

# Resource Summary Report

Generated by [dkNET](#) on Sep 1, 2026

## pDIRECT\_22C

RRID:Addgene\_91135

Type: Plasmid

### Proper Citation

RRID:Addgene\_91135

### Plasmid Information

**URL:** <http://www.addgene.org/91135>

**Proper Citation:** RRID:Addgene\_91135

**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\_220d; Vector Types:Plant Expression, CRISPR; Bacterial Resistance:Kanamycin

**Plasmid Name:** pDIRECT\_22C

**Record Creation Time:** 20220422T222617+0000

**Record Last Update:** 20260829T081253+0000

### Ratings and Alerts

No rating or validation information has been found for pDIRECT\_22C.

No alerts have been found for pDIRECT\_22C.

### Data and Source Information

**Source:** [Addgene](#)

### Usage and Citation Metrics

We found 10 mentions in open access literature.

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

Wu R, et al. (2025) A visual monitoring DNA-free multi-gene editing system excised via LoxP::FRT/FLP in poplar. *Plant biotechnology journal*, 23(9), 4017.

Aalders TR, et al. (2024) Specific members of the TOPLESS family are susceptibility genes for Fusarium wilt in tomato and Arabidopsis. *Plant biotechnology journal*, 22(1), 248.

Wang Y, et al. (2024) Harnessing clonal gametes in hybrid crops to engineer polyploid genomes. *Nature genetics*, 56(6), 1075.

Laura M, et al. (2023) Highly Efficient CRISPR/Cas9 Mediated Gene Editing in *Ocimum basilicum* 'FT Italiko' to Induce Resistance to *Peronospora belbahrii*. *Plants (Basel, Switzerland)*, 12(13).

Liu L, et al. (2023) Developing a UV-visible reporter-assisted CRISPR/Cas9 gene editing system to alter flowering time in *Chrysanthemum indicum*. *Plant biotechnology journal*, 21(8), 1519.

Ruiz-Ramón F, et al. (2023) The tomato calcium-permeable channel 4.1 (SIOSCA4.1) is a susceptibility factor for pepino mosaic virus. *Plant biotechnology journal*, 21(10), 2140.

Barrera-Rojas CH, et al. (2023) Tomato miR156-targeted SISBP15 represses shoot branching by modulating hormone dynamics and interacting with GOBLET and BRANCHED1b. *Journal of experimental botany*, 74(17), 5124.

Miller SS, et al. (2022) Alfalfa (*Medicago sativa* L.) *pho2* mutant plants hyperaccumulate phosphate. *G3 (Bethesda, Md.)*, 12(6).

Termák T, et al. (2021) Genome Editing to Achieve the Crop Ideotype in Tomato. *Methods in molecular biology (Clifton, N.J.)*, 2264, 219.

Zsögön A, et al. (2018) De novo domestication of wild tomato using genome editing. *Nature biotechnology*.