

Supplementary Materials

NMR spectra for compounds *cis*-**10**/*trans*-**10** and *cis*-**11**/*trans*-**11**:

Figure S1: ¹H NMR Spectrum for *cis*-**10b** in CDCl₃

Figure S2: ¹³C NMR Spectrum for *cis*-**10b** in CDCl₃

Figure S3: ³¹P NMR Spectrum for *cis*-**10b** in CDCl₃

Figure S4: ¹H NMR Spectrum for *trans*-**10b** in CDCl₃

Figure S5: ¹³C NMR Spectrum for *trans*-**10b** in CDCl₃

Figure S6: ³¹P NMR Spectrum for *trans*-**10b** in CDCl₃

Figure S7: ¹H NMR Spectrum for *trans*-**10c** in CDCl₃

Figure S8: ¹³C NMR Spectrum for *trans*-**10c** in CDCl₃

Figure S9: ³¹P NMR Spectrum for *trans*-**10c** in CDCl₃

Figure S10: ¹H NMR Spectrum for *cis*-**10d** in CDCl₃

Figure S11: ¹³C NMR Spectrum for *cis*-**10d** in CDCl₃

Figure S12: ³¹P NMR Spectrum for *cis*-**10d** in CDCl₃

Figure S13: ¹H NMR Spectrum for *trans*-**10d** in CDCl₃

Figure S14: ¹³C NMR Spectrum for *trans*-**10d** in CDCl₃

Figure S15: ³¹P NMR Spectrum for *trans*-**10d** in CDCl₃

Figure S16: ¹H NMR Spectrum for *cis*-**10e** in CDCl₃

Figure S17: ¹³C NMR Spectrum for *cis*-**10e** in CDCl₃

Figure S18: ³¹P NMR Spectrum for *cis*-**10e** in CDCl₃

Figure S19: ¹H NMR Spectrum for *trans*-**10e** in CDCl₃

Figure S20: ¹³C NMR Spectrum for *trans*-**10e** in CDCl₃

Figure S21: ³¹P NMR Spectrum for *trans*-**10e** in CDCl₃

Figure S22: ¹H NMR Spectrum for *cis*-**10f** in CDCl₃

Figure S23: ¹³C NMR Spectrum for *cis*-**10f** in CDCl₃

Figure S24: ³¹P NMR Spectrum for *cis*-**10f** in CDCl₃

Figure S25: ¹H NMR Spectrum for *trans*-**10f** in CDCl₃

Figure S26: ¹³C NMR Spectrum for *trans*-**10f** in CDCl₃

Figure S27: ³¹P NMR Spectrum for *trans*-**10f** in CDCl₃

Figure S28: ¹H NMR Spectrum for *cis*-**11a** in CDCl₃

Figure S29: ¹³C NMR Spectrum for *cis*-**11a** in CDCl₃

Figure S30: ³¹P NMR Spectrum for *cis*-**11a** in CDCl₃

Figure S31: ¹H NMR Spectrum for *trans*-**11a** in CDCl₃

Figure S32: ¹³C NMR Spectrum for *trans*-**11a** in CDCl₃

Figure S33: ³¹P NMR Spectrum for *trans*-**11a** in CDCl₃

Figure S34: ¹H NMR Spectrum for *cis*-**11b** in CDCl₃

Figure S35: ¹³C NMR Spectrum for *cis*-**11b** in CDCl₃

Figure S36: ³¹P NMR Spectrum for *cis*-**11b** in CDCl₃

Figure S37: ¹H NMR Spectrum for *trans*-**11b** in CDCl₃

Figure S38: ¹³C NMR Spectrum for *trans*-**11b** in CDCl₃

Figure S39: ³¹P NMR Spectrum for *trans*-**11b** in CDCl₃

Figure S40: ¹H NMR Spectrum for *trans*-**11c** in CDCl₃

Figure S41: ¹³C NMR Spectrum for *trans*-**11c** in CDCl₃

Figure S42: ³¹P NMR Spectrum for *trans*-**11c** in CDCl₃

Figure S43: ¹H NMR Spectrum for *cis*-**11d** in CDCl₃

Figure S44: ¹³C NMR Spectrum for *cis*-**11d** in CDCl₃

Figure S45: ³¹P NMR Spectrum for *cis*-**11d** in CDCl₃

Figure S46: ¹H NMR Spectrum for *trans*-**11d** in CDCl₃

Figure S47: ¹³C NMR Spectrum for *trans*-**11d** in CDCl₃

Figure S48: ³¹P NMR Spectrum for *trans*-**11d** in CDCl₃

Figure S49: ¹H NMR Spectrum for *cis*-**11e** in CDCl₃

Figure S50: ¹³C NMR Spectrum for *cis*-**11e** in CDCl₃

Figure S51: ³¹P NMR Spectrum for *cis*-**11e** in CDCl₃

Figure S52: ^1H NMR Spectrum for *trans*-**11e** in CDCl_3
 Figure S53: ^{13}C NMR Spectrum for *trans*-**11e** in CDCl_3
 Figure S54: ^{31}P NMR Spectrum for *trans*-**11e** in CDCl_3
 Figure S55: ^1H NMR Spectrum for *cis*-**11f** in CDCl_3
 Figure S56: ^{13}C NMR Spectrum for *cis*-**11f** in CDCl_3
 Figure S57: ^{31}P NMR Spectrum for *cis*-**11f** in CDCl_3
 Figure S58: ^1H NMR Spectrum for *trans*-**11f** in CDCl_3
 Figure S59: ^{13}C NMR Spectrum for *trans*-**11f** in CDCl_3
 Figure S60: ^{31}P NMR Spectrum for *trans*-**11f** in CDCl_3

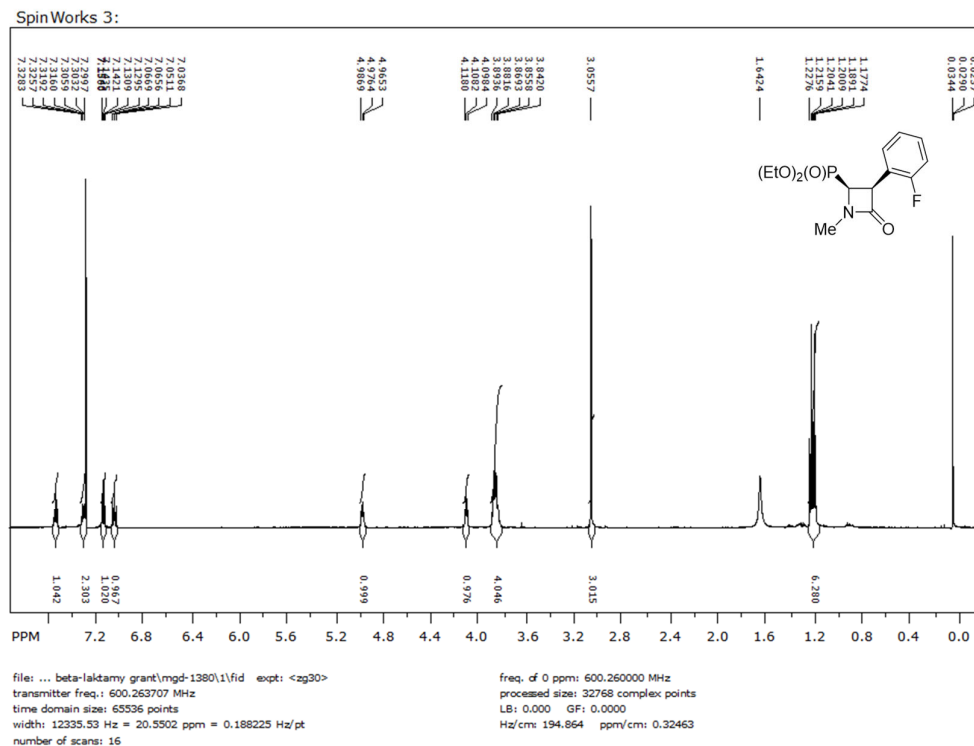


Figure S1. ^1H NMR Spectrum for *cis*-**10b** in CDCl_3 .

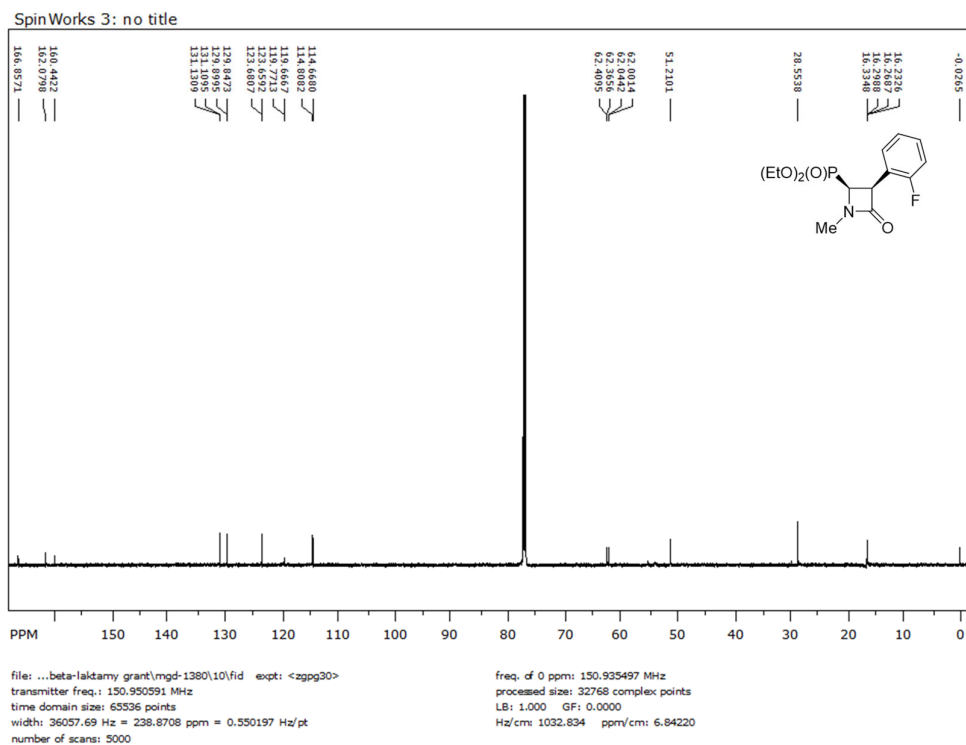


Figure S2. ^{13}C NMR Spectrum for *cis*-10b in CDCl_3 .

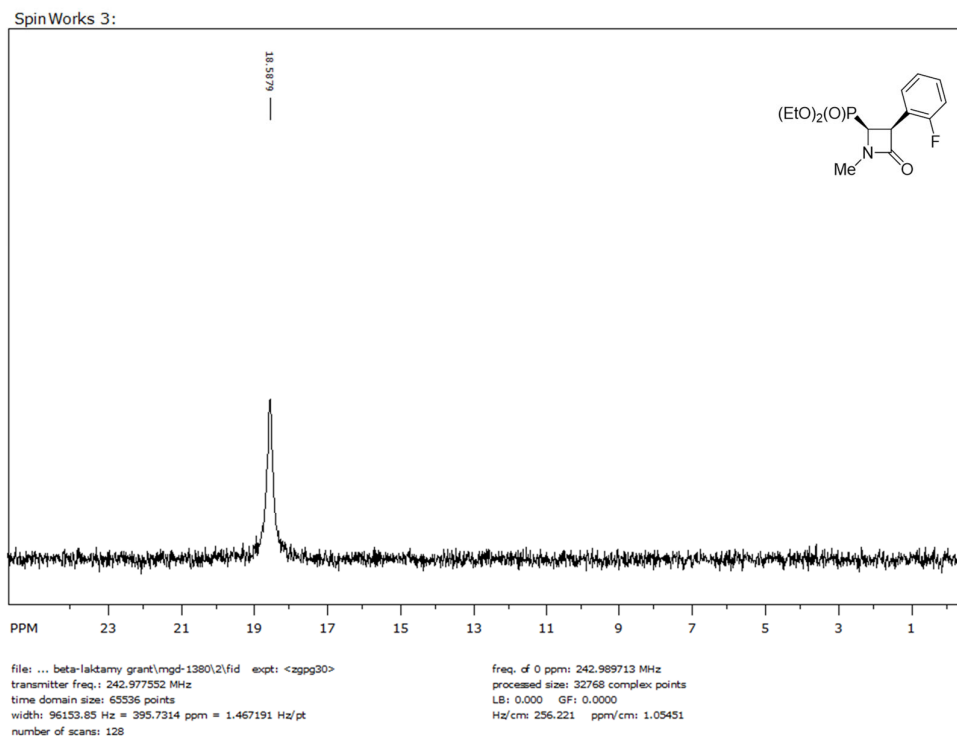


Figure S3. ^{31}P NMR Spectrum for *cis*-10b in CDCl_3 .

