

## Product datasheet for **KN503085**

### Ceacam1 Mouse Gene Knockout Kit (CRISPR)

#### Product data:

Product Type:	Knockout Kits (CRISPR)
Format:	2 gRNA vectors, 1 linear donor
Donor DNA:	EF1a-GFP-P2A-Puro
Symbol:	Ceacam1
Locus ID:	26365



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**Components:**
**KN503085G1**, Ceacam1 gRNA vector 1 in pCas-Guide CRISPR vector (GE100002)

**KN503085G2**, Ceacam1 gRNA vector 2 in pCas-Guide CRISPR vector (GE100002)

**KN503085D**, Linear donor DNA containing LoxP-EF1A-tGFP-P2A-Puro-LoxP:

The sequence below is cassette sequence only. The linear donor DNA also contains proprietary target sequence.

LoxP-EF1A-tGFP-P2A-Puro-LoxP (2739 bp)

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ATAACTTCGT ATAATGTATG CTATACGAAG TTATCGTGG GCTCCGGTGC CCGTCAGTGG GCAGAGCGCA
CATCGCCAC AGTCCCGAG AAGTTGGGG GAGGGTCTGG CAATTGAACC GGTGCCTAGA GAAGGTGGCG
CGGGTAAC TGGAAAGTG ATGTCGTGTA CTGGCTCCG CTTTTCCCG AGGGTGGGG AGAACCGTAT
ATAAGTCAG TAGTCGCCG GAACGTTCT TTTCCGAAC GGTTCGCCG CAGAACACAG GTAAGTGCCG
TGTGTGGTC CCGCGGGCT GGCCTCTTA CGGGTTATG CCCTTGCGTG CCTTGAATTA CTTCCACCTG
GCTGCAGTAC GTGATTCTG ATCCCGAGCT TCGGGTTGGA AGTGGGTGG AGAGTTCGAG GCCTTGCCTG
TAAGGAGCCC CTTCGCCTG TGCTTGAGT GAGGCCTGG CTGGGCGTG GGGCCCGCG GTGCGAATCT
GGTGGCACCT TCGCGCCTG CTCGCTGCT TCGATAAGT TCTAGCCATT TAAAATTTT GATGACCTGC
TGCAGCGCT TTTTCTGGC AAGATAGTCT TGTAATGCG GGCCAAGATC TGCACACTGG TATTTGCGTT
TTTGGGGCG CGGGCGGCA CGGGGCCCG GCGTCCCAGC GCACATGTTC GGCAGGCGG GGCCTGCGAG
CGCGGCCACC GAGAATCGGA CGGGGTAGT CTAAGCTGG CCGGCCTGCT CTGGTGCCTG GCCTCGCGCC
GCCGTGTATC GCCCGCCCT GGGCGGAAG GCTGGCCCG TCGGCACCAG TTGCGTGAGC GGAAAGATGG
CCGTTCCCG GCCCTGTGC AGGGAGCTCA AAATGGAGGA CGCGCGCTC GGGAGAGCG GCGGGTGAAGT
CACCCACACA AAGGAAAAG GCCTTCCGT CCTCAGCCG CGCTTCATGT GACTCCACGG AGTACCGGGC
GCCCTCCAG CACCTCGAT AGTTCTGAG CTTTGGAGT ACGTCGTCT TAGTTGGGG GGAGGGGTTT
