

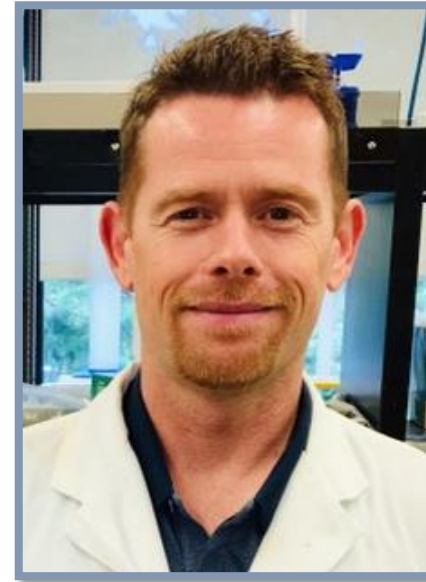
**A platform technology for safer,  
more effective cell-based therapies**

# Innovakine Founders



**Brad Nelson, PhD**  
**Co-founder and CEO**

Distinguished Scientist  
Co-director Immunotherapy Program



**Martin Boulanger, PhD**  
**Co-founder and CSO**

Professor of Biochemistry  
Canada Research Chair



University  
of Victoria

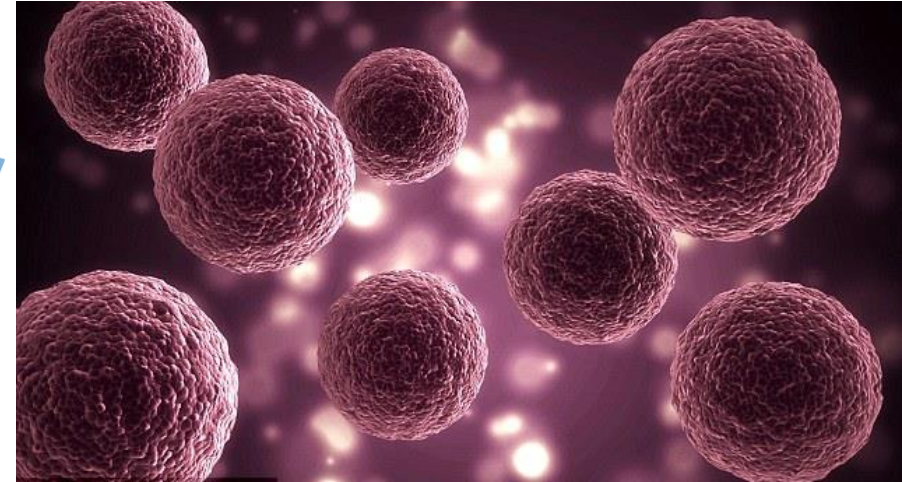
# Cell-based therapies: The next frontier in medicine



