

## Professor Tessa Holyoake

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*Professor Tessa Holyoake is Scotland’s leading pioneer in stem cell research in chronic myeloid leukaemia, and Director of the new Paul O’Gorman Leukaemia Research Centre at Glasgow’s Gartnavel Hospital.*

*It has been a life-long goal of Prof Holyoake’s to realise her vision of a dedicated leukaemia research facility. The new Leukaemia Research Centre, funded by a joint campaign by the University of Glasgow and the Leukaemia Research Fund, is the culmination of her dedication to this vision and occupies the third floor of a new Scottish Executive-funded laboratory built to support the West of Scotland Beatson Oncology Centre at Gartnavel General Hospital in Glasgow.*

*Prof Holyoake started her professional career as haematology registrar at Glasgow Western Infirmary in 1989. During this time she also engaged in research work at the Beatson Institute for Cancer research, Bearsden, Glasgow, studying the use of inhibitors to protect normal stem cells during chemotherapy treatment.*

*In 1992 she took up a full-time post at the Beatson Institute funded by the Scottish Hospital Endowments*



*Research Trust, studying towards her PhD while researching methods for expanding stem cells. This work led to a five-year senior fellowship from the Leukaemia Research Fund, which allowed her to continue her stem cell research during two years at Terry Fox Laboratories in Vancouver, Canada, between 1996 and 1998. After this she returned to the University of Glasgow for the remaining three years, where she recognised an opportunity to bring together the clinical and research work in normal blood cell production and blood cancers being conducted in the West of Scotland.*

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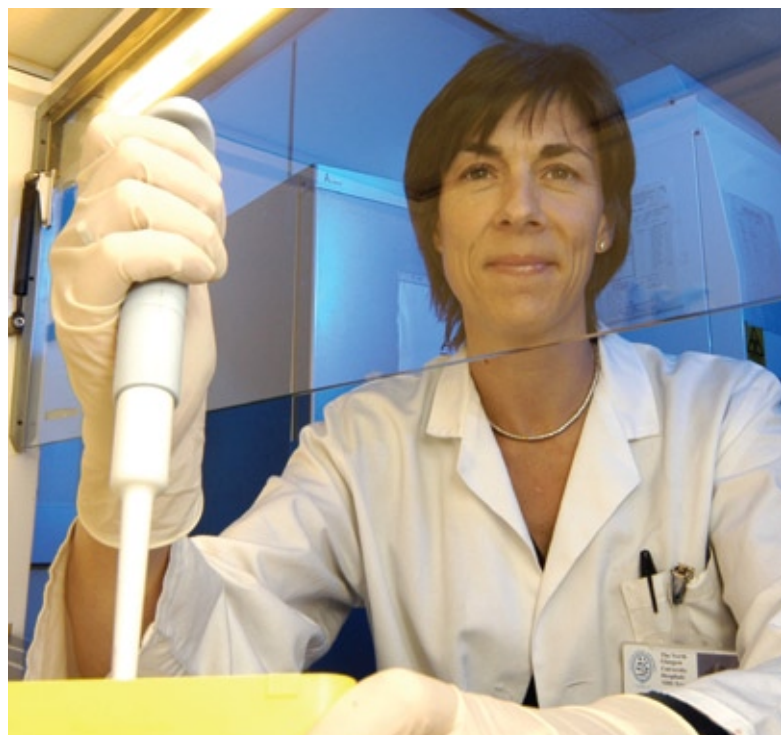
- ▶ Prof Holyoake has spent the larger part of her professional career researching chronic myeloid leukaemia (CML). The particular focus of her work has been on how to kill leukaemic stem cells without harming normal blood cells.

Around 21,500 people are diagnosed with leukaemia or one of the related cancers of the blood in the UK every year; a statistic which makes the work of Prof Holyoake's team all the more crucial. The dedicated research facilities of the new Leukaemia Research Centre will allow the scientists there to work closely in tandem with the West of Scotland Beatson Oncology Centre, with the benefits from this first-class set-up resonating far beyond Glasgow and the West of Scotland.

Prof Holyoake is confident the 'joined-up' approach afforded by the new Centre will cultivate and nurture homegrown talent, as well as help attract world-class scientists to the West of Scotland and further accelerate the progress being made in leukaemia research. The group is already very international with scientists from China, Japan, Iceland, Italy, Greece, Russia, Africa, Germany and the UK.

With Prof Holyoake's team making significant advances in understanding how leukaemia cells have thus far resisted extermination, they have paved the way for making risky bone marrow transplants less often required.

Prof Holyoake is currently working on a way to kill hostile stem cells in CML patients. A drug called Glivec is currently used to inhibit abnormal BCR-ABL protein in the blood cell, caused by a chromosome mutation known as the Philadelphia chromosome. However, although Glivec kills 99 per cent of leukaemia cells, scientists have yet to find a way of stopping the disease altogether. The work is now focussed on drug combinations designed to hit pathways that are active in leukaemia stem cells.



Prof Holyoake's team are currently taking two novel compounds through clinical trials. These second generation drugs, which have followed on from Glivec, could hold the answer to improving the eradication of leukaemia stem cells. Prof Holyoake and her team are hoping that even if the compounds – dasatinib and nilotinib – do not destroy the stem cells, then they will provide new leads on how this might be achieved.

She adds: "It's a complex and difficult task, but we have taken great steps in leukaemia research. People have suffered from CML since records started – we've known about the Philadelphia chromosome since the sixties; we've known about BCR-ABL since the eighties, and we now know that these stem cells are the reason the disease has been so resistant to drugs. In the past five years there has been a lot of progress and we're getting closer all the time."



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