Product Specification Sheet

Product Name	**pAAVS1-SA-T2A-Neo-CAG-rtTA-SV40pA-TRE-MCS-SV40pA Donor Vector**
Description	Human AAVS1 inducible gene expression donor vectors are meticulously designed to target the human AAVS1 "safe harbor" site for inducible gene expression. The AAVS1 safe harbor site is located within intron 1 of the PPP1R12C gene (protein phosphatase 1 regulatory subunit 12C). This specific locus is labeled a "safe harbor" due to its minimal impact on cellular functions. It excels in facilitating strong transcription, serving as an optimal location to uphold the expression of an externally introduced gene while reducing the chance of unintended integration in other regions. Our latest-generation inducible gene expression cassette is based on the incorporation of a multiple cloning site (MCS) which strategically positioned downstream of a TRE promoter and upstream of a poly-A tail. The well-known Tet-On gene inducible system is a molecular biology tool that allows precise control of gene expression. It responds to specific signals, tetracycline, enabling researchers to turn genes on or off when needed. This system is essential for studying gene function, creating conditional knockout models, and regulating transgene expression in various cells. In this donor vector, the gene of interest (GOI) is situated downstream of the Tet Response Element (TRE) and upstream of the poly-A signal. Moreover, a CAG promoter is utilized for expressing the reverse tetracycline-controlled transactivator (rtTA), which, when combined with tetracycline, activates the TRE function and ensures the effective operation of the TRE element. This arrangement ensures a streamlined and straightforward path to control enduring and strong expression of the GOI by tetracycline. Furthermore, leveraging the intronic location of the AAVS1 safe harbor locus, the neomycin selection marker is thoughtfully integrated with a splice acceptor (SA) site, devoid of its own promoter. This design guarantees that neomycin-resistant gene expression can only occur when the construct integrates within an intron. Consequently, neomycin-resistant gene expression becomes intricately linked to the PPP1R12C transcript, significantly reducing the risk of unintended off-target integrations when employing G418 selection. When this vector used in conjunction with the SpCas9 nuclease and gRNA expression vector, it enables the seamless integration of the GOI into the AAVS1 safe harbor site, simplifying the inducible expression of the GOI by Tet-On system.
Catalog Number	AI3902
Size	10 µg at 0.5 µg/µL in TE
Shipping	Room temperature

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Storage and Stability	Store at -20°C immediately upon receipt. This product is stable for 6 months when stored as directed.
Quality Control	This plasmid is sequence verified.
Safety Precaution	This product does not contain any hazardous materials with occupational exposure limits. Nevertheless, ALSTEM strongly advises anyone handling this product to use suitable protective eyewear, such as chemical safety goggles or protective glasses, along with gloves and appropriate clothing to prevent skin contact.
Restricted Use	For Research Use Only. Not for use in diagnostic or therapeutic procedures.

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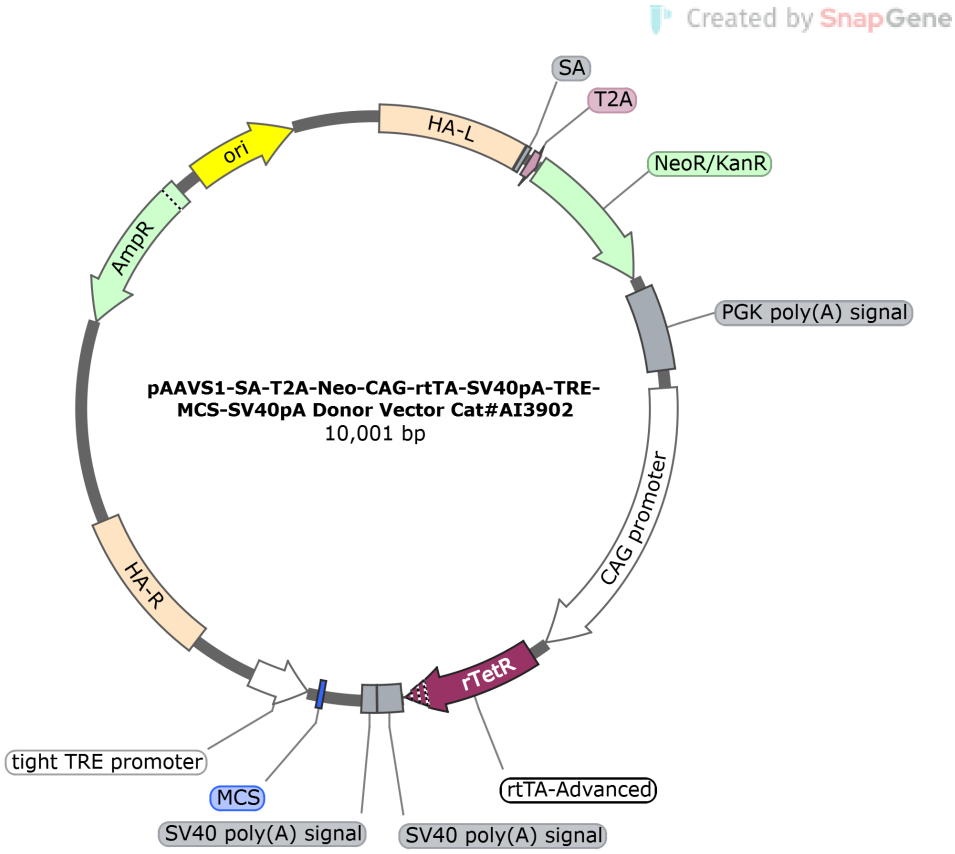
Vector Information

This AAVS1 inducible gene expression donor vector contains the necessary elements for introducing an inducible GOI (gene of interest) to the AAVS1 Safe Harbor site. A ubiquitous SA-T2A-Neo cassette ensures the intergration of the GOI in AAVS1 safe harbor site by antibiotic selection. The GOI is situated downstream of the Tet Response Element (TRE) and upstream of the polyA signal. Moreover, a CAG promoter is utilized for expressing the reverse tetracycline-controlled transactivator (rtTA), ensuring the TRE's proper activation when combined with doxycycline and the overall effectiveness of the TRE element.



*Note: Bacterial culture of AAVS1 vectors should be done in medium containing **100 µg/mL** Carbenicillin. For maximal plasmid yield and quality, we recommend Stbl3 competent cells (Invitrogen).*

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IMPORTANT NOTICE

Store the vial at -20°C immediately upon receipt.

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