Applied StemCell

PRODUCT DATA SHEET

TARGATT™ Human Induced Pluripotent Stem Cell Knock-in Kit (H11)

(hiPSC, Female)

Catalog No. AST-1602 RUO • Rev. 1 I August 2026

Product Overview

The TARGATT™ hiPSC Master Cell Line (Female) Knock-in Kit accelerates cell line development by supplying human iPSCs with a pre-engineered TARGATT™ landing pad at the H11 safe harbor locus — ready for knock-in and subsequent differentiation.

Clone your DNA of interest into the TARGATT™ cloning plasmid, transfect into the master cell line, select for integrants, and differentiate into the cell type your study requires. With the large-insert capability of the TARGATT™ platform, large genes, multiple genes, and complex constructs can all be inserted.

The master cell line contains a dual-attP integrase recognition-site landing pad, and integration proceeds in a manner that excludes the bacterial plasmid backbone. It is engineered from ASE-9209, a well-characterized, karyotype-normal control iPSC line reprogrammed using episomal factors from fibroblasts obtained with full consent from a 47-year-old Caucasian female donor.

Key Features & Benefits

Feature	Benefit
Landing pad pre-engineered at the H11 safe harbor locus	Skip bacterial and yeast screening; find variants that non-mammalian systems miss
Site-specific integration at a characterized safe harbor site	Unambiguous genotype-to-phenotype readout
Irreversible integrase reaction, single-copy insertion	Equipment-light enrichment — no cell sorter required
Integration efficiency >90% after selection	Uniform genomic context across every library member
Large cargo capacity — up to 50 kb in a single reaction, more with nested reactions	High recovery of library diversity
Consistent expression clone to clone	Full-length antibodies and multi-domain formats, not just variable fragments
Fully characterized parental hiPSCs	Pool-based workflows replace clonal purification
Differentiate after knock-in	Verify performance before committing library material
Kit format precedes licensing	Evaluate the technology before committing to a commercial license
Male-donor equivalent available (AST-1600)	Sex-matched or paired-donor study designs without changing platform

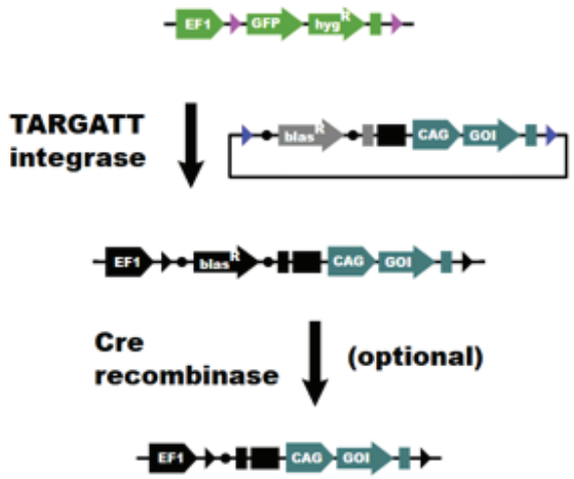
Product Specifications

Host cell line	Human iPSCs (TARGATT™ hiPSC Master Cell Line, Female, AST-1602-C)
Parental line	Control human iPSC ASE-9209, p16
Tissue source	Fibroblast
Reprogramming method	Episomal
Culture conditions	Feeder-free
Clinical information	Healthy, with no known disease phenotypes
Landing pad	Dual-attP integrase recognition site; integration excludes the bacterial plasmid backbone
Promoter	CAG (cloning plasmid AST-3086)
Enrichment	Blasticidin selection (5 µg/mL, 2 weeks); optional sorting for GFP-negative cells; blasR marker removable with Cre recombinase
Transfection method	Lipofectamine™ Stem
Integration site	H11 safe harbor locus
Integration mechanism	Serine 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
Integration efficiency	>90% after selection
Parental line characterization	Pluripotency biomarkers, normal karyotype, directed differentiation to three germ layers
Kit scale	All cell lines and plasmids sufficient for 9 transfections per the supplied protocol
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 — not for human or animal diagnostic or therapeutic use

