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Methotrexate-E Therapeutic Implant

National Cancer Institute

Source

National Cancer Institute. *Methotrexate-E Therapeutic Implant*. NCI Thesaurus. Code C17876.

An injectable collagen matrix gel containing the antimetabolite methotrexate and the sympathicomimetic agent epinephrine with potential antineoplastic activity. After intratumoral injection, methotrexate binds to and inhibits the enzyme dihydrofolate reductase, resulting in inhibition of purine nucleotide and thymidylate synthesis and, subsequently, inhibition of DNA and RNA syntheses. Epinephrine, a potent vasoconstrictor, is added to the gel to enhance penetration of methotrexate into the tumor tissue and reduce dispersion to the surrounding tissues thereby enhancing the local concentration of methotrexate and increasing its anti-tumor activity. Intratumoral injection of methotrexate combined with epinephrine may potentially increase chemotherapeutic efficacy compared to systemic administration and reduce systemic toxicity and side effects.