Cancer Research UK and Cancer Research Technology collaborate with TYG oncology

Cancer Research UK and Cancer Research Technology (CRT), the charity's commercial arm, have signed an agreement with TYG oncology (TYG) to take its TYG100, a new antigen-specific, active checkpoint control cancer vaccine, into clinical trials involving cancer patients with advanced solid tumours.

CANCER RESEARCH UK

Let's beat cancer sooner

TYG ONCOLOGY

Addressing Cancers with Severe Unmet Medical needs

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Mansfield , Nottinghamshire NG18 1EX United Kingdom
Mail: fred@TYG-oncology.com Website: www.TYG-oncology.com

TYG oncology: New delivery & activation technology for a proven target

- TYG oncology (TYG) is a UK-based cancer therapy company
- TYG100, TYG's lead asset, facilitates the neutralisation of growth factors in multiple cancer indications
- Proven safety record based on existing clinical trial data of immunogen
- Selected for non-dilutive CR-UK funding for 2 orphan indications through clinical development
- US Orphan Drug designation granted; provides rapid route to market for severe unmet medical needs
- TYG is seeking up to £10.0m to have two orphan indications fully funded through Phase I/II

Mode of action of TYG100 enables unique, measurable, antibody response

- **G17 immunogen neutralises G17 and G17-Gly: growth factors for pancreatic and gastric cancers**

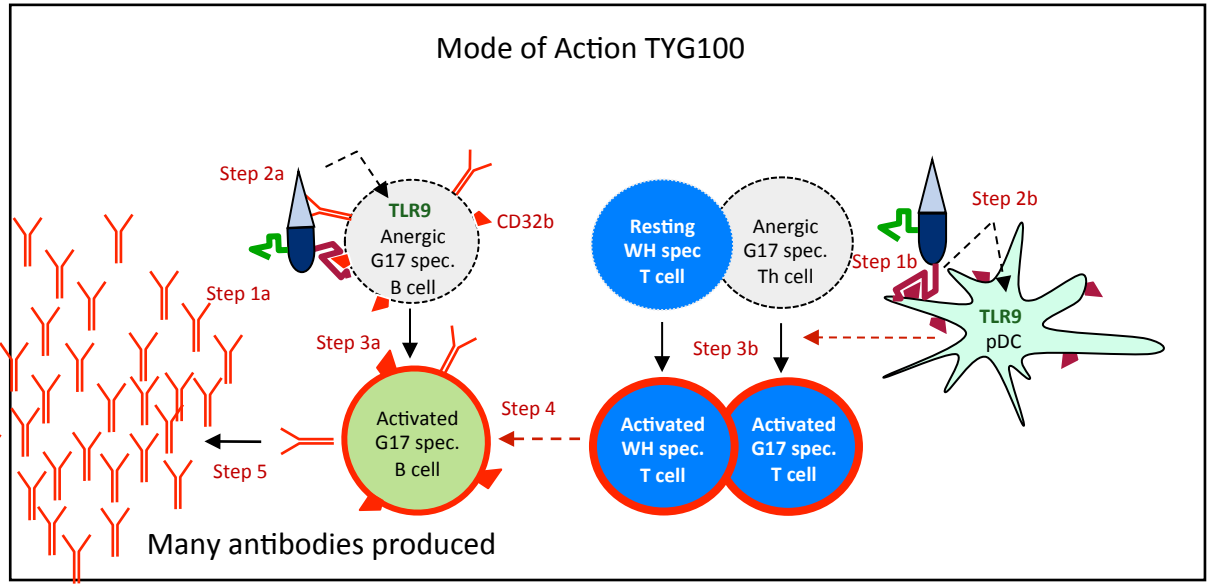
- **S-TIR enables specific binding to plasmacytoid dendritic cells (pDCs) and B cells to program them to neutralise G17 growth factors**