TATGCGATGG AGTTCCCCA CACTGAGTG GTGAGACTG AAGTTAGGCC AGCTTGGCAG TTGATGTAAT
TCTCCTTGA ATTTGCCCT TTTGAGTTG GATCTTGGT CATTCTCAAG CCTCAGACAG TGGTTCAAAG
TTTTTTCTT CCATTTCAAG TGTCGTGAAT GGAGAGCGAC GAGAGCGGCC TGCCCGCCAT GGAGATCGAG
TGCCGCATCA CCGGCACCCT GAACGGCGTG GAGTTCGAGC TGGTGGGCGG CGGAGAGGGC ACCCCCGAGC
AGGGCCGCAT GACCAACAAG ATGAAGAGCA CCAAAGGCGC CCTGACCTTC AGCCCTACC TGCTGAGCCA
CGTGATGGC TACGGCTTCT ACCACTTCG CACCTACCC AGCGGCTACG AGAACCCCTT CCTGCACGCC
ATCAACAACG GCGGCTACAC CAACACCCG ATCGAGAAGT ACGAGGACGG CGGCGTGCTG CACGTGAGCT
TCAGCTACCG CTACGAGGCC GGCCGCGTA TCGGCGACTT CAAGGTGATG GGCACCGGCT TCCCGGAGGA
CAGCGTGATC TTCACCGACA AGATCATCCG CAGCAACGCC ACCGTGGAGC ACCTGCACCC CATGGCGGAT
AACGATCTGG ATGGCAGCTT CACCCGACC TTCAGCCTGC GCGACGGCGG CTACTACAGC TCCGTGGTGG
ACAGCCACAT GCACTTCAAG AGCGCCATCC ACCCCAGCAT CCTGCAGAAC GGGGGCCCA TGTTCCCTT
CCGCCCGTG GAGGAGGATC ACAGCAACAC CGAGTGGGG ATCGTGGAGT ACCAGCACGC CTTCAAGACC
CCGGATGAG ATGCCGGTGA AGAAAGAGGA AGCGGAGCTA CTAACCTCAG CTTGCTGAAG CAGGCTGGAG
ACGTGGAGGA GAACCTGGA CCTATGACCG AGTACAAGC CACGGTGC GCCTGCCACC GCGACGACGT
CCCCAGGGC GTACGCACC TCGCCGCCG GTTCGCCGAC TACCCGCCA CGGCCACAC CGTCGATCCG
GACCGCCACA TCGAGCGGT CACCGAGCT CAAGAATCT TCCTCACGG CGTCGGGTC GACATCGCA
AGGTGTGGT CGCGGACGAC GGCGCCGGG TGGCGTCTG GACCAGCCG GAGAGCGTC AAGCGGGGGC
GGTGTTCGC GAGATCGGC CGCGCATGG CGAGTTGAGC GGTTCGGG TGGCCCGCA GCAACAGATG
GAAGCCCTC TGCGCCGCA CCGGCCAAG GAGCCCGCT GTTCTCTGG CACCCTCGG GTCTCGCCG
ACCACCAGG CAAGGTCTG GGCAGCGCG TCGTGTCCC CGGAGTGGAG GCGGCCGAGC GCGCCGGGT
GCCCGCTT CTGGAGACT CCGCGCCCG CAACCTCCC TTCTACGAG GGCTCGGCT CACCGTCACC
GCCGACGTC AGGTGCCGA AGGACCGCG ACCTGGTGA TGACCCGCA GCCCGGTGCC TGAACTTGT
TTATTGCAG TTATAATGG TACAAATAA GCAATAGCAT CACAAATTC ACAAATAAG CATTTTTTT
ACTGCATTCT AGTTGTGGT TGTCCAACT CATCAATGA TCTTAATAA TTCGTATAAT GTATGCTATA CGAAGTTAT
    
