

**Table S2.** A list of the 24 studies that were excluded from the systematic review.

| No. | Author                | Title   | DOI   | Cause of exclusion                         |
|-----|-----------------------|---|---|--|
| 1   | Kakiyama et al., 2013 | Modulation of the fecal bile acid profile by gut microbiota in cirrhosis  | <a href="https://doi.org/10.1016/j.jhep.2013.01.003">https://doi.org/10.1016/j.jhep.2013.01.003</a>   | Cirrhosis not related to HBV infection     |
| 2   | Zhao et al., 2018     | Altered oral microbiota in chronic hepatitis B patients with different tongue coatings  | <a href="http://dx.doi.org/10.3748/wjg.v24.i30.3448">http://dx.doi.org/10.3748/wjg.v24.i30.3448</a>   | Oral microbiota                            |
| 3   | Ling et al., 2015     | Decreased Diversity of the Oral Microbiota of Patients with Hepatitis B Virus-Induced Chronic Liver Disease: A Pilot Project  | <a href="https://doi.org/10.1038/srep17098">https://doi.org/10.1038/srep17098</a>                     | Oral microbiota                            |
| 4   | Jianfei et al., 2022  | Effect of Tenofovir on gut microbiota and inflammatory factors in HBV-infected individuals  | <a href="https://doi.org/10.21203/rs.3.rs-2036347/v1">https://doi.org/10.21203/rs.3.rs-2036347/v1</a> | Preprint                                   |
| 5   | Chou et al., 2015     | Age-related immune clearance of hepatitis B virus infection requires the establishment of gut microbiota  | <a href="https://doi.org/10.1073/pnas.1424775112">https://doi.org/10.1073/pnas.1424775112</a>         | A mouse model with the confounding factors |
| 6   | Han et al., 2021      | Alterations in the Gut Microbiota and Hepatitis-B-Virus Infection in Southern Chinese Patients with Coexisting Non-Alcoholic Fatty Liver Disease and Type-2 Diabetes Mellitus | <a href="https://doi.org/10.3389/fmed.2021.805029">https://doi.org/10.3389/fmed.2021.805029</a>       | HBV with other co-exciting diseases        |
| 7   | Liu et al., 2023      | Apolipoprotein H induces sex-specific steatohepatitis and gut dysbiosis during chronic hepatitis B infection  | <a href="https://doi.org/10.1016/j.isci.2023.106100">https://doi.org/10.1016/j.isci.2023.106100</a>   | HBV with co-exciting diseases              |
| 8   | Wang et al., 2022     | Circadian Rhythms Coordinated With Gut Microbiota Partially Account for Individual Differences in Hepatitis B-Related Cirrhosis   | <a href="https://doi.org/10.3389/fmed.2021.805029">https://doi.org/10.3389/fmed.2021.805029</a>       | Confounding factors                        |
| 9   | Zhao et al., 2021     | Correlation between gut microbiota and liver biochemical indicators in patients with chronic hepatitis B  | <a href="https://doi.org/10.13345/j.cjb.200279">https://doi.org/10.13345/j.cjb.200279</a>             | Article in chinese                         |

