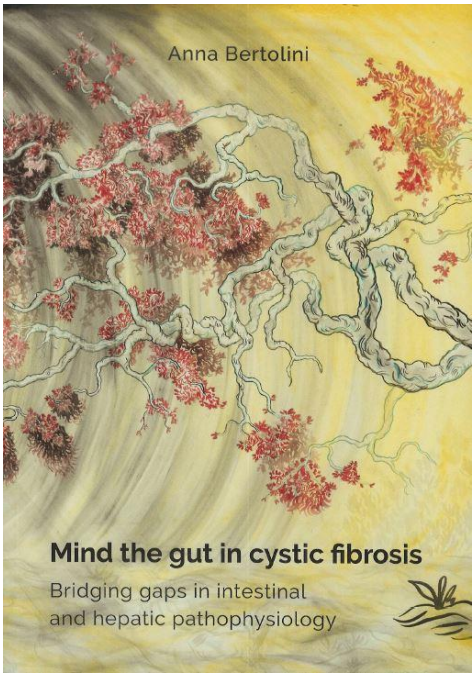

Samenvatting proefschrift A. Bertolini

'Mind the gut in cystic fibrosis: bridging gaps in intestinal and hepatic pathophysiology'

Promotiedatum: 10 januari 2024
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Cystic fibrosis (CF) is a life-limiting inherited disease that affects several organs such as the lungs, the liver and the gut. Significant strides have been made in addressing CF's leading cause of death, chronic lung disease. However, digestive and liver issues, which also impact life quality and expectancy in CF patients, have received less attention. The research described in this thesis sought to uncover the causes of these digestive and liver problems and investigate potential treatments.

In the first part of the thesis, we examined digestive issues in CF. CF patients lose important substances like bile acids, fat, and cholesterol through their stool. In CF mice, we found that this loss is mainly due to intestinal factors such as mucus buildup and gut dehydration. Using the laxative polyethylene glycol, which increases mucus and gut hydration, we improved the absorption of bile acids, fat, and cholesterol in CF mice.

The second part of the thesis focused on CF-related liver disease (CFLD), which can be severe in some CF patients. It has long been thought that clogging of bile ducts with dehydrated bile is the mechanism responsible for causing CFLD, however, we found normal bile secretion in CF mice. Instead, we found that gut issues, including alterations in gut microbiota and increased intestinal permeability, played a crucial role in CFLD development in mice.

This research described in this thesis advanced our understanding of CF-related digestive and liver issues and suggested new treatment possibilities. However, further research, particularly in CF patients, is needed to validate these findings and develop targeted therapies.

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