

Supplementary Table 1. Demographics and clinical characteristics of multigene panel testing cohort

Characteristic	N	%
Average age at testing (std)	52	(13)
Female	151,440	93.2%
Ethnicity		
Caucasian	104,096	64.1%
African American	10,515	6.5%
Hispanic	9514	5.9%
Ashkenazi Jewish	9969	6.1%
Asian	6831	4.2%
Other	10,547	6.5%
Unknown	11,001	6.8%
Personal history of cancer		
Yes	117,165	72.1%
Breast cancer	89,756	76.6%
Lobular breast cancer	6767	5.8%
Gastric cancer	574	0.5%
Diffuse gastric cancer	96	0.1%
No	45,308	27.9%
Test ordered ( <i>genes included</i> )		
BRCAprus ( <i>BRCA1, BRCA2, CDH1, PTEN, PALB2<sup>1</sup>, STK11<sup>2</sup>, TP53</i> )	23,645	14.6%
BRCAprus Expanded ( <i>ATM, BRCA1, BRCA2, CHEK2, CDH1, PTEN, PALB2, TP53</i> )	4912	3.0%
BreastNext ( <i>ATM, BARD1, BRCA1<sup>3</sup>, BRCA2<sup>3</sup>, BRIP1, CDH1, CHEK2, MRE11A, MUTYH, NBN, NF1<sup>4</sup>, PALB2, PTEN, RAD50, RAD51C, RAD51D<sup>4</sup>, STK11<sup>2</sup>, TP53</i> )	39,618	24.4%
OvaNext ( <i>ATM, BARD1, BRCA1<sup>3</sup>, BRCA2<sup>3</sup>, BRIP1, CDH1, CHEK2, DICER17, EPCAM5, MLH1, MRE11A, MSH2, MSH6, MUTYH, NBN, NF1<sup>4</sup>, PALB2, PMS2, PTEN, RAD50, RAD51C, RAD51D<sup>4</sup>, SMARCA4<sup>6</sup>, STK11, TP53</i> )	33,372	20.5%
ColoNext ( <i>APC, BMPR1A, CDH1, CHEK2, EPCAM<sup>5</sup>, GREM1<sup>5,6</sup>, MLH1, MSH2, MSH6, MUTYH, PMS2, POLD1<sup>6</sup>, POLE<sup>6</sup>, PTEN, SMAD4, STK11, TP53</i> )	10,310	6.3%
CancerNext ( <i>APC, ATM, BARD1, BRCA1<sup>3</sup>, BRCA2<sup>3</sup>, BRIP1, BMPR1A, CDH1, CDK44, CDKN2A4, CHEK2, DICER17, EPCAM<sup>5</sup>, GREM1<sup>5,6</sup>, HOXB137, MLH1, MRE11A, MSH2, MSH6, MUTYH, NBN, NF1<sup>4</sup>, PALB2, PMS2, POLD1<sup>6</sup>, POLE<sup>6</sup>, PTEN, RAD50, RAD51C, RAD51D<sup>4</sup>, SMAD4, SMARCA4<sup>6</sup>, STK11, TP53</i> )	37,894	23.3%
CancerNext Expanded ( <i>APC, ATM, BAP1<sup>6</sup>, BARD1, BRCA1, BRCA2, BRIP1, BMPR1A, CDH1, CDK4, CDKN2A, CHEK2, EPCAM<sup>5</sup>, FH, FLCN, GREM1<sup>5,6</sup>, MAX, MEN1, MET, MITF<sup>7</sup>, MLH1, MRE11A, MSH2, MSH6, MUTYH, NBN, NF1, PALB2, PMS2, POLD1<sup>6</sup>, POLE<sup>6</sup>, PTEN, RAD50, RAD51C, RAD51D, RET, SDHA, SDHAF2, SDHB, SDHD, SDHC, SMAD4, SMARCA4<sup>6</sup>, STK11, TMEM127, TP53, TSC1, TSC2, VHL</i> )	11,173	6.9%
CustomNext-Cancer ( <i>Any of the genes on CancerNext-Expanded</i> )	1549	1.0%

<sup>1</sup>*PALB2* included for panels ordered on or after 10/1/2015

<sup>2</sup>*STK11* removed for panels orders authorized on or after 8/1/14

<sup>3</sup>*BRCA1* and *BRCA2* included for panels ordered on or after 6/13/13

<sup>4</sup>*NF1*, *RAD51D*, *CDKN2A*, and *CDK4* included for panels ordered on or after 10/18/13

<sup>5</sup>*EPCAM* and *GREM1* include reporting of selected gross deletions/duplications only

<sup>6</sup>*BAP1*, *GREM1*, *POLD1*, *POLE*, and *SMARCA4* included for panels ordered on or after 5/18/15

<sup>7</sup>For *MITF* only the status of the c.952G>A (p.E318K) alteration is analyzed and reported