TECHNOLOGY OFFER

CYCLOPENTENONE COMPOUNDS, SYNTHESIS AND USE IN THE TREATMENT OF INFLAMMATORY DISEASES OCCURRING WITH CELL APOPTOTIC AND FIBROTIC PROCESSES.

BACKGROUND

Acute lung injury (ALI) is relatively common and is associated with high morbidity and mortality. ALIVE study demonstrated that about 7% of all intensive care unit patients develop ALI, and that sepsis is the most common predisposing factor. This sepsis is characterized by systemic inflammatory state in response to circulating microbes or their toxins as LPS or bacterial DNA.

Recent studies have confirmed that an increase of cellular apoptotic and repair mechanisms (in lung fibrosis) processes are essential steps in the development of pathologies as ALI and Distress Respiratory Acute Syndrome (ARDS).

Even though the technique advances in the knowledge gained about the involved pathophysiologic processes, still no pharmaceutical treatment is used for ALI or septic patients. Therapeutics of septic patients who develops a fibrotic process is currently restricted to guidelines as the administration of supplemental oxygen, oro-tracheal intubation and mechanical ventilation, that, in some cases, can increase the risk of these inflammatory processes

TECHNOLOGY DESCRIPTION

This invention, describes the procedure for obtaining a family of Cyclopentenone compounds. These compounds are useful for the preparation of a pharmaceutical composition for treating inflammatory diseases occurring together with cell apoptotic and fibrotic processes, preferably, sepsis caused by Gram-negative, ALI induced by sepsis, ARDS induced by sepsis, endotoxic shock ,endotoxemia , trauma or tissue damage.

The research group has demonstrated that these compounds possess anti-inflammatory, anti-apoptotic and fibrosis induction prevention activities against lipopolysaccharide (LPS) of Gram-negative bacteria in A549 cell line. The anti-inflammatory activity was showed by TLR4/NF-kβ pathway inhibition. The anti-apoptotic activity was showed by Bax/Bcl-2 pathway inhibition and the anti-fibrotic activity by WNT/β-Catenin pathway inhibition.

ADVANTAGES

There is currently no specific drug product against sepsis and ALI induced by sepsis in the market. The group can perform pre-clinical trials and clinical trials in collaboration with the company.

CURRENT STATE OF DEVELOPMENT

Finishing “in vitro” studies in an alveolar epithelial injury cell model and performing “in vivo” animal pre-clinical studies.

GOAL

License Agreements, co-development and commercialization agreements with the Bio-Pharmaceutical Industry.

PATENT

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