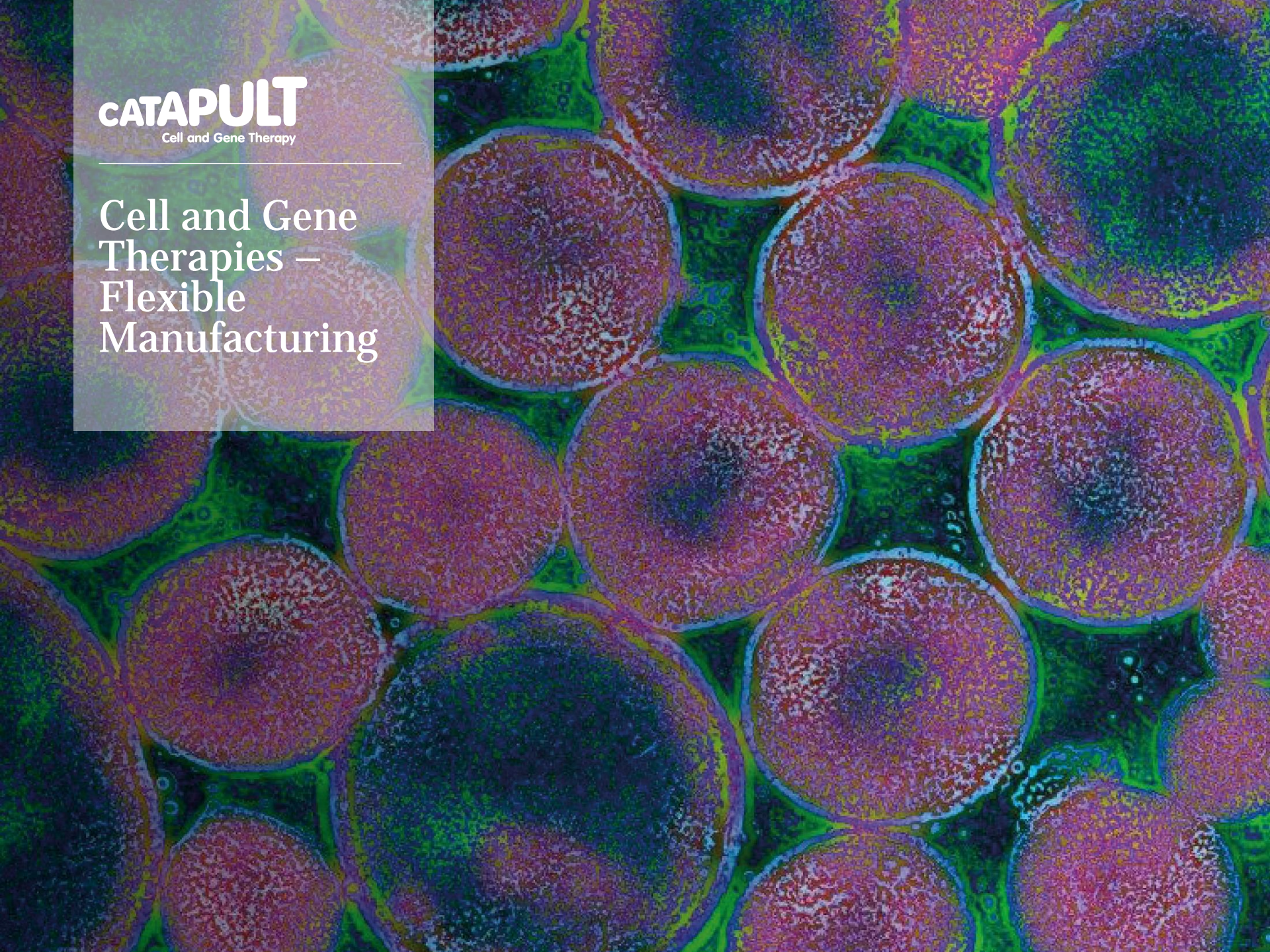




Cell and Gene Therapies — Flexible Manufacturing



The Cell and Gene Therapy Catapult



£70m Development Facility

- **1,200m²** Custom designed cell and gene therapy development facility
- **Prime location** in the heart of the London clinical research cluster
- **120** permanent staff

