Gen canónico: gen estándar debido a una función bien definida, conservación evolutiva y una sólida evidencia experimental que confirma su importancia en enfermedades.

Gen candidato: gen que, según se cree, puede estar relacionado con un rasgo determinado, como una enfermedad o un atributo físico. Estos genes pueden aportar información relevante sobre distintos tipos de cánceres.

Panel Oncología 1

Este panel analiza los genes canónicos y candidatos exclusivamente de la **región codificante.**

Genes canónicos (región codificante)

A1CF, ABI1, ABL1, ABL2, ACKR3, ACVR1, ACVR1B, ACVR2A, AFDN, AFF3, AKT1, AKT2, AKT3, ALK, AMER1, ANK1, APOBEC3B, AR, ARAF, ARHGAP26, ARHGAP5, ARHGEF10, ARHGEF10L, ARHGEF12, ARID1A, ARID1B, ARID2, ARNT, ASXL1, ATF1, ATP1A1, ATP2B3, ATR, ATRX, AXIN2, BAP1, BARD1, BAX, BAZ1A, BCL10, BCL11A, BCL11B, BCL2L12, BCL3, BCL9, BCL9L, BCOR, BCORL1, BIRC6, BLM, BMP5, BMPR1A, BRAF, BRCA1, BRCA2, BRD3, BRD4, BRIP1, BTG1, BTK, BUB1B, CACNA1D, CALR, CARD11, CARS1, CASP3, CASP8, CASP9, CBFA2T3, CBL, CBLB, CBLC, CCDC6, CCNB1IP1, CCNC, CCND1, CCND2, CCNE1, CCR4, CCR7, CD209, CD274, CD28, CD74, CD79A, CDC73, CDH1, CDH11, CDH17, CDK12, CDK4, CDK6, CDKN1A, CDKN1B, CDKN2A, CDKN2C, CDX2, CEBPA, CHD2, CHD4, CHEK2, CHST11, CIC, CLTC, CLTCL1, CNBD1, CNBP, COL2A1, CPEB3, CREB1, CREB3L1, CREB3L2, CRLF2, CRNKL1, CRTC1, CSF1R, CSF3R, CTCF, CTNNA2, CTNND1, CTNND2, CUL3, CUX1, CYLD, CYP2C8, CYSLTR2, DAXX, DCAF12L2, DCC, DDB2, DDR2, DDX10, DDX5, DDX6, DEK, DGCR8, DICER1, DNM2, DNMT3A, DROSHA, EBF1, ECT2L, EED, EGFR, EIF1AX, EIF3E, ELF3, ELF4, ELK4, ELL, EP300, EPAS1, EPHA3, EPHA7, EPS15, ERBB2, ERBB3, ERBB4, ERCC2, ERCC3, ERCC4, ERCC5, ERG, ESR1, ETNK1, ETV1, ETV4, ETV5, EWSR1, EXT1, EXT2, EZH2, FAM135B, FAM47C, FANCA, FANCC, FANCD2, FANCE, FANCF, FANCG, FAS, FAT1, FAT3, FAT4, FBLN2, FBXW7, FCGR2B, FCRL4, FEN1, FES, FEV, FGFR1, FGFR2, FGFR3, FGFR4, FH, FHIT, FKBP9, FLCN, FLNA, FLT3, FLT4, FOXL2, FOXO3, FOXO4, FOXP1, FOXR1, FSTL3, FUBP1, FUS, GATA1, GATA2, GLI1, GNA11, GNAQ, GNAS, GPC3, GPC5, GRIN2A, GRM3, H3-3A, H3-3B, H3C2, HEY1, HIF1A, HIP1, HLF, HMGA1, HMGA2, HNF1A, HNRNPA2B1, HOXA11, HOXA13, HOXA9, HOXC11, HOXC13, HOXD11, HOXD13, HRAS, IDH1, IDH2, IGF2BP2, IKBKB, IL6ST, IL7R, IRF4, IRS4, ISX, ITGAV, JAK1, JAK2, JAK3, JUN, KAT6A, KAT6B, KAT7, KCNJ5, KDM5C, KDR, KEAP1, KIT, KLF4, KLF6, KMT2A, KMT2C, KNL1, KNSTRN, KRAS, LARP4B, LATS1, LATS2, LCK, LEF1, LMO1, LMO2, LRIG3, LRP1B, LYL1, LZTR1, MACC1, MAF, MAFB, MALT1, MAML2, MAP2K2, MAP3K1, MAP3K13, MAPK1, MAX, MDM2, MDM4, MECOM, MED12, MET, MGMT, MITF, MLF1, MLH1, MLLT10, MN1, MPL, MRTFA, MSH2, MSH6, MSI2, MTCP1, MTOR, MUTYH, MYB, MYCL, MYCN, MYD88, MYH9, MYOD1, N4BP2, NAB2, NBEA, NBN, NCOA2, NCOA4, NCOR2, NDRG1, NF2, NFATC2, NFE2L2, NFKBIE, NKX2-1, NOTCH1, NOTCH2, NPM1, NR4A3, NRAS, NRG1, NSD2, NSD3, NT5C2, NTHL1, NTRK1, NTRK3, NUP98, NUTM1, OLIG2, P2RY8, PABPC1, PALB2, PATZ1, PAX3, PBX1, PCBP1, PDCD1LG2, PDGFB, PDGFRA, PDGFRB, PER1, PHF6, PHOX2B, PIK3CA, PIK3CB, PIK3R2, PLAG1, PLCG1, PML, PMS1, PMS2, POLD1, POLE, POLG, POLQ, POT1, POU2AF1, POU5F1, PPARG, PPM1D, PPP2R1A, PPP6C, PRDM1, PRDM16, PRDM2, PREX2, PRF1, PRKACA, PRKAR1A, PRKCB, PRPF40B, PSIP1, PTCH1, PTK6, PTPN11, PTPN13, PTPN6, PTPRB, PTPRC, PTPRD, PTPRK, PTPRT, QKI, RAC1, RAD17, RAD21, RAD51B, RAF1, RANBP2, RAP1GDS1, RARA, RBM10, RECQL4, REL, RET, RFWD3, RGPD3, RGS7, RIT1, RMI2, ROBO2, ROS1, RPL10, RPL22, RPL5, RSPO2, RSPO3, RUNX1, RUNX1T1, SALL4, SBDS, SDHA, SDHAF2, SDHB, SDHC, SET, SETBP1, SETD1B, SETD2, SETDB1, SF3B1, SFRP4,

