



OPEN

## Author Correction: Identifying genetic factors that contribute to the increased risk of congenital heart defects in infants with Down syndrome

Cristina E. Trevino, Aaron M. Holleman, Holly Corbitt, Cheryl L. Maslen, Tracie C. Rosser, David J. Cutler, H. Richard Johnston, Benjamin L. Rambo-Martin, Jai Oberoi, Kenneth J. Dooley, George T. Capone, Roger H. Reeves, Heather J. Cordell, Bernard D. Keavney, A. J. Agopian, Elizabeth Goldmuntz, Peter J. Gruber, James E. O'Brien Jr., Douglas C. Bittel, Lalita Wadhwa, Clifford L. Cua, Ivan P. Moskowitz, Jennifer G. Mulle, Michael P. Epstein, Stephanie L. Sherman & Michael E. Zwick

Correction to: *Scientific Reports* <https://doi.org/10.1038/s41598-020-74650-4>, published online 22 October 2020

Ivan P. Moskowitz was omitted from the author list in the original version of this Article.

The Author Contributions section now reads:

“C.E.T., A.M.H., M.E.Z., S.L.S., M.P.E., D.J.C., and J.G.M. were all involved in the conception and design of the work presented in this manuscript. C.E.T. and A.M.H. jointly drafted the manuscript, with all authors reviewing and providing feedback on the manuscript. Ascertainment of the samples and phenotype assessment of individuals with DS were accomplished through the efforts of S.L.S., C.L.M., T.C.R., K.J.D., G.T.C., R.H.R., P.J.G., J.E.O., D.C.B., L.W., C.L.C., I.P.M., and E.G. (sponsor of PGC-approved ancillary project). H.R.J., D.J.C., and B.L.R. performed mapping and variant calling for the WES and WGS datasets, and together with C.E.T. performed QC of these data. C.E.T. performed the gene- and pathway-level (SKAT) analyses. H.C. and J.O. were involved in the initial phase of these datasets and helped to set the framework for these analyses. H.J.C., B.D.K., A.J.A., and E.G. generated the GWAS summary results used as training data for the PRS analyses. A.M.H. performed imputation of the array genotype data, and QC and analyses for the PRS application.”

The Acknowledgements section now reads:

“First and foremost, we want to thank the families and individuals with Down syndrome for contributing their time and effort towards this project. The DS Heart Project (R.H.R.) was a collaborative project supported through several National Institutes of Health awards: R01 HL092981-01A1 (M.E.Z.) and R01 HL083300 (R.H.R.) from NIH/National Heart, Lung, and Blood Institute; R01 HD38979 (S.L.S.) from NIH/National Institute of Child Health and Human Development and GM117946 (M.P.E.) from NIH/National Institute of General Medical Sciences. Whole exome sequencing services that were done as part of the DSHP were provided by the University of Washington, Department of Genome Sciences under U.S. Federal Government contract number HHSN268201100037C (D. Nickerson). Whole genome sequencing services were supported by the Emory Integrated Genomics Core (EIGC) and the Emory Integrated Computational Core (EICC), which are subsidized by the Emory University School of Medicine and are part of the Emory Integrated Core Facilities. Partial support to M.E.Z. was also provided by the Georgia Clinical & Translational Science Alliance which is funded by the National Center for Advancing Translational Sciences of the National Institutes of Health under Award number UL1TR002378. The American Heart Association Western States Affiliate provided support to H. Corbitt (grant number 16PRE30190012). I.P. Moskowitz was supported by the following grants: R01 HL092153, R01 HL124836, and R01 HL126509. We thank Dr. Eleanor Feingold for providing the chromosome 21 genotype calls for the SNP Affymetrix dataset. We thank the Pediatric Cardiac Genomic Consortium (PCGC) for its contributions to this work, and recognize E.G. as sponsor of the PGC-approved ancillary project. The PGC provided samples for

Published online: 20 July 2021

the WGS study which were collected under the auspices of the National Heart, Lung, and Blood Institute's Bench to Basinet Program (<https://benchtobasinet.com>). Support for the PCGC is provided through grants from National Heart, Lung, and Blood Institute (U01-HL098188, U01-HL098147, U01-HL098153, U01-HL098163, U01-HL098123, U01-HL098162). We would like to thank Marianne S. Hird at the PCGC for her help on this project throughout its administration. The Agopian et al. (2017) GWAS discovery dataset used for the PRS analyses was generated with support from an Institutional Development Fund to The Center for Applied Genomics from The Children's Hospital of Philadelphia. Further support was provided by the National Heart, Lung, and Blood Institute P50-HL74731 (E.G.) and the National Center for Research Resources M01-RR-000240, RR024134 [now the National Center for Advancing Translational Sciences UL1TR000003] (E.G.). The Cordell et al. (2013) GWAS discovery data used for the PRS analyses were generated with support from the British Heart Foundation, Heart Research UK, Wellcome Trust and European Union. B.D.K. is supported by a British Heart Foundation Personal Chair. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health."

The original Article and accompanying Supplementary Information file have been corrected.



**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 licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence 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 licence, visit <http://creativecommons.org/licenses/by/4.0/>.

© The Author(s) 2021