



tissuecypher[®]
BARRETT'S ESOPHAGUS ASSAY

TISSUECYPHER[®]
PUBLISHED CLINICAL
VALIDATION &
UTILITY STUDIES

cernostics
PROVIDING DEEPER TISSUE INSIGHTS

STUDY	KEY FINDINGS	STUDY CATEGORY & LEVEL OF EVIDENCE (LOE) ¹	REFERENCE
GAPP1 Study	<ul style="list-style-type: none"> Clinical validation demonstrating TissueCypher® predicts risk of future progression to HGD or EAC in Barrett's patients with baseline histologic diagnosis of ND, IND or LGD 	Category D, LOE IV	Critchley-Thorne RJ, et al. A tissue systems pathology assay for high-risk Barrett's esophagus. <i>Cancer Epidemiol Biomarkers Prev.</i> 2016 Jun;25(6):958-68.
GAPP2 Study	<ul style="list-style-type: none"> Clinical validation of locked assay to detect prevalent HGD/EAC missed by standard white light endoscopy and histology in patients with BE 	Category D, LOE IV	Critchley-Thorne RJ, et al. A tissue systems pathology test detects abnormalities associated with prevalent high-grade dysplasia and esophageal cancer in Barrett's esophagus. <i>Cancer Epidemiol Biomarkers Prev.</i> 2017 Feb;26(2):240-248.
CC/UP Study	<ul style="list-style-type: none"> Independently validated the ability of TissueCypher® to predict risk of future progression to HGD/EAC within five years in BE patients with ND, IND or LGD Demonstrated that TissueCypher® identifies an "at-risk" subset of patients with NDBE who progress at a higher rate than patients with expert-confirmed LGD 	Category C, LOE II	Davison JM, Goldblum J, Grewal US, McGrath K, Fasanello K, Deitrick C, DeWard AD, Bossart EA, Hayward SL, Zhang Y, Critchley-Thorne RJ, Thota PN. Independent validation of a tissue systems pathology test to predict progression of Barrett's esophagus patients. <i>American Journal of Gastroenterology.</i> 2020;115:843-852.
CE Study	<ul style="list-style-type: none"> Demonstrated cost-effectiveness of TissueCypher®-directed management versus standard of care-directed surveillance and treatment Indicated change in healthcare utilization and potential improvement in patient outcomes associated with TissueCypher®-directed management 	LOE Quality A/B	Hao J, Critchley-Thorne RJ, Diehl DL, Snyder SR. A Cost-Effectiveness analysis of an adenocarcinoma risk prediction multi-biomarker assay for patients with Barrett's esophagus. <i>ClinicoEconomics and Outcomes Research.</i> 2019;11:623-635.
AMC Spatial and Temporal Study	<ul style="list-style-type: none"> Confirmed ability of TissueCypher® to predict incident progression in NDBE patients Confirmed ability of TissueCypher® to identify NDBE patients that progress at a higher rate than patients with expert-confirmed LGD Demonstrated that evaluation of additional spatial and temporal specimens increases the predictive performance of TissueCypher® 	Category C, LOE II	Frei NF, Konte K, Bossart EA, Stebbins K, Zhang Y, Pouw RE, Critchley-Thorne RJ, Bergman JJ. Independent Validation of a Tissue Systems Pathology Assay to Predict Future Progression in Non-Dysplastic Barrett's Esophagus: A Spatial-Temporal Analysis. <i>Clinical and Translational Gastroenterology.</i> 2020; Oct 11(10).
SURF Biomarker Study	<ul style="list-style-type: none"> LOE I study (retrospective analysis of completed prospective RCT)² Independently validated the ability of TissueCypher® to predict risk of progression to HGD/EAC in patients with community practice diagnosis of LGD 	Category B, LOE I	Frei NF, Khoshiwal AM, Konte K, Bossart EA, Stebbins K, Zhang Y, Pouw RE, ten Kate FJW, Seldenrijk CA, Meijer SL, Critchley-Thorne RJ, Bergman JJ. A Tissue Systems Pathology Test Objectively Risk Stratifies Barrett's Esophagus Patients with Low-grade Dysplasia. <i>American Journal of Gastroenterology.</i> 2020; Nov 18.
Geisinger Decision Impact Study	<ul style="list-style-type: none"> TissueCypher® changed the management plan for 55% of BE patients studied at an expert center TissueCypher® led to upstaging of management plan in 21.7% of patients, indicating potential to improve outcomes TissueCypher® led to downstaging of management plan in 33.4% of patients, supporting surveillance rather than therapy 	LOE II	Diehl DL, Khara HS, Akhtar N, Critchley-Thorne RJ. The TissueCypher Barrett's Esophagus Assay Impacts Clinical Decisions in the Management of Patients with Barrett's Esophagus. <i>Endoscopy International Open.</i> 2021; 09(03): E348-E355.

List of Abbreviations Used in the Table: Barrett's esophagus (BE), esophageal adenocarcinoma (EAC), high-grade dysplasia (HGD), indefinite for dysplasia (IND), low-grade dysplasia (LGD), level of evidence (LOE), non-dysplastic (ND), non-dysplastic Barrett's esophagus (NDBE), randomized clinical trial (RCT)

1 Based on guidance in J. Natl. Cancer Inst., 101 (2009), pp. 1446-1452 (for clinical studies) and Value in Health 2010 Dec;13(8):952-7 and PLoS ONE10(12): e0144892 (for cost-effectiveness study).

2 Phoa et al., Radiofrequency ablation vs endoscopic surveillance for patients with Barrett esophagus and low-grade dysplasia: a randomized clinical trial. *JAMA* 2014;311:1209-17.

