

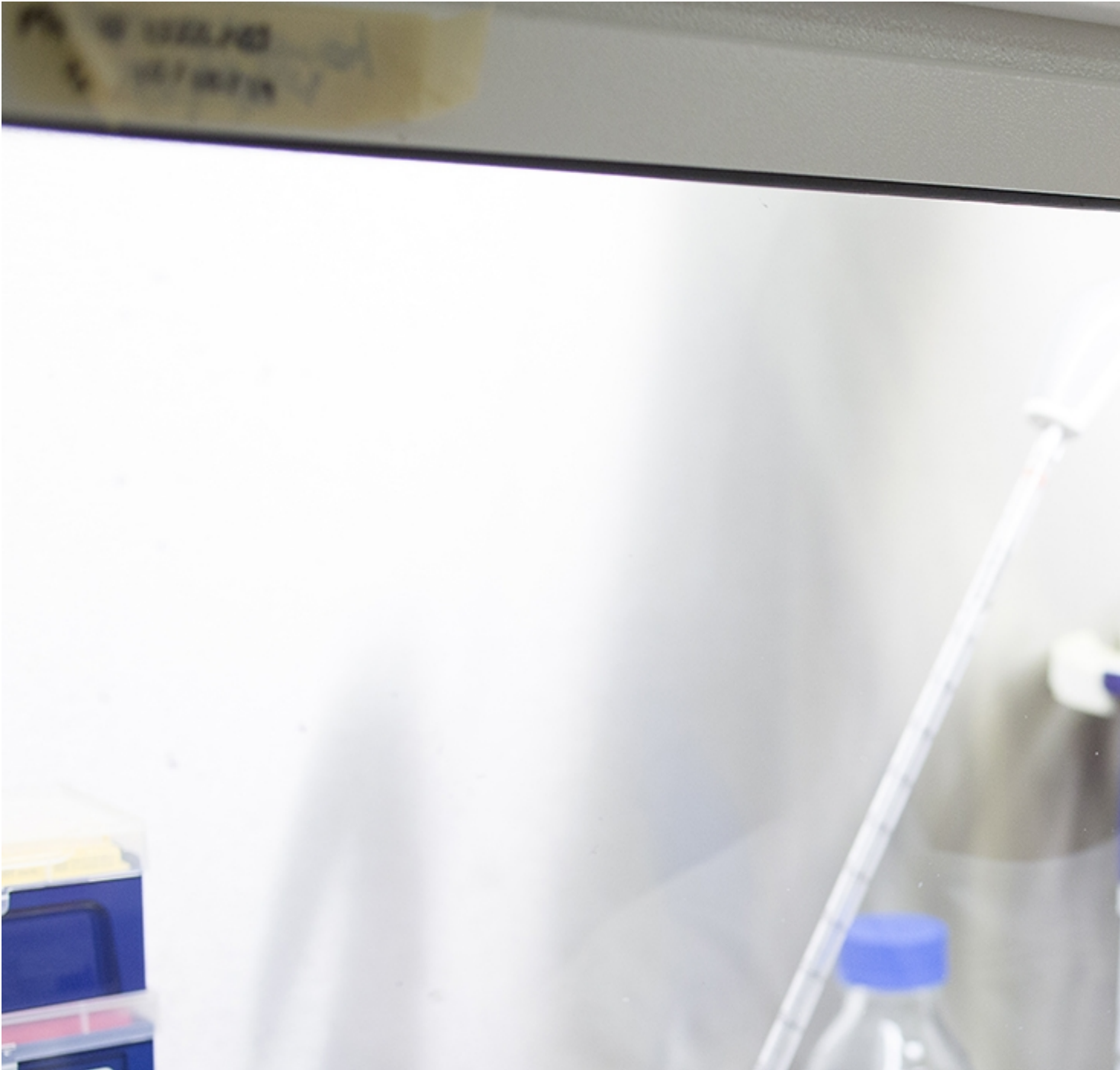
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Research strategy focuses on cancer evolution

Researchers at the ICR and The Royal Marsden are planning to create a new generation of 'anti-evolution' therapies designed to combat cancer's ability to adapt and resist treatment, as part of their new joint research strategy



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Scientists have identified cancer evolution and drug resistance as the biggest challenge we face in defeating cancer. Patients may initially respond to cancer treatment, but they often then relapse as their disease evolves and becomes resistant.

[The ICR](#) [6] and [The Royal Marsden](#) [7] have launched a strategy for overcoming cancer evolution.

‘Making the discoveries: our strategy to defeat cancer’ sets out how the analysis of ‘big data’ can identify new treatments, and is the first major research strategy to focus on overcoming cancer evolution and drug resistance.

New research highlighted in the strategy includes work on discovering the specific way cancers evolve, using computer modelling and machine learning to understand the complexity of cancer and new forms of immunotherapy.

Our biggest challenge is cancer evolution and drug resistance

The strategy makes clear the benefits of investing in cancer research at the BRC by setting challenging targets.

Over the next five years, the ICR has committed to discovering a new drug targeted against a novel evolutionary mechanism and a new immunotherapy, as well as several other precision medicines.

The ICR and The Royal Marsden have also pledged to deliver practice-changing clinical trial evidence of the benefits of innovative cancer treatment.

Drugs discovered at the ICR and developed with The Royal Marsden are already transforming the lives of patients – for example, the prostate cancer drug abiraterone, which is benefiting hundreds of thousands of men globally.

We will also soon treat patients in clinical trials using the MR Linac – the world’s most advanced radiotherapy machine – to better deliver radiation to tumours using real-time imaging.

Key elements of our research strategy

- Predicting the path of cancer evolution from a single tumour sample, so doctors can see and counteract cancer’s next move
- Creating new drugs that block the whole process of cancer evolution
- Directing patients’ immune systems to evolve in response to changes in the cancer
- Blocking cancer’s escape routes by adapting therapy to evolutionary changes or treating patients with scientifically selected drug combinations
- Tracking the movement of tumours in patients’ bodies with high-tech imaging and radiotherapy

Learn more

- [Dr Marco Gerlinger on why learning why tumours evolve is crucial](#) [8]

- [Making the discoveries: our strategy to defeat cancer](#) ^[9]
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