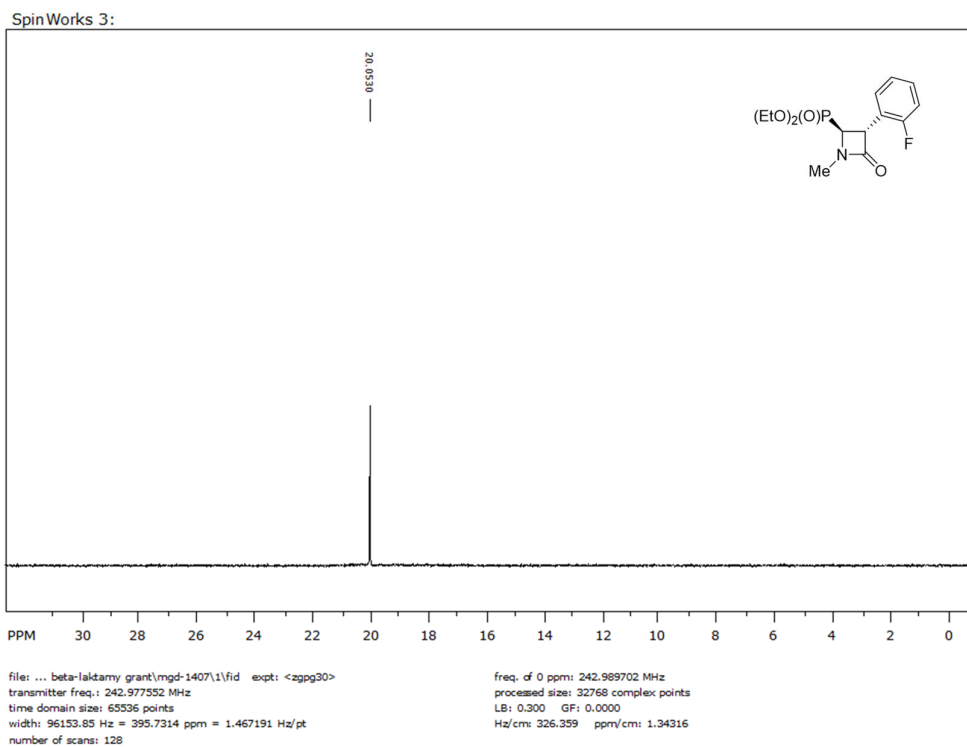


Figure S6: ^{31}P NMR Spectrum for *trans*-10b in CDCl_3

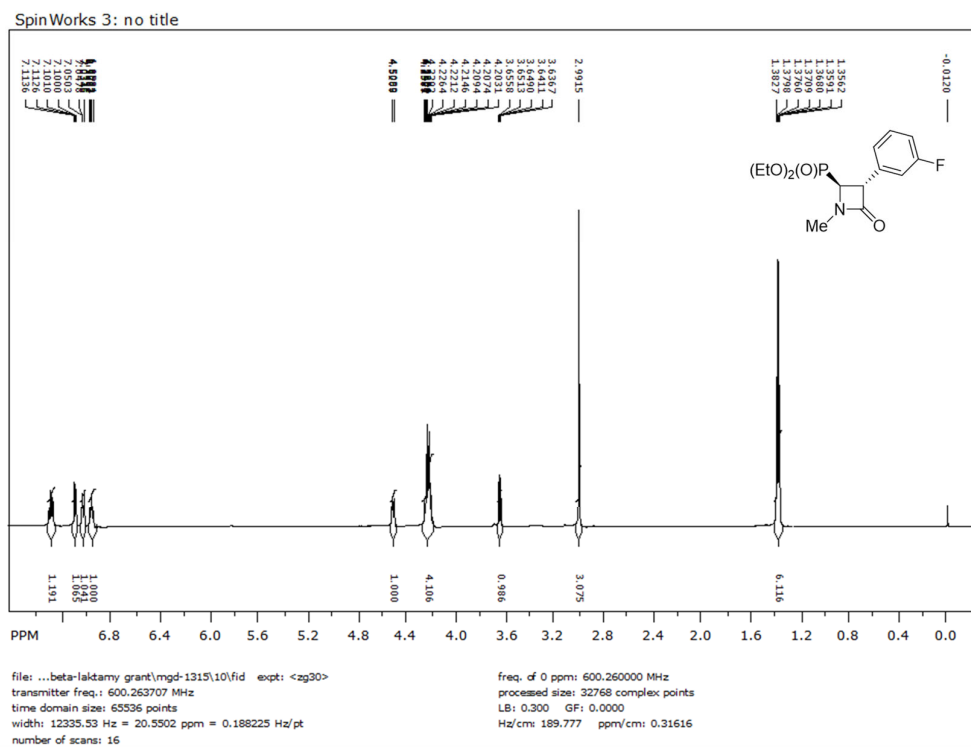


Figure S7: ^1H NMR Spectrum for *trans*-10c in CDCl_3

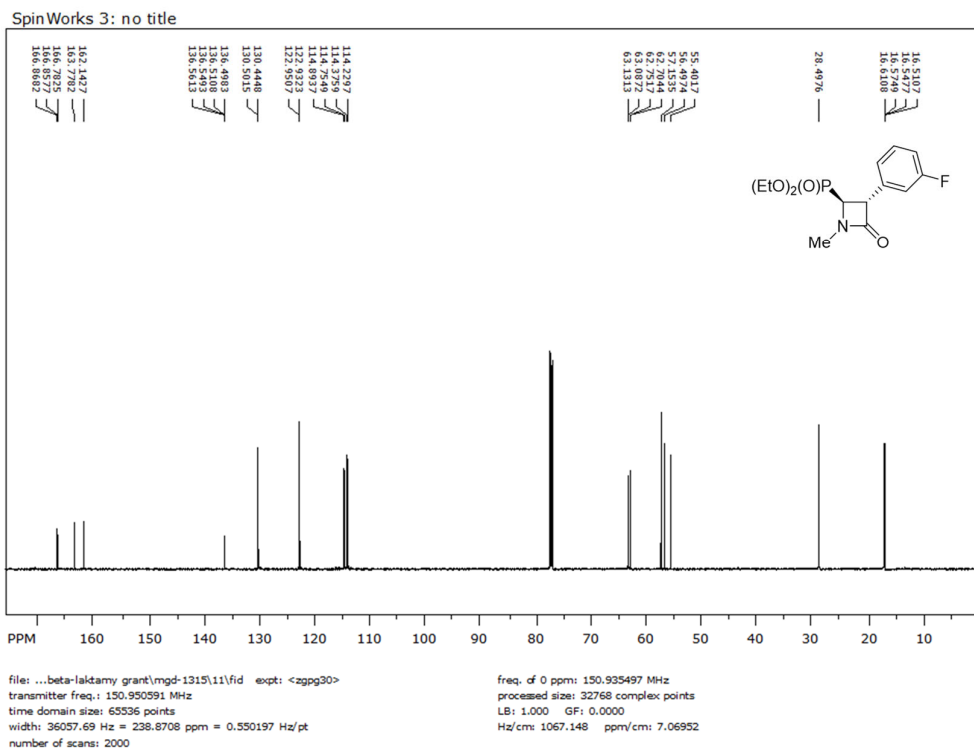


Figure S8: ^{13}C NMR Spectrum for *trans*-10c in CDCl_3

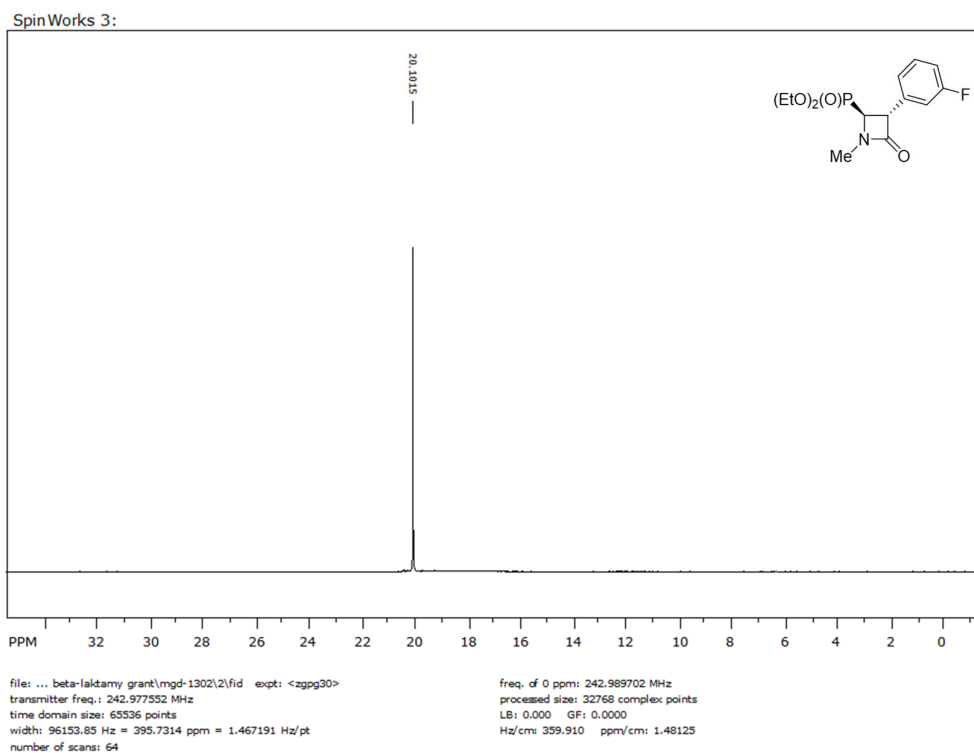


Figure S9: ^{31}P NMR Spectrum for *trans*-**10c** in CDCl_3

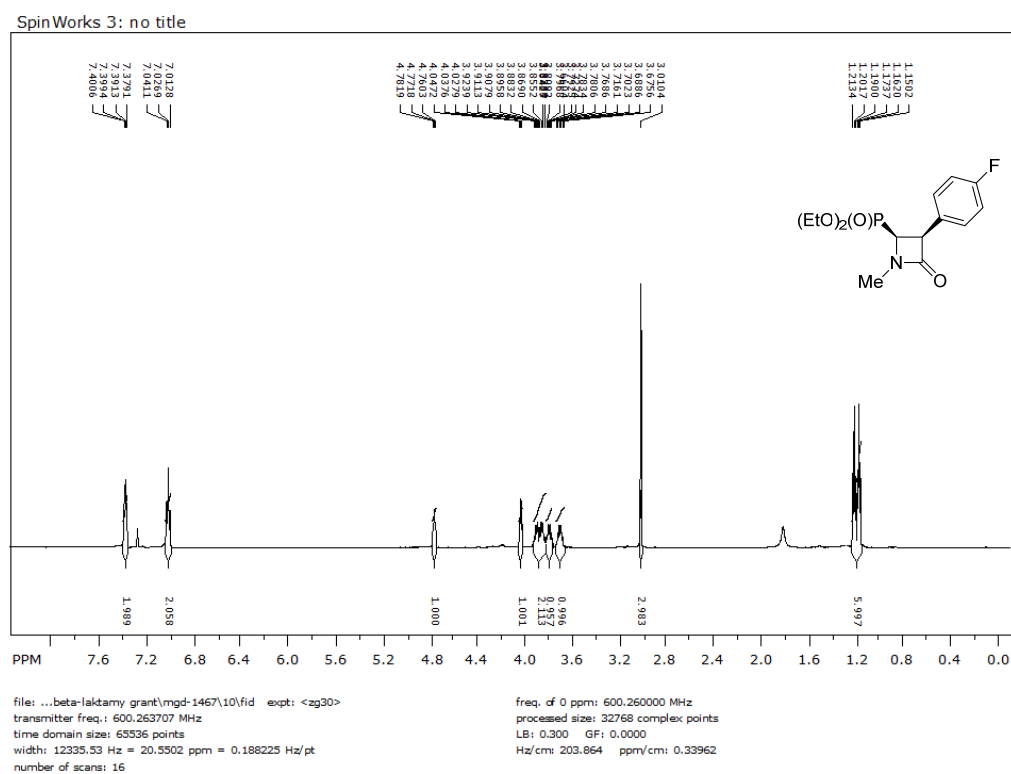


Figure S10: ^1H NMR Spectrum for *cis*-**10d** in CDCl_3

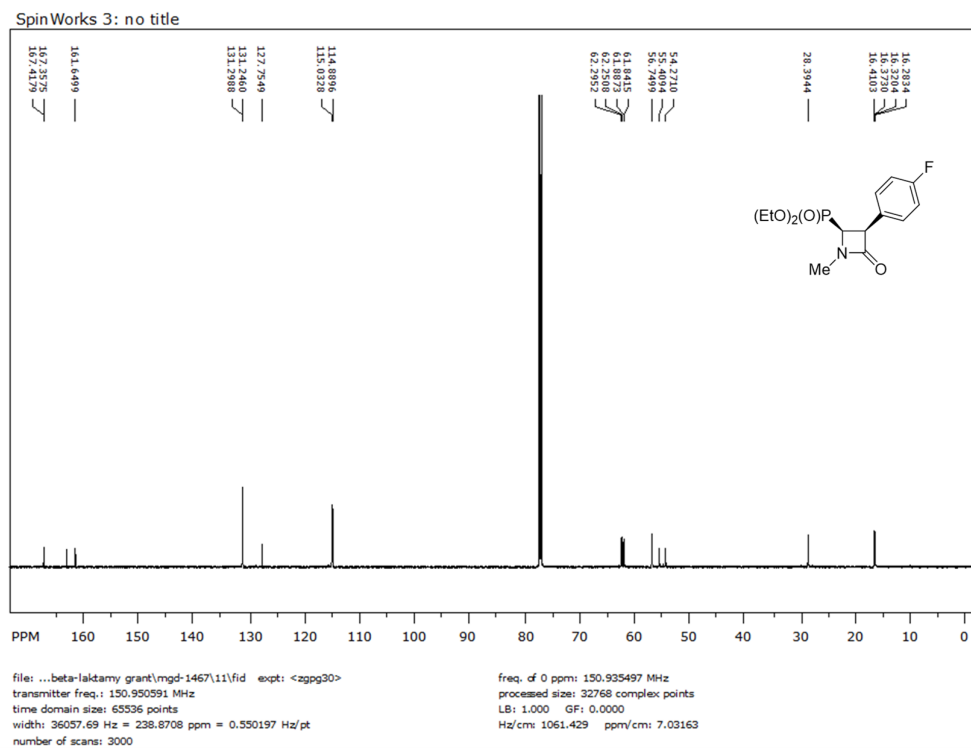


