

# Rapid Benchmarking of Viral Detection Tools in Cancer

Huiming Zhou  
MDS Program

March 11, 2025

## Key Points

Aspect	Details
Problem	<ul style="list-style-type: none"><li>• 15% cancers linked to viruses</li><li>• 30% missed by current tools (e.g., BLAST)</li><li>• Need better methods for clinical use</li></ul>
Solution	<ul style="list-style-type: none"><li>• Compare 3 tools:<ul style="list-style-type: none"><li>– viRNAtrap (cancer-specific)</li><li>– DeepVirFinder (general-purpose)</li><li>– VirHunter (retrained for humans)</li></ul></li><li>• Test on 15 TCGA samples</li></ul>
Outcomes	<ul style="list-style-type: none"><li>• Identify best tool for:<ul style="list-style-type: none"><li>– Novel virus discovery</li><li>– Clinical diagnostics</li></ul></li><li>• Set performance benchmarks</li></ul>
Impact	<ul style="list-style-type: none"><li>• Improve cancer diagnosis</li><li>• Faster, cheaper viral detection</li><li>• Foundation for future AI tools</li></ul>