*From drugs...*

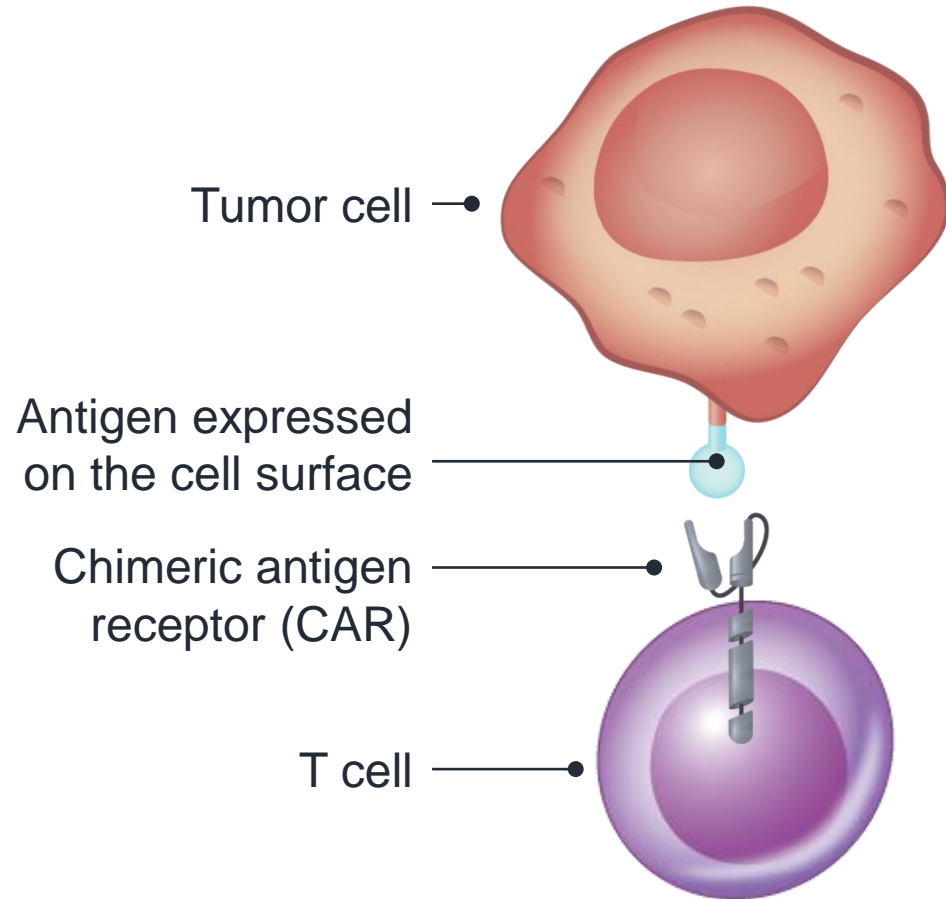


*...to cells*



- The use of genetically engineered cells is revolutionizing the treatment of cancer, and soon autoimmunity, transplantation, and regenerative medicine
- Realizing this promise will require a new generation of *molecular tools* to precisely control the behaviour of cells in the body

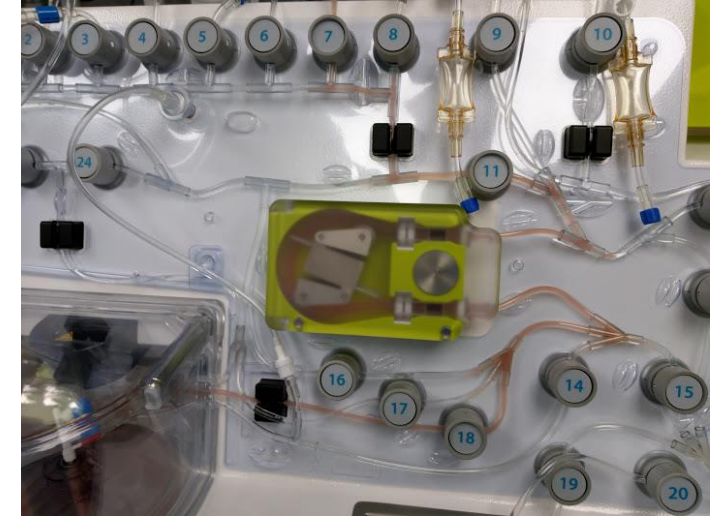
# CD19 CAR-T cells for leukemia and lymphoma



