Predisposition to Cancer Applications

SALSA® MLPA® is the method of choice for the detection of CNVs in genes associated with hereditary cancer. MRC Holland offers over 40 MLPA assays specifically designed to detect CNVs and selected SNVs in hundreds of oncogenes.

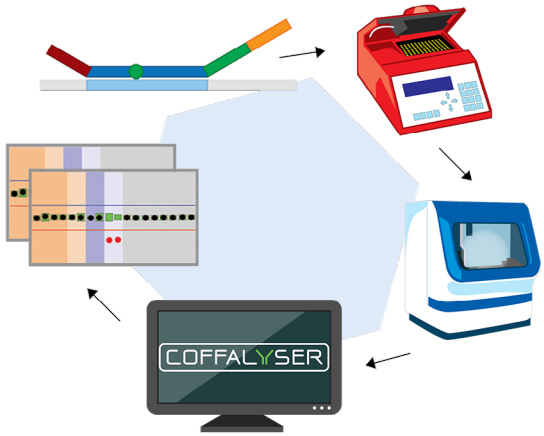
digitalMLPA™ combines the robustness and simplicity of MLPA with the high throughput of NGS platforms. Our digitalMLPA NXtec™ Hereditary Cancer Panels are targeted assays to examine CNVs and selected SNVs in cancer-predisposing genes.

Both technologies share key features that make them well-suited for germline analysis:

- Unparalleled CNV sensitivity even in complex genetic regions, such as *PMS2* and *PTEN*.
- Wide CNV detection range – from whole chromosomes to single exons.
- Free software, simple analysis and clear-cut results.

MLPA

- ✓ Multiplex PCR-based method for CNV, methylation and targeted SNV detection
- ✓ Needed: thermocycler and capillary electrophoresis device
- ✓ 40-60 targets per reaction
- ✓ 50 ng of DNA input per sample

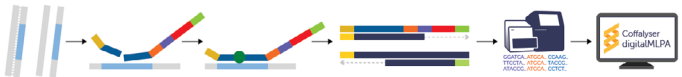


Top-Selling Applications

Hereditary Breast and Ovarian Cancer	**P002** BRCA1 **P045** BRCA2/CHEK2 **P041** ATM-1 / **P042** ATM-2
Lynch Syndrome	**P003** MLH1/MSH2 **P008** PMS2 **P072** MSH6-MUTYH **ME011** Mismatch Repair Genes
Neurofibromatosis	**P081** NF1 mix 1 / **P082** NF1 mix 2 **P122** NF1-area **P044** NF2

digitalMLPA

- ✓ NGS-based MLPA for CNV and targeted SNV detection
- ✓ Needed: thermocycler and Illumina sequencing platform
- ✓ 600-1200 targets per reaction
- ✓ 20 ng of DNA input per sample



NXtec D002 Hereditary Cancer Panel 2

Broad panel targeting a wide range of genes associated with hereditary predisposition to various types of cancer.

APC	*EPCAM*	*NTHL1*	*SDHAF2*
ATM	*FH*	*PALB2*	*SDHB*
BAP1	*FLCN*	*PHOX2B*	*SDHC*
BARD1	*HOXB13*	*PMS2*	*SDHD*
BMPR1A	*MAX*	*POLD1*	*SMAD4*
BRCA1	*MEN1*	*POLE*	*SMARCB1*
BRCA2	*MET*	*PTCH1*	*STK11*
BRIP1	*MLH1*	*PTEN*	*SUFU*
CDH1	*MSH2*	*RAD51C*	*TMEM127*
CDK4	*MSH6*	*RAD51D*	*TP53*
CDKN2A	*MUTYH*	*RB1*	*TSC1*
CEBPA	*NBN*	*RUNX1*	*TSC2*
CHEK2	*NF1*	*SCG5/GREM1*	*VHL*
DICER1	*NF2*	*SDHA*	*WT1*

Broad Hereditary Cancer Panels

digitalMLPA assay	Target genes/regions
NXtec D001 Hereditary Cancer Panel 1 Focused, cost-effective panel, targeting 8 common cancer types.	*APC, ATM, BAP1, BARD1, BMPR1A, BRCA1, BRCA2, BRIP1, CDH1, CDK4, CDKN2A, CHEK2, EPCAM, MITF* (p.E318K), *MLH1, MSH2, MSH6, MUTYH, NBN, PALB2, PMS2, POLE, PTEN, RAD51C, RAD51D, SCG5/GREM1, SMAD4, STK11, TP53*
NXtec D002 Hereditary Cancer Panel 2 Broad, expanded panel targeting a wide range of cancer types.	Includes all D001 targets and additional, D002-exclusive targets. See front of flyer for complete list of targeted genes/ regions.

