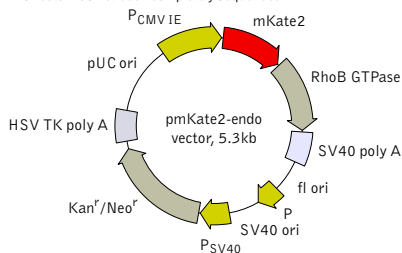


## pmKate2-endo vector

The vector sequence has been compiled using the information from sequence databases, published literature, and other sources, together with partial sequences obtained by Evrogen. This vector has not been completely sequenced.



For vector sequence, please visit our Web site at <http://www.evrogen.com/support/vector-info.shtml>

### Location of features

P<sub>CMV IE</sub>: 1-589  
 Enhancer region: 59-465  
 TATA box: 554-560  
 Transcription start point: 583  
 mKate2-RhoB GTPase fusion  
 Start codon (ATG): 613-615  
 Start of mKate2 coding sequence (ATG): 613-615  
 Last amino acid in mKate2: 1312-1314  
 c-Myc epitope: 1357-1359  
 RhoB GTPase: 1383-1968  
 Stop codon: 1969-1971  
 SV40 early mRNA polyadenylation signal  
 Polyadenylation signals: 2163-2168 & 2192-2197  
 mRNA 3' ends: 2201 & 2213  
 f1 single-strand DNA origin: 2260-2715  
 Bacterial promoter for expression of Kan<sup>r</sup> gene  
 -35 region: 2777-2782; -10 region: 2800-2805  
 Transcription start point: 2812  
 SV40 origin of replication: 3056-3191  
 SV40 early promoter  
 Enhancer (72-bp tandem repeats): 2889-2960 & 2961-3032  
 21-bp repeats: 3036-3056, 3057-3077 & 3079-3099  
 Early promoter element: 3112-3118  
 Major transcription start points: 3108, 3146, 3152 & 3157  
 Kanamycin/neomycin resistance gene  
 Neomycin phosphotransferase coding sequences:  
 Start codon (ATG): 3240-3242; Stop codon: 4032-4034  
 G->A mutation to remove Pst I site: 3422  
 C->A (Arg to Ser) mutation to remove BssH II site: 3768  
 Herpes simplex virus (HSV) thymidine kinase (TK) polyadenylation signal  
 Polyadenylation signals: 4270-4275 & 4283-4288  
 pUC plasmid replication origin: 4619-5262

### References

Adamson et al. (1992) "Intracellular localization of the P21rho proteins." *J Cell Biol*, 119 (3): 617-627 / pmid: 1383236

Gorman (1985). "High efficiency gene transfer into mammalian cells." In: *DNA cloning: A Practical Approach, Vol. II*. Ed. by Glover. (IRL Press, Oxford, U.K.) Pp. 143-190.

Haas et al. (1996) "Codon usage limitation in the expression of HIV-1 envelope glycoprotein." *Curr Biol*, 6 (3): 315-324 / pmid: 8805248

Product	Cat.#	Size
pmKate2-endo vector	<b>FP314</b>	20 µg
The price does not include delivery. The price varies in different countries. Please contact your local distributor for exact prices and delivery information.		
Vector type	mammalian expression vector	
Reporter	mKate2	
Reporter codon usage	mammalian	
Promoter for mKate2	P <sub>CMV IE</sub>	
Host cells	mammalian	
Selection	prokaryotic - kanamycin eukaryotic - neomycin (G418)	
Replication	prokaryotic - pUC ori eukaryotic - SV40 ori	
Use	far-red fluorescent labeling of vesicles of the endocytic pathway	

### Vector description

pmKate2-endo is a mammalian expression vector intended for far-red fluorescent labeling of vesicles of the endocytic pathway [Adamson et al. 1992], allowing the monitoring of intracellular membrane traffic during endocytosis in living cells. The vector encodes far-red fluorescent protein mKate2 targeted to endosomes by human RhoB GTPase fused to the mKate2 C-terminus. The fusion also contains c-Myc epitope tag.

mKate2 codon usage is optimized for high expression in mammalian cells, i.e. humanized (Haas et al. 1996).

pmKate2-endo can be used as a source of mKate2-RhoB hybrid sequence. The vector backbone contains unique restriction sites that permit its excision and further insertion into expression vector of choice.

**Note:** The plasmid DNA was isolated from dam<sup>m</sup>-methylated *E. coli*. Therefore some restriction sites are blocked by methylation. If you wish to digest the vector using such sites you will need to transform the vector into a dam<sup>-</sup> host and make fresh DNA.

The vector backbone contains immediate early promoter of cytomegalovirus (P<sub>CMV IE</sub>) for protein expression, SV40 origin for replication in mammalian cells expressing SV40 T-antigen, pUC origin of replication for propagation in *E. coli* and f1 origin for single-stranded DNA production. SV40 polyadenylation signals (SV40 poly A) direct proper processing of the 3'-end of the reporter mRNA.

SV40 early promoter (P<sub>SV40</sub>) provides neomycin resistance gene (Neo<sup>r</sup>) expression to select stably transfected eukaryotic cells using G418. Bacterial promoter (P) provides kanamycin resistance gene expression (Kan<sup>r</sup>) in *E. coli*. Kan<sup>r</sup>/Neo<sup>r</sup> gene is linked with herpes simplex virus (HSV) thymidine kinase (TK) polyadenylation signals.

### Expression in mammalian cells

pmKate2-endo can be transfected into mammalian cells by any known transfection method. CMV promoter provides strong, constitutive expression of the mKate2-RhoB fusion in eukaryotic cells. If required, stable transformants can be selected using G418 [Gorman 1985].

### Propagation in *E. coli*

Suitable host strains for propagation in *E. coli* include DH5alpha, HB101, XL1-Blue, and other general purpose strains. Plasmid incompatibility group is pMB1/ColE1. The vector confers resistance to kanamycin (30 µg/ml) to *E. coli* hosts. Copy number in *E. coli* is about 500.

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