

Licensing and collaboration opportunity

Treatment for drug-resistant prostate cancer using IL-23 targeting drugs

- The Institute of Cancer Research, London, is seeking a partner to continue the development of IL-23 inhibitors in advanced, castration resistant prostate cancer
- Patent has been filed covering the use of IL-23 inhibitors for prostate cancer, following surprising discovery that IL-23 secreted by myeloid suppressor cells confers resistance to androgen deprivation therapy
- Development team is part of world’s largest academic clinical trial unit in oncology, with successes including the development of abiraterone and leading trials demonstrating the benefit of PARP inhibitors in prostate cancer

About the programme

The Institute of Cancer Research (ICR) has played an instrumental role in establishing targeted androgen deprivation therapy (ADT) as a mainstay of prostate cancer treatment. ICR researchers have illuminated the biology of castration resistant prostate cancer, discovered the CYP17-targeting prostate cancer drug abiraterone, and led major trials of this and other ADT methods.

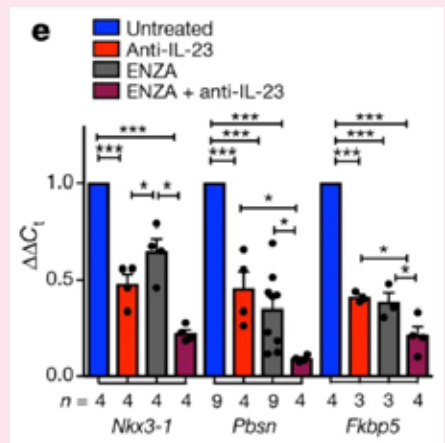
ICR scientists have continued to generate new understandings of prostate cancer and pioneer new treatments, for example proving the potential of treatments targeting the DNA Damage Response such as PARP inhibitors.

A surprising recent finding from their prostate cancer programme, in collaboration with the Oncology Institute of Southern Switzerland and others, shows that the pro-inflammatory cytokine interleukin-23 (IL23) – secreted by tumour-associated myeloid-derived suppressor cells – drives castration resistance through activating the androgen receptor.

Studies in mice have confirmed the effectiveness of IL23-targeting agents in reversing resistance to ADT. The ICR, having filed a patent covering the use of IL23 inhibitors in castrate-resistant prostate cancer, is now seeking a commercial partner to further develop a drug.

Key publication

Calcinotto A et al. **IL-23 secreted by myeloid cells drives castration-resistant prostate cancer.** *Nature* 559, 363–369 (2018).



Detail from Fig. 4: IL-23 inhibition improves enzalutamide (ENZA) efficacy in vivo.

Key points

- World-leading academic prostate cancer researchers at the ICR, along with partners including the Institute of Oncology Research (IOR) at the Oncology Institute of Southern Switzerland, have discovered a surprising new way of reversing resistance to androgen deprivation therapy (ADT)
- Inhibitors of interleukin-23 (IL-23) could show benefit in a significant proportion of patients with advanced, castration-resistant prostate cancer
- The ICR has filed a patent in the USA (application number 16/574828) covering the use of IL-23 inhibitors in prostate cancer
- The ICR is seeking a commercial partner to develop an IL-23 inhibitor in prostate cancer
- Working with the ICR to develop your IL-23 inhibitor for prostate cancer could differentiate it from others under development.

Prostate cancer research

The ICR is home to one of the world's leading prostate cancer research programmes.

Scientists at the ICR run the leading academic centre for drug discovery globally, having discovered 20 new drug candidates since 2005 – of which 10 have entered clinical trials. The blockbuster drug abiraterone (J&J's *Zytiga*) was discovered at the ICR and developed here in collaboration with healthcare company BTG.

The ICR also runs one of the world's most successful academic drug development programmes, in partnership with The Royal Marsden NHS Foundation Trust. Our joint Drug Development Unit (DDU) is led by Regius Professor of Biological Medicine Johann de Bono, who has led practice-changing phase III clinical trials of ADT including of abiraterone and enzalutamide (*Xtandi*).

The DDU runs about 50 first-in-human trials of novel cancer drugs at a time, many in collaboration with industry. The ICR also sponsors later-stage drug trials including those funded by pharmaceutical partners.

Professor de Bono's group have also pioneered the use of liquid biopsies in prostate cancer trials, in collaboration with industry partners.

Academic collaborations – like this programme with the Institute of Oncology Research at the Oncology Institute of Southern Switzerland – are leading to new understandings of prostate cancer that could transform treatment.



Regius Professor of Cancer Research Johann de Bono, who leads our programme of prostate cancer drug development

Our Business and Innovation Office

The ICR's interactions with industry partners are led by our Business and Innovation Office, a UK-leading technology transfer office which oversees a large portfolio of partnership and licensing opportunities across a wide range of oncology research.

Contact the Business and Innovation Office for more information on our licensing and partnering opportunities. Read more about our commercialisation work and sign up for our industry email newsletter at icr.ac.uk/partnerships.

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