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• 中文摘要

退化性關節炎對罹患者所造成的痛苦，生活上的不便，以及醫療費用的成長不容忽視。未來對退化性關節炎的治療之一是找出能有效抑制關節退化的藥物或能改善退化軟骨細胞的結構。發炎誘導劑如 IL-1beta 在關節炎的發病機制中扮演了一個重要的角色. 其它誘導劑如 LPS 亦可引起骨關節相關細胞於體外實驗中呈現相似退化性的變化。IL-1beta 或 LPS 藉由活化包括 NF-kappaB, AP-1 等這些轉錄因子以及 mitogen-activated protein-kinase(MAPK)而活化 collagenase (matrix metalloproteinase, MMP)。而關節炎病變過程中，間質分解酵素(Matrix metalloproteinase, MMPS)的異常表現扮演很重要角色，MMPS 的抑制劑應對關節的保護有一定的作用。杜仲(Eucommia ulmoides Oliver)，味甘、微辛、性溫、入肝腎二經，屬於補肝益腎、強筋壯骨的補益藥。我們先前實驗顯示杜仲粗萃物對 NO 與 PGE2 皆有顯著的抑制作用，其中以 50%酒精萃取之生杜仲與炒杜仲對 iNOS 有顯著的抑制作用。另 50%酒精萃取之炒杜仲對 p65 由細胞質轉進細胞核有抑制作用。此結果顯示杜仲可作爲與 NF-kB 被活化之相關疾病如關節炎的天然藥物。不同溶劑萃取的杜仲皮對骨關節相關細胞如軟骨細胞骨細胞及滑膜細胞的所產生的發炎物質如 PGE2 與與 MMP-13 有抑制作用。顯示杜仲可能可預防關節退化。杜仲是國人經常服用的保健食品。但在這新世紀之初，面對關節炎患者的增加，本研究結果將可提供運用杜仲於慢性關節疾病如退化性關節炎治療與保健之基楚。

• 英文摘要

Osteoarthritis (OA), a chronic degenerative joint disease, is the most common cause of pain and disability due to arthritis in many elderly people. Future treatment of OA will need to focus on the following area: interfering with the induction of cartilage-degrading mechanisms following acute or chronic injury; restoring normal cartilage and joint homeostasis and arresting disease progression in

osteoarthritis and preosteoarthritis states; reversing existing cartilage damage and restoring normal cartilage structure and function in frank osteoarthritis. IL-1beta plays a significant role in the pathogenesis of OA. Both IL-1betaor LPS can be used to induce similar degenerative responses in joint-related cells such as synovial cells, chondrocytes and osteoblastic cells in in vitro system. IL-1betaactivates collagenase (matrix metalloproteinase, MMP) gene expression through the activation of a panel of transcriptional factors including NF-kappaB, AP-1 and early response gene mitogen-activated protein-kinase (MAPK). Inhibitors of these factors are potential joint protectors by reducing MMP-related cartilage degradation event. Eucommiae Cortex is a liver and kidney tonic; it enhances the vital essence and vital energy, fortifies the muscles, tendons, and bones and relieves abnormal fetal movement. It is generally used for treatment of muscle and skeletal pain. Our study showed that Eucommia ulmoides bark extracts could attenuated the activation of LPS-induced p65 translocation to the nucleus. P65 subunits contains the transcriptional activation domain of NF-kappaB. We have also shown that different solvent extracted E. ulmoides bark exhibit inhibitory effect on inflammatory and degenerative gene expression in joint cells stimulated by LPS, which support the the joint protective role of Eucommia.