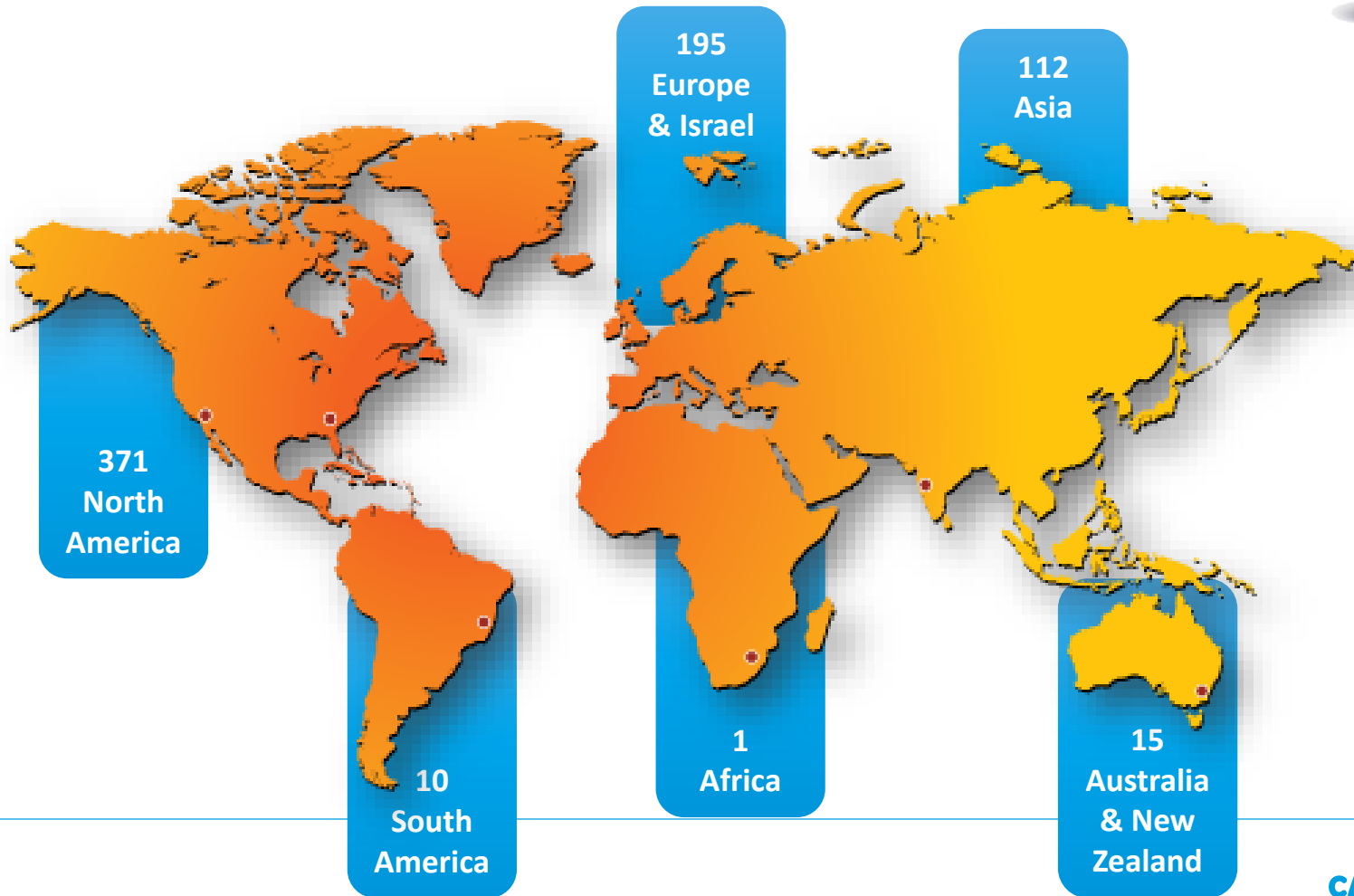


£55m large scale manufacture center

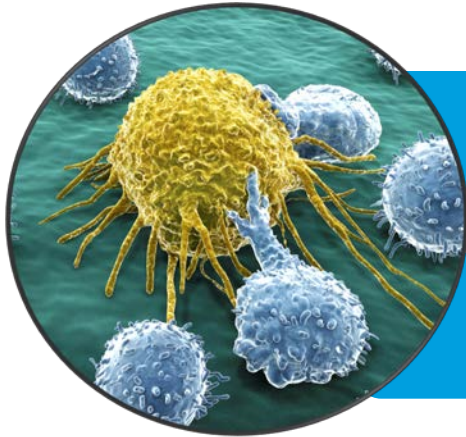
- **7,200m²** manufacturing centre designed specifically for cell and gene therapies
- **Located** in the Stevenage biocatalyst
- **Opening** 2017

