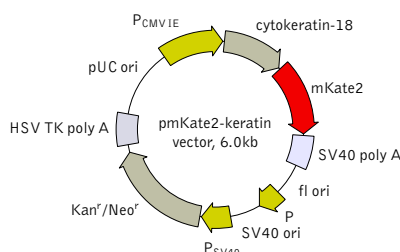


pmKate2-keratin vector

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/products/vectors.shtml>

Location of features

P_{CMV IE}: 1-589
 Enhancer region: 59-465
 TATA box: 554-560
 Transcription start point: 583
 Keratin-mKate2 fusion: 600-2636
 Keratin: 600-1889
 Start codon (ATG): 600-602
 Last amino acid in Keratin: 1887-1889
 mKate2: 1941-2636
 Stop codon: 2637-2639
 SV40 early mRNA polyadenylation signal
 Polyadenylation signals: 2792-2797 & 2821-2826
 mRNA 3' ends: 2830 & 2842
 f1 single-strand DNA origin: 2889-3344
 Bacterial promoter for expression of Kan^r gene
 -35 region: 3406-3411; -10 region: 3429-3434
 Transcription start point: 3441
 SV40 origin of replication: 3685-3820
 SV40 early promoter
 Enhancer (72-bp tandem repeats): 3518-3589 & 3590-3661
 21-bp repeats: 3665-3685, 3686-3706 & 3708-3728
 Early promoter element: 3741-3747
 Major transcription start points: 3737, 3775, 3781 & 3786
 Kanamycin/neomycin resistance gene
 Neomycin phosphotransferase coding sequences:
 Start codon (ATG): 3869-3871; Stop codon: 4661-4663
 G->A mutation to remove Pst I site: 4051
 C->A (Arg to Ser) mutation to remove BssH II site: 4397
 Herpes simplex virus (HSV) thymidine kinase (TK) polyadenylation signal
 Polyadenylation signals: 4899-4904 & 4912-4917
 pUC plasmid replication origin: 5248-5891

Product	Cat. #	Size
pmKate2-keratin vector	FP319	20 µg
Vector type	mammalian expression vector	
Reporter	mKate2	
Reporter codon usage	mammalian	
Promoter for mKate2	P _{CMV IE}	
Host cells	mammalian	
Selection	prokaryotic - kanamycin eukaryotic - neomycin (G418)	
Replication	prokaryotic - pUC ori eukaryotic - SV40 ori	
Use	far-red fluorescent labeling of cytokeratin-18	

Vector description

pmKate2-keratin is a mammalian expression vector encoding mKate2-keratin fusion protein. The vector can be used for fluorescent labeling of cytokeratin-18 in living cells.

mKate2 codon usage is optimized for high expression in mammalian cells (humanized) [Haas et al. 1996]. Human cytokeratin-18 is fused to the mKate2 N-terminus.

pmKate2-keratin vector can be used as a source of mKate2-keratin 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⁺-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⁻ host and make fresh DNA.

The vector backbone contains immediate early promoter of cytomegalovirus (P_{CMV IE}) 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_{SV40}) provides neomycin resistance gene (Neo^r) expression to select stably transfected eukaryotic cells using G418. Bacterial promoter (P) provides kanamycin resistance gene expression (Kan^r) in *E. coli*. Kan^r/Neo^r gene is linked with herpes simplex virus (HSV) thymidine kinase (TK) polyadenylation signals.

Expression in mammalian cells

pmKate2-keratin vector can be transfected into mammalian cells by any known transfection method. CMV promoter provides strong, constitutive expression of the mKate2-keratin 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.

References

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

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MSDS information is available at <http://www.evrogen.com/MSDS.shtml>