

学位論文の要旨

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<p>主論文の題名</p> <p>Expression of GADD45G and CAPRN1 in Human Nucleus Pulposus: Implications for Intervertebral Disc Degeneration</p> <p>主論文の要旨</p> <p>Genome-wide analysis of the DNA methylation profile has identified 220 differentially methylated loci associated with human intervertebral disc (IVD) degeneration. Among these, two cell-cycle-associated genes, growth arrest and DNA damage 45 gamma (GADD45G) and cytoplasmic activation/proliferation-associated protein-1 (CAPRN1), were focused on. The expression of GADD45G and CAPRN1 in human IVDs remains unknown. We aimed to examine the expression of GADD45G and CAPRN1 in human nucleus pulposus (NP) cells and evaluate those in human NP tissues in the early and advanced stages of degeneration. Human NP cells were cultured after isolation from NP tissues. The mRNA expression of GADD45G and CAPRN1 was quantified using real-time PCR. Protein expression was evaluated using Western blotting and immunohistochemistry. GADD45G and CAPRN1 expression was identified in human NP cells at both mRNA and protein levels. The percentage of cells immunopositive for GADD45G and CAPRN1 significantly increased according to the Pfirrmann grade. The expression of GADD45G and CAPRN1 was enhanced in human NP cells at an advanced stage of degeneration, suggesting that it may be regulated during the progression of IVD degeneration to maintain the integrity of human NP tissues by controlling cell proliferation and apoptosis under epigenetic alteration.</p>			