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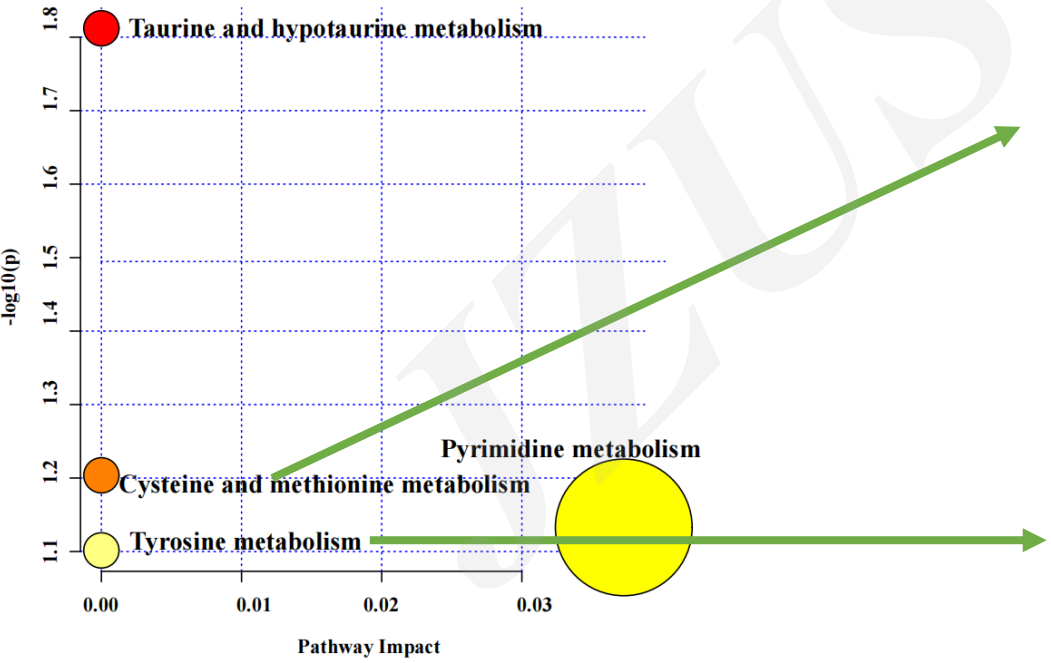
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# Adrenal pheochromocytoma impacts three main pathways: cysteine-methionine, pyrimidine, and tyrosine metabolism

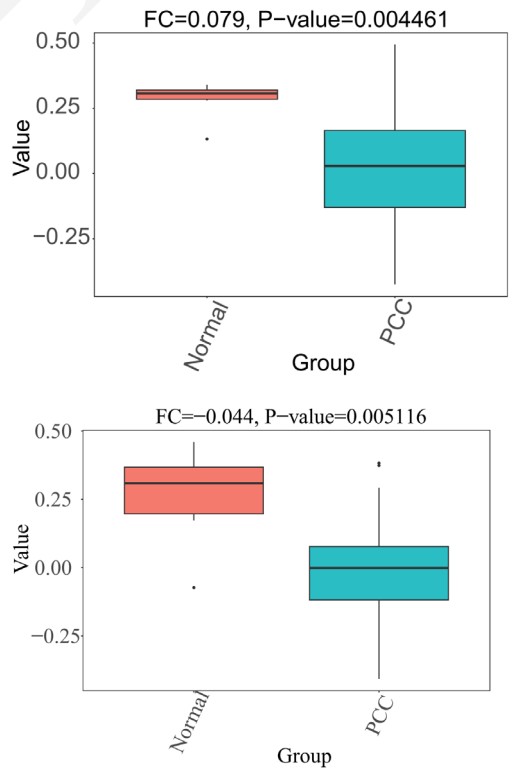
**Key words:** pheochromocytoma and paraganglioma (PPGL), metabolomics, gene set variation analysis, L-dihydroorotic acid, vanilylglycol

# Research Summary

This study focused on the joint analysis of metabolomics and transcriptomics of pheochromocytoma and found that the cysteine-methionine metabolic pathway, the tyrosine metabolic pathway and the pyrimidine metabolic pathway were three main metabolic pathways altered in PCC.



Metabolomics



Transcriptomics (GSVA score)

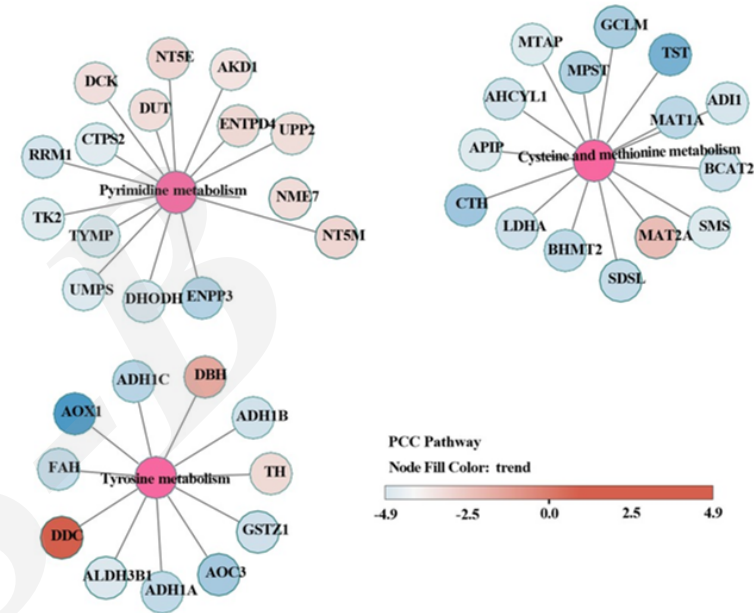
# *Innovation points*

**Combine** metabolomic and transcriptomic analysis of PCC.

**Find** that the cysteine-methionine metabolic pathway, the tyrosine metabolic pathway and the pyrimidine metabolic pathway were three main metabolic pathways altered in PCC.

**Develop** the optimized diagnostic model of L-dihyrorotic acid and vanlyglycol.

(a) Network of relationship between differential genes and pathways.



(b) ROC curve for the discovery set. (c) ROC curve for the validation set.

