CARTHERICS

The Future of Cancer Treatment

Our strategy

October 2019

CARTherics

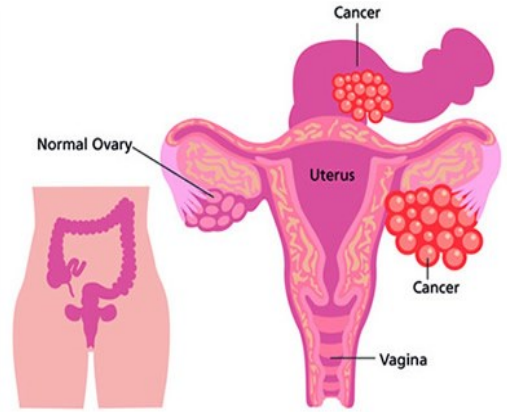
Cartherics Pty Ltd

- Founded 2015
- Laboratories and offices at Monash Health Translation Precinct, Melbourne, Australia
- Series A financing AU$5M completed late 2015
- Series B Financing AU$5M (plus an optional AU$1.3M)
- Federal and State Grants AU$3.5M
- Company operations commenced January 2016.

Preparing for two Phase I/II Autologous Clinical Trials

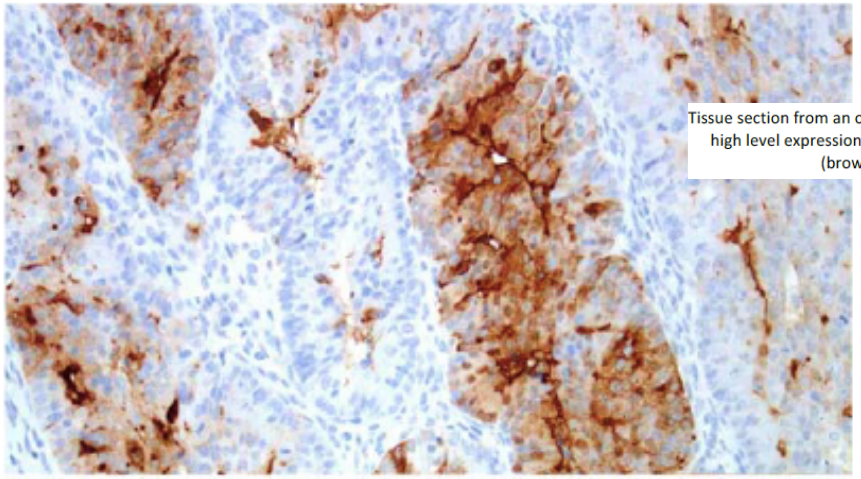
1. Cutaneous T Cell Lymphoma
   - Product CTH-001
     (anti-TAG-72 CAR-T cells)

