



RNA-Guided DNA Transposition

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WARF: P230410US02

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The Invention

UW-Madison researchers have applied transposon technology to CRISPR-mediated gene targeting to create libraries of genetically modified bacteria displaying differentially expressed genes throughout their genome. To test the concept, the researchers designed guide RNA to target the promoter regions of genes in *Zymomonas mobilis*. These guide RNAs provide a binding spot for a modified, deactivated Cas9 protein that includes a domain to interact with a Tn7-like transposase. Synthetic promoters having different strengths to promote gene expression are included in a transposon feature in a plasmid. When the plasmids are transfected into the bacteria, the different non-native promoters are incorporated into the genome at the sites of the guide RNAs due to the transposase activity of the modified Cas9. A comprehensive library of bacteria with promoters controlling every gene in the genome can be created using this method. These libraries could be valuable tools for creating new antibiotics or genetically modified bacteria for use in the clean technology or agricultural markets.

Additional Information

For More Information About the Inventors

- [Jason Peters](#)

Tech Fields

- [Clean Technology : Other clean technologies](#)
- [Drug Discovery & Development : Other drug discovery & development](#)
- [Research Tools : DNA & RNA tools](#)

For current licensing status, please contact Jennifer Gottwald at jennifer@warf.org or 608-960-9854