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| 10 | Liu et al., 2021   | Effect of intestinal microbiota imbalance associated with chronic hepatitis B virus infection on the expression of microRNA-192 and GLP-1.                 | <a href="https://doi.org/10.3892/mmr.2021.12301">https://doi.org/10.3892/mmr.2021.12301</a>                                   | HBV with co-exciting diseases                      |
| 11 | Chen et al., 2018  | Gut microbiome across stages of HBV infection  | <a href="http://dx.doi.org/10.1136/gutjnl-2018-IDDFabstracts.18">http://dx.doi.org/10.1136/gutjnl-2018-IDDFabstracts.18</a>   | Abstract: No full article is available             |
| 12 | Xie et al., 2018   | Faecal microbiota transplantation induced HBSAG decline in HBEAG negative chronic hepatitis B patients after long-term antiviral therapy                   | <a href="http://dx.doi.org/10.1136/gutjnl-2018-IDDFabstracts.233">http://dx.doi.org/10.1136/gutjnl-2018-IDDFabstracts.233</a> | Abstract: No full article is available             |
| 13 | Wu et al., 2019    | Fecal microbiota transplantation protects liver from HBV infection   | <a href="http://dx.doi.org/10.1136/gutjnl-2019-IDDFAbstracts.96">http://dx.doi.org/10.1136/gutjnl-2019-IDDFAbstracts.96</a>   | Abstract: No full article is available             |
| 14 | Bao et al., 2023   | Landscapes of gut microbiome and bile acid signatures and their interaction in HBV-associated acute-on-chronic liver failure                               | <a href="https://doi.org/10.3389/fmicb.2023.1185993">https://doi.org/10.3389/fmicb.2023.1185993</a>                           | Cross-sectional study, no healthy control subjects |
| 15 | Peng et al., 2022  | Operable hepatitis B virus-related hepatocellular carcinoma: gut microbiota profile of patients at different ages  | 10.21037/atm-22-1572  | Confounding factors                                |
| 16 | Li et al., 2001    | Changes in intestinal microflora in patients with chronic severe hepatitis   | Chinese medical journal, 114(8), 869–872.   | Chronic hepatitis _no mention of HBV as a cause    |
| 17 | Jiang et al., 2020 | Study on the Characteristics of Gut Microbiota in Chronic Hepatitis B Patients With Damp Heat Syndrome and Liver Depression and Spleen Deficiency Syndrome | <a href="https://doi.org/10.21203/rs.3.rs-65426/v1">https://doi.org/10.21203/rs.3.rs-65426/v1</a>                             | Preprint with co-exciting diseases                 |
| 18 | Tang et al., 2021  | The diagnostic potential of gut microbiome for early hepatitis B virus-related hepatocellular carcinoma  | DOI: 10.1097/MEG.0000000000001978   | Abstract: No full article is available             |
| 19 | Tamai et al., 2021 | Rifaximin ameliorates intestinal inflammation in cirrhotic patients with hepatic encephalopathy  | <a href="https://doi.org/10.1002/jgh3.12596">https://doi.org/10.1002/jgh3.12596</a>   | The cause of cirrhosis is not mentioned            |

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| 20 | Yukawa-Muto et al., 2022 | Distinct responsiveness to rifaximin in patients with hepatic encephalopathy depends on functional gut microbial species              | DOI: 10.1002/hep4.1954  | The cause of cirrhosis is not mentioned                   |
| 21 | Bajaj et al., 2019       | Long-term Outcomes of Fecal Microbiota Transplantation in Patients With Cirrhosis   | <a href="https://doi.org/10.1053/j.gastro.2019.01.033">https://doi.org/10.1053/j.gastro.2019.01.033</a> | The cause of hepatic encephalopathy is not HBV-related.   |
| 22 | Zeng et al., 2021        | Low-dose rifaximin prevents complications and improves survival in patients with decompensated liver cirrhosis                        | <a href="https://doi.org/10.1007/s12072-020-10117-y">https://doi.org/10.1007/s12072-020-10117-y</a>     | The cause of hepatic encephalopathy is not HBV-related    |
| 23 | Bajaj et al., 2019       | Microbial functional change is linked with clinical outcomes after capsular fecal transplant in cirrhosis                             | <a href="https://doi.org/10.1172/jci.insight.133410">https://doi.org/10.1172/jci.insight.133410</a>     | The cause of cirrhosis is not mentioned to be HBV-related |
| 24 | Peng et al., 2022        | Gut microbiome dysbiosis in patients with hepatitis B virus-related hepatocellular carcinoma after extended hepatectomy liver failure | doi: 10.21037/atm-22-1958   | No healthy control group                                  |

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**HBV:** Hepatitis B virus