



P2.232: Impact of Blood Collection Timing on Qualitative and Quantitative ctDNA Interpretation: An Exploratory Analysis

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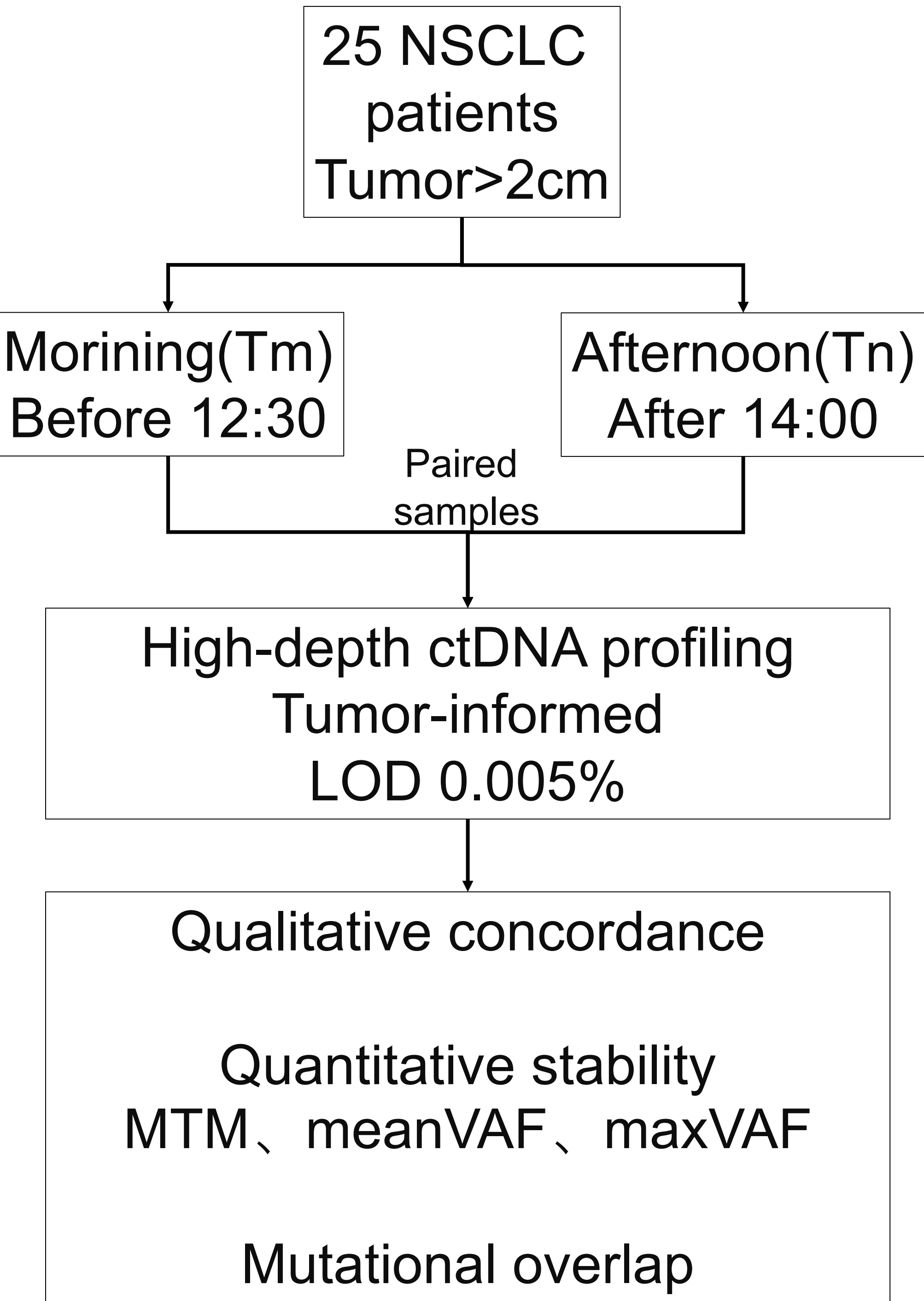
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INTRODUCTION

Circadian rhythms may influence circulating tumor DNA (ctDNA) shedding, but their impact on clinical ctDNA testing remains unclear. This study evaluated whether morning versus afternoon blood collection affects ctDNA detection and mutation profiles in non-small cell lung cancer (NSCLC).

