The Growth failure in early childhood panel genes (PanelApp v1.4, March 2020)

Gene	Associated Phenotype(s)	OMIM
BLM	Bloom syndrome	210900
BRCA2	Fanconi anemia, complementation group D1 Please note: Only biallelic *BRCA2* variants will be reported.	605724
BRIP1	Fanconi anemia, complementation group J	609054
ERCC4	Fanconi anemia, complementation group Q	615272
FANCA	Fanconi anemia, complementation group A	227650
FANCB	Fanconi anemia, complementation group B	300514
FANCC	Fanconi anemia, complementation group C	227645
FANCD2	Fanconi anemia, complementation group D2	227646
FANCE	Fanconi anemia, complementation group E	600901
FANCF	Fanconi anemia, complementation group F	603467
FANCG	Fanconi anemia, complementation group G	614082
FANCI	Fanconi anemia, complementation group I	609053
FANCL	Fanconi anemia, complementation group L	614083
NBN	Nijmegen breakage syndrome	251260
PALB2	Fanconi anemia, complementation group N	610832
SLX4	Fanconi anemia, complementation group P	613951
TOP3A	Microcephaly, growth restriction, and increased sister chromatid exchange type 2, MGRISCE2 (Bloom-like syndrome)	618097
UBE2T	Fanconi anemia, complementation group T	616435
CCDC8	3-M syndrome type 3	614205
CUL7	3-M syndrome type 1	273750
OBSL1	3M syndrome type 2	612921
SRCAP	Floating-Harbor syndrome	136140
TRIM37	Mulibery Nanism	253250
BRAF	LEOPARD syndrome type 3 Cardiofaciocutaneous syndrome Noonan Syndrome type 7	613707 115150 613706
CBL	Noonan syndrome-like disorder with or without juvenile myelomonocytic leukemia	613563
HRAS	Costello syndrome	218040
KRAS	Cardiofaciocutaneous syndrome type 2 Noonan syndrome type 3	615278 609942
LZTR1	Noonan syndrome type 2 (autosomal recessive) Noonan syndrome type 10 (autosomal dominant)	605275 616564
MAP2K1	LEOPARD syndrome Cardiofaciocutaneous syndrome type 3	PMID: 20301303 615279
MAP2K2	Cardiofaciocutaneous syndrome type 4	615280
NRAS	Noonan syndrome type 6	613224
PPP1CB	Noonan syndrome-like disorder with loose anagen hair type 2	617506
PTPN11	LEOPARD syndrome type 1 Noonan syndrome type 1	151100 163950
RAF1	LEOPARD syndrome type 2 Noonan syndrome type 5	611554 611553
RIT1	Noonan syndrome type 8	615355
SHOC2	Noonan syndrome-like with loose anagen hair	607721
SOS1	Noonan syndrome type 4	610733
SOS2	Noonan syndrome type 9	616559
HMGA2	Silver-Russell syndrome	PMID:29655892

IGF2	Growth retardation with deafness and mental retardation due to IGF1 deficiency	608747
PLAG1	Silver-Russell syndrome	PMID: 20301499
ACAN	Short stature and advanced bone age, with or without early-onset osteoarthritis and/or osteochondritis dissecans Spondyloepimetaphyseal dysplasia, aggrecan type	165800 612813
ANKRD11	KBG syndrome	148050
CDKN1C	Intrauterine growth retardation, Metaphyseal dysplasia, Adrenal hypoplasia congenita, and Genital anomalies (IMAGE)	614732
FGFR3	Hypochondroplasia	146000
IGF1	Growth retardation with deafness and mental retardation due to IGF1 deficiency	608747
IGF1R	Resistance to Insulin-like growth factor type 1	270450
PIK3R1	SHORT syndrome	269880