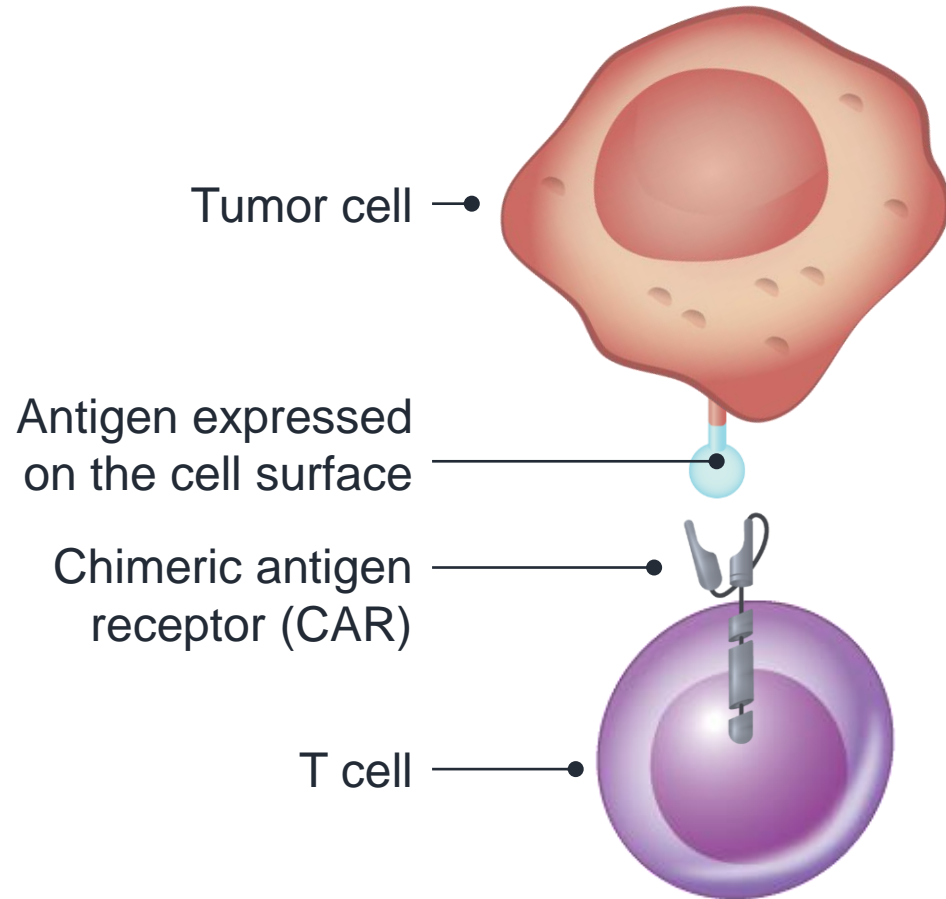
## A breakthrough in cancer treatment:

- 40-90% complete response rate in children and adults
- FDA and Health Canada approved
- Rapidly becoming standard of care for CD19+ leukemia and lymphoma

# CAR-T cell manufacturing in BC *Conconi Family Immunotherapy Lab*



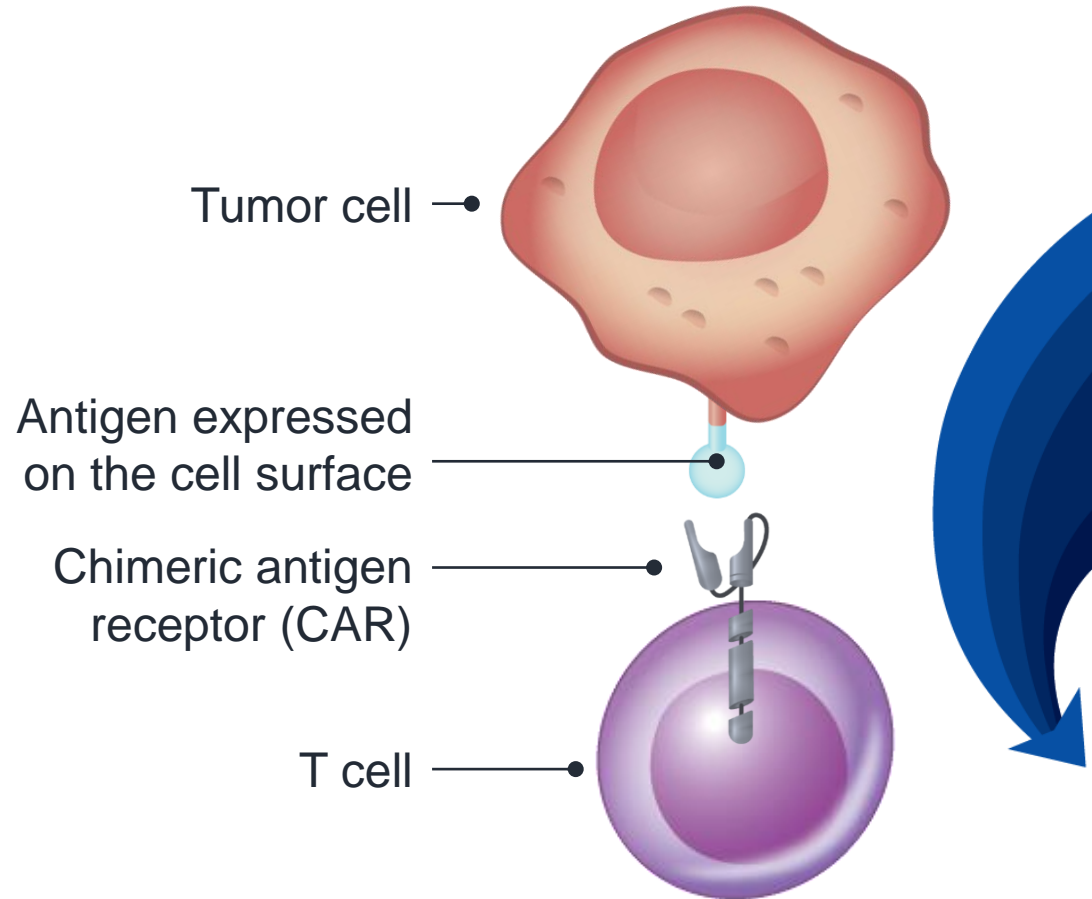
# CD19 CAR-T cells for leukemia and lymphoma



