

Birmingham scientists win £1m cancer research boost

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Birmingham scientists are leading the way in leukaemia research with a project using state-of-the-art technology to study the function of the entire human genome. The researchers hope to reveal how mutations in genes that are critical to the development of white blood cells trigger these cells into becoming cancer cells.

A team led by **Professor Constanze Bonifer** (</staff/profiles/cancer/bonifer-constanze.aspx>) and **Professor Peter Cockerill** (</staff/profiles/iaudi/cockerill-peter.aspx>) at the University have been awarded over £1 million by the charity Leukaemia & Lymphoma Research for the four-year programme.

The body creates 100,000,000,000 blood cells every day in a process tightly controlled by genes. The normal function of blood cells is dependent on the right set of genes either being turned on or off at the right time in their development. This is done by specific proteins which can 'read' the code laid down in our DNA. Genetic mistakes can lead to disruption to this finely balanced and orderly process and leukaemia can occur.

Professor Constanze Bonifer said, *"While we know in principle how our genes function, we do not really know how they all work together as a group to create new patterns of activity as cells develop. Currently we are only at the very beginning of understanding the vast changes in gene control that cause a cell to become cancerous.*

"Our work is aimed at understanding both how gene control normally functions and how it is hijacked in leukaemia. To get a complete picture, we will not just study a few genes, but we will examine every gene in healthy blood cells and leukaemia cells to understand how they all work together or go wrong to create a malignant cell."

Knowledge gained from the project could be used to design drugs to interfere with cancer development.

Professor Chris Bunce, Research Director at Leukaemia & Lymphoma Research, said: *"Leukaemia can be different in every patient and many different genes control the way these mutated blood cells develop. Currently we are still treating the majority of leukaemia patients with chemotherapy in a "one-fits-all" approach. This research could help us to develop different drugs that home in on the differences within leukaemia cells that are unique to each patient."*

