

Patient Name

John G. Smith

Patient ID: XX22092

Sample ID: XX22092A

Age:

Sex:

Pack Year History: XX

Test Information

Order ID

Order Date: 11/12/23

Specimen Type: Blood

Date Received: 11/12/23

Date of Report: 11/14/23

Ordering Clinician

Dr. James Kildare

Blair General Clinic

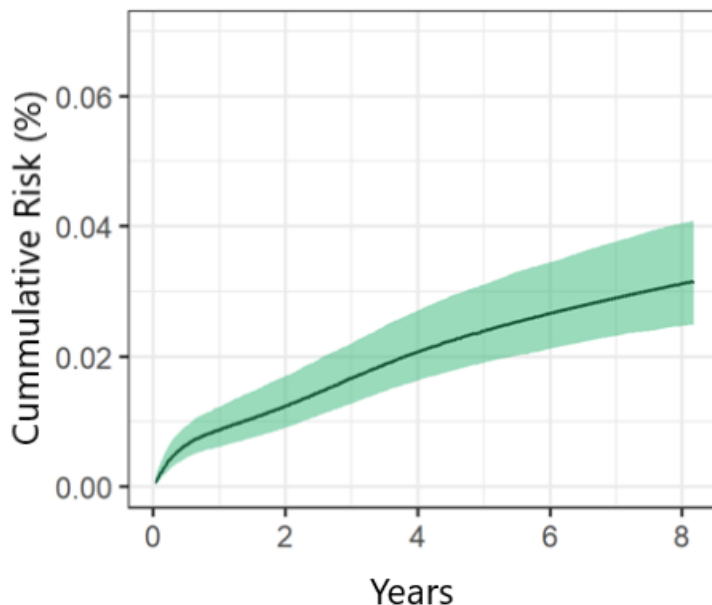
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Your Smoke Signature[©] Lung CA[™] Test Results

Eight-Year Lung Cancer Risk



What is my methylation status at cg05575921? Your methylation at cg05575921 is XX%.

What is the risk of lung cancer for this patient? Your eight-year lung cancer risk is 3.2%.

What is the average risk for non-smokers? The average risk of a lifetime non-smoker of your age and gender is <0.2%.

This report was generated using Smoke Signature Lung Cancer CA Predictor Algorithm Version 1.0. Copyright XXXX, Behavioral Diagnostics Inc. 2500 Crosspark Road, Coralville, IA 52241. All rights reserved. The use of the name of Smoke Signature is copyrighted. The use of cg05575921 status to determine smoking status is protected by US Patents 8,637,652, 9,273,358 and other pending material.

About this test

The Behavioral Diagnostic's Smoke Signature[®] Lung CA[™] risk assessment test is designed to use age, self-reported lifetime consumption of cigarettes and methylation level at cg05575921 to predict 8-year risk for new diagnosis of lung cancer in those who are: 1) 54 years of age or older, 2) have at least 30 pack years of smoking history, 3) smoked within the past 15 years, and who do not have: 1) a prior history of lung cancer, 2) lung cancer screening in the past 18 months, 3) history of hemoptysis or 4) unexplained weight loss of 15 lbs or more in the preceding year. Use outside of these parameters should be done with caution.

Interpretation of Results

Lung Cancer is the leading cause of cancer death in the United States with 90% of all cases resulting from smoking. [1,2] The overall 5-year survival for patients diagnosed with lung cancer is only 20%, largely because nearly 60% of cancers are diagnosed at a late stage. [3] In contrast, when diagnosed early, the 5-year survival for patients with lung cancer is around 56%. Hence, there is a strong rationale for early screening. However, low dose computed tomographic (LDCT) screening itself has significant risks. Hence the United States Preventative Services Task Force (USPSTF) recommends a counseling visit prior to examination to determine whether LDCT screening is the right choice for a given patient. [4] This risk determination is designed to aid you and your healthcare provider in determining whether to proceed with LDCT screening.

Methods and Test Limitations

This risk prediction was developed using data from National Lung Screening Trial (NLST). The NLST enrolled adults ages 55 to 74 with a 30-pack-year (PY) smoking history who were either current smokers or had quit within the previous 15 years who did not have 1) a prior history of lung cancer, 2) lung cancer screening in the past 18 months, 3) history of hemoptysis or 4) unexplained weight loss of 15 lbs or more in the preceding year. [5] The test uses your self-reported age and smoking history, together with our determination of your methylation status at cg05575921 to determine risk for lung cancer. [6] The test is not meant as a comprehensive genetic or epigenetic assessment. Undetected genetic risks may alter your risk and are not considered in these results. Smoke Signature[®] Lung CA[™] scoring was primarily developed using data from subjects of European ancestry and may not account for cancers secondary to other lifestyle choices or

environmental exposures. [6] The performance characteristics of this test have been described and are available upon request upon request at info@bdmethylation.com. There is the rare possibility that laboratory errors may occur and their occurrence cannot be completely excluded. Possible sources of error include, but are not limited to, contamination, sample mix-up and assay-based errors. For example, errors in methylation can occur as a result of degraded DNA, contamination or rare genetic variation.

Disclaimers:

This test should be interpreted by the patient's healthcare provider(s) within the appropriate clinical context and with consideration of all other clinical information. This risk assessment for lung cancer is not intended to prevent, diagnose, cure, mitigate, treat lung cancer or any other disease. There is no guarantee of benefit to the patient. Behavioral Diagnostics makes no promises or guarantees with respect to reimbursement of testing costs from insurers or other third parties. This risk assessment does not replace a comprehensive clinical assessment if other exposures or heritable causes of lung cancer are suspected. In the case of suspected heritable causes of lung cancer, a genetic referral should be considered. This test was developed and its performance characteristics determined by Behavioral Diagnostics. It has not been cleared nor approved by the Food and Drug Administration (FDA). This test should be used for clinical purposes and should not be considered investigational or for research purposes only. Behavioral Diagnostic's lab is certified under the Clinical Laboratory Improvement Amendments (CLIA) as qualified to perform high-complexity clinical laboratory testing.

References

1. Centers for Disease Control. Annual Smoking-Attributable Mortality, Years of Potential Life Lost, and Productivity Losses --- United States, 1997--2001. *Morbidity and Mortality Weekly* 54, 625-628 (2005).
2. Alberg, A.J., Brock, M.V., Ford, J.G., Samet, J.M. & Spivack, S.D. Epidemiology of lung cancer: Diagnosis and management of lung cancer: American College of Chest Physicians evidence-based clinical practice guidelines. *Chest* 143, e1S-e29S (2013).
3. Husmann, L. & Stolzmann, P. Staging, Restaging and Response Evaluation of Non-Small-Cell Lung Cancer. in *Diseases of the Chest and Heart 2015–2018: Diagnostic Imaging and Interventional Techniques*

(eds. Hodler, J., von Schulthess, G.K., Kubik-Huch, R.A. & Zollikofer, C.L.) 183-188 (Springer Milan, Milano, 2015).

4. Krist, A.H., et al. Screening for lung cancer: US preventive services task force recommendation statement. *JAMA* 325, 962-970 (2021).
5. The National Lung Screening Trial Research Team. Reduced Lung-Cancer Mortality with Low-Dose Computed Tomographic Screening. *New England Journal of Medicine* 365, 395-409 (2011).
6. Philibert, R., et al. Using Cg05575921 methylation to predict lung cancer risk: a potentially bias-free precision epigenetics approach. *Epigenetics*, 1-13 (2022).