## But major challenges remain:

- Significant toxicities
- Poor penetration of solid tumors
- Difficult to safely target other cancers
- High manufacturing costs due to the need for personalized products and large cell doses

# CD19 CAR-T cells for leukemia and lymphoma



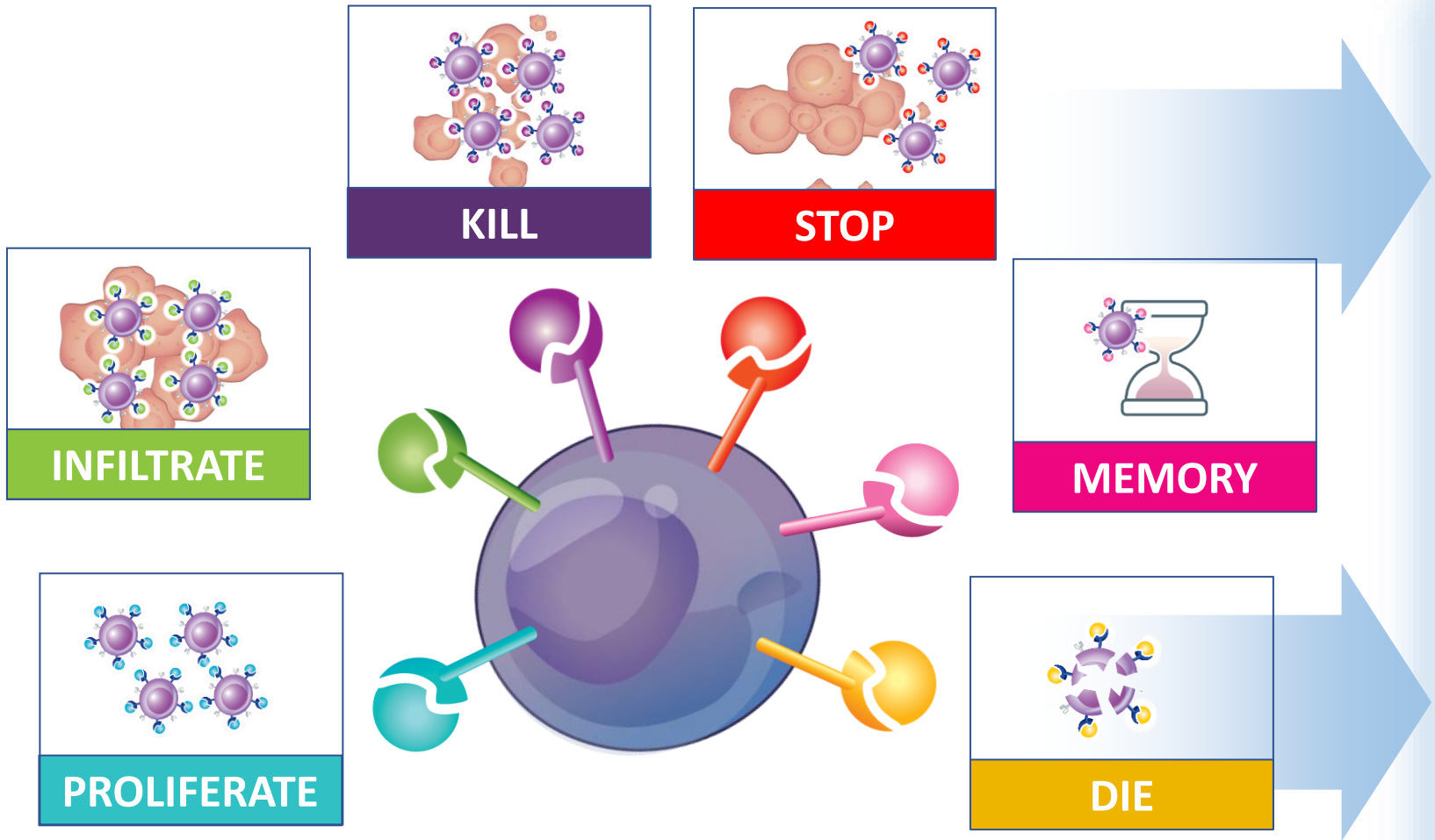
## But major challenges remain:

