



SAN DIEGO'S NATIONAL CANCER INSTITUTE – DESIGNATED CANCER CENTERS



C3 / Pedal the Cause 2013

“Applying p38 MAPK inhibitors to tackle breast cancer metastasis”

Principal Investigators:

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Abstract:

The spread of cancer cells from a primary tumor to distant organs, termed metastasis, is the leading cause of cancer-related death. The removal of early-diagnosed primary breast cancer is not a guarantee that future metastatic recurrence of the disease will be avoided. It remains challenging to conduct clinical trials focused on metastasis prevention because such studies are lengthy and require a large number of patients, many of which have good intermediate survival prospects. For this reason, new therapies that prevent metastasis from occurring or, that trigger the regression of already formed metastasis remain an urgent unmet need. Michael Karin, PhD, and Xuefeng Wu, PhD, postdoctoral fellow in the Karin lab, found that Ubc13, an enzyme that modifies proteins and controls their ability to transmit signals that stimulate cell proliferation and survival, is important for the metastatic spread of breast cancer. Ubc13 controls the spread through another enzyme called p38. Researchers hypothesize that the inhibition of these enzymes can be used to prevent metastasis. It may also sensitize dormant metastasis-initiating cells and existing metastasis to chemotherapy.

This research partnership between UC San Diego Moores Cancer Center and The Salk Institute for Biological Studies will provide new insights into how these two enzymes control breast cancer spread, offer a rationale for the clinical testing of Ubc13 or p38 inhibitors as anti-metastatic agents in breast cancer and will define an Ubc13/p38-dependent metastasis gene signature. This marker will help measure clinical response to Ubc13 or p38 once therapies are developed and a clinical trial begins. The results of the investigation could lead to a new clinical trial that, if successful, will offer a new way to treat metastatic breast cancer.