

Sample	SAMPLE4	
Barcode	i800	
Run, R1, R2	i800_run1, 103, 57	
Run, R1, R2	i800_run2, 103, 151	
Beacon RT oligo	ggtgtcctaacttaacgcnnnnnnnnwssnnnnnnwswnnnnnnntcagatcgggaagacgctcgagagaagtggggtggctttt	ACTB
Beacon RT oligo	ggtgtcctaacttaacgcnnnnnnnnwssnnnnnnwswnnnnnnntcgaagatcgggaagacgctcgagagaagtggggtggctttt	ACTB
Beacon RT oligo	ggtgtcctaacttaacgcnnnnnnnnwssnnnnnnwswnnnnnnntcagtcagatcgggaagacgctcgagagaagtggggtggctttt	ACTB
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNTTACTCCTTGGAGCCATGT	GAPDH
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTANNNNNNWSSNNNNWNNNSWNNNNNNNTCTCTGAAGTTCACCTTGATGC	GFP
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTGANNNNNNWSSNNNNWNNNSWNNNNNNNACCATGGTCTTCTTCTGCATT	RFP
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNAGACGGAGAAGTCCACGATCT	GRIN2D
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNATGGCCAAAGTCCGCTATCTTG	CDK20
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTANNNNNNWSSNNNNWNNNSWNNNNNNNATGCCCTGGGTCTTACTCAC	TMEM234
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNATCCAAAGACCCGCTTCATC	FAM127B
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNTCTCACCAGCACTCCAACAG	HACD1
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTGANNNNNNWSSNNNNWNNNSWNNNNNNNATAGCGCTCGCTCAGGTAGA	IER5L
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTANNNNNNWSSNNNNWNNNSWNNNNNNNGTCTCTGGGCAAGGGCTTC	CDK25B
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNTAGATGGCAAAGACTTCAAC	POLR1E
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTGANNNNNNWSSNNNNWNNNSWNNNNNNNATCTGGGTCCACGAGGT	SECTM1
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTANNNNNNWSSNNNNWNNNSWNNNNNNNTGTGCCTCCCTTGCTGG	FAM3A
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNTCTCATGCGCAGAAAACAGTC	C6ORF52
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTGANNNNNNWSSNNNNWNNNSWNNNNNNNATGGGTGGGAGGAGTATTTC	PLP2
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNACCTTGATGTGAAAGGGGAGA	MEA1
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNTACTGGGAGTAGGACTGGTA	FAM170B
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTGANNNNNNWSSNNNNWNNNSWNNNNNNNATCCACCATCTCTCCTTTC	COL13A1
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNACCAGAAAAGCAAGGGCTCAG	MRPL14
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNATCCAGGCACCAATCTGA	C11ORF44
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTGANNNNNNWSSNNNNWNNNSWNNNNNNNATCCTGTACAGGCCACGAA	CCRL2
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNAACACATAACCGCAGCGACA	ZFAND3
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNTCGCAGTGGCAGAGCAGAGGAT	RRP36

Sample	SAMPLE5	
Barcode	i293	
Run, R1, R2	i293_run1, 103, 57	
Run, R1, R2	i293_run2, 103, 151	
Beacon RT oligo	ggtgtcctaacttaacgcnnnnnnnnwssnnnnnnwswnnnnnnntaagatcgggaagacgctcgagagaagtggggtggctttt	ACTB
Beacon RT oligo	ggtgtcctaacttaacgcnnnnnnnnwssnnnnnnwswnnnnnnntagatagatcgggaagacgctcgagagaagtggggtggctttt	ACTB
Beacon RT oligo	ggtgtcctaacttaacgcnnnnnnnnwssnnnnnnwswnnnnnnntagcaagatcgggaagacgctcgagagaagtggggtggctttt	ACTB
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNTTACTCCTTGGAGCCATGT	GAPDH
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTANNNNNNWSSNNNNWNNNSWNNNNNNNTCTCTGAAGTTCACCTTGATGC	GFP
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTGANNNNNNWSSNNNNWNNNSWNNNNNNNACCATGGTCTTCTTCTGCATT	RFP
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNAGACGGAGAAGTCCACGATCT	GRIN2D
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNATGGCCAAAGTCCGCTATCTTG	CDK20
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTANNNNNNWSSNNNNWNNNSWNNNNNNNATGCCCTGGGTCTTACTCAC	TMEM234
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNATCCAAAGACCCGCTTCATC	FAM127B
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNTCTCACCAGCACTCCAACAG	HACD1
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTGANNNNNNWSSNNNNWNNNSWNNNNNNNATAGCGCTCGCTCAGGTAGA	IER5L
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTANNNNNNWSSNNNNWNNNSWNNNNNNNGTCTCTGGGCAAGGGCTTC	CDK25B
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNTAGATGGCAAAGACTTCAAC	POLR1E
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTGANNNNNNWSSNNNNWNNNSWNNNNNNNATCTGGGTCCACGAGGT	SECTM1
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNTGTGCCTCCCTTGCTGG	FAM3A
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNATGGGTGGGAGGAGTATTTC	C6ORF52
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTGANNNNNNWSSNNNNWNNNSWNNNNNNNATGGGTGGGAGGAGTATTTC	PLP2
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNACCTTGATGTGAAAGGGGAGA	MEA1
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNTACTGGGAGTAGGACTGGTA	FAM170B
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTANNNNNNWSSNNNNWNNNSWNNNNNNNATCCACCATCTCTCCTTTC	COL13A1
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNACCAGAAAAGCAAGGGCTCAG	MRPL14
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNATCCAGGCACCAATCTGA	C11ORF44
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTGANNNNNNWSSNNNNWNNNSWNNNNNNNATCCTGTACAGGCCACGAA	CCRL2
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTACTNNNNNNWSSNNNNWNNNSWNNNNNNNAACACATAACCGCAGCGACA	ZFAND3
Target RT oligo	GGAGTTCAGACGTGTGCTCTCCGATCTTNNNNNNWSSNNNNWNNNSWNNNNNNNTCGCAGTGGCAGAGCAGAGGAT	RRP36

**TABLE S5: Oligonucleotides used for 24-plex samples during reverse transcription, related to Figure 5.** Genes previously found (see Klijn et al 2015, ranked <http://amp.pharm.mssm.edu/Harmonizome/>, CCLE Cell Line Gene Expression Profiles) enriched in BT-549 cells are highlighted red, and genes previously found enriched in MDA-MB-231 cells are highlighted green. Lower case nucleotides indicate sequence areas during read parsing for which a 6% error rate is accepted, whereas upper case nucleotides afford zero error tolerance. Read-lengths labeled R1 (beginning at the 3' end of the beacon UMI) and R2 (beginning at the 5' end of the target UMI) are shown. All reverse transcription oligonucleotides were obtained as ultramers from IDT Inc.