

## INVITAE HEREDITARY CANCER GENE PANEL TESTS

Invitae offers the broadest oncology testing menu, including guidelines-based panels for breast, gynecologic, and colorectal cancers; breast cancer STAT panels; and other tests for hereditary risk of brain, breast and gynecologic, endocrine, gastrointestinal, genitourinary, hematologic, pediatric, and skin cancers.

### FREQUENTLY-ORDERED PANELS

Test name	# gene(s)	Gene list
<b>Cross-Cancer</b>		
Invitae Multi-Cancer Panel	83	ALK, APC, ATM, AXIN2, BAP1, BARD1, BLM, BMPR1A, BRCA1, BRCA2, BRIP1, CASR, CDC73, CDH1, CDK4, CDKN1B, CDKN1C, CDKN2A, CEBPA, CHEK2, CTNNA1, DICER1, DIS3L2, EGFR, EPCAM, FH, FLCN, GATA2, GPC3, GREM1, HOXB13, HRAS, KIT, MAX, MEN1, MET, MITF, MLH1, MSH2, MSH3, MSH6, MUTYH, NBN, NF1, NF2, NTHL1, PALB2, PDGFRA, PHOX2B, PMS2, POLD1, POLE, POT1, PRKAR1A, PTCH1, PTEN, RAD50, RAD51C, RAD51D, RB1, RECQL4, RET, RUNX1, SDHA, SDHAF2, SDHB, SDHC, SDHD, SMAD4, SMARCA4, SMARCB1, SMARCE1, STK11, SUFU, TERC, TERT, TMEM127, TP53, TSC1, TSC2, VHL, WRN, WT1
Invitae Common Hereditary Cancers Panel	47	APC, ATM, AXIN2, BARD1, BMPR1A, BRCA1, BRCA2, BRIP1, CDH1, CDK4, CDKN2A, CHEK2, CTNNA1, DICER1, EPCAM, GREM1, HOXB13, KIT, MEN1, MLH1, MSH2, MSH3, MSH6, MUTYH, NBN, NF1, NTHL1, PALB2, PDGFRA, PMS2, POLD1, POLE, PTEN, RAD50, RAD51C, RAD51D, SDHA, SDHB, SDHC, SDHD, SMAD4, SMARCA4, STK11, TP53, TSC1, TSC2, VHL
<b>STAT Turnaround Time</b>		
Not available in Europe		

### CANCER PANELS BY ORGAN SYSTEM

Test name	# gene(s)	Gene list
<b>Breast Cancer</b>		
Invitae Breast Cancer Guidelines-Based Panel	11	ATM, BRCA1, BRCA2, CDH1, CHEK2, NBN, NF1, PALB2, PTEN, STK11, TP53
Add-on gene with emerging data	1	BARD1
Invitae Breast Cancer Panel	14	ATM, BARD1, BRCA1, BRCA2, BRIP1, CDH1, CHEK2, NBN, NF1, PALB2, PTEN, RAD50, STK11, TP53
Add-on preliminary-evidence genes	13	ABRAXAS1, AKT1, FANCC, FANCM, MRE11, MUTYH, PIK3CA, RAD51C, RAD51D, RINT1, SDHB, SDHD, XRCC2
<b>Breast and Gynecologic Cancers</b>		
Invitae Breast and Gyn Cancers Guidelines-Based Panel	19	ATM, BRCA1, BRCA2, BRIP1, CDH1, CHEK2, EPCAM, MLH1, MSH2, MSH6, NBN, NF1, PALB2, PMS2, PTEN, RAD51C, RAD51D, STK11, TP53
Add-on gene with emerging data	1	BARD1
Invitae Breast and Gyn Cancers Panel	23	ATM, BARD1, BRCA1, BRCA2, BRIP1, CDH1, CHEK2, DICER1, EPCAM, MLH1, MSH2, MSH6, NBN, NF1, PALB2, PMS2, PTEN, RAD50, RAD51C, RAD51D, SMARCA4, STK11, TP53
Add-on preliminary-evidence genes	13	ABRAXAS1, AKT1, CDC73, FANCC, FANCM, MRE11, MUTYH, PIK3CA, POLD1, RINT1, SDHB, SDHD, XRCC2

