Z602 암세포에서 특이적으로 발현 상승하는 신규 유전자(imup-1, -2)

김진경
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Normal human diploid fibroblasts have a limited proliferative lifespan when serially cultured in vitro. When normal human fibroblasts are transformed with SV40 T-antigen, the proliferative lifespan of these cells is extended by about 20-30 population doublings as compared with that of normal counterparts and proliferation during extended life is maintained T-antigen dependently. Using a model system of young, senescent and SV40-immortalized WI-38 fibroblasts, we identified mRNA upregulated in immortalized cells(imup-1, immortalization- upregulated protein 1, and imup-2). The open reading frame of imup-1 spans 321 bp, coding for a 10.9 kDa protein of 106 amino acids, while an insertion of 59bp in the otherwise identical mRNA of imup-2 leads to a frameshift, resulting in an 8.5kDa protein of 85 amino acids. Database searches identified this genes on chromosome 19, which could account for the cloned imup-1 and imup-2 transcripts by alternative splicing. Southern blot analysis of digested genomic DNA confirmed that both transcripts are derived from a single locus. Green fluorescent protein-fusions of IMUP-1 accumulated in the nucleus of HeLa cells. The C-terminus of IMUP-1 contains a bipartite nuclear localization signal, the deletion of which impaired nuclear translocation. The nuclear localization of IMUP-1 as well as the upregulation of both underlying mRNA in immortalized cells suggest a function in immortalization.