A growing commercial field

704+ companies worldwide



An expanding field – Q2 2016



21 Approved cell/gene therapy products worldwide

728 clinical trials being conducted



223 Phase I clinical Trials

— 192 in Q4 2015

439 Phase II clinical Trials

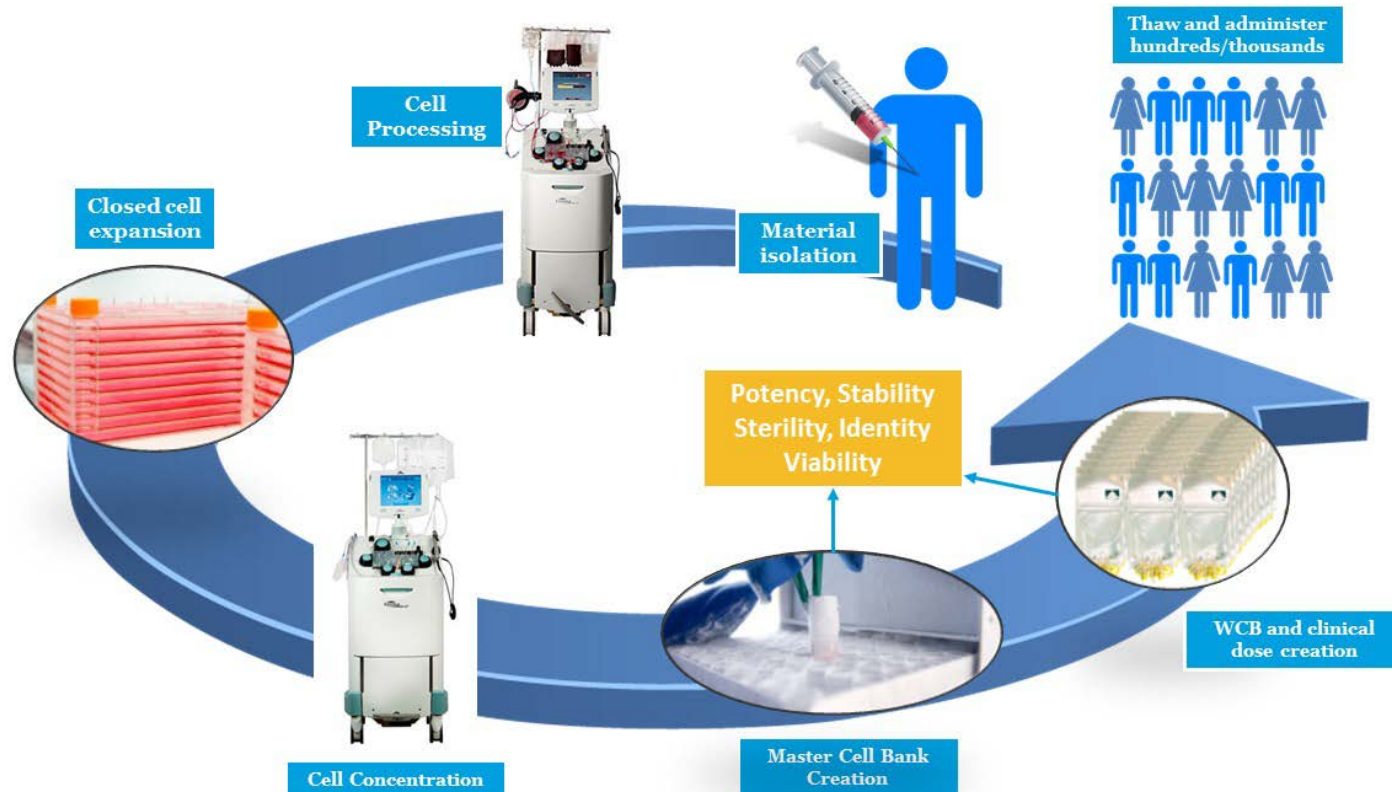
— 376 in Q4 2015

66 Phase III clinical Trials

— 63 in Q4 2015

