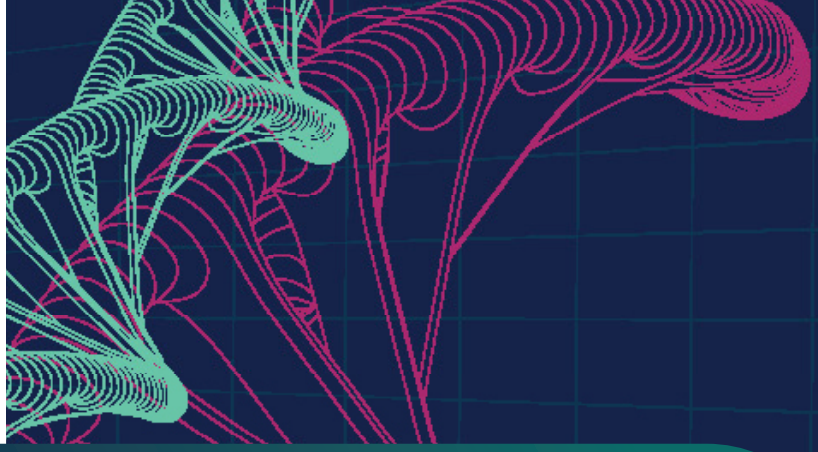


Applied StemCell

PRODUCT DATA SHEET

TARGATT™ CHO-K1 Knock-in Kit (A2)

Catalog No. AST-1405 RUO • Rev. 1 I August 2026

Product Overview

The TARGATT™ CHO Knock-in Kit (A2) provides the same integrase-driven, site-specific knock-in workflow as the H11 kit, targeting a second validated safe harbor site — A2 — in the CHO-K1 genome.

A2 gives development teams a second locus option when tuning expression level, when comparing genomic context effects on a given construct, or when a program requires a defined alternative integration site.

The master cell line carries the attP docking site at A2; the gene of interest is cloned into the supplied attB donor plasmid and integrated by co-transfection with the TARGATT™ Integrase expression plasmid.

Key Features & Benefits

Feature	Benefit
Alternative A2 safe harbor site	A second defined locus option for tuning expression and comparing genomic context
Site-specific integration	No position effects, no silencing, no disruption of endogenous genes
Irreversible attP × attB integrase reaction	Permanent, stable integration
Single-copy insertion	Predictable genotype; avoids multi-copy instability
High-integration efficiency after selection	Fewer cells to screen
Large cargo capacity — up to 50 kb in a single reaction, more with nested reactions	Multi-protein complexes and complex constructs
Consistent expression clone to clone	Work with pools instead of clonal purification
Development directly in CHO	Expression and glycosylation reflect the intended manufacturing cell type
Kit format precedes licensing	Evaluate the technology before committing to a commercial license

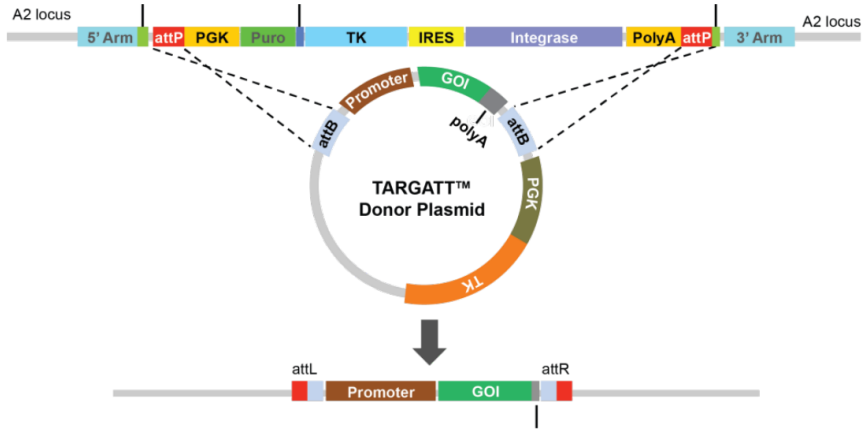
Product Specifications

Host cell line	CHO-K1 suspension cells
Integration site	Proprietary ASC2 (A2) safe harbor locus
Master cell line design	Contains both the attP docking site and the PhiC31 integrase expression cassette — only the donor plasmid needs to be transfected
Integration mechanism	PhiC31 integrase; attP × attB; unidirectional and irreversible
Copy number	Single copy
Maximum insert size	Up to 50 kb in a single reaction; larger via nested reactions
Promoter	CAG (cloning plasmid AST-3068), or promoter of choice
Integration efficiency	88.8% GFP-positive after ganciclovir selection (4.27% before selection; 0.65% by random integration in the parental line)
Screening format	Ganciclovir negative selection
Transfection method	Neon™ electroporation, 1550 V / 30 ms / 1 pulse; 2 µg donor plasmid per reaction
Enrichment	Ganciclovir 1 µg/mL, 7–10 days post-electroporation; stop when viability reaches ~30–40%
Quality control	Certificate of Analysis with detailed QC information for the cell line and kit components provided with each shipment
Shipping conditions	Dry ice
Storage conditions	Master cell line: liquid nitrogen immediately upon receipt. Plasmids: -20°C; avoid repeated freeze-thaw
Stability	At least 6 months from date of receipt when stored as directed
Product grade	Research use only

