TECHNOLOGY OFFER

SET OF miRNAs AS MARKERS FOR THE DIAGNOSIS OF DIFFUSE ALVEOLAR DAMAGE AND OUTCOME PREDICTION OF ACUTE RESPIRATORY DISTRESS SYNDROME IN SERUM OF CRITICAL CARE PATIENTS

BACKGROUND

Acute Respiratory Distress Syndrome (ARDS) is a very serious pathology, frequent in intensive care units and associated with a mortality rate of 40%. The pathology is diagnosed by clinical symptoms; however the presence of diffuse alveolar damage (DAD) is the gold standard method to confirm the histopathological condition of ARDS since other diseases can present similar symptoms such as pulmonary embolism or pneumonia. Moreover, several studies reveal that after biopsy around half of the cases with a clinical diagnose of ARDS do not present DAD. DAD could represent a specific clinical phenotype, and the only way to ensure the presence of DAD is by pulmonary biopsy, a very invasive technique that entails high risks, especially for intensive care patients.

Furthermore, DAD can also occur during development of other diseases and health conditions such as: sepsis, serious infections, traumas, pancreatitis, bacterial an viral pneumonias, multiple blood transfusion, post-operatory of high risk surgery…

Since the intensive care units are where all these pathologies with such high mortality rates occur, there is a clear need to have early and specific tests that can help distinguishing the different origins and states of these conditions in order to target them with specific and effective treatments as soon as possible.

TECHNOLOGY DESCRIPTION

The present invention refers to a set of miRNAs which expression identifies, in serum sample of patients, the presence of DAD with a specificity higher than 75%. The method therefore could be a diagnosis tool for DAD for all the health conditions with a high risk to develop it and a confirmation tool for those patients with clinical suspicion of ARDS.

Moreover the association of those miRNAs with DAD opens the possibility of using them as therapeutic targets for the improvement of pulmonary function in such pathologies since they are known regulators and their expression could be modified.

ADVANTAGES

The main advantages of these markers for the diagnosis of DAD and prediction of ARDS prognosis are:

1. Is a minimally-invasive method. Blood test.
2. Can help to clinically predict the outcome of ARDS in an early and specific way.
3. Could detect DAD in other pathologies that have a high risk to develop it.
4. Can be used to dissect a homogeneous population of ARDS patients with DAD in order to test innovative treatments.
5. Can help to stratify the risk of adverse outcome in ARDS patients.
6. Can help to reduce hospital economical resources since the correct identification of health condition and origin of a disease can help to use the most efficient treatment for the appropriate patient population.
7. These miRNAs could be of use as therapeutic targets in the development of new specific treatments for ARDS and pulmonary function by exploiting their interference mechanism.

GOAL

License Agreements and /or co-development and commercialization agreements with a Biotech, Bio-Pharmaceutical or Diagnostics company for the development of diagnosis and/or treatment methods.

PATENT

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