2. Relapsed Ovarian Cancer
   - Product CTH-004
     (anti-TAG-72; + gene k/o CAR-T cells)



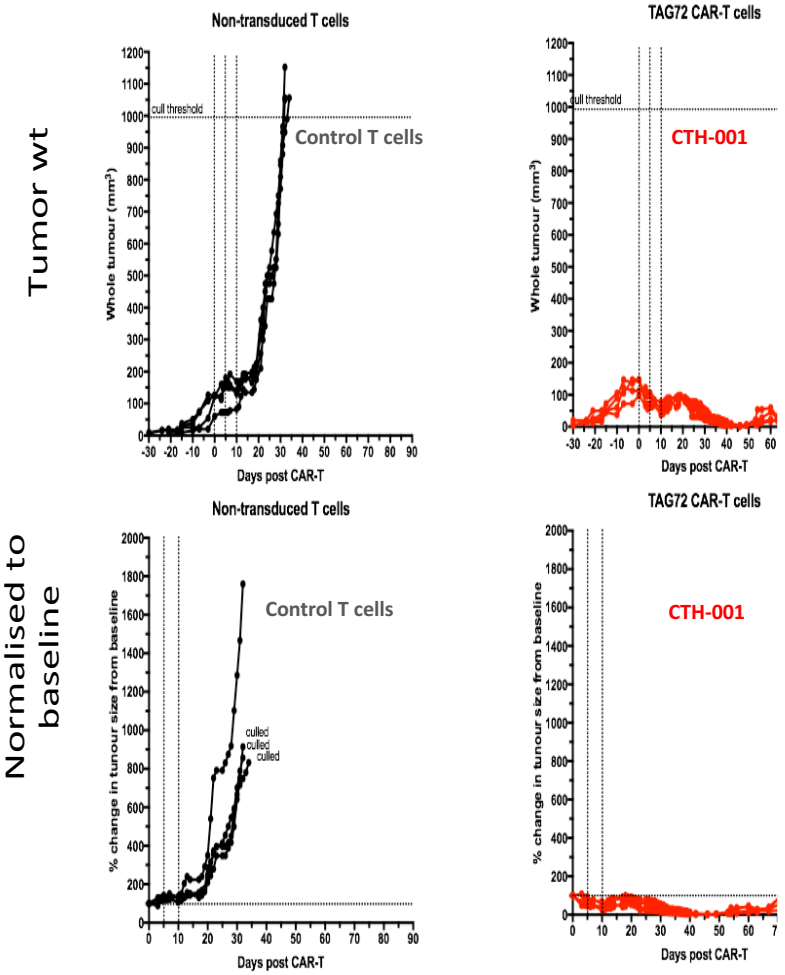
Initial cancer target: TAG-72

- Glycoprotein found on the surface of many types of cancer cells, including breast, colon, gastric, lung, pancreatic and ovarian cancers (+ T Cell Lymphoma)
