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Kaiso is expressed in lung cancer: Its expression and localization is affected by p120ctn

- [Shun-Dong Dai](#)

Shun-Dong Dai

Affiliations

Department of Pathology, First Affiliated Hospital and College of Basic Medical Sciences of China
Medical University, Shenyang 110001, China

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Affiliations

Department of Pathology, First Affiliated Hospital and College of Basic Medical Sciences of China
Medical University, Shenyang 110001, China

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- [Gui-Yang Jiang](#)

Gui-Yang Jiang

Affiliations

Department of Pathology, First Affiliated Hospital and College of Basic Medical Sciences of China
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Peng-Xin Zhang

Affiliations

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Xin-Jun Dong

Affiliations

Department of Pathology, First Affiliated Hospital and College of Basic Medical Sciences of China
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Qiang Wei

Affiliations

Department of Pathology, First Affiliated Hospital and College of Basic Medical Sciences of China
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Hong-Tao Xu

Affiliations

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Qing-Chang Li

Affiliations

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- [Chen Zhao](#)

Chen Zhao

Affiliations

Department of Pathology, First Affiliated Hospital and College of Basic Medical Sciences of China
Medical University, Shenyang 110001, China

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- [En-Hua Wang](#)

En-Hua Wang

Correspondence

Corresponding author at: Department of Pathology, College of Basic Medical Sciences and First Affiliated Hospital of China Medical University, North 2nd Road 92, Heping Ward, Shenyang 110001, China. Tel.: +86 2423261638; fax: +86 24 23261638.

Contact

Affiliations

Department of Pathology, First Affiliated Hospital and College of Basic Medical Sciences of China Medical University, Shenyang 110001, China

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Abstract

Background

Kaiso is a recently identified transcription factor that binds to p120-catenin (p120ctn), an Armadillo catenin and cell adhesion cofactor. However, clinical studies of human solid tumors have not been reported to investigate relationship between these proteins.

Methods

Expression and localization of Kaiso and p120ctn were examined in 196 lung cancer specimens (including 55 cases of paired lymph node metastases and 80 cases with complete follow-up records) by immunohistochemistry. Three lung cancer cell lines, BE1, SPC, and A549 were used to establish p120ctn stably ablated or overexpressed cell lines. Co-immunoprecipitation was used to confirm p120ctn bind Kaiso in lung cancer tissue and cell lines. Localization and expression levels of Kaiso were detected via immunofluorescence, cytoplasmic vs. nuclear fractionation Western blot analysis and reverse transcription-polymerase chain reaction.

Results

Cytoplasmic Kaiso expression was evident in 115 (58.7%), and abnormal p120ctn expression was noted in 168 (85.7%). Cytoplasmic Kaiso and abnormal p120ctn expressions were associated with higher degree of malignancy (high-stage and lymph node metastases, all $P < 0.05$). Abnormal p120ctn and cytoplasmic Kaiso expressions were higher in matched autologous nodal metastases than in primary growths. The lung cancer-related 5-year survival rate was significantly lower in patients who were cytoplasmic Kaiso-positive (22.9%; $P = 0.029$) or abnormal p120ctn expression (20.6%; $P = 0.001$). Multivariate analysis showed abnormal p120ctn expression was an independent factor defining the clinicopathological characters of patients. Cytoplasmic Kaiso expression was correlated with cytoplasmic p120ctn, they formed Kaiso–p120ctn complex in lung cancer tissues and cell lines. In addition, p120ctn ablation and overexpression altered Kaiso subcellular localization and protein level. Although both isoforms can regulate subcellular localization and protein levels of Kaiso, we found that only p120ctn isoform 3, but not isoform 1, directly interacts with Kaiso.

Conclusion

p120ctn and Kaiso might co-participate in the progression and lymph node metastasis of lung cancer. p120ctn regulates expression and localization of Kaiso in lung cancer cells.

Keywords

- [Lung cancer](#)
- [Clinicopathological factors](#)
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