Figure S11: ^{13}C NMR Spectrum for *cis*-**10d** in CDCl_3

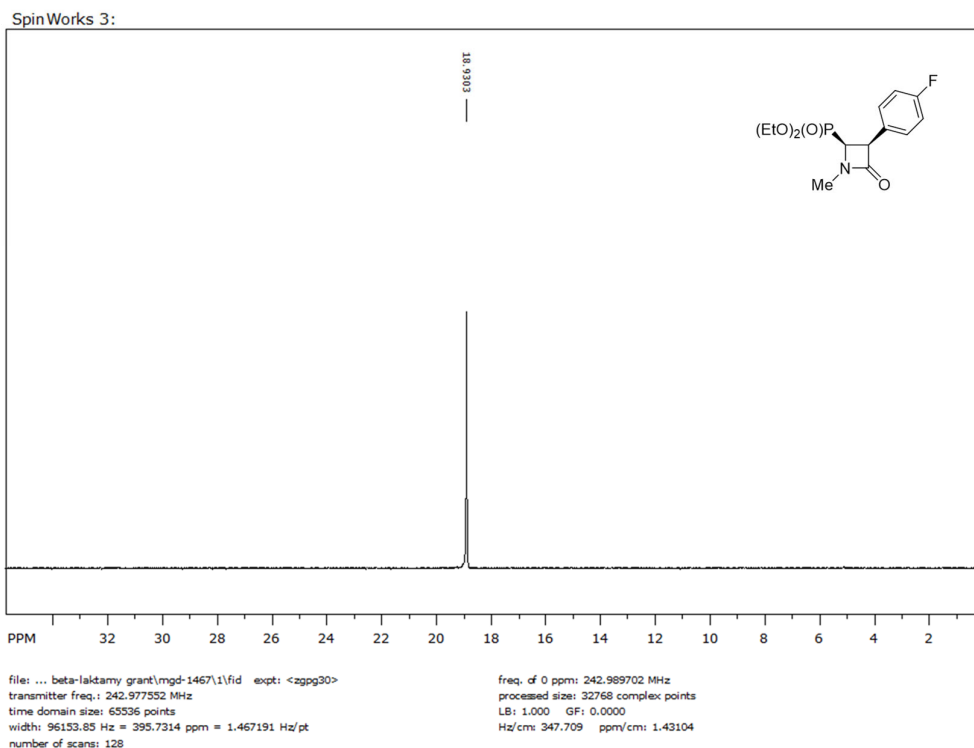


Figure S12: ^{31}P NMR Spectrum for *cis*-**10d** in CDCl_3

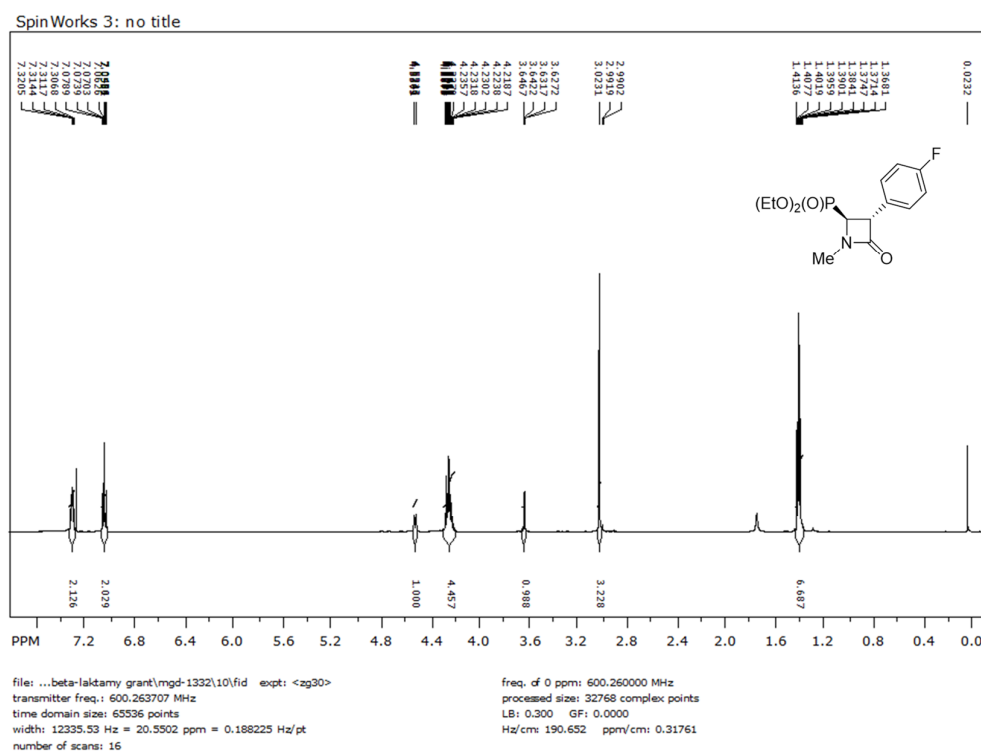


Figure S13: ^1H NMR Spectrum for *trans*-**10d** in CDCl_3

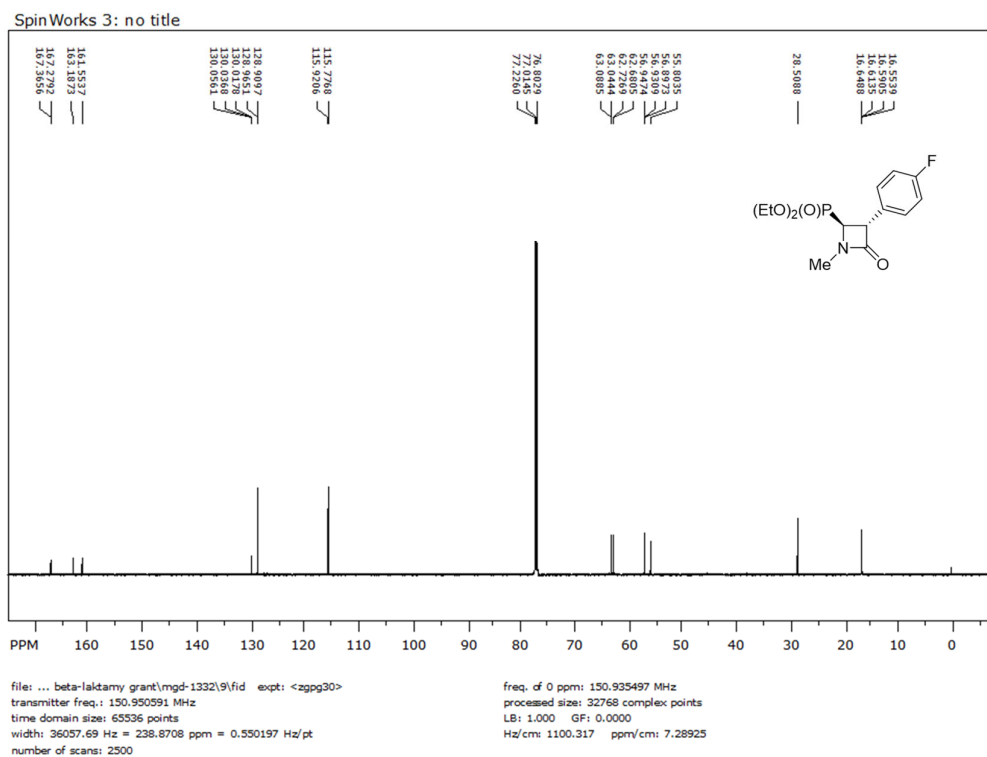


Figure S14: ^{13}C NMR Spectrum for *trans*-**10d** in CDCl_3

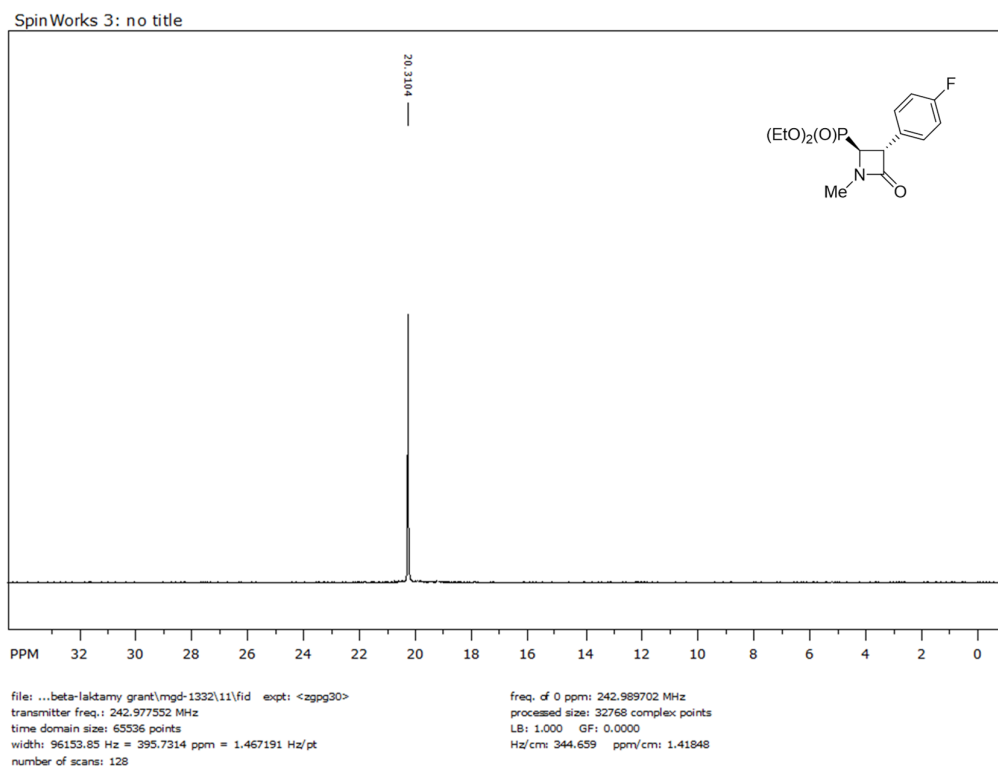


Figure S15: ^{31}P NMR Spectrum for *trans*-**10d** in CDCl_3

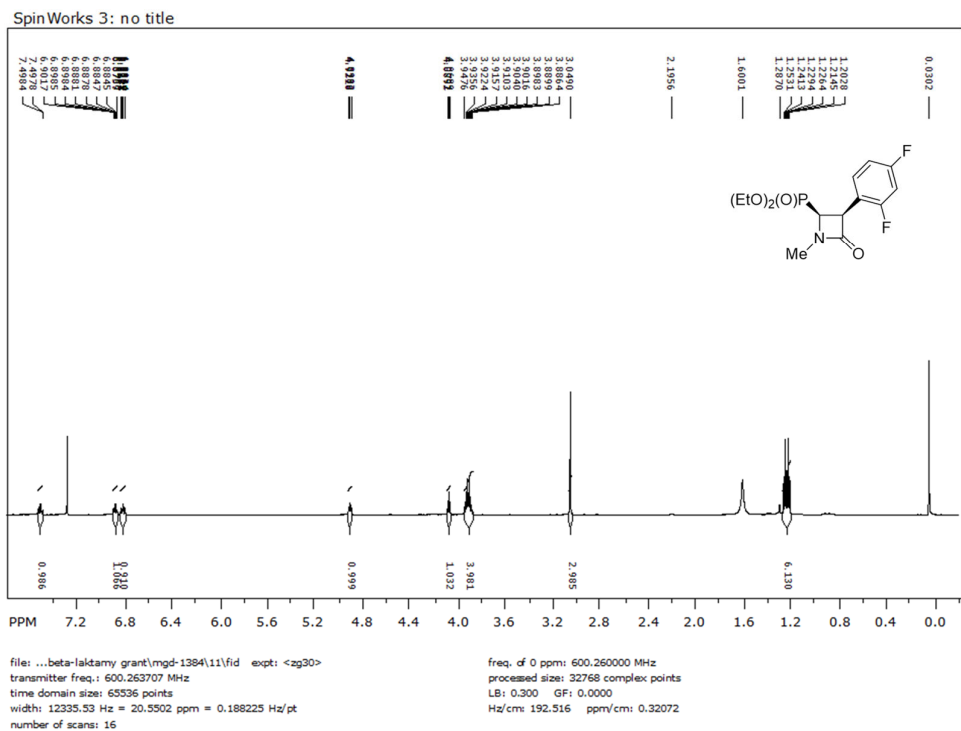
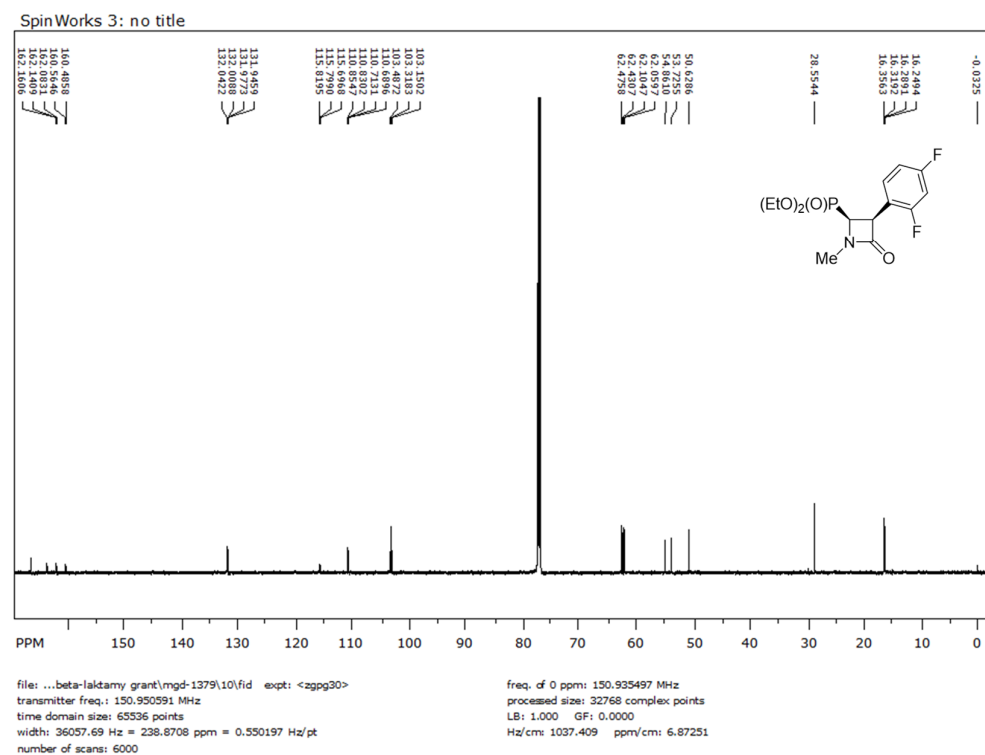


