

## **LncRNA NEAT1 Promotes NSCLC Progression through Acting as a ceRNA of miR-377-3p**

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**Abstract :** Recently, the long non-coding RNA (lncRNA) NEAT1 has been identified as an oncogenic gene in multiple cancer types and elevated expression of NEAT1 was tightly linked to tumorigenesis and cancer progression. However, the molecular basis for this observation has not been characterized in progression of non-small cell lung cancer (NSCLC). In our studies, we identified NEAT1 was highly expressed in NSCLC patients and was a novel regulator of NSCLC progression. Patients whose tumors had high NEAT1 expression had a shorter overall survival than patients whose tumors had low NEAT1 expression. Further, NEAT1 significantly accelerates NSCLC cell growth and metastasis in vitro and tumor growth in vivo. Additionally, by using bioinformatics study and RNA pull down combined with luciferase reporter assays, we demonstrated that NEAT1 functioned as a competing endogenous RNA (ceRNA) for has-miR-377-3p, antagonized its functions and led to the de-repression of its endogenous targets E2F3, which was a core oncogene in promoting NSCLC progression. Taken together, these observations imply that the NEAT1 modulated the expression of E2F3 gene by acting as a competing endogenous RNA, which may build up the missing link between the regulatory miRNA network and NSCLC progression.

**Keywords :** long non-coding RNA NEAT1, hsa-miRNA-377-3p, E2F3, non-small cell lung cancer, tumorigenesis

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