300 Halket Street, Pittsburgh, PA 15213, USA. ²¹⁸Immunology and Molecular Oncology Unit, Veneto Institute of Oncology IOV - IRCCS, Via Gattamelata 64, Padua 35128, Italy. ²¹⁹Catalan Institute of Oncology, Bellvitge Biomedical Research Institute (IDIBELL), Consortium for Biomedical Research in Epidemiology and Public Health (CIBERESP) and University of Barcelona, Barcelona 08908, Spain. ²²⁰Division of Cancer Prevention and Control, Roswell Park Cancer Institute, Elm & Carlton Streets, Buffalo, NY 14263, USA. ²²¹Division of Population Health, Health Services Research and Primary Care, University of Manchester, Oxford Road, Manchester M13 9PL, UK. ²²²Division of Health Sciences, Warwick Medical School, University of Warwick, Coventry CV4 7AL, UK. ²²³Department of Laboratory Medicine and Pathobiology, University of Toronto, 1 King's College Circle, Toronto, ON M5S1A8, Canada. ²²⁴Laboratory Medicine Program, University Health Network, 200 Elizabeth Street, Toronto, ON M5G2C4, Canada. ²²⁵Department of Medicine, Abramson Cancer Center, Perelman School of Medicine at the University of Pennsylvania, 3400 Civic Center Boulevard, Philadelphia, PA 19104, USA. ²²⁶Department of Oncology, Addenbrooke's Hospital, University of Cambridge, Cambridge CB1 8RN, UK. ²²⁷NIHR Bristol Biomedical Research Centre Nutrition Theme, University of Bristol, Upper Maudlin Street, Bristol BS2 8AE, UK. ²²⁸Department of Population Sciences, Beckman Research Institute of City of Hope, 1500 E Duarte, Duarte, CA 91010, USA. ²²⁹Department of Obstetrics and Gynecology, Helsinki University Hospital, University of Helsinki, Haartmaninkatu 8, 00290 Helsinki, Finland. ²³⁰Department of Urology, University of Washington, Seattle, Washington 98195, USA. ²³¹Center for Genomic Medicine, Rigshospitalet, Copenhagen University Hospital, Blegdamsvej 9, DK-2100 Copenhagen, Denmark. ²³²Latvian Biomedical Research and Study Centre, Ratsupites str 1, Riga LV-1067, Latvia. ²³³Cancer Genetics and Prevention Program, University of California San Francisco, 1600 Divisadero St, San Francisco, CA 94143-1714, USA. ²³⁴Clinical Genetics Research Lab, Department of Cancer Biology and Genetics, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10065, USA. ²³⁵Clinical Genetics Service, Department of Medicine, Memorial Sloan-Kettering Cancer Center, 1275 York Avenue, New York, NY 10065, USA. ²³⁶Department of Molecular Genetics, National Institute of Oncology, Ráth György u7-9, 1122 Budapest, Hungary. ²³⁷Department of Clinical Neurosciences, University of Cambridge, Cambridge CB2 0QQ, UK. ²³⁸Center for Clinical Cancer Genetics, The University of Chicago, 5841S Maryland Ave, Chicago, IL 60637, USA. ²³⁹Department of Epidemiology, Gillings School of Global Public Health, University of North Carolina, 135 Dauer Dr, Chapel Hill, NC 27599-7435, USA. ²⁴⁰UNC Lineberger Comprehensive Cancer Center, 450 West Dr, Chapel Hill, NC 27599, USA. ²⁴¹The University of Surrey, Guildford, Surrey GU2 7XH, UK. ²⁴²Department of Cancer Epidemiology, HLee Moffitt Cancer Center and Research Institute, 12902 Magnolia Drive, Tampa, FL 33612, USA. ²⁴³Department of Applied Health Research, University College London, 1-19 Torrington Place, London WC1E 6BT, UK. ²⁴⁴Centre for Cancer Genetic Epidemiology, Department of Oncology, Strangeways Laboratory, University