

*Supporting Information*

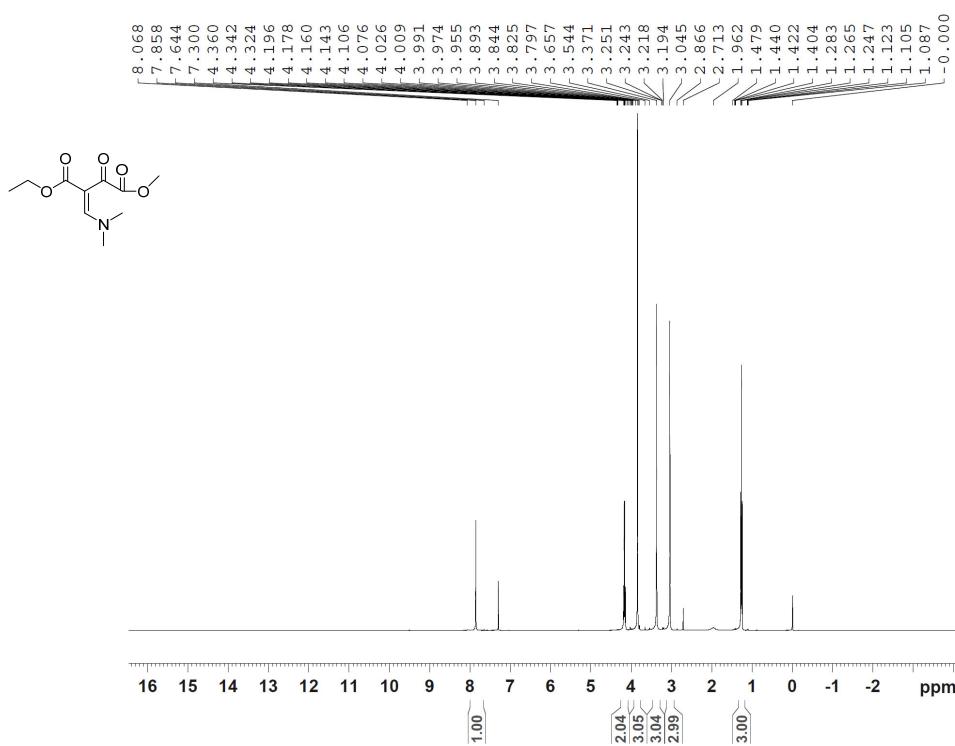
# Preparation of the Key Dolutegravir Intermediate via MgBr<sub>2</sub>-Promoted Cyclization

