Carcinoembryonic Antigen (CEA)

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The carcinoembryonic antigen is a protein that is produced by embryos during development. The protein helps cells stick to each other[1]. For this reason it is called a 'cell adhesion molecule or CAM'. It is not normally found in the blood in adults Some cancers, including colon, rectal, ovarian, breast and pancreatic may produce CEA. Because normal adults do not have CEA protein in their blood, the presence of the protein can be used to detect cancer and to determine whether cancer treatments are working.[2], [3], [4]

The Mayo Clinic recently discovered that many patients who could benefit from a simple blood test, which measures CEA in stage 2 colon cancer patients, are not receiving it. The team believes that this test can help determine which stage 2 colon cancer patients are at a higher risk, therefore leading doctors to consider chemotherapy in addition to surgery. For patients with elevated CEA levels, those who had chemotherapy and surgery fared better than those who had only surgery.[5]

It is important to note that not all tumors make CEA and that it is possible for CEA levels to be elevated for reasons other than cancer. Like all medical tests, CEA testing is imperfect. Learn about the limits of medical tests.

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2 Bussom S and Saif MW. (2010) Methods and rationale for the early detection of pancreatic cancer. Highlights from the "2010 ASCO Gastrointestinal Cancers Symposium". Orlando, FL, USA. January 22-24, 2010. Journal of the Pancreas 5(11): 128-130 [PUBMED]

3 Tan E, Gouvas N, Nicholls RJ, Ziprin P, Xynos E, Tekkis PP. (2009) Diagnostic precision of carcinoembryonic antigen in the detection of recurrence of colorectal cancer. Surg. Oncol. 2009 Mar;18(1):15-24. Epub 2008 Jul 10. [PUBMED]

4 Brooks M. (2009). Breast cancer screening and biomarkers. Methods Mol Biol. 472:307-21. [PUBMED]

5 Harring, Adam. "Underused cancer test could improve treatment for thousands, Mayo Clinic study finds." The Mayo Clinic (2017). [MAYO CLINIC]