

Diagnostic significance of alternative splice variants of *REST* and *DOPEY1* in the peripheral blood of patients with breast cancer

Ave Kris Lend*^{1,2}, Anna Kazantseva*¹, Anri Kivil^{1,3}, Vahur Valvere^{2,4} and Kaia Palm^{2,3}

¹Protobios LLC, Mäealuse 4, Tallinn 12618, Estonia

²Competence Center for Cancer Research, Akadeemia tee 15, Tallinn 12618, Estonia

³The Department of Gene Technology, Tallinn University of Technology, Akadeemia tee 15, Tallinn 12618, Estonia

⁴Clinic of Hematology and Oncology, North Estonia Medical Center, J.Sütiste tee 19, Tallinn 13419, Estonia

To whom correspondence should be addressed: Kaia Palm, Protobios LLC, Mäealuse 4, Tallinn 12618, ESTONIA; Tel: +372 620 2222; E-mail: kaia@protobios.com

Ave Kris Lend, avekris@protobios.com

Anna Kazantseva, anna@protobios.com

Anri Kivil, anri@protobios.com

Vahur Valvere, Vahur.Valvere@regionaalhaigla.ee

* These authors contributed equally

Supplementary

Table S1 Alternatively spliced variants of 94 genes isolated from primary breast cancer tissue using RT-PCR

Gene name	RefSeq No	No of ASV cloned	Corresponding ESTs
ACP1	NM_007099	2	Y16846 NM_001040649
AR	NM_000044	0	
ASNS	NM_133436	1	BC030024
ATF4	NM_182810	0	
BAK1	NM_001188	0	
BAX	NM_138761	0	
BCAS1	NM_003657	0	
BCL2L1	NM_138578	1	NM_001191
BCL2L12	NM_001040668	1	BM556294
BID	NM_001196	2	NM_197967 BY795459
BRD3	NM_007371	0	
BTF3	NM_001037637	0	
BUB1	NM_004336	1	BF665520
C18ORF8	NM_013326	1	novel
C21ORF2	NM_004928	1	novel
CA11	NM_001217	3	all novel
CALML4	NM_033429	0	
CASP2	NM_032982	1	NM_032983
CASP8	NM_001228	0	
CASP9	NM_001229	1	DA909628
CBX3	NM_007276	0	
CCND1	NM_053056	1	novel
CCNH	NM_001239	1	AK094534
CD44	NM_001001389	2	NM_001001391 M83325
CD82	NM_002231	1	NM_001024844
CIB1	NM_006384	1	BU858110
CREB3L4	NM_130898	1	AY049977
CSE1L	NM_001316	1	AF053642
CWC27	NM_005869	0	
DDR1	NM_013994	4	all novel
DHX38	NM_014003	0	
DIABLO	NM_019887	0	
DMKN	NM_033317	1	BI860500
DNAJC8	NM_014280	0	
DOPEY1	NM_015018	1	BE816078
EPSTI1	NM_001002264	1	DA674114
FOXH1	NM_003923	1	BC051376
GABRG2	NM_198904	0	
GANAB	NM_198335	1	BG746316
GLRA2	NM_002063	1	novel
GPX2	NM_002083	0	
HMMR	NM_012484	1	NM_0123485
HNRPA2B1	NM_031243	1	NM_002137
ILK	NM_004517	1	DC302480
ITGA7	NM_002206	0	
ITGB5	NM_002213	0	
KLF5	NM_001730	0	
LETMD1	NM_015416	1	AY259836
LGALS9	NM_009587	1	NM_002308
LSR	NM_205834	0	

MAX	NM_002382	1	NM_145114
MLH1	NM_000249	2	BG036496 novel
MRPL18	NM_014161	2	AL037524 AK311391
MSH2	NM_000251	4	DQ648894 3 novel
MST1R	NM_002447	0	
NCAM1	NM_181351	0	
NEK3	NM_002498	0	
NEMF	NM_004713	2	BX648598 BX648753
NEO1	NM_004928	0	
NEURL	NM_004210	0	
NFIC	NM_205843	2	BX089119 NM_005597
PARVA	NM_018222	0	
POMT1	NM_007171	2	NM_001077365 DC314661
POU2F3	NM_014352	0	
PPARG	NM_138711	2	NM_138711 AB107271
PPP1R1B	NM_032192	1	novel
PRC1	NM_003981	1	BG827840
PRPF19	NM_014502	1	AA594255
PSMD1	NM_02807	0	
PTPN18	NM_014369	0	
PYCARD	NM_013258	0	
RELA	NM_021975	1	novel
REST	NM_005612	1	AF228045
RETNLB	NM_032579	0	
RIOK1	NM_031480	0	
SAE1	NM_005500	0	
SDCCAG8	NM_006642	1	AF039690
SF3B2	NM_006842	0	
SFRS7	NM_001031684	0	
SFRS9	NM_003769	0	
SLMO2	NM_016045	0	
SMARCA5	NM_003601	0	
SMARCB1	NM_003073	0	
SMARCC1	NM_003074	0	
SMARCC2	NM_003075	4	BG110302 NM_003075 NM_139067
SNAI1	NM_005985	0	
SPINT2	NM_021102	2	all novel
SUMF2	NM_001042468	0	
TCOF1	NM_000356	1	NM_001008656
TFE3	NM_006521	2	all novel
TGIF1	NM_170695	1	NM_173210
TNFRSF10B	NM_003842	1	NM_147187
TPD52	NM_001025252	1	AK057075
USH1C	NM_153676	2	BC016057 novel

Supplementary

Table S2 qRT-PCR primers used for detection of alternatively spliced variants in the peripheral blood of breast cancer patients and healthy individuals

Primer	Sense primer sequence 5'-3'	Antisense primer sequence 5'-3'
BUB1_BF665520	TTGAGGGCCATTCTACAACA	TGGACATAGACCAGCTTAGAACTTTC
C18orf8_novel	CGATCGATCCAGCCCTATC	GTGCACGGTGCCACACCTTA
CASP9_DA909628	GGAGGATTTGGTGATGTCGAGC	TGTCACTGGGTGTGGGCAAACATA
CCNH_AK094534	GCTTCCTCATCGACTTAAAGTTA	TGTGACAGGCAAGTTCTGTTCT
CREB3L4_DB003504	GTGGCTCCTGGCAAGAAG	ACTCTCTTGAAGGCCCGG
CSE1L_AI568159	CACCTGGCACAGTCACTTC	CTCACCATTGATGGAACCTGC
DOPEY1_BE816078	TTCAGCATGATGCACCTCAC	TAGCTCCACATCACGGTTTG
NEMF_BX648598	GTTACAATGCTGCTAAGAGG	TGACGTCACCATCAACATC
POMT1_BF981084	CTTTGAATCTCTGGCAGGTC	GTAGGTGTCCTGGTGGGAATGAA
PPARG_AB107271	GAAGCCTGCATTTCTGCATTC	GTCAACCATGGTCATTTCTAAG
PRC1_BG827840	CGCCATGAGGAGAAGGAAC	TGTTTTCGCATCAATTCCAC
REST_AF228045	TGGGGTATGGATAACCATTG	GAGGCCACATAACTGCACTG