

Establishment And Cryopreservation Of Fibroblast Cell Line From A Sumatran Rhinoceros (*Dicerorhinus Sumatrensis*)

ABSTRACT

Cell lines have been established to preserve the genetic material of endangered animals. This study aims to establish, characterize and authenticate fibroblast cells derived from the kidney tissue of a Sumatran rhinoceros' carcass. The primary cultures were obtained using the mixed enzymatic-explant method, supplemented with complete media and maintained at 37°C with 5% CO₂ in an incubator. Following routine trypsinization, viability and growth curves were generated through the Trypan Blue counting method. Cellular senescence was quantified by Sa-β-gal staining assay and G-banding for karyotyping. As a result, the cell derivation had generated 81 frozen stocks. The viability of cells at P5 and P10 showed reasonable recovery after six months. Cell population doubling time at P5 was 20.45 hours, while it was 22.35 hours at P10 and P15. The senescence level significantly increased from P5 to P10, and was especially significant at P15. Genetic stabilities were considered stable at P5 and P10, with frequency of over 70 %. In conclusion, this study was able to derive a primary fibroblast culture from the preserved tissue of a Sumatran rhinoceros, with certain changes in morphology, senescence level, growth curves and cell viability as the number of passages increased.