CANCER RESEARCH TECHNOLOGY
INTRODUCTION TO CRT

October 2013
ABOUT US
WHO WE ARE

Cancer Research Technology

• Technology development and commercialisation arm of CRUK
• Exclusive rights to IP from CRUK funded research
• HQ in London, US subsidiary in Boston, partner in Australian consortium
• Provide commercialisation services to oncology institutions worldwide
• Drug discovery capability and major partnerships with AstraZeneca, Teva and FORMA

Cancer Research UK

• World's largest charitable funder of cancer research
• Employs its own scientists and funds research in UK universities
• Entirely funded by donations from the public
• Annual research spend of more than £300 million
• Partnerships with more than 20 charities and academic institutes
WHAT WE OFFER

We source and develop cancer discoveries – translating world class research into industrial propositions

We work with, and can identify top academics for collaborative interactions

We can partner with industry to create commercial value and patient benefit from cancer discoveries

We seek to identify innovative scientific and business solutions to meet unmet needs in oncology
WHY CRT?

What makes CRT special?
• Primary focus is cancer
  – Specialist skills and experience

• Discovery and early clinical development capability
  – Greater ability to match customer needs

• Global project sourcing
  – CRUK, other charities and institutes, CRT Inc, CTx

• Focus on patient benefit
STANDING OUT FROM THE CROWD

£14m LEVERAGED FUNDING
30 YEARS
3 MAJOR INDUSTRY ALLIANCES

DRUGS IN CLINICAL TRIALS 20
20,000 PUBLICATIONS
1 FOCUS

MARKETED DRUGS 3
£300,000,000 FUNDED RESEARCH

£14m
20
3
1
200
3
OUR OPERATIONAL MODEL
ROUTES TO COMMERCIALISATION

CRUK funded drug discovery research
CRUK funded basic research
Other charities
Global institutes
CTx Ltd (Australia)

Licenses
Consortia
Spin-outs
Collaborations
TRANSLATIONAL RESEARCH AND DEVELOPMENT WITH CRT

Discovery

• Over 80 programmes under development through:
  – Collaborative development with industry
  – Support from CRUK translational funds in universities or drug discovery centres
  – Development in CRT’s Discovery Laboratories

Clinical Development

• In conjunction with CRUK’s Drug Development Office (DDO):
  – We work with academics and industry to progress promising clinic-ready cancer agents
  – Through our Clinical Development Partnerships initiative (CDP), pharma deprioritised agents are moved into clinic
  – 8 treatments have entered the CDP programme since 2006
CRT PROVIDES A GATEWAY TO HIGH-QUALITY ONCOLOGY RESEARCH
CRUK FUNDED DRUG DISCOVERY

CRUK has invested more than £20m in its core drug discovery programmes

CRT manages all related IP and commercialisation activities
BIOLOGICAL THERAPEUTIC PROGRAMMES

• CRUK investment of £5m in 2 Therapeutic Antibody Programmes (2009):
  – University of Southampton: Martin Glennie
  – University of Oxford: Alison Banham

• Established to create new antibodies to treat cancer and allow the body's immune system to attack and kill cancer cells

CRT manages all IP related to these programmes and seeks licensing and/or collaboration with industry
THE ROLE OF CRT-DL

• To develop (and de-risk) to *in vivo* proof of principle stage
  – Partner at this stage
  – Maximise number of projects developed

• HTS, pharmacology, medicinal chemistry, crystallography; project validation function
  – Focus on industry experience and skills to prosecute a maturing portfolio

• Select “novel” targets as priority from CRUK funded and other academic research
  – Collaborations worldwide with leading academic research groups
  – Discovery alliances with industry (AstraZeneca and Teva)

• Fully integrated part of CRUK long-term Drug Discovery Strategy
THE ROLE OF CRT-DL

CRT bridges the gap between academia and industry
STRUCTURE OF CRT-DL

• CRT-DL is split across two sites, with facilities close to CRUK institutes:
  – London (Wolfson/Birkbeck)
  – Cambridge

• CRT-DL employs 85 full-time scientists working in target and cellular biology, assay development and HTS, and medicinal chemistry.