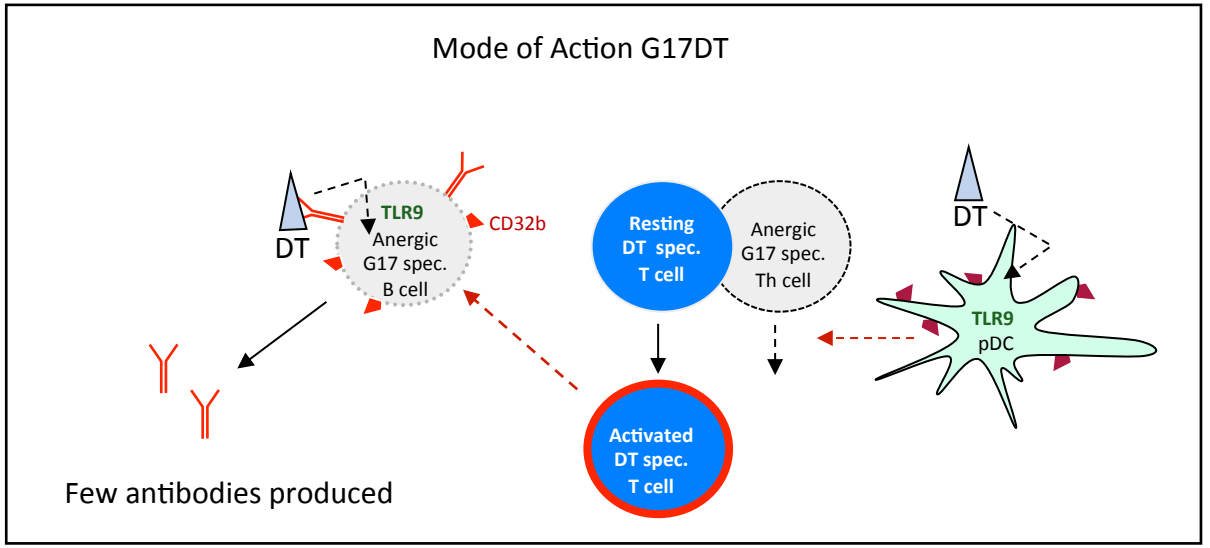
- **B cells:**
  - Low affinity interaction with CD32b, stabilized by BCR immunogen recognition (step 1a)
  - Internalization ➔ TLR9 activation (step 2a) + antigen presentation to T cells (step 3a) = B cell checkpoint control

- **Plasmacytoid Dendritic Cells (pDCs):**
  - High affinity interaction with CD32a (step 1b)
  - Internalization ➔ TLR9 activation (step 2b) + antigen presentation to T cells (step 3b) = T cell check point control

- **T cells:**
  - pDC removes anergy of G17 spec (step 3b) ➔ activated G17 spec T cells + activation of carrier (WH) specific T cells
  - activated G17 and WH spec. T cells provide help for G17 specific B cells (step 4)

- **Plasma cells/Plasmablasts:**
  - Antibody production and affinity maturation (step 5)



