

CEA Protein

Carcinoembryonic Antigen Human

NTP0017

Product Overview

Name	CEA Protein
Description	Carcinoembryonic Antigen Human

Background

Carcinoembryonic Antigen, commonly known as CEA, is a glycoprotein that was initially identified as a tumor marker. Over the years, research into CEA has unveiled its intricate involvement in various physiological processes, not only in cancer but also in the context of normal development and inflammatory conditions. This research aims to delve into the multifaceted roles of CEA, exploring its structural intricacies, regulatory mechanisms, and its implications in health, disease, and beyond.

Structural Complexity of CEA: CEA, belonging to the immunoglobulin superfamily, is a complex glycoprotein featuring multiple structural domains. Its diverse forms and glycosylation patterns contribute to its functional versatility. CEA is primarily expressed in fetal tissues, but its presence is often detected in adults under pathological conditions, especially in various types of cancer.

CEA in Cancer Biology: CEA was first recognized as a biomarker for colorectal cancer, but its overexpression is not limited to this context. Elevated CEA levels have been associated with several other malignancies, including breast, lung, and pancreatic cancers. CEA's involvement in cancer biology ranges from promoting angiogenesis and metastasis to inhibiting immune responses, making it a critical player in tumor progression and evasion.

Beyond Cancer: CEA in Development and Inflammation: While CEA's role in cancer is prominent, recent studies have uncovered its participation in normal physiological processes. During embryonic development, CEA is involved in cell adhesion, contributing to tissue organization and morphogenesis. Additionally, CEA expression can be induced in inflammatory conditions, suggesting its involvement in immune responses and tissue repair mechanisms.

CEA as a Diagnostic and Therapeutic Target: The diverse expression patterns of CEA in various diseases make it a valuable diagnostic tool. CEA assays are widely used for cancer screening, monitoring disease progression, and assessing treatment efficacy. Moreover, CEA's presence on the surface of cancer cells has made it a target for immunotherapy, enabling the development of targeted therapies aimed at specifically eradicating CEA-positive tumor cells.