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Establishment of immortalized innate lymphoid cell lines from the mouse lung

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University grant Program – Final report

Name: Celine A Beamer, Ph.D.

Department: Biomedical & Pharmaceutical Sciences

Project Title: Establishment of immortalized innate lymphoid cell lines from the mouse lung.

Objective: The purpose of this proposal was to create immortalized innate lymphoid cell (ILC) lines from normal and transgenic mice.

Summary of Results: Although very rare, type 2 innate lymphoid cells are recognized as important players in the lungs during inflammation caused by ozone, allergens, and viruses. Because the life span of primary ILCs in culture is limited and isolation techniques are expensive, time consuming, and labor intensive, it is highly desirable to create an immortalized cell line. Due to the limited funds available for this endeavor, we were only able to make one attempt to create an immortalized type 2 ILC cell line from the mouse lung. We chose to use a commercially available simian virus 40 (SV40) T antigen pre-packaged into ready-to-use lentivirus (Applied Biological Materials Inc., Richmond BC). Although we were able to successfully isolate type 2 ILCs from the lungs of naïve wild-type mice several times, the comprehensive set of conditions required for the generation of an immortalized cell line were not completed. We experienced problems with bacterial contamination from the sorting process, toxicity of reagents, and incomplete infection of our primary cells. Additional studies are ongoing in the laboratory to continue to develop this powerful tool.

Extramural funding: At the present time, the preliminary data gathered have been used for methodological development only; although if successful, we expect that this tool will be incorporated into my current CBSD CoBRE subproject and R-type grant applications to the NIH.