

# Minicircle DNA Vector Technology

## Non-integrative sustained expression

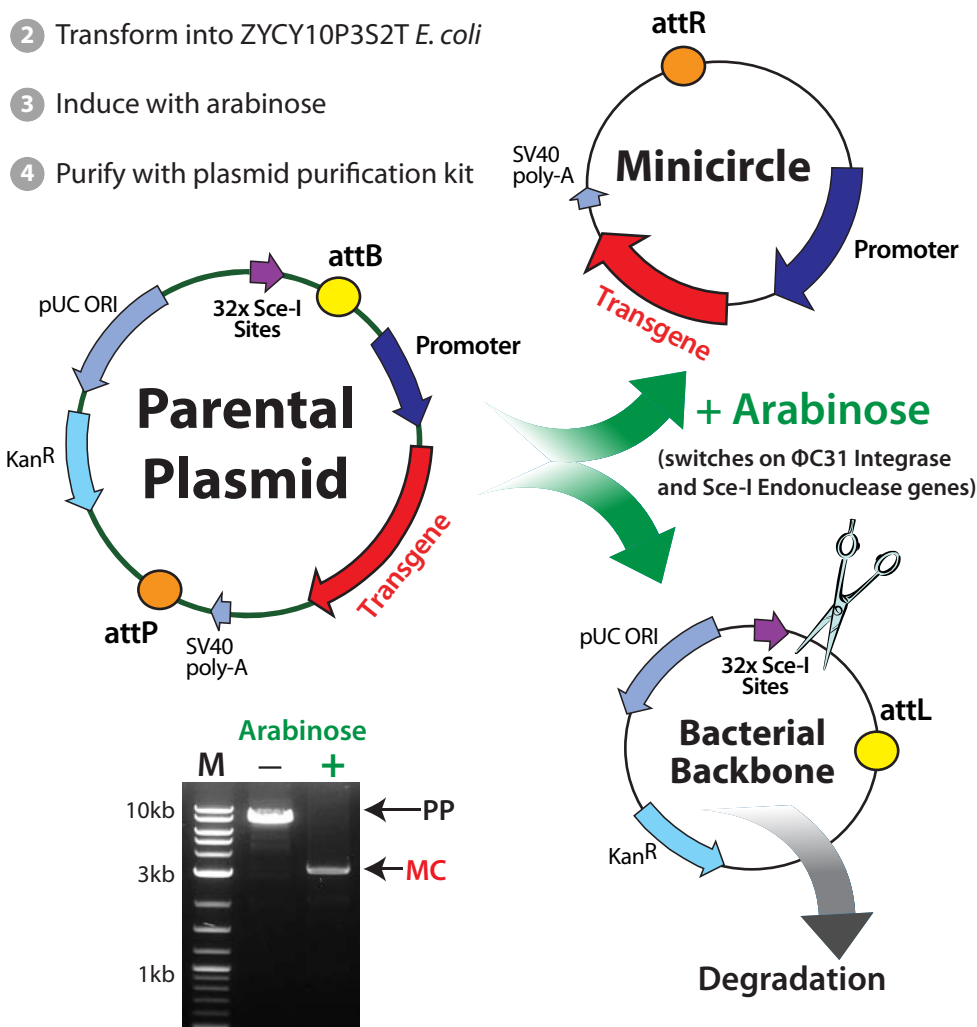


### The Minicircle Advantage

Minicircles are episomal DNA vectors that are produced as circular expression cassettes devoid of any bacterial plasmid DNA backbone. Their smaller molecular size enables more efficient transfections and offers sustained expression over a period of weeks as compared to standard plasmid vectors that only work for a few days.

### Production of Minicircle DNA

- 1 Clone your gene-of-interest into the parental plasmid
- 2 Transform into ZYCY10P3S2T *E. coli*
- 3 Induce with arabinose
- 4 Purify with plasmid purification kit



### Highlights

- Expression for up to 14 days in dividing cells. Even longer for non-dividing cells
- ZYCY10P3S2T *E. coli* cells available for minicircle production
- For use *in vivo* or *in vitro*
- Choose your promoter, reporter gene, and vector format
- Parental plasmid is degraded, preventing immune responses

### ZYCY10P3S2T *E. coli*

Bacterial strain engineered for minicircle production.

Arabinose induces  $\Phi$ C31 integrase and the I-SceI endonuclease simultaneously.

$\Phi$ C31 integrase produces the MC-DNA molecules and the parental plasmid.

