

**PROJECT TITLE**

# Development of screening assay for Cbl-b inhibitors

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**PROJECT SUMMARY**

A promising new way to treat cancer is by helping the body's own immune system attack and destroy the cancer cells. These treatments, called Immunotherapies, have shown in some cases remarkable efficacy. However, such drugs only benefit a minority of patients; therefore, new ways to help the immune system to fight cancers are needed.

One potential target to enhance the immune system is a protein called Cbl-b, which is found in immune cells like T-cells and natural killer cells. Cbl-b is a protein that plays a key role in suppressing the immune response in these cells, acting as a "brake" on the immune system. When Cbl-b is deactivated in lab mice, they have been shown to have a much stronger immune responses against tumours. Also, transferring immune cells without Cbl-b into these mice improved their ability to fight off cancer. Our aim is to find small molecules that can block Cbl-b to boost the immune system's ability to fight cancer.

To find these molecules, we plan to create assays (laboratory tests) that can help evaluate many potential new drug candidates. We will develop and optimize these assays to see if potential drugs can block the interaction between Cbl-b and other proteins and stop its activity. We will also determine the structures of these drugs when bound to Cbl-b using X-ray technology. This information will help us design drugs that are more effective.

Overall, this research aims to develop assays to find small molecules that can block Cbl-b and enhance the body's immune response. We are hoping that these molecules will lead to better treatments for cancer patients.