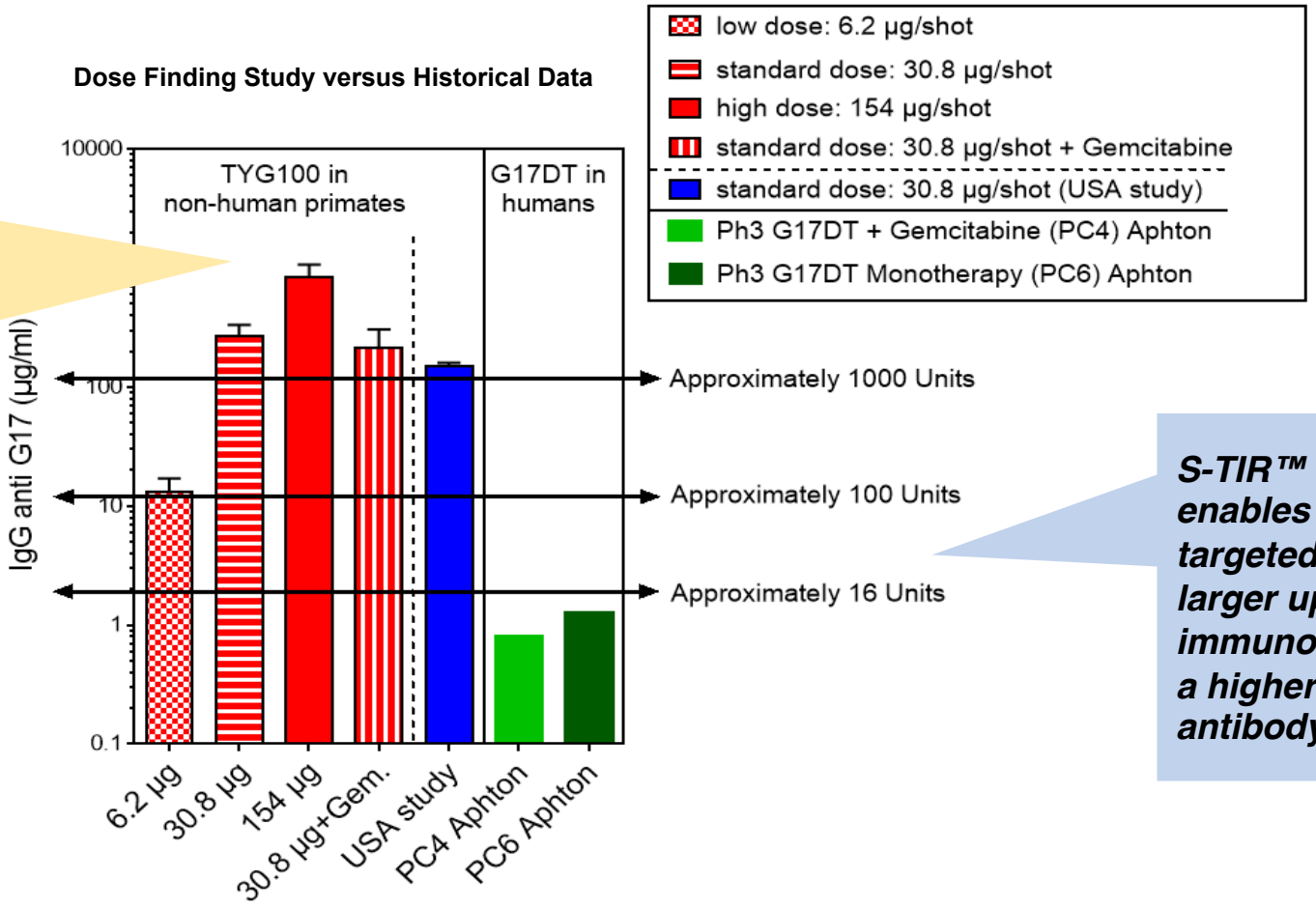


The new TYG100 technology has produced a much higher antibody response against G17 in early pre-clinical studies

The S-TIR™ platform has demonstrated effectiveness with all three developed prototype vaccines in pre-clinical studies

The G17 targeting immunogen is effective with both the S-TIR™ and diphtheria toxoid carrier.

