

## Development of *in vitro* evaluation system for telogen-anagen transition in female hair cycle

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Development of *in vitro* evaluation system for telogen-anagen transition was attempted. The respiration activity of mixed monolayer-culture of human dermal papilla cells (hDP) and human outer root sheath cells was significantly increased in 10 days, however, that of sphere-formed hDP and human outer root sheath cells was significantly decreased. The results on respiration activity of sphere indicated that characteristics of the sphere-formed hDP was similar to the hair bulb in telogen phase. Gene expression profile of hair cycle regulating-factors in sphere suggested that the profile of sphere-formed hDP was similar to hDP in telogen phase. When cyclosporin A which is a powerful hair growth inducer was added to sphere-formed hDP, gene expression profile for hair cycle regulating-factors was similar to hDP in anagen phase. The results suggested that sphere-formed hDP might be used as an *in vitro* system to evaluate for new hair induction. This system would be useful for screening of hair regrowth reagent for female hair loss.