

DECIPHER pRSI12-U6-sh-UbiC-TagRFP-2A-Puro-W Vector Features

| Feature | Location | Function | Source |
|--|-----------------|---|--|
| Rous Sarcoma Virus (RSV) enhancer/promoter | 7 - 233 | Allows Tat-independent production of viral mRNA (Dull et al., 1998). | Rous sarcoma virus |
| HIV-1 truncated 5' LTR | 233 - 413 | Permits viral packaging and reverse transcription of the viral mRNA (Luciw, 1996). | HIV-1 |
| HIV-1 psi (ψ) packaging signal | 569 - 922 | Allows viral packaging (Luciw, 1996). | HIV-1 |
| HIV-1 Rev response element (RRE) | 1072 - 1370 | Permits Rev-dependent nuclear export of unspliced viral mRNA (Kjems et al., 1991; Malim et al., 1989). | HIV-1 |
| U6 | 1803 - 2064 | Human U6 promoter drives RNA Polymerase III transcription for generation of shRNA transcripts. | Human |
| cPPT | 2138 - 2255 | Central polypurine tract, cPPT, improves transduction efficiency by facilitating nuclear import of the vector's preintegration complex in the transduced cells. | HIV-1 |
| UbiC promoter | 2336 - 2734 | Ubiquitin C promoter drives expression of TagRFP and PuroR | Human |
| TagRFP | 2748 - 3458 | TagRFP fluorescent protein (Evrogen) serves as an indicator of successful transduction | sea anemone <i>Entacmaea quadricolor</i> |
| 2A (T2A) | 3465 - 3518 | Thosea asigna virus 2A translational cleavage site containing 18 amino acid residues. Cleavage occurs via a co-translational ribosome skipping mechanism between the C-terminal Glycin and Prolin residues, leaving 17 residues attached to the end of copGFP and 1 residue to the start of the puromycin resistance marker | Thosea asigna virus |
| PuroR | 3525 - 4121 | Puromycin-resistant marker for selection of the transduced cells | <i>Streptomyces alboniger</i> |
| WPRE | 4137 - 4727 | Woodchuck hepatitis virus posttranscriptional regulatory element—enhances the stability of viral transcripts. | Woodchuck hepatitis virus |
| Δ U3/HIV-1 truncated 3' LTR | 4734 - 5047 | 3' Self-inactivating long terminal repeat. Allows viral packaging but self-inactivates the 5' LTR for biosafety purposes (Dull et al., 1998). The element also contains a polyadenylation signal for transcription termination and polyadenylation of mRNA in transduced cells. Required for viral reverse transcription; self- inactivating 3' LTR with deletion in U3 region prevents formation of replication-competent viral particles after integration into genomic DNA | HIV-1 |
| SV40 polyadenylation signal | 5104 - 5235 | Allows transcription termination and polyadenylation of mRNA. | SV40 |
| SV40 Ori | 5265 - 5411 | Allows for episomal replication of plasmid in eukaryotic cells | SV40 |
| AmpR | 6594 - 7454 (c) | Ampicillin resistance gene (β -lactamase) for selection of plasmid in bacterial cells | bacterium <i>Salmonella paratyphi</i> |
| pUC ori | 5835 (c) | pUC bacterial origin of replication. | pUC |

* (c): element on complementary strand