The new vaccine produces exactly the same antibody as the legacy (Aphton) asset but in vastly higher amounts and frequency.



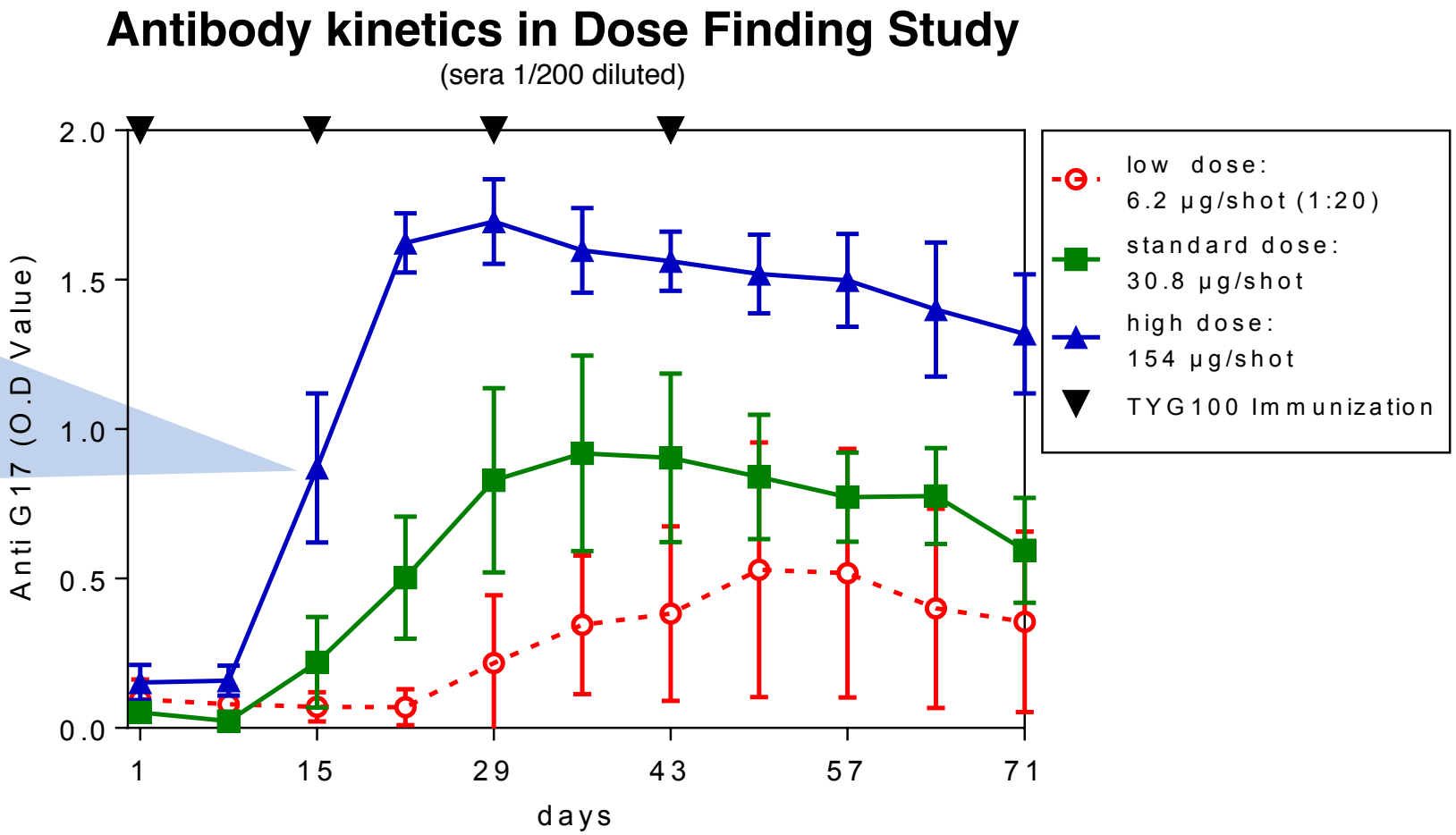
S-TIR™ technology enables more precisely targeted delivery and larger uptake of the G17 immunogen, resulting in a higher anti-G17 antibody response

