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(54) Title: SYNTHETIC MINIATURE CRISPR-CAS (CASMINI) SYSTEM FOR EUKARYOTIC GENOME ENGINEERING

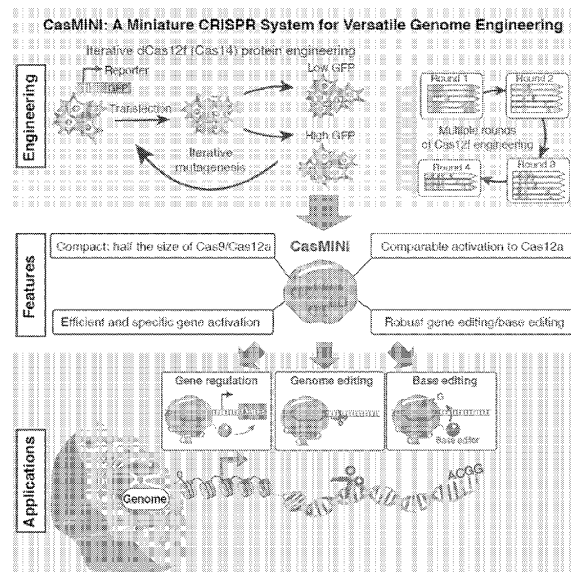


FIG. 69

(57) Abstract: Provided herein are Cas proteins and guide RNA molecules engineered to exhibit increased activity in eukaryotic cells. The provided Cas proteins and RNA molecules are particularly useful for applications where modulation of eukaryotic nucleic acids with relatively small molecules is advantageous. Also provided are nucleic acids and vectors encoding the disclosed Cas proteins and guide RNA molecules, pharmaceutical compositions including the Cas proteins and guide RNA molecules, and methods for using the disclosed materials.

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Declarations under Rule 4.17:

- *as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))*
- *as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))*
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