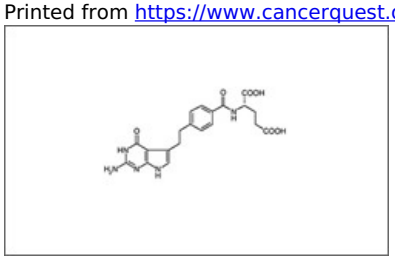
Pemetrexed

Printed from https://www.cancerquest.org/patients/drug-reference/pemetrexed on 11/28/2026



Brand name: Alimta®
IUPAC: (2R)-2-[[4-[2-(2-amino-4-oxo-1,7-dihydropyrrolo[4,5-e]pyrimidin-5-yl)ethyl]benzoyl]amino]pentanedioic acid
FDA approval: Yes
Manufacturer Link
Usage:

Pemetrexed is used in the treatment of mesothelioma and a variety of NSCLC cancers. It was approved for use in combination with cisplatin as an injected chemotherapy agent.1

1 Chu, E., & DeVita, V. T. (2015). Physicians' cancer chemotherapy drug manual 2015. Burlington, MA: Jones & Bartlett Learning.

Mechanism:

Pemetrexed (Alimta®) works by disrupting folate-dependent metabolic processes essential for the rapid growth of tumors. The inhibition of the enzyme thymidylate synthase (TS) leads to inhibition of DNA synthesis, which eventually results in depletion of reduced folates and essential carriers of celular metabolism.1

The structure below is the 3D conformer of Pemetrexed.

Sphere Stick Rotate

1 Chu, E., & DeVita, V. T. (2015). Physicians' cancer chemotherapy drug manual 2015. Burlington, MA: Jones & Bartlett Learning.

Side effects:

Common side effects include myelosuppression, skin rashes, mucositis and fatigue.1

1 Chu, E., & DeVita, V. T. (2015). Physicians' cancer chemotherapy drug manual 2015. Burlington, MA: Jones & Bartlett Learning.