NSD2 mediates NF-κB and matrix metalloproteinases to drive hepatocellular carcinoma malignant progression

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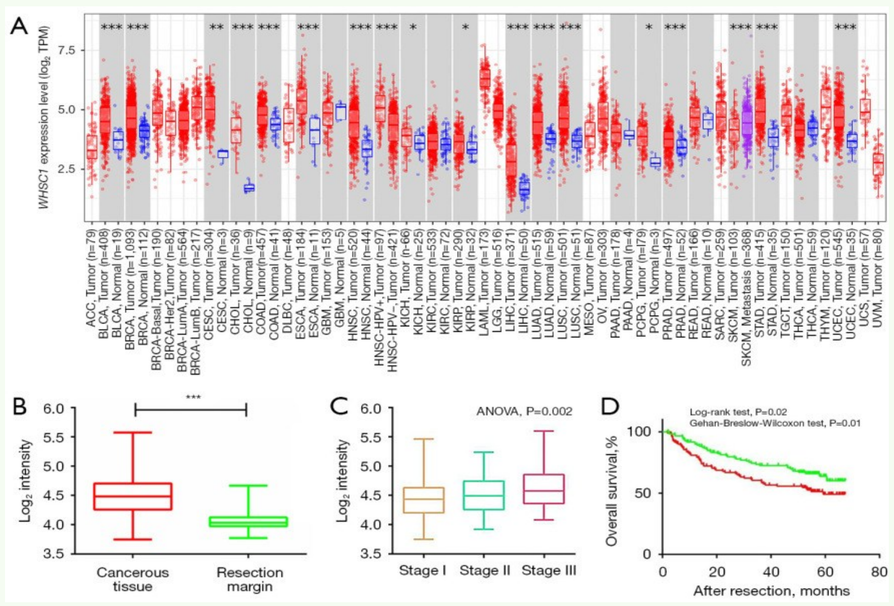
Introduction - Aim

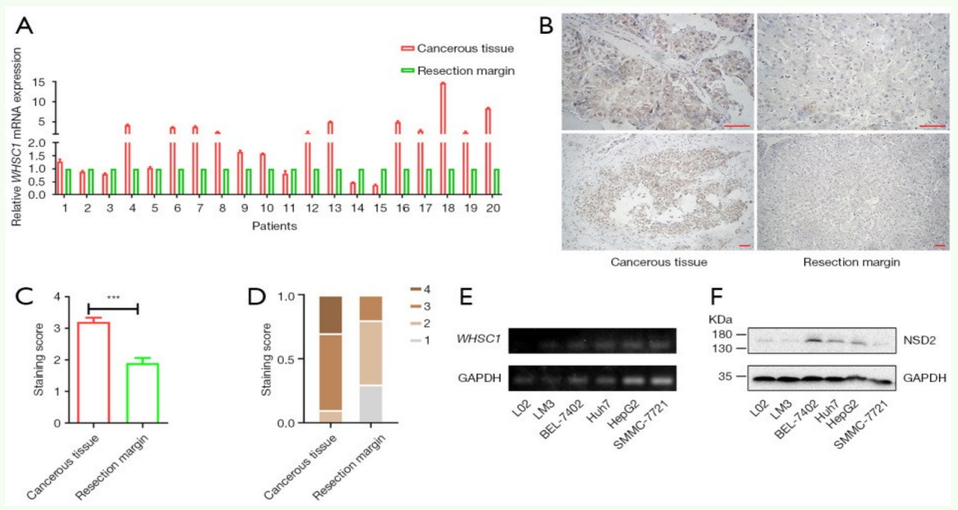
Hepatocellular carcinoma (HCC) remains a leading cause of cancer-related mortality globally, with limited therapeutic options available for advanced stages. Elucidating the molecular drivers of hepatocarcinogenesis holds promise for the development of targeted therapeutic strategies. Nuclear receptor-binding SET domain-containing protein 2 (NSD2), a histone lysine methyltransferase, is now recognized as a critical modulator of tumor progression. The aim of this study was to investigate the role of NSD2 in HCC.

