Abstract

Non-small cell lung cancer belongs to most frequent malignant tumours at all worldwide. Despite significant progress in knowledge about etiopathogenesis and targeted anticancer therapy, basic scientific research in this particular field and development of more effective treatment remains challenging. In case of its inadequate activation, the Hedgehog signaling pathway is involved in non-small cell cancer development. P53 is well known tumour suppressor gene, that serves as anticancer barrier. Its activity is mostly determined by the transcriptional activation of many pro-apoptotic genes, one of which is SIVA-1. Recently, it has been surprisingly shown, that SIVA-1 has also pro-oncogenic properties in a mouse model of non-small cell lung cancer. The aim of this study was to clarify the importance of Hedgehog signaling pathway and protein SIVA-1 and their potential relationship in development and progression of human non-small cell lung cancer. In selected cell lines of human non-small cell lung cancer, expression of each single component of Hedgehog signalign pathway was detected. In the tissue samples of tumour obtained from 39 patients that underwent surgery for non-small cell lung cancer and selected cell lines of the same tumour, expression of SIVA-1 protein was revealed. These findings indicate the importance of both Hedgehog signaling pathway and SIVA-1 protein in development of non-small cell lung cancer. The crucial discovery of this study should be considered completely novel and original finding, that protein SIVA-1 activates prooncogenic Hedgehog signaling pathway. This finding is consistent with previous evidence, that SIVA-1 protein has specific prooncogenic role in non-small cell lung cancer.

Keywords: non-small cell lung cancer, carcinogenesis, Hedgehog signaling pathway, SIVA-1 protein