





**Scheme 1 Reagents and conditions:** i,  $(\text{COCl})_2$ ,  $\text{Me}_2\text{SO}$ ,  $\text{Et}_3\text{N}$ ,  $\text{CH}_2\text{Cl}_2$ ,  $-60$  to  $25$   $^\circ\text{C}$ , then  $\text{Ph}_3\text{P}=\text{C}(\text{Me})\text{CO}_2\text{Et}$ ; ii,  $\text{Me}_3\text{Al}$  in hexane (2 mol  $\text{dm}^{-3}$ , 10 equiv.),  $\text{H}_2\text{O}$  (6 equiv.),  $\text{ClCH}_2\text{CH}_2\text{Cl}$ ,  $-30$   $^\circ\text{C}$ ; iii,  $\text{Et}_3\text{SiCl}$ , imidazole, DMAP (cat.),  $\text{CH}_2\text{Cl}_2$ ; iv,  $\text{H}_2$ , 10%  $\text{Pd}-\text{BaSO}_4$ ,  $\text{Et}_2\text{O}$ ; v,  $(\text{COCl})_2$ ,  $\text{Me}_2\text{SO}$ ,  $\text{Et}_3\text{N}$ ,  $\text{CH}_2\text{Cl}_2$ ,  $-60$  to  $25$   $^\circ\text{C}$ ; vi, **8** (3 equiv.),  $\text{Bu}^t\text{Li}$  in hexane (1.8 mol  $\text{dm}^{-3}$ , 3 equiv.), TMEDA (3 equiv.),  $\text{Et}_2\text{O}$ ,  $0$   $^\circ\text{C}$ , then the aldehyde,  $-78$   $^\circ\text{C}$ ; vii, MCPBA,  $\text{CH}_2\text{Cl}_2$ ,  $0$   $^\circ\text{C}$ ; viii, 48% HF (1.5 equiv.), 25%  $\text{H}_2\text{SiF}_6$  (1.5 equiv.), MeCN ( $5 \times 10^{-3}$  mol  $\text{dm}^{-3}$ ); ix,  $\text{NaBH}_4$ ,  $\text{CeCl}_3$ , MeOH; x, MCPBA,  $\text{NaH}_2\text{PO}_4 \cdot 2\text{H}_2\text{O}$ , 1%  $\text{H}_2\text{O}-\text{CH}_2\text{Cl}_2$ ; xi, DIBAL-H,  $\text{CH}_2\text{Cl}_2$ ,  $-78$   $^\circ\text{C}$ ; xii, PDC,  $\text{CH}_2\text{Cl}_2$

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