

UNLOCKING PRECISION CRISPR/CAS GENE EDITING AND THE POWER OF CAS9 VARIANTS



**Gene
Knockout**



**Gene
Correction**



**Gene
Insertion**



**Cancer
Immunotherapy**



Agriculture



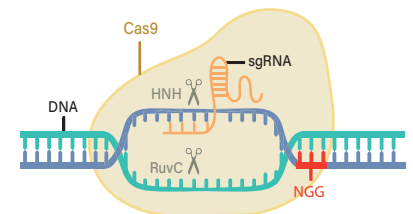
Diagnostics



**Industrial
Biotechnology**

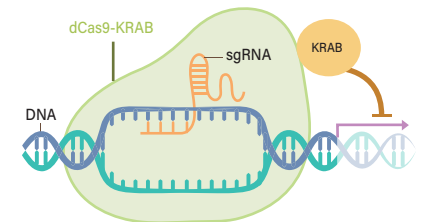
hSpCas9 (Streptococcus pyogenes Cas9)

hSpCas9 is a widely used CRISPR nuclease that creates targeted DNA double-strand breaks guided by a single guide RNA, enabling gene disruption or precise edits via NHEJ or HDR.



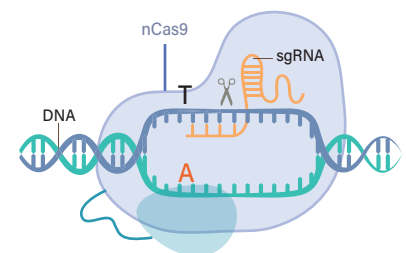
dCas9-KRAB mRNA

dCas9 is a catalytically inactive version of Cas9 that binds to target DNA without cutting it. It enables gene regulation rather than genome modification by serving as a DNA-binding platform.



Adenine Base Editors (ABE)

ABEs convert A•T base pairs to G•C with high precision. They employ an evolved adenine deaminase fused to a Cas9 nickase, offering efficient and targeted base editing without DNA cleavage.



PEmax (Prime Editor Max)

PEmax is an enhanced prime editing system that enables highly precise "search-and-replace" modifications. It fuses a Cas9 nickase with a reverse transcriptase and a prime editing guide RNA (pegRNA), allowing for all possible base conversions, small insertions, and deletions without DSBs or donor templates.