of Cambridge, Cambridge CB1 8RN, UK. ²⁴⁵Department of Genetics and Computational Biology, QIMR Berghofer Medical Research Institute, 300 Herston Road, Brisbane, QLD 4006, Australia. ²⁴⁶Department of Obstetrics and Gynecology, Oregon Health & Science University, 3181 SW Sam Jackson Park Road, L-466, Portland, OR 97239, USA. ²⁴⁷Knight Cancer Institute, Oregon Health & Science University, 3181 SW Sam Jackson Park Road, L-466, Portland, OR 97239, USA. ²⁴⁸Department of Gastroenterology, Radboud University Nijmegen Medical Center, Geert Grooteplein Zuid 10, Internal BOBox 433, 6525 GA Nijmegen, The Netherlands. ²⁴⁹Department of Epidemiology, University of Washington School of Public Health, 1959 NE Pacific St, Seattle, WA 98195, USA. ²⁵⁰Research Centre for Genetic Engineering and Biotechnology 'Georgi DFremov', Macedonian Academy of Sciences and Arts, Boulevard Krste Petkov Misirkov, 1000 Skopje, Republic of Macedonia. ²⁵¹Bristol Dental School, University of Bristol, Lower Maudlin Street, Bristol BS1 2LY, UK. ²⁵²Unit of Molecular Bases of Genetic Risk and Genetic Testing, Department of Research, Fondazione IRCCS (Istituto Di Ricovero e Cura a Carattere Scientifico) Istituto Nazionale dei Tumori (INT), Via Giacomo Venezian 1, 20133 Milan, Italy. ²⁵³Decode genetics, Sturlugata 8, IS-101 Reykjavik Reykjavikceland, Iceland. ²⁵⁴School of Women's and Children's Health, Faculty of Medicine, University of NSW Sydney, 18 High St, Sydney, NSW 2052, Australia. ²⁵⁵The Kinghorn Cancer Centre, Garvan Institute of Medical Research, 384 Victoria Street, Sydney, NSW 2010, Australia. ²⁵⁶Division of Epidemiology, Department

of Medicine, Vanderbilt Epidemiology Center, Vanderbilt-Ingram Cancer Center, Vanderbilt University School of Medicine, 1161 21st Ave S # D3300, Nashville, TN 37232, USA. ²⁵⁷Clalit National Cancer Control Center, Carmel Medical Center and Technion Faculty of Medicine, 7 Michal Street, 34362 Haifa, Israel. ²⁵⁸Department of Genetics, University of Pretoria, Private Bag X323, Arcadia 0007, South Africa. ²⁵⁹Department of Chronic Disease Epidemiology, Yale School of Public Health, 60 College St, New Haven, CT 06510, USA. ²⁶⁰Cancer Center Cluster Salzburg at PLUS, Department of Molecular Biology, University of Salzburg, Billrothstr11, 5020 Salzburg, Austria. ²⁶¹Division of Epigenomics and Cancer Risk Factors, DKFZ - German Cancer Research Center, Im Neuenheimer Feld 280, 69120 Heidelberg, Germany. ²⁶²Member of the German Center for Lung Research (DZL), Translational Lung Research Center Heidelberg (TLRC-H), 69120 Heidelberg, Germany. ²⁶³Department of Urology, Erasmus University Medical Center, Wytemaweg 80, 3015 CN Rotterdam, The Netherlands. ²⁶⁴Department of Radiation Oncology, Icahn School of Medicine at Mount Sinai, 1425 Madison Avenue, New York, NY 10029, USA. ²⁶⁵Department of Genetics and Genomic Sciences, Icahn School of Medicine at Mount Sinai, 1425 Madison Avenue, New York, NY 10029, USA. ²⁶⁶Department of Epidemiology, University of Washington, M4 C308, 1100 Fairview Ave N, Seattle, WA 98109, USA. ²⁶⁷Faculty of Medicine and Health Sciences, Basic Medical Sciences, Ghent University, De Pintelaan 185, 9000 Gent, Belgium. ²⁶⁸Hereditary Cancer Clinic, University Hospital of Heraklion, Voutes, 711 10 Heraklion, Greece. ²⁶⁹Epidemiology Branch, National