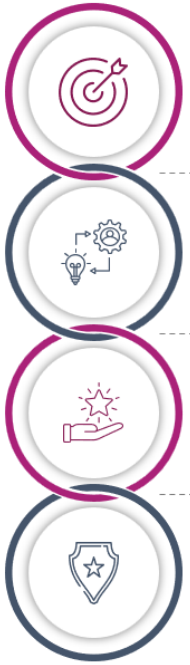
# Advancing gene editing platforms for rare diseases

## The Scientific Exchange

- Multi-stakeholder workshop spanning developers, academics and regulators
- Co-creation of concrete solutions
- Comprehensive paper summarizing outcomes

## 2024 focus: Gene Editing Platforms



### Objective

- Advance therapeutic development for rare conditions that are **scientifically feasible but commercially non-viable**

### Approach

- Define repeatable gene editing platforms that **streamline development and regulatory requirements** across multiple therapies for **rare populations**[1]
- Understand development and regulatory implications from successful platforms

### Benefits

- **Faster time to patient access**
- **Greater economic viability** (lower cost)

### Guardrails

- Maintain **favorable risk-benefit balance** for rare patients
- Ensure **appropriate regulatory rigor** maintained

1: Excluding oncology

# Gene editing platforms could transform rare disease therapeutic progress

## The promise of platforms

Adjust regulatory scrutiny consistent with previously demonstrated safety and efficacy

Demonstrate consistency on key parameters across products, enabling expedited development

Deliver cost savings due to avoided studies and streamlined testing

Enjoy streamlined regulatory review (due to expectations of ‘minimal differences’ across products)

Reflect urgency to treat due to lack of therapeutic options, disease severity, and lack of commercial viability

# Rare, serious conditions without therapeutic alternatives are initial application

## Now

- **High** disease severity
- **Low** disease prevalence
- **Few** treatment alternatives
- **High** feasibility

## Future

- Expand universe of targetable diseases
- Apply platform to more common indications
- Develop potential alternatives to symptomatic treatments

### High disease severity

- Serious or life-threatening condition
- Rapid patient deterioration lends urgency to develop medicine prior to irreversible harm (or death)

### Low disease prevalence

- Rare or ultrarare condition
- Standard development approaches likely to fail

### Few treatment alternatives

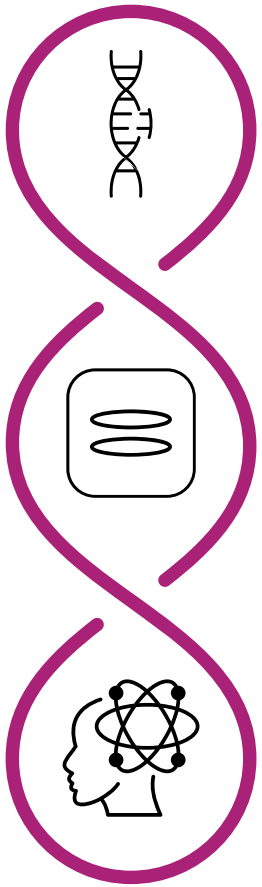
- Lack of effective SOC
- Limited symptomatic treatments

### High feasibility

- Can create desired edit at cellular level
- Can deliver sufficient cells to attain therapeutic benefit

# Gene editing platforms reflect modular components that may be consistent across therapies

| | | Fixed | Variable |
|---|---|---|---|
| Therapeutic target | Disease / syndrome | ☐ | ☐ |
| | Specific indication / target gene | ☐ | ☐ |
| | Target organ / cell | ☐ | ☐ |
| Therapeutic platform | Delivery | ☐ | ☐ |
| | Gene editing method | ☐ | ☐ |
| | Gene editor | ☐ | ☐ |
| | Guide RNA | ☐ | ☐ |
| Quality | Manufacturing (APIs / DP) | ☐ | ☐ |
| | QA / QC / analytical validation | ☐ | ☐ |
| | CQAs | ☐ | ☐ |
| Trial | Route of administration | ☐ | ☐ |
| | Endpoints | ☐ | ☐ |
| | Trial protocol | ☐ | ☐ |



Individual developers to identify fixed versus variable components of a gene editing platform

Fixed components remain equivalent across more than one development program

Fixed components offer the potential for more efficient development and regulatory approach

# Case studies on November 20 to unpack potential application of gene editing platforms

| | |
|---|---|
| 1 *Definition:* What is included in the platform? | What components are fixed within a platform? Consider delivery method, editing technology, target cell/tissue/ disease area, or other key components. What is the rationale for fixing these components within the platform? |
| 2 *Medical benefit:* What diseases could the platform address? | What specific conditions could the platform target?<br>What unmet need does the platform address? How does the platform potentially benefit the rare disease community? |
| 3 *Performance assessment:* How is the platform characterized? | What measurable parameters ensure the platform is performing as expected? What body of evidence indicates a predictable, safe and efficacious platform? |
| 4 *Efficiency:* What steps does the platform streamline? | What steps in R&D and manufacturing can be omitted or done more efficiently due to platform predictability? How is a manufacturing process linked to the platform? How do these efficiencies manifest in early or late-stage development, or manufacturing? |
| 5 *Value:* What is the value from platform efficiency? | What are the savings ($, FTEs, time) associated with each 'streamlined' development and manufacturing step? Are there regulatory review savings from the platform? Please quantify. |
| 6 *Risk mitigation:* How viable is the proposed platform? | What uncertainty is associated with skipped or streamlined steps? How can this uncertainty be addressed? What regulatory flexibility (if any) is required to proceed with this platform? Do regulators have the necessary tools to oversee the platform? |

# Scientific Exchange partners

Alliance for Regenerative Medicine

International advocacy organization championing the benefits of engineered cell therapies and genetic medicines for patients, healthcare systems, and society

International Society ISCT Cell & Gene Therapy®

Global KOL-led society comprising over 4,000 clinicians, regulators, researchers, technologists, and industry partners, driving the clinical translation of cell and gene therapies worldwide to improve patients' lives

danaher

Global life sciences and diagnostics innovator