SH2B3, SH3GL1, SIRPA, SIX1, SIX2, SKI, SLC34A2, SMAD2, SMAD3, SMARCB1, SMARCD1, SMARCE1, SMC1A, SMO, SND1, SOCS1, SOX2, SOX21, SOX9, SPEN, SPOP, SRC, SRSF2, SRSF3, SSX1, SSX2, SSX4, STAG1, STAG2, STAT3, STAT5B, STAT6, STIL, STK11, SUFU, SUZ12, SYK, TAF15, TAL1, TAL2, TBL1XR1, TBX3, TCF7L2, TEC, TENT5C, TET1, TET2, TFE3, TFEB, TGFBR2, TLX1, TLX3, TMEM127, TNC, TNFAIP3, TNFRSF14, TNFRSF17, TPM3, TRAF7, TRIM24, TRIM27, TRIM33, TRRAP, TSC1, TSC2, TSHR, U2AF1, UBR5, USP44, USP6, USP8, VAV1, WAS, WIF1, WNK2, WRN, WT1, WWTR1, XPA, XPC, XPO1, YWHAE, ZBTB16, ZEB1, ZFHX3, ZMYM3, ZNF331, ZNF429, ZNF479, ZNF521, ZNRF3, ZRSR2

Genes candidatos (región codificante)

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PANELES ONCOLOGÍA

Panel Oncología 2

Este panel analiza los genes canónicos y candidatos tanto en la **región codificante** como en la **no codificante**.