- Significant toxicities
- Poor penetration of solid tumors
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## The solution:

- Create precision tools to **control cell behaviour**

# Cell behaviour is controlled by receptors and their ligands (cytokines)

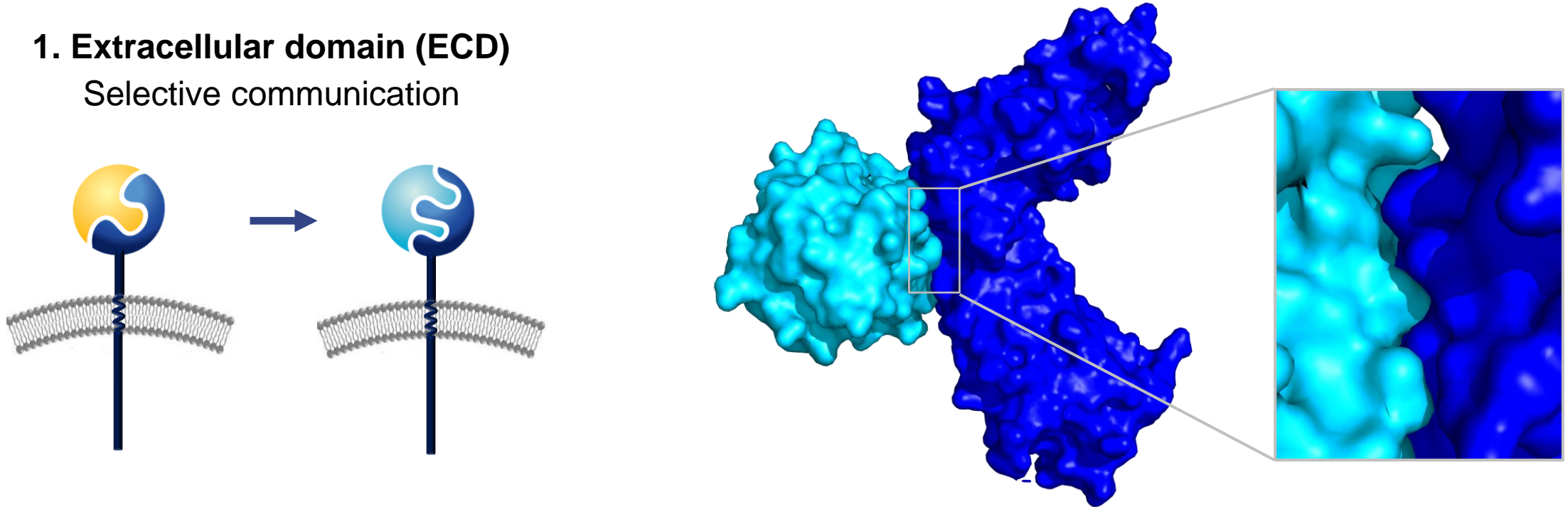


Innovakine is engineering **selective** cytokine/receptor pairs to deliver **precise** instructions to cells.

# A two-part platform technology enabling precise control of engineered cells

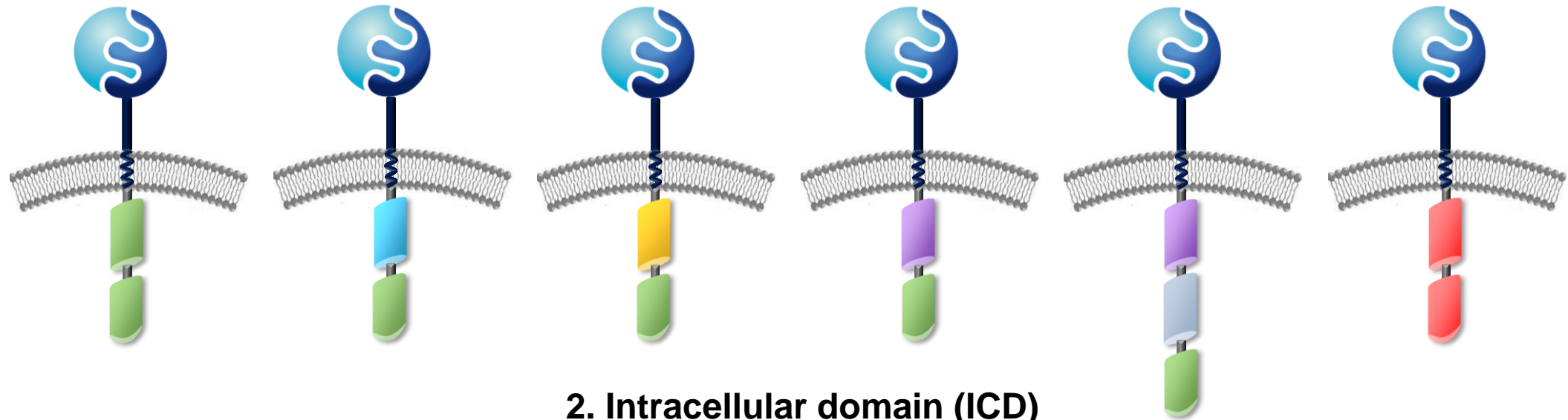
## 1. Extracellular domain (ECD)

Selective communication



- Selectivity of Innovakine's engineered ECDs is achieved by rebuilding the molecular interface between **cytokine** and **receptor**