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### CANCER PANELS BY ORGAN SYSTEM (continued)

Test name	# gene(s)	Gene list
<b>Colorectal Cancer</b>		
Invitae Colorectal Cancer Guidelines-Based Panel	19	APC, AXIN2, BMPR1A, CHEK2, EPCAM, GREM1, MLH1, MSH2, MSH3, MSH6, MUTYH, NTHL1, PMS2, POLD1, POLE, PTEN, SMAD4, STK11, TP53
Add-on gene with emerging data	1	RPS20
Invitae Colorectal Cancer Panel	20	APC, AXIN2, BMPR1A, CDH1, CHEK2, EPCAM, GREM1, MLH1, MSH2, MSH3, MSH6, MUTYH, NTHL1, PMS2, POLD1, POLE, PTEN, SMAD4, STK11, TP53
Add-on preliminary-evidence genes	9	ATM, BLM, BUB1B, CEP57, ENG, FLCN, GALNT12, MLH3, RPS20
<b>Additional Organ Systems</b>		
Invitae Gastric Cancer Panel	19	APC, BMPR1A, CDH1, CTNNA1, EPCAM, KIT, MLH1, MSH2, MSH6, NF1, PDGFRA, PMS2, SDHA, SDHB, SDHC, SDHD, SMAD4, STK11, TP53
Invitae Hereditary Paraganglioma-Pheochromocytoma Panel	10	MAX, NF1, RET, SDHA, SDHAF2, SDHB, SDHC, SDHD, TMEM127, VHL
Add-on preliminary-evidence genes	4	EGLN1, FH, KIF1B, MEN1
Invitae Hyperparathyroidism Panel	5	CASR, CDC73, CDKN1B, MEN1, RET
Invitae Melanoma Panel	9	BAP1, BRCA2, CDK4, CDKN2A, MITF, POT1, PTEN, RB1, TP53
Add-on preliminary-evidence genes	3	BRCA1, MC1R, TERT
Invitae Myelodysplastic Syndrome/Leukemia Panel	16	ATM, BLM, CEBPA, EPCAM, GATA2, HRAS, MLH1, MSH2, MSH6, NBN, NF1, PMS2, RUNX1, TERC, TERT, TP53
Add-on preliminary-evidence genes	5	BRCA1, BRCA2, BRIP1, CHEK2, PALB2
Add-on dyskeratosis congenita genes	7	CTC1, DKC1, NHP2, NOP10, TERC, TERT, TINF2
Add-on Fanconi anemia genes	17	BRCA2, BRIP1, ERCC4, FANCA, FANCB, FANCC, FANCD2, FANCE, FANCF, FANCG, FANCI, FANCL, FANCM, PALB2, RAD51C, SLX4, XRCC2
Invitae Nervous System/Brain Cancer Panel	25	ALK, APC, DICER1, EPCAM, HRAS, MEN1, MLH1, MSH2, MSH6, NF1, NF2, PHOX2B, PMS2, PRKAR1A, PTCH1, PTEN, RB1, SMARCA4, SMARCB1, SMARCE1, SUFU, TP53, TSC1, TSC2, VHL
Add-on preliminary-evidence genes	7	BAP1, BARD1, EZH2, GPC3, KIF1B, POT1, PTCH2
Add-on hereditary paraganglioma pheochromocytoma genes	8	MAX, RET, SDHA, SDHAF2, SDHB, SDHC, SDHD, TMEM127
Invitae Pancreatic Cancer Panel	20	APC, ATM, BMPR1A, BRCA1, BRCA2, CDKN2A, EPCAM, MEN1, MLH1, MSH2, MSH6, NF1, PALB2, PMS2, SMAD4, STK11, TP53, TSC1, TSC2, VHL
Add-on preliminary-evidence genes	3	CDK4, FANCC, PALLD
Add-on chronic pancreatitis genes	5	CASR, CFTR, CTRC, PRSS1, SPINK1
Invitae Prostate Cancer Panel	12	ATM, BRCA1, BRCA2, CHEK2, EPCAM, HOXB13, MLH1, MSH2, MSH6, NBN, PMS2, TP53
Add-on preliminary-evidence genes	5	BRIP1, FANCA, PALB2, RAD51C, RAD51D
Invitae Renal/Urinary Tract Cancers Panel	24	BAP1, CDC73, CDKN1C, DICER1, DIS3L2, EPCAM, FH, FLCN, GPC3, MET, MLH1, MSH2, MSH6, PMS2, PTEN, SDHB, SDHC, SMARCA4, SMARCB1, TP53, TSC1, TSC2, VHL, WT1
Add-on preliminary-evidence genes	6	BUB1B, CEP57, MITF, PALB2, SDHA, SDHD

