ATCC

Product Sheet

S. cerevisiae/E. coli marker swap vectors (ATCC® 87561™)

Please read this FIRST

Storage Temp.
Store frozen plate at -80°C

Biosafety Level
1

Intended Use

This product is intended for research use only. It is not intended for any animal or human therapeutic or diagnostic use.

Citation of Strain

If use of this culture results in a scientific publication, it should be cited in that manuscript in the following manner: *(ATCC® 87561™)*

Shipping Information

Frozen glycerol of Escherichia coli HB101 stocks containing the plasmids arrayed on a microtiter plate

American Type Culture Collection
PO Box 1549
Manassas, VA 20108 USA
www.atcc.org

800.638.6597 or 703.365.2700
Fax: 703.365.2750
Email: Tech@atcc.org

Or contact your local distributor

Description

This is a set of 15 marker swap vectors, each containing a gene disruption conversion cassette for conversion between standard markers used for transformation selection in Saccharomyces cerevisiae. The vectors are useful in changing markers for gene disruptions or for changing markers on plasmids.

Maps for some of the vectors can be found on the ATCC web page or in the reference.
Vectors are all in E. coli and arrayed on a microtiter plate. A key to the plate is provided below.

Well	Name	ATCC	Convert Function	Enzymes to Excise	Cassette size	Markers
a1	pHL3	87542	HIS3 →LEU2	ApaI+PstI	4.3	cmlR LEU2
a2	pHT6	87543	HIS3 →TRP1	SmaI+XhoI	3.6	cmlR kanR TRP1
a3	pHU10	87544	HIS3 →URA3	SmaI+XhoI	3.2	cmlR kanR URA3
a4	pLH7	87545	LEU2 →HIS3	XhoI+HpaI	4.3	cmlR kanR HIS3
a5	pLT11	87546	LEU2 →TRP1	XhoI+HpaI	6.1	ampR cmlR TRP1
a6	pLU12	87547	LEU2 →URA3	XhoI+HpaI	4.1	cmlR kanR URA3
a7	pTH4	87548	TRP1 →HIS3	XhoI+EcoRI	3.3	cmlR kanR HIS3
a8	pTL7	87549	TRP1 →LEU2	XhoI+SmaI	4.4	cmlR kanR LEU2
a9	pTU10	87550	TRP1 →URA3	XhoI+EcoRI	3.2	cmlR kanR URA3
a10	pUH7	87551	URA3 →HIS3	SmaI	3.5	ampR kanR HIS3
a11	pUL9	87552	URA3 →LEU2	SmaI	4.6	ampR kanR LEU2
a12	pUT11	87553	URA3 →TRP1	SmaI	3.7	ampR kanR TRP1
b1	M2371	87557	HIS →ADE2	PstI+SacI	4.99	ampR ADE2
b2	M3499	87558	URA3 →ADE2	PstI	4.45	ampR ADE2
b3	M2660	87559	URA3 →LYS2	HindIII	5.57	ampR LYS2

Designation: *S. cerevisiae/E. coli marker swap vectors*

Notes

To convert the host phenotype from the existing yeast auxotrophic marker to a new marker (eg. HIS3 → LEU2), transform with the restriction enzyme digested vector (eg. ApaI+PstI digested pHL3) and select for the appropriate phenotype (for pHL3, Leu+).
Some combinations of marker swap plasmids and target locus may result in relatively high reversion rates. In most, but not all cases, the frequencies of successful convertants are greater than 30%. When swapping markers on an episomal plasmid, appropriate phenotype may result from loss of the plasmid unless a second selectable or scorable marker is used to ensure plasmid maintenance.
Refer to reference for more information.
- Yeast 13: 647-653, 1997

Vector Information

ATCC® Catalog No. 87542
Designation: *pHL3* ***Other name(s):*** *HIS3 → LEU2 converter* ***Excise insert:*** *ApaI+PstI*
Size of construct (kb): *7.7*
Markers: *cmlR, LEU2*
Growth temperature: *37°C*
Growth medium: *LB medium + 25 µg/mL chloramphenicol*

