

Investigating the effect of Wnt-3A on mutant β -catenin Endometrial Cancer cells *in vitro*

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Research Question & Importance

My research wants to investigate if there is more genetic activation in mutant β -catenin Endometrial Cancer cells *in vitro* after adding media that contains Wnt-3A, which is a ligand that binds to a transmembrane protein. This ligand is part of the developmental pathway Wnt Signaling Pathway which has been tested to be aiding tumor development in other types of cancer by failing to degrade mutant β -catenin. This allows it to travel to the nucleus to activate transcription of target genes that have a role in the inhibition of the Wnt Pathway. Because of this we want to investigate what its effect is in Endometrial Cancer by adding the activating ligand to cells that contain mutant β -catenin.

The importance of my research and my research question is that currently there is not other treatment for Endometrial Cancer except a hysterectomy, which is the surgical removal of the uterus. In order to obtain better treatment and more precise diagnosis, we need to be able to have markers that aid in that process. This is the case in breast cancer, for example, where there is a standard procedure for testing and staining for certain hormones and draw a diagnosis from there (e.g. Triple-Negative Breast Cancer). It would be ideal if this same procedure would exist for Endometrial Cancer and my research wants to see if β -catenin is one of those markers used towards diagnosis as β -catenin mutations entail 30% of Endometrioid Endometrial Cancers

Results & Relevance

The results of my project indicate that there is more genetic activation in Endometrial Cancer cells with the addition of Wnt-3A media. This suggests that this ligand could be enhancing the effects of mutant β -catenin in the cells as it allowed for the target genes to be expressed in higher levels compared to the cells that did not have the Wnt-3A media. **My results are important** to my research community, more specifically my lab, since this data aids in defining the path of further experiments and be able to better understand the effects of Wnt-3A and mutant β -catenin in Endometrial Cancer cells.

For the general audience, my results are relevant since it advances the knowledge of molecular and cellular irregularities within Endometrial Cancer and allows for better experimenting, ultimately leading to more conclusive ways of diagnosis.

