

# Quantitative and qualitative evaluation of an AI-assistance software for PD-L1 TPS assessment in non-small cell lung cancer (NSCLC)

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FPN: 171eP

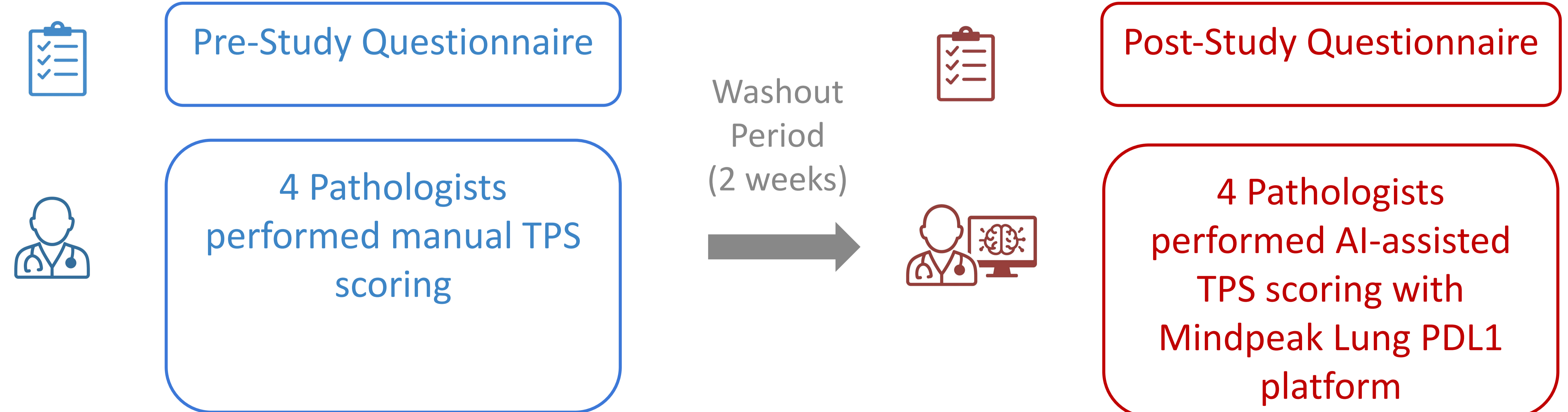
## Introduction

Traditionally, the evaluation of PD-L1 expression in Non-Small Cell Lung Cancer (NSCLC) is conducted manually by pathologists, a time-consuming process that can be influenced by a variety of factors potentially leading to discrepancies in accuracy and reproducibility. AI-based decision support could provide more accurate quantification of PD-L1 tumor percentage scores (TPS), particularly at lower thresholds. This study investigated whether AI might qualitatively and quantitatively improve routine diagnostic workflows for pathologists scoring PD-L1 in NSCLC.

## Methods

97 NSCLC samples were retrospectively collected and digitalized. Four pathologists performed TPS scoring ( $\geq 1\%$  cutoff) on all digital cases, first manually, and then, after a two-week washout period, again with the assistance of Mindpeak PD-L1 Lung AI software. Interobserver agreement and accuracy (2-class) with regards to historical routine scores (ground truth) were calculated. Opinions of pathologists towards AI assistance for diagnostic routine use were assessed before and after the study.

Retrospective collection of 97 NSCLC samples stained with SP263 PD-L1 antibody (Ventana) and record TPS scores