• 75% of staff recruited from biotechs/pharmas and 25% from oncology academia

CRT-DL understands both industrial and academic drivers and is well placed to forge mutually beneficial alliances.
## CRT-DL PORTFOLIO

<table>
<thead>
<tr>
<th>Target</th>
<th>Hit Identification</th>
<th>Hit Validation</th>
<th>Lead Identification</th>
<th>Lead Optimisation</th>
<th>Partner</th>
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OUR TRACK RECORD
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<tr>
<th>AGENT/TARGET</th>
<th>COMPANY</th>
<th>INSTITUTE</th>
<th>INDICATIONS</th>
<th>PRECLINICAL</th>
<th>PHASE I</th>
<th>PHASE II</th>
<th>PHASE III</th>
<th>MARKET</th>
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<td>Temodal®</td>
<td>Schering-Plough (now Merck)</td>
<td>Aston</td>
<td>Gioma</td>
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<td>Zytiga®</td>
<td>Cougar (now JNJ); BTG</td>
<td>ICR</td>
<td>Prostate</td>
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<td>Erivedge™</td>
<td>Genentech/Roche; Curis</td>
<td>Harvard; CRT</td>
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<td>ICR</td>
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<td>LRI; ICR; Ludwig</td>
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<td>Akt/PKB</td>
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<td>ICR</td>
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<td>AT 13148</td>
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<td>IL17E</td>
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OUR START-UP COMPANIES
We have been involved in the formation of 24 start-ups

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>SUMMARY</th>
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<tbody>
<tr>
<td>Acublate Limited</td>
<td>Set up in January 2012 by CRT to develop a next-generation High Intensity Focused Ultrasound (HIFU) surgery device to treat a range of solid tumour types.</td>
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<tr>
<td>BliNK Therapeutics</td>
<td>Founded in June 2011 by CRT and Paris based Kurma Life Sciences Partners to generate monoclonal antibodies using a novel platform.</td>
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<tr>
<td>Chroma Therapeutics</td>
<td>Discover and develop small molecule drugs based upon chromatin biology. Raised $53m in series C financing.</td>
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<tr>
<td>CYCLACEL®</td>
<td>Develop agents that target key cell cycle regulators. Merged with Xcyte Therapeutics Inc. and subsequently raised $45m.</td>
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<tr>
<td>KuDOS Pharmaceuticals</td>
<td>Develop drugs based upon DNA damage recognition, signalling and repair. Acquired by AstraZeneca for $210m in 2006.</td>
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<tr>
<td>MISSION Therapeutics</td>
<td>Formed in August 2011, the company will translate cutting-edge cell biology research on DNA repair into drugs that will markedly improve the management of life-threatening diseases, particularly cancer. MISSION Therapeutics has secured £6M in Series-A funding.</td>
</tr>
<tr>
<td>Piramed Pharma</td>
<td>Develop anti-cancer signal transduction inhibitors. PI 3-kinase programme partnered with Genentech has potential milestones of $230m plus royalties. Acquired by Roche for $160m in 2008.</td>
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</table>
COMPETING IN THE PHARMA/BIOTECH WORLD

We’re ranked second for the number of oncology licenses completed.