NOTES:
Restriction digests of the clone give the following sizes (kb): BglII--4.4, 3.1;EcoRI--7.6; HindIII--4.1, 3.5. – ATCC staff
To convert the host phenotype from HIS3 to LEU2, transform with the ApaI+PstI digested vector and select for Leu+ transformants. Vector was constructed by replacing an internal BglII fragment of HIS3 with a 2.7 kb BglII fragment containing the LEU2 coding sequence. LEU2 and HIS3 are in the same orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87543
Designation: *pHT6*
Other name(s): *HIS3 → TRP1 converter*
Excise insert: *SmaI+XhoI*
Size of construct (kb): *7.0*
Markers: *cmlR, kanR, TRP1*
Growth temperature: *37°C*

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Product Sheet

S. cerevisiae/E. coli marker swap vectors (ATCC® 87561™)

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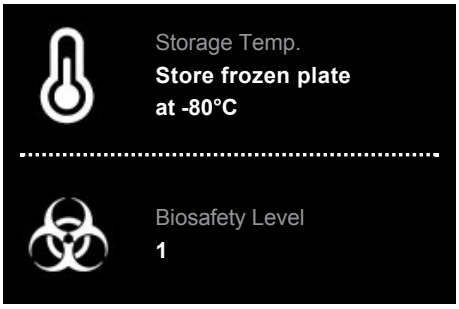

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Growth medium: *LB + kanamycin (50 µg/mL) + chloramphenicol (25 µg/mL)*

NOTES:
Restriction digests of the clone give the following sizes (kb): HindIII/PstI--5.5, 1.0, 0.6; HindIII--7.2; HindIII/SalI--5.1, 2.2.
- ATCC staff
To convert the host phenotype from HIS3 to TRP1, transform with the SmaI+XhoI digested vector and select for Trp+ transformants. Vector was constructed by replacing an internal HindIII fragment of HIS3 with a SmaI fragment containing the TPR1 and kanR coding sequences. TRP1 and HIS3 are in the same orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87544
Designation: *pHU10*
Other name(s): *HIS3 → URA3 converter*
Excise insert: *SmaI+XhoI*
Size of construct (kb): *6.6*
Markers: *cmlR, kanR, URA3*
Growth temperature: *37°C*
Growth medium: *LB + kanamycin (50 µg/mL) + chloramphenicol (25 µg/mL)*

NOTES: *Restriction digests of the clone give the following sizes (kb): HindIII--6.5; HindIII/PstI--5.0, 1.1, 0.5.*
- ATCC staff
To convert the host phenotype from HIS3 to URA3, transform with the SmaI+XhoI digested vector and select for Ura+ transformants. Vector was constructed by replacing an internal HindIII fragment of HIS3 with a SmaI fragment containing the URA3 and kanR coding sequences. URA3 and HIS3 are in the opposite orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87545
Designation: *pLH7*
Other name(s): *LEU2→ HIS3 converter*
Excise insert: *XhoI+HpaI*
Size of construct (kb): *8.7*
Markers: *cmlR, kanR, HIS3*
Growth temperature: *37°C*
Growth medium: *LB + kanamycin (50 µg/mL) + chloramphenicol (25 µg/mL)*

NOTES:
Restriction digests of the clone give the following sizes (kb): BamHI/EcoRI--6.6, 2.0; XhoI--8.7.
- ATCC staff
To convert the host phenotype from LEU2 to HIS3, transform with the XhoI+HpaI digested vector and select for His+ transformants. Vector was constructed by replacing an internal EcoRV fragment of LEU2 with a SmaI fragment containing the HIS3 and kanR coding sequences. HIS3 and LEU2 are in the same orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87546
Designation: *pLT11*
Other name(s): *LEU2 → TRP1 converter*
Excise insert: *XhoI+HpaI*
Size of construct (kb): 10.5
Markers: *cmlR, ampR, TRP1*
Growth temperature: *37°C*
Growth medium: *LB + ampicillin (50 µg/mL) + chloramphenicol (20 µg/mL)*

