ICR The Institute of Cancer Research

Drug Discovery Fund

Give now and help us make the discoveries that defeat cancer



Introduction to our proposal

With increasing patient populations and rapidly advancing science, now is the moment to support research into novel cancer therapies.

The Institute of Cancer Research, London (ICR) is a world-leader in cancer drug discovery. Since 2005, we have discovered 20 drug candidates, 10 of which are currently in clinical trials, and one, abiraterone is now extending the lives of tens of thousands of men around the world with advanced prostate cancer. This is a track record unrivalled in academia globally.

To upscale and increase the rate at which the ICR can create more effective new therapies for cancer patients, the ICR plans to build a new £75m, 7,000 sq m, state-of-the-art laboratory on its site in South London – the Centre for Cancer Drug Discovery (CCDD).

Accommodating 280 scientists, the new building will facilitate outstanding multi-disciplinary team science.

Our track record 10 preclined dug candidates discovered 10 progressed to cinical trais 1 drug treating men with prostate cancer worldwideSince 2005

The ICR Drug Discovery Fund offers you an opportunity to make a philanthropic investment in the construction of the CCDD, in a novel way.

The fund will receive a percentage of royalties from drug discoveries made in the Centre. These royalties will be invested back into the ICR's research, allowing a multiplier effect on the donor's contribution.

ICR invention income



Licence income/research spend cf US Universities



Data sources: HEFCE returns 2014/15 and Higher Education Statistics Agency (HESA) Staff Data 2014/15; AUTM survey (US Universities) 2014 *Workman P Successes for UK cancer partnership Nature 510 p218 2014*

The ICR is the most successful higher education institution in the UK at earning invention income from its research				
Our licence income is comparable with the top US universities				
Partnering with industry is an essential part of our mission to take our discoveries to patients				
AstraZeneca Roche				
U NOVARTIS				

Top UK University IP Income Last 3 Years

	Rank	University	£m
2014/15	1	Queen's University of Belfast	34.6
	2	University of Cambridge	25.8
	3	ICR	25.2
	4	University of Oxford	15.0
	5	University College London	5.3
	6	University of Aberdeen	4.1
	7	Open University	3.7
	8	University of Leeds	3.6
	9	Loughborough University	3.1
	10	Imperial College	2.8
	Rank	University	£m
2013/14	1	University of Oxford	43.0
	2	ICR	20.3
	3	University of Cambridge	15.0
	4	Queen's University of Belfast	10.6
	5	University of Leeds	5.3
	6	University College London	2.9
	7	Open University	2.6
	8	University of Edinburgh	2.3
	9	Loughborough University	2.1
	10	University of Manchester	2.0
	Rank	University	£m
	1	University of Cambridge	16.7
<u>က</u>	2	ICR	11.1
à	3	Queen's University Belfast	8.0
-	4	University of Oxford	6.3
0	5	University College London	6.2
5	6	Open University	3.8
	7	University of Manchester	3.3
	8	University of Edinburgh	2.5
	9	Imperial College	1.8
	10	Loughborough University	1.8

Value Generated by a Donation of £500k Through tax benefits and commercial returns, the financial value

generated by the fund is c.2.9 times the investment of the donor



CCDD Royalty income projections Based on the current pipeline, we anticipate a total cumulated royalty income of c.£47m by 2030 (mid level estimate)



Term sheet

- Target fund size is £20m.
- Minimum philanthropic investment is £500k.
- For UK taxpayers, investment is eligible for gift-aid subject to normal terms. For example:

Donor gift	£500k	Donors can make tax reclaims on difference between lower and higher tax rates	
Gift aid claim by ICR	£125k		
Total value of gift	£625k		

- For US taxpayers, the ICR can provide access to 501c3 for tax efficiency.
- All investors will be invited to exclusive twice-yearly investor update presentations by a team of experts, giving insight into the ICR's / CCDD's drug pipeline and access to our senior scientists and clinicians
- The ICR Drug Discovery Fund will be widely cited as a key funding partner in all publications relating to ICR drug discoveries.
- Royalty income will be re-invested in ICR research priorities as determined by the ICR Board of Trustees.
- Transparency on fund flows.
- No costs or fees.



Increasing global need for cancer drugs

The need for more and better cancer therapeutics is urgent as cancer patient populations increase worldwide due to an expanding global population, greater longevity and earlier diagnoses.

We now know that cancer is a genetic disease with more than 500 known genetic drivers or mutations. Modern therapies which target proteins linked to these genetic mutations are kinder, reducing the serious side-effects of cancer treatment common with "one size fits all" chemotherapy - but so far, we only have drugs for about 5% of the known targets.

Furthermore, genetic diversity within tumour cells means that tumours can develop resistance to targeted therapies through a Darwinian process of evolution, with treatment contributing to the selection of cell types able to survive the particular therapy.

Predicted global cancer cases

Annual new cancer cases (millions)



Source: WHO GloboCan

Early indications are that immunotherapeutic approaches can effectively combat drug resistance when used in combination with other targeted therapies.