Variations in product manufacture

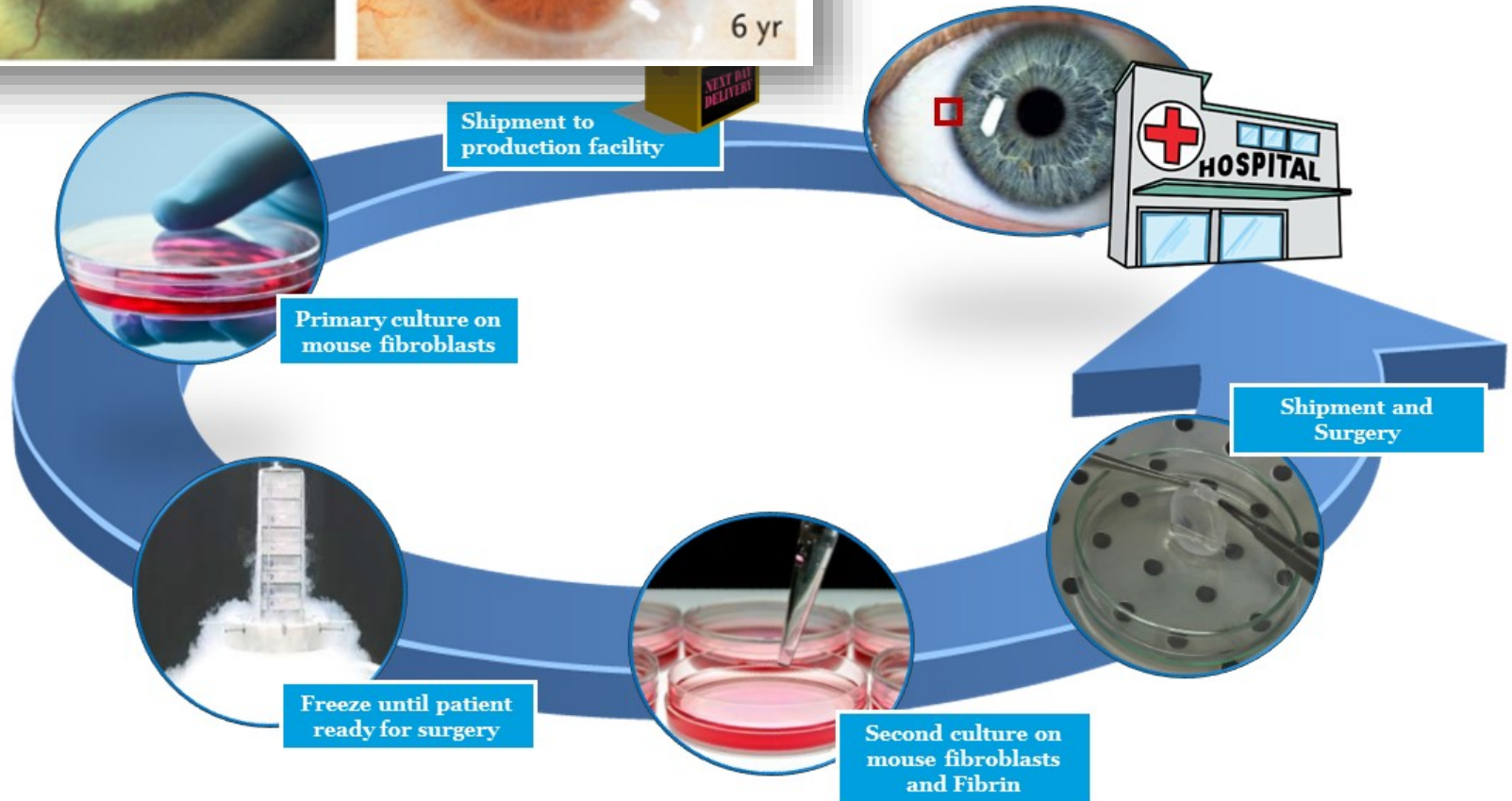
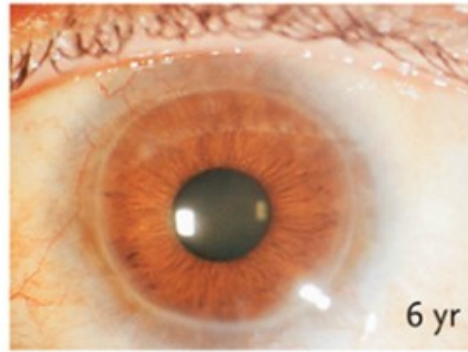
Allogeneic MSC product



Before Treatment



After Treatment



UK GMP cell and gene therapy manufacture 2016



CGT Manufacturing Centre



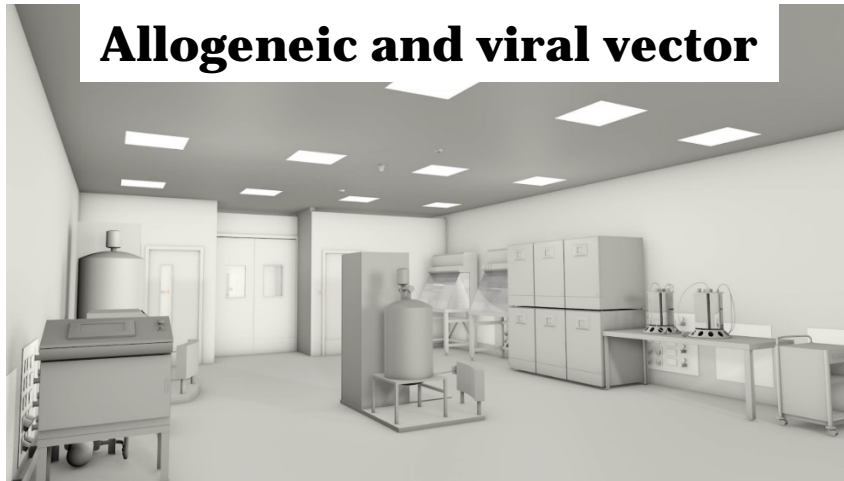
Why are we building a manufacturing centre?