NOTES:
Restriction digests of the clone give the following sizes (kb): BamHI--8.4, 2.1; BamHI/XhoI--4.9, 3.3, 2.2.
- ATCC staff
To convert the host phenotype from LEU2 to TRP1, transform with the XhoI+HpaI digested vector and select for Trp+ transformants. Vector was constructed by replacing an internal EcoRI-EcoRV fragment of LEU2 with an XhoI-EcoRI fragment containing the TRP1 and ampR coding sequences.
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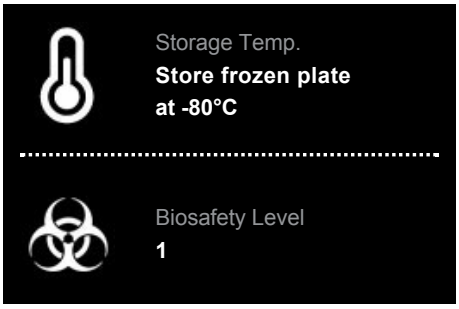

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ATCC® Catalog No. 87547
Designation: *pLU12*
Other name(s): *LEU2 → URA3 converter*
Excise insert: *XhoI+HpaI*
Size of construct (kb): *8.5*
Markers: *cmlR, kanR, URA3*
Growth temperature: *37°C*
Growth medium: *LB + kanamycin (50 µg/mL) + chloramphenicol (25 µg/mL)*

NOTES:
Restriction digests of the clone give the following sizes (kb): BamHI--8.8; BamHI/XhoI--5.5, 3.2; EcoRI/HindIII--7.5, 1.2; HpaI/XhoI--4.6, 4.2.
- ATCC staff
To convert the host phenotype from LEU2 to URA3, transform with the XhoI+HpaI digested vector and select for Ura+ transformants. Vector was constructed by replacing an internal EcoRV fragment of LEU2 with a SmaI fragment containing the URA3 and kanR coding sequences. URA3 and LEU2 are in the opposite orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87548
Designation: *pTH4*
Other name(s): *TRP1 → HIS3*
Excise insert: *XhoI+EcoRI*
Size of construct (kb): *6.7*
Markers: *cmlR, kanR, HIS3*
Growth temperature: *37°C*
Growth medium: *LB + kanamycin (50 µg/mL) plus chloramphenicol (25 µg/mL)*

NOTES:
Restriction digests of the clone give the following sizes (kb): EcoRI--6.7; HindIII--4.8, 1.9; EcoRI/XhoI--3.5, 3.3.
- ATCC staff
To convert the host phenotype from TRP1 to HIS3, transform with the XhoI+EcoRI digested vector and select for His+ transformants. Vector was constructed by replacing an internal EcoRV fragment of TRP1 with a SmaI fragment containing the HIS3 and kanR coding sequences. HIS3 and TRP1 are in the same orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87549
Designation: *pTL7*
Other name(s): *TRP→ LEU2 converter*
Excise insert: *XhoI+SmaI*
Size of construct (kb): *7.8*
Markers: *cmlR, kanR, LEU2*
Growth temperature: *37°C*
Medium composition: *LB + kanamycin (50 µg/mL) + chloramphenicol (25 µg/mL)*

NOTES:
Restriction digests of the clone give the following sizes (kb): EcoRI--6.2, 1.7; HindIII--7.8; SmaI/XhoI--4.4, 3.3.
- ATCC staff
To convert the host phenotype from TRP1 to LEU2, transform with the XhoI+SmaI digested vector and select for Leu+ transformants. Vector was constructed by replacing an internal EcoRV fragment of TRP1 with a SmaI fragment containing the LEU2 and kanR coding sequences. LEU2 and TRP1 are in the same orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87550
Designation: *pTU10*

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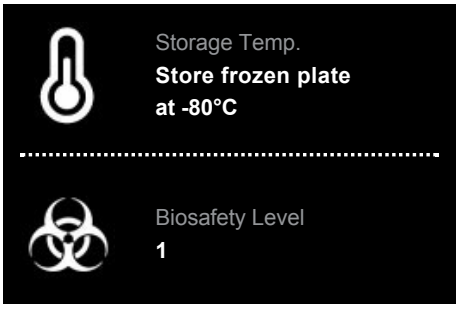

