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Cycloserine

National Cancer Institute

Source

National Cancer Institute. *Cycloserine*. NCI Thesaurus. Code C47466.

An analogue of the amino acid D-alanine with broad-spectrum antibiotic and glycinergic activities. D-cycloserine interferes with bacterial cell wall synthesis by competitively inhibiting two enzymes, L-alanine racemase and D-alanine:D-alanine ligase, thereby impairing peptidoglycan formation necessary for bacterial cell wall synthesis. This agent may be bactericidal or bacteriostatic, depending on its concentration at the infection site and the susceptibility of the organism. In addition, D-cycloserine is an excitatory amino acid and partial agonist at the glycine binding site of the NMDA receptor in the central nervous system (CNS); binding to the central NMDA receptor may result in amelioration of neuropathic pain.