P41

Efficient Total Syntheses of Heterocyclic Marine Alkaloids, Lamellarins

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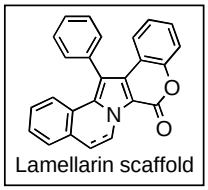
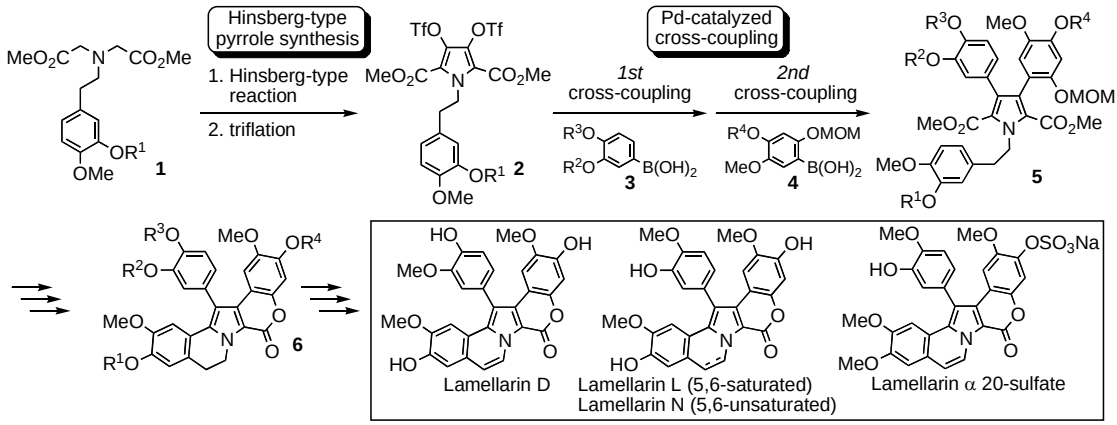


Lamellarins possessing a common 1-phenyl-6*H*-[1]benzopyrano-[4',3':4,5]pyrrolo[2,1-a]isoquinoline scaffold have been isolated from a marine prosoblanch mollusk, ascidians, and sponges. Many lamellarins exhibit unique and highly useful biological activities such as cytotoxicity against MDR tumor cell lines, MDR reversal, and HIV-1 integrase-inhibitory activities. Due to such activities and their unique structures, a number of synthetic approaches have been developed.[1]

Recently, we have devised an efficient method to construct 3,4-diarylpyrrole marine alkaloids by combinational use of Hinsberg-type pyrrole synthesis and palladium-catalyzed Suzuki cross-coupling of the 3,4-dihydroxypyrrole bis-triflate derivatives as key reactions.[2] The strategy has been successfully applied to the total synthesis of lamellarin D, L, N and α 20-sulfate.[3,4]



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