- Provisional patent #1 – selectively communicating with engineered cells

# A two-part platform technology enabling precise control of engineered cells



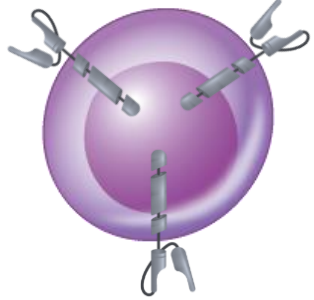
## 2. Intracellular domain (ICD)

Generating specific instructions for cells

- Precision is achieved by engineering ICDs to deliver signals tailored to desired therapeutic outcomes
- Provisional patent #2 – specific instructions delivered to engineered cells

# A tunable control mechanism to revolutionize targeted cell therapies

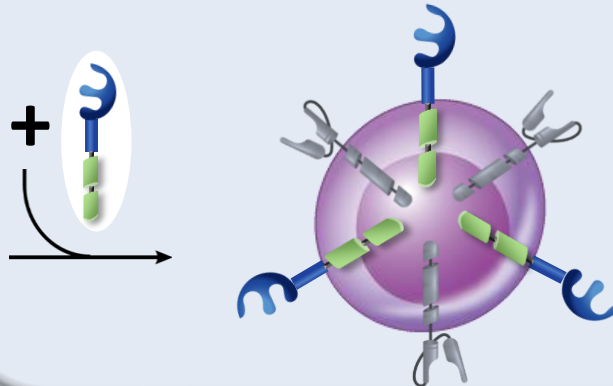
## CAR-T cells today...



