



# 新乡医学院

## 科技活动月 研究成果展



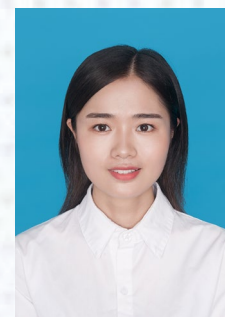
### PCBP1 interacts with the HTLV-1 Tax oncoprotein to potentiate NF- $\kappa$ B activation

#### 背景介绍

Human T-cell leukemia virus type 1 (HTLV-1) is the etiologic agent of adult T-cell leukemia (ATL). The continuous activation of NF- $\kappa$ B signaling by the HTLV-1 Tax protein is essential for ATL occurrence. Despite extensive study of Tax, how Tax interacts with host factors to regulate NF- $\kappa$ B activation and HTLV-1-driven cell proliferation is not entirely clear. PCBP1 is closely associated with the occurrence of cancer and viral replication. However, there have been no studies on the relationship between PCBP1 and HTLV-1 to date, which presents a major obstacle for understanding the function and molecular mechanisms of PCBP1 in HTLV-1 infection. In this study, we investigated the function and the molecular mechanism of PCBP1 on Tax activation of NF- $\kappa$ B.

#### 作者简介

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#### 研究方法

1. Western blotting
2. Luciferase reporter assays
3. Co-immunoprecipitation
4. Immunofluorescence
5. CCK8
6. Flow cytometry

#### 研究结果

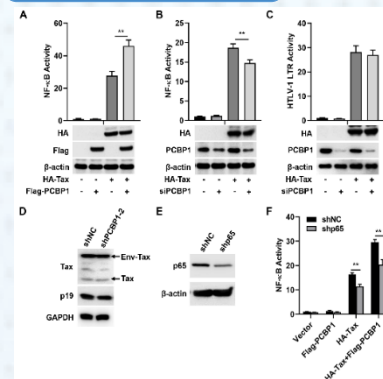


Fig 1. PCBP1 upregulates HTLV-1 Tax-mediated activation of NF- $\kappa$ B

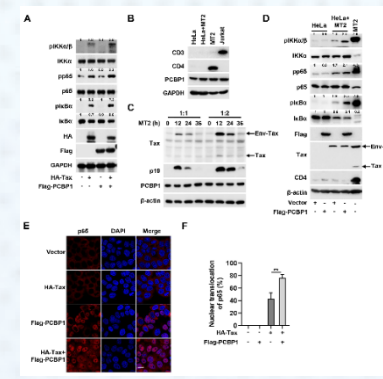


Fig 2. Overexpression of PCBP1 potentiates Tax-induced IKK-NF- $\kappa$ B signaling

#### 研究结果

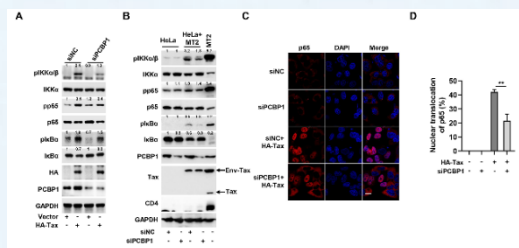


Fig 3. Knockdown of PCBP1 reduces Tax-induced IKK-NF- $\kappa$ B signaling

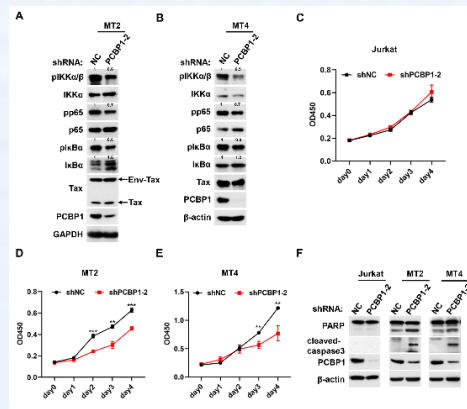


Fig 4. Knockdown of PCBP1 promotes apoptosis and inhibits proliferation in HTLV-1-transformed cells

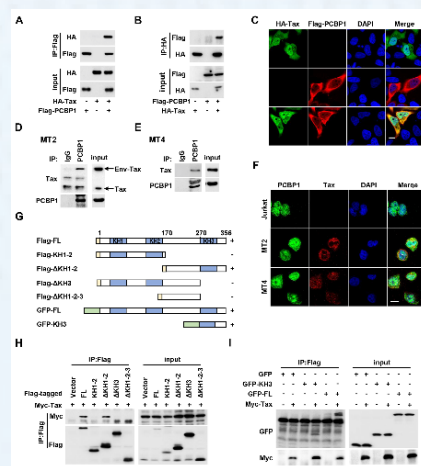


Fig 5. HTLV-1 Tax interacts with PCBP1

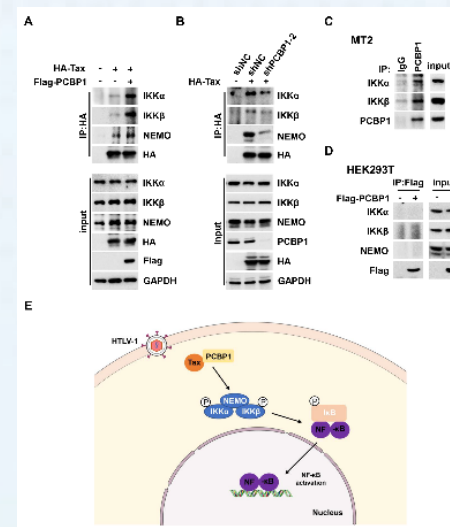


Fig 6. PCBP1 is important for the interaction between Tax and IKK complex

#### 结论

In sum, the present study identified that PCBP1 as a novel Tax-interacting protein is recruited to the Tax/IKK complex to regulate Tax-mediated NF- $\kappa$ B activation. We demonstrated that PCBP1 plays an essential role in promoting proliferation and inhibiting apoptotic cell death of HTLV-1-transformed cells. Therefore, PCBP1 may represent an important regulatory mechanism of HTLV-1 Tax-mediated NF- $\kappa$ B activation and cell survival.

#### 致谢

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#### 代表作

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3. Su R, et al. Featured interactome of homocysteine-inducible endoplasmic reticulum protein uncovers novel binding partners in response to ER stress. *Comput Struct Biotechnol J*. 2023; 21:4478-4487. (2区, IF:6.0)
4. Su R, et al. PCBP1 interacts with the HTLV-1 Tax oncoprotein to potentiate NF- $\kappa$ B activation. *Front Immunol*. 2024; 15:1375168. (2区, IF:7.3)