

AAVS1 SAFE HARBOR TARGETING SYSTEM

TOOLS FOR CONTROLLED INTEGRATION INTO THE AAVS1 SAFE HARBOR SITE

SYSTEMBIO.COM/AAVS1

HIGHLIGHTS

- **Easy knock-in of any gene**
- **Precise, site-specific gene integration**
 - Consistent, robust transgene expression
 - Simplified construction of isogenic cell lines
- **Minimal off-target integration**
- **Streamlined CRISPR/Cas9 library screening**

We Also Offer Custom Services

System Biosciences offers a wide-range of custom services to support your research, allowing you to spend less time making tools, and more time making discoveries. To learn more, visit our website at www.systembio.com/services or call us at 888-266-5066.

Delivering consistent, robust transgene expression, the AAVS1 safe harbor site is a preferred target for gene knock-ins. Insertion at the site has been shown to be safe with no phenotypic effects reported, and the surrounding DNA appears to be kept in an open confirmation, enabling stable expression of a variety of transgenes.

System Biosciences (SBI) now offers a wide range of tools to help researchers accelerate their research using the power of the AAVS1 safe harbor site.

Simplify stable cell line creation—reporter lines, any gene of interest, tissue-specific expression, and more

With our new line of AAVS1 donor vectors, you have a number of options for integrating your gene-of-interest into the AAVS1 safe harbor site. For constitutive expression of any gene of interest, we offer a vector with a multiple cloning site (MCS) downstream of the EF-1 promoter and upstream of a poly-A tail (AAVS1-SA-puro-EF1-MCS donor, Cat # GE622A-1).



Or, to insert any gene or promoter-gene combination, we have the same donor vector without any promoter, simply an MCS upstream of a poly-A tail (AAVS1-MCS donor-SA-puro, Cat # GE620A-1).



We've also simplified reporter cell line creation with an AAVS1 donor vector with an MCS upstream of GFP—just add your promoter of choice for tissue-specific or other type of conditional GFP expression (AAVS1-MCS-GFP-donor-SA-puro, Cat# GE624A-1).



System Biosciences
Harnessing innovation to drive discoveries

AAVS1 Safe Harbor Site Targeting System

The clever design of the AAVS1 donor vectors limits **off-target integration** for highly-specific targeting of the AAVS1 site. Taking advantage of the AAVS1's location within an intron, the puromycin marker has only a splice acceptor site and no promoter. Expression of puromycin can only occur when the construct integrates within an intron, reducing the probability of recovering off-target integrants in the presence of puromycin selection.

Our donor vectors are designed to work in tandem with our AAVS1 gRNA/Cas9 expression vector (Cat #CAS601A-1), which encodes a pre-validated gRNA specific for AAVS1 and the PrecisionX™ Cas9 SmartNuclease®. Simply co-transfect cells with the AAVS1 gRNA/Cas9 expression vector and your AAVS1 donor construct of choice for targeted integration.

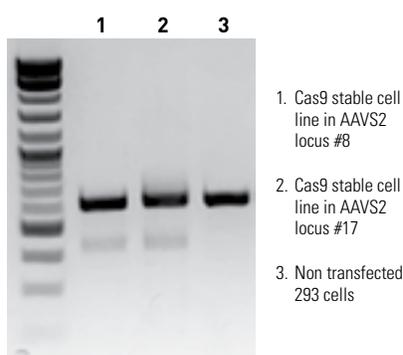
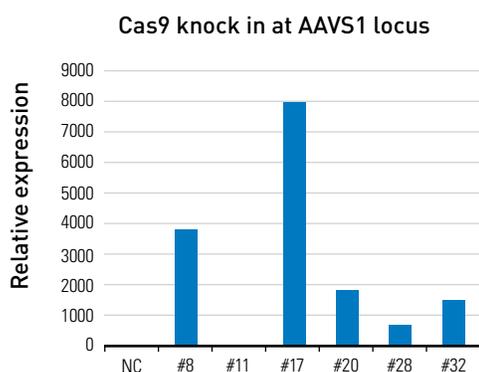
Purchase individual AAVS1 donor vectors or an AAVS1 Cas9-mediated integration kit (Cat #s GE620A-KIT, GE622A-KIT or GE624A-KIT), which comes with any of our three AAVS1 donor vectors, AAVS1 gRNA/Cas9-expression construct, and junction PCR primers to confirm the correct integration site (Cat # GE640PR-1).

Streamline genome-wide screens and generation of stable Cas9 cell lines

Combining the power of the AAVS1 safe harbor site with the ease and precision of CRISPR/Cas9, we offer both an AAVS1 Cas9-gene donor vector (Cat# CAS620A-1) and HEK293 cells with Cas9 already integrated and expressed from the AAVS1 site (Cat# CAS630A-1).



With our Cas9/HEK293 cells, you can go directly to transfection of your gRNAs and assessment of the biology—no need to spend time cloning Cas9 into the genome. And when you need Cas9 expression from other cell types, you can turn to our AAVS1 Cas9-gene donor vector and integrate Cas9 into the AAVS1 safe harbor site in the cells of your choice.



High-expression of the Cas9 gene at the AAVS1 locus in HEK293 cells, as determined by qPCR (left panel). A Surveyor Assay of high expressing clones #8 and #17 shows that Cas9 is functional—arrow corresponds to band indicative of Cas9-mediated cleavage event, which is not present in untransfected cells.

Building the tools that speed your research

With an eye on the latest advances, SBI finds promising technology and converts it into easy-to-use tools accessible to any researcher. Our growing line of AAVS1 safe harbor vectors and cell lines are just one example. Visit our website to see what else SBI can help you accomplish.

AAVS1 Donor Vectors

AAVS1-SA-puro-MCS
Cat #GE620A-1

AAVS1-SA-puro-EF1-MCS
Cat #GE622A-1

AAVS1-SA-puro-MCS-GFP
Cat #GE624A-1

AAVS1-SA-puro-EF1-hspCas9
Cat #CAS620A-1

AAVS1 Complete Kits

Cas9-driven AAVS1 Targeting Kit
Cat #s GE620A-KIT, GE622A-KIT, GE624A-KIT

AAVS1 Cas9-gene Knock-in Kit
Cat #CAS620A-KIT

HEK293 Cells expressing Cas9 from AAVS1 locus
Cat #CAS630A-1

Primer Mix for Junction PCR to Confirm AAVS1 Integration Site
Cat #GE640PR-1