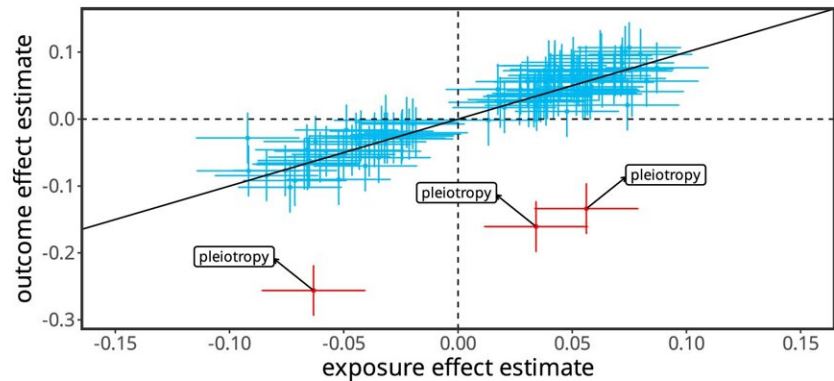
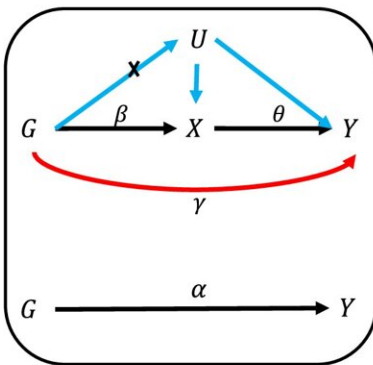


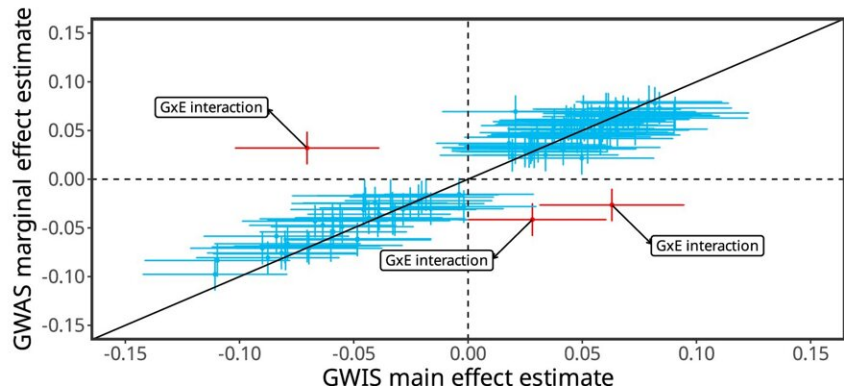
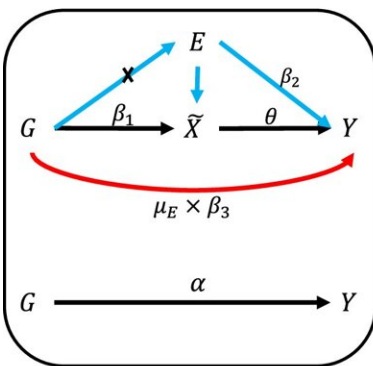
Research identifies gene–environment interactions to reveal biological insights into complex traits

August 2 2024

A. Mendelian Randomization Pleiotropy Test.



B. Gene-Environment Interaction Test.



Illumination of Mendelian randomization and $G \times E$. Credit: *Nature Communications* (2024). DOI: 10.1038/s41467-024-47806-3

Xiaofeng Zhu, professor in the Department of Population and

Quantitative Health Sciences at the School of Medicine, has led research to screen for interactions across the genome. The team has empirically demonstrated that interaction and mediation are the major contributors to genetic effect size heterogeneity across populations.

The article, titled "An approach to identify gene-environment interactions and reveal new biological insight in complex traits," has been [published](#) in *Nature Communications*.

These latest findings highlight the significant impact of [environmental factors](#), specifically cigarette smoking and [alcohol consumption](#), on the influence of [genetic loci](#) on serum lipid levels. By identifying five genetic loci, the study underscores how these loci interact with lifestyle choices, leading to variations in serum lipid profiles across different populations.

This research also sheds light on the complex interplay between genetics and environment, emphasizing the importance of considering lifestyle factors when studying genetic predispositions to certain traits or diseases.

Understanding how environmental factors modulate the effects of genetic variants can provide crucial insights into disease susceptibility and inform personalized health care approaches tailored to individuals' unique genetic and lifestyle profiles.

More information: Xiaofeng Zhu et al, An approach to identify gene-environment interactions and reveal new biological insight in complex traits, *Nature Communications* (2024). [DOI: 10.1038/s41467-024-47806-3](#)

Provided by Case Western Reserve University

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