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Optimizing DC targeting by activation of the three signal pathway for immunotherapy in melanoma

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In this project, we have evaluated the potential of Na-alginate as the polymer matrix for controlled release of tumor associated antigens (TAAs) and measured the immunotherapeutic efficacy of the formulation to stimulate a cytokine dependent T-cell response. We have measured the three signal pathways activation by dendritic cells which would result in T-cell stimulation. Different immunostimulatory adjuvants were screened and optimized for increasing dendritic cell (DC) stimulation using cytokine release as the outcome. The best immunostimulatory adjuvants were combined with the tumor antigens and incorporated into the particulate formulation. An *ex-vivo* study with murine DCs derived from bone marrow and T-cells from splenocytes and lymph nodes in co-culture was carried out to determine the effect of the formulation on activating the three necessary signals for effective communication between the innate and adaptive immune system. We have further screened herbal products for IL-12 response to use as an adjuvant in the delivery system.

Biography

Bernadette D'Souza is currently working as an Associate Professor at the McWhorter School of Pharmacy. She is a Formulation Scientist, working with cancer antigens and immunotherapy approaches using novel formulations. She has experience of working with formulations and targeted delivery systems for various routes of administration including oral, transdermal and injectable routes. She has expertise in various bioanalytical tools such as ELISA, LUMINEX, cell analysis using the cell analyser, etc. She has mentored over 10 students in the PharmD Program and has published in several peer-reviewed journals and presented at international conferences.

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