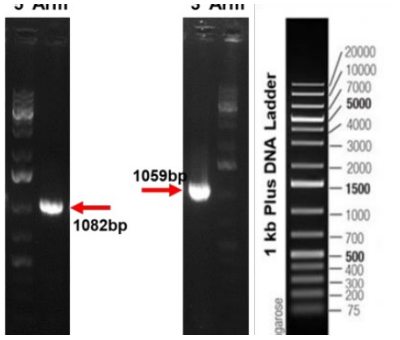
Applications

- Recombinant protein and biologics expression
- Locus comparison and expression-level optimization studies
- Multi-protein complex expression
- Isogenic cell line generation

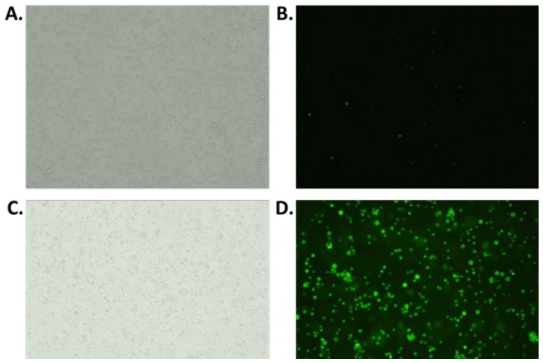
Supporting Data



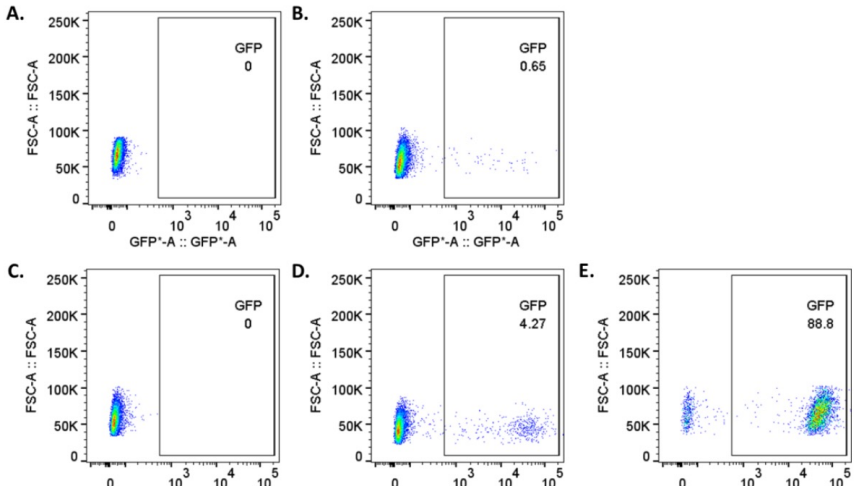
Figures 1. Schematic representation of TARGATT™ site-specific transgene integration mediated by integrase in the TARGATT™ CHO-K1 master cell line. The TARGATT™ CHO-K1 (A2) Master Cell Line was engineered with the attP landing pad at the proprietary ASC2 (A2) safe harbor locus. The TARGATT™ plasmid containing the integrase recognition site, attB, is used to clone the transgene. The integrase catalyzes an irreversible reaction between the attP site in the genome and the attB site in the donor vector, resulting in site-specific integration of the gene of interest at the selected locus. Cells containing the gene of interest can be enriched using ganciclovir negative selection.



Figures 2. Genotyping of the 5'-arm and 3'-arm in the TARGATT™ CHO-K1 (A2) master cell line. PCR analysis shows the expected sizes for the 5'-arm and 3'-arm junction PCR products on a 1.5% agarose gel: 1082 bp and 1059 bp, respectively.



Figures 3. Uniform and stable GFP expression 21 days post-transfection using the TARGATT™ CHO-K1 (A2) master cell line and knock-in kit. The TARGATT™ CAG-GFP plasmid vector was used to evaluate gene integration in parental CHO-K1 cells (a–b) and in the TARGATT™ CHO-K1 (A2) master cell line (c–d). An enriched GFP signal was detected by fluorescence imaging in the master cell line. (Left) bright field microscopy. (Right) immunofluorescence, GFP channel.



Figures 4. Flow cytometric analysis of GFP expression level in CHO-K1 cells. GFP expression was measured by flow cytometry after transfection of TARGATT™ CAG-GFP plasmid in the parental CHO cell line by random integration and in the TARGATT™ CHO-K1 (A2) master cell line by site-specific gene integration. (a) parental line, untransfected (0%); (b) parental line randomly transfected with TARGATT™ CAG-GFP (0.65%); © master cell line, untransfected (0%); (d) master cell line transfected with TARGATT™ CAG-GFP before GCV selection (4.27%); (e) after GCV selection (88.8%).

