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Critical role of hnRNP A1 in activating *KRAS* transcription in pancreatic cancer cells: a molecular mechanism involving G4 DNA

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ABSTRACT

KRAS is one of the most mutated genes in human cancer. Its crucial role in the tumorigenesis of pancreatic ductal adenocarcinoma (PDAC) has been widely demonstrated. As this deadly cancer does not sufficiently respond to conventional chemotherapies, it is important to increase our knowledge of pancreatic cancer biology, in particular how oncogenic *KRAS* is regulated. The promoter of *KRAS* contains a *GA*-element composed of runs of guanines that fold into a G4 structure. This unusual DNA conformation is recognized by several nuclear proteins, including MAZ and hnRNP A1. Recent data have revealed that *KRAS* is interconnected to ILK and hnRNPA1 in a circuitry that enables pancreatic cancer cells to maintain an aggressive phenotype.