

# Use of the VanGogh System to Assess for Intra-Operative Tissue Adequacy: Initial Experience

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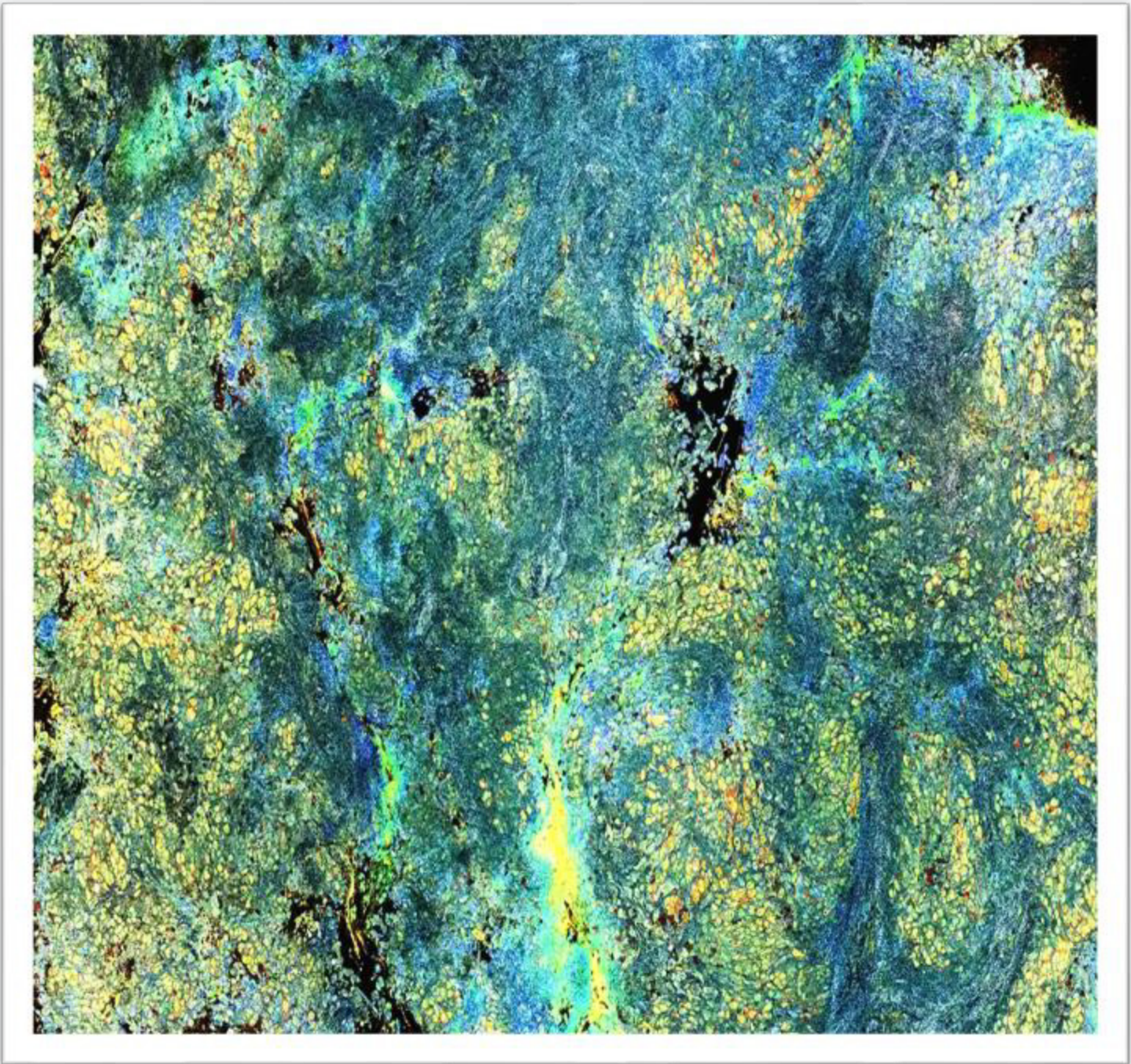
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## Introduction

- Cancer management has evolved to include targeted therapies, requiring more tissue for molecular analysis. Additional lung biopsies confer increasing risk as additional samples are obtained.
- Current practice involves the use of rapid on-site evaluation (ROSE) of biopsy samples, but this can only assess a limited fraction of cells from the sample.
- Dynamic cell imaging (DCI) is an emerging technique which may provide a rapid, real-time histological assessment of the unprocessed fresh tissue for cellularity, morphology and metabolic activity while preserving the sample and capitalizing on adaptive machine learning techniques.
- We aim to discuss our center’s experience implementing this technology via a review of the initial patient cases utilizing DCI during lung biopsy.

## Methods

- Peripheral biopsies from 51 patients were evaluated using the VanGogh system between March and September of 2024.
- Total case count was limited by device availability due to an institutional loan agreement with the device representatives.
- All biopsies were sampled using the same robotic bronchoscope and SuperDimension forceps. No cryobiopsies were obtained.
- The first peripheral biopsy was made into a touch prep, then the entirety of the sample was placed on the VanGogh plate and scanned per protocol.
- Due to scanning times, the fourth biopsy if performed was also scanned.
- All biopsy material was then returned and assessed on final pathology.



## Results



- Of the 51 biopsies performed, 24 demonstrated malignancy on final pathology.
- The 27 non-cancerous lesions were composed of infections and granulomatous inflammation that resolved upon follow up.
  - One neuroendocrine malignant case was identified, and molecular testing was not performed.
- VanGogh assessed the remaining 23 malignant cases for metabolic activity and number of cells, determining adequate lesional material.
- Of the 23 malignant biopsy samples, 100% had adequate tissue for molecular profiling.

## Conclusion

- DCI has recently been applied in several tissue types for evaluation of adequacy of pathologic specimens and assessment of malignancy by capturing cellular metabolic activity and morphology.
- Among cancer cases confirmed by formal pathology assessment, DCI was able to determine adequacy for molecular assessment in 100% of our patients.
- DCI may potentially improve the institutional efficiency of lung biopsy.

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