Applications

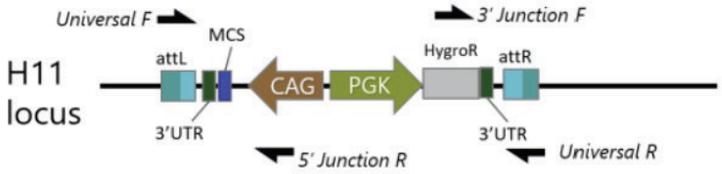
- Cellular and organoid disease modeling
- iPSC-derived cell therapy development
- CAR and engineered-receptor knock-in
- Safety switch and multi-gene circuit installation
- Reporter and lineage-tracing line generation
- Drug discovery and phenotypic screening in human cells

Supporting Data

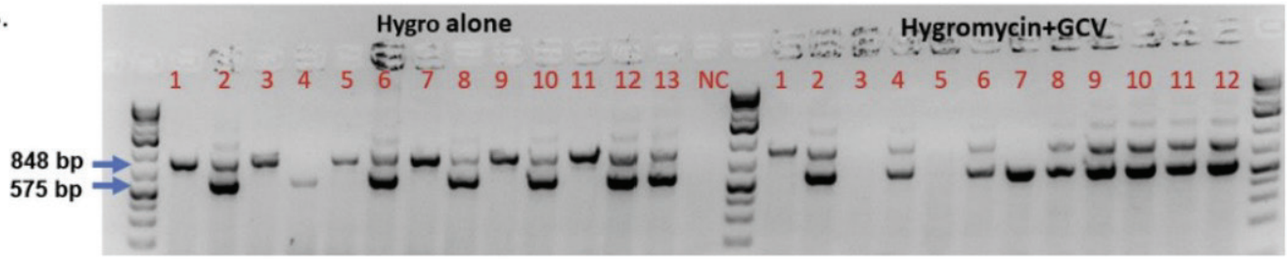


Figures 1. H11 Landing pad. Data from a comparable TARGATT™ large knock-in cell line. Knock-in efficiency of 46% (hygromycin only) and 67% (hygromycin + GCV) was achieved inserting a 22.2 CAG-MCS-attB plasmid into the hiPSC master cell line ASE-9211-TGT-PH3. (A) Genotyping strategy using two primer sets to confirm site-specific knock-in at the 5' and 3' junctions of the TARGATT™ landing pad (575 bp and 848 bp). (B) PCR gel electrophoresis. (C) Summary of genotyping results.

A.



B.



C.

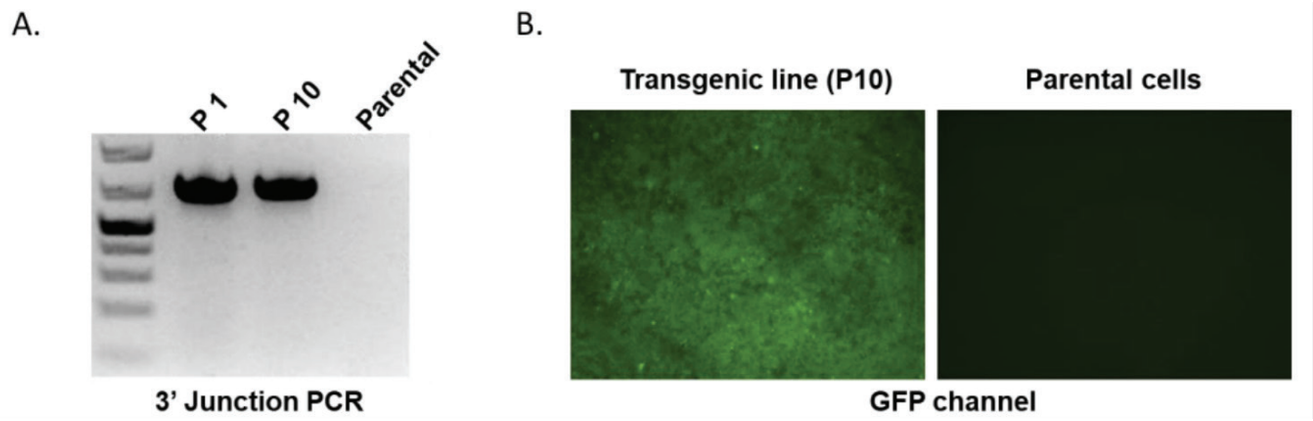
	Hygromycin only	Hygromycin + GCV
Positive clone #	clone#2, 6, 8,10, 12,13	clone#2, 4, 6, 8, 9, 10, 11,12
Locus specific integration (%)	46%	67%

Figures 2. Integration is efficient and site-specific. Stability of integration and gene expression verified over 10 passages using (A) the 3' junction PCR assay and (B) GFP fluorescence.