- Human tissue distribution studies have shown >95% of serous and >85% of clear cell ovarian cancers are TAG-72 positive
  - Expression levels increase in malignant disease.



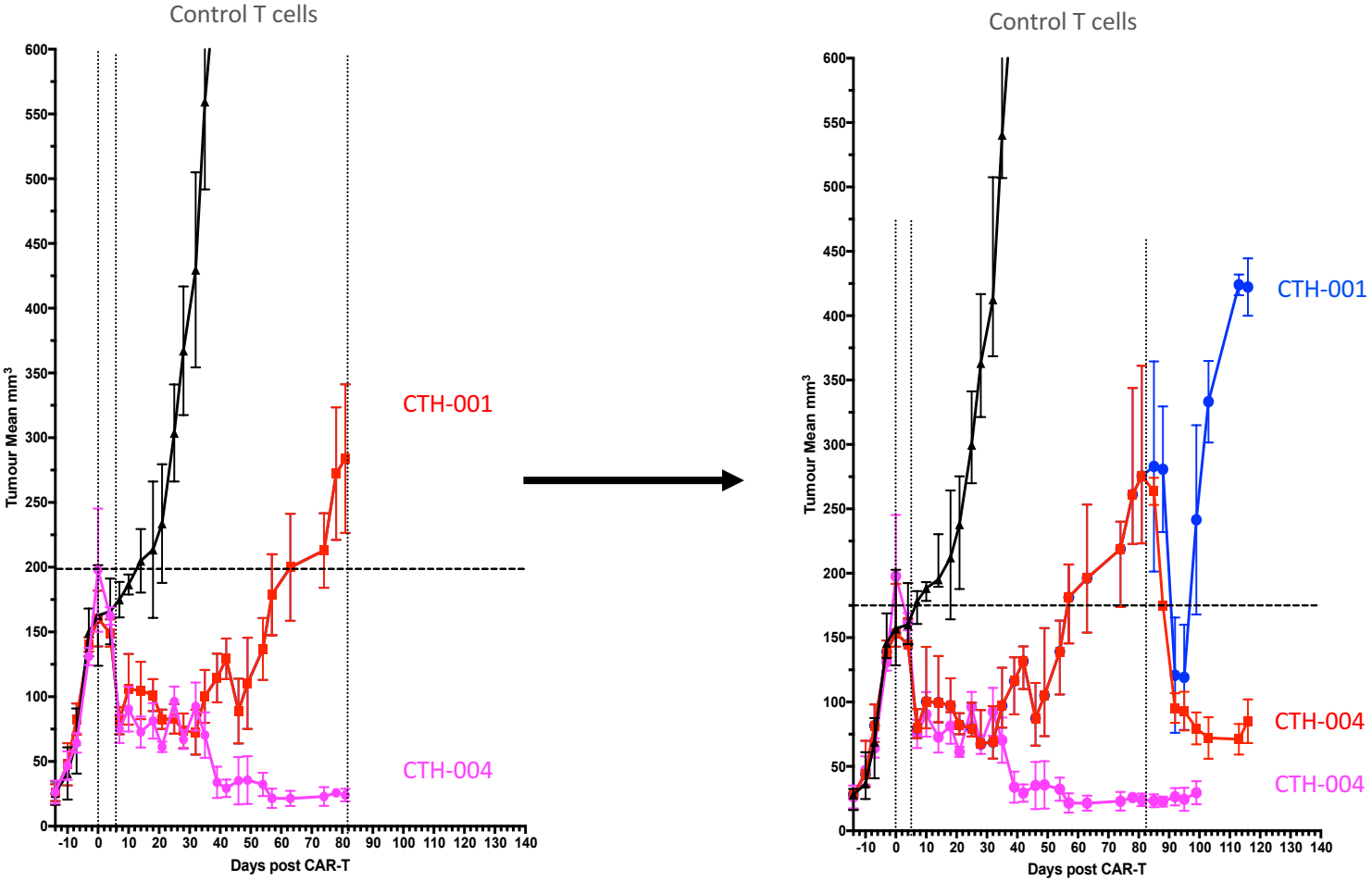
Tissue section from an ovarian cancer biopsy showing high level expression of TAG-72 by tumour cells (brown staining).

