

**Table S5:** Genes on which the prioritized variants (high and moderate impact) were found in teratozoospermic individuals and their description according to GeneCards. The results are presented for every group of variants studied (nonsense, frameshift, splice disrupting, and missense)

Nonsense Variants			
<i>Gene</i>	<i>Description</i>	<i>Gene</i>	<i>Description</i>
<i>ZNF793</i>	Zinc Finger Protein 793	<i>CEP170</i>	Centrosomal Protein 170
<i>TCHP</i>	Trichoplein Keratin Filament Binding	<i>SPTBN5</i>	Spectrin Beta, Non-Erythrocytic 5
<i>ATP8A1</i>	ATPase Phospholipid Transporting 8A1	<i>NT5C1B</i>	5'-Nucleotidase, Cytosolic IB
<i>EBLN2</i>	Endogenous Bornavirus Like Nucleoprotein 2	<i>NT5C1B-RDH14</i>	NT5C1B-RDH14 Readthrough
<i>ZAN</i>	Zonadhesin	<i>SCN11A</i>	Sodium Voltage-Gated Channel Alpha Subunit 11
<i>BRCA2</i>	BRCA2 DNA Repair Associated	<i>IRF2BPL</i>	Interferon Regulatory Factor 2 Binding Protein Like
<i>RAP1B</i>	RAP1B, Member of RAS Oncogene Family	<i>FRMPD3</i>	FERM And PDZ Domain Containing 3
<i>MAGEE2</i>	MAGE Family Member E2	<i>PRRT4</i>	Proline Rich Transmembrane Protein 4
<i>ABCC12</i>	ATP Binding Cassette Subfamily C Member 12	<i>GPR124/ADGRA2</i>	Adhesion G Protein-Coupled Receptor A2
<i>WDR17</i>	WD Repeat Domain 17	<i>GPNUMB</i>	Glycoprotein Numb
Frameshift Variants			
<i>DEFB119</i>	Defensin Beta 119	<i>TRDJ4</i>	T Cell Receptor Delta Joining 4
<i>RNFT2</i>	Ring Finger Protein, Transmembrane 2	<i>EPHA1</i>	EPH Receptor A1
<i>NF1</i>	Neurofibromin 1	<i>ATP8A1</i>	ATPase Phospholipid Transporting 8A1
<i>POLM</i>	DNA Polymerase Mu	<i>DNAL4</i>	Dynein Axonemal Light Chain 4
<i>KIAA0586</i>	KIAA0586	<i>ZNF730</i>	Zinc Finger Protein 730
<i>DCXR</i>	Dicarbonyl And L-Xylulose Reductase	<i>VPS37A</i>	VPS37A Subunit Of ESCRT-I
<i>IFNK</i>	Interferon Kappa	<i>CARD6</i>	Caspase Recruitment Domain Family Member 6
<i>PRSS55</i>	Serine Protease 55	<i>IQSEC1</i>	IQ Motif and Sec7 Domain ArfGEF 1
<i>LAPTM4B</i>	Lysosomal Protein Transmembrane 4 Beta	<i>TRAV26-1</i>	T Cell Receptor Alpha Variable 26-1
<i>CREBBP</i>	CREB Binding Protein	<i>TCF25</i>	Transcription Factor 25
<i>SLC16A11</i>	Solute Carrier Family 16 Member 11	<i>LIN7B</i>	Lin-7 Homolog B, Crumbs Cell Polarity Complex Component
Splice Disrupting Variants			

<i>EVI5</i>	Ecotropic Viral Integration Site 5	<i>PPP2R3A</i>	Protein Phosphatase 2 Regulatory Subunit B"Alpha
<i>ZNF717</i>	Zinc Finger Protein 717	<i>ANKRD34B</i>	Ankyrin Repeat Domain 34B
<i>GFR3</i>	GDNF Family Receptor Alpha 3	<i>PLA2G7</i>	Phospholipase A2 Group VII