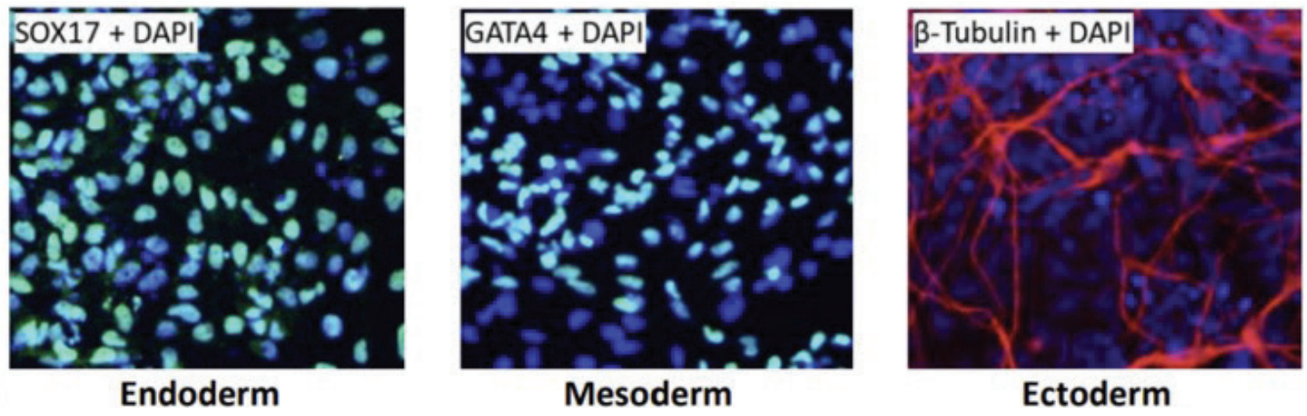
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Supporting Data



Figures 3. Integration and transgene expression are stable over multiple passages. We verified the stability of integration and gene expression over 10 passages using (A) the 3' junction PCR assay described in Figure 4 and (B) GFP fluorescence.



Figures 4. TARGATT™ hiPSCs differentiate into all three germ layers. We differentiated the ASE-9211-TGT-PH3 hiPSC line into specific lineages of the germ layers and immunostained for biomarkers of each lineage to confirm lineage commitment and co-stained with the nuclear marker, DAPI (blue). Images show co-localization of biomarker with DAPI. Endoderm (EN) marker: SOX17 (green); Mesoderm (ME) marker: GATA4 (green); Ectoderm (EC) marker: β-Tubulin (red).

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.

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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-1602-C	TARGATT™ hiPSC Master Cell Line (Female)	Cells	1×10^6 cells/vial
AST-3086	TARGATT™ 45 CAG-MCS Cloning Plasmid	Plasmid	10 µg
AST-3084	TARGATT™ CAG-Integrase Plasmid	Plasmid	1.10 µg
AST-3085	TARGATT™ 44 mCherry-Blas Control Plasmid	Plasmid	3.31 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-1602
Description	TARGATT™ Female hiPSC Knock-in Kit — RUO, adult female donor fibroblasts
Format	kit
Pack Size	1 kit

Related Products

- AST-9450 – TARGATT™ hiPSC Knock-in Kit (GMP-Matching); RUO, matched to GMP line
- AST-9480 – TARGATT™ GMP hiPSC Knock-in Kit, GMP grade
- AST-9650 – TARGATT™ Hypo hiPSC Knock-in Kit (Hypoimmunogenic); RUO, hypoimmunogenic
- Contact Applied StemCell for compatible media and related cell models.

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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