PROJECT TITLE

Targeting cytidine deaminases in pancreatic cancer cells

PRINCIPAL INVESTIGATOR

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PROJECT SUMMARY

Pancreatic cancer is one of the deadliest cancers and will be the third leading cause of cancer death in Canada by the end of 2022. Pancreatic cancer is largely incurable and the outlook for patients has not improved in many decades. A common treatment for advanced pancreatic cancer is a chemotherapy called gemzar. Since gemzar is one of a limited number of drugs that are active against pancreatic cancer, we want to maximize its usefulness in treating pancreatic cancer. We have discovered two genes that when inactivated make gemzar kill pancreatic cancer cells better. Inactivating the two genes has no effect if gemzar is not used, and the combination of gene inactivation plus gemzar kills cancer cells but not non-cancerous cells. Our data show that the combination of gene inactivation plus gemzar could be highly specific as a therapy against pancreatic cancer. Since inactivating genes in human patients is not feasible, we wish to identify chemicals that inhibit the proteins that are made by the genes. The first step in the process is to develop an assay that is suitable for identifying inhibitors of two proteins. We will leverage the expertise of the Drug Discovery Group at the OICR to develop such an assay. We have purified one of the proteins to use for assay development, and we also have a first-generation assay that will serve as a foundation to build on. We will also purify the second protein so that we can also use it in our assay development scheme. The assays that we develop will enable us, in the future, to screen chemical libraries to identify inhibitors that will then be extensively validated and optimized for use as therapeutic drugs. Ultimately, our work will provide improved treatment for patients with pancreatic cancer.