<i>VOPP1</i>	VOPP1 WW Domain Binding Protein	<i>DLX6</i>	Distal-Less Homeobox 6
<i>DPP6</i>	Dipeptidyl Peptidase Like 6	<i>CPNE3</i>	Copine 3
<i>AZIN1</i>	Antizyme Inhibitor 1	<i>CMTM3</i>	CKLF Like MARVEL Transmembrane Domain Containing 3
<i>USP6</i>	Ubiquitin Specific Peptidase 6	<i>SEN3</i>	SUMO Specific Peptidase 3
<i>PIEZO2</i>	Piezo Type Mechanosensitive Ion Channel Component 2	<i>MADCAM1</i>	Mucosal Vascular Addressin Cell Adhesion Molecule 1
<i>PODNL1</i>	Podocan Like 1	<i>SMIM7</i>	Small Integral Membrane Protein 7
<i>SCGB2B2</i>	Secretoglobin Family 2B Member 2		
<b>Missense Variants</b>			
<i>UTP20</i>	UTP20 Small Subunit Processome Component	<i>TCP11L2</i>	T-Complex 11 Like 2
<i>ACAD10</i>	Acyl-CoA Dehydrogenase Family Member 10	<i>DNAH10</i>	Dynein Axonemal Heavy Chain 10
<i>TMEM132D</i>	Transmembrane Protein 132D	<i>GPR133/ ADGRD1</i>	Adhesion G Protein-Coupled Receptor D1
<i>BRCA2</i>	BRCA2 DNA Repair Associated	<i>VWA8</i>	Von Willebrand Factor A Domain Containing 8
<i>FAM124A</i>	Family With Sequence Similarity 124 Member A	<i>TRAV8-4</i>	T Cell Receptor Alpha Variable 8-4
<i>TRAV24</i>	T Cell Receptor Alpha Variable 24	<i>LRRC16B/ CARMIL3</i>	Capping Protein Regulator and Myosin 1 Linker 3
<i>GMFR2</i>	Guanosine Monophosphate Reductase 2	<i>C15orf52/ CCDC9B</i>	Coiled-Coil Domain Containing 9B
<i>CAPN3</i>	Calpain 3	<i>PATL2</i>	PAT1 Homolog 2
<i>SNX29</i>	Sorting Nexin 29	<i>GTF3C1</i>	General Transcription Factor IIIC Subunit 1
<i>FBRS</i>	Fibrosin	<i>NLRC5</i>	NLR Family CARD Domain Containing 5
<i>SETD6</i>	SET Domain Containing 6, Protein Lysine Methyltransferase	<i>CBFA2T3</i>	CBFA2/RUNX1 Partner Transcriptional Co-Repressor 3
<i>MYH8</i>	Myosin Heavy Chain 8	<i>SERPINF1</i>	Serpin Family F Member 1
<i>SHPK</i>	Sedoheptulokinase	<i>TTYH2</i>	Tweety Family Member 2

<i>CD300C</i>	Immunoglobulin Superfamily Member 16	<i>ICT1/ MRPL58</i>	Mitochondrial Ribosomal Protein L58
<i>FBF1</i>	Fas Binding Factor 1	<i>MYADML2</i>	Myeloid Associated Differentiation Marker Like 2
<i>GATA6</i>	GATA Binding Protein 6	<i>LAMA3</i>	Laminin Subunit Alpha 3
<i>PIGN</i>	Phosphatidylinositol Glycan Anchor Biosynthesis Class N	<i>TYK2</i>	Tyrosine Kinase 2
<i>AP1M2</i>	Adaptor Related Protein Complex 1 Subunit Mu 2	<i>KANK2</i>	KN Motif and Ankyrin Repeat Domains 2
<i>AKAP8</i>	A-Kinase Anchoring Protein 8	<i>SLC27A1</i>	Solute Carrier Family 27 Member 1
<i>ARRDC2</i>	Arrestin Domain Containing 2	<i>FFAR1</i>	Free Fatty Acid Receptor 1
<i>GGN</i>	Gametogenetin	<i>ZNF780A</i>	Zinc Finger Protein 780A
