XDel Knockout Cells

Revolutionizing Robust and Reproducible CRISPR Gene Editing

Leveraging an innovative guide RNA design strategy, XDel Knockout Cell Pools and Clones deliver highly efficient, consistent, and reproducible loss of gene function. Perfectly suited for functional gene studies, disease modeling, and drug development, XDel cells' methodology ensures robust results to accelerate your discoveries.

- **High Efficiency:** Achieve higher on-target editing rates and consistent knockout performance
- **Reliable Results:** Persistent protein depletion, validated through functional assays
- **Enhanced Reproducibility:** Minimize variability for dependable outcomes across experiments in any loss-of-function study

XDel Knockout Technology maximizes on-target gene editing while minimizing off-target effects compared to single-guide editing

While traditional single-guide knockouts demonstrate a wide and often unpredictable range of on-target editing efficiencies, EditCo XDel technology uses multiple guides intelligently designed to work cooperatively to facilitate significantly better knockout performance. This unique methodology ensures reliable outcomes across many different cell lines, generally outperforming single-guide CRISPR methods in both efficiency and reproducibility.

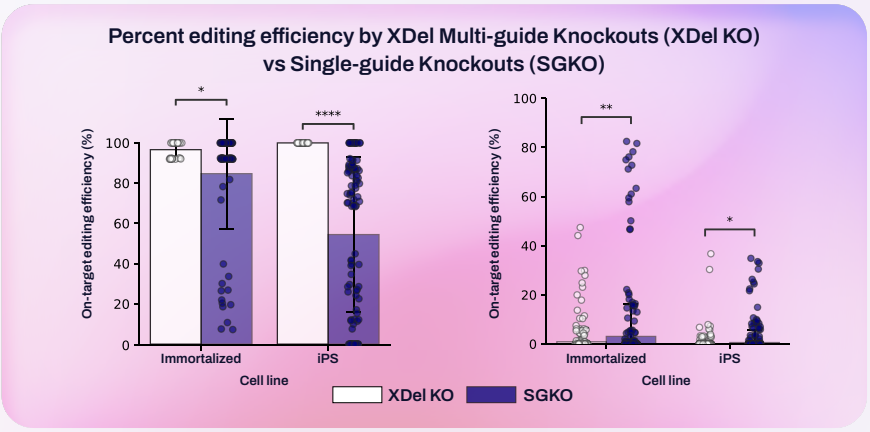

Figure 1. XDel multiple gRNA on-target editing efficiency is significantly higher and more consistent compared to single-guide RNA methods. On-target editing efficiency of multi-guide (white bars) vs their 3 respective single-guide RNAs (purple bars) across 7 endogenous target loci transfected in two immortalized (IMM) and two iPSC cell lines.

Figure 2. XDel multiple guide RNA off-target editing efficiency is significantly lower compared to single guide RNA methods. Off-target editing efficiency of XDel cells (white bars) at all 3 of their respective single-guide off-target sites vs their 3 respective single-guide RNAs (purple bars) across 63 off-target loci (3 off-target loci per 7 on-target site tested) transfected in two immortalized (IMM) and two iPSC cell lines.

XDel gRNA design allows for multiple guides to work synergistically to dramatically reduce the required gRNA concentration and minimize off-target editing risks

Unlike single-guide RNA strategies, which show variable editing efficiencies across different doses, EditCo's XDel multiple gRNA design consistently achieves high on-target editing efficiency - even at low dose concentrations. This robust and reproducible strategy delivers reliable results independent of dose or position effects as observed in the single-guide approach. This ensures superior and reproducible editing performance, allowing you to focus on your research without the need for additional optimization.

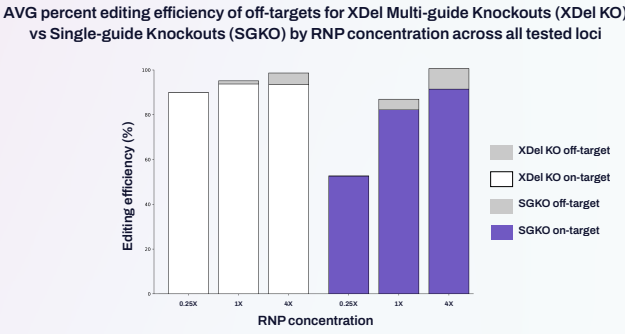

Figure 3. XDel multiple guide RNA editing efficiency remains high as gRNA concentration is decreased compared to single guide RNA methods. Average on-target (white bars, multi-guide; purple bars, single-guide) editing efficiency in transfected HEK293 cells with multi-guide (left) vs single-guide (right) and SpCas9 at increasing RNP concentrations (0.25X, 1X, 4X) at 7 endogenous sites vs off-target editing efficiency (stacked grey bars) at 63 off-target sites.