Figure S16: ^1H NMR Spectrum for *cis*-**10e** in CDCl_3



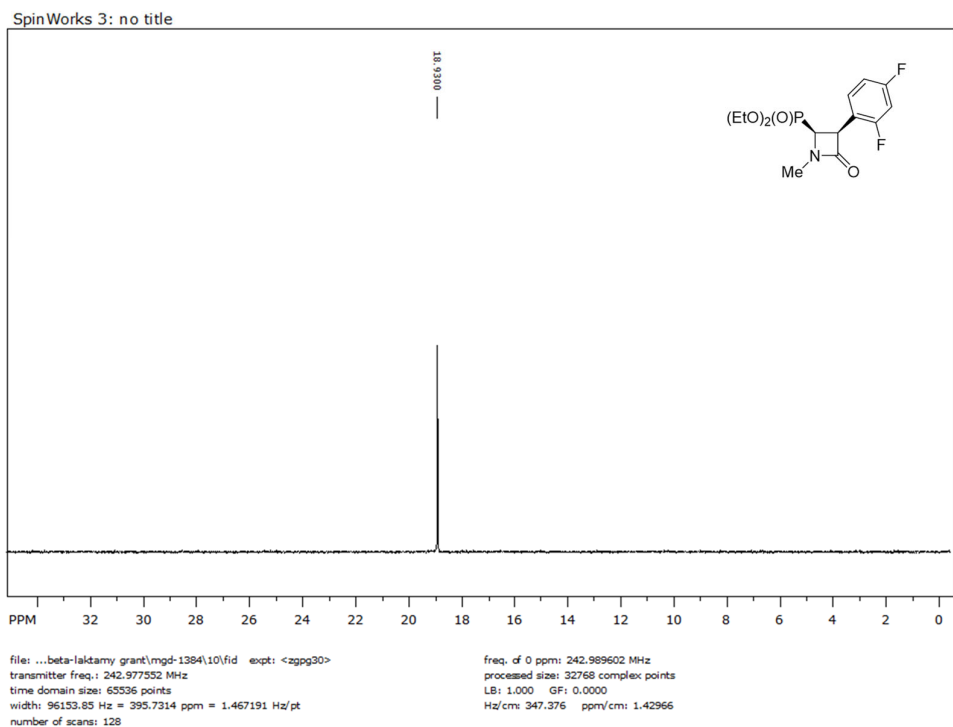


Figure S18: ^{31}P NMR Spectrum for *cis*-**10e** in CDCl_3

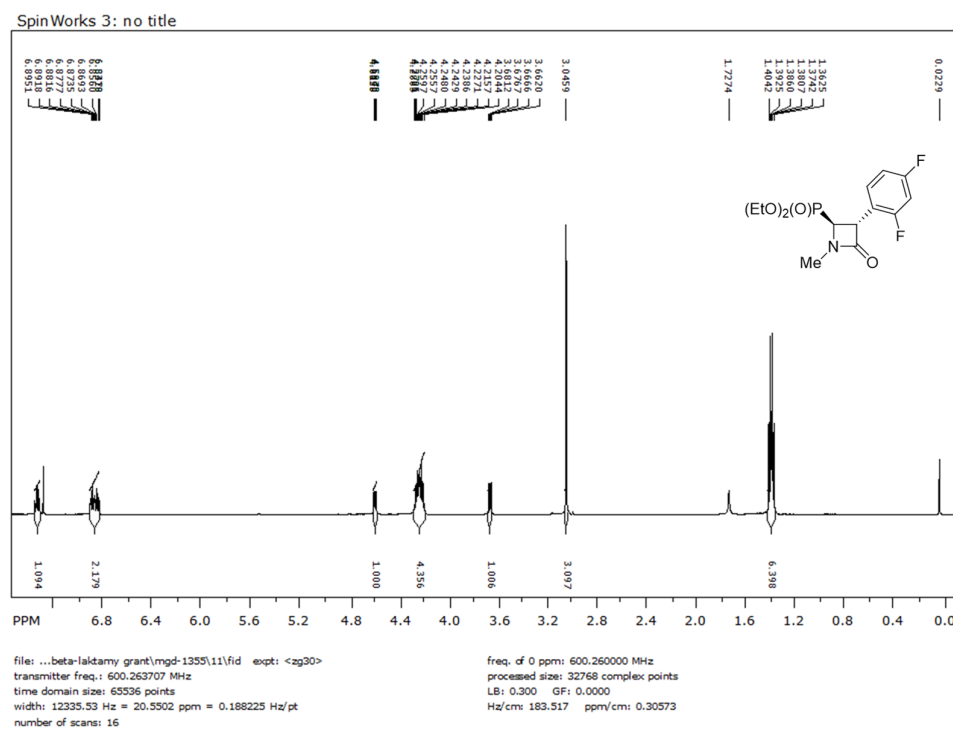


Figure S19: ^1H NMR Spectrum for *trans*-**10e** in CDCl_3

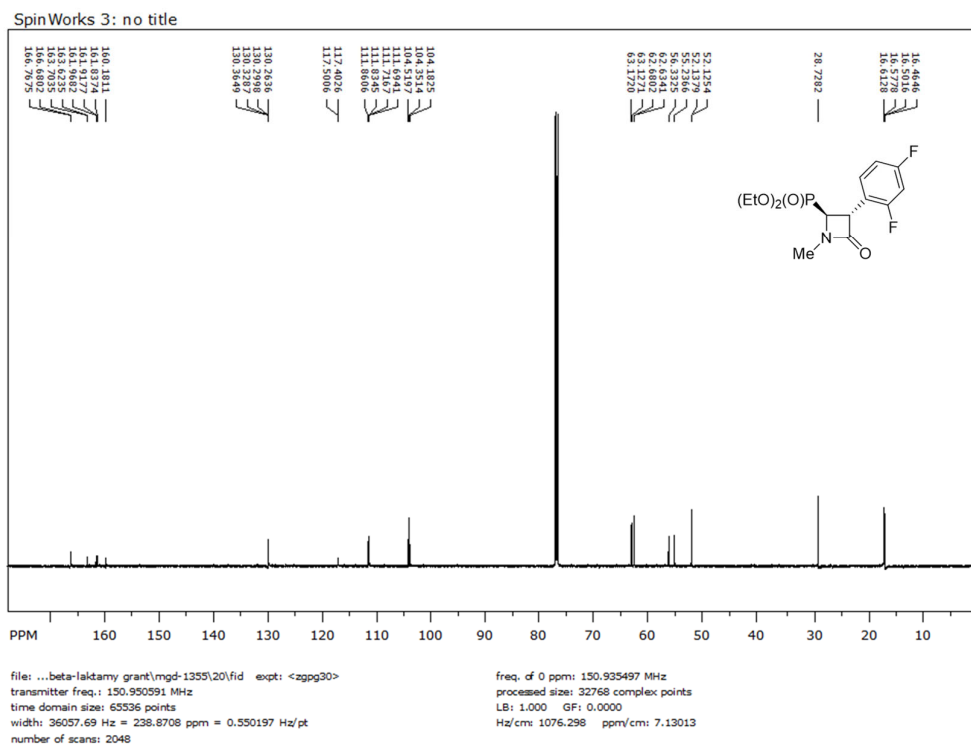


Figure S20: ^{13}C NMR Spectrum for *trans*-**10e** in CDCl_3

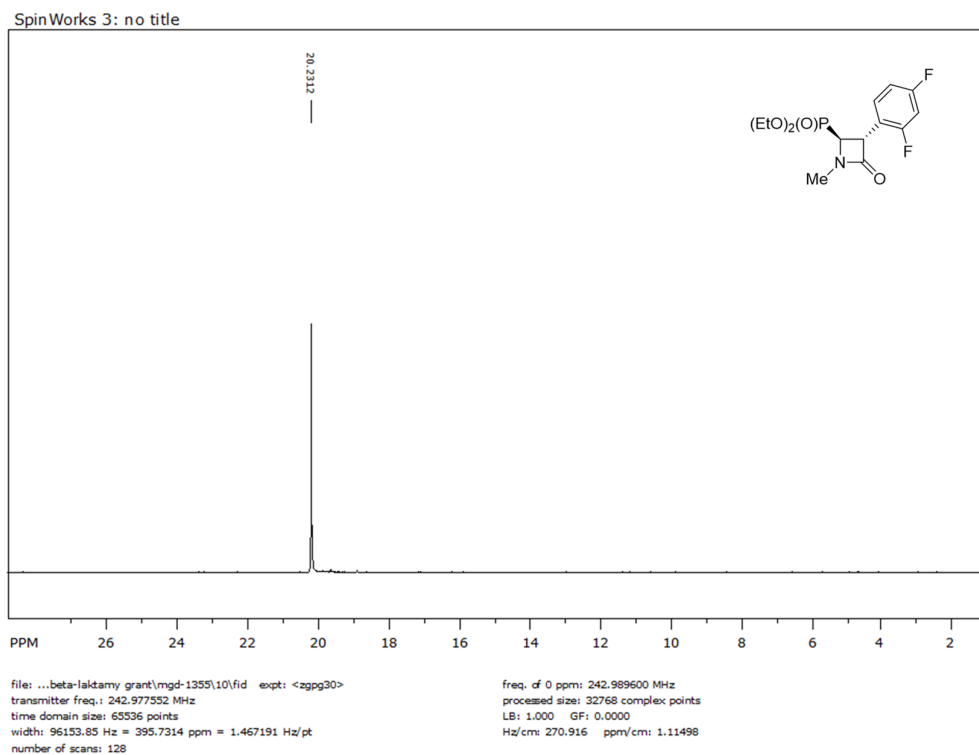


Figure S21: ^{31}P NMR Spectrum for *trans*-**10e** in CDCl_3

