財團法人生物技術開發中心
Development Center for Biotechnology

Bioprocess Development of Chimeric Antigen Receptor (CAR) T Cells

CAR-T cell therapy is a promising approach for cancer diseases, and the quantity and quality are the critical factors for manufacturing. Via the optimized process overcoming these challenges, we now can expand the number of CAR-T cells more than 150 fold after a six-day culture. The major subsets are **Th1 and cytotoxic T (CTL) cells** with cellular immune function. Our CAR-T cells showed **an increase of *in vitro* cytotoxicity and IFN-γ production,** compared to the benchmark control.

Altogether, CAR-T cells in DCB's condition showed high quantity and quality for further application.

Application
- **Immune cell therapy**
- **Cancer therapy**
- **Adoptive cell transfer**
- **CAR-T cell production**

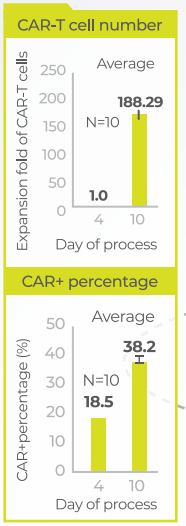
Highlights

High cell expansion fold

Th1 and CTL are major subsets

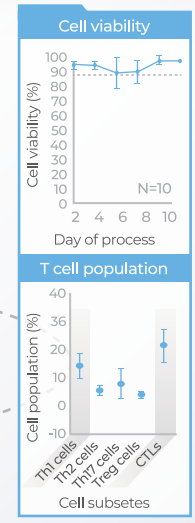
Higher cytotoxicity activity

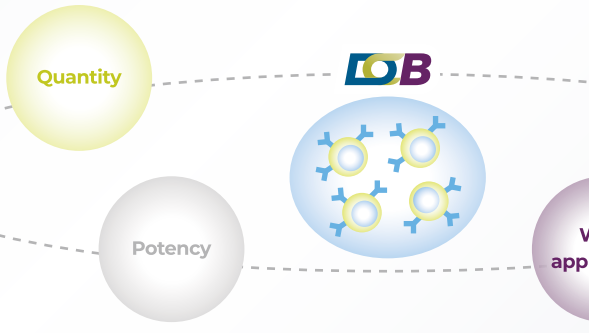
Higher cytokine production



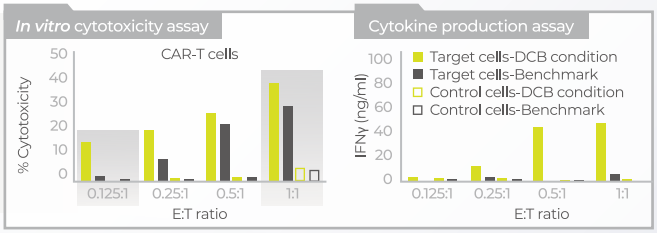
- **High cell expansion fold:** More than 150 folds in 6 day-expansion
- **Increase CAR+ cell population:** 5-20% of CAR+ cells increased

- **High cell viability:** Above 98% in the endpoint
- **Cellular immunity populations:** Th1 and CTL were major subsets





- **Higher cytotoxicity activity:** 5-10% of target cell killing increased
- **Higher cytokine production:** 5-30 ng/mL of IFN-γ production increased



- **Simple generic conditions:** 3 CAR-T cells have been applied in the optimized conditions

Tony Muhua Chung | Department of Business Development | Development Center for Biotechnology
E: tony.chung@dcb.org.tw | T:886-2-7700-3800 ext 5235
A: No. 107, Ln.130, Sec. 1, Academia Rd., Nangang Dist., Taipei City 11571, Taiwan R.O.C. | 2020.07.10 update