CRISPR Optimization

CRISPR-Cas9 Guide RNA Design

Target DNA Sequence:

| ... | `20bp target sequence` | **NGG** | ... |

Guide RNA binding site — PAM site

Guide RNA (gRNA):

| | **20nt spacer sequence** (complementary to target) | scaffold |

Cas9 Protein
+ gRNA complex
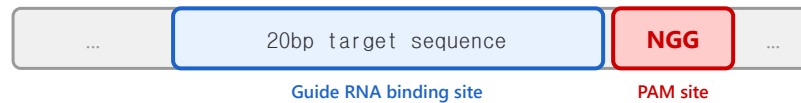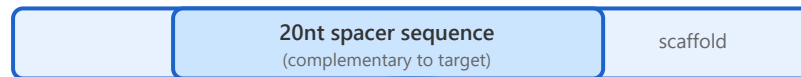
✂ Double-strand break (DSB)

🤖 **AI-Powered Optimization:**
- On-target efficiency scoring
- Off-target prediction
- Edit outcome prediction


Guide RNA design
20nt spacer + scaffold optimization

Off-target prediction
Minimize unintended cuts

Efficiency scoring
On-target activity models

Prime editing
Precise base substitutions

Base editing
C→T, A→G conversions