Killing human ovarian cancer xenografts in NSG mice : CTH-001 (anti TAG-72)



- Ovcar 3 Tumors grown to 100m^3;
- TAG72 CAR-T cells injected 3 times, 5 days apart;
- Control mice given non-transduced T cells;
- All controls had to be culled by 40 days;
- TAG 72 CAR-T cells showed strong reduction in tumor size to 70 days

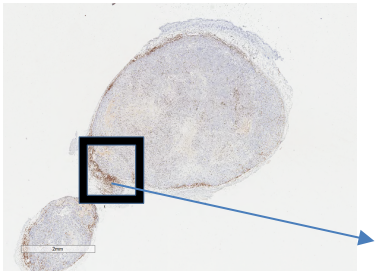
Killing human ovarian cancer xenografts in NSG mice : CTH-004 (anti TAG-72 + gene K/O)



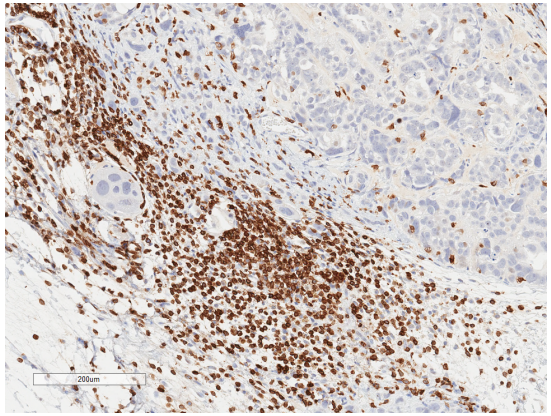
CARTherics

Histology of human tumours and remnants

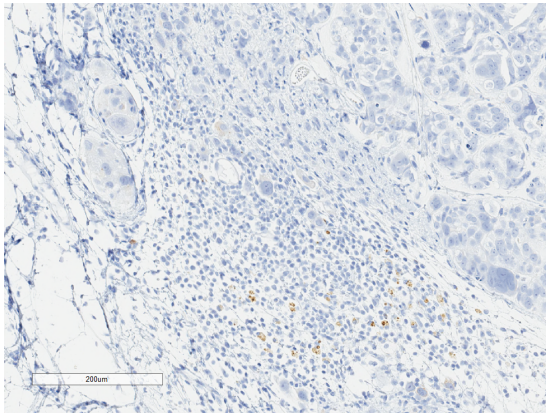
OVCAR3 - CTH-004 100 days



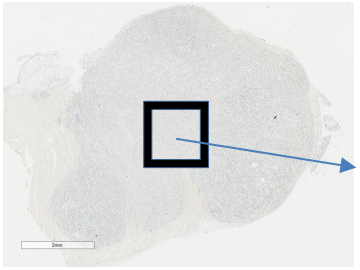
hCD3+ CAR-T cells

