INCREASING BIOPHARMA PRODUCTION EFFICIENCY USING DECOY-7

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BIOPHARMA CHALLENGES

• High Cost of Biologics Production
• Greater Demands on Cell Line Development
• Higher Titres
• Higher Cell Densities

→ Greater Efficiency

• Greater pressure on pipelines (turnaround, etc.)
Improving processes using miRNAs

MicroRNAs:
- Post-transcriptional regulators
- Many targets
- Known to influence many processes in cell
- Not translated
miRNA-7 as a Process Target

• microRNA-7 (miR-7)
• Active following temperature shift (37°C-31°C)
• miR-7-depletion tool: DECOY-7
• Functional studies demonstrate miR-7 depletion has a beneficial effect on CHO bioreactor performance:
  • increased cell density
  • increased viability
  • increased product yield

Sanchez et al. 2013. MiR-7 triggers cell cycle arrest at the G1/S transition by targeting multiple genes including Skp2 and Psme3. PLOS One. 8(6):e65671
DECOY-7: CELL DENSITY
DECOY-7: VIABILITY

The graph shows the % Viability over time for Ctrl K1 and DECOY-7 K1. The % Viability decreases over the 13 days, with DECOY-7 K1 showing a slightly steeper decline compared to Ctrl K1.
DECOY-7: CELL PRODUCTIVITY
What DECOY-7 means for you

- These features together have the potential to:
  - increase per-run profitability,
  - decrease time required to deliver requisite titres,
  - facilitate downstream purification
How we can work with you

Collaborate to find a comprehensive solution to your upstream cell line development challenges;

- Transient transfection of your existing processes (as a media additive)
- Licence/technology transfer to implement DECOY-7 under your in-house control
- Collaborative research on your specific cell lines at the NICB
Scientific Team

Biopharma & CHO Cell Engineering Group

Multidisciplinary research centre, with over 25 years experience in integrated research in fundamental and applied cellular biotechnology, molecular cell biology and biological chemistry.

The mission of the NICB is to provide targeted and applied solutions to challenges facing the Biopharma industry, utilising our unique multi-disciplinary team, our extensive clinical & industry network and our collaborative problem-solving expertise to deliver value for stakeholders, collaborators and patients.
NATIONAL INSTITUTE FOR CELLULAR BIOTECHNOLOGY

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