

천연자원으로부터 염증 치료물질 개발

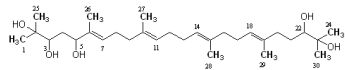
친환경바이오소재연구센터
노문철 2008.4.

연구개요 · 천연자원(초두구, 호초)으로부터 sICAM-1과 LFA-1의 결합을 저해하는 활성물질을 탐색하였고 분리 정제된 활성물질들은 in vivo 실험에서 항염활성을 확인함.

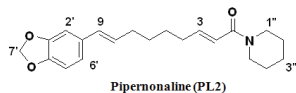
개발내용 · 천연자원에서 분리한 활성물질을 실험동물에 10일간 투여한 결과 포르말린유도 만성 염증에 의한 발두께와 발부피의 증가, 중족골 두께 감소 및 염증세포침윤을 억제하는 효과를 나타내었음.

· 세포접착인자인 ICAM-1과 LFA-1의 결합을 조절하는 활성물질을 개발하여 염증 개선효과를 동물실험을 통하여 입증한 것으로 염증 개선효과와 안전성이 우수함.

활성화합물의 구조



2,3,5,22,23-tetrahydroxy-2,6,10,15,19,23-hexamethyl-6,10,14,18-tetracosatetraene (AK3)

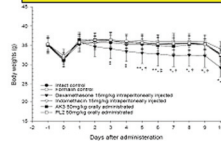


Pipernonaline (PL2)

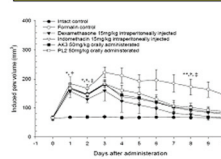
활용사례 / 효과 · 연구팀이 개발한 활성물질들은 천연자원으로부터 분리하였으며 부작용은 없으면서도 효능이 높은 것으로 평가되어 천연물약의 개발 분야에서 경쟁력을 확보하게 되었음.

Effects of and PL2 on Formalin-Induced Chronic Inflammation of Mice

Changes on the body weights



Changes on the Induced Paw Volume.



Changes on the Induced Paw thickness

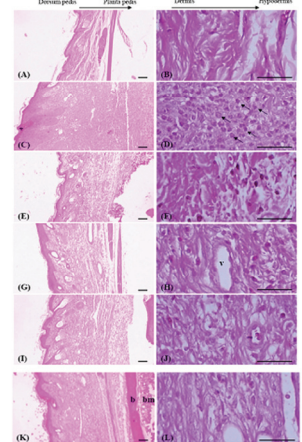
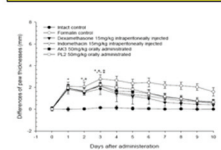


Fig 6. Histological Profiles of Induced Paw. Dermal Pads Skin Biopsied in Blank Control (A), Formalin Control (B), Deacetylase-treated (C), AK3-treated (D), and PL2-treated (E-L) Mice. Note the clinical histological profile of acute inflammation in severe edema, the formation of serous exudate (asterisk), and infiltration of inflammatory cells (arrow) in the formalin-treated control. Unlike in the hyporexia of subcutaneous regions in dermal pad-skin. However, these histological indicators of chronic inflammation were dramatically inhibited in all administered groups compared to that of formalin control, respectively. * blood vessel, h: bone, lvs: loose connective tissue.

All H&E stain. Scale bars = 50µm.