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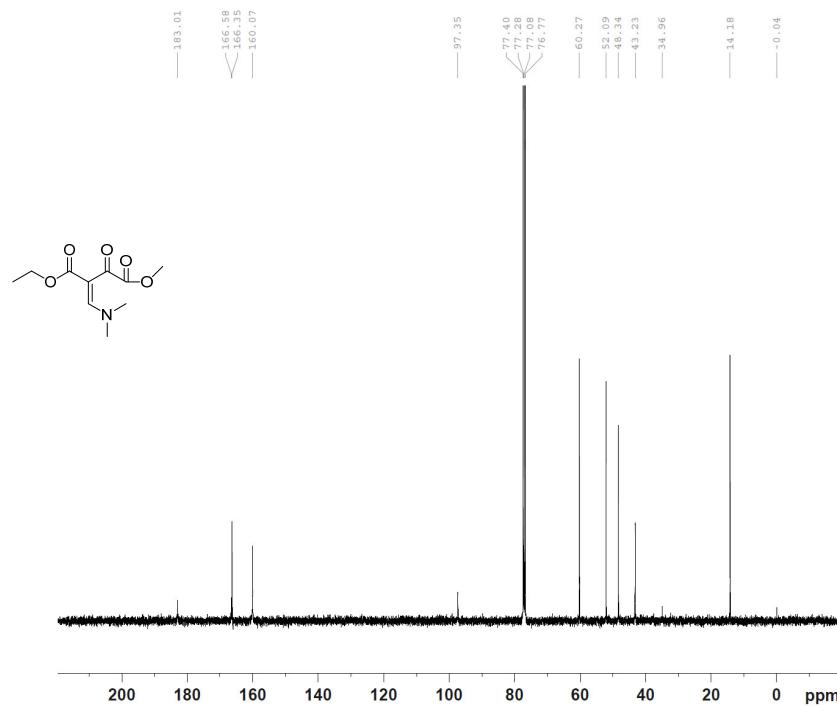
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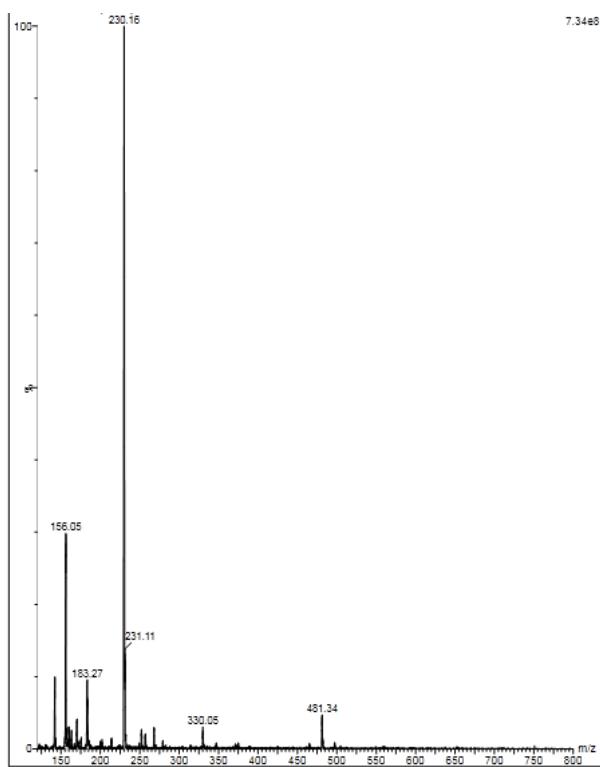
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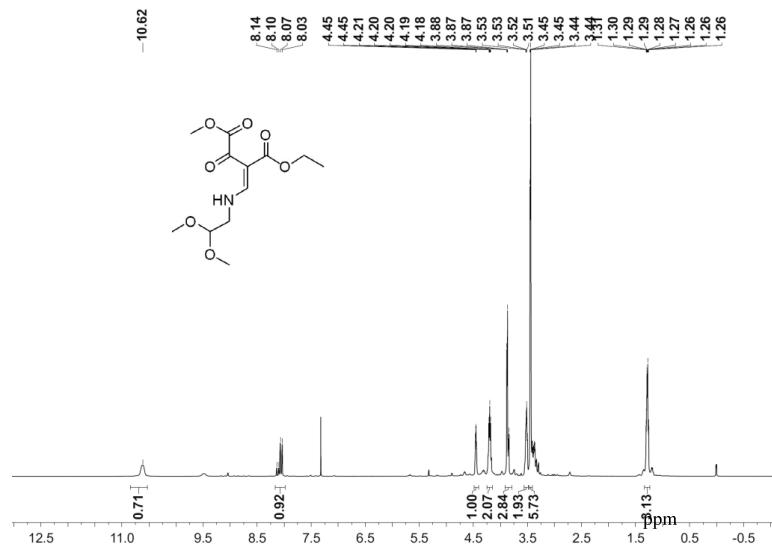
**Figure S1.** <sup>1</sup>H NMR spectra of P3 in CDCl<sub>3</sub>.



