International Agency for Research on Cancer

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New study finds that blood test could increase the impact of lung cancer screening with low-dose computed tomography

Lyon, France, 18 May 2026 – Screening by low-dose computed tomography (LDCT) can reduce lung cancer mortality among high-risk individuals with a smoking history. However, many lung cancers occur among individuals with a history of smoking who are not eligible for screening, and this limits the impact of screening. A new study from the International Agency for Research on Cancer (IARC) and partners from the Lung Cancer Cohort Consortium (LC3) suggests that a blood-based test could improve the selection of individuals who should be offered LDCT lung cancer screening. The study is published today in the *Journal of the American Medical Association*.[1]

“Our study shows that it is possible to use blood-based biomarkers to identify those individuals who have high risk of lung cancer and are likely to benefit from screening,” says IARC scientist Dr Mattias Johansson, who co-led the study. “This approach could help detect more cancers while avoiding unnecessary CT scans for those individuals who have low risk.”

The research, conducted across multiple large population cohorts from four continents, evaluated a protein-based risk model called Integrative Analysis of Lung Cancer Risk and Etiology (INTEGRAL)-Risk, which combines standard information such as age and smoking history with measurements of 13 proteins found in blood. The study was part of a multiphase effort; the team had previously scanned more than 1000 proteins and identified these 13 among a group of proteins associated with future lung cancer. To develop and test INTEGRAL-Risk, the study included nearly 3700 participants with a history of smoking exposure within the LC3, who were followed up over time for lung cancer outcomes.

The researchers compared the protein-based INTEGRAL-Risk model with existing methods, including established questionnaire-based tools and categorical screening criteria that are currently used to determine who is eligible for lung cancer screening. The results showed that the blood-based model more accurately identified individuals who went on to develop lung cancer over the next few years.

According to the study, the INTEGRAL-Risk model correctly captured 85% of lung cancer cases that occurred within 1 year, compared with 70% using a leading questionnaire-based model and 63% using current United States screening criteria.

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[1] Zahed H, Feng X, Alcala K, Smith-Byrne K, Moez E, Guida F, et al. (2026). Biomarker-based eligibility for lung cancer screening: validation of the protein-based INTEGRAL-Risk model. *JAMA*. Published online 18 May 2026. https://doi.org/10.1001/jama.2026.8044

The INTEGRAL-Risk model performed particularly well at predicting cancers that occurred within the first year after testing; the accuracy decreased slightly over longer periods of time. The model showed similar performance across major population groups, including Asian, Black, and White participants, suggesting that it could be broadly applicable.

“Our goal is not to replace LDCT as the screening test but rather to refine the screening process by targeting screening to those individuals who are most likely to benefit,” says IARC scientist Dr Hilary Robbins, who also co-led the study. “The findings provide strong evidence that blood-based biomarkers could play an important role in the next generation of lung cancer screening strategies.”

The LC3 has been coordinated by IARC since 2010 and provides a unique resource to study lung cancer risk around the world. “This study is the culmination of many years of hard work, which would not have been possible without our dedicated collaborators within the consortium,” adds Dr Johansson.

Notes to editors

For more information about the Lung Cancer Cohort Consortium (LC3), please visit https://lc3.iarc.who.int.

Dr Hilary Robbins, co-lead of the study, will present the results at the American Thoracic Society 2026 International Conference in Orlando, Florida, USA, in the AJRCCM/JAMA/NEJM Journal Session, scheduled for 11:15–13:15 EDT on Monday 18 May.

Dr Hilary Robbins and Dr Mattias Johansson, co-leads of the study, will moderate a parallel session during the IARC@60 scientific conference in Lyon, France. The session, titled “Lung Cancer Screening, Early Detection, and Prevention: Addressing the Leading Cause of Cancer Deaths”, will take place on Thursday 21 May at 11:00–12:30 in Halle Tony Garnier. It will feature presentations on lung cancer screening, early detection, and prevention strategies targeting the world’s leading cause of cancer mortality. Part 1 of the session will consist of short presentations highlighting LDCT lung cancer screening initiatives across different regions of the world. Part 2 will feature presentations on research aimed at optimizing lung cancer prevention and early detection through improved risk assessment, including environmental, genomic, and behavioural risk factors.

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