Results

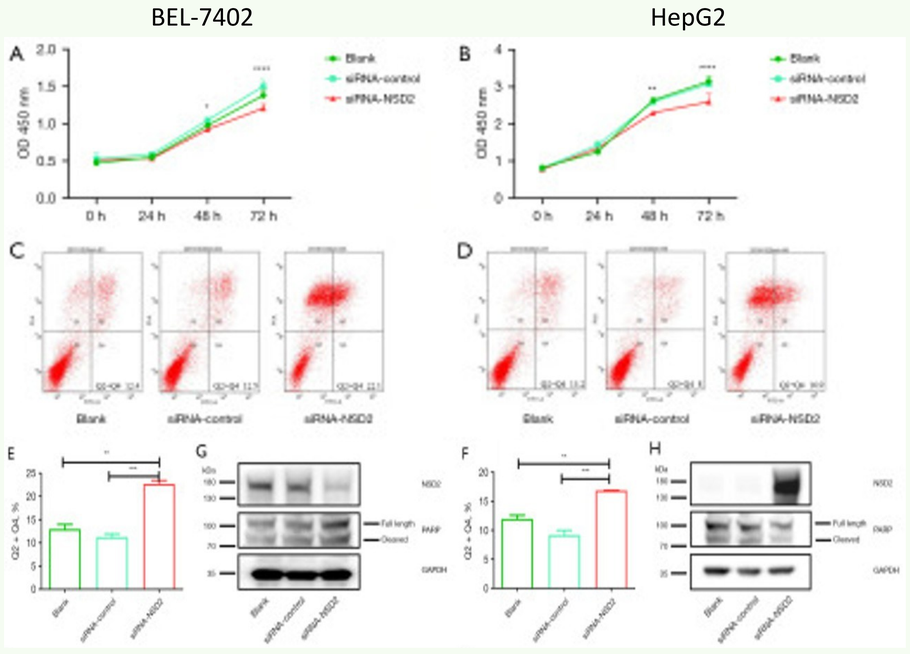
NSD2 expression is elevated in HCC and other cancers



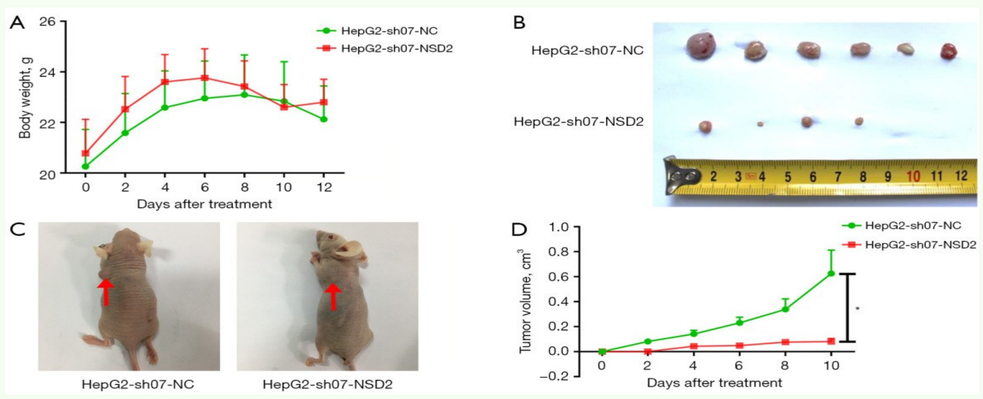
NSD2 expression is increased in HCC patients and cell lines



