O6-Benzylguanine (O6-BG) is a synthetic derivative of guanine often used to examine DNA repair mechanisms. O6-BG acts as an inhibitor of O6-methylguanine DNA methyltransferase (MGMT), an enzyme that repairs damage to guanine residues in DNA. As many alkylating and cross-linking chemotherapeutics act on guanine residues to induce DNA damage in cancer cells, O6-BG prevents the repair of the damaged DNA, allowing apoptosis and other mechanisms of cell death to occur. In animals and humans, O6-BG shows some benefit in improving efficacy of co-administered treatments, potentially increasing survival time. This compound is currently in clinical trials examining its anticancer chemotherapeutic potential.

References


