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(57) Abstract :

The invention discloses a gene-editing tool for precision correction of genetic disorders. The system comprises a guide RNA module (101), Cas variant nuclease (102), programmable repair template (103), bioinformatics safety module (104), delivery vector system (105), and safety/inducible control unit (106). It ensures efficient correction of pathogenic mutations with minimal off-target effects through optimized delivery and temporal regulation. The invention demonstrates therapeutic applicability for both monogenic and polygenic disorders, offering a safe and permanent cure for multiple genetic diseases through controlled molecular editing strategies.

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