METHODS



DISCUSSION AND CONCLUSION

Discussion: In this study, one patient exhibited discordant ctDNA results between two timepoint samples. This observation raises concern:

- Detection-limit challenges: Ultra-low variant allele fractions (VAFs) near assay LODs (0.005%) blur the line between true tumor signals and technical noise.

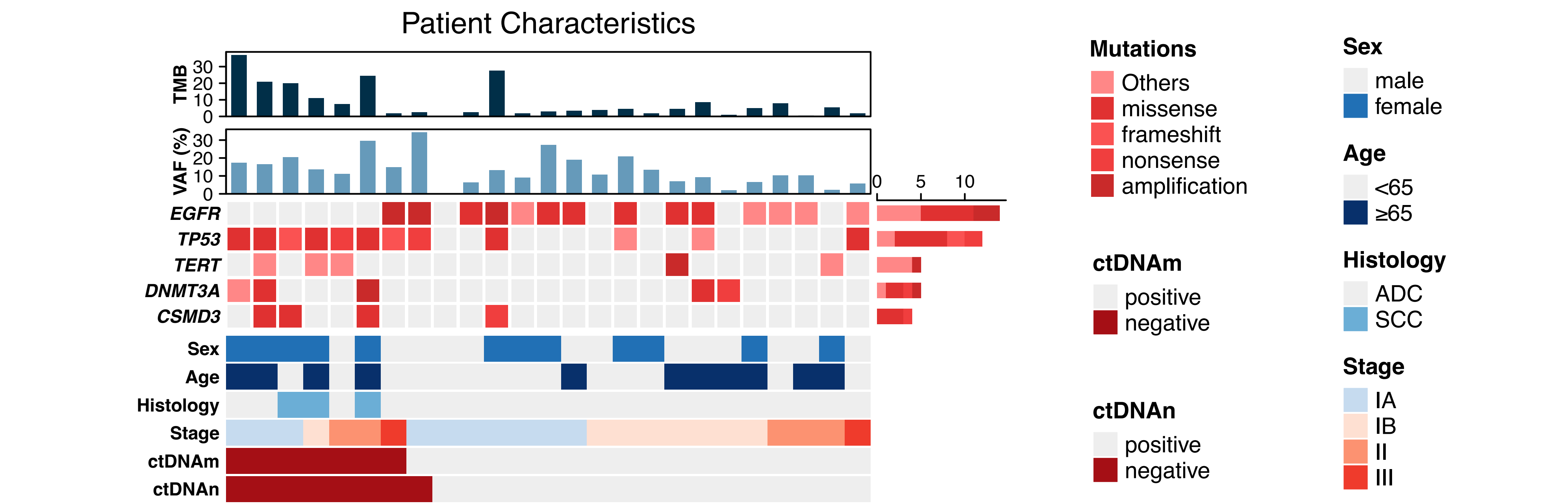
Conclusion: Blood collection timing does not compromise ctDNA interpretation. However, temporal variability suggests standardized protocols may optimize monitoring.

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RESULTS



Qualitative concordance: 96% (24/25); 8 ctDNA-positive patients (7 both timepoints; 1 afternoon-only).

Quantitative comparison: No significant differences of twotimepoint in MTM ($P = 0.742$), meanVAF ($P = 0.945$), or maxVAF ($P = 0.844$).

Mutation coverage: T_m captured 22.6% (57/252), T_n captured 16.7% (42/252); combined detection 26.6% (67/252) of tissue mutations.

Notably: Intra-individual temporal variability in specific mutation profiles was observed.