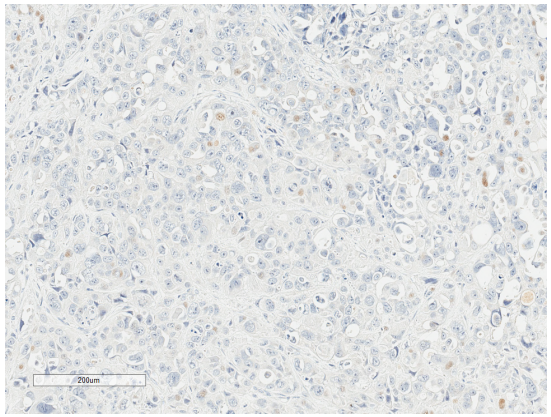


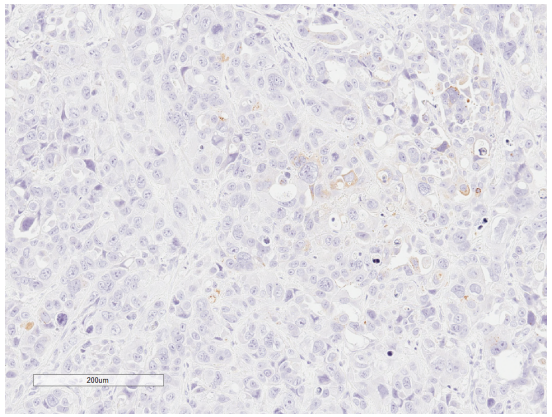
TAG-72 – brown stain



OVCAR3 - Non Transduced 30 days



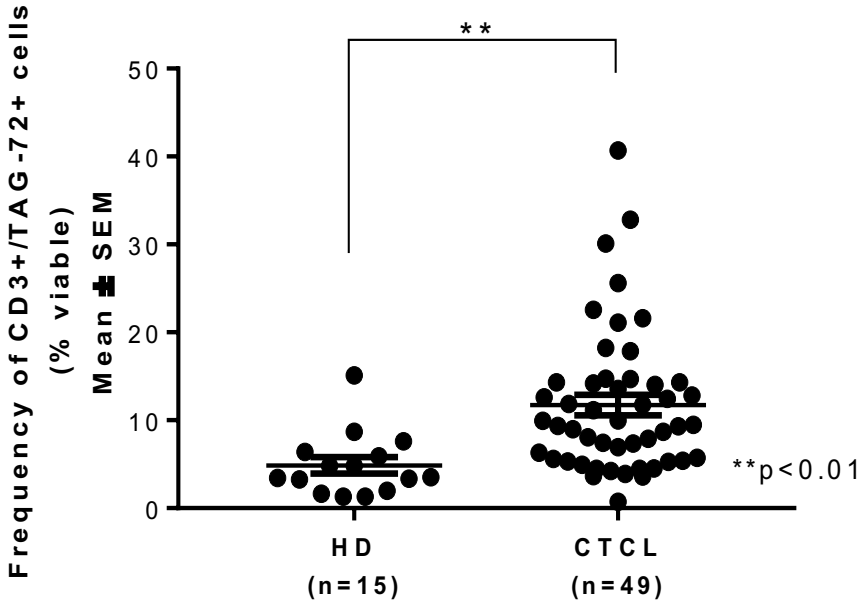


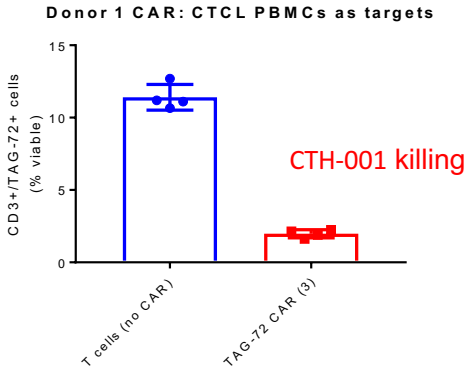


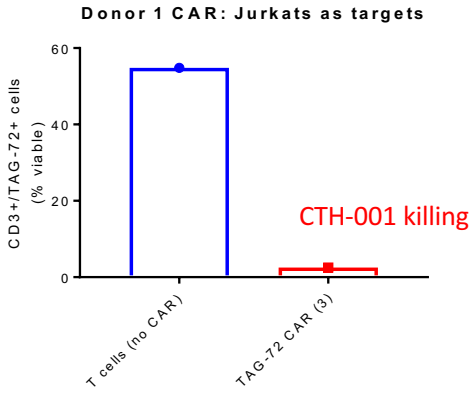
T cell lymphomas express elevated TAG-72

- There is a strong precedent for treatment of lymphomas with CAR-T cells
- A significant proportion (>40%) of patients with T cell lymphoma (TCL) show elevated levels of circulating TAG-72+ T cells
  - Cartherics' CTH-001 cells kill these T cells - see next slide
- There are very few therapeutic options available for these patients
- Cartherics to study Cartherics CTH-001 as an autologous therapy for TCL.

