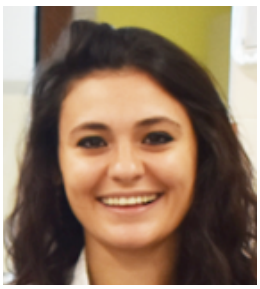
2018 Translational Research Innovation Awards

Project Title:

Increasing the number of breast cancer therapeutic antibody possibilities, patient choices and success



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Project Summary:

A number of pharma companies developed breast cancer therapies called 'monoclonal antibodies'. Despite the science behind the technology being excellent, and some antibodies reaching Phase III trials, the efficiency was not high enough to replace current therapies. That's millions of dollars spent for no better treatment for breast cancer patients. Our aim is to rescue some of the technology.

Our laboratory has recently found a way to enhance responses in targeted antibody therapy. This works by inhibiting a molecule called dynamin that traps the drug target on the tumour cell surface, causing a more efficient binding to the treatment antibody that leads to immune cell recognition and killing of tumour cells. Our Phase I clinical trial using this combination therapy has so far been safe.

We have selected a new list of antibodies previously developed and tested in clinic that didn't quite succeed in replacing current therapy. The target proteins of these antibodies are only temporarily exposed on the cancer cell surface, therefore we aim to increase the efficacy of these antibody-mediated therapies by combining it with our surface exposure-enhancing technology. If we see enhanced tumour cell killing in laboratory experiments we will then test any improved tumour cell killing in pre-clinical models.

Research Benefits:

1/10 women, and an increasing number of men, in the Western world develop breast cancer. The incidences keep increasing. Conventional anti-hormonal and chemotherapy have severe side-effects and are not sufficient to cure or stabilise disease in every patient. We have shown that we can increase the efficiency of a targeted cancer drug (cetuximab) and we aim to apply this strategy to multiple alternative antibody therapies for breast cancer treatment. This work has the potential to rescue hundreds of millions of dollars of breast cancer therapy research and increase patient options and success rates.

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