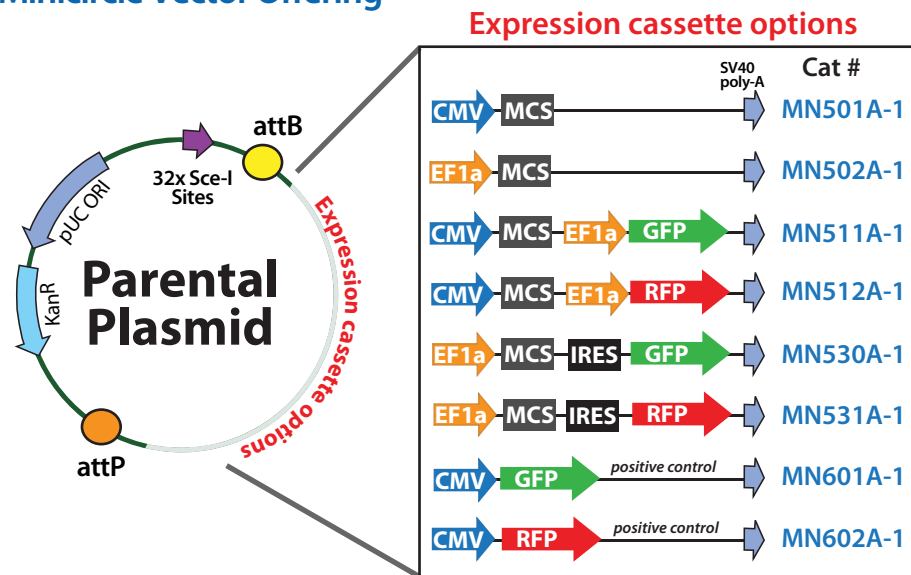
SceI endonuclease degrades the parental plasmid DNA backbone.

### As described in

Mark A. Kay, Cheng-Yi He & Zhi-Ying Chen. A robust system for production of minicircle DNA vectors. *Nature Biotechnology*, (2010). doi:10.1038/nbt.1708.

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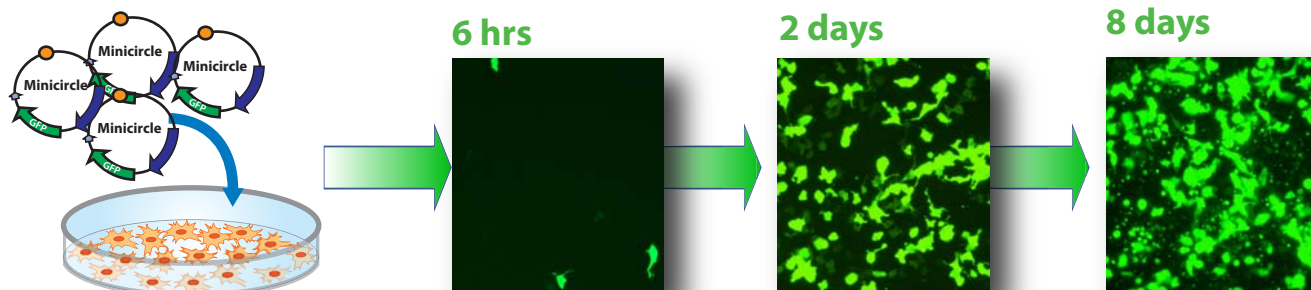
## Minicircle Vector Offering



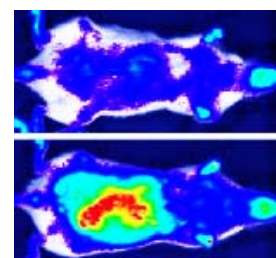
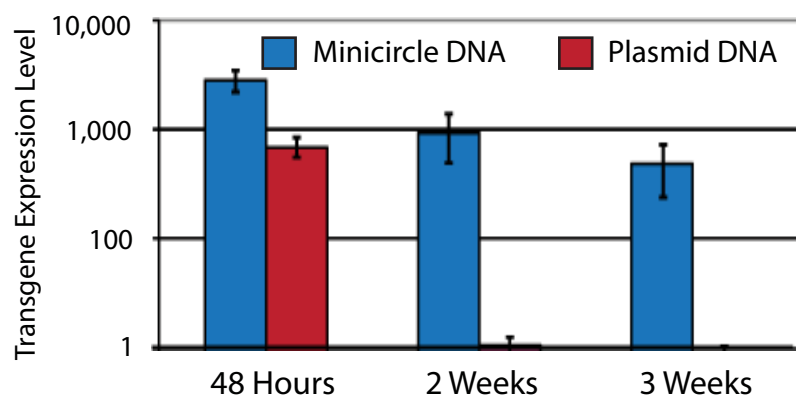
### Supporting Products

Kanamycin (50mg/ml)	MN800A-1
Arabinose solution (20%)	MN850A-1
ZYCY10P3S2T <i>E. coli</i>	MN900A-1

## Long-term *in vitro* expression from transfection



## Sustained *in vivo* expression



**Mouse Tail-vein injection leads to sustained expression for months**

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