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### CANCER PANELS BY ORGAN SYSTEM (continued)

Test name	# gene(s)	Gene list
<b>Additional Organ Systems (continued)</b>		
Invitae Sarcoma Panel	26	APC, BLM, CDKN1C, DICER1, EPCAM, FH, HRAS, KIT, MLH1, MSH2, MSH6, NBN, NF1, PDGFRA, PMS2, PRKAR1A, PTCH1, RB1, RECQL4, SDHA, SDHB, SDHC, SDHD, SUFU, TP53, WRN
Add-on preliminary-evidence genes	5	CDKN2A, POT1, PTCH2, TSC1, TSC2
Add-on Diamond-Blackfan anemia genes	10	GATA1, RPL11, RPL26, RPL35A, RPL5, RPS10, RPS19, RPS24, RPS26, RPS7
Invitae Thyroid Cancer Panel	7	APC, CHEK2, DICER1, PRKAR1A, PTEN, RET, TP53
Add-on preliminary-evidence genes	4	MEN1, SDHB, SDHD, WRN
<b>Pediatric Oncology</b>		
Invitae Pediatric Solid Tumors Panel	48	ALK, APC, AXIN2, BAP1, BLM, BMPR1A, CDC73, CDKN1C, DICER1, DIS3L2, EPCAM, FH, GPC3, HRAS, MAX, MEN1, MLH1, MSH2, MSH6, NBN, NF1, NF2, PHOX2B, PMS2, PRKAR1A, PTCH1, PTEN, RB1, RECQL4, RET, SDHA, SDHAF2, SDHB, SDHC, SDHD, SMAD4, SMARCA4, SMARCB1, SMARCE1, STK11, SUFU, TMEM127, TP53, TSC1, TSC2, VHL, WRN, WT1
Invitae Pediatric Hematologic Malignancies Panel	16	ATM, BLM, CEBPA, EPCAM, GATA2, HRAS, MLH1, MSH2, MSH6, NBN, NF1, PMS2, RUNX1, TERC, TERT, TP53
Invitae Pediatric Nervous System/Brain Tumors Panel	24	ALK, APC, DICER1, EPCAM, HRAS, MEN1, MLH1, MSH2, MSH6, NF1, NF2, PHOX2B, PMS2, PRKAR1A, PTCH1, PTEN, RB1, SMARCB1, SMARCE1, SUFU, TP53, TSC1, TSC2, VHL
Hereditary paraganglioma pheochromocytoma genes	8	MAX, RET, SDHA, SDHAF2, SDHB, SDHC, SDHD, TMEM127
<b>Individual Hereditary Cancer Conditions</b>		
Invitae Ataxia-Telangiectasia Test	1	ATM
Invitae BAP1 Hereditary Cancer Predisposition Syndrome Test	1	BAP1
Invitae Basal Cell Nevus Syndrome Panel	2	PTCH1, SUFU
Add-on preliminary-evidence gene	1	PTCH2
Invitae Birt-Hogg-Dubé Syndrome Test	1	FLCN
Invitae Bloom Syndrome Test	1	BLM
Invitae Carney Complex Test	1	PRKAR1A
Invitae CASR-Related Conditions Test	1	CASR
Invitae CDC73-Related Conditions Test	1	CDC73
Invitae Chronic Pancreatitis Panel	5	CASR, CFTR, CTRC, PRSS1, SPINK1
Invitae Constitutional Mismatch Repair-Deficiency Panel	5	EPCAM, MLH1, MSH2, MSH6, PMS2
Invitae Costello Syndrome Test	1	HRAS
Invitae DICER1 Syndrome Test	1	DICER1
Invitae Familial Acute Myeloid Leukemia with Mutated CEBPA Test	1	CEBPA
Invitae Familial Adenomatous Polyposis Test	1	APC
Invitae Familial Gastrointestinal Stromal Tumor Syndrome Panel	7	KIT, NF1, PDGFRA, SDHA, SDHB, SDHC, SDHD

