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Assessment Run 67 2023
p40 (ΔNp63)

Purpose
Evaluation of the technical performance and level of analytical sensitivity and specificity of the IHC assays for p40 performed by the NordiQC participants for the differentiation between lung squamous cell carcinoma and lung adenocarcinoma.
Relevant clinical tissues, both normal and neoplastic, were selected to include a wide spectrum of p40 antigen densities (see below).

Material
The slide to be stained for p40 comprised:

1. Tonsil, 2. Placenta, 3. Lung adenocarcinoma, 4-5. Lung squamous cell carcinoma.

All tissues were fixed in 10% neutral buffered formalin.

Criteria for assessing p40 staining as optimal included:

- A moderate to strong, distinct nuclear staining reaction of virtually all squamous epithelial cells in the tonsil.
- An at least weak to moderate, distinct nuclear staining reaction of dispersed cytotrophoblastic cells in the placenta.
- A moderate to strong, distinct nuclear staining reaction of virtually all neoplastic cells in the lung squamous cell carcinoma, tissue core no. 5.
- An at least weak to moderate staining reaction in 70-100%* of the neoplastic cells in the lung squamous cell carcinoma, tissue core no. 4.
- No staining reaction of the neoplastic cells in the lung adenocarcinoma.
- No staining reaction of other cells including lymphocytes in the tonsil.

**In some slides, a significant smaller proportion of neoplastic cells were positive. The participant slides were always compared to the nearest reference slide.*

Participation

Number of laboratories registered for p40, run 67	374
Number of laboratories returning slides	344 (92%)

All slides returned after the assessment were assessed and received advice if the result being insufficient, but the data were not included in this report.

Results
344 laboratories participated in this assessment. 1 participant used an inappropriate antibody. The participant was not included in the analysis. Of the remaining 343 laboratories, 85% achieved a sufficient mark (optimal or good). Table 1 summarizes antibodies (Abs) used and assessment marks (see page 3).

The most frequent causes of insufficient staining were:
- Inefficient HIER
- Too short incubation time of primary Ab
- Too low concentration of the primary antibody
- Less successful primary Ab
- Use of less sensitive detection systems