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

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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.

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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_1079delCAAACinsAAAAA	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

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