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Synthesis of phosphaisocoumrin amidates via DIBAL-H-mediated selective amidation of phosphaisocoumrin esters

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¹H NMR (300 MHz, CDCl₃) of **2a**



¹³C NMR (75 MHz, CDCl₃) of **2a**





³¹P NMR (121 MHz, CDCl₃) of **2a**



¹H NMR (300 MHz, CDCl₃) of 2b



¹³C NMR (75 MHz, CDCl₃) of **2b**



³¹P NMR (121 MHz, CDCl₃) of **2b**







 13 C NMR (75 MHz, CDCl₃) of **2c**



³¹P NMR (121 MHz, CDCl₃) of **2c**



¹H NMR (300 MHz, CDCl₃) of **2d**

¹³C NMR (75 MHz, CDCl₃) of **2d**





³¹P NMR (121 MHz, CDCl₃) of **2d**



¹H NMR (300 MHz, CDCl₃) of **2e**



¹³C NMR (75 MHz, CDCl₃) of **2e**



³¹P NMR (121 MHz, CDCl₃) of **2e**



¹H NMR (300 MHz, CDCl₃) of 2f



¹³C NMR (75 MHz, CDCl₃) of **2f**



³¹P NMR (121 MHz, CDCl₃) of **2f**





¹³C NMR (101 MHz, CDCl₃) of **2g**



³¹P NMR (121 MHz, CDCl₃) of **2g**





¹³C NMR (101 MHz, CDCl₃) of **2h**



³¹P NMR (121 MHz, CDCl₃) of **2h**



¹H NMR (300 MHz, CDCl₃) of **2i**



¹³C NMR (75 MHz, CDCl₃) of **2i**

16.43 - 10000 CI - 9000 - 8000 - 7000 - 6000 - 5000 - 4000 - 3000 - 2000 - 1000 - 0 -1000 35 -35 40 30 25 20 -10 -15 -20 10 5 0 f1 (ppm) 15 -5 -25 -30

³¹P NMR (121 MHz, CDCl₃) of**2i**



¹H NMR (300 MHz, CDCl₃) of **2j**



Br - 13000 - 12000 - 11000 - 10000 - 9000 - 8000 - 7000 - 6000 - 5000 - 4000 - 3000 - 2000 - 1000 -0 -1000 10 5 0 f1 (ppm) 40 35 15 -5 -10 -15 -20 -25 -35 25 20 30 -30

³¹P NMR (121 MHz, CDCl₃) of 2j

¹H NMR (300 MHz, CDCl₃) of $2\mathbf{k}$





¹³C NMR (75 MHz, CDCl₃) of **2k**



³¹P NMR (121 MHz, CDCl₃) of **2k**