Genes región codificante y no codificante

I. **Genes región codificante (mismos que en el 'Panel 1')**

II. **Genes en la región no codificante**
   a. **Genes canónicos**

Mutaciones germinales con asociación a cáncer

APC, ASXL2, ATM, AXIN1, BCL2, BCL6, BCLAF1, BIRC3, CAMTA1, CBFB, CCNB1IP, CDH10, CIITA, CNOT3, CXCR4, DDIT3, DDX3X, ETV6, FUBP1, GATA3, KDM5A, KDM6A, LEPROTL1, MAP2K1, MAP2K4, MEN1, MYC, NCOR1, NF1, NFKB2, PAX5, PBRM1, PIK3R1, PIM1, PTEN, RB1, RHOH, RNF43, S100A7, SDHD, SFPQ, SGK1, STCL1A, TERT, TP53, TP63, VHL

Vejiga

LEPROTL1, TERT.

Linfoma de Burkit

ARID1A, BCL6, CCND3, CD79B, CREBBP, CXCR4, DDX3X, DNMT1, FBXO11, FOXO1, ID3, KMT2D, MYC, PIK3R1, PTEN, RHOA, SMARCA4, TCF3, TCL1A, TP53

Linfoma Folicular y DLBLC

B2M, BCL11A, BCL2, BCL6, BIRC3, CXCR4, FLI1, IKZF1, LPP, PAX5, RHOH, SGK1

Cáncer de Mama

CTNNB1, FOXA1, LEPROTL1

Melanoma y melanoma mucoso.

TERT

Colangiocarcinoma, Carcinoma hepatocelular.