Institute of Environmental Health Sciences, NIH, 111TWAlexander Drive, Research Triangle Park, NC 27709, USA. ²⁷⁰Research Oncology, Guy's Hospital, King's College London, Guy's Hospital Great Maze Pond, London SE1 9RT, UK. ²⁷¹Institute of Biomedicine, University of Turku, 20014 Turku, Finland. ²⁷²Division of Laboratory, Department of Medical Genetics, Turku University Hospital, 20014 Turku, Finland. ²⁷³Prostate Cancer Research Center, Faculty of Medicine and Life Sciences and BioMediTech Institute, University of Tampere, 33014 Tampere, Finland. ²⁷⁴Division of Molecular Pathology, The Netherlands Cancer Institute - Antoni van Leeuwenhoek Hospital, Plesmanlaan 121, 1066 CX Amsterdam, The Netherlands. ²⁷⁵Division of Psychosocial Research and Epidemiology, The Netherlands Cancer Institute - Antoni van Leeuwenhoek hospital, Plesmanlaan 121, 1066 CX Amsterdam, The Netherlands. ²⁷⁶Department of Preventive Medicine, Keck School of Medicine, University of Southern California, 1450 Biggy Street, Los Angeles, CA 90033, USA. ²⁷⁷Department of Epidemiology and Biostatistics, Jiangsu Key Lab of Cancer Biomarkers, Prevention and Treatment, Collaborative Innovation Center for Cancer Personalized Medicine, School of Public Health, Nanjing Medical University, 101 Longmian Ave, Jiangning District, 211166 Nanjing, People's Republic of China. ²⁷⁸Department of Genetics and Genomic Sciences, Department of Population Health Science and Policy, Icahn School of Medicine at Mount Sinai, 1425 Madison Avenue, 2nd floor, New York, NY 10029, USA. ²⁷⁹Dept of OB/GYN and Comprehensive Cancer Center, Medical University of Vienna, Waehringer Guertel 18-20, 1090 Vienna, Austria. ²⁸⁰Department of Internal Medicine, University of Utah Health Sciences Center, 295 Chipeta Way, Salt Lake City, UT 84132, USA. ²⁸¹Department of Molecular Medicine, Aarhus University Hospital, DK-8200 Aarhus, Denmark. ²⁸²Department of Clinical Medicine, Aarhus University, DK-8200 Aarhus, Denmark. ²⁸³Precision Medicine, School of Clinical Sciences at Monash Health, Monash University, 246 Clayton Road, Clayton, VIC 3168, Australia. ²⁸⁴Department of Clinical Pathology, The University of Melbourne, Cnr Grattan Street and Royal Parade, Melbourne, VIC 3010, Australia. ²⁸⁵Department of Medicine III, University Hospital, LMU Munich, Marchioninstr15, 81377 Munich, Germany. ²⁸⁶The Curtin UWA Centre for Genetic Origins of Health and Disease, Curtin University and University of Western Australia, 35 Stirling Hwy, Perth, WA 6000, Australia. ²⁸⁷Department of Obstetrics and Gynecology, Sahlgrenska Cancer Center, Inst Clinical Sciences, University of Gothenburg, Blå stråket 6, 41345 Gothenburg, Sweden. ²⁸⁸Epidemiology Center, College of Medicine, University of South Florida, 3650 Spectrum Blvd, Suite 100, Tampa, FL 33612, USA. ²⁸⁹Division of Breast Cancer Research, The Institute of Cancer Research, London SW7 3RP, UK. ²⁹⁰Department of Molecular Biology, School of Medicine of São José do Rio Preto, Av Brig Faria Lima 5416 Vila São Pedro, São José do Rio Preto, SP 15090-000, Brazil. ²⁹¹Department of Genetics and Evolutionary Biology, Institute of Biosciences, University of São Paulo, Rua do Matão, 321, São Paulo, SP 05508-090, Brazil. ²⁹²SWOG Statistical Center, Fred Hutchinson Cancer Research Center, Seattle, Washington 98109, USA. ²⁹³Faculty