AUDIO NEWS RELEASE
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Australian scientists unravel Leukaemia link

Scientists at St Vincent's Institute, Melbourne and Hanson Institute, Adelaide are the first to discover the structure of an important link in leukaemia. Professor Michael Parker of St Vincent's Institute is a lead author on the paper about this exciting discovery that has just been published in the leading international science journal, Cell.

Q1. Professor Parker can you tell us exactly what you and your collaborators have found?

Scientists at St Vincent's Institute, Melbourne and Hanson Institute, Adelaide have discovered the structure of a key protein receptor in white blood cell formation. Damage to this receptor can lead to diseases such as leukaemia and certain inflammatory diseases such as rheumatoid arthritis and asthma. Now we know what this receptor looks like and how it functions we can start the search for drugs to block it when necessary and prevent these diseases.

Q2. How was this receptor discovered?

We use a technique called X-ray crystallography and a synchrotron (a source of intense X-rays) which allows us to visualise tiny particles and transfer the X-ray image into a sophisticated computer system which produces a 3D virtual image of the structure - in this case a hormone-bound receptor.

Q3. Why is this receptor so important?

The receptor transmits signals from the hormone GM-CSF into white blood cells to give them the message to reproduce. We know that malfunctioning of the receptor causes the message to become uncontrolled so that an excessive number of malfunctioning white blood cells are produced as happens in leukaemia.

Q4. What does this mean for the treatment of leukaemia?

Now we have an image of the structure we are starting the search for drug compounds in collaboration with Australian pharmaceutical company, CSL that can block the receptor and prevent the wrong message going through. This discovery holds great promise for the treatment of leukaemia as well as certain inflammatory diseases such as rheumatoid arthritis and asthma.

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