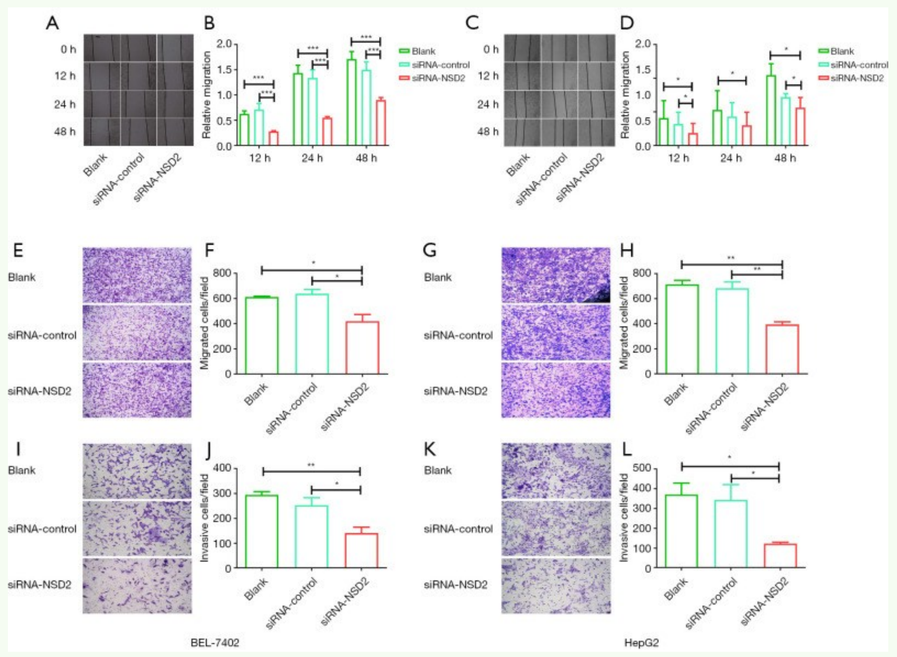
NSD2 promotes the proliferation and inhibites apoptosis of HCC cells in vitro



