**Calum Leitch Project Abstract**

*Alternative strategies for the identification of novel therapeutic agents in the treatment of Acute Myeloid Leukaemia (AML).*

Acute Myeloid Leukemia (AML) is an aggressive malignancy with only 40-50%

long-term survival. The disease is clinically and molecularly heterogeneous. For elderly patients unable to receive intensive chemotherapy, the median survival is 2-3 months. There is therfore an urgent need for a broader range of therapeutic alternatives in the treatment of AML.

Conventional approaches to drug development have had limited impact on the treatment and overall survival of AML patients. Standard therapy comprises cytarabine plus anthracyclines and has remained unchanged for over 30 years. Furthermore the development of targeted therapies designed to combat specific mutations have broadly disappointed. We have employed three unconventional approaches to identify novel anti-leukemic compounds, which show encouraging preclinical efficacy. 1) Repositioning of established low-toxic, anti-leukemic compounds as novel synergistic combinations in AML. 2) Rationale screening of a diverse group of approved medicines for repurposing in the context of AML. This method 3) Collaboration with the Department of Chemistry at the University of Bergen to generate and characterise silver bound N-heterocycle complexes that are cytotoxic to leukaemia cells.