

CEA IRMA

Catalog #: DE38100

The I-125 CEA IRMA system provides a direct in vitro quantitative determination of human carcinoembryonic antigen (hCEA) in human serum.

Technology	: IRMA CT
Kit size	: 100 tests
Sample material	: serum
Sample preparation	: -
Sample volume	: 50 µl
Standard range	: 1 - 180 ng/ml
Incubation	: 2 h
Measuring system	: I-125 <740KBq
Sensitivity	: 0.05 ng/ml

Special remarks:

1. Description

The I-125 CEA IRMA system provides a direct in vitro quantitative determination of human carcinoembryonic antigen (hCEA) in human serum in the range of 0-180 ng/ml. Each kit contains materials sufficient for 100 assay tubes permitting the construction of one standard curve and the assay of 41 unknowns in duplicate.

2. Introduction

Carcinoembryonic antigen (CEA) is a cell-surface glycoprotein with a molecular weight of 180-200kD, that occurs in high levels in colon epithelial cells during embryonic development. Levels of CEA are significantly lower in colon tissue of adults, but can become elevated when inflammation or tumours arise in any endodermal tissue, including in the gastrointestinal tract, respiratory tract, pancreas and breast.

An overexpression of CEA protein has been detected in a variety of adenocarcinomas, including gastric, pancreatic, small intestine, colon, rectal, ovarian, breast, cervical and non-small-cell lung cancers. CEA is also expressed by epithelial cells in several non-malignant disorders, including diverticulitis, pancreatitis,

inflammatory bowel disease, cirrhosis, hepatitis, bronchitis and renal failure and also in heavy smokers.

Therefore CEA should not be regarded as a tumour-specific marker for the screening of general population for undetected cancers. However, the determination of CEA levels provides important information about patient prognosis, recurrence of tumours after surgical removal and effectiveness of therapy.

3. Principle of the method

The technology uses two high affinity monoclonal antibodies in an immunoradiometric assay (IRMA) system.

The I-125 labelled signal-antibody binds to an epitope of the CEA molecule spatially different from that recognised by the biotin-capture-antibody. The two antibodies react simultaneously with the antigen present in standards or samples, which leads to the formation of a capture antibody - antigen - signal antibody complex, also referred to as a "sandwich".

During a 2-hour incubation period with shaking the immuno-complex is immobilized to the reactive surface of streptavidin coated test tubes. Reaction mixture is then discarded, test tubes are washed exhaustively, and the radioactivity is measured in a gamma counter.

The concentration of antigen is directly proportional to the radioactivity measured in test tubes. By constructing a calibration curve plotting binding values against a series of calibrators containing known amount of hCEA, the unknown concentration of hCEA in patient samples can be determined.