Source: Data source – TYG.

2015: Dose finding study

Conclusions:

1) **Dose dependent kinetics and max. titre**
2) **Very high IgG anti-G17 titres after only three TYG100 injections (day 1, day 15, day 29)**
3) **Low dose (6.2*µ*g/shot): Clinically relevant titres before day 43**
4) **High dose (154 *µ*g/shot): >150 *µ*g IgG/ml at day 15 after one injection**

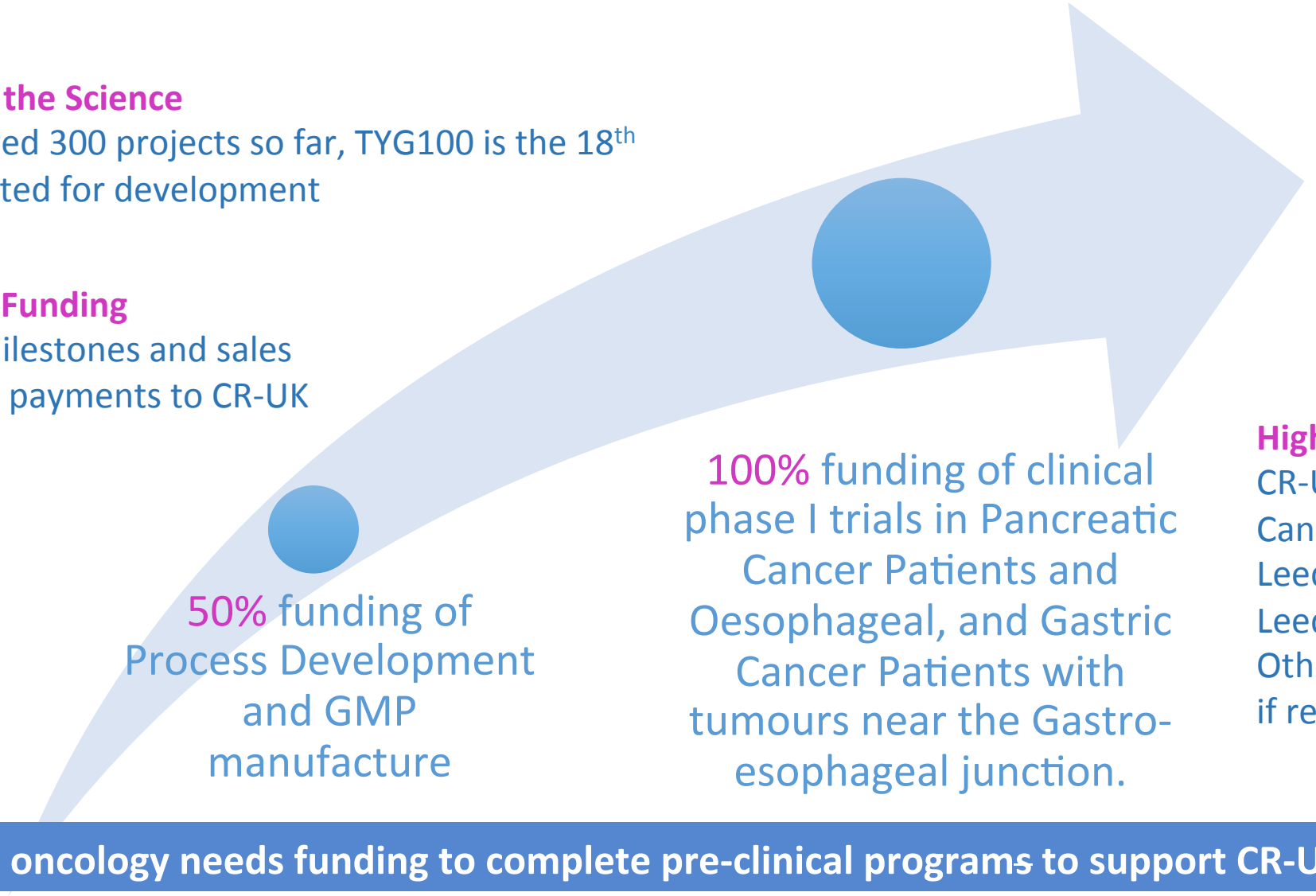


Source: Data source – TYG.

CANCER RESEARCH UK is TYG's Respected Development Partner

