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ESTABLISHMENT AND CHARACTERIZATION OF SPLEEN CELL LINES BY USING BALB/C MICE AS A MODEL

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ABSTRACT

The spleen is the largest secondary lymphoid organ in the body and it has a complex cell composition because of the immunocytes' maturity and settling down. Changes in the composition of immunocytes are critical to immune response. *In vitro* culturing of immune cells is the best way to study the behaviour and architecture of the cells. Considerable research works on spleen cell culture have not been conducted in Sri Lanka. The objective of this research project was to establish and characterize a spleen cell line from BALB/c mice as a model. BALB/c strain of the laboratory-bred mouse was chosen as the model organism as they are small in size and they have a short gestational period that permits easy manipulation. Animals were reared in the Animal House, Department of Zoology, University of Jaffna under parasite-free conditions. A BALB/c mouse was dissected and the spleen was isolated from the mouse. The spleen was minced into small residue particles and digestion was done by mixing tissue residues with collagenase solution. Cells were filtered by using a micro-pore filter unit and the cell suspension was centrifuged to obtain a single-cell suspension. The precipitate of the centrifuged cell suspension was mixed with the growth medium and seeded in the cell culture plate consists of the growth medium. 48hours cultured cells were examined under the microscope and a low growth rate was observed. Some cells were in the stage of fission. Cells have poorly adhered with the culture plate and cells were identified from the cell suspension. Additional research is needed to develop a continuous cell line. Immuno-phenotyping using flow cytometry can also be used to identify, quantify, and isolate the immune cells.

Key Words: BALB/c Mouse, Spleen, *In vitro* cell culture