## INVITAE HEREDITARY CANCER GENE PANEL TESTS

### CANCER PANELS BY ORGAN SYSTEM (continued)

Test name	# gene(s)	Gene list	
<b>Individual Hereditary Cancer Conditions (continued)</b>			
Invitae Familial Platelet Disorder with Propensity to Myeloid Malignancy Test	1	RUNX1	
Invitae Fanconi Anemia Panel	17	BRCA2, BRIP1, ERCC4, FANCA, FANCB, FANCC, FANCD2, FANCE, FANCF, FANCG, FANCI, FANCL, FANCM, PALB2, RAD51C, SLX4, XRCC2	
Invitae GATA2 Deficiency Test	1	GATA2	
Invitae Hereditary Breast and Ovarian Cancer Syndrome Panel	2	BRCA1, BRCA2	
Invitae Hereditary Diffuse Gastric Cancer Syndrome Test	1	CDH1	
Invitae Hereditary Leiomyomatosis and Renal Cell Cancer Test	1	FH	
Invitae Hereditary Papillary Renal Cell Carcinoma Test	1	MET	
Invitae Juvenile Polyposis Syndrome Panel	2	BMPR1A, SMAD4	
Invitae Li-Fraumeni Syndrome Test	1	TP53	
Invitae Lynch Syndrome Panel	5	EPCAM, MLH1, MSH2, MSH6, PMS2	
Invitae Melanoma-Pancreatic Cancer Syndrome Panel	2	CDK4, CDKN2A	
Invitae Multiple Endocrine Neoplasia Type 1 Test	1	MEN1	
Invitae Multiple Endocrine Neoplasia Type 2 Test	1	RET	
Invitae MUTYH-Associated Polyposis Syndrome Test	1	MUTYH	
Invitae Neurofibromatosis Type 1 Test	1	NF1	
	Add-on Legius syndrome gene	1	SPRED1
Invitae Neurofibromatosis Type 2 Test	1	NF2	
	Add-on schwannomatosis gene	1	SMARCB1
Invitae Nijmegen Breakage Syndrome Test	1	NBN	
Invitae Oligodentia-Colorectal Cancer Syndrome Test	1	AXIN2	
Invitae Perlman Syndrome Test	1	DIS3L2	
Invitae Peutz-Jeghers Syndrome Test	1	STK11	
Invitae PTEN-Related Disorders Test	1	PTEN	
Invitae RECQL4-Related Disorders Test	1	RECQL4	
Invitae Retinoblastoma Test	1	RB1	
Invitae Rhabdoid Tumor Predisposition Syndrome Panel	2	SMARCA4, SMARCB1	
Invitae Schwannomatosis Test	1	SMARCB1	
	Add-on neurofibromatosis type 2 gene	1	NF2
Invitae Simpson-Golabi-Behmel Syndrome Test	1	GPC3	
Invitae Small Cell Carcinoma of the Ovary Hypercalcemic Type Test	1	SMARCA4	
Invitae Tuberous Sclerosis Complex Panel	2	TSC1, TSC2	

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### CANCER PANELS BY ORGAN SYSTEM (continued)

Test name	# gene(s)	Gene list
<b>Individual Hereditary Cancer Conditions (continued)</b>		
Invitae von Hippel-Lindau Syndrome Test	1	VHL
Invitae Weaver Syndrome Test	1	EZH2
Invitae Werner Syndrome Test	1	WRN
Invitae Wilms Tumor Panel	5	CDC73, CDKN1C, DIS3L2, GPC3, WT1
Invitae WT1-Related Disorders Test	1	WT1