Validation of the Science
CR-UK reviewed 300 projects so far, TYG100 is the 18th project accepted for development

Non-Dilutive Funding
reasonable milestones and sales based royalty payments to CR-UK



50% funding of Process Development and GMP manufacture

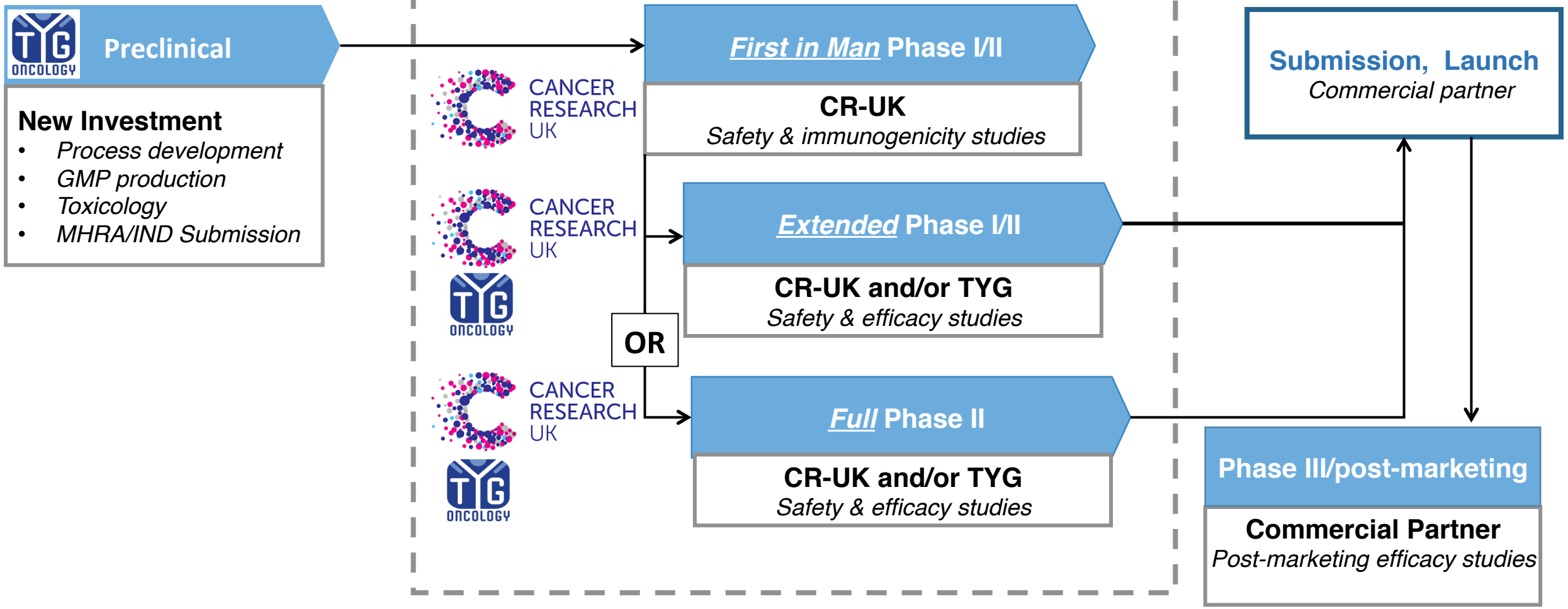
100% funding of clinical phase I trials in Pancreatic Cancer Patients and Oesophageal, and Gastric Cancer Patients with tumours near the Gastro-esophageal junction.

