

Resource Summary Report

Generated by [RRID](#) on Aug 26, 2026

[pDIRECT_23C](#)

RRID:Addgene_91140

Type: Plasmid

Proper Citation

RRID:Addgene_91140

Plasmid Information

URL: <http://www.addgene.org/91140>

Proper Citation: RRID:Addgene_91140

Insert Name: Engineering Reagent: 35S:Csy4-P2A-AtCas9 + CmYLCV:gRNAs with Csy4 spacers

Organism: Synthetic

Bacterial Resistance: Kanamycin

Defining Citation: [PMID:28522548](#)

Vector Backbone Description: Vector Backbone:pTRANS_230d; Vector Types:Plant Expression, CRISPR; Bacterial Resistance:Kanamycin

Plasmid Name: pDIRECT_23C

Record Creation Time: 20220422T222617+0000

Record Last Update: 20260815T082215+0000

Ratings and Alerts

No rating or validation information has been found for pDIRECT_23C.

No alerts have been found for pDIRECT_23C.

Data and Source Information

Source: [Addgene](#)

Usage and Citation Metrics

We found 2 mentions in open access literature.

Listed below are recent publications. The full list is available at [RRID](#) .

Chaulagain D, et al. (2024) TML1 and TML2 synergistically regulate nodulation and affect arbuscular mycorrhiza in *Medicago truncatula*. *Frontiers in plant science*, 15, 1504404.

Curtin SJ, et al. (2018) Editing the *Medicago truncatula* Genome: Targeted Mutagenesis Using the CRISPR-Cas9 Reagent. *Methods in molecular biology* (Clifton, N.J.), 1822, 161.