<i>LRG1</i>	Leucine Rich Alpha-2-Glycoprotein 1	<i>CCDC114/ODAD1</i>	Outer Dynein Arm Docking Complex Subunit 1
<i>SULT2B1</i>	Sulfotransferase Family 2B Member 1	<i>HSD17B14</i>	Hydroxysteroid 17-Beta Dehydrogenase 14
<i>MYH14</i>	Myosin Heavy Chain 14	<i>KLK13</i>	Kallikrein Related Peptidase 13
<i>ZNF816</i>	Zinc Finger Protein 816	<i>ZSCAN5C</i>	Zinc Finger and SCAN Domain Containing 5C
<i>ZNF530</i>	Zinc Finger Protein 530	<i>OR7E24</i>	Olfactory Receptor Family 7 Subfamily E Member 24
<i>ZNF559</i>	Zinc Finger Protein 559	<i>ZNF559-ZNF177</i>	ZNF559-ZNF177 Readthrough
<i>NGF</i>	Nerve Growth Factor	<i>DRAXIN</i>	Dorsal Inhibitory Axon Guidance Protein
<i>ADAM15</i>	ADAM Metallopeptidase Domain 15	<i>TRIM46</i>	Tripartite Motif Containing 46
<i>KDM5B</i>	Lysine Demethylase 5B	<i>PPFIA4</i>	PTPRF Interacting Protein Alpha 4
<i>NBPF1</i>	NBPF Member 1	<i>SEC16B</i>	SEC16 Homolog B, Endoplasmic Reticulum Export Factor
<i>PPP1R15B</i>	Protein Phosphatase 1 Regulatory Subunit 15B	<i>CR2</i>	Complement C3d Receptor 2
<i>SNAP47</i>	Synaptosome Associated Protein 47	<i>OBSCN</i>	Obscurin, Cytoskeletal Calmodulin And Titin-Interacting RhoGEF
<i>OR14A2</i>	Olfactory Receptor Family 14 Subfamily A Member 2	<i>FCN3</i>	Ficolin 3
<i>LEPRE1/ P3H1</i>	Prolyl 3-Hydroxylase 1	<i>MUTYH</i>	MutY DNA Glycosylase
<i>RAD54L</i>	RAD54 Like	<i>CMPK1</i>	Cytidine/Uridine Monophosphate Kinase 1

<i>AJAP1</i>	Adherens Junctions Associated Protein 1	<i>JAK1</i>	Janus Kinase 1
<i>SDCBP2</i>	Syndecan Binding Protein 2	<i>SPAG4</i>	Sperm Associated Antigen 4
<i>LBP</i>	Lipopolysaccharide Binding Protein	<i>HSF2BP</i>	Heat Shock Transcription Factor 2 Binding Protein
<i>IL17RA</i>	Interleukin 17 Receptor A	<i>IGLV9-49</i>	Immunoglobulin Lambda Variable 9-49
<i>SEC14L3</i>	SEC14 Like Lipid Binding 3	<i>TOM1</i>	Target Of Myb1 Membrane Trafficking Protein
<i>FAM227A</i>	Family With Sequence Similarity 227 Member A	<i>APOBEC3F</i>	Apolipoprotein B mRNA Editing Enzyme Catalytic Subunit 3F
<i>TUBGCP6</i>	Tubulin Gamma Complex Associated Protein 6	<i>NEB</i>	Nebulin
<i>PDE11A</i>	Phosphodiesterase 11A	<i>TTN</i>	Titin
<i>SDC1</i>	Syndecan 1	<i>PARD3B</i>	Par-3 Family Cell Polarity Regulator Beta
<i>GPR113/ ADGRF3</i>	Adhesion G Protein-Coupled Receptor F3	<i>MCEE</i>	Methylmalonyl-CoA Epimerase
<i>MPHOSPH10</i>	M-Phase Phosphoprotein 10	<i>ZBTB11</i>	Zinc Finger and BTB Domain Containing 11
<i>GHRL</i>	Ghreltin And Obestatin Prepropeptide	<i>PLCXD2</i>	Phosphatidylinositol Specific Phospholipase C X Domain Containing 2
