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Scientists break new ground on childhood leukaemia

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Scientists have made a breakthrough in the treatment of a key cause of death in children after discovering that childhood leukaemia is distinct from the adult form of the disease.

Research in Scotland has identified a distinct biology for paediatric acute myeloid leukaemia. The disease in both adults and children kills 2,700 people in the UK each year.

It is claimed that the work at the University of Glasgow's Institute of Cancer Sciences will advance understanding of the disease and create the potential for developing specific treatments for the childhood cancer, which is treated with therapies developed for adults.

Acute myeloid leukaemia (AML) is one of the most aggressive types of blood cancer and has the worst survival rates of all leukaemias. For children with AML relapse is often fatal.

The researchers modelled AML in mice and demonstrated that it was different in young cells compared with older cells. By analysing human paediatric AML samples they discovered a "gene signature".

Previously it was accepted that features of the disease within bone marrow applied to all AMLs, both paediatric and adult. Instead, the researchers found that the age of the cell that became a leukaemia cell had a key impact on the disease that developed: young cells give rise to acute leukaemia with unique blood cell features and changes to the bone marrow environment that are distinct from adult AML.

Dr Karen Keeshan, from the university's Paul O'Gorman Leukaemia Research Centre, said: ""Historically children with AML have received treatment based on adult practice, and we need better treatments specifically for children with AML.

"By identifying targetable features of the disease in children we can pursue new and better strategies to treat paediatric AML."