Which of the following most appropriately describes the mechanism of action of azathioprine?

A. Inhibition of T cell activation by blocking signal 1
B. Inhibits formation of arachidonic acid
C. Blocks replication of T cells by inhibiting mTOR
D. Prevents the replication of activated T cells via purine synthesis inhibition
E. Depletes lymphocytes by cell lysis

Answer: D

Cell cycle inhibitors (azathioprine and mycophenolate mofetil) act as immunosuppressants in solid organ transplantation, inflammatory bowel disease, and autoimmune liver disease via inhibiting purine synthesis, as defined in answer D. Answer A describes the mechanism of action of calcineurin inhibitors (cyclosporine and tacrolimus). Answer B describes the action of prednisone. Answer C describes the mechanism of mTOR inhibitors (everolimus and sirolimus). Answer E outlines the action of T cell depletion antibodies (thymoglobulin).