Life Edit Gene Editing – Any Edit, Anywhere

Life Edit, ElevateBio's next-generation gene editing business, offers one of the world's largest and most diverse libraries of RNA-guided nucleases (RGNs), base editors, and reverse transcriptase (RT) editors that provide flexible editing and unprecedented access to the genome. In addition, Life Edit has broad therapeutic delivery capabilities, including AAV and a novel lipid nanoparticle (LNP) platform with both liver targeting and de-targeting potential, enhancing our ability to effectively deliver gene editing therapies and unlocking new possibilities for addressing a wide range of diseases and disorders.

Life Edit's nucleases: PAM diversity is key

A key advantage of our nucleases is their diversity of **protospacer adjacent motifs (PAMs)**, which determine the DNA segments in the genome to which a nuclease can bind.

Our nucleases can access virtually any region of the genome, increasing the number of specific sites where therapeutically meaningful edits can be made. Life Edit's RGNs are smaller in size (~800-1,100 aa) when compared to conventional nucleases, potentially enabling greater versatility in packaging our systems for therapeutic delivery. They were also developed using a proprietary collection of non-pathogenic microbes, which offer gene editing tools with higher fidelity, novel functionality, and easier delivery.

We are uniquely positioned to develop targeted editing medicines for each disease with our full spectrum of gene editing modalities:

1 Double-strand breaks: Double-strand breaks involve the nuclease cutting both strands of the DNA, enabling gene deletion (knock-out) or insertion/repair (knock-in) at the cut site. The PAM diversity of our nucleases allows the introduction of knock-out or knock-in edits virtually anywhere in the genome.

2 Base editing: Base editing converts one nucleotide (base) into another, without cutting both strands of DNA. This is achieved by coupling a nuclease, modified to cut only one DNA strand to a deaminase that edits the target nucleotide. Our modular approach to base editing couples our proprietary nucleases and deaminases to one another.

The PAM diversity of our nucleases addresses a critical base editing parameter in which the target mutation must fall within a tighter "window" than required for double-strand breaks, enabling base editing at more sites than any one nuclease could access.

Our base editing systems includes A and C base editors for *ex vivo* and *in vivo* applications with demonstrated multiplex editing capabilities.

3 Reverse Transcriptase editing: RT editing, also known as prime editing, involves cutting one DNA strand, then replacing, adding, or deleting a genomic sequence with a new sequence that is encoded by the guide RNA (gRNA). Our approach takes advantage of our panel of RGNs to enable optimal editing of the target locus.

Life Edit's platform can support RT editing in three ways:

1. PAM diversity that positions the nuclease as close to the editing site as possible, reducing the size of the required RNA and the concomitant challenges / costs of synthesizing lengthy gRNAs
2. Proprietary technology for engineering and designing gRNAs
3. Expertise in target screening, analysis, and optimization

Accelerating CRISPR discovery and design with Artificial Intelligence
Harnessing the power of AI, we propel CRISPR discovery and engineering efforts at an unprecedented pace. We have identified a wide range of CRISPR-Cas systems, including known subtypes, and engineered select systems into a variety of editing modalities.

Double-strand breaks   Base editing   Reverse transcriptase editing