AFF4, BCL6, TERT

Cáncer de células de Hürthle

TERT

b. Genes candidatos

Mutaciones germinales con asociación a cáncer

ACSM4, ADAMTS17, ADCY2, ADD2, ADGRG6, ADRB3, AHSA1, AKR1D1, ALB, ALOX12B, ALYREF, ANG, ANKRD16, ANKRD30BL, ANKRD50, ANXA2, ANXA8L1, AP2A1, AP3D1, API5, APMAP, AQP7, ARHGEF18, ARHGEF3, ASPSCR1, ASTN2, ASZ1, ATAD3B, ATG4B, ATP10D, ATP5MPL, ATP5PD, B3GALT6, BACH2, BAG4, BAGE2, BCL7A, BORA, BRDT, BUD23, C10orf90, C11orf49, C16orf91, C19orf53, C1orf159, C1orf185, C1orf194, C1QTNF1, C6orf62, C7, C8orf44-SGK3, CA10, CACNG6, CADM2, CALCB, CALCOCO1, CAST, CATIP, CBX6, CCDC107, CCDC124, CCDC66, CCDC77, CCK, CCL26, CD1A, CD2BP2, CD86, CDC20, CDC23, CDC37, CDC37L1, CDH8, CEP83, CGB2, CGB5, CHAF1B, CHD6, CHDH, CHKB, CHRM5, CILK1, CIPC, CLDN20, CLIC5, CLUAP1, CNDP2, COL21A1, COL4A2, COQ10B, COX7C, CPNE5, CR1, CRBN, CRELD2, CRP, DCAF15, DDX58, DEFB129, DEPDC4, DERL1, DGKB, DGKI, DHRS1, DHX16, EIF3G, ELOVL3, EN1, EPB41, EPB41L3, EPS8L1, ERGIC3, EVI2A, EXOC7, FAHD2B, FAM221B, FAM234A, FBF1, FBXO9, FCGR3A, FDX1, FDXR, FEM1A, FGB, FN3KRP, FOXP2, FRG1, FRG2B, FTH1, FUBP3, FXYD3, FSHR, FSTL5, G2E3, GABRA1, GABRA2, GALNTL5, GALNTL6, GATM, GDF5, GFRA1, GFRAL, GIMAP4, GLYAT, GNA15, GNAI1, GNG7, GOLGA2, GRAMD1B, GSK3A, GSTA4, GSTM5, H2AC17, H2AC6, H2BC5, HAPLN1, HDAC1, HDAC9, HES1, HLA-DQA1, HLA-DRB1, HLA-DRB5, HLA-F, HM13, HNRNPC, HOXC6, HSBP1, ICAM3, IFI44L, IFITM2, IFITM3, IGLL5, IQGAP1, IRAG2, ISCA2, KATNB1, KCNH5, KCNK1, KCNN2, KCNQ3, KCTD2, KDELR1, KDM1B, KLHL10, KLHL11, KLHL17, LAPTM4A, LDHAL6A, LEPR, LGSN, LILRB2, LIMD2, LMNTD2, LPAR3, LRRC45, LRRC75B, LRRN3, LRTM1, LRWD1, LY6K, LYPD8, MACROD2, MAGEC1, MALSU1, MAN2A1, MAP1S, MAP3K19, MAPRE3, MBD6, MBOAT2, MC1R, MCM5, MED16, MED31, MEF2C, METTL26, MFSD10, MKRN1, MOCS3, MORN1, MROH1, MROH2A, MRPL20, MRPL36, MRPS14, MRPS31, MRPS33, MTG2, MTRF1, MUC12, MUC3A, MUC4, MUSK, MYO5B, MYT1L, NANP, NBPF1, NBPF8, NDEL1, NDUFAF8, NDUFB9, NEUROG2, NFKBIZ, NME8, NOC2L, NOP53, NOS1, NOX4, NPAS3, NR1D2, NR1I2, NR5A1, NUMB, OBI1, ODF4, ONECUT2, OR10H2, OR1L1, OR1M1, OR2F2, OR4C5, OR4K17, OR51F2, OR7G3, OR8K5, OR9G1, OR9K2, OS9, OSBPL8, OXNAD1, PAAF1, PAPOLB, PARP2, PAX6, PCDH10, PCDH15, PCDH9, PCDHGA8, PCF11, PCMTD1, PDCD11, PDCD2, PDP2, PDZRN4, PELI3, PES1, PEX16, PHAX, PHF21A, PHYHD1, PIGC, PLCB2, PLEKHS1, POLR2D, POLR3E, PPP1R9B, PPP2R3A, PPP4C, PRAMEF4, PRKAG1, PRKCZ, PRKG1, PRMT5, PROZ, PRRC2B, PRRT3, PRSS3, PSMC3, PSMG4, PTDSS1, PTX3, QPRT, RAB11A, RAB14, RABEPK, RALY, RANBP10, RAVER1, RBFOX1, RCC1, REG1A, RESP18, RFLNB, RGCC, RGS18, RINL, RNASE11, RNASE4, RNF168, RNF185, RNF216, RNF26, RNF4, RNF40, RPE, RPIA, RPL13A, RPL18A, RPL34, RPS27, RPS27A, RRAS2, RS1, S100A7A, S100A8, SCYL2, SDCCAG8, SDF4, SEC14L1, SEC16A, SEMA3A, SEMA6A, SERPINB7, SESN2, SGCZ, SHF, SI, SIK3, SIRPD, SIRPG, SLAMF1, SLC12A5, SLC22A11, SLC22A2, SLC24A5, SLC25A17, SLC25A45, SLC30A6, SLC35G1, SLC35G2, SLC44A5, SLC66A1L, SLC6A9, SMUG1, SNRPD2, SNRPN, SNX16, SPAM1, SPANXN1, SPATA19, SPATA5L1, SPATC1L, SPI1, SPN, SQOR, SRSF9, SSBP1, ST6GAL1, STAG3, STIM2, SULT2B1, SUPT7L, SYF2, TAF11, TBC1D12, TBC1D22A, TBC1D29P, TBL2, TCAF1, TCF21, TCF4, TDRD5, TEDC2, TIGIT, TIPIN, TM4SF18, TMBIM6, TMC3, TMEM116, TMEM121B, TMEM128, TMEM160, TMEM179, TMEM208, TMEM210, TMEM63A, TMPRSS4, TMSB4X, TOB1, TOR1B, TOX3, TPRG1L, TPSAB1, TPTE, TRAF3IP3, TRAIP, TRAPPC2L, TRMT10C, TTC4, TUBA1C,

