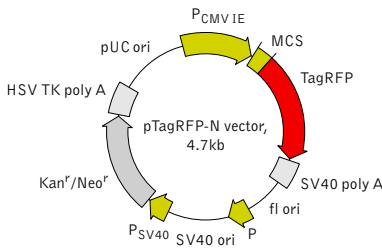


pTagRFP-N vector

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>

Multiple cloning site (MCS)

... G. CTA. GCG. CTA. CCG. GAC. TCA. GAT. CTC. GAG. CTC. AAG. CTT. CGA. ATT. CTG. CAG. TCG. ACG. GTA. CCG. CGG. GCC. CGG. GAT. CCA. CCG. GTC. GCC. ACC. ATG. G . . .

* — not unique site.

Location of features

P_{CMV} IE: 1-589
 Enhancer region: 59-465
 TATA box: 554-560
 Transcription start point: 583
 MCS: 591-671
 TagRFP
 Kozak consensus translation initiation site: 672-682
 Start codon (ATG): 679-681; Stop codon: 1390-1392
 SV40 early mRNA polyadenylation signal
 Polyadenylation signals: 1542-1547 & 1571-1576
 mRNA 3' ends: 1580 & 1592
 f1 single-strand DNA origin: 1639-2094
 Eukaryotic promoter for expression of Kan^r gene
 -35 region: 2156-2161; -10 region: 2179-2184
 Transcription start point: 2191
 SV40 origin of replication: 2435-2570
 SV40 early promoter
 Enhancer (72-bp tandem repeats): 2268-2339 & 2340-2411
 21-bp repeats: 2415-2435, 2436-2456 & 2458-2478
 Early promoter element: 2491-2497
 Major transcription start points: 2487, 2525, 2531 & 2536
 Kanamycin/neomycin resistance gene
 Neomycin phosphotransferase coding sequences:
 Start codon (ATG): 2619-2621; Stop codon: 3411-3413
 G->A mutation to remove Pst I site: 2801
 C->A (Arg to Ser) mutation to remove BssH II site: 3147
 Herpes simplex virus (HSV) thymidine kinase (TK) polyadenylation signal
 Polyadenylation signals: 3649-3654 & 3662-3667
 pUC plasmid replication origin: 3998-4641

References

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

Kozak (1987) "An analysis of 5'-noncoding sequences from 699 vertebrate messenger RNAs." *Nucleic Acids Res*, 15 (20): 8125-8148 / pmid: 3313277

Product	Cat.#	Size
pTagRFP-N vector	FP142	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	TagRFP	
Reporter codon usage	mammalian	
Promoter for TagRFP	P _{CMV} IE	
Host cells	mammalian	
Selection	prokaryotic - kanamycin eukaryotic - neomycin (G418)	
Replication	prokaryotic - pUC ori eukaryotic - SV40 ori	
Use	TagRFP expression in mammalian cells; generation of fusions to the TagRFP N-terminus	

Vector description

pTagRFP-N is a mammalian expression vector encoding red (orange) fluorescent protein TagRFP. The vector allows generation of fusions to the TagRFP N-terminus and expression of TagRFP fusions or TagRFP alone in eukaryotic (mammalian) cells.

TagRFP codon usage is optimized for high expression in mammalian cells (humanized) [Haas et al. 1996]. To increase mRNA translation efficiency, Kozak consensus translation initiation site is generated upstream of TagRFP sequence [Kozak 1987]. Multiple cloning site (MCS) is located between P_{CMV} IE and TagRFP coding sequence.

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.

Generation of TagRFP-tagged fusions

A localization signal or a gene of interest should be cloned into MCS of the vector. It will be expressed as a fusion to the TagRFP N-terminus when inserted in the same reading frame as TagRFP and no in-frame stop codons are present. The inserted sequence should contain an initiating ATG codon. TagRFP-tagged fusions retain fluorescent properties of the native protein allowing fusion localization *in vivo*. Unmodified vector will express TagRFP, when transfected into eukaryotic (mammalian) cells.

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.

Expression in mammalian cells

pTagRFP-N vector can be transfected into mammalian cells by any known transfection method. 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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