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Exploring the links between gut microbiome changes and irritable bowel syndrome in Han populations in the Tibetan Plateau

Key words: Gut microbiome; Plateau environment; Irritable bowel syndrome

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Research Summary

This review mainly focused on the links between gut microbiome changes and IBS in Han populations in the Tibetan Plateau, and summarized the key roles they played in the following aspects:

- High-altitude environment can lead to changes in the diversity and composition of gut flora.
- High-altitude environment leads to higher incidence of IBS.
- And with the extension of residence time at the plateau, the intestinal microbes show adaptive dynamic changes, returning to a level close to that before entering the plateau, and the symptoms of IBS are also significantly alleviated.
- The disbalance of gut microbiota induced by the plateau environment contributed to the high frequency of IBS and the psychosocial abnormalities associated with IBS.

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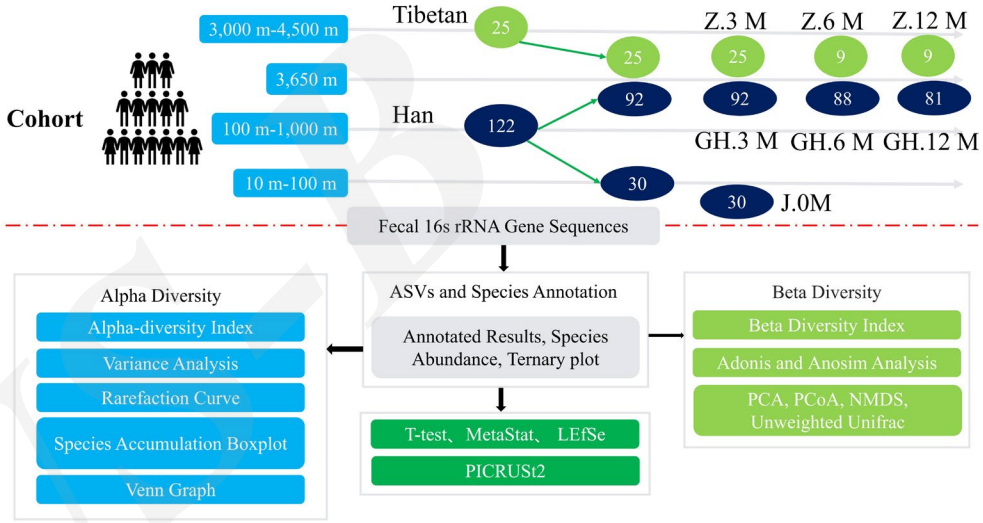
Innovation points

● **Introduction** Current status of gastrointestinal diseases and gut microbiota in plateau environments.

● **Summary** Relationship between the occurrence of IBS and intestinal microbial changes under plateau environment.



● **Emphasis** Effects of high altitude environment on IBS and gut microbiota. The gut microbiota and IBS symptoms change adaptively in the plateau environment.

Figure 4

Innovation points

●For the first time, one-year continuous follow-up of healthy people after entering the plateau, four time points (before entering the plateau, and 3, 6, and 12 months after entering the plateau) were selected for sample collection and questionnaire.

●We propose for the first time that high altitude environment may be a special environment inducing IBS and adding a new IBS etiology.

●We suggest that the high-altitude environment affects the diversity and structure of the flora, so that the intestinal microecological balance is dysregulated, which in turn induces the occurrence of IBS.

●After the analysis of a series of collected samples at four time points before and after entering the plateau, we found that the intestinal flora showed adaptive changes after entering the plateau.

●The PHQ-15 and SRQ scores revealed the psychological abnormalities in most patients with IBS.

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