

**Table S4. Description of FIGC families carrying rare germline variants**

Proband/Family ID (age at diagnosis)	Germline Variant			Family History of GC and/or other cancers; disease conditions (age at diagnosis)	MSI status
	Gene	cDNA	Type/Location		
P1 (59)	<i>PMS1</i>	c.224C>T	Missense	FDR GC (80); FDR unidentified (50); SDR unidentified (75)	MSS*
	<i>BRCA1</i>	c.591C>T	Synonymous		
P11 (71)	<i>MAP3K6</i>	c.1255+28G>A	Intronic	FDR GC (72); FDR lung (56); FDR unidentified(-)	MSS
P13 (72)	<i>PTEN</i>	c.*353C>T	3'UTR	FDR GC (70)	MSS
	<i>PTEN</i>	c.*788T>C	3'UTR		
	<i>PTEN</i>	c.*1702G>A	3'UTR		
	<i>PTEN</i>	c.*1945G>A	3'UTR		
	<i>MUTYH</i>	c.36+75C>A	5'UTR		
<i>PTEN</i>	c.209+84G>A	Intronic			
P15 (75)	<i>PRR5</i>	c.271C>T	Missense	FDR GC (49); FDR gastric ulcer (70); SDR gastric ulcer (21)	MSI
P17 (83)	<i>ATM</i>	c.3403-91G>T	Intronic	FDR GC (74); FDR unidentified (55)	MSI
P18 (66)	<i>ATM</i>	c.4306C>T	Missense	FDR GC (47); FDR gastric ulcer (66); FDR breast (44)	MSI
P20 (71)	<i>MUTYH</i>	c.1216C>A	Missense	FDR GC (60); FDR breast (62); FDR lung (69)	MSS
P23 (74)	<i>PRR5</i>	c.-11+8170G>A	5'UTR	FDR GC (64); SDR GC (80)	MSS*
P27 (64)	<i>SMAD4</i>	c.424+5G>A	Intronic	FDR GC (66); 2 FDR laryngotracheal (62, 58); 2 SDR gastric ulcer (61, 68); SDR gynaecological (54); SDR hepatobiliary (70)	MSS*
	<i>SMAD4</i>	c.454+38G>C	Intronic		
	<i>PRSS1</i>	c.201-99G>C	Intronic		
P30 (71)	<i>MLH1</i>	c.-202C>T	5'UTR	FDR GC (82); FDR colon (59); 3 FDR unidentified(65, 72, 79); SDR leukemia (70)	MSS*
P32 (80)	<i>APC</i>	c.423-17T>A	Intronic	FDR GC (50); FDR unidentified (50); SDR leukemia (32); FDR liver (60); SDR liver (52)	MSI
P33 (78)	<i>MSH6</i>	c.457+83T>C	Intronic	FDR GC (97)	MSI
	<i>MSR1</i>	c.881G>A	Missense		
P34 (69)	<i>PTEN</i>	c.*2173C>T	3'UTR	FDR GC (93); SDR leukemia (70); FDR bladder (63)	MSI
P41 (66)	<i>SPINK1</i>	c.88-23A>T	Intronic	FDR GC (75)	MSI
P45 (77)	<i>PRSS1</i>	c.72C>T	Synonymous	FDR GC (80)	MSS
P49 (67)	<i>MAP3K6</i>	c.3711+131G>A	3'UTR	FDR GC & BC (90) ; FDR hepatobiliary (74); SDR melanoma (50)	MSI
P51# (70)	<i>FOXF1</i>	c.980-76C>T	Intronic	FDR GC (76); SDR GC (60); FDR hepatobiliary (74); SDR unidentified (70); SDR colorectal (70)	MSS*
	<i>MSR1</i>	c.482C>A	Missense		
P6 (80)	<i>BRCA2</i>	c.3055C>G	Missense	FDR GC (47); FDR osteosarcoma (86); SDR colon cancer (67); FDR unidentified (45)	MSI
P7 (62)	<i>BMPR1A</i>	c.430+25G>A	Intronic	FDR GC (63); FRD colorectal & breast (70); SDR thyroid (20)	MSS
	<i>FOXF1</i>	c.980-76C>T	Intronic		
	<i>BMPR1A</i>	c.990C>T	Synonymous		
	<i>PRSS1</i>	c.72C>T	Synonymous		
P8 (78)	<i>PRSS1</i>	c.72C>T	Synonymous	FDR GC (84); >TDR GC (60); FDR kidney (58); FDR lung (84)	MSS
P9 (78)	<i>CFTR</i>	c.4243-53C>T	Intronic	FDR GC (71)	MSI

Abbreviations: FDR, first-degree relative; SDR, second-degree relative; TDR, third-degree relative; GC, gastric cancer; BC, breast cancer; GC & BC, gastric cancer and associated breast cancer; MSS, Microsatellite Stable; MSI, Microsatellite Instability; \* Tumours were classified as MSS, despite presenting low MSI; # Proband had also colon cancer; (-) unknown