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Up-regulation of focal adhesion kinase in non-small cell lung cancer

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Up-regulation of focal adhesion kinase in non-small cell lung cancer
Previous ArticleC2028T polymorphism in exon 12 and dinucleotide repeat polymorphism in intron 13 of the HIF-1α gene define HIF-1α protein expression in non-small cell lung cancer
Next ArticleIn vitro susceptibility to the pro-apoptotic effects of TIMP-3 gene delivery translates to greater in vivo efficacy versus gene delivery for TIMPs-1 or -2

Summary

Focal adhesion kinase (FAK) is a non-receptor tyrosine kinase linked to the integrin and growth factor receptor-signalling pathways that regulates a number of the biological processes involved in neoplastic transformation, invasion and metastases, such as cell adhesion, migration and apoptosis. Its up-regulation might play a role in the tumourigenesis of invasive tumours, but its involvement in human lung cancer tissues has not yet been determined.
We immunohistochemically compared FAK expression and localisation in 60 formalin-fixed and paraffin-embedded non-small cell lung cancer (NSCLC) tissues with that in the surrounding non-neoplastic tissue and in a further five microscopically normal lungs. FAK mRNA levels were quantitatively determined by real-time RT-PCR in frozen tissue specimens of all of the tumours and 21 matched non-neoplastic lung parenchymas, and protein expression in 16 homogenates of the matched neoplastic/non-neoplastic specimens was evaluated by Western blotting.
The three different techniques showed that FAK is weakly expressed in non-neoplastic lung parenchyma and up-regulated in NSCLCs. Moreover, Western blotting and real-time RT-PCR indicated a statistically significant correlation between FAK up-regulation and higher disease stages (I + II versus III + IV, p = 0.019 and 0.028, respectively). Our results provide evidence that FAK is up-regulated in NSCLCs, and suggest its potential involvement in lung cancer progression.

Keywords

- FAK
- NSCLC
- Tumourigenesis
- Cell migration
- Cancer progression
- Immunohistochemistry

- Real-time RT-PCR

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