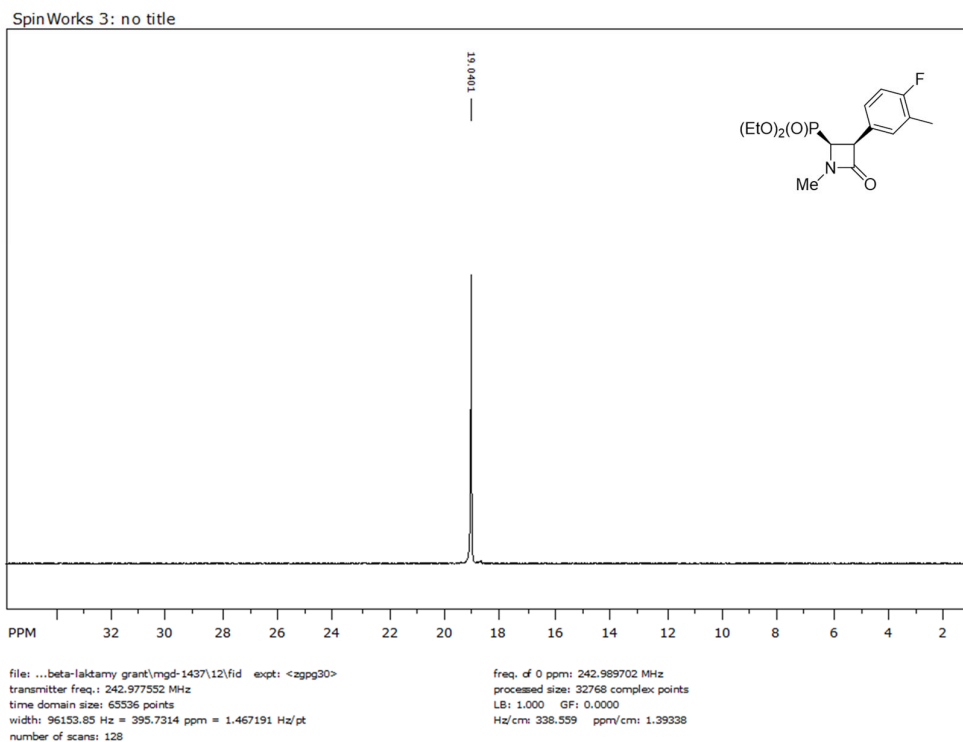


Figure S24: ^{31}P NMR Spectrum for *cis*-**10f** in CDCl_3

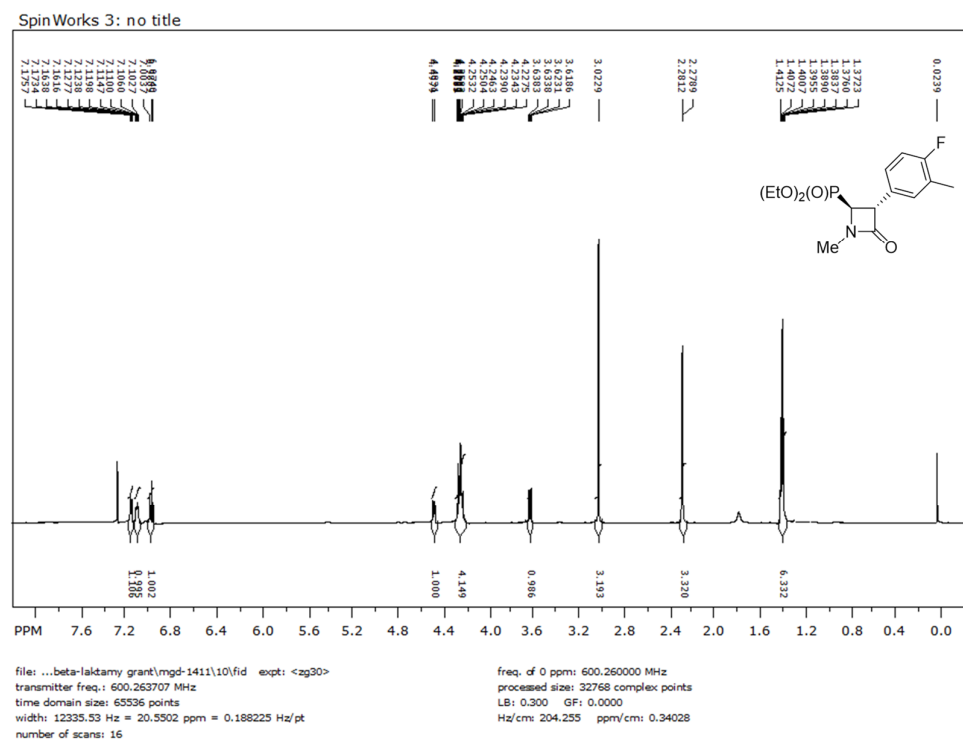


Figure S25: ^1H NMR Spectrum for *trans*-**10f** in CDCl_3

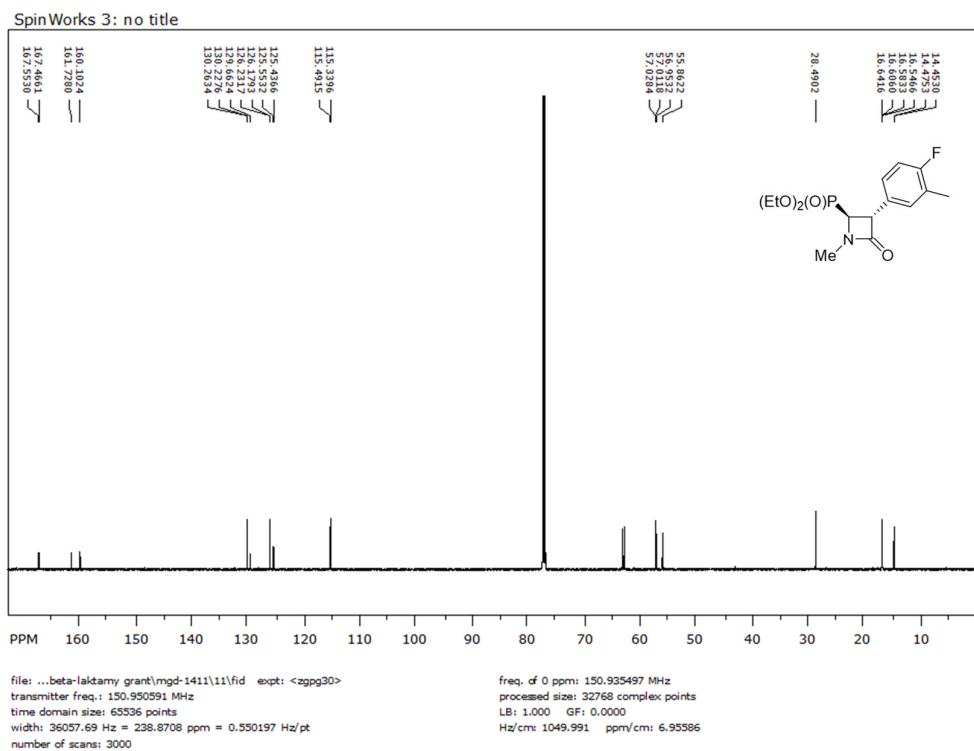


Figure S26: ^{13}C NMR Spectrum for *trans*-**10f** in CDCl_3

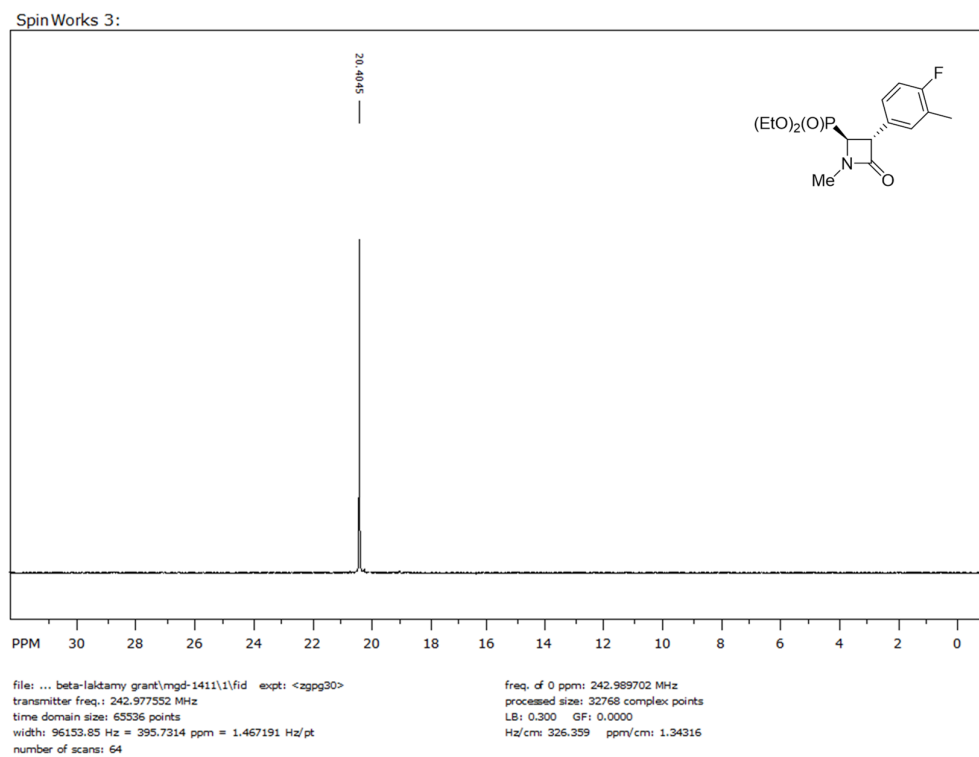


Figure S27: ^{31}P NMR Spectrum for *trans*-**10f** in CDCl_3

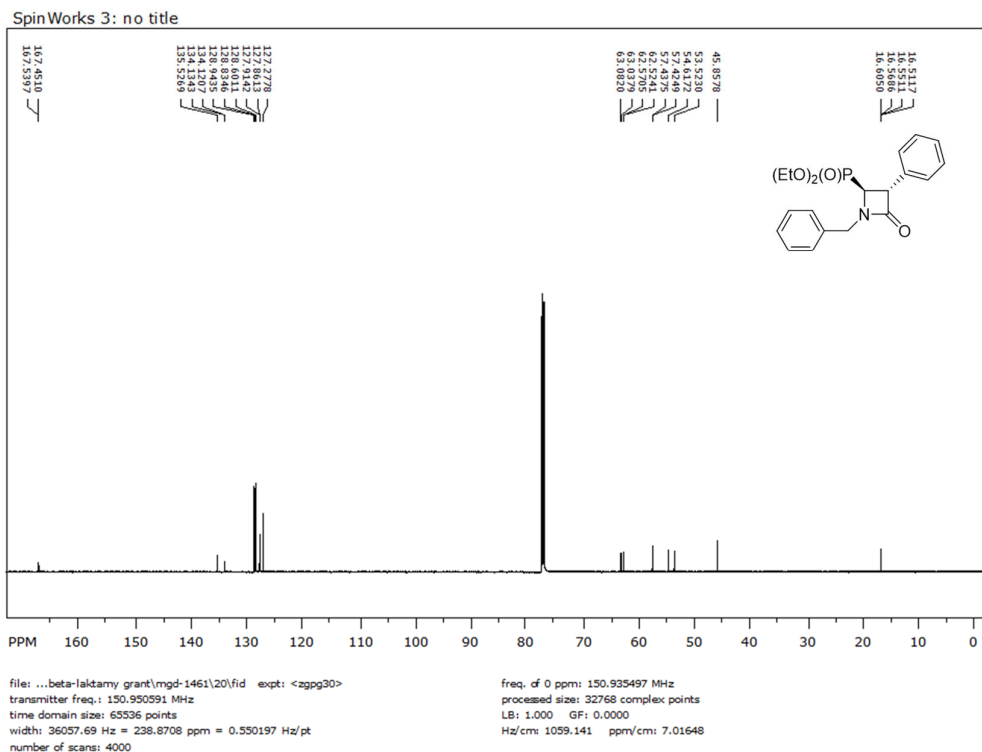