Tag-72+ Cutaneous T Cell Lymphoma (CTCL) patients: CTH-001





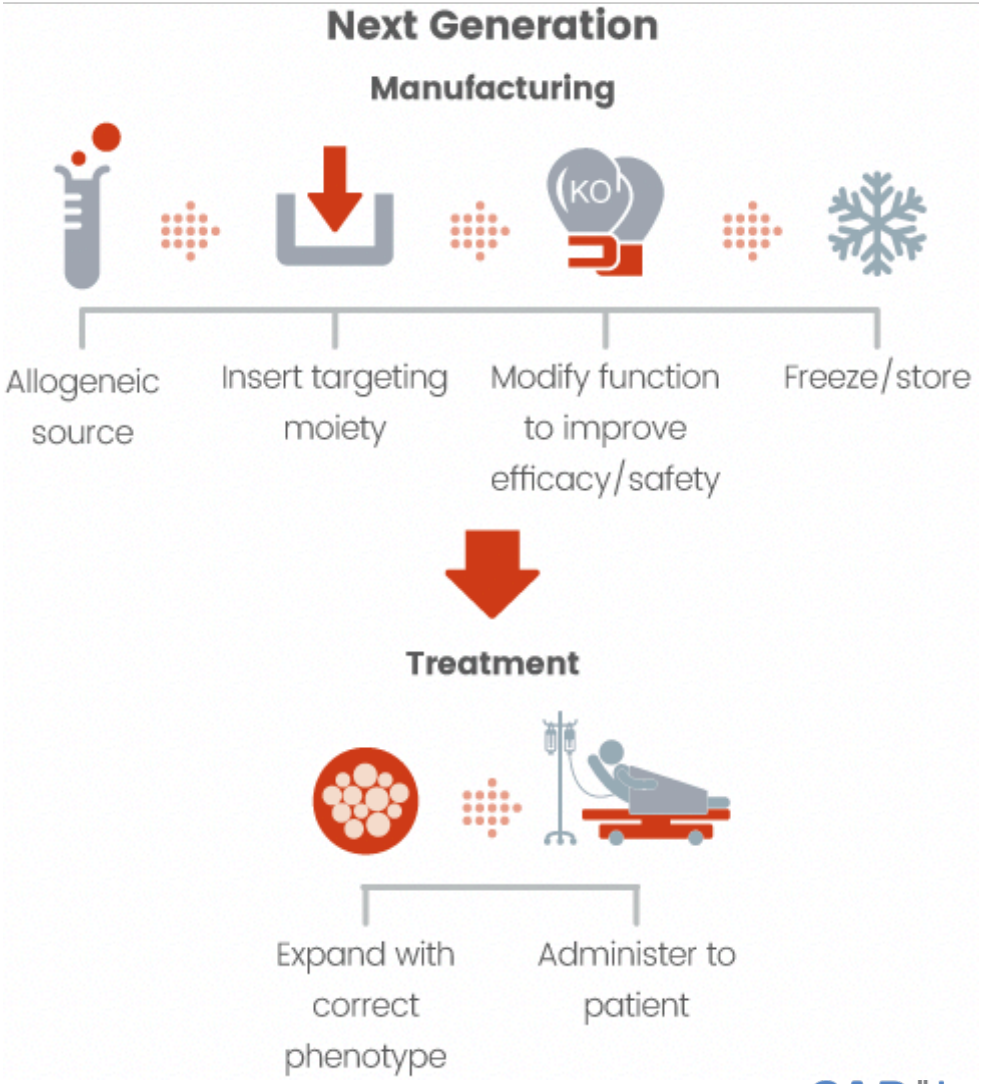


CAR-T killing TAG-72+ cells

Off-the-shelf – Allogeneic cancer therapy

Umbilical Cord Blood Donors

HLA haplotype iPSCs

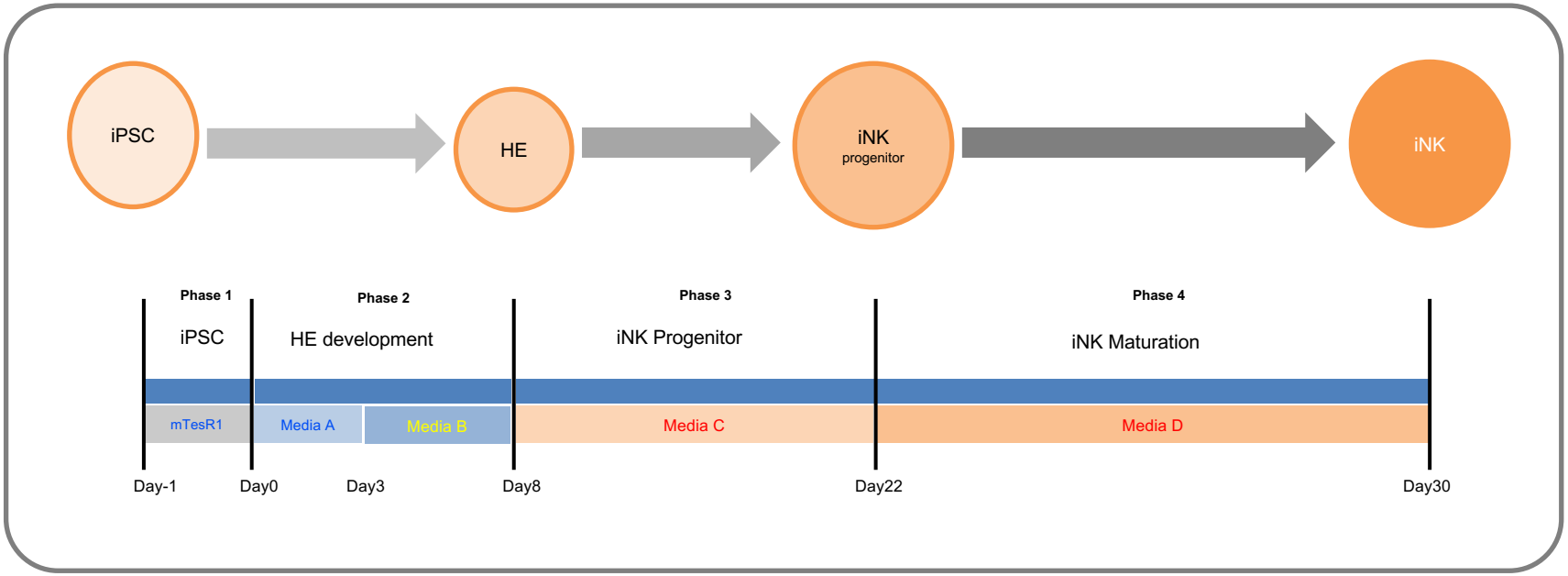


Cartherics is also preparing for ….