TYW1B, UBAC1, UBE2J2, UBXN7, UMPS, URB1, VAMP4, VCPIP1, VIPAS39, VIT, VPS51, VPS53, VSX2, WDR74, WLS, WNT5B, WRAP73, XCL2, XRCC5, YAE1, ZC3H18, ZC4H2, ZCCHC2, ZFP14, ZFP36L1, ZFPM1, ZKSCAN3, ZNF165, ZNF180, ZNF253, ZNF324, ZNF503, ZNF558, ZNF578, ZNF677, ZNF711, ZNF717, ZNF728, ZNF814, ZSCAN31, ZSCAN4, ZSWIM6

Cáncer de mama

ALDOA, CITED2, IRF2BP2, PIGY, PLEKHS1, TBC1D12, WDR74, ZNF143

Vejiga

ADGRG7, KCTD7, NDUFS7, PLEKHS1, PLXDC1, RABGEF1, TBC1D12, TSPAN18, WDR74

Linfoma de Burkitt

ADGRG7, BACH2, BCL7A, BMP7, BTG2, CD70, CHD8, DTX1, ETS1, FZD3, GNA13, GNAI2, H1-4, H2AC11, H2AC16, H2AC17, H2BC12, H4C11, HNRNPU, IGLL5, IKZF3, IRF8, KCNK10, MCL1, MME, PABPC4L, PCDHA10, RFX7, RNF144B, SIN3A, SNTB2, TFAP4, TMSB4X, USP7, WDR7, ZFP36L1

Carcinoma (cáncer) papilar tiroideo

FANK1, RHPN2

Colangiocarcinoma, Carcinoma hepatocelular.

C22orf35, GRIA2, LUC7L, MED16, MYOZ3, PRSS38, R3HDM4, SLC22A1, STUB1, TNFRSF8, TRPC6, VPS45, WDR74

Melanoma

BLCAP, CANX, CCDC9, CCN6, CCP110, CYP4A11, CYS1, ERGIC3, FIZ1, HRH4, IMPG2, KBTBD8, MED31, NSUN6, NUDT10, NUP50, PNPLA2, PSMD8, PSMF1, PTPA, RALY, RNF185, RPL29, RPS27, TBC1D13, TEDC2, TEX22, TGS1, UAP1, UBAC2, ZNF778, ZWINT

Adenocarcinoma de esófago

ABCG3, FTO, H2AC17, H2BC17, MMP24, MTERF3, MTG2, OPALIN, PTDSS1, RPGRIP1L, SDCCAG8, WDR74

Linfoma Folicular y DLBLC

ACTB, ADIPOQ, ARID5B, ATG3, BLK, BOD1, BTG2, BTLA, CCDC102B, CD200, CNTRL, COL28A1, CPEB4, CSMD3, DAAM1, DCK, DDX54, DISP1, DMXL1, DNAJB9, DTWD2, EAF2, EIF3G, EIF4A2, ERI1, ETS1, FAM167A, FAM177B, FDX1, FIGNL1, FLII, FRMD8, GATA4, GRHPR, GRSF1, GSDMA, H2BC11, H2BC3, HS2ST1, IGLL5, IKZF3, IMMP2L, INPP4B, IQCB1, IRF2BP2, IRF8, KRCC1, LRRC32, METTL7A, MFHAS1, MIOS, MOB1B, MRPL12, MS4A6E, NABP1, NAP1L1, NUBP1, PCDHB1, PLSCR2, PLXND1, PNPLA8, PNRC1, POLDIP3, POLM, RFC4, RFTN1, RPIA, RTTN, SCIN, SEC61G, SH3GLB1, SLC25A45,

SLC35A5, SLC9C1, SLITRK6, SPIB, ST6GAL1, THAP5, TIGD3, TMX3, TNFAIP8, TPRG1, TRAF1, ZBTB5, ZPBP2

Anexo I- Bibliografía

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