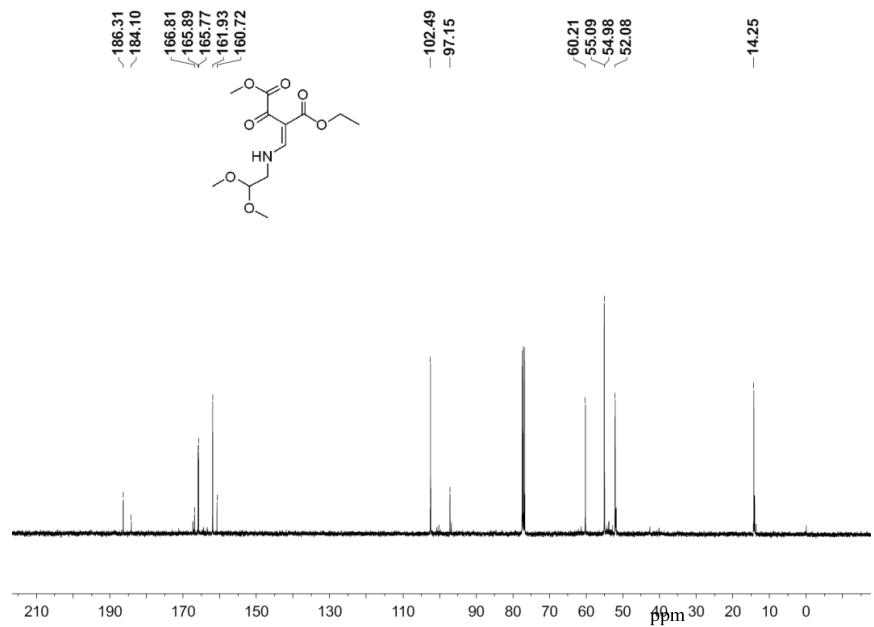
**Figure S2.** <sup>13</sup>C NMR spectra of P3 in CDCl<sub>3</sub>.



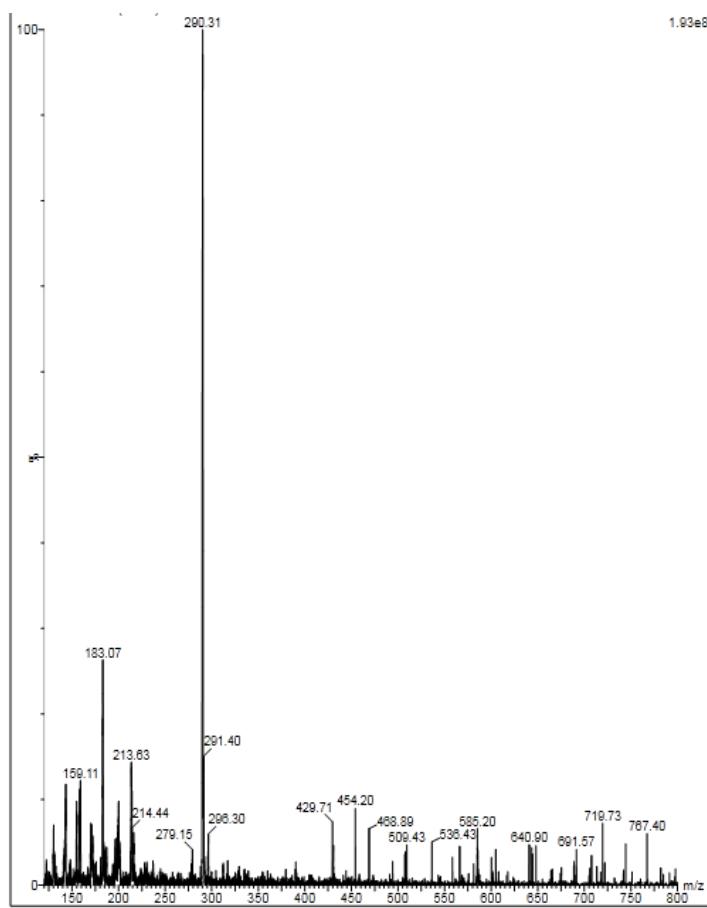
**Figure S3.** LCMS of P3.