Breast, Endometrial and Ovarian Cancer

SALSA® MLPA® Probemix	Target genes/regions
ME011 Mismatch Repair Genes*	*MLH1* methylation, *BRAF* p.V600E point mutation and associated Lynch syndrome genome changes profiling
P002 BRCA1†	*BRCA1*
P003 MLH1/MSH2†	*MLH1, MSH2*
P008 PMS2	*PMS2*
P041 ATM-1 / **P042** ATM-2	*ATM*
P045 BRCA2/CHEK2†	*BRCA2, CHEK2*
P057 FANCD2-PALB2	*FANCD2, PALB2*
P072 MSH6-MUTYH	*MSH6, MUTYH, MSH2, EPCAM*
P083 CDH1	*CDH1*
P090 BRCA2†	*BRCA2*
P190 CHEK2	*CHEK2, ATM, TP53*
P225 PTEN	*PTEN, PTENP1*
P239 BRCA1 region	*BRCA1* region
P240 BRIP1/CHEK1	*BRIP1, CHEK1*
P260 PALB2-RAD50-RAD51C-RAD51D	*PALB2, RAD50, RAD51C, RAD51D*
P489 BARD1	*BARD1*
P494 NBN	*NBN*

Skin Cancer

SALSA® MLPA® Probemix	Target genes/regions
ME024 9p21 CDKN2A/2B region*	*CDKN2A/2B, MTAP, MIR31, PAX5* and methylation profiling of *CDKN2A/2B*
P041 ATM-1 / **P042** ATM-2	*ATM*
P417 BAP1	*BAP1*
P419 CDKN2A/2B-CDK4	*CDKN2A/2B, CDK4, MTAP, MITF* (p.E318K)
P472 SUFU	*SUFU*

Pancreatic Cancer

SALSA® MLPA® Probemix	Target genes/regions
ME024 9p21 CDKN2A/2B region*	*CDKN2A/2B, MTAP, MIR31, PAX5* and methylation profiling of *CDKN2A/2B*
P003 MLH1/MSH2†	*MLH1, MSH2*
P045 BRCA2/CHEK2†	*BRCA2, CHEK2*
P090 BRCA2†	*BRCA2*
P419 CDKN2A/2B-CDK4	*CDKN2A/2B, CDK4, MITF* (p.E318K)

Hematological Malignancies

SALSA® MLPA® Probemix	Target genes/regions
P031 FANCA mix 1 **P032** FANCA mix 2	*FANCA*
P057 FANCD2-PALB2	*FANCD2, PALB2*
P113 FANCB	*FANCB*
P212 DBA	*RPL11, RPL35A, RPS17, RPS19, RPS26, RPL5*
P327 iAMP21-ERG	iAMP21, *RUNX1, ERG*
P437 Familial MDS-AML	*GATA2* (+p.R398W, p.T354M), *TERC, TERT* (+p.A1062T), *CEBPA, RUNX1*

† A separate MLPA confirmation probemix is available, containing independent probes targeting the same exons/genes as the primary probemix.

Broad Cancer-Predisposing Syndromes

SALSA® MLPA® Probemix	Target genes/regions
ME011 Mismatch Repair Genes*	*MLH1* methylation, *BRAF* p.V600E point mutation and associated Lynch syndrome genome changes profiling
P016 VHL	*VHL*
P017 MEN1	*MEN1*
P044 NF2	*NF2*
P046 TSC2†	*TSC2*
P056 TP53	*TP53, CHEK2* (+c.del1100C)
P057 FANCD2-PALB2	*FANCD2, PALB2*
P067 PTCH1	*PTCH1*
P081 NF1 mix 1 / **P082** NF1 mix 2	*NF1*
P101 STK11	*STK11*
P118 WT1	*WT1, AMER1*
P122 NF1-area	*NF1*-area
P124 TSC1	*TSC1*
P215 EXT	*EXT1, EXT2*
P225 PTEN	*PTEN, PTENP1*
P226 SDH	*SDHB, SDHC, SDHD, SDHAF1, SDHAF2*
P244 AIP-MEN1-CDKN1B	*AIP, MEN1, CDKN1B*
P258 SMARCB1	*SMARCB1*
P308 MET	*MET, PTEN, LRRK2*
P417 BAP1	*BAP1*
P429 SDHA-MAX-TMEM127	*SDHA, MAX, TMEM127*
P437 Familial MDS-AML	*GATA2* (+p.R398W, p.T354M), *TERC, TERT* (+p.A1062T), *CEBPA, RUNX1*
P455 LZTR1	*LZTR1*
P466 CDC73	*CDC73*
P478 SMARCE1	*SMARCE1*
P481 PRKAR1A-ARMC5	*PRKAR1A, ARMC5*
P482 DICER1	*DICER1*

Gastrointestinal Cancer

SALSA® MLPA® Probemix	Target genes/regions
ME011 Mismatch Repair Genes*	*MLH1* methylation, *BRAF* p.V600E point mutation and associated Lynch syndrome genome changes profiling
P003 MLH1/MSH2†	*MLH1, MSH2*
P008 PMS2	*PMS2*
P043 APC	*APC*
P072 MSH6-MUTYH	*MSH6, MUTYH, MSH2, EPCAM*
P083 CDH1	*CDH1*
P158 JPS	*BMPR1A, SMAD4, PTEN*
P190 CHEK2	*CHEK2, ATM, TP53*
P378 MUTYH	*MUTYH, SCG5/GREM1*
P492 POLD1-POLE	*POLD1, POLE*

Other Cancers

SALSA® MLPA® Probemix	Target genes/regions
P003 MLH1/MSH2†	*MLH1, MSH2*
P047 RB1*	*RB1*+ flanking, *RB1* methylation profiling
P067 PTCH1	*PTCH1*
P256 FLCN	*FLCN*
P472 SUFU	*SUFU*

* This probemix also includes probes that determine the methylation status of a target.

MRC Holland

Confidence in Copy Number Determination

www.mrcholland.com | info@mrcholland.com | tel +31 88 865 7200

F-PtC-0052D