of Medicine, University of Oviedo and CIBERESP, Campus del Cristo s/n, 33006 Oviedo, Spain. ²⁹⁴Epigenetic and Stem Cell Biology Laboratory, National Institute of Environmental Health Sciences, NIH, 111TWAlexander Drive, Research Triangle Park, NC 27709, USA. ²⁹⁵Medical Statistics Group, School of Health and Related Research (SchARR), University of Sheffield, Regent Court, 30 Regent Street, Sheffield S1 4DA, UK. ²⁹⁶Department of Genetics, Portuguese Oncology Institute, Rua DrAntónio Bernardino de Almeida 62, 4220-072 Porto, Portugal. ²⁹⁷Biomedical Sciences Institute (ICBAS), University of Porto, R. Jorge de Viterbo Ferreira 228, 4050-013 Porto, Portugal. ²⁹⁸Department of Epidemiology, Mailman School of Public Health, Columbia University, 722 West 168th Street, New York, NY 10032, USA. ²⁹⁹Obstetrics and Gynecology Epidemiology Center, Brigham and Women's Hospital, 221 Longwood Avenue RFB 368, Boston, MA 02115, USA. ³⁰⁰Harvard THChan School of Public Health, 221 Longwood Avenue RFB 368, Boston, MA 02115, USA. ³⁰¹Department of Clinical Genetics, Odense University Hospital, Sonder Boulevard 29, 5000 Odense C, Denmark. ³⁰²Department of Gynecology and Obstetrics, Haukeland University Hospital, 5021 Bergen, Norway. ³⁰³Centre for Cancer Biomarkers CCBIO, Department of Clinical Science, University of Bergen, 5021 Bergen, Norway. ³⁰⁴Program in Cancer Genetics, Departments of Human Genetics and Oncology, McGill University, 1001 Decarie Boulevard, Montréal, QC H4A3J1, Canada. ³⁰⁵Department of Medical Genetics, Cambridge University, Hills Road, Cambridge CB2 0QQ, UK. ³⁰⁶Department of Cancer Biology and Genetics, The Ohio State University, 460W12th Avenue, Columbus, OH 43210, USA. ³⁰⁷Institute of Human Genetics, Pontificia Universidad Javeriana, Carrera 7 No40-90, Bogota, Colombia. ³⁰⁸Division of Cancer Sciences, Manchester Cancer Research Centre, Faculty of Biology, Medicine and Health, Manchester Academic Health Science Centre, NIHR Manchester Biomedical Research Centre, Health Innovation Manchester, University of Manchester, Manchester M20 4GJ, UK. ³⁰⁹Cancer Epidemiology Unit, Nuffield Department of Population Health, University of Oxford, Oxford OX3 7LF, UK. ³¹⁰Department of Medical Oncology, Beth Israel Deaconess Medical Center, 330 Brookline Avenue, Boston, MA 02215, USA. ³¹¹Huntsman Cancer Institute and Department of Population Health Sciences, University of Utah, 2000 Circle of Hope, Rm 4125, Salt Lake City, UT 84112, USA. ³¹²Department of Oncology, Cross Cancer Institute, University of Alberta, 116 St & 85 Ave, Edmonton AB T6G 2R3, Canada. ³¹³Division of Radiation Oncology, Cross Cancer Institute, University of Alberta, 116 St & 85 Ave, Edmonton AB T6G 2R3, Canada. ³¹⁴Division of Gynecologic Oncology, Department of Obstetrics and Gynaecology and Leuven Cancer Institute, University Hospitals Leuven, Herestraat 49, 3000 Leuven, Belgium. ³¹⁵Fundación Pública Galega Medicina Xenómica & Instituto de Investigación Sanitaria de Santiago de Compostela, calle Choupana s/n, 15706 Santiago De Compostela, Spain. ³¹⁶Population Health Department, QIMR Berghofer Medical Research Institute, 300 Herston Road, Brisbane, QLD 4006, Australia. ³¹⁷Biostatistics and Computational Biology Branch, National Institute of Environmental Health Sciences, NIH, 111TWAlexander Drive, Research