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Meeting Abstract

Connecting inflammation and cancer through the IKK-NF-κB nexus

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Abstract

A link between inflammation and cancer has long been suspected but the exact molecular mechanisms connecting the two were not known. It is currently estimated that at least 20% of cancer mortality is associated with infection and inflammation. Thus understanding the underlying pathogenic mechanisms is of great importance. We have proposed that NF-κB transcription factors play a critical role in connecting inflammation to cancer and after elucidating the role of the IκB kinase (IKK) complex in NF-κB activation we have set out to examine this hypothesis. Using mice bearing mutations in the genes coding for the IKKβ and IKKα catalytic subunits we found evidence for a critical tumor promoting role for IKKβ and more recently identified a role for IKKα in the promotion of prostate cancer metastasis. Whereas the major tumor promoting function of IKKβ is dependent on NF-κB activation, the pro-metastatic function of IKKα is NF-κB independent. In addition to illustrating the critical role of the IKK catalytic subunits in linking inflammation and cancer, these results also identify new targets for the development of novel types of anti-cancer therapies. Instead of targeting the cancer cell itself, such therapeutics should target processes that occur within inflammatory cells that are essential for cancer development and progression.