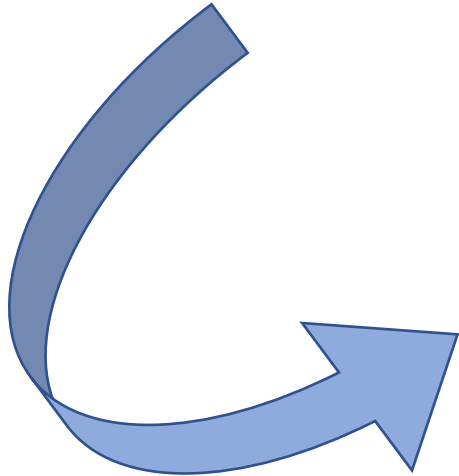
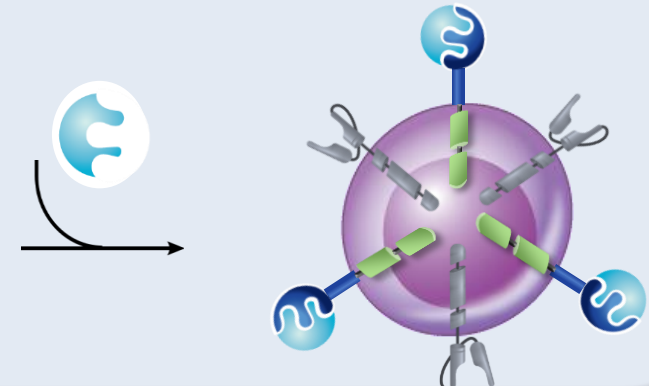
CAR-T cells are engineered to recognize tumours but lack control mechanisms to boost (or taper) therapeutic responses.