Despite these advances, 1 in 2 people are still affected by cancer and the prognosis for many hard-to-treat cancers remains poor.

ICR's best in class team

Since 2005, the ICR has discovered 20 drug candidates, 10 of which have gone into clinical trials and one, abiraterone, is now extending the lives of tens of thousands of men with advanced

prostate cancer around the world.

With 140 scientists, in 18 research teams, our capacity in drug discovery is unrivalled in European academia; and we are the only institution training the next generation of drug discoverers. This will be upscaled to 280 scientists in the new CCDD.

Led by Professor Paul Workman FRS, Chief Executive, a world-leading expert in drug discovery and Professor Raj Chopra, Head of Cancer Therapeutics, (formerly Corporate Vice President of Translational Research and Early Drug Development at Celgene at Celgene), we have many team accolades.

In addition, since 2012, the ICR has assembled the largest cohort of expertise in cancer evolution under the leadership of Professor Mel Greaves FRS, which uniquely positions the ICR to tackle the problem of drug resistance.



American Association for Cancer Research (AACR) Team Science Award 2012

Team accolades include:

Queen's Anniversary Prize for world-leading research in cancer drug discovery (2017);

American Association of Cancer Research Team Science Award (2012);

British Pharmacological Society's 'UK Pharmacology on the Map' award (2015).

Case study: abiraterone



Discovered and developed at the ICR, this was the first treatment shown to be effective in men with advanced prostate cancer.

Prostate cancer relies on testosterone to grow abiraterone works by blocking the production of testosterone within the body.

In 2011, abiraterone received FDA and EMA approval; in 2012 the drug received NICE approval and was made available on the NHS.

Abiraterone transformed the treatment options available for tens of thousands of men each year diagnosed with aggressive forms of prostate cancer.

Licensed to Johnson & Johnson and marketed globally as Zytiga, sales of the drug topped \$2.2bn in 2014 and 2015.





ICR Centre for Drug Discovery An architect's impression







The Centre for Cancer Drug Discovery: The benefits of the new building

- A modern, state-of-the-art, £75m building providing 7000 sq m (more than double current space) and accommodating 280 scientists.
- Co-locating and fostering collaboration between multidisciplinary teams and technologies – enabling the development of new tools and approaches, attracting and retaining more world-class scientists, training new and upand-coming talent.
- The largest body of experts in the world dedicated to tackling the biggest challenge in cancer, drug resistance. They will do this through improved understanding of cancer evolution and developing combination therapies, including harnessing immunotherapy.
- An increase in the number of drug candidates by 40% in the first 5 years

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Investment Committee: ICR Drug Discovery Leadership



Professor Paul Workman FRS

Chief Executive and President

Paul led the ICR's Cancer Therapeutics division from 1997 until is appointment as Chief Executive in 2015. Prior to joining the ICR, he held a senior scientific leadership position at AstraZeneca.

He has successfully launched 2 biotech companies - Chroma Therapeutics (2000) and Piramed Pharma (2002).

He was elected Fellow of The Royal Society in 2016.



Professor Raj Chopra

Head of Cancer Therapeutics

Rajesh is an experienced scientific and clinical leader and has developed targeted therapies in industry and academia, contributing to the clinical development of 10 registered drugs.

Prior to joining the ICR in 2016, he was Corporate Vice President of Translational Research and Early Drug Development at Celgene.



Dr Andrea Sottoriva

Chris Rokos Fellow in Evolution and Cancer

Dr Sottoriva 's research focuses on using multi-disciplinary approaches based on high-throughput genomics and mathematical modelling to understand cancer as a complex system driven by evolutionary principles.

His studies prior to joining the ICR in 2013 include a PhD in cancer genomics and modelling at the University of Cambridge.

Background: The Institute of Cancer Research, London

The Institute of Cancer Research (ICR) is one of the world's most influential cancer research institutes.

Scientists and clinicians at the ICR are working every day to make a real impact on cancer patients' lives. Through its unique partnership with The Royal Marsden Hospital and 'bench-to-bedside' approach, the ICR is able to create and deliver results in a way that other institutions cannot. Together the two organisations are rated in the top four cancer centres globally (see below).

The ICR has an outstanding record of achievement dating back more than 100 years. It provided the first convincing evidence that DNA damage is the basic cause of cancer, laying the foundation for the now universally accepted idea that cancer is a genetic disease. Today it leads the world at isolating cancer-related genes and discovering new targeted drugs for personalised cancer treatment.

As a college of the University of London, the ICR provides postgraduate higher education of international distinction. It has charitable status and relies on support from partner organisations, charities and the general public.

The ICR's mission is to make the discoveries that defeat cancer. For more information visit <u>www.icr.ac.uk</u>

Unrivalled track record

ICR The Institute of Cancer Research









Making the discoveries that defeat cancer







One of the world's most influential cancer research institutes