<i>CEP63</i>	Centrosomal Protein 63	<i>COPB2</i>	COPI Coat Complex Subunit Beta 2
<i>CP</i>	Ceruloplasmin	<i>RPL22L1</i>	Ribosomal Protein L22 Like 1
<i>GADL1</i>	Glutamate Decarboxylase Like 1	<i>LRRFIP2</i>	LRR Binding FLII Interacting Protein 2
<i>FYCO1</i>	FYVE And Coiled-Coil Domain Autophagy Adaptor 1	<i>SHISA5</i>	Shisa Family Member 5
<i>C3orf62</i>	Chromosome 3 Open Reading Frame 62	<i>DNAH1</i>	Dynein Axonemal Heavy Chain 1
<i>CACNA1D</i>	Calcium Voltage-Gated Channel Subunit Alpha1 D	<i>FLNB</i>	Filamin B
<i>VGLL3</i>	Vestigial Like Family Member 3	<i>TET2</i>	Tet Methylcytosine Dioxygenase 2
<i>PLA2G12A</i>	Phospholipase A2 Group XIIA	<i>ANK2</i>	Ankyrin 2
<i>ELF2</i>	E74 Like ETS Transcription Factor 2	<i>LRBA</i>	LPS Responsive Beige-Like Anchor Protein
<i>LIMCH1</i>	LIM And Calponin Homology Domains 1	<i>COMMD8</i>	COMM Domain Containing 8
<i>GNRHR</i>	Gonadotropin Releasing Hormone Receptor	<i>UGT2A1</i>	UDP Glucuronosyltransferase Family 2 Member A1 Complex Locus

<i>UGT2A2</i>	UDP Glucuronosyltransferase Family 2 Member A2	<i>NKD2</i>	NKD Inhibitor of WNT Signaling Pathway 2
<i>DNAJC21</i>	DnaJ Heat Shock Protein Family (Hsp40) Member C21	<i>ERBB2IP/ ERBIN</i>	ErbB2 Interacting Protein
<i>RIOK2</i>	RIO Kinase 2	<i>NMBR</i>	Neuromedin B Receptor
<i>ZC3H12D</i>	Zinc Finger CCCH-Type Containing 12D	<i>SYNE1</i>	Spectrin Repeat Containing Nuclear Envelope Protein 1
<i>IGF2R</i>	Insulin Like Growth Factor 2 Receptor	<i>THBS2</i>	Thrombospondin 2
<i>PRSS16</i>	Serine Protease 16	<i>SAYS1</i>	SAYS1 Motif Domain Containing 1
<i>RPP40</i>	Ribonuclease P/MRP Subunit P40	<i>PAQR8</i>	Progestin And AdipoQ Receptor Family Member 8
<i>BACH2</i>	BTB Domain And CNC Homolog 2	<i>MUC17</i>	Mucin 17, Cell Surface Associated
<i>LAMB1</i>	Laminin Subunit Beta 1	<i>GPR146</i>	G Protein-Coupled Receptor 146
<i>CCDC136</i>	Coiled-Coil Domain Containing 136	<i>TMEM213</i>	Transmembrane Protein 213
<i>KRAB1</i>	KRAB-A Domain Containing 1	<i>VOPP1</i>	VOPP1 WW Domain Binding Protein
<i>SNX31</i>	Sorting Nexin 31	<i>MTBP</i>	MDM2 Binding Protein
<i>FAM86B2</i>	Family With Sequence Similarity 86 Member B2	<i>SQLE</i>	Squalene Epoxidase
<i>C8orf17</i>	Chromosome 8 Putative Open Reading Frame 17	<i>NAT1</i>	N- Acetyltransferase 1
<i>FREM1</i>	FRAS1 Related Extracellular Matrix 1	<i>IFT74</i>	Intraflagellar Transport 74
<i>CNTNAP3B</i>	Contactin Associated Protein Family Member 3B	<i>TNXB</i>	Tenascin XB
<i>IGSF1</i>	Immunoglobulin Superfamily Member 1	<i>SHROOM2</i>	Shroom Family Member 2
<i>SLC9B1P1</i>	Solute Carrier Family 9 Member B1 Pseudogene 1		