



Research We Fund



Project:

Testing a promising new therapeutic target (MNT) to improve treatment of diverse human lymphomas and other cancers driven by high levels of the oncoprotein MYC.

Research team:

Professor Suzanne Cory, Dr Gemma Kelly

Institution: The Walter and Eliza Hall Institute of Medical Research

Cancer type: Leukemia, lymphoma and myeloma

Years funded: 2020-2022

What is the project?

The oncoprotein MYC drives the growth of many lymphoid malignancies and other cancer types but drugs directly targeting MYC have had disappointing clinical results. Our recent genetic studies in mice suggest a promising new approach which takes advantage of the fact that cells with high levels of MYC are very susceptible to death by apoptosis. We have discovered that MYC-driven apoptosis is inhibited by a related protein called MNT. In this project we will test our prediction that removing MNT from MYC-driven lymphoma cells will increase their likelihood of dying, and thereby enhance the action of therapeutic drugs. This study will prepare the way for commercial and clinical translation.

What is the need?

MNT helps the expansion of MYC-driven lymphoma cells by preventing their natural apoptosis. By removing the MNT, we hope to greatly enhance this natural suicidal tendency in the lymphoma cells. We aim to increase therapeutic drug efficacy against such cells in human Burkitt's Lymphoma and Mantle Cell Lymphomas, as well as other MYC-driven tumour types, which currently require very aggressive chemo and which have a poor prognosis.

What are you trying to achieve?

We hope to achieve a better fundamental understanding of the important MYC family of regulators and why their deregulation is so important in cancer treatment. We also aim to stimulate the development of anti-MNT drugs and test their efficacy for a range of MYC-driven tumour types.

Project timeline

Timeline	2020	2021	2022
Establish multiple cell lines from mouse lymphomas for screening, start deletion of MNT gene in human cell lines, develop MNT antibodies.			
Complete in vitro drug screening on lymphoma lines; start in vivo treatment of lymphoma lines; perform drug screens of MNT-deficient and MNT-sufficient lymphoma cell lines			
Complete all drug screens of lymphoma cell lines and prepare data for publication; perform PROTAC studies			

“Drugs that directly target MYC have been largely disappointing in the clinic. New approaches are sorely needed for treating these tumours.”