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CHARACTERIZATION OF A FELINE T-LYMPHOBLASTOID CELL LINE, Yu-1, SENSITIVE TO FELINE IMMUNODEFICIENCY VIRUS

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A feline T-lymphoblastoid cell line was established by successive passages of mononuclear cells originating from the peripheral blood of a normal cat. The cell line designated as Yu-1 was characterized and examined for its susceptibility to feline immunodeficiency virus (FIV).

Yu-1 cells have been maintained in the presence of human interleukin-2 for over 9 months and more than 100 successive passages. Morphologically, Yu-1 cells were of lymphoblastic type and 5.8–10 μm in diameter. Flow cytometric analysis revealed that surface antigens of Yu-1 cells were feline $PanT^+$, $CD4^+$ and $CD8^-$. It was noted that only 15% of Yu-1 cells formed E-rosettes with guinea pig erythrocytes. In contrast 78% of feline peripheral blood mononuclear cells (PBMCs) stimulated by concanavalin A were positive for rosette formation. Yu-1 cells were proved to be free from exogenous retroviruses.

Susceptibility of Yu-1 cells to FIV strains, A-7 and Petaluma was compared with that of primary feline PBMCs. In the culture fluid of Yu-1 cells, Mg^{++}-dependent reverse transcriptase (RT) activity was detected by 2 days post inoculation with A-7 strain and by 9 days with Petaluma strain. The RT activity in the culture fluid of Yu-1 cells was much higher than that of primary feline PBMCs. By immunofluorescence assay (IFA) FIV antigen was detected in Yu-1 cells by 2 days post inoculation with A-7 strain and by 6 days with Petaluma strain. The FIV antigen was detected in Yu-1 cells earlier and with higher intensity than in the PBMCs. The IFA also revealed that FIV strains replicated more efficiently in Yu-1 cells than in PBMCs. The present results indicate that the Yu-1 cell line should be useful for detection, isolation, titration, and large scale propagation of FIV strains.