

# Cystic Fibrosis Research News

## **Title:**

**Correlation of sweat chloride and percent predicted FEV1 in cystic fibrosis patients treated with ivacaftor**

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## **What was your research question?**

We evaluated if changes in sweat chloride correlated with changes in a specific measure of lung function in people with cystic fibrosis (CF) treated with ivacaftor. Ivacaftor (Kalydeco®), is a prescription medicine approved to treat a small group of people with CF who have certain types of mutations.

## **Why is this important?**

Sweat chloride is raised in people with CF; in clinical trials, certain groups treated with ivacaftor had reduced sweat chloride levels. Ivacaftor was also shown to improve lung function in certain groups treated in the clinical trials. However, when the data for individual trial participants was evaluated, it was seen that the degree of change in sweat chloride could not be used to predict the change in lung function. Our goal was to see if changes in sweat chloride could be used to predict lung function changes if we evaluated groups of participants from multiple clinical trials.

## **What did you do?**

All the data we used came from eight clinical trials, which had been conducted by Vertex Pharmaceuticals as part of the testing of ivacaftor. We took the average (ie, mean) change in sweat chloride from the start of each study until the end of each study and plotted it against the mean change in lung function in the same time period. The participants in these trials were all being treated with ivacaftor and had various CF-causing mutations.

## **What did you find?**

We confirmed that for any individual, the sweat chloride change that occurred after the start of ivacaftor treatment could not be used to predict lung function changes. However, if you looked at the average changes in sweat chloride and lung function for the groups of



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participants in each study, we did observe a correlation between sweat chloride changes and lung function changes.

## **What does this mean and reasons for caution?**

The correlations identified with this work may be helpful to understand the relationship between improvements in sweat chloride and changes in lung function in clinical trials. More work is, however, needed to identify how sweat chloride changes can be used by physicians in the day-to-day clinical practice setting.

## **What's next?**

As sweat chloride and lung function continue to be measured in clinical trials of cystic fibrosis, researchers will learn more about their relationship to disease and treatment.

## **Original manuscript citation in PubMed**

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