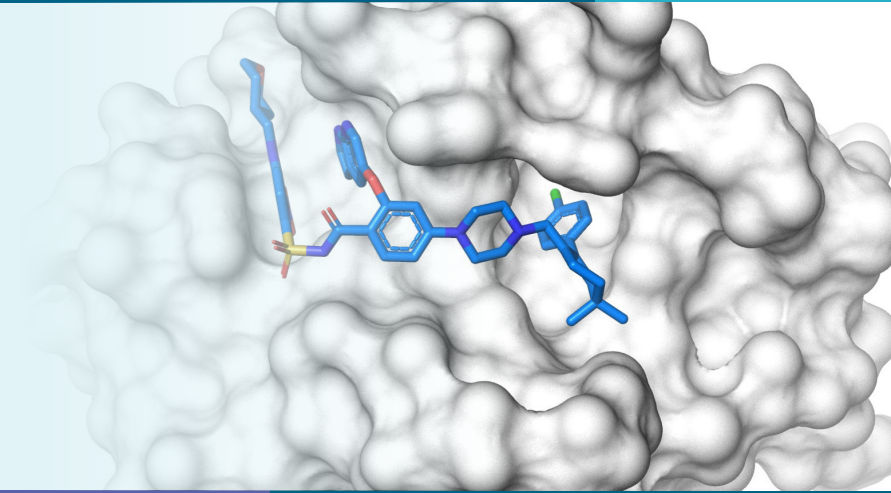




New treatments for leukaemia

Leukaemias are difficult-to-treat blood cancers, which are common among both young and older people. In Australia in 2023, around 20,000 people were diagnosed with a blood cancer and blood cancers accounted for an estimated 38% of all cancer cases among the 0-19 year-old age group. Over 5,000 Australians die each year from blood cancers. NHMRC-funded researchers at WEHI have made revolutionary breakthroughs in our understanding of leukaemia biology, leading to the development of a new type of anti-cancer drug, venetoclax, that has significantly improved treatment for leukaemia patients.



Origin

Leukaemia is a cancer of white blood cells (also called leukocytes). These are immune system cells that detect and deal with infections or foreign molecules that enter the body. Many types of leukaemia exist, with acute myeloid leukaemia (AML) and chronic lymphocytic leukaemia (CLL) being the most common.

Breakthroughs in our understanding of cancer could only take place after the development of genetics and molecular biology as sciences.

Investment

The pioneering work of WEHI's Molecular Biology Unit was supported by NHMRC block grant funding and a variety of NHMRC grants to individual researchers, a subset of which are shown in the timeline below.

Other sources of funding for WEHI's research included Australian and international philanthropic grants, government grants, and research funding from Genentech and Abbott Laboratories (now AbbVie) in the course of their collaboration with WEHI.

Research

In 1988, the WEHI team discovered that a protein called BCL2 increases the survival of leukaemia cells. Some types of leukaemia express large amounts of BCL2. For cancers such as CLL and AML this enables growth and generates resistance to the standard forms of anti-cancer therapy, such as chemotherapy.

The WEHI team's research revealed that it might be possible to develop totally novel anti-cancer drugs (called BH3 mimetics) that inhibit the effects of BCL2 and potentially cure or slow down progression of cancers such as CLL and AML.

Translation

Commencing in 2002, the WEHI team began to develop BH3 mimetics. From 2006, this work occurred in collaboration with pharmaceutical companies Genentech and AbbVie.

In 2011, patients in Melbourne were the first to be treated with the BH3 mimetic venetoclax. Between 2016 and 2019, US, EU and Australian regulatory bodies approved venetoclax for treating certain forms of CLL.

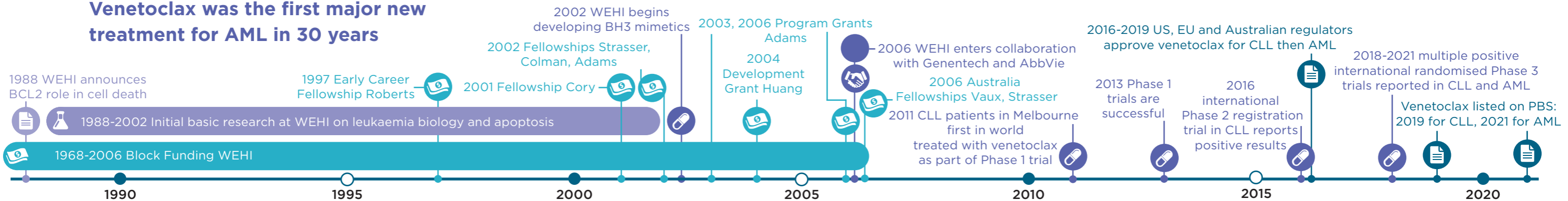
In 2018 and 2019, this approval was expanded to include AML patients.

Impact

Venetoclax represents a significant advance in treatments for blood and lymphatic cancers, especially CLL and AML. Due to high unmet clinical need for treatments in patients who are unable to tolerate chemotherapy, venetoclax was listed on the Australian Government's Pharmaceutical Benefits Scheme for treatment of CLL in 2019, and AML in 2021.

Around 1,100 people are diagnosed with AML in Australia each year. In 2023, over 2,400 people in Australia were diagnosed with CLL.

Venetoclax was the first major new treatment for AML in 30 years



Researchers

Prof Suzanne Cory AC
Prof Jerry Adams
Prof Andreas Strasser

Prof David Vaux AO
Prof Peter Colman AC
Dr Philippe Bouillet

Prof David Huang
Prof Andrew Roberts AM
Prof Peter Czabotar

Prof Guillaume Lessene
Prof Andrew Wei

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