**Figure S4.** <sup>1</sup>HNMR spectra of P4 in  $\text{CDCl}_3$ .



**Figure S5.**  $^{13}\text{C}$ NMR spectra of **P4** in  $\text{CDCl}_3$ .



**Figure S6.** LCMS of **P4**.

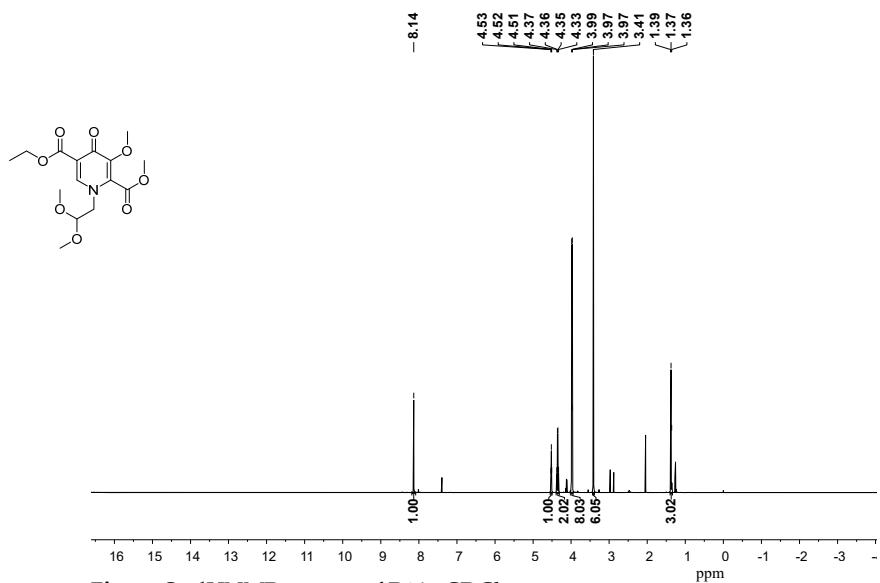


Figure S7.  $^1\text{H}$ NMR spectra of P6 in  $\text{CDCl}_3$ .