Estimated total >£9M

Highest standard of testing
CR-UK will use Experimental Cancer Medicines Centres in Leeds and the University of Leeds, Glasgow and Belfast. Other centres will be engaged if required.

TYG oncology needs funding to complete pre-clinical programs to support CR-UK into the clinic

TYG100 development pathway could be rapid for all indications



TYG Oncology addresses the most devastating, underserved cancers today and has committed support from CR-UK for early clinical development

- **TYG100's target has a unique history of prior development, making it well understood and de-risked**
- **S-TIR™ technology enables a more potent drug effect**
- **Non-dilutive funding from CR-UK**
- **Orphan diseases with rapid clinical development pathway and potential to gain 'Fast Track Designation'**
- **£10.0 million enables progression of TYG100 through Phase I/II in 2 orphan disease cancer indications**

Astrimmune

Pushing the Horizon:

Fluid-Flow Cell-Imaging

high-speed, labeled & label-free analysis

Circulating Tumour Cell Capture

with a better mousetrap

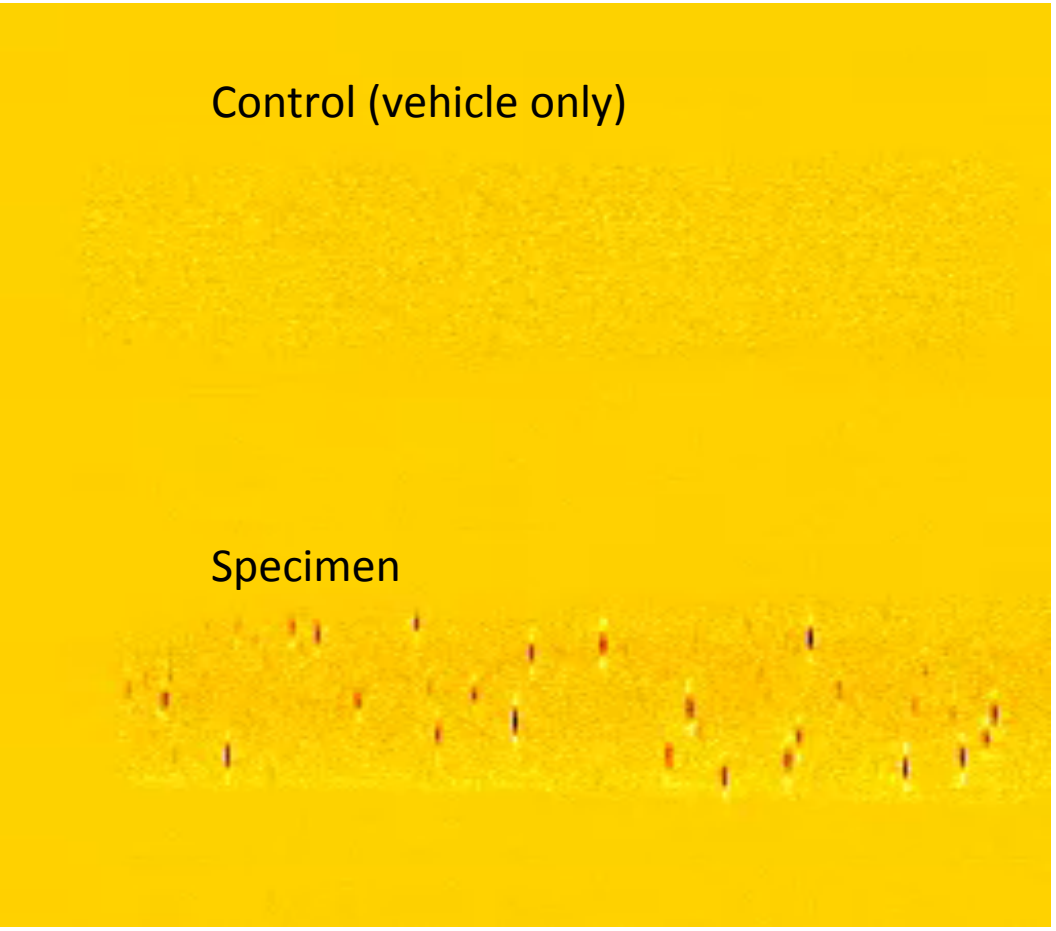
Cellular Digital PCR Analysis

easy accuracy

Astrimmune

A Doctor Examining Urine (by candle light) by Trophîme Bigot, ca 1640, Ashmolean Museum, Oxford

Absorbance video of a bladder cancer specimen



Video footage (slowed down) of bladder cancer cells from a voided urine specimen of a patient with bladder cancer

UPPER PANEL – vehicle alone, no cells

LOWER – cells in cancer specimen

Cells are colour coded to indicate intensity of absorbance which is quantifiable automatically.

Data are ‘binned’ (8x compressed in horizontal Dimension).

Light scattering is also clearly evident as ‘halos’ and can also be quantified to characterise cells and particles *en masse*

Algorithms from astronomy

Data from near IR image of a galaxy in the Fornax cluster.

Data from ESO/VISTA telescope, processed by IoA in Cambridge.

Small round objects are stars in our galaxy (blue being hot stars, red, cool stars). Anything extended are other galaxies.

Astronomical algorithms for automated analysis of tissue protein expression in breast cancer:

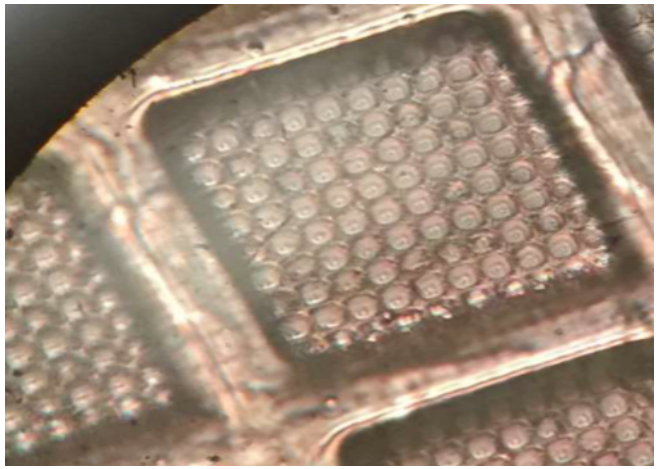
British Journal of Cancer (2013) 108, 602–612 | doi: 10.1038/bjc.2012.558

