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Summary

# A PILOT STUDY USING SINGLE MOLECULE COUNTING TECHNOLOGY PLATFORM TO SEARCH FOR BIOMARKERS OF PANCREATIC CANCER

Jong-chan Lee

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**A pilot study of 16 pancreatic cancer patients and 21 controls found that single-molecule fluorescence microscopy measuring 15 blood biomarkers achieved test-set accuracy of 86.3% for distinguishing pancreatic cancer from healthy controls.**

## KEY POINTS

- Single-molecule fluorescence microscopy was tested as a diagnostic technique for pancreatic cancer using blood samples from 37 patients enrolled between April 2016 and June 2021.
- Fifteen biomarkers were measured including CA19-9, CRP, CA-125, D-dimer, Lumican, Cathepsin-D, IL-6, LRG-1, IFN-r, Beta-2, CEA, Clusterin, TTR, IL-4, and C5a.
- Using Gaussian Naïve Bayes classification with random train-test splits repeated 1,000 times, test-set accuracy was 86.3% with standard deviation 0.074.
- Highest accuracy of 88.4% was achieved using 10 biomarkers; adding more biomarkers beyond 10 decreased accuracy to 85.5–87.8%.
- The authors conclude the technique shows feasibility for pancreatic cancer diagnosis but further studies with larger sample sizes and optimized biomarker selection are necessary.

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