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Other name(s): *TRP1→ URA3 converter*
Excise insert: *XhoI+EcoRI*
Size of construct (kb): *6.6*
Markers: *cmlR, kanR, URA3*
Growth temperature: *37°C*
Medium composition: *LB + kanamycin (50 µg/mL) plus chloramphenicol (25 µg/mL)*

NOTES:
Restriction digests of the clone give the following sizes (kb): EcoRI--6.6; HindIII--5.0, 1.6; EcoRI/XhoI--3.4 3.2.
- ATCC staff
To convert the host phenotype from TRP1 to URA3, transform with the XhoI+EcoRI digested vector and select for Ura+ transformants. Vector was constructed by replacing an internal EcoRV fragment of TRP1 with a SmaI fragment containing the URA3 and kanR coding sequences. URA3 and TRP1 are in the opposite orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87551
Designation: *pUH7*
Other name(s): *URA3 → HIS3 converter*
Excise insert: *SmaI*
Size of construct (kb): *6.5*
Markers: *ampR, kanR, HIS3*
Growth temperature: *37°C*
Medium composition: *LB medium + 50 µg/mL ampicillin and 20 µg/mL kanamycin*

NOTES:
Restriction digests of the clone give the following sizes (kb): EcoRI--6.4; SmaI--3.5, 2.8; XbaI--3.6, 2.7.
- ATCC staff
To convert the host phenotype from URA3 to HIS3, transform with the SmaI digested vector and select for His+ transformants. Vector was constructed by replacing an internal StuI fragment of URA3 with a SmaI fragment containing the HIS3 and kanR coding sequences. HIS3 and URA3 are probably in the opposite orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87552
Designation: *pUL9*
Other name(s):*URA3 → LEU2 converter*
Excise insert: *SmaI*
Size of construct (kb):*7.45*
Markers: *ampR, kanR, LEU2*
Growth temperature: *37°C*
Growth medium: *LB medium + 50 µg/mL ampicillin and 20 µg/mL kanamycin*

NOTES:
Restriction digests of the clone give the following sizes (kb):
Expected SmaI digest fragments of 2.74 kb and 4.71 kb
Expected EcoRI digest fragments of 2.95 kb and 4.5 kb

- ATCC staff
To convert the host phenotype from URA3 to LEU2, transform with the SmaI digested vector and select for Leu+ transformants. Vector was constructed by replacing an internal StuI fragment of URA3 with a SmaI fragment containing the LEU2 and kanR coding sequences. LEU2 and URA3 are in the same orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87553
Designation: *pUT11*
Other name(s): *URA3 → TRP1 converter*
Excise insert: *SmaI*
Size of construct (kb): *6.7*
Markers: *ampR, kanR, TRP1*
Growth temperature: *37°C*
Growth medium: *LB medium + 50 µg/mL ampicillin and 20 µg/mL kanamycin*

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NOTES:
Restriction digests of the clone give the following sizes (kb): HindIII--4.6, 2.0; SmaI--3.8, 2.7.
- ATCC staff
To convert the host phenotype from URA3 to TRP1, transform with the SmaI digested vector and select for Trp+ transformants. Vector was constructed by replacing an internal StuI fragment of URA3 with a SmaI fragment containing the TRP1 and kanR coding sequences. TRP1 and URA3 are in the same orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87557
Designation: *M2371*
Other name(s): *HIS3 → ADE2 converter*
Excise insert: *PstI+ SacI*
Size of construct (kb): *7.734*
Markers: *ampR ADE2*
Growth temperature: *37°C*
Growth medium: *LB Medium + 50 µg/mL ampicillin*

NOTES:
Restriction digests of the clone give the following sizes (kb): BamHI--3.7, 2.7, 0.7, 0.6; PvuI--6.8, 0.9; HindIII--3.9, 1.6, 1.2, 1.0.
- ATCC staff
To convert the host phenotype from HIS3 to ADE2, transform with the PstI+SacI digested vector (4.99 kb) and select for Ade+ transformants. Vector was constructed by replacing an internal MscI-NsiI fragment of HIS3 with a 3.7 kb NotI (blunt)-PstI fragment containing the ADE2 coding sequence. ADE2 and HIS3 are in the opposite orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87558
Designation: *M3499*
Other name(s):*URA3 → ADE2 converter*
Excise insert: *PstI*
Size of construct (kb): *7.426*
Markers: *ampR ADE2*
Growth temperature: *37°C*
Growth medium: *LB Medium + 50 µg/mL ampicillin*