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>NUMBER OF LICENSING DEALS IN ONCOLOGY (2000-2009)</th>
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<tbody>
<tr>
<td>Bayer HealthCare</td>
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<tr>
<td>Bayer Schering Pharma</td>
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<td>CANCER RESEARCH TECHNOLOGY</td>
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<td>Roche</td>
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<td>GSK</td>
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<td>Genentech</td>
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<td>Genzyme</td>
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<td>HELSINN</td>
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THE CRT PIONEER FUND (CPF)

£50M investment fund to bridge the funding gap in the UK between cancer drug discovery and early development

• Joint initiative between CRT and The EIF

• Designed to take potential cancer drugs seamlessly from discovery through to the end of Phase I before licensing to pharma for onward development and commercialisation
  – Reduced development timelines
  – Better returns for investor

• Focused on investment directly into projects rather than supporting spin out companies, management teams and infrastructure

• At least two thirds of the fund will be used to develop the most exciting scientific discoveries made by Cancer Research UK scientists
CRT-DL TEAMS UP WITH INDUSTRY

Cancer Metabolism Alliance

- Multi-project alliance with AstraZeneca to create “cancer metabolism drugs”
- Three-year alliance recently extended to run to 2015
- Integrated joint development model
- Jointly resourced initiative with a combined team of 30 scientists
- Research carried out at CRT-DL in London and Cambridge and AstraZeneca cancer centre in Cheshire
- AstraZeneca responsible for taking the most promising projects into preclinical and clinical development
ACADEMIC CONSORTIA MODELS

Senectus Therapeutics Ltd

• A virtual drug discovery company focused on the development of novel therapeutics targeting cellular senescence

• Founded around a hand picked consortium of world-class scientists whose research expertise in telomere biology, autophagy and tumour suppression is being utilised to develop innovative drug development programs

• Unique approach is designed to deconvolute senescence signalling pathways and build a network of genes for target and biomarker discovery

• Secured $1M of funding (through July 2010) and is currently seeking collaboration and/or investment partners to be part of our future

• In March 2011, Senectus and AstraZeneca signed a deal to collaborate to identify triggers to cell ageing
Objectives

• Joint initiative between CRT and CRUK, formed in 2006
• Aim is to increase the number of clinical trials being undertaken for the treatment of cancer
• Targeted at leading pharma and biotech companies
• Bring new life to de-prioritised cancer agents
• Early clinical development at no cost to the company
• Projects undertaken on a shared risk-reward basis

Treatments in programme

• AstraZeneca AZD0424 – Tyrosine Kinase Inhibitor
• Astex Therapeutics AT13148 – Protein Kinase B (PKB) Inhibitor
• GlaxoSmithKline GSK1070916A – Aurora Kinase Inhibitor
• AstraZeneca AZD3965 – Monocarboxylate Transporter I
• Auckland Uniservices SN30000 – Hypoxia Targeted Drug
• Merck KGaA DI-B4 – Anti-CD19 Antibody
• Immatics IMA950 – Peptide Vaccine
• Lorus Therapeutics IL-17E – Proinflammatory Cytokine
Our reagent portfolio is the largest single source of UK academic antibodies

- CRT has been commercialising research reagents created in academic institutes for 30 years
- Our portfolio exceeds 1000 monoclonal and polyclonal antibodies as well as cell lines and transgenic mice models
- The majority of our antibody portfolio is marketed through major worldwide chemical suppliers:
  - Abcam, EMD Millipore, BD BioSciences etc
- Cell lines and transgenics are supplied directly to industry
- We maintain hundreds of licensing agreements with over 60 companies
- > £2m in revenues generate from Research Tools business for the 2010/11 financial year
CRT IN THE NEWS

CRT Pioneer Fund, BACIT and Sareum enter agreement to fund development of drugs to treat cancers

24th September 2013 – The Cancer Research Technology Pioneer Fund (CPF), BACIT Limited (BACIT), and Sareum Limited (Sareum), have entered into an agreement to co-fund the further development of a class of cancer drugs called CHK1 inhibitors.

CRT and Teva Pharmaceuticals Form R&D Alliance for Cancer DNA Damage Response Drugs

16th September 2013 – CRT and Teva Pharmaceutical Industries Ltd. (NYSE: TEVA) have signed a multi-project alliance agreement to research and develop first-in-class cancer drugs that modulate DNA damage and repair response (DDR) processes in cancer cells.
THANK YOU
WWW.CANCERTECHNOLOGY.COM