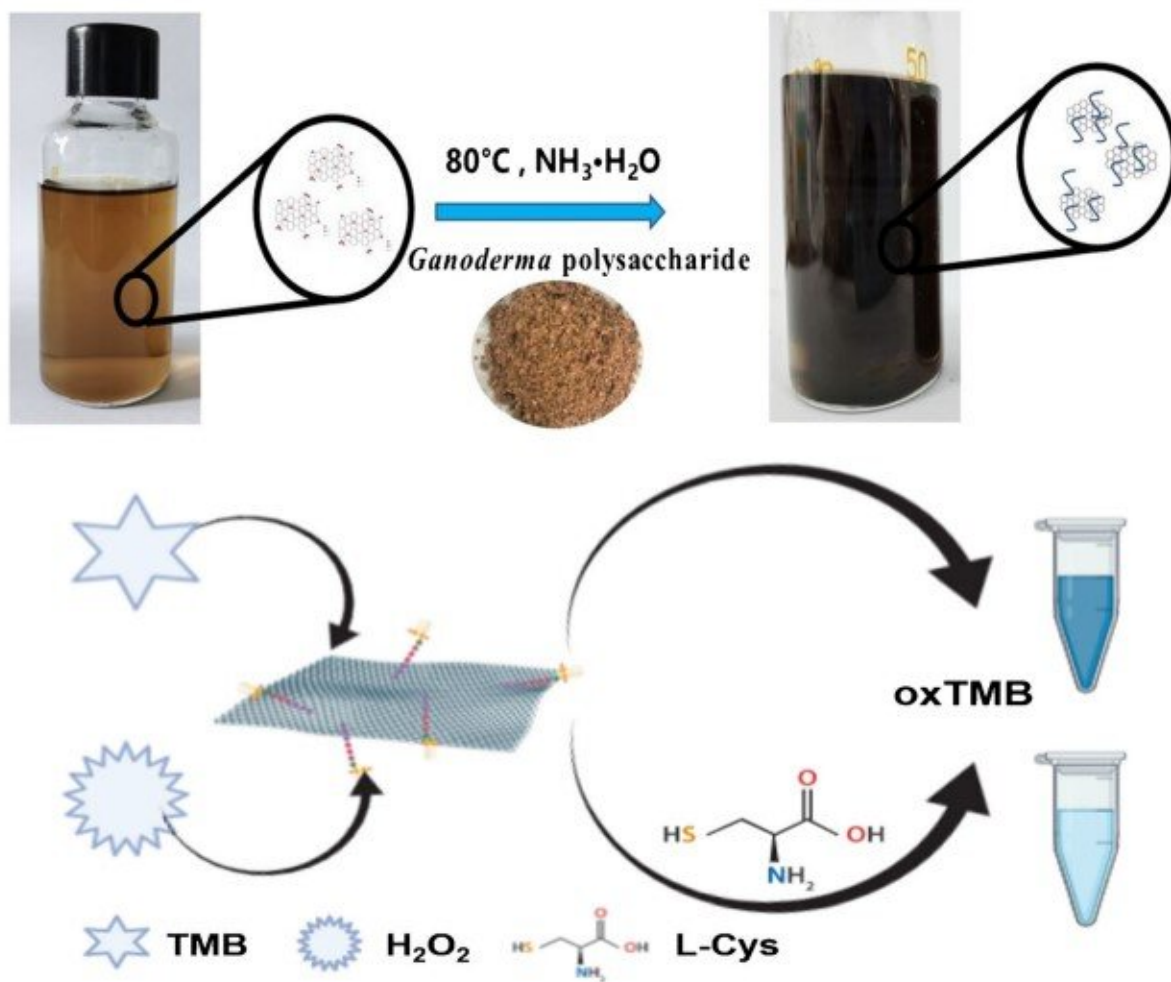


# Graphene-based nanozyme helps to detect L-cysteine in serum

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Credit: Hefei Institutes of Physical Science, Chinese Academy of Sciences

Graphene-based materials can be obtained using various reducing agents, many of which are dangerous and toxic chemicals, and the obtained graphene-based materials are prone to aggregation, limiting their practical applications.

Recently, a research group of Prof. Huang Qing from the Institute of Intelligent Machines, Hefei Institutes of Physical Science (HFIPS), prepared graphene-based nanozymes through a simple and green preparation method, and verified that it can be used to detect L-cysteine in serum.

The study is published in *Analytical and Bioanalytical Chemistry*.

The researchers used Ganoderma lucidum extract polysaccharides as reducing agents and stabilizers to prepare graphene-based materials under mild hydrothermal conditions.

The polysaccharides in Ganoderma lucidum are rich in types and have many excellent biochemical properties. It is proven that Ganoderma polysaccharide can fully reduce [graphene oxide](#), and the existence of Ganoderma polysaccharide can improve the stability and dispersion of graphene-based materials in water.

They further studied the catalytic process of the as-synthesized nanozyme, which showed good catalytic activity.

"We developed a colorimetric method for the detection of L-cysteine in serum, an [essential amino acid](#) which is involved in [protein synthesis](#), post-translational modification and metabolism," said Prof. Huang, the corresponding author of the study. "L-cysteine was detected in serum with high sensitivity and selectivity through this method."

**More information:** Chao Liu et al, A green and facile approach to a

graphene-based peroxidase-like nanozyme and its application in sensitive colorimetric detection of l-cysteine, *Analytical and Bioanalytical Chemistry* (2021). [DOI: 10.1007/s00216-021-03352-1](https://doi.org/10.1007/s00216-021-03352-1)

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