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## Prevention of new and recurrent breast cancer brain metastases using immune response guided radiation therapy

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Sawyer Badiuk

Breast cancer is a devastating disease when it spreads and grows in the brain. This is common and is exceedingly challenging to treat. The standard radiation treatment for breast cancer growing in the brain is to target the growing tumours. However, within one year, half the patients will have new tumours growing again in other parts of the brain. Previously whole brain radiation was used to kill the undetectable cancer cells in the brain. It proved effective, however is withheld due to its side effects. My research focuses on finding an optimal amount of whole brain radiation that controls the cancer with reduced side effects. A novel imaging approach will be used to monitor the response of the brain and cancer following treatment. If this proves to be effective, then this can be translated to the clinic to combat the problem of breast cancers spread to the brain.