



# Cystic Fibrosis Research News

## Title:

Urinary Metabolomics Reveals Unique Metabolic Signatures in Infants with Cystic Fibrosis

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## What was your research question?

We sought to determine if chemicals in the urine of infants with cystic fibrosis (CF) can predict clinical outcomes early in life. We also wanted to determine chemical pathways that are unique to CF compared to infants without CF.

## Why is this important?

Although CF can be detected very early in life in many countries, there are limited therapies available for infants with CF to prevent infection and inflammation. Additionally, the chemical factors that cause worsened disease in infants with CF are poorly understood. Therefore, it is important to investigate the chemical changes that are unique to infants with CF to develop new tests or treatments to help improve outcomes early in life.

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## What did you do?

We measured chemicals (metabolites) in the urine of infants with CF and compared them to infants without CF. We also determined which metabolites were associated with differences in lung disease and nutrition within CF. Finally, we determined which chemical pathways may be controlled differently in CF compared to infants without CF.

## What did you find?

We found that urine metabolite patterns were distinctly different between CF and non-CF infants, but did not easily distinguish between infants with CF who had different clinical outcomes. We identified several metabolite pathways and regulators of metabolite production that appear unique to CF. The unique metabolite pathways we identified offer exciting new areas for future research.

## What does this mean and reasons for caution?

Urine metabolite studies hold great promise for understanding how changes occur early in life in young children with CF. This may allow us to develop new approaches to the treatment of CF. However, our findings will need to be replicated in further infants with and without CF, and measured over time. Further studies are also needed to determine how metabolites can better predict changes within infants with CF who have different clinical outcomes. It will also be important to determine if differences in diet can affect metabolite production in CF.

## What's next?

Findings from this study will be verified in new groups of infants and young children with CF to determine which metabolite pathways are most important for continued research. We will also determine how metabolites produced by infants with CF respond to changes in their environment.

## Original manuscript citation in PubMed

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