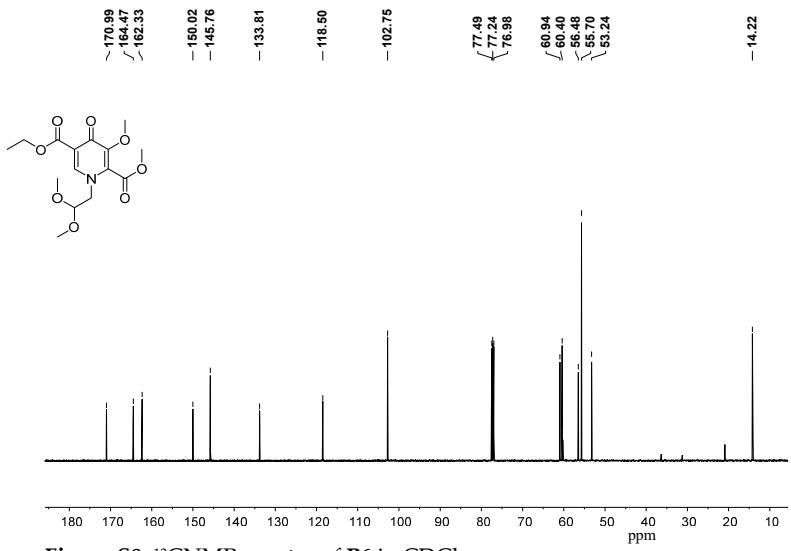
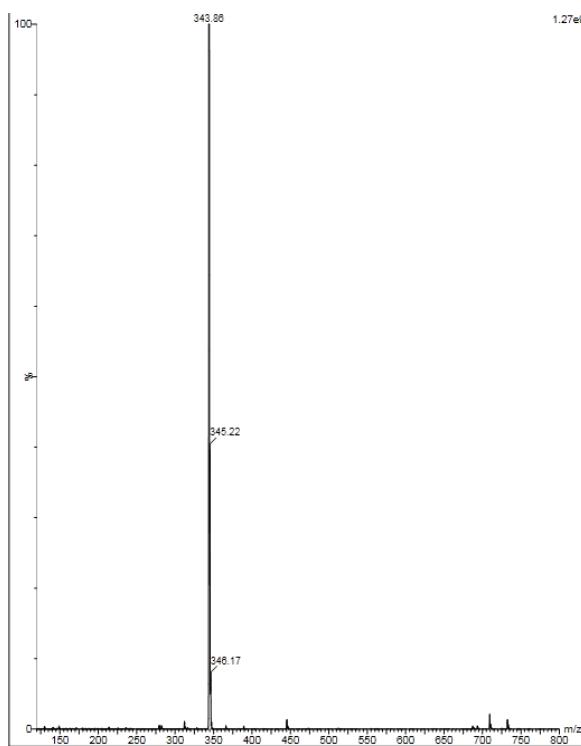
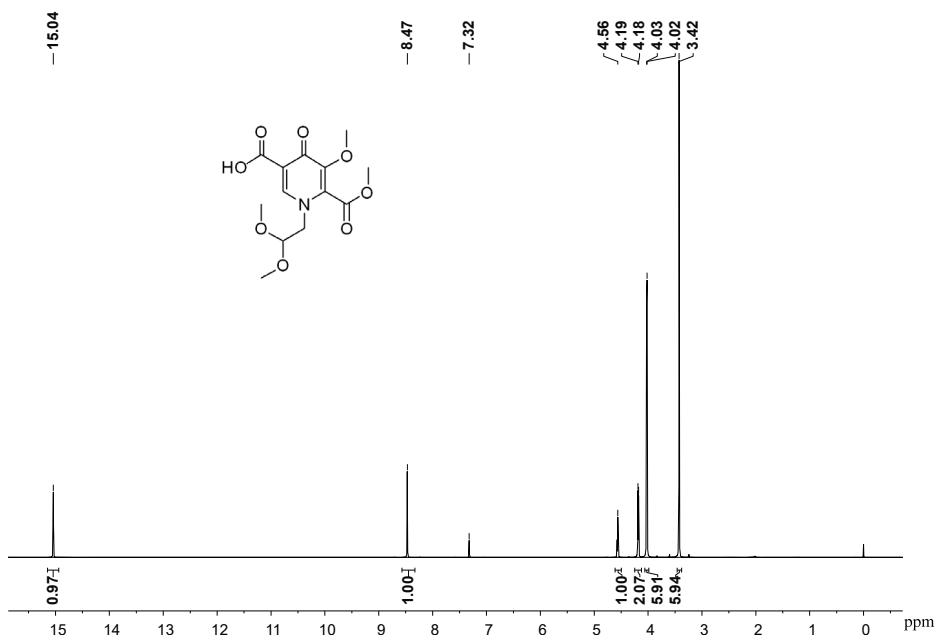


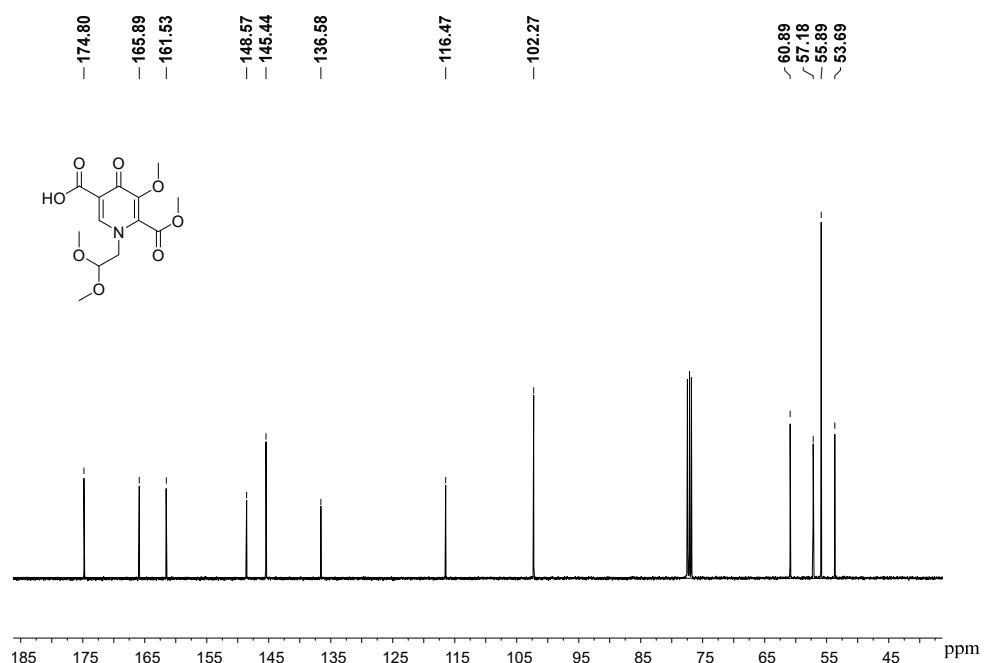
Figure S8.  $^{13}\text{C}$ NMR spectra of P6 in  $\text{CDCl}_3$ .



