Ciclopirox is a hydroxypyridone compound that exhibits antifungal, anti-inflammatory, anti-angiogenic, and anticancer chemotherapeutic activities. This compound acts as a metal ion chelator, preventing peroxide degradation. Ciclopirox modulates generation of ROS in a PKA/Ras1/Ras2-dependent manner, inducing DNA damage and cell death in Candida and Saccharomyces. Ciclopirox also inhibits mTOR, enhancing anticancer activity of other compounds. In breast cancer, colon adenocarcinoma, and rhabdomyosarcoma cells, this compound downregulates expression of cyclins A, B1, D1, and E, suppresses CDK2 and CDK4, and upregulates expression of p21, inducing G0/G1 phase cell cycle arrest and caspase-mediated apoptosis. In animal models, ciclopirox inhibits tumor growth of breast cancer xenografts. Additionally, ciclopirox inhibits expression of VEGFR3, preventing activation of ERK1/2 and tube formation in vitro.

References


