

Integrated platform to identify synthetic lethality opportunities in cancer therapy



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Basic research has made important advances in understanding the causes of cancer resulting in the discovery of a new generation of therapeutic drugs targeted to specific malfunctions in cancer cells. However, each cancer type represents a unique disease which harbors a variety of genetic mutations allowing cancer cells to grow and develop resistance to many current therapies. Typically, these hurdles are addressed by conducting a large number of human clinical trials with a wide variety of patients and drug combinations, a process which often requires several years before determining which patients will ultimately benefit.

One approach to address this issue is the concept of synthetic lethality which refers to the identity of two genes that when eliminated individually are unobtrusive to the cancer cell, but together their elimination results in cell lethality. In cancer therapy, this can be achieved either by combining two or more drugs chosen to stop the function of the two synthetically lethal genes or by selecting patient populations that harbor a tumor mutation that allows enhanced responsiveness to a specific drug.

The “Integrated Platform to identify Synthetic Lethality opportunities in Cancer Therapy” brings together a highly committed and integrated team of scientists from the Goodman Cancer Research Center at McGill University and Gemin X Pharmaceuticals Inc., each with deep knowledge of cancer growth pathways.

This platform will apply the concept of synthetic lethality to discover, rapidly test and validate new therapeutic opportunities for novel drug combinations and/or selection of patients most likely to benefit from specific therapeutic strategies.