- **To remove the capital investment risk for cell and gene therapy companies who need large-scale GMP manufacturing facilities.**
 - **The facility is a bridge to support companies in meeting the demands of clinical and commercial scale manufacture**
 - **Collaborators will have control over their process within the facility.**
 - **Their process. Their knowledge. Their success. Our support.**
-



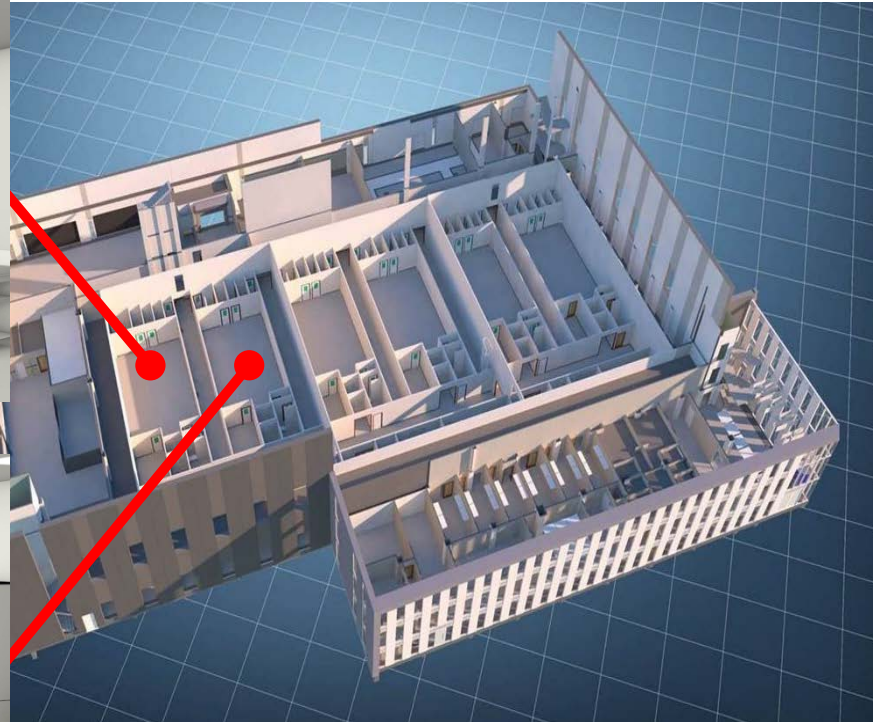
Large-scale GMP manufacturing facility

Allogeneic and viral vector

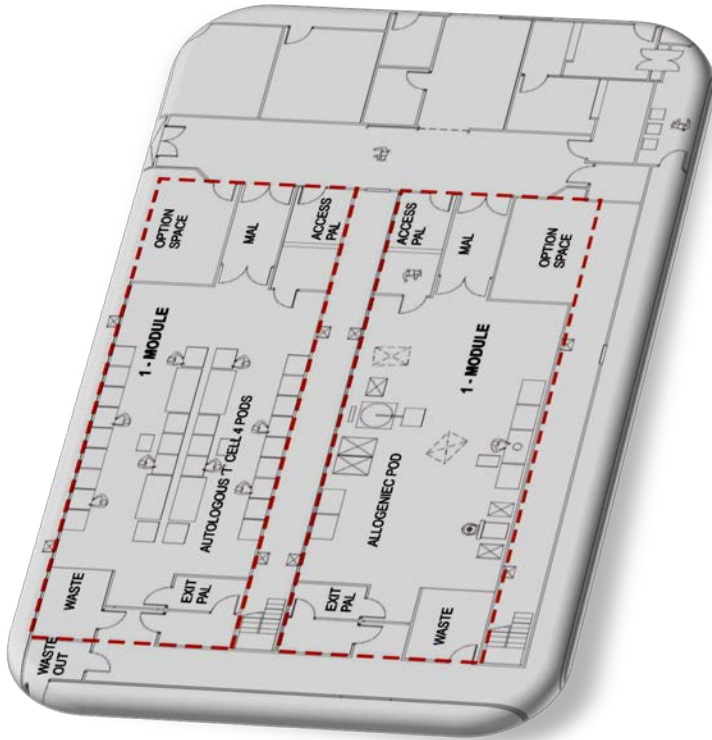


disposal

Autologous



