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Cystic Fibrosis Research News

Title:

The expression of Mirc1/Mir17-92 cluster in sputum samples correlates with pulmonary exacerbations in cystic fibrosis patients

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What was your research question?

Cystic Fibrosis (CF) is a genetic disorder characterized by reduced lung function due to chronic bacterial infections and inflammation. Currently, there are no reliable markers available to predict pulmonary exacerbations (an acute worsening of lung function) which are associated with an increased risk of early death.

Why is this important?

It is important to detect a sharp decline in lung function early on so as to provide effective treatment and avoid further destruction of the lung tissue to prevent costly long-term medical care.

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What did you do?

We analysed the levels of certain small molecules called MicroRNAs in blood and mucus taken from the lower airways of people with CF. MicroRNAs are relatively stable in various biological fluids, such as blood and mucus, and therefore well-placed to serve as biomarkers. The generation of a certain group of MicroRNAs (from the Mir17-92 family) was shown to be enhanced in people with CF but it was not clear if their amount is related to the severity of the decline of lung function.

What did you find?

We showed that MicroRNAs from the Mir17-92 family can be easily detected in human cells, mucus and blood. Furthermore, we demonstrated that Mir17-92 levels are drastically increased in mucus from people with CF, who have an acute decline in lung function.

What does this mean and reasons for caution?

Finding biomarkers to monitor and evaluate the situation in the lungs of people with CF is critical to identify those at risk of acute decline of lung function and to ensure timely treatment leading to improved outcome for the patient. Measuring the levels of MicroRNAs in airway samples such as mucus provides a non-harmful method to examine disease conditions in CF.

What's next?

Further studies are needed to determine if the levels of the Mir17-92 family respond to newly developed drug treatment in order to monitor the effects of treatment.

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