РЕФЕРАТИ СТАТЕЙ, ОПУБЛІКОВАНИХ В «CYTOLOGY AND GENETICS», № 3, 2026 р.

BONE MORPHOGENETIC PROTEIN TYPE IA RECEPTOR MIMETIC PEPTIDE CK2.1 ACTIVATES CHONDROGENESIS IN CHONDROCYTES FROM OSTEOARTHRITIS PATIENTS

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Osteoarthritis (OA) represents the most prevalent form of joint disease, leading to considerable pain and functional disability. While surgical interventions and pain relief modalities are available, there is an urgent necessity for effective therapeutic strategies to restore the damage. Our research investigates CK2.1, an innovative peptide that has exhibited significant promise in stimulating chondrogenesis, specifically within articular chondrocytes, for the treatment of OA. In our study, we employed micromass cultures derived from chondrocytes of human OA patients to evaluate the effectiveness of CK2.1. We demonstrated that CK2.1 significantly enhanced proteoglycan synthesis in chondrocytes isolated from OA patients. This observation highlights CK2.1's targeted action and potential as a novel therapeutic strategy for treating osteoarthritis.

Key words: *Osteoarthritis, BMP pathway, peptide drug, chondrogenesis, hypertrophy, musculoskeletal diseases.*

ПЕПТИД CK2.1, МІМЕТИК РЕЦЕПТОРА КІСТКОВОГО МОРФОГЕНЕТИЧНОГО БІЛКА ТИПУ IA, АКТИВУЄ ХОНДРОГЕНЕЗ У ХОНДРОЦИТАХ ПАЦІЄНТІВ З ОСТЕОАРТРИТОМ

Остеоартрит (ОА) є найпоширенішою формою захворювання суглобів, що призводить до значного болю та функційної недієздатності. Хоча наразі доступні хірургічні втручання та методи знеболювання, є нагальна потреба в ефективних терапевтичних стратегіях для відновлення після пошкоджень. Наше дослідження присвячене CK2.1 інноваційному пептиду, який виявив значний потенціал у стимулюванні хондрогенезу, зокрема в суглобових хондроцитах, для лікування ОА. У нашому дослідженні ми використовували культури мікромаси, отримані з хондроцитів пацієнтів з ОА, щоб оцінити ефективність CK2.1. Ми продемонстрували, що CK2.1 значно посилює синтез протеогліканів у хондроцитах, отриманих від пацієнтів з ОА. Це спостереження підкреслює цільову дію CK2.1 та його потенціал як нової терапевтичної стратегії для лікування остеоартриту.

Ключові слова: остеоартрит, шлях BMP, пептидний препарат, хондрогенез, гіпертрофія, захворювання опорно-рухового апарату.

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Received October 08, 2025
Received January 21, 2026
Accepted May 18, 2026