Grand Challenge and other funding opportunities at Cancer Research UK

Jamie Meredith, 9th Dec 15
Multidisciplinary research at CRUK

OVERVIEW

– About CRUK
– CRUKs research strategy
– A focus on multidisciplinary research
– Funding opportunities
  – Multidisciplinary Project Awards
  – Pioneer Awards
  – Grand Challenge
  – Citizen Science
Our ambition

Over the last 40 years, cancer survival in the UK has doubled. In the 1970s just a quarter of people survived. Today that figure is half.

Our ambition is to accelerate progress and see three-quarters of patients surviving the disease within the next 20 years.
Cancer Research UK today

- 5 INSTITUTES
- 7 CLINICAL TRIALS UNITS
- 15 CENTRES
- 18 EXPERIMENTAL CANCER MEDICINE CENTRES
- 80 FELLOWS
- 100 PROGRAMME GRANTS
- 250 CLINICAL TRIALS
- 450 PHD STUDENTS
Our strategy has four major themes

<table>
<thead>
<tr>
<th>PREVENT</th>
<th>DIAGNOSE</th>
<th>TREAT</th>
<th>OPTIMISE</th>
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<tbody>
<tr>
<td>BUILD OUR UNDERSTANDING OF CANCER</td>
<td>FACILITATE A MAJOR SHIFT IN EARLY DETECTION RESEARCH</td>
<td>TACKLE CANCERS WITH SUBSTANTIAL UNMET NEED</td>
<td>ACCELERATE THE TRANSLATION OF RESEARCH</td>
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<td>DEVELOP THE CANCER RESEARCH LEADERS OF TOMORROW</td>
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A focus on multidisciplinary research
Opening new fields of cancer research

Sequencing by synthesis chemistry

- Massive reductions in speed, cost and scale of whole genome sequencing
- Unparalleled opportunity to ask questions about tumour evolution and heterogeneity
- Growing need for computational scientists to develop analytical
Bringing new approaches to cancer

Astronomical algorithms for protein expression in tissue

- Bottleneck in scoring of protein expression in tissue microarrays
- Development of automated process compared with pathologist assessment
- Demonstrated the potential to develop digital pathology tools
Synergising approaches to understand cancer

Combining biological and mathematical modelling

• Computational and biological models of cancer cell shape, movement and steering
• Comparison of computational model with, and learning from, chemotaxing melanoma cells

Simulation of single cell chemotaxis
Improving detection and treatment of cancer

Development of optical imaging in surgery

- Combining white light and NIR into a single plane of view
- Improving detection and resection of tumour margins for extracapsular prostate cancer
- Collaboration between surgeons, engineers and biologists
Funding for multidisciplinary research
Multidisciplinary Project Award

**Purpose:** To generate creative engineering and physical sciences research approaches to improve the understanding, detection and treatment of cancer

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<th>Duration</th>
<th>Support</th>
<th>Awards</th>
<th>Accounting</th>
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<tr>
<td>Up to 4 years</td>
<td>~£0.5M</td>
<td>Up to 15 per year</td>
<td>Full duration</td>
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Requirements and restrictions

- Minimum of two PIs working in distinct scientific disciplines.
- At least one PI must have a proven track record in the cancer field, but may be at any career stage.
- One, but not both, of the applicants may be based in a CRUK Institute.

Review process and committee

- Newly formed Expert Review Panel of the Science Committee.

Standard project process
PIONEER AWARD FUNDING REVOLUTIONARY IDEAS, FASTER
THE PIONEER AWARD WILL FUND REVOLUTIONARY SCIENCE

High-risk, high reward research that is unlikely to secure funding through traditional mechanisms

Projects with clear relevance to cancer, which may lead to new discoveries or approaches.

Awards will be made up to £200,000 to support projects lasting two years.
What are we looking for?

**JUDGING CRITERIA**

- Cancer relevance and alignment with CRUK’s Research Strategy
- Taking a novel approach, and/or tackling what would be considered an intractable problem
- Research proposal written with the potential to be paradigm shifting
- Unlikely to be funded through traditional mechanisms
- Innovation, novelty and revolutionary
GRAND CHALLENGE

www.cruk.org/grandchallenge
### The biggest challenges: £20m to accelerate progress

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<th>Teams</th>
<th>1 Principal and up to 7 co-investigators, and a patient advocate. Can include industry partners.</th>
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<td>International</td>
<td>At least 25% of the award must be spent within the UK.</td>
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<td>Seedfunding</td>
<td>Shortlisted teams will be provided with up to £30,000 seed funding to facilitate networking and submissions. Up to 10% of the non-UK component may be spent on indirect costs &amp; a proportion of overseas salaries will be covered.</td>
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<td>Research Costs</td>
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The power of the immune system is already being used to treat cancer. Now we want to see it harnessed to prevent cancer. Advances in immunotherapy mean there has never been a better time to team up and tackle an even bigger ambition to:

**DEVELOP VACCINES TO PREVENT NON-VIRAL CANCERS**

Every year, 200,000 cancers are caused by Epstein Barr Virus (EBV). We want to reduce that figure to zero. If you can put together a team with an innovative way of doing this, we want to hear from you. Your Grand Challenge is to:

**ERADICATE EBV-INDUCED CANCERS FROM THE WORLD**

To prevent cancer, we need to better understand different mutational signatures in our DNA – the ones we already know about, and the ones we haven’t yet discovered. Do you have a way to:

**DISCOVER HOW UNUSUAL PATTERNS OF MUTATION ARE INDUCED BY DIFFERENT CANCER-CAUSING EVENTS?**

**APPLY NOW**
cruk.org/grandchallenge
The challenges...

DISTINGUISH BETWEEN LETHAL CANCERS THAT NEED TREATING AND NON LETHAL CANCERS THAT DON’T

Our methods for diagnosing cancer simply aren’t good enough. We need to detect the disease at an early stage, but the diagnosis needs to be more accurate too. Can your team find a way to:

FIND A WAY OF MAPPING TUMOURS AT THE MOLECULAR AND CELLULAR LEVEL

We won’t understand how tumours function until we understand why all the cells are there, how they got there and what they are doing. Can you put an interdisciplinary team together to:

DEVELOP INNOVATIVE APPROACHES TO TARGET THE CANCER SUPER-CONTROLLER MYC

It’s one of the most promising therapeutic targets in cancer, but it defies conventional drug discovery. Can innovation and the world’s smartest minds unlock its potential? We believe they can:

DELIVER BIOLOGICALLY ACTIVE MACROMOLECULES TO ANY AND ALL CELLS IN THE BODY

We don’t yet have a good way of getting macromolecules, potentially the most powerful anti-cancer drugs we have, into the body. We’re challenging physical scientists, engineers and others to team up with cancer biologists to:

APPLY NOW
cruk.org/grandchallenge
Citizen Science

• Engages the global public to accelerate analysis of our scientific data and help our researchers beat cancer sooner
• Development of products that engage the public to help us answer research questions where data volume is the bottleneck
A focus on multidisciplinary research

• Exciting opportunity to accelerate progress of cancer research to meet our ambition of 3 in 4 surviving cancer by 2034

• We have developed a broad range of grants to support collaborations from small scale projects through to Grand Challenges

• Opportunities also exist through existing funding routes - programmes and fellowships

If you have an idea and aren’t sure where it fits, get in touch
Thank you

Any questions?

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