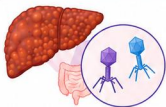


Can viral signatures in the gut help predict complications in patients with advanced liver disease?



Researchers found that **bacteriophages** – viruses that infect bacteria – can help predict important complications in patients with decompensated cirrhosis.



In particular, **Lactococcus A phages** are associated with acute-on-chronic liver failure (ACLF), while **Enterococcus B phages** are associated with bacterial infections.

Two different phage signatures may help identify patients at higher risk of acute-on-chronic liver failure (ACLF) or bacterial infections.

1 What are bacteriophages?



Bacteriophages or phages are viruses that infect bacteria.



They are part of the gut microbiome and can influence the balance of bacterial communities.

2 What did the researchers do?



Analysed stool samples from patients with decompensated cirrhosis, as part of MICROB-PREDICT.



Used advanced sequencing methods to identify and analyse phages.



Investigated whether specific phage signatures were associated with acute-on-chronic liver failure (ACLF) or bacterial infections.

3 What did they find?



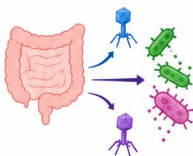
Lactococcus A phages were associated with an increased risk of acute-on-chronic liver failure (ACLF).



Enterococcus B phages were associated with an increased risk of bacterial infections.

These two phage signatures could help identify patients at higher risk of different complications.

4 Why might phages be linked to complications?



Changes in phage communities can influence which bacteria are present in the gut, which may affect the immune system, inflammation and the risk of complications such as acute-on-chronic liver failure (ACLF) or bacterial infections.

5 What could this mean for patients?



In the future, phage signatures could help identify patients at higher risk of ACLF or bacterial infections.



This could support closer monitoring and more personalised care.



Goal: earlier identification of high-risk patients and improved outcomes.



A simple, non-invasive stool test could one day contribute to more personalised care for people with advanced liver disease.

But this is still experimental.

6 Is this already a treatment?



No – not yet.



This study identified associations, not a treatment.



More research is needed to understand how phages influence disease and whether they can be targeted therapeutically.

7 What is the bigger picture?



This research shows that viruses in the gut (phages) may provide valuable information about disease progression and risk of complications in cirrhosis.

Understanding the role of phages in the gut microbiome could open new possibilities for risk prediction, prevention and personalised medicine in advanced liver disease.

8 About the research



Title of Publication: "Lactococcus A phages predict ACLF while Enterococcus B phages predict bacterial infection in decompensated cirrhosis"



Conducted by Van Espen and colleagues on behalf of the MICROB-PREDICT Consortium.



Van Espen L, Brol MJ, Close L et al. (2026) Lactococcus A phages predict ACLF while Enterococcus B phages predict bacterial infection in decompensated cirrhosis *JHEP Reports*, 8(1): 101622



The MICROB-PREDICT project received funding from the European Union's Horizon 2020 research and innovation programme (No. 825694).