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<b>Disclaimer:</b>	These products are manufactured and supplied by OriGene under license from ERS. The kit is designed based on the best knowledge of CRISPR technology. The system has been functionally validated for knocking-in the cassette downstream the native promoter. The efficiency of the knock-out varies due to the nature of the biology and the complexity of the experimental process.
<b>RefSeq:</b>	<a href="#">NM_001039185</a> , <a href="#">NM_001039186</a> , <a href="#">NM_001039187</a> , <a href="#">NM_011926</a>
<b>UniProt ID:</b>	<a href="#">P31809</a>
<b>Synonyms:</b>	bb-1; Bgp; Bgp1; C-CAM; Cc1; CD66a; Cea-1; Cea-7; Cea1; Cea7; Hv-2; Hv2; mCEA1; Mhv-1; MHVR; MHVR1
<b>Summary:</b>	<p>Isoform 1: Cell adhesion protein that mediates homophilic cell adhesion in a calcium-independent manner (By similarity). Plays a role as coinhibitory receptor in immune response, insulin action and functions also as an activator during angiogenesis (PubMed:16680193, PubMed:17081782, PubMed:18544705, PubMed:21029969, PubMed:21081647, PubMed:22496641, PubMed:22962327, PubMed:23696226). Its coinhibitory receptor function is phosphorylation- and PTPN6 -dependent, which in turn, suppress signal transduction of associated receptors by dephosphorylation of their downstream effectors (PubMed:17081782, PubMed:21029969, PubMed:22496641). Plays a role in immune response, of T-cells, natural killer (NK) and neutrophils (PubMed:17081782, PubMed:23696226, PubMed:22496641, PubMed:21029969). Upon TCR/CD3 complex stimulation, inhibits TCR-mediated cytotoxicity by blocking granule exocytosis by mediating homophilic binding to adjacent cells, allowing interaction with and phosphorylation by LCK and interaction with the TCR/CD3 complex which recruits PTPN6 resulting in dephosphorylation of CD247 and ZAP70 (PubMed:22496641). Also inhibits T-cell proliferation and cytokine production through inhibition of JNK cascade and plays a crucial role in regulating autoimmunity and anti-tumor immunity by inhibiting T-cell through its interaction with HAVCR2 (PubMed:17081782). Upon natural killer (NK) cells activation, inhibit KLRK1-mediated cytotoxicity of CEACAM1-bearing tumor cells by trans-homophilic interactions with CEACAM1 on the target cell and lead to cis-interaction between CEACAM1 and KLRK1, allowing PTPN6 recruitment and then VAV1 dephosphorylation (PubMed:23696226). Upon neutrophils activation negatively regulates IL1B production by recruiting PTPN6 to a SYK-TLR4-CEACAM1 complex, that dephosphorylates SYK, reducing the production of reactive oxygen species (ROS) and lysosome disruption, which in turn, reduces the activity of the inflammasome (PubMed:22496641). Downregulates neutrophil production by acting as a coinhibitory receptor for CSF3R by downregulating the CSF3R-STAT3 pathway through recruitment of PTPN6 that dephosphorylates CSF3R (PubMed:21029969). Also regulates insulin action by promoting INS clearance and regulating lipogenesis in liver through regulating insulin signaling (PubMed:18544705). Upon INS stimulation, undergoes phosphorylation by INSR leading to INS clearance by increasing receptor-mediated insulin endocytosis. This internalization promotes interaction with FASN leading to receptor-mediated insulin degradation and to reduction of FASN activity leading to negative regulation of fatty acid synthesis. INSR-mediated phosphorylation also provokes a down-regulation of cell proliferation through SHC1 interaction resulting in decrease coupling of SHC1 to the</p>

MAPK3/ERK1-MAPK1/ERK2 and phosphatidylinositol 3-kinase pathways (By similarity). Functions as activator in angiogenesis by promoting blood vessel remodeling through endothelial cell differentiation and migration and in arteriogenesis by increasing the number of collateral arteries and collateral vessel calibers after ischemia (PubMed:16680193, PubMed:22962327). Also regulates vascular permeability through the VEGFR2 signaling pathway resulting in control of nitric oxide production (PubMed:21081647). Downregulates cell growth in response to EGF through its interaction with SHC1 that mediates interaction with EGFR resulting in decrease coupling of SHC1 to the MAPK3/ERK1-MAPK1/ERK2 pathway (PubMed:15467833). Negatively regulates platelet aggregation by decreasing platelet adhesion on type I collagen through the GPVI-FcRgamma complex (PubMed:19008452). Inhibits cell migration and cell scattering through interaction with FLNA; interferes with the interaction of FLNA with RALA (By similarity). Mediates bile acid transport activity in a phosphorylation dependent manner (By similarity). Negatively regulates osteoclastogenesis (PubMed:25490771).[UniProtKB/Swiss-Prot Function]

**Product images:**