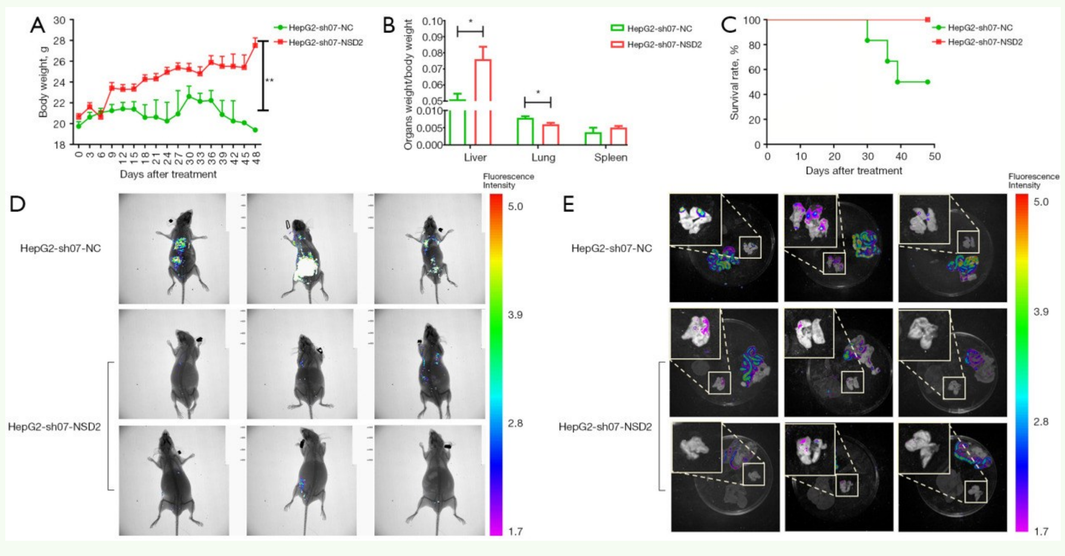
NSD2 promotes HCC tumorigenesis in vivo



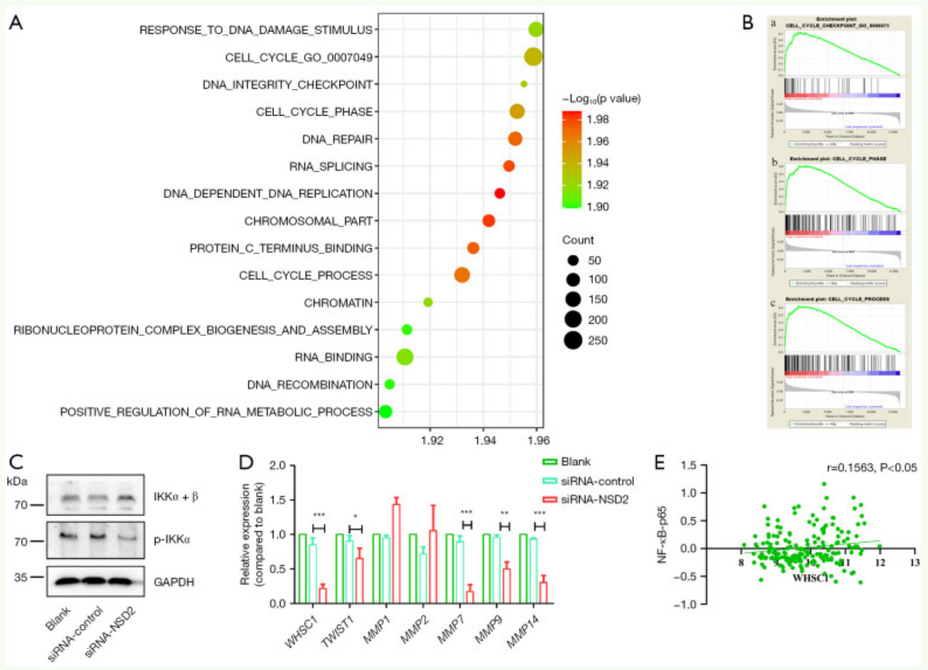
NSD2 promotes migration and invasion in HCC cells



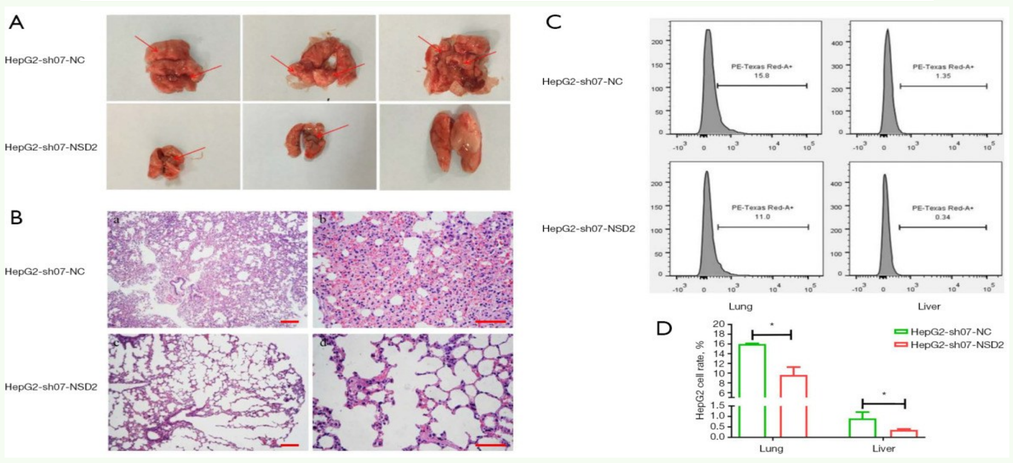
NSD2 regulates HCC cell metastasis and invasion in vivo



NSD2 regulates HCC cell proliferation, migration and invasion via NF-κB and MMPs activation



NSD2 regulates the invasion of HCC cells into the lung



Conclusions

✓ Depletion of NSD2 restraints HCC cells from in vitro and in vivo oncogenic phenotypes

✓ NSD2 mediates tumorigenesis through NF-κB and MMPs activation

✓ NSD2 can act as a master regulator driving HCC pathogenesis, suggesting its potential as a prognostic biomarker in cancer intervention