



U.S. National Library of Medicine
National Center for Biotechnology Information

NLM Citation: Wallace SE. Resources for Genetics Professionals — Genetic Disorders Associated with Founder Variants Common in the Georgian Jewish Population. 2022 Sep 29. In: Adam MP, Feldman J, Mirzaa GM, et al., editors. GeneReviews® [Internet]. Seattle (WA): University of Washington, Seattle; 1993-2024.

Bookshelf URL: <https://www.ncbi.nlm.nih.gov/books/>



Resources for Genetics Professionals – Genetic Disorders Associated with Founder Variants Common in the Georgian Jewish Population

Stephanie E Wallace, MD^{1,2}

Created: September 29, 2022.

A founder variant is a pathogenic variant observed at high frequency in a specific population due to the presence of the variant in a single ancestor or small number of ancestors. The presence of a founder variant can affect the approach to molecular genetic testing. When one or more founder variants account for a large percentage of all pathogenic variants found in a population, testing for the founder variant(s) may be performed first.

The table below includes common founder variants – here defined as **three or fewer variants that account for >50% of the pathogenic variants identified in a single gene in individuals of a specific ancestry** – in individuals of Georgian Jewish ancestry. Note: Pathogenic variants that are common worldwide due to a DNA sequence hot spot are not considered founder variants and thus are not included.

Author Affiliations: 1 Senior Editor, GeneReviews; Email: editor2@uw.edu. 2 Clinical Professor, Department of Pediatrics, University of Washington, Seattle, Washington; Email: editor2@uw.edu.

Copyright © 1993-2024, University of Washington, Seattle. GeneReviews is a registered trademark of the University of Washington, Seattle. All rights reserved.

Table. Genetic Disorders Associated with Founder Variants Common in the Georgian Jewish Population

Gene	Disorder	MOI	DNA Nucleotide Change	Predicted Protein Change	% of Pathogenic Variants in Gene ¹	Carrier Frequency	Ethnicity	Reference Sequences	References
ADA2	Adenosine deaminase 2 deficiency	AR	c.139G>A	p.Gly47Arg	~100% ²	1/10	Georgian Jewish	NM_001282225.2 NP_001269154.1	Hashem et al [2017]
CFTR	Cystic fibrosis	AR	c.1075_1079delCAAAACinsAAAA	p.Gln359_Thr360delinsLysLys	70%	1/26	Georgian Jewish	NM_000492.4 NP_000483.3	Mei-Zahav et al [2018]

Included if ≤3 pathogenic variants account for ≥50% of variants identified in a specific ethnic group

AR = autosomal recessive; MOI = mode of inheritance

1. Percentage does not account for the possibility of rare *de novo* pathogenic variants occurring in this population.

2. To date, no additional pathogenic variants in this gene have been reported in individuals of this ethnicity.

References

Hashem H, Kelly SJ, Ganson NJ, Hershfield MS. Deficiency of adenosine deaminase 2 (DADA2), an inherited cause of polyarteritis nodosa and a mimic of other systemic rheumatologic disorders. *Curr Rheumatol Rep.* 2017;19:70. PubMed PMID: 28983775.

Mei-Zahav M, Stafler P, Senderowitz H, Bentur L, Livnat G, Shteinberg M, Orenstein N, Bazak L, Prais D, Levine H, Gur M, Khazanov N, Simhaev L, Eliyahu H, Cohen M, Wilschanski M, Blau H, Mussaffi H. The Q359K/T360K mutation causes cystic fibrosis in Georgian Jews. *J Cyst Fibros.* 2018;17:e41–e45. PubMed PMID: 30033373.

Revision History

- 29 September 2022 (sw) Initial posting

License

GeneReviews® chapters are owned by the University of Washington. Permission is hereby granted to reproduce, distribute, and translate copies of content materials for noncommercial research purposes only, provided that (i) credit for source (<http://www.genereviews.org/>) and copyright (© 1993-2024 University of Washington) are included with each copy; (ii) a link to the original material is provided whenever the material is published elsewhere on the Web; and (iii) reproducers, distributors, and/or translators comply with the [GeneReviews® Copyright Notice and Usage Disclaimer](#). No further modifications are allowed. For clarity, excerpts of GeneReviews chapters for use in lab reports and clinic notes are a permitted use.

For more information, see the [GeneReviews® Copyright Notice and Usage Disclaimer](#).

For questions regarding permissions or whether a specified use is allowed, contact: admasst@uw.edu.