NOTES:
Restriction digests of the clone give the following sizes (kb): HindIII--2.5, 1.3, 1.1 (doublet), 1.0; BamHI--6.6, 0.5; PvuI--6.2, 0.8.
- ATCC staff
To convert the host phenotype from URA3 to ADE2, transform with the PstI digested vector (4.45 kb) and select for Ade+ transformants. Vector was constructed by replacing an internal StuI-EcoRV fragment of URA3 with a 3.7 kb BamHI fragment containing the ADE2 coding sequence. ADE2 and URA3 are in the same orientation.
- Yeast 13: 647-653, 1997

ATCC® Catalog No. 87559
Designation: *M2660*
Other name(s): *URA3 → LYS2*
Excise insert: *HindIII*
Size of construct (kb): *8.308*
Markers: *ampR LYS2*
Growth temperature: *37°C*
Growth medium: *LB Medium + 50 µg/mL ampicillin*

NOTES:
Restriction digests of the clone give the following sizes (kb): BglII--4.3, 4.1; HindIII--5.6, 2.8; HpaI--8.5; PvuI--5.1, 2.4, 0.9.
- ATCC staff
To inactivate URA3, transform with HindIII-digested plasmid (5.57 kb) and select for Lys+. Constructed by

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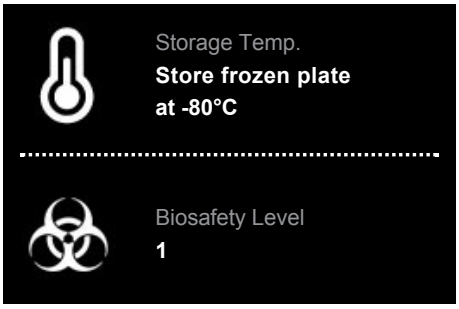

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Frozen glycerol of Escherichia coli HB101 stocks containing the plasmids arrayed on a microtiter plate replacing an internal EcoRV-PstI fragment of URA3 with a 4.6 kb PvuII-PstI fragment containing LYS2. URA3 and LYS2 are in the same orientation.
- Yeast 13: 647-653, 1997

Propagation

Transfer a loopful to a test tube containing 5 mL LB+ antibiotic (either 50 µg/mL of ampicillin 10 µg/mL chloramphenicol or 25 µg/mL chloramphenicol and 50 µg/mL kanamycin check specific markers). A loopful of culture can also be streaked on an LB + amp or chl agar plate. Incubate cultures at 37°C. Isolate DNA using standard plasmid preparation procedures.

Growth Conditions
Temperature: *37°C*

References

References and other information relating to this product are available online at www.atcc.org.

Biosafety Level: 1

Appropriate safety procedures should always be used with this material. Laboratory safety is discussed in the current publication of the Biosafety in Microbiological and Biomedical Laboratories from the U.S. Department of Health and Human Services Centers for Disease Control and Prevention and National Institutes for Health.

ATCC Warranty

The viability of ATCC® products is warranted for 30 days from the date of shipment, and is valid only if the product is stored and cultured according to the information included on this product information sheet. ATCC lists the media formulation that has been found to be effective for this strain. While other, unspecified media may also produce satisfactory results, a change in media or the absence of an additive from the ATCC recommended media may affect recovery, growth and/or function of this strain. If an alternative medium formulation is used, the ATCC warranty for viability is no longer valid.

Disclaimers

This product is intended for laboratory research purposes only. It is not intended for use in humans.

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Please see the enclosed Material Transfer Agreement (MTA) for further details regarding the use of this product. The MTA is also available on our Web site at www.atcc.org

Additional information on this culture is available on the ATCC web site at www.atcc.org.

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