- **‘first in human’** Phase I/II Allogeneic CAR-NK cell clinical trial, Product CTH-401; relapsed ovarian cancer, and

- product developed through Federal Government CRC-P Grant of AU$3 Million to Cartherics, Mesoblast, Cell Therapies, Monash University and Hudson Institute of Medical Research.

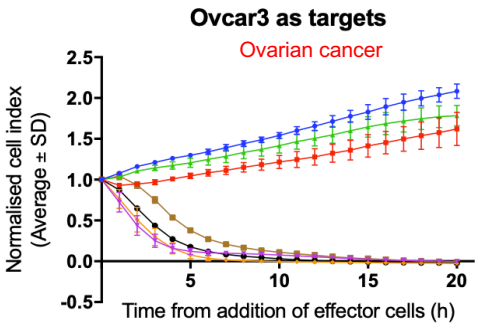
iPSC to NK method of manufacture

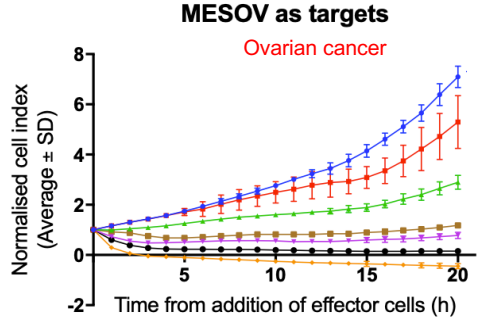


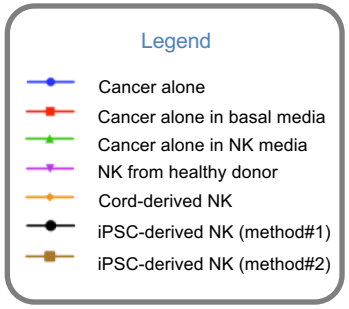
Overview

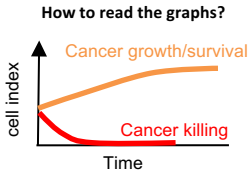
- Total time: 30 days
- Method designed on patterning cell development that mimics natural NK development in the body
- Focus on xeno-free, scalable, molecularly-defined and clinically translatable systems
- ***~150,000 iNK cells per iPSC***

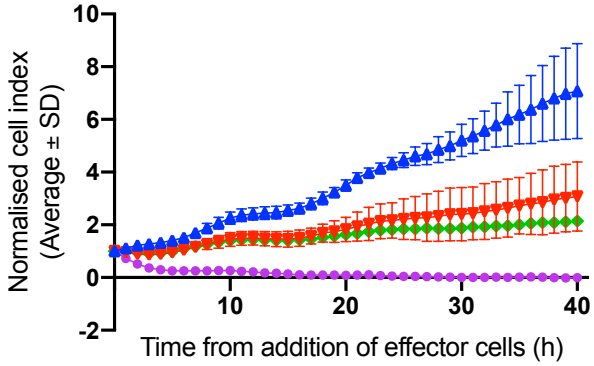
iNK Cytotoxic function on ovarian cancer cells in vitro











Target cells alone
Non-transfected iNK
GFP iNK (unsorted)
CTH-403 (TAG-72 CAR iNK)

Take home message:

1. iPSC derived NK cells kill ovarian cancer in vitro
2. iPSC-NK cells function similar to normal NKS
3. TAG-72 CAR iNK increases killing of ovarian cancer

Company relationships

- Mesoblast - CRC partner
- Cell Therapies (Peter Mac) - CRC partner, Manufacturing partner
- ToolGen - Partnership for gene editing
- PanCella - Partnership for Immuno-cloaking and Fail-safe technology
- Berry Genomics – Genomics partnership.