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Gut Microbiome Disturbance by Antibiotic Treatment Early in Life Is Sufficient to Induce Leukemia in Predisposed Mice

Genetic predisposition to childhood leukemia is frequent (>1-5%), but less than 1% of genetic carriers will actually develop the disease. Infectious stimuli are believed to play a major role in the etiology of the most common types of acute lymphoblastic leukemia, but the critical determinants leading to oncogenesis in children are unknown. We are trying to understand the mechanism by which natural exposure to common infections triggers the disease, with the ultimate goal of identifying potential preventive strategies.

As there is clear crosstalk between commensal bacteria and the immune system, the gut microbiome may serve as an integration hub for environmental signals such as exposure to infections, modulating the risk of developing B-cell acute lymphocytic leukemia (ALL). In a mouse model of human B-precursor ALL, we have demonstrated that the microbiome profile provides a biomarker that might be used to identify predisposed carriers at risk to develop leukemia. Furthermore, we have shown that gut microbiome deprivation via antibiotic treatment early in life is a risk factor for leukemia development. We anticipate that the risk of developing leukemia may be reduced by modulating the gut microbiome early in life.

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Abstract: #S100 AN INTACT GUT MICROBIOME PROTECTS GENETICALLY PREDISPOSED MICE AGAINST LEUKEMIA

About the EHA Annual Congress: Every year in June, EHA organizes its Annual Congress in a major European city. This year due to the COVID19 pandemic, EHA transformed its physical meeting into a Virtual Congress. The Congress is aimed at health professionals working in or interested in the field of hematology. The scientific program topics range from stem cell physiology and development to leukemia; lymphoma; diagnosis and treatment; red blood cells; white blood cells and platelet disorders; hemophilia and myeloma; thrombosis and bleeding disorders; as well as transfusion and stem cell transplantation. Embargo: Please note that our embargo policy applies to all selected abstracts in the Press Briefings. For more information, see our EHA Media and Embargo policy [here](#).

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