Figure S32: ^{13}C NMR Spectrum for *trans*-**11a** in CDCl_3

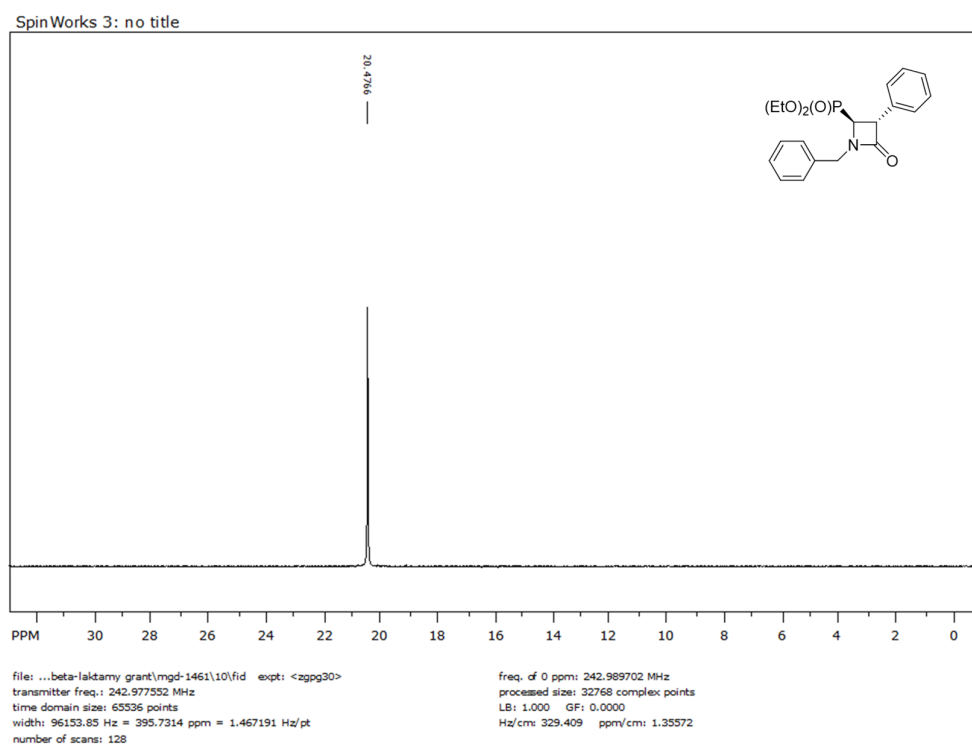


Figure S33: ^{31}P NMR Spectrum for *trans*-**11a** in CDCl_3

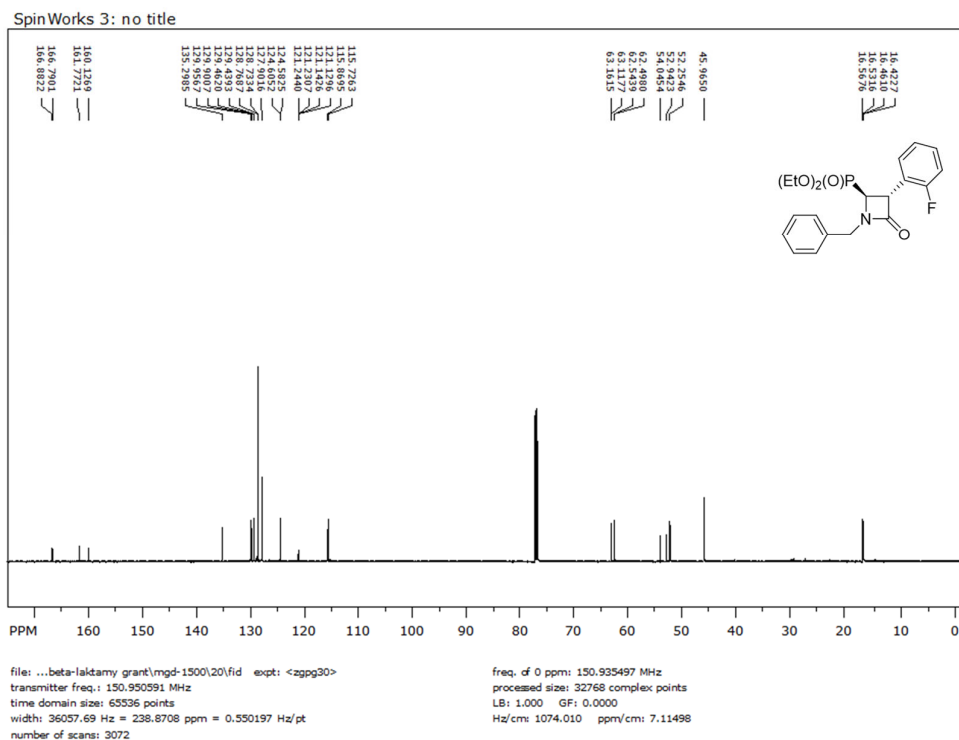


Figure S38: ^{13}C NMR Spectrum for *trans*-**11b** in CDCl_3

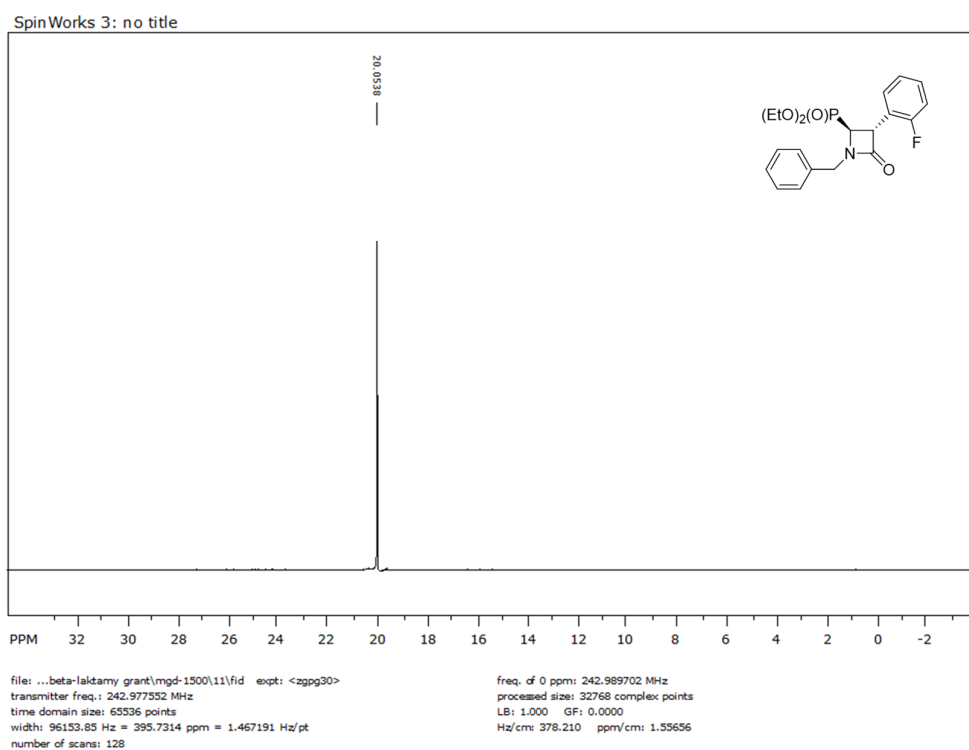


Figure S39: ^{31}P NMR Spectrum for *trans*-**11b** in CDCl_3

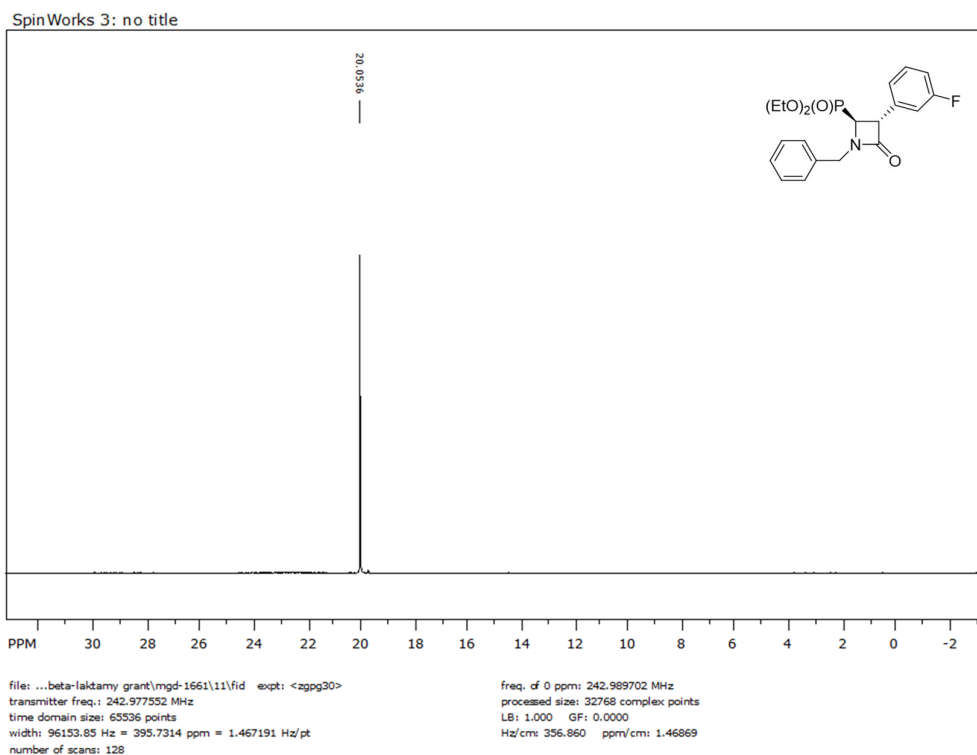
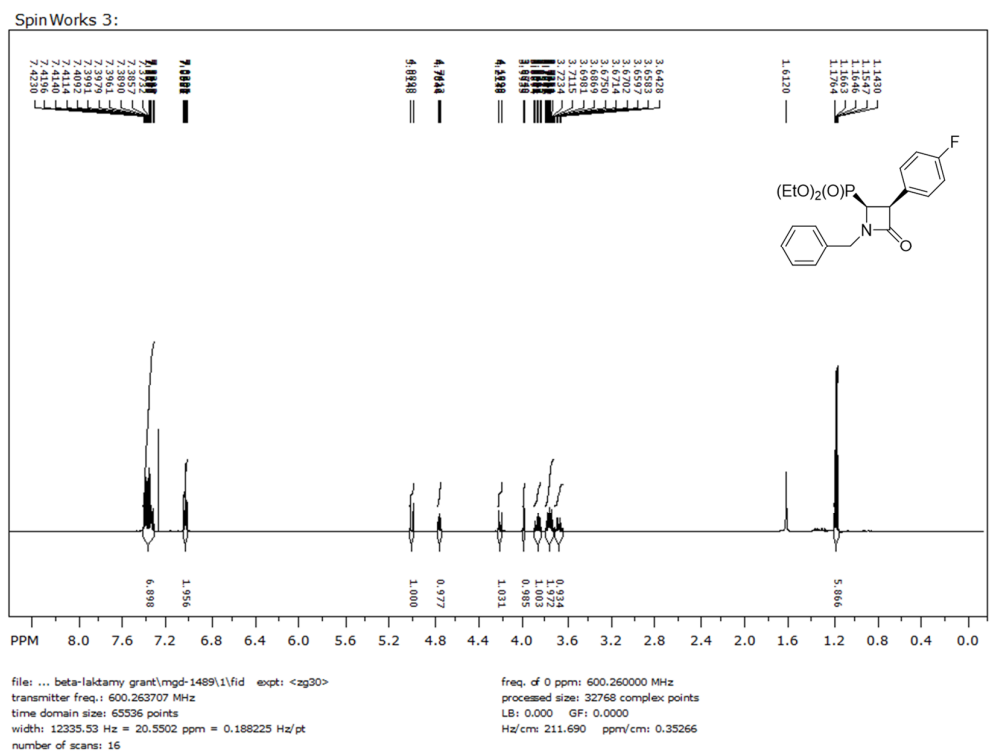


