

**Table S4** Individuals with 2 Pathogenic/ Likely Pathogenic variants.

#	Gene	cDNA	Protein	HGVS nomenclature	Classification	Personal History of cancer
1	<i>MSH2</i>	Deletion (exons 11-16)			Pathogenic	Endometrium
	<i>PALB2</i>	c.757_758delCT	p.Leu253Ilefs*3		Pathogenic	
2	<i>BRCA1</i>	c.181T>G	p.Cys61Gly		Pathogenic	Breast
	<i>CHEK2</i>	c.470T>C	p.Ile157Thr		Pathogenic (low penetrance)	
3	<i>MSH6</i>	c.2136delG	p.Asp713Ilefs*23		Pathogenic	Breast
	<i>MUTYH</i>	c.1187G>A	p.Gly396Asp		Pathogenic	
4	<i>CHEK2</i>	c.1232G>A	p.Trp411*		Pathogenic	Breast
	<i>PMS2</i>	c.(?-87)_(*160_?)del			Pathogenic	
5	<i>MUTYH</i>	c.536A>G	p.Tyr179Cys		Pathogenic	CRC
	<i>MUTYH</i>	c.1437_1439delGGA	p.Glu479_Glu480delinsGlu		Pathogenic	
6	<i>MSH2</i>	c.2131C>T	p.Arg711*		Pathogenic	Endometrium and CRC
	<i>MUTYH</i>	c.1187G>A	p.Gly396Asp		Pathogenic	
7	<i>BRCA1</i>	c.737delT	p.Leu246*		Pathogenic	Breast
	<i>CHEK2</i>	c.470T>C	p.Ile157Thr		Pathogenic (low penetrance)	
8	<i>MSH2</i>	c.2131C>T	p.Arg711*		Pathogenic	CRC
	<i>MUTYH</i>	c.1187G>A	p.Gly396Asp		Pathogenic	
9	<i>MSH2</i>	c.2131C>T	p.Arg711*		Pathogenic	Polyps in bile, uterus, stomach
	<i>MUTYH</i>	c.1187G>A	p.Gly396Asp		Pathogenic	
10	<i>BLM</i>	c.1642C>T	p.Gln548*		Pathogenic	Breast
	<i>CHEK2</i>	c.1283C>T	p.Ser428Phe		Pathogenic	
11	<i>MLH1</i>	c.1409+1G>A			Likely Pathogenic	CRC and cholangioma
	<i>MUTYH</i>	c.734G>A	p.Arg245His		Pathogenic	
12	<i>BLM</i>	c.1642C>T	p.Gln548*		Pathogenic	Breast
	<i>BRCA1</i>	c.3700_3704delGTAAA	p.Val1234_Asn1235?fs		Pathogenic	

13	<i>BRCA2</i>	c.9154C>T	p.Arg3052Trp	Pathogenic	Breast
	<i>MUTYH</i>	c.1187G>A	p.Gly396Asp	Pathogenic	
14	<i>FAM175A</i>	c.1106dupG	p.Ser370Ilefs*2	Pathogenic	Triple Negative Breast
	<i>RAD50</i>	c.3779_3791dupGTAAGTCCAGCT	p.Leu1265*	Pathogenic	
15	<i>BRCA1</i>	c.5266dupC	p.Gln1756Profs*74	Pathogenic	Not Available (NA)
	<i>RAD50</i>	c.326_329delCAGA	p.Thr109Asnfs*20	Pathogenic	
16	<i>NBN</i>	c.657_661delACAAA	p.Lys219Asnfs*16	Pathogenic	Breast
	<i>PMS2</i>	c.1261C>T	p.Arg421*	Pathogenic	
17	<i>BRCA1</i>	c.843_846delCTCA	p.Ser282Tyrfs*15	Pathogenic	Breast
	<i>CHEK2</i>	c.470T>C	p.Ile157Thr	Pathogenic (low penetrance)	
18	<i>CHEK2</i>	c.470T>C	p.Ile157Thr	Pathogenic (low penetrance)	Breast
	<i>CHEK2</i>	c.499G>A	p.Gly167Arg	Likely Pathogenic	
19	<i>MUTYH</i>	c.734G>A	p.Arg245His	Pathogenic	Breast
	<i>PALB2</i>	c.2257C>T	p.Arg753*	Pathogenic	
20	<i>MUTYH</i>	c.536A>G	p.Tyr179Cys	Pathogenic	Breast
	<i>RAD51C</i>	c.905-2A>G		Pathogenic	
21	<i>BRCA1</i>	c.5212G>A	p.Gly1738Arg	Pathogenic	Breast
	<i>BRIP1</i>	c.2947delA	p.Ile983Leufs*2	Likely Pathogenic	
22	<i>MUTYH</i>	c.1437_1439delGGA	p.Glu479_Glu480delinsGlu	Pathogenic	CRC
	<i>RET</i>	c.2410G>A	p.Val804Met	Pathogenic	
23	<i>BRCA2</i>	c.9371A>T	p.Asn3124Ile	Likely Pathogenic	Breast
	<i>CHEK2</i>	c.902delT	p.Leu301Trpfs*3	Pathogenic	
24	<i>APC</i>	c.4391_4394delAGAG	p.Glu1464Valfs*8	Pathogenic	Polyps
	<i>PALB2</i>	c.3340C>T	p.Gln1114*	Pathogenic	
25	<i>BRIP1</i>	c.2575+1G>A		Likely Pathogenic	CRC
	<i>MLH1</i>	c.(453+1_454-1)_(545+1_546-1)del		Pathogenic	