Segregation at heart of design and operation



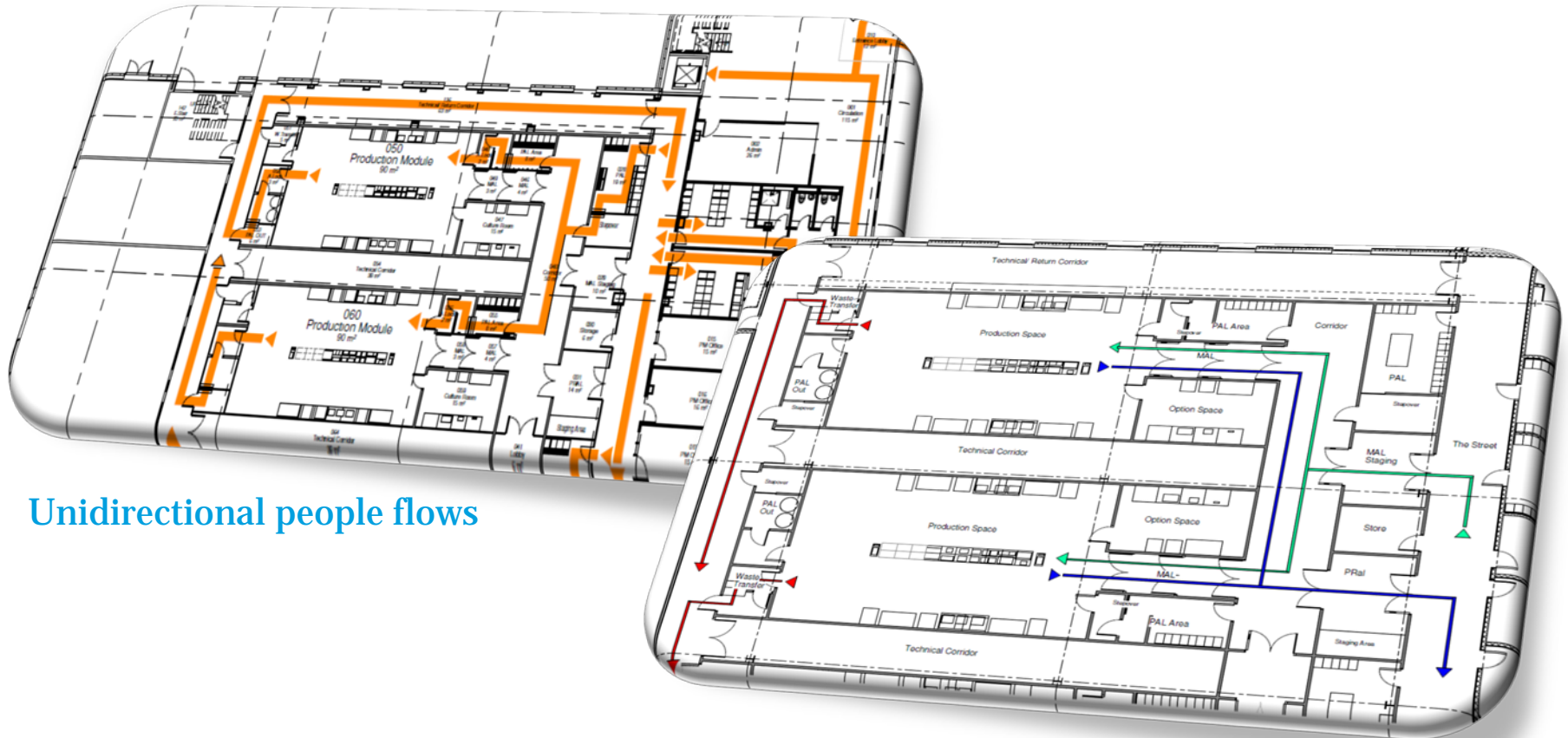
- **Physical**

- Architecturally segregated modules
- Technical corridors separate modules
- Walk on ceilings for plant access
- Single pass HVAC dedicated to each module
- Negative pressure sinks on all module entry and exit routes.

- **Information**

- Segregated data within BMS and EMS
- Hardwired & WiFi dedicated, secure Virtual Local Area Network.

People & material flow



Unidirectional people flows

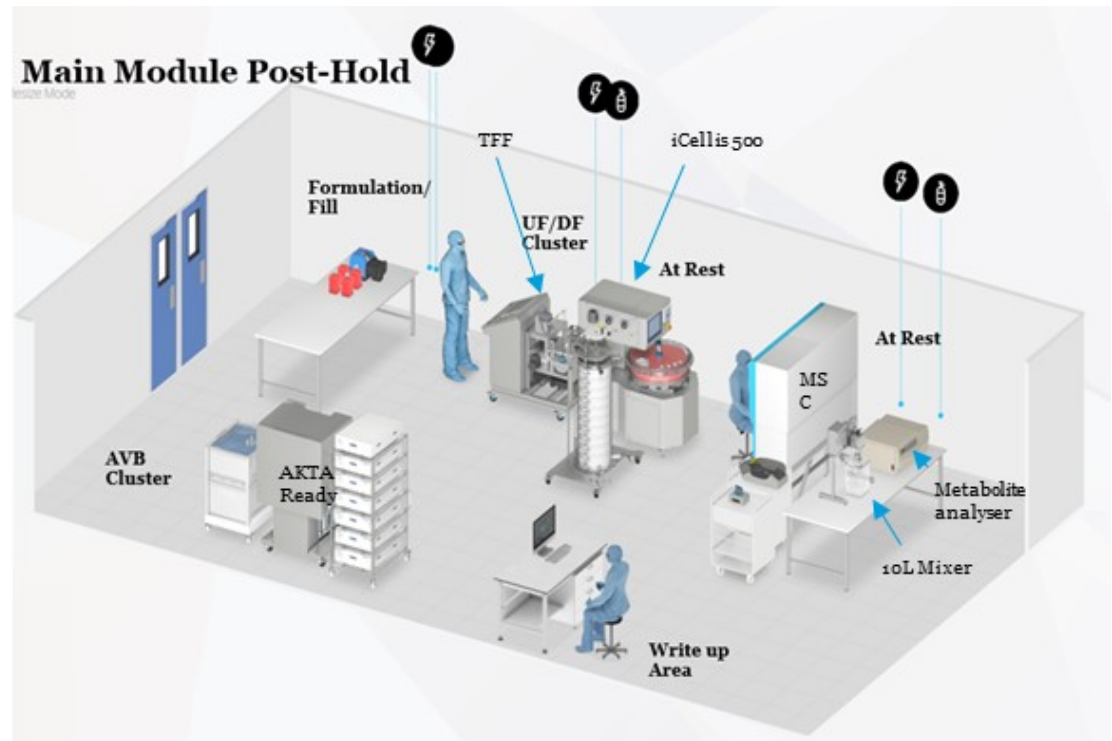
Segregated product, material and waste flows