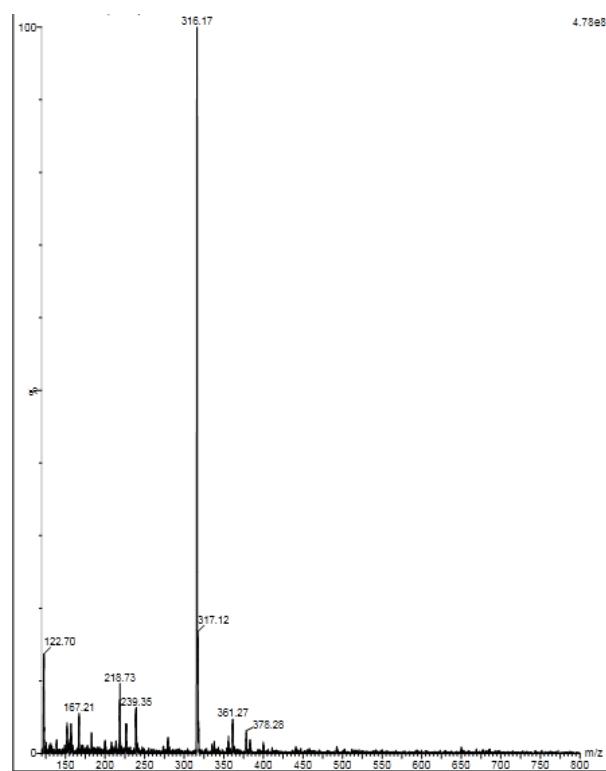
**Figure S9.** LCMS of P6.



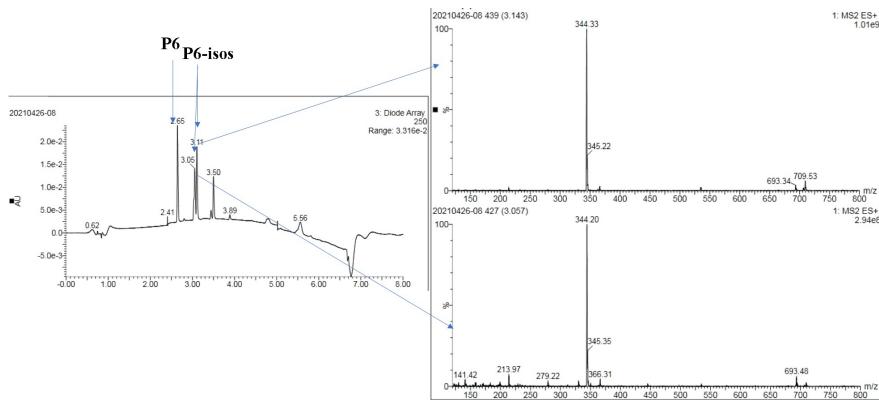
**Figure S10.** <sup>1</sup>HNMR spectra of **1** in CDCl<sub>3</sub>.



**Figure S11.**  $^{13}\text{C}$ NMR spectra of **1** in  $\text{CDCl}_3$ .



**Figure S12.** LCMS of **1**.



**Figure S13.** LCMS of P6-isos