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## Utility and pattern of positivity of p40 in the diagnosis of squamous cell carcinoma of the lung by cytology: the first study on fine needle aspiration smears.

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### Author information

#### Abstract

**OBJECTIVE:** Immunohistochemistry for p40 has emerged as a clinically applicable tool with high sensitivity and specificity to distinguish lung adenocarcinoma and squamous cell carcinoma (SCC). It appears to be an excellent marker for squamous differentiation. Although application of p40 in cell blocks has been reported, its expression has not been described in cytology smears. The aim was to study the expression of p40 in fine needle aspirates of SCC of the lung and to analyse differences in immunoreactivity in variably differentiated SCC.

**METHODS:** The study used aspirates of lung masses diagnosed as SCC over a period of 2 years. p40 immunocytochemistry was performed on destained Papanicolaou smears. Nuclear staining was semi-quantitatively evaluated as 0, 1 +, 2 + and 3 + based on the percentage positivity of tumour cells and was correlated with differentiation of the tumour. Adequate unmatched histology (50 biopsies) and cytology (25 smears) controls were taken for comparison.

**RESULTS:** A total of 45 cases of primary and five cases of metastatic pulmonary SCC were identified. There were 17 well, 24 moderately and nine poorly differentiated SCC. p40 immunoreactivity was 2-3 + in all moderate and poorly differentiated tumours, however, negative to 1 + in all well-differentiated carcinomas ( $P < 0.0001$ ).

**CONCLUSION:** p40 immunostain is a valuable stain in identifying lung SCCs and works well in aspiration smears. The pattern of positivity varies with the differentiation of the tumour and is seen prominently in higher grade SCC where in practice the need arises for distinguishing them from either poorly differentiated adenocarcinomas or non-small cell carcinoma, not otherwise specified.

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**KEYWORDS:** cytology, differentiation, fine needle aspiration, immunocytochemistry, lung, p40, squamous cell carcinoma

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