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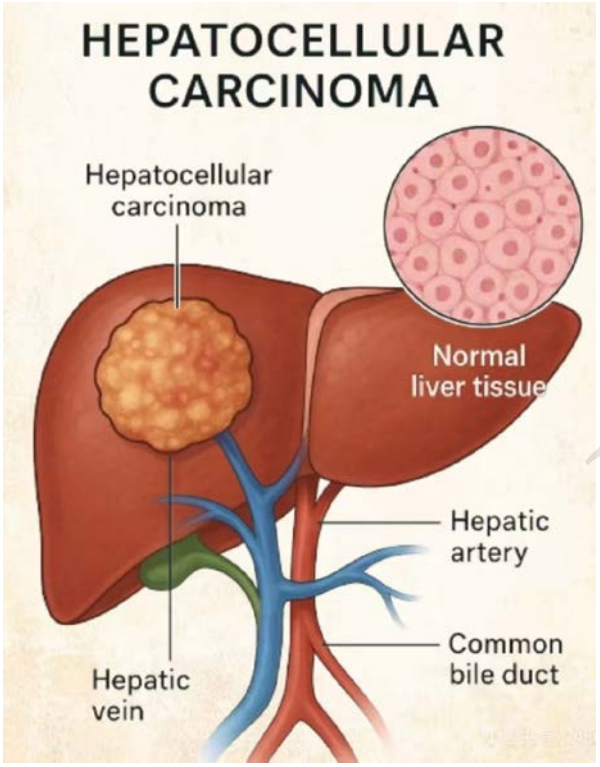
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Machine learning-driven evaluation of protein kinase D3 as a co-diagnostic biomarker in hepatocellular carcinoma

Key words: Protein kinase D3 (PRKD3); Hepatocellular carcinoma (HCC); Machine learning; Combined diagnosis

Research Summary

This review mainly focused on the diagnostic value and clinical relevance of PRKD3 in HCC.



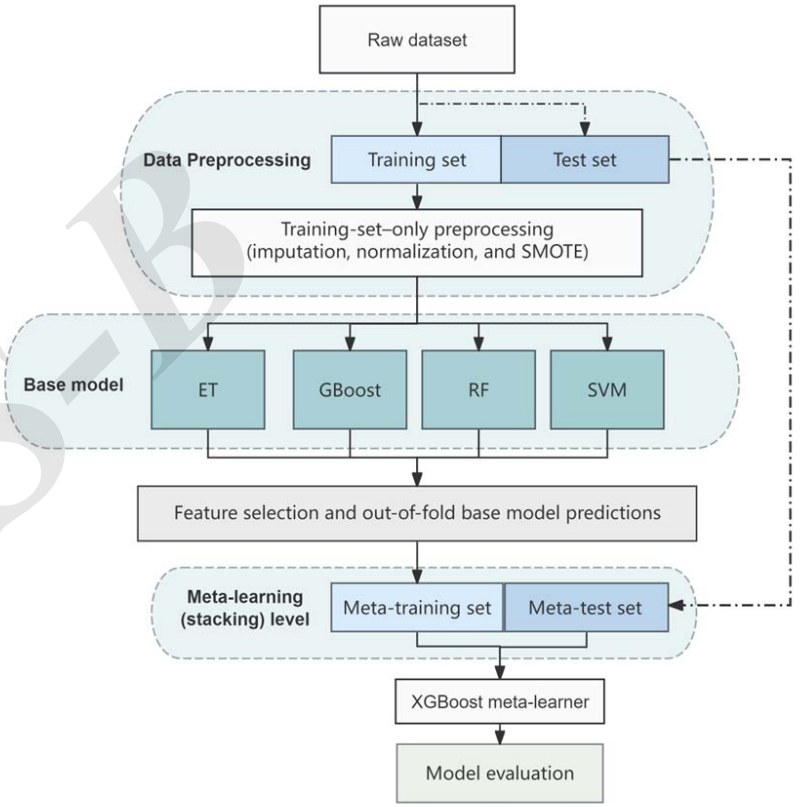
- **A multi-parameter joint diagnostic model was constructed by combining PRKD3 expression data with a set of clinical parameters.**
- **Achieving an accuracy of 0.861, sensitivity of 0.863, specificity of 0.925, and precision of 0.862.**

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Innovation points

Innovation 1: A novel biologically driven plasma marker, PRKD3, is introduced, and its contribution to the diagnosis of HCC is evaluated via a multi-model ensemble learning system.

Innovation 2: A combined diagnostic model based on multi-feature weighted ensemble and stacking is constructed, which significantly improves the diagnostic performance for hepatocellular carcinoma while ensuring clinical interpretability.



Flowchart of model construction.

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Innovation points

A series of comprehensive figures were generated to summarize the diagnostic value and clinical relevance of PRKD3 in HCC.

Fig. 1 | Flowchart of model construction.
Fig. 2 | Expression, diagnosis, and prognosis of PRKD3 based on the TCGA database.
Fig. 3 | Expression levels of plasma PRKD3.
Fig. 4 | Model performance via the single or multiple features.
Fig. 5 | Features of the accuracy and model ROC curves under combined features.

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