VR modelling: Viral Vector Process Example

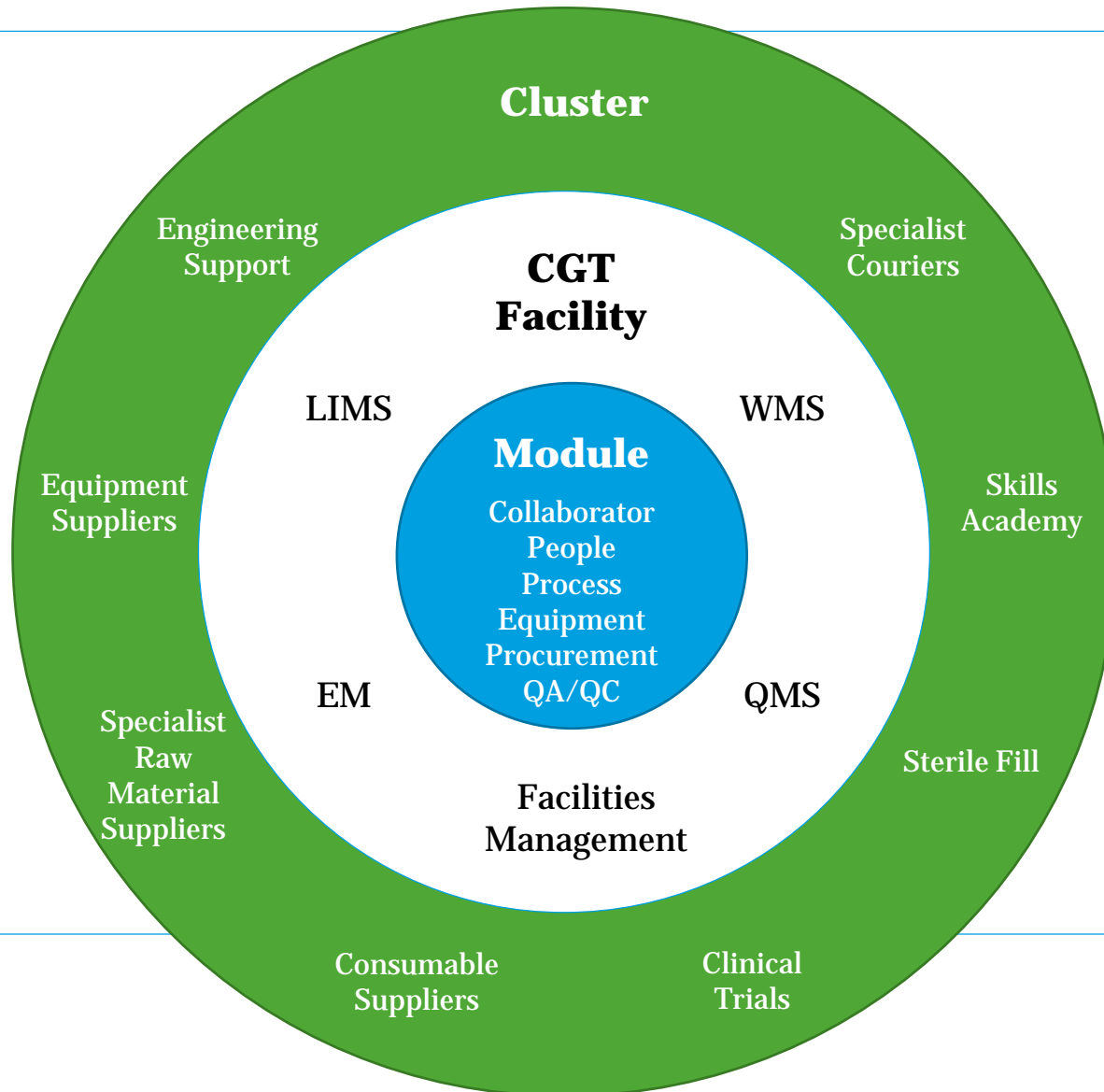
Facility layout options and configurations can be explored

Precisely modelled equipment allows:

- Equipment orientation
- Equipment access
- Auxiliary equipment positioning
- Waste and people flow
- Operational space



UK Cluster



A microscopic view of numerous cells, likely oocytes or follicles, arranged in a grid-like pattern. The cells are circular and have a textured, granular appearance. The background is a light, neutral color.

