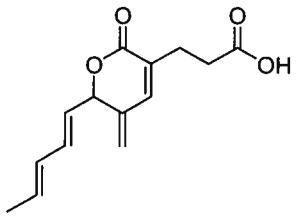
Studies Toward the Synthesis of Dykellic Acid

Christina Thompson and Paul J. Hergenrother

Life and death at the cellular level is usually regulated by a process called apoptosis. When this mechanism of cellular regulation is left unrestrained, cells die prematurely; this can lead to several disease states, including neurodegeneration. Small molecule inhibitors of apoptosis can rescue cells and correct the disease phenotype. One such small molecule, dykellic acid, was isolated from the fermentation broth of *Westerdykella multispora* and has been shown to display anti-apoptotic properties. Studies toward a facile route to dykellic acid and several of its analogues are presented, featuring Horner-Wadsworth-Emmons olefination as the key step.



Streamlining Synthesis Using Hydrocarbon Oxidation

Kenneth J. Fraunhoffer and M. Christina White

A challenge in synthesis is to increase the overall efficiency of routes to molecules. In theory, routes utilizing oxidative functionalization of C-H bonds could increase synthetic efficiency relative to routes utilizing standard C-C bond forming reactions by reducing the dependence on functional group manipulations (FGMs), resulting in fewer steps and increased overall yields. Linear (*E*)-allylic alcohols are common intermediates that are typically synthesized using C-C bond forming routes incorporating the Horner-Wadsworth-Emmons or stabilized Wittig olefination. Using recently developed allylic oxidation methodology as a key step, we have designed hydrocarbon oxidation routes to these same synthetic intermediates that are more efficient than the previous routes based on the number of FGMs, total number of steps, and overall yields.