References

- Chi X, Zheng Q, Jiang R, Chen-Tsai RY, Kong LJ. A system for site-specific integration of transgenes in mammalian cells. PLOS ONE. 2019;14(7):e0219842.
- Zhu F, Gamboa M, Farruggio AP, et al. DICE, an efficient system for iterative genomic editing in human pluripotent stem cells. Nucleic Acids Research. 2014;42(5):e34.

Licensing

TARGATT™ kits are designed to enable evaluation of the technology prior to purchasing a commercial license. Academic researchers may purchase TARGATT™ technology without licensing. Contact Applied StemCell to discuss commercial licensing terms.

Related Services

If you prefer to outsource, Applied StemCell offers custom genome engineering, iPSC gene editing and differentiation, cGMP cell banking and manufacturing, and process, analytical, quality, and regulatory support. Contact us for a custom service project quote.

Kit Components

Catalog No.	Component	Format	Quanity
AST-1405-1	TARGATT™ CHO-K1 (A2) Master Cell Line	Cells	2×10^6 cells
AST-3082	TARGATT™ 42 Dual CMV-Hyg-TK Cloning Plasmid	Plasmid	2 µg
AST-3061	TARGATT™ 21 (CAG-GFP-TK) Positive Control Plasmid	Plasmid	2 µg

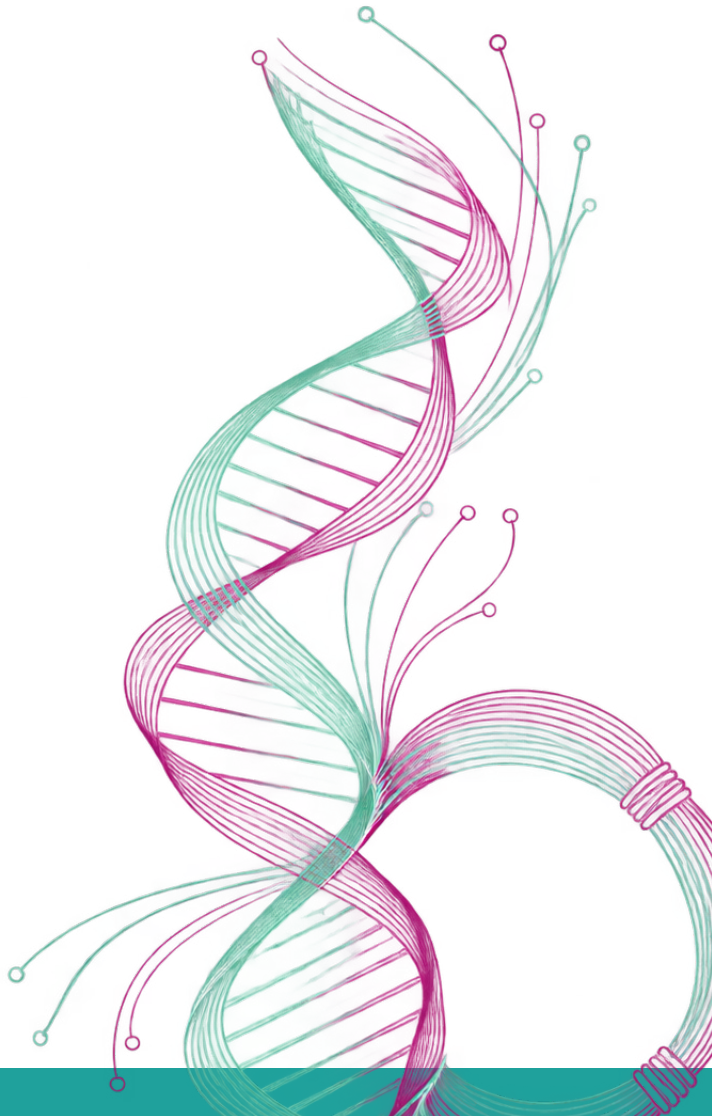
Additional kit components are available for purchase by customers who have purchased the kit. Contact Applied StemCell for details.

Ordering Information

Catalog No.	AST-1405
Description	TARGATT™ CHO Knock-in Kit (A2) — General purpose, A2 site
Format	kit
Pack Size	1 kit

Related Products

- AST-1420 – TARGATT™ CHO-K1 Knock-in Kit (H11); General purpose, H11 site
- AST-1410 – TARGATT™ CHO-K1 Knock-in Kit (H11), Antibody Library Screening; Drug selection
- AST-1409 – TARGATT™ CHO-K1 Knock-in Kit (H11), Antibody Library Screening; FACS
- Contact Applied StemCell for compatible media and related cell models.



Applied StemCell

Let's advance your research.

Applied StemCell powers your basic, autologous, and allogeneic research and development with 15+ years of iPSC experience, proven GMP know-how, and proprietary TARGATT™ gene editing technology, which takes over where CRISPR/Cas9 ends.

Contact & Ordering

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Ready to accelerate your genome engineering project?

Scan the QR code or visit our website to explore product details, access technical resources, discover related TARGATT™ solutions, and request a consultation with our scientific team.

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© 2026 Applied StemCell, Inc. Inserted constructs must be shown to be expressed in iPSCs or the differentiated cell type.