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MONOCYTE/NEUTROPHIL ELASTASE INHIBITOR

Indications: Cystic fibrosis; emphysema; COPD (including chronic bronchitis); acute respiratory distress syndrome; acute lung disease in premature infants; psoriasis; allergic dermatitis; anti-viral (including flu); and wound healing.

Inventor: Eileen Remold-O'Donnell, Ph.D.

Invention Summary:

The monocyte/neutrophil elastase inhibitor (MNEI), a 43 kD nonglycosylated protein, is a naturally occurring inhibitor of neutrophil proteases: elastase, cathepsin G and proteinase 3. The imbalance of protease and natural protease inhibitors due to the excess release of proteases by neutrophils and monocytes, as well as the excess accumulation of these cells, is thought to be responsible for tissue injury in human inflammatory diseases such as respiratory disease, joint inflammation, sepsis and skin diseases. Dr. Remold-O'Donnell and her colleagues have proved that MNEI treatment rectifies the protease and protease inhibitor imbalance in affected tissue/sites of the body, thus alleviating symptoms. Cloning, expression, purification process, analytical methods and reagents have been developed for recombinant MNEI (rMNEI). The rMNEI, being identical to the natural molecule, is anticipated to have no adverse effect in humans. Animal models have been developed or are available to study tissue injury and efficacy of rMNEI. rMNEI proved highly efficacious in preventing tissue injury in a rat model of acute lung injury and chronic bacterial infection. Studies are also underway to show that rMNEI promotes wound healing by preventing damage by proteases and protecting anti-microbial defenses. The mouse homologue of MNEI has been characterized and MNEI knockout mice have been generated to further characterized the physiological functions and therapeutic potentials of MNEI.

Publications:

J. Biol. Chem. 2002; 277:42028-42033
Am. J. Respir. Cell Mol. Biol. 1999; 20:69-78
Proc. Natl. Acad. Sci. 1992; 89:5635-5639

Availability:

Exclusive or non-exclusive worldwide license

Patent Status:

US Issued Patent # 5,370,991; US Issued Patent # 5,663,299
US Issued Patent # 5,827,672; US Issued Patent # D388168
Foreign Issued Patent # 0460072 for United Kingdom, France, and Italy;
Germany Issued Patent # 90904139.4
PCT Application # PCT/US90/00920, Publication # WO9009737

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