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Institution: University of Manchester

Award Year: 2011

Project Title: "Preclinical targeting of the goblet cell differentiation pathway in pseudomyxoma peritonei"

Project Status: Closeout Procedures

Final Update (08-2017)

Pseudomyxoma peritonei (PMP) is a rare form of cancer arising from the appendix, which (i) grows very slowly in the laboratory setting and (ii) there is a near total lack of research into gene and protein expression that might influence its unique behavior (a propensity to produce large quantities of jelly or mucin in the abdomen).

In the NORD1 project, we established for the first time, the ability to grow PMP cells in the laboratory. This gave us a platform to explore a gene and protein pathway that might be important in how cells develop into cancer – this was called the Notch and Wnt signaling pathways.

In turn, the Notch and Wnt signaling pathways are related to excess production of mucin through a protein called MUC2.

Our characterization studies shown that the above were true. Importantly, we identified several mutated forms of molecules in the Wnt signaling pathway. These mutations meant that the PMP were resistant to certain drugs that would normally inhibit this pathway.

This knowledge has been able to inform us that testing these types of new anti-cancer agents would be futile.

Note from NORD: In the above progress report update, "NORD1 project" refers to the 2009 ACPMP grant awarded to Dr. Andrew Renehan.