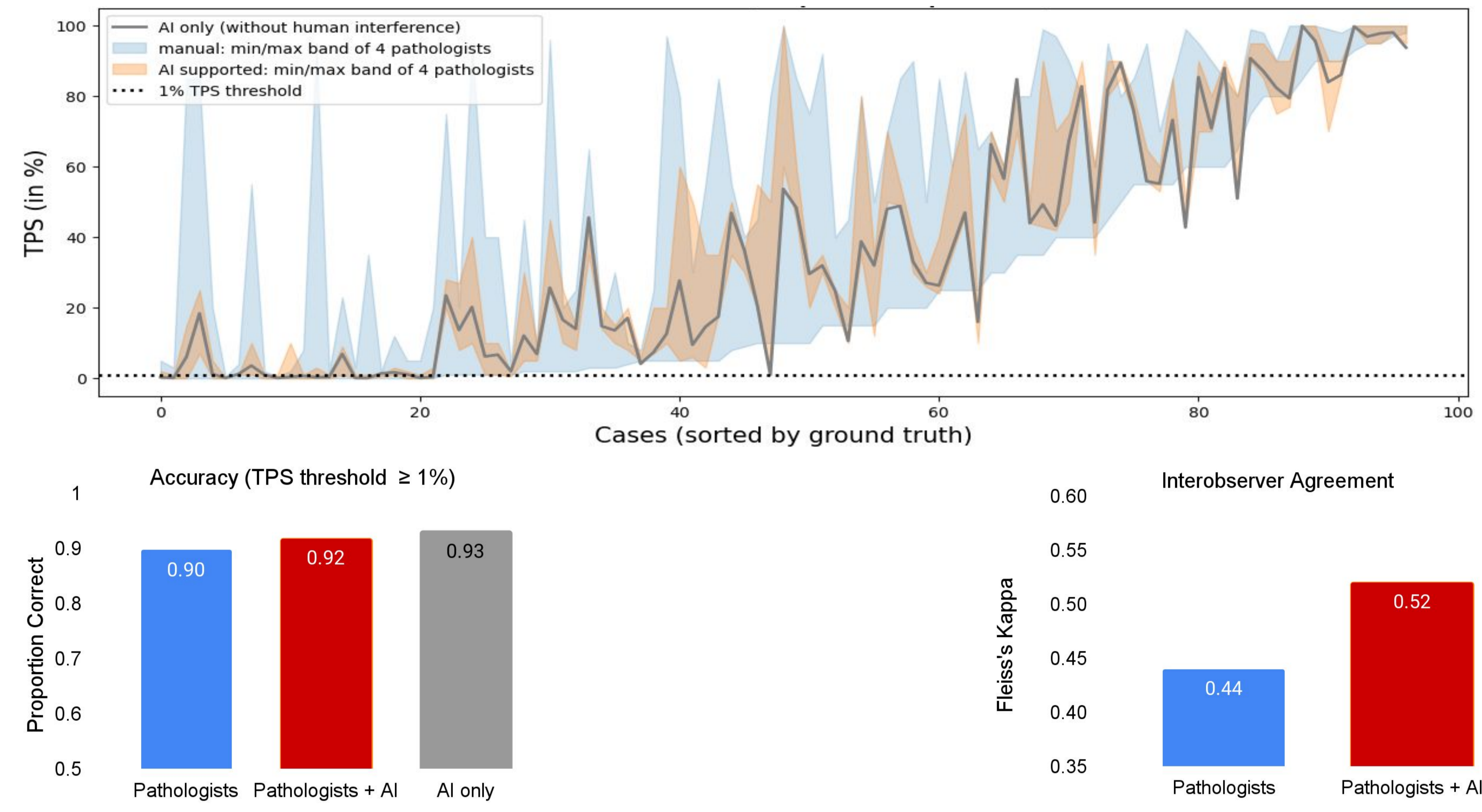
## Conclusions

In summary, the AI software investigated was found to increase both accuracy and interobserver agreement of pathologists in PD-L1 NSCLC TPS scoring and was reported to be helpful and user-friendly for application in a routine diagnostic workflow. Overall, AI-assistance algorithms can thus quantitatively improve IHC biomarker readouts and are qualitatively perceived as beneficial by pathologists for their routine work.

**Funding and Disclosures:** This study was supported by research funding from Bristol Myers Squibb. S.R. is an employee of Bristol Myers Squibb, T.L., P.F., S.S. and F.F. are employees and shareholders of Mindpeak GmbH.

## Results

**AI alone achieved 93% accuracy on Lung PD-L1 TPS scoring compared to historic scores**  
**AI use elevated accuracy and inter-observer concordance for PD-L1 TPS scoring**



**A positive attitude towards digital analysis and AI support software was reported by pathologists**