Its being built now

Investing in infrastructure

CGT Manufacturing Centre

Tue Oct 18 15:45:47 2016



CGTMC; (Sep 16)

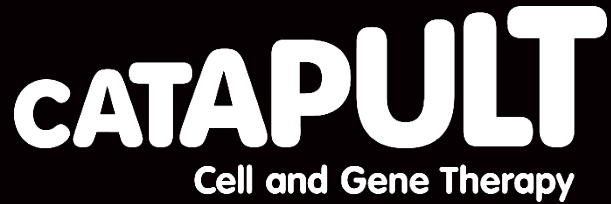


CGTMC: Ground floor (Sep 16)



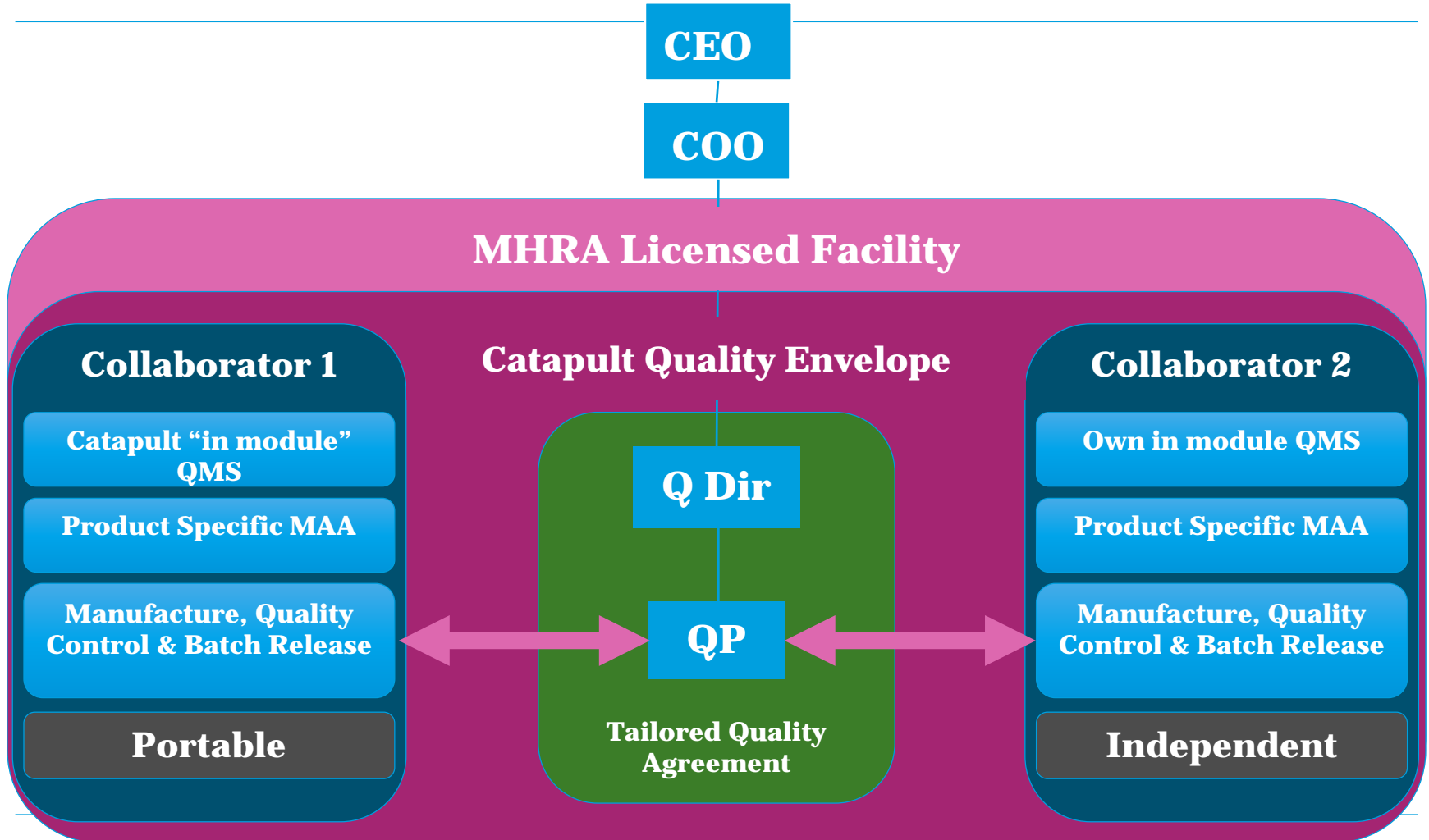
CGTMC; Cleanroom ceilings (Sep 16)





“Helping cell and gene therapy researchers and companies across the world translate their research into commercially viable and investable therapies that are safe, effective, scalable and affordable.”

Licensed facility



Accelerated Timeline