## ...and tomorrow

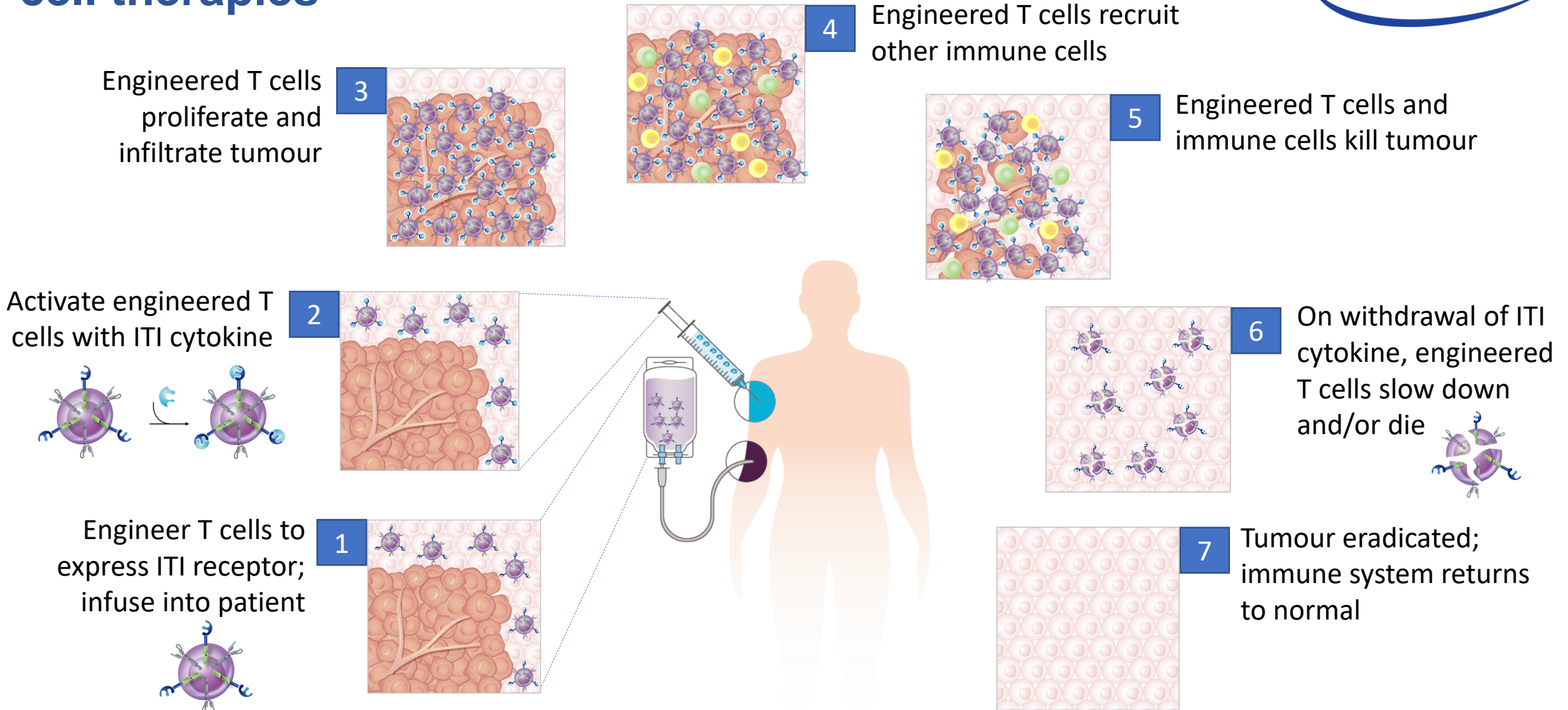
Innovakine receptor installed along with CAR



Innovakine cytokine sends synergistic activation signal to boost the CAR-T cell response



# A tunable control mechanism to revolutionize targeted cell therapies

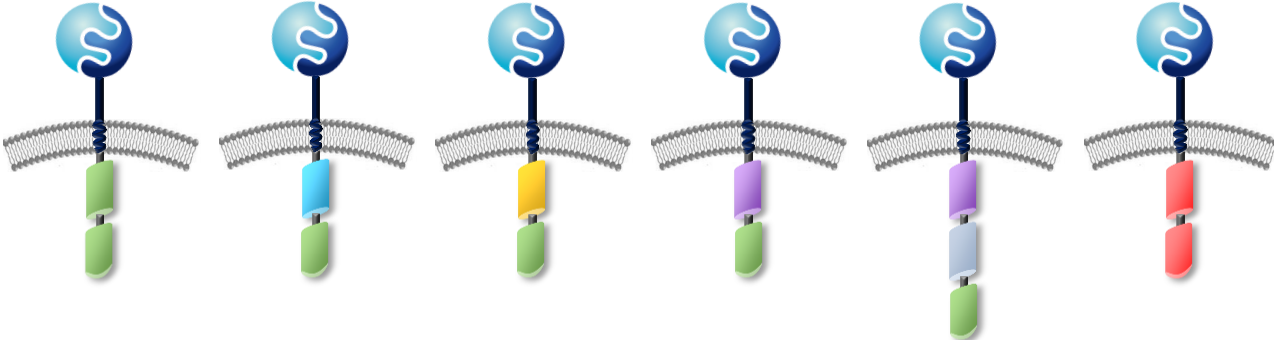


# A platform technology with the potential to enhance any cell-based therapy



## Core Technology

### 1. ECDs – Achieving selectivity



### 2. ICDs – Delivering specific instructions to cells

## Applications

- CD19 CAR-T cells
- Solid tumour CAR-T cells
- Engineered TCRs
- CAR-NK cells
- CAR-Macrophages
- CAR-Tregs
- Stem cells

Immuno oncology

Inflammation  
Organ transplant,  
Allergy

Looking beyond the  
immune system