

Supplement Table 1. BROCA Multi-Gene Panel Used in the Current Study

Gene	Function/Pathway	Heterozygote Cancer risk*	Associated syndrome
ATM	Double stranded break repair	Breast, Pancreatic	Ataxia telangiectasia (recessive)
ATR	Double stranded break repair	Oropharyngeal	Seckel (recessive)
BAP1	BRCA1-associated protein complex	Uveal Melanoma, Mesothelioma	BAP1-Tumor Predisposition Syndrome
BARD1	BRCA1-associated protein complex	Breast, Ovarian	
BRCA1	BRCA1-associated protein complex	Breast, Ovarian	Hereditary breast and ovarian cancer
BRCA2	Fanconi/BRCA	Breast, Ovarian	Hereditary breast and ovarian cancer, Fanconi anaemia FA-D1 (recessive)
BRIP1	Fanconi/BRCA	Breast, Ovarian	Fanconi anaemia FA-J (recessive)
CDH1	Cell adhesion	Breast, Gastric	Hereditary diffuse gastric cancer
CHEK1	Double stranded break repair	Unknown	
CHEK2	Double stranded break repair	Breast	

CTNNA1	Beta-catenin, e-cadherin complex	Gastric	Hereditary diffuse gastric cancer
FAM175A/Abraxas	Double stranded break repair	Breast	
FANCM		Breast	Fanconi anemia (recessive)
GEN1	Double stranded break repair	Breast	
MLH1	Mismatch DNA repair	Colon, Ovarian, Endometrial	Lynch syndrome
MRE11A	Double stranded break repair	Breast	Ataxia-telangiectasia-like disorder (recessive)
MSH2 (+EPCAM)	Mismatch DNA repair	Colon, Ovarian, Endometrial	Lynch syndrome
MSH6	Mismatch DNA repair	Colon, Endometrial	Lynch syndrome
NBN	Double stranded break repair	Breast	Nijmegen breakage syndrome (recessive)
PALB2	Fanconi/BRCA	Breast, Pancreatic	Fanconi anaemia FA-N (recessive)
PMS2	Mismatch DNA repair	Colon, Endometrial	Lynch syndrome
PTEN	PI3K/MAPK Signaling	Breast	Cowden syndrome
RAD51B (exons	Double stranded break	Unknown	

only)	repair		
RAD51C	Fanconi/BRCA	Ovarian, Breast	Fanconi anaemia FA-O (recessive)
RAD51D	Fanconi/BRCA	Ovarian, Breast	Fanconi anaemia (recessive)
RECQL		Breast	
RINT1		Breast, Colon	
SLX4	Fanconi/BRCA	Unknown	Fanconi anaemia (recessive)
STK11			
TP53	Cell growth	Breast, Ovarian	Li-Fraumeni syndrome
XRCC2	Double stranded break repair	Breast	Fanconi anaemia (recessive)