Triangle Park, NC 27709, USA. ³¹⁸Department of Otolaryngology/Head and Neck Surgery, University of North Carolina at Chapel Hill, Chapel Hill 27514 NC, USA. ³¹⁹City of Hope Clinical Cancer Genomics Community Research Network, 1500 East Duarte Road, Duarte, CA 91010, USA. ³²⁰Division of Cancer Sciences, University of Manchester, Manchester Cancer Research Centre, Manchester Academic Health Science Centre, The Christie Hospital NHS Foundation Trust, Manchester M13 9PL, UK. ³²¹Fred Hutchinson Cancer Research Center, 1100 Fairview Ave N, Seattle, WA 98109, USA. ³²²Department of Epidemiology, University of Washington, 1100 Fairview Ave N, Seattle, WA 98109, USA. ³²³Department of Health Research and Policy - Epidemiology, Stanford University School of Medicine, 259 Campus Drive, Stanford, CA 94305, USA. ³²⁴Department of Biomedical Data Science, Stanford University School of Medicine, 259 Campus Drive, Stanford, CA 94305, USA. ³²⁵Institute of Medical Informatics, Biometry and

Epidemiology, Chair of Epidemiology, Ludwig Maximilians University, Neuherberg D-85764, Munich 803539 Bavaria, Germany. ³²⁶Helmholtz Zentrum Munchen, German Research Center for Environmental Health (GmbH), Institute of Epidemiology, Ingolstadter Landstr1, 85764 Neuherberg, Germany. ³²⁷Institute of Medical Statistics and Epidemiology, Technical University Munich, Munich 80333, Germany. ³²⁸Laboratory of Cancer Genetics and Tumor Biology, Cancer and Translational Medicine Research Unit, Biocenter Oulu, University of Oulu, Aapistie 5A, 90220 Oulu, Finland. ³²⁹Laboratory of Cancer Genetics and Tumor Biology, Northern Finland Laboratory Centre Oulu, Aapistie 5A, 90220 Oulu, Finland. ³³⁰Department of Surgical Sciences, Uppsala University, 751 85 Uppsala, Sweden. ³³¹Academic Unit of Clinical Oncology, University of Sheffield, Weston Park Hospital, Whitham Road, Sheffield S10 2SJ, UK. ³³²Discipline of Genetics, Memorial University of Newfoundland, StJohn's, NL A1C 5S7, Canada. ³³³Department of Epidemiology, Division of Cancer Prevention and Population Science, The University of Texas MD Anderson Cancer Center, 1515 Holcombe Blvd, Houston, TX 77030, USA. ³³⁴Magee-Womens Hospital, University of Pittsburgh School of Medicine, 300 Halket St, Pittsburgh, PA 15213, USA. ³³⁵Center for Genomic Medicine and Department of Anesthesia, Massachusetts General Hospital, Boston, MA 02114, USA. ³³⁶Human Genetics, Graduate School of Public Health, University of Pittsburgh, UPMC Cancer Pavilion, Suite 4C, Office # 467, 5150 Centre Avenue, Pittsburgh, PA 15232, USA. ³³⁷UPMC Hillman Cancer Center, Pittsburgh 15232 PA, USA. ³³⁸Genetic Cancer Susceptibility Group, International Agency for Research on Cancer, 150 cours Albert Thomas, 69008 Lyon, France. ³³⁹Oncogenetics Team, The Institute of Cancer Research and Royal Marsden NHS Foundation Trust, Downs Road, Sutton SM2 5NG, UK. ³⁴⁰Genomics Center, Centre Hospitalier Universitaire de Québec - Université Laval Research Center, 2705 Laurier Boulevard, Québec City, QC G1V4G2, Canada. ³⁴¹UCLA Path and Lab Med, University of California, 10833 Le Conte Ave, Los Angeles, CA 190095, USA. ³⁴²Department of Medicine, Epidemiology Section, Institute for Clinical and Translational Research, Baylor Medical College, One Baylor Plaza, MS: BCM451, Suite 100D, Houston, TX 77030-3411, USA