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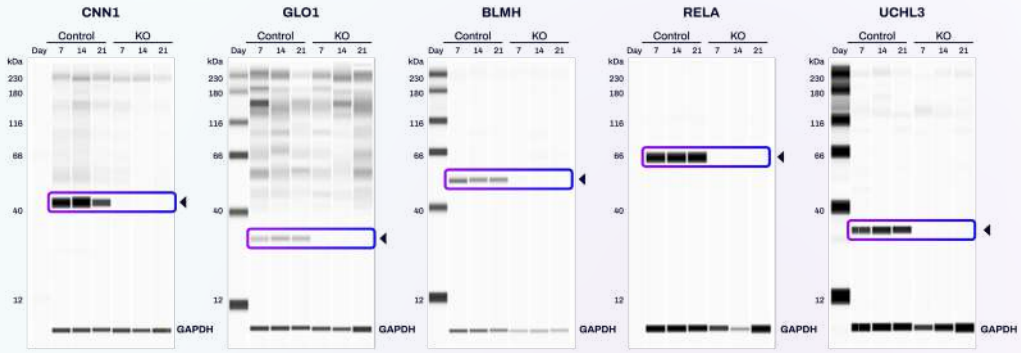
XDel Knockout Cell pools show persistent protein depletion, enabling their direct and reliable use in functional assays

Figure 4. Protein depletion remains consistent across a variety of gene knockout cell lines. Western blot analyses for all 5 knockout target genes across the 3 specified time points (days 7, 14, and 21) relative to the negative controls. Knockout cell pools for the target genes were generated by nucleofecting U2OS cells with sgRNA and Cas9 (as RNPs).



How does XDel gRNA design create more efficient and reliable gene knockouts?

Traditional CRISPR knockout methods often depend on a single guide RNA that, in tandem with *SpCas9*, generates assorted insertions or deletions (indels) at the target cut site. This approach can be unpredictable, leading to variable edits and incomplete knockouts.

EditCo's smart informatics generates a multi-guide design which is composed of up to 3 sgRNAs targeting a single gene of interest. The guides are spatially coordinated and work cooperatively to induce a guided repair that results in fragment deletion in an early exon, making it the most reliable knockout strategy compared to other pooled strategies.

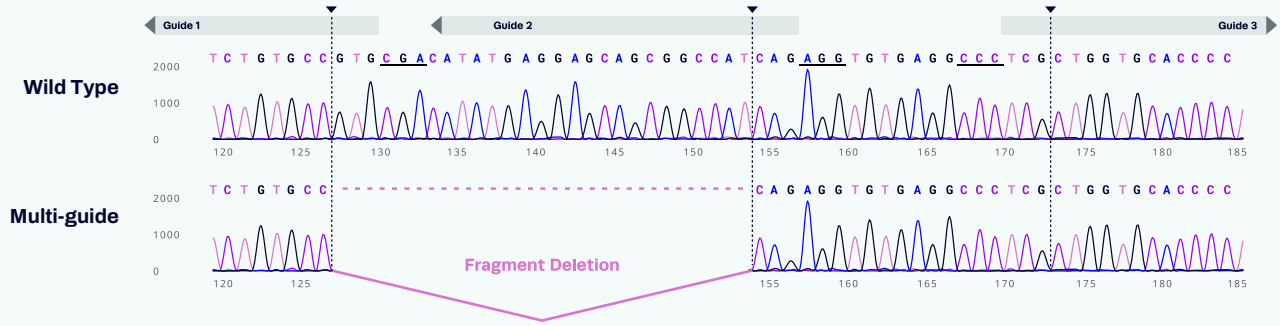


Figure 5. EditCo's XDel multi-guide design includes up to 3 modified sgRNAs (grey bars) that target a single gene of interest. When co-transfected, the sgRNAs create concurrent double-stranded breaks (vertical dotted lines) at the targeted genomic locus and consequently induce one or more 21+ bp fragment deletions.

Better knockout cells in a variety of cell lines and formats

Cell Lines	• Immortalized (customer-supplied or EditCo-supplied) • iPS (customer-supplied or EditCo-supplied)
Available Formats	• Cell pools (2 vials of cell pools, $5x10^5$ - $1x10^6$ cells/vial) • Cell clones (2 independent clones, 2 vials of each, $5x10^5$ - $1x10^6$ cells/vial) • Engineered Cell Libraries (2 vials of each pool, $2x10^4$ cells/vial, 20 minimum order)
QC	• NGS Sequencing,* including comprehensive QC report
Add-ons	• Additional clones, additional pools, intermediate pools

*Engineered cell libraries use Sanger sequencing, while all other pool and clone formats use NGS for QC. All provide detailed QC reports.

Learn More & Take the Next Step

Ready to accelerate your research with robust gene knockouts?

Visit to explore the science behind **XDel Knockout Cells**

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