



APP ABSTRACT - APP 2026 - 091

DATOPOTAMAB DERUXTECAN: A TARGETED THERAPY FOR CANCER USING ANTIBODY–DRUG CONJUGATES”

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Abstract:

Cancer treatment has advanced significantly with the development of targeted therapies. One such innovation is Datopotamab Deruxtecan (Dato-DXd), a novel antibody–drug conjugate (ADC) designed to treat cancers that express the TROP2 protein. TROP2 is commonly found in various epithelial tumors and is associated with poor prognosis, making it an important target for therapy.

Dato-DXd works by combining a monoclonal antibody that specifically binds to TROP2 with a potent anticancer drug (a topoisomerase I inhibitor). Once the drug binds to cancer cells, it is internalized and releases its cytotoxic payload inside the cell. This leads to DNA damage and eventually causes cancer cell death (apoptosis). Additionally, the released drug can affect nearby tumor cells, enhancing its therapeutic effect.

Preclinical studies have shown that Dato-DXd has strong antitumor activity in different cancer models, especially in tumors with high TROP2 expression such as lung and breast cancers. It demonstrated significant tumor regression with minimal effects on normal cells. Safety studies in animal models indicated acceptable toxicity profiles, although some side effects like mild tissue damage were observed at higher doses.

Overall, Datopotamab Deruxtecan represents a promising targeted therapy with improved drug delivery and reduced systemic toxicity. It offers potential benefits over conventional chemotherapy and could become an effective treatment option for patients with TROP2-expressing cancers.

Keywords: Antibody-drug conjugate, TROP2, Targeted cancer therapy, Apoptosis, Xenograft models, Antitumor activity.