

Tonya Pavlenko & Larua Gudvangen

Senior Division Medicine & Health

The Internal Battle with Melanoma: Triggering an Immune Response Using Toll Ligands

It is unknown which tissues sustain TLRs (toll-like receptors). This experiment is the first to discern the presence of TLRs on B16F1 melanoma cells. The purpose was to trigger an immunological response using toll ligands in order to get the immune system to kill and/or decrease the growth of B16F1 melanoma cells due to inflammation triggered by TLR stimulation. The experiment was conducted in two parts. First, in vitro, during which, B16F1 melanoma cells were separately treated with four different toll ligands: Pam₃ Cys (correspondent of TLR2), Polyinosine:cytosine (correspondent of TLR3), R848 (correspondent of TLR7/8) and CpG:ODN (correspondent of TLR9). The results were promising and somewhat unexpected. The second part of the experiment included an in vitro and an in vivo investigation that used two sets of mice. Based on the results from the procedure part one only, Polyinosine:cytosine and R848 were used. One set of mice was treated with toll ligands intratumorally and the second set of mice were treated concomitantly, meaning that a toll ligand treated tumor was being injected. The results in vitro have shown that TLR 2, 3, 7/8, and 9 exist on B16F1 melanoma cells. IN mice, the results, so far, have shown that the concomitantly treated tumors have had a significant delay in growth, which is very promising for this type of rapid growing melanoma. However, because of time restraints, full extent of the results is still not known. This project is currently progressing and will evaluate the full extent of the toll ligand treated tumors as well as study the T-cells that were triggered by the TLR stimulus.