



AlkB stops the radical clock: Three structurally analogous radical-clock substrates with a large span in their rearrangement rates are hydroxylated by AlkB to afford similar amounts of rearranged (**2**) and unrearranged products (**1**). Such a result is in accord with radical rebound competing with cage escape of the geminate substrate radical. The results show that radical clocks can measure both the radical lifetime and the kinetics of cage escape.