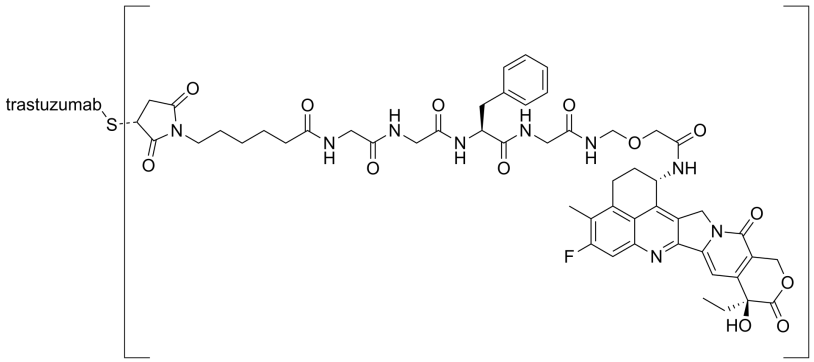
Brand Name: Enhertu
Generic: trastuzumab deruxtecan
Type: small molecule
Year Accepted/Phase: 2019

Mechanism:

Trastuzumab deruxtecan delivers a cytotoxic payload directly to HER2-positive cancer cells, leading to cell death. The topoisomerase I inhibitor is released inside the cell, where it interferes with DNA replication and causes cell death.

Chemical Structure:



Indication:

Enhertu is indicated for the treatment of adult patients with unresectable or metastatic HER2-positive breast cancer who have received two or more prior anti-HER2-based regimens in the metastatic setting.

Clinical trials:

ESTINY-Breast01 Trial (Phase II)
Pubmed: https://pubmed.ncbi.nlm.nih.gov/31825192/
Purpose: Evaluate the efficacy and safety of trastuzumab deruxtecan in patients with HER2-positive metastatic breast cancer who had received prior HER2-targeted therapies.
Dates: Conducted from 2017 to 2019.
Results: The DESTINY-Breast01 trial demonstrated impressive efficacy, with trastuzumab deruxtecan showing a high objective response rate (ORR) and durable responses in heavily pretreated patients. The median duration of response and overall survival were also notable.
Impact: These results led to the accelerated approval of Enhertu for the treatment of HER2-positive metastatic breast cancer in December 2019 by the FDA.

DESTINY-Breast02 Trial (Phase III)
Pubmed: https://pubmed.ncbi.nlm.nih.gov/37086745/
Purpose: Compare the efficacy and safety of trastuzumab deruxtecan to physician's choice of treatment in patients with HER2-positive metastatic breast cancer who had received prior HER2-targeted therapies.
Dates: Conducted from 2018 to 2020.
Results: The DESTINY-Breast02 trial confirmed the findings of the Phase II trial, showing a significant improvement in progression-free survival (PFS) and overall survival (OS) with trastuzumab deruxtecan compared to physician's choice of treatment. The trial also demonstrated a manageable safety profile.
Impact: These results supported the full approval of Enhertu for the treatment of HER2-positive metastatic breast cancer in April 2020 by the FDA.