Figure S42: ^{31}P NMR Spectrum for *trans*-11c in CDCl_3



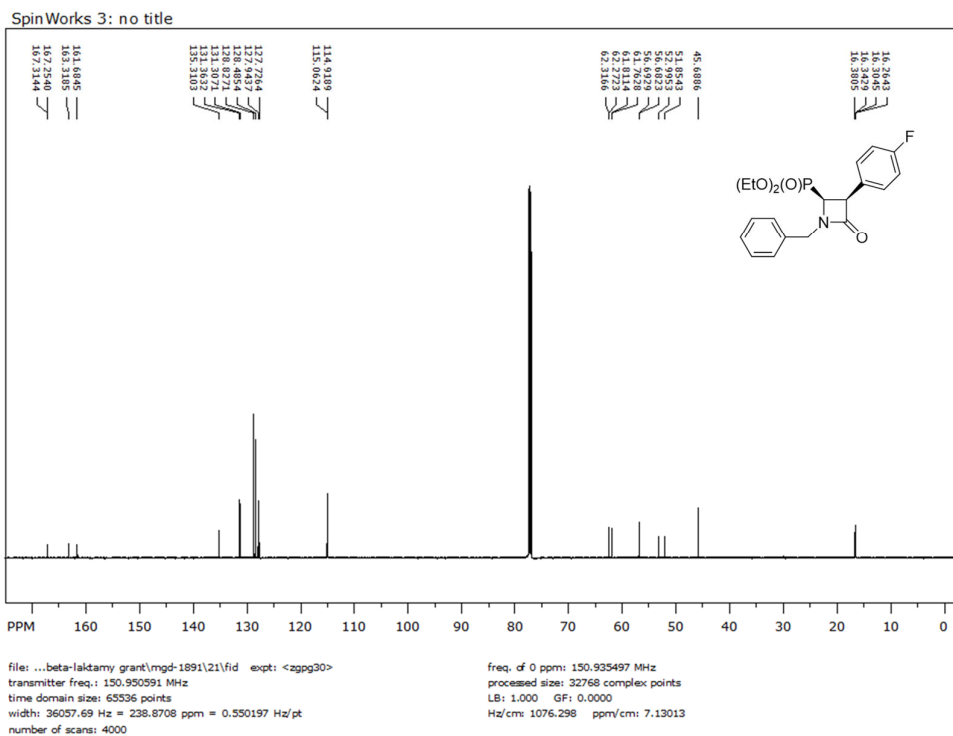


Figure S44: ^{13}C NMR Spectrum for *cis*-**11d** in CDCl_3

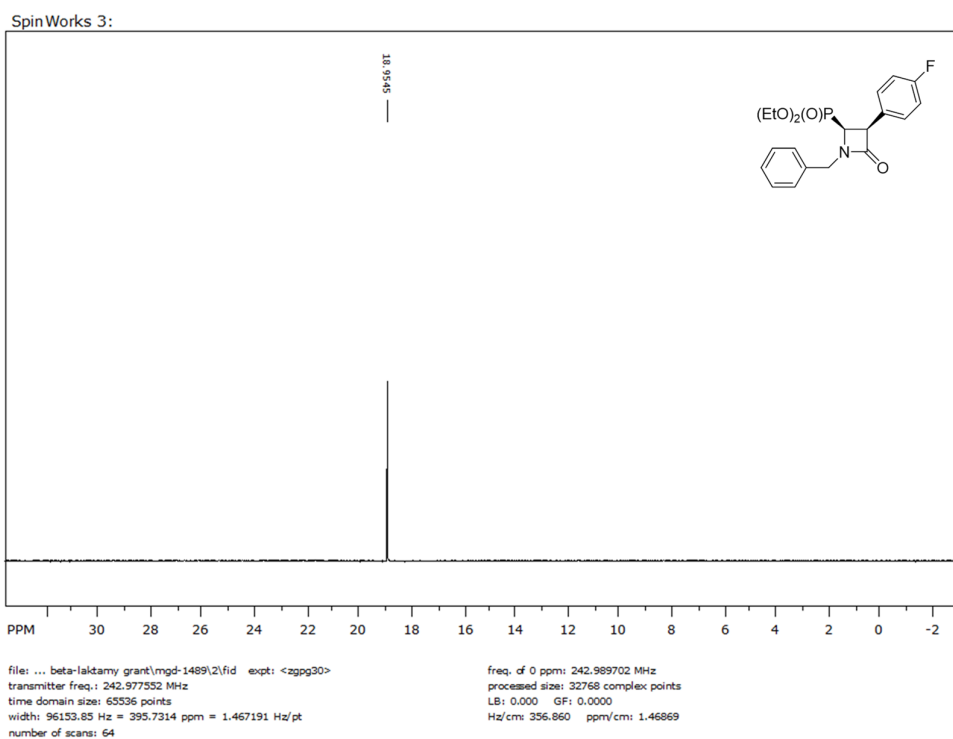


Figure S45: ^{31}P NMR Spectrum for *cis*-**11d** in CDCl_3

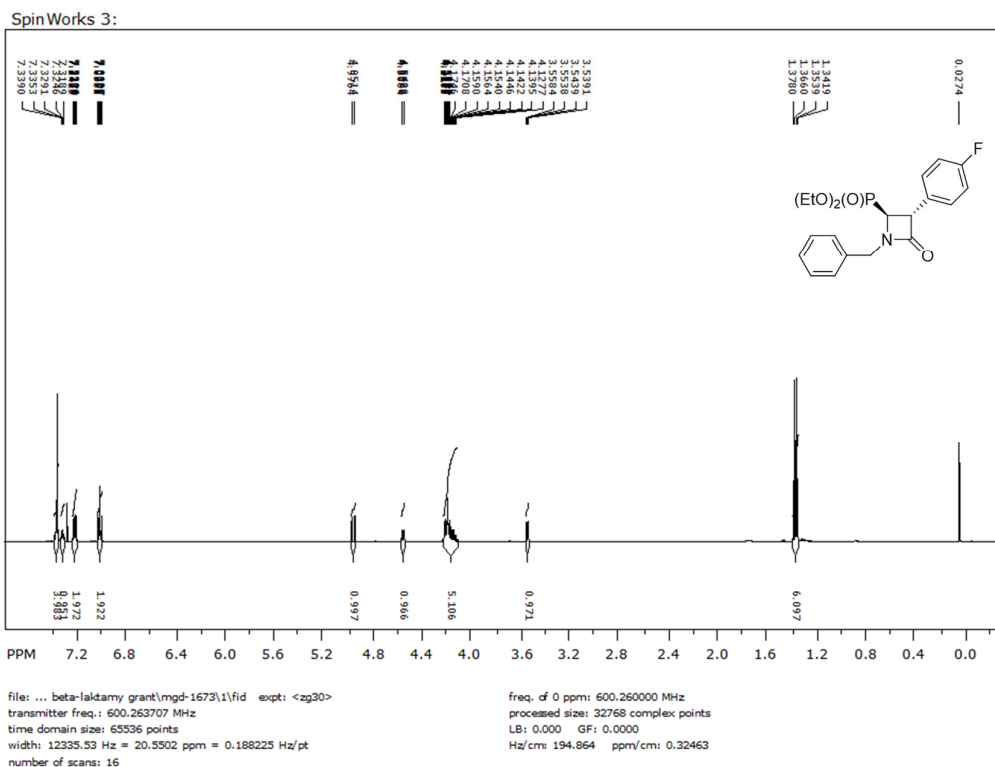
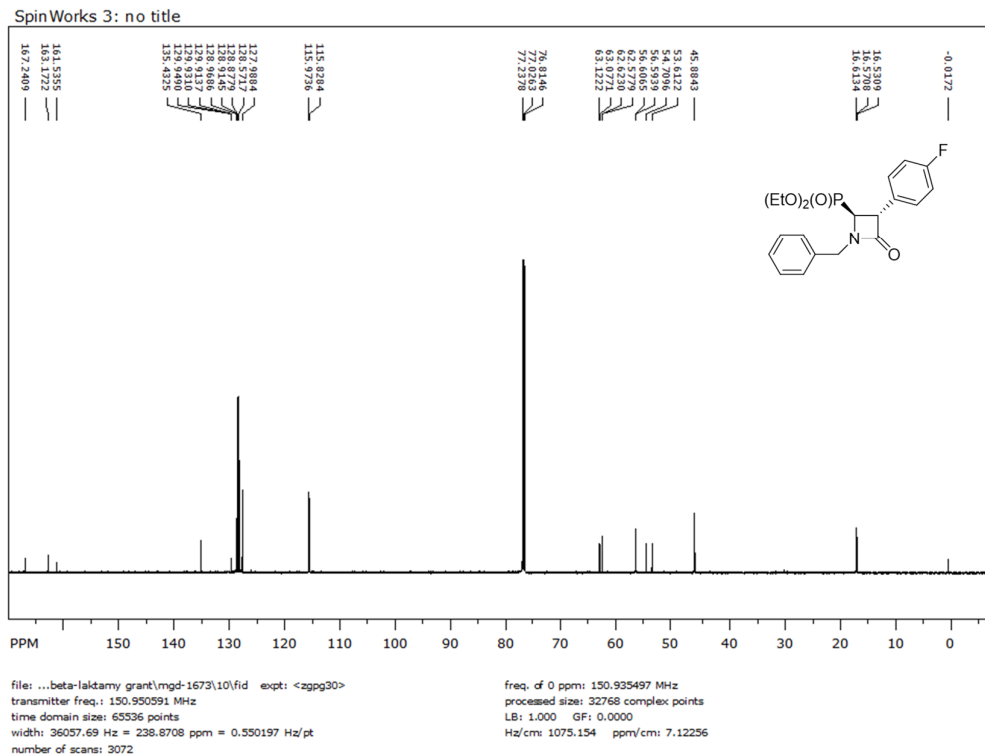


Figure S46: ^1H NMR Spectrum for *trans*-**11d** in CDCl_3



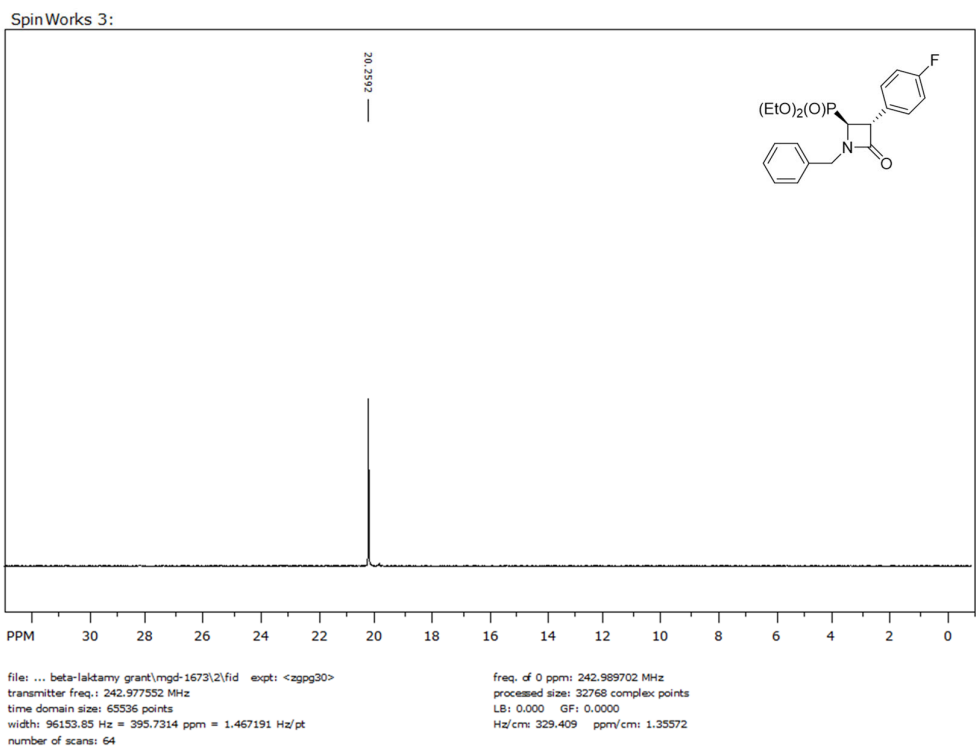


Figure S48: ^{31}P NMR Spectrum for *trans*-**11d** in CDCl_3

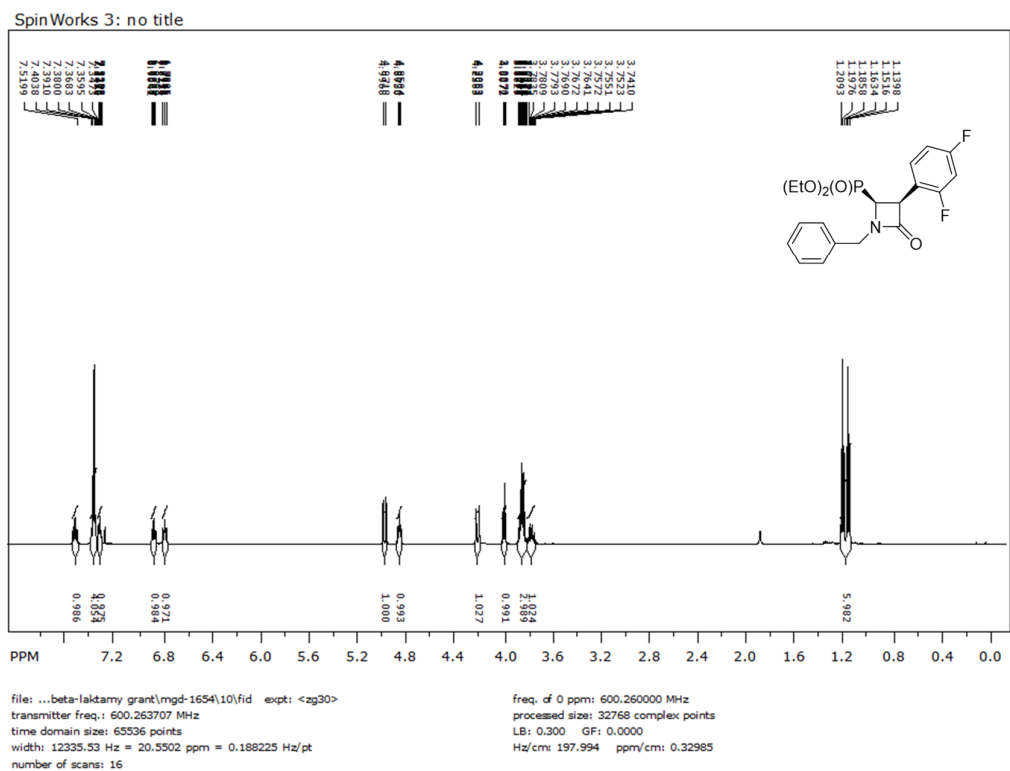


Figure S49: ^1H NMR Spectrum for *cis*-**11e** in CDCl_3

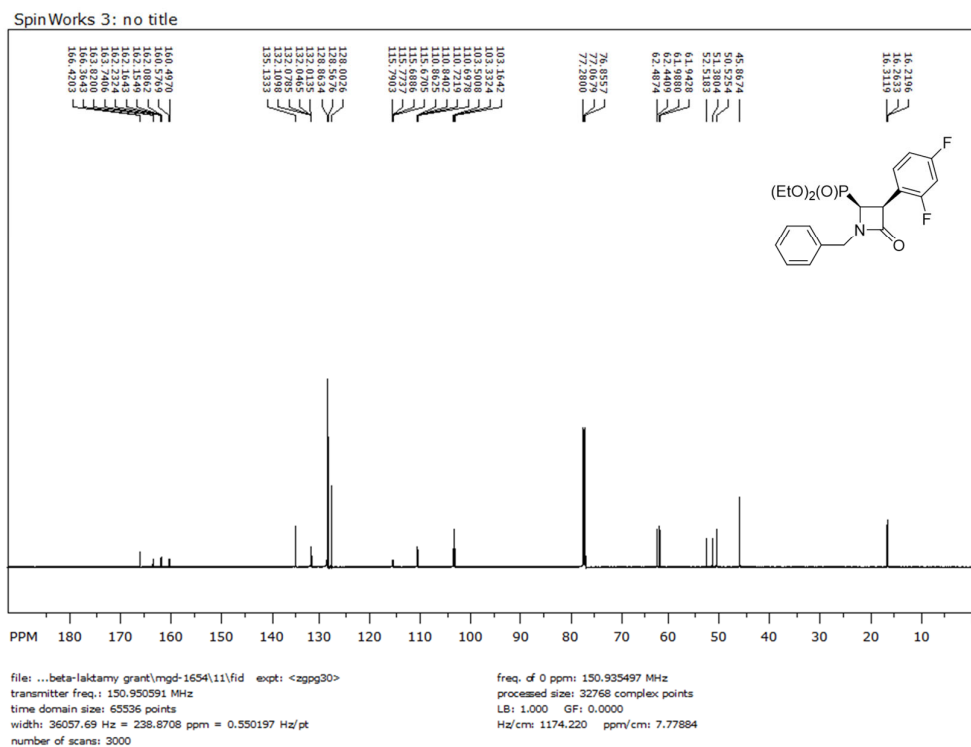


Figure S50: ^{13}C NMR Spectrum for *cis*-**11e** in CDCl_3

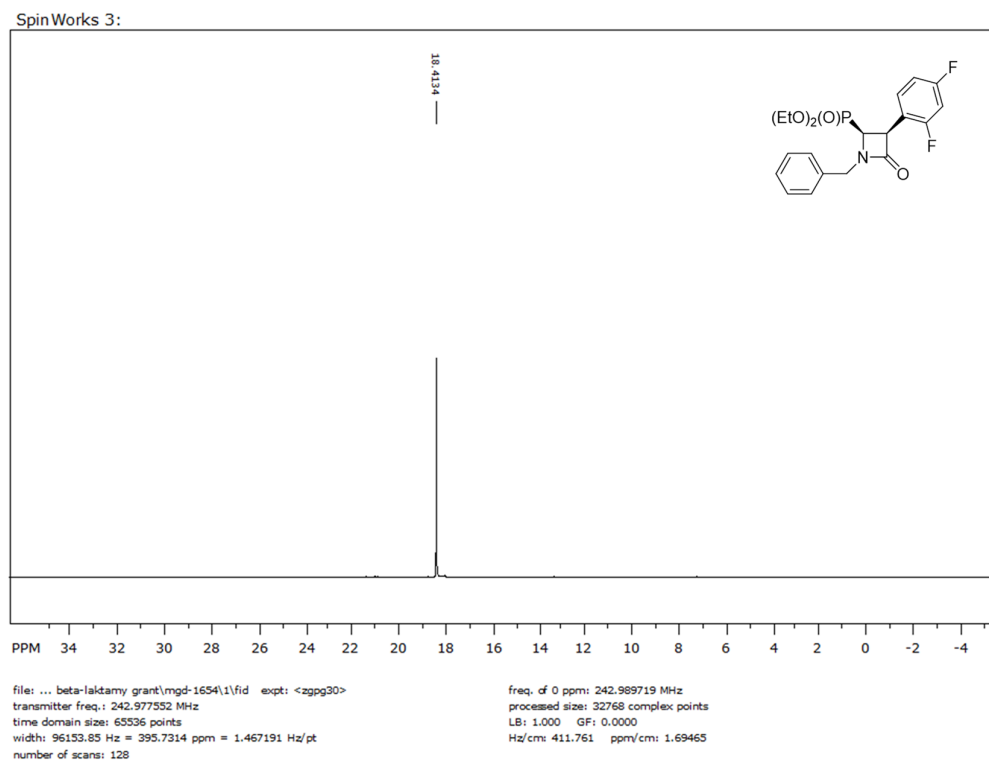
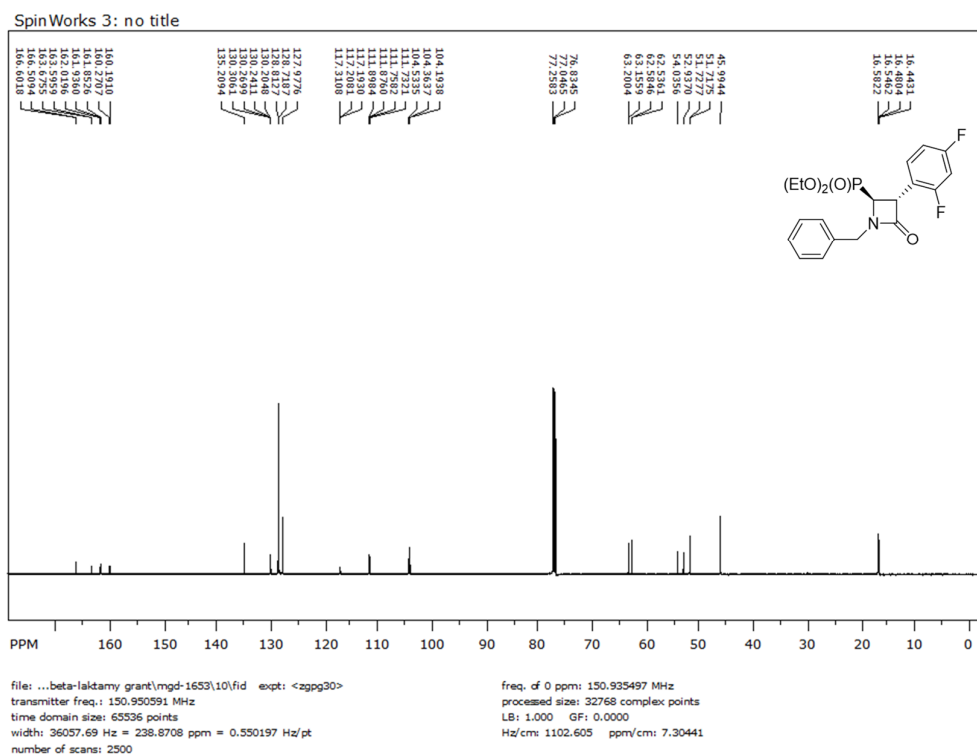
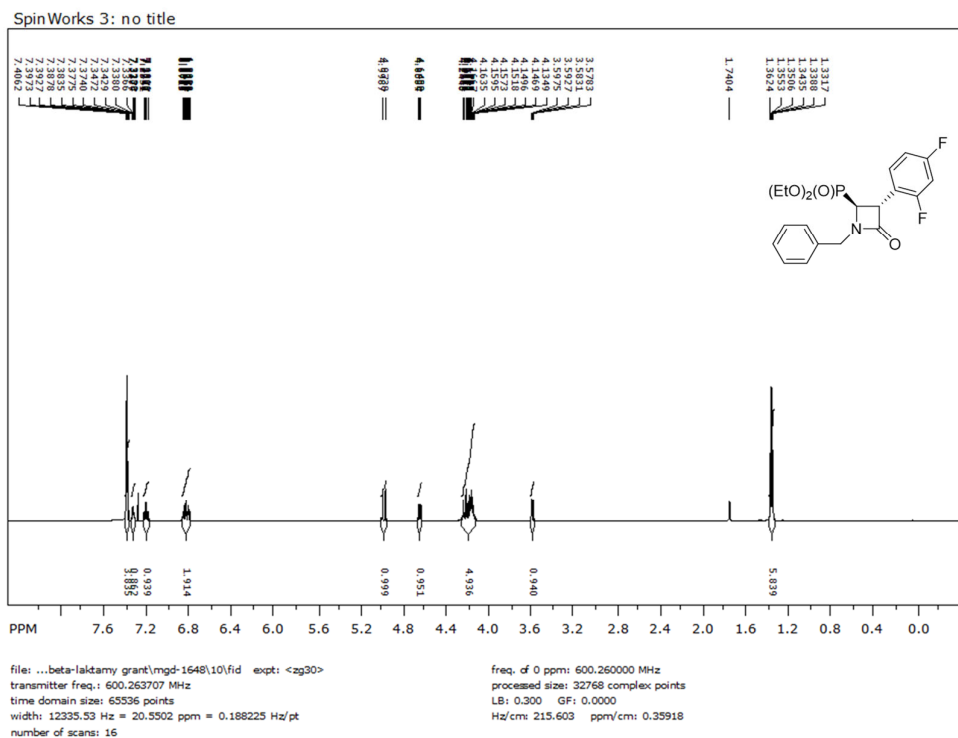


Figure S51: ^{31}P NMR Spectrum for *cis*-**11e** in CDCl_3



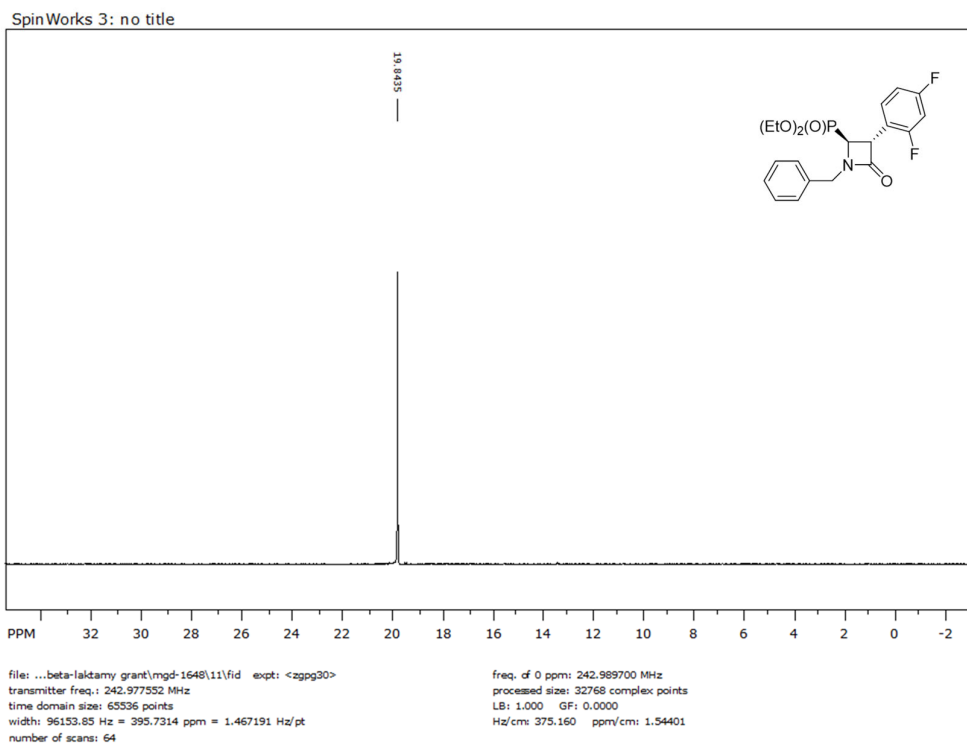


Figure S54: ^{31}P NMR Spectrum for *trans*-**11e** in CDCl_3