IoA UNIVERSITY OF CAMBRIDGE

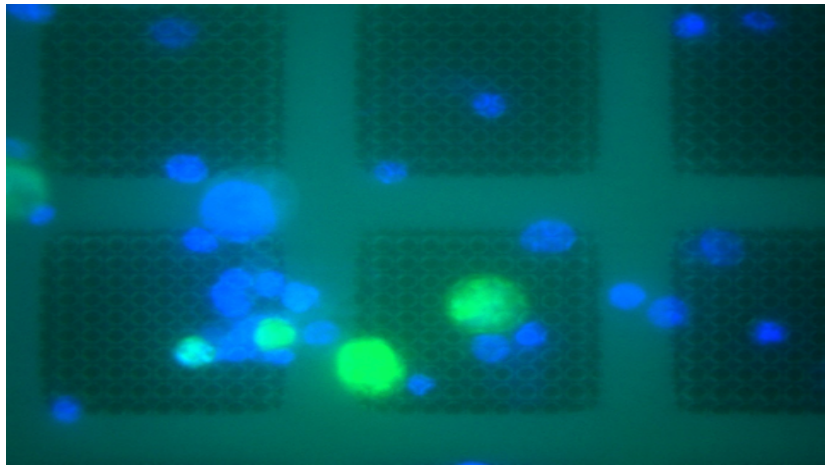
Astrimmune

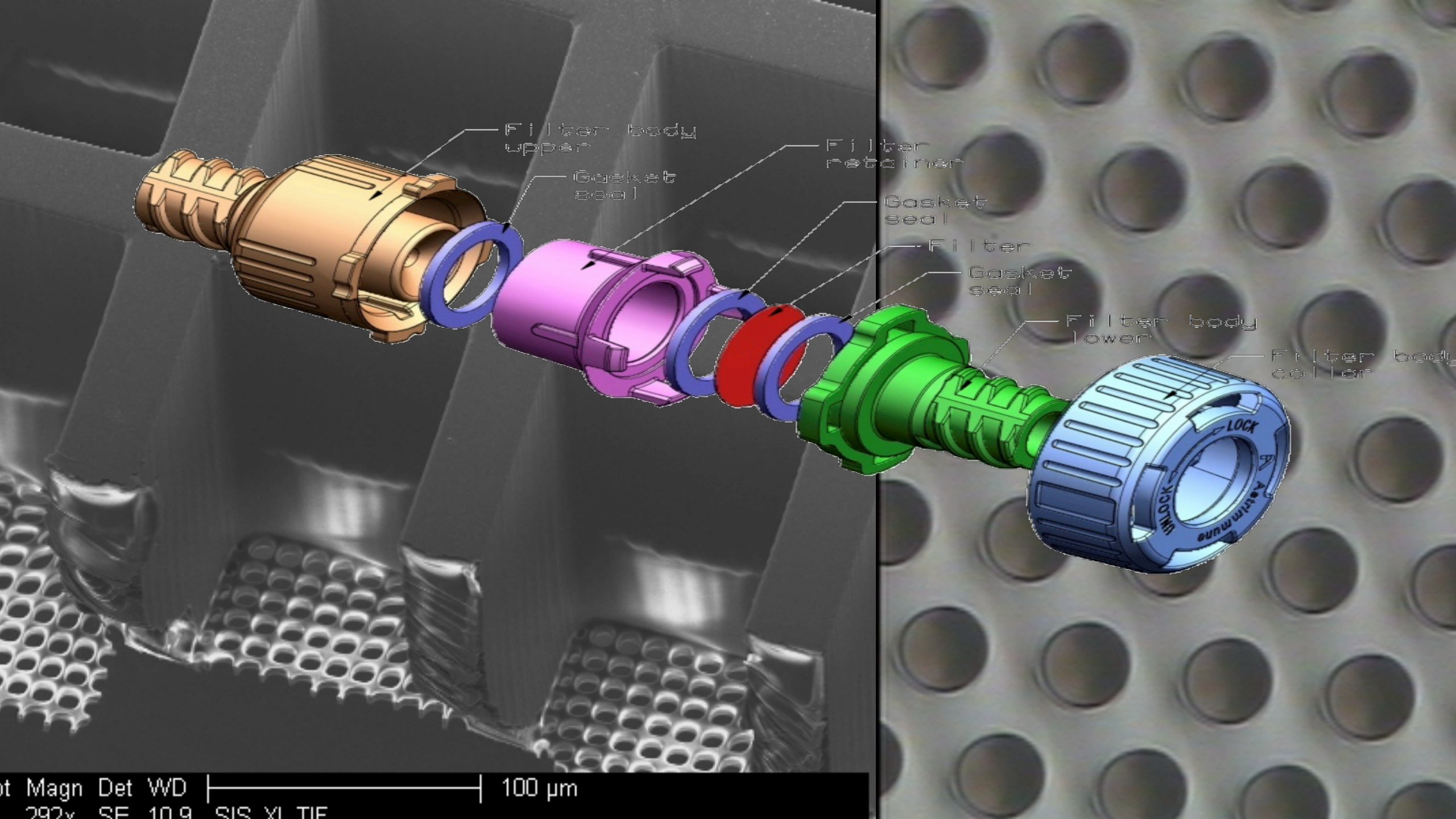
Circulating Tumour Cells Captured with Cellexia

Unique Filter Membrane Structure



- Highly uniform pore size
- Allows passage of blood cells
- Allows passage of urine
- Enhanced retrieval of cancer cells




Filter body upper
Gasket seal
Filter retainer
Gasket seal
Filter
Gasket seal
Filter body lower
Filter body collar
LOCK
UNLOCK
Anti-Mute
100 µm

Thank You!

NHS National Institute for Health Research

European Commission

CANCER RESEARCH UK

The University Of Sheffield.

NHS England

NPL

TYG ONCOLOGY

microsystems
micro engineering solutions

Innovate UK

SBRI HEALTHCARE
bringing new technologies to the NHS

University of HUDDERSFIELD
Inspiring tomorrow's professionals

Formative Design
Concept • Engineer • Visualise

UNIVERSITY OF LIVERPOOL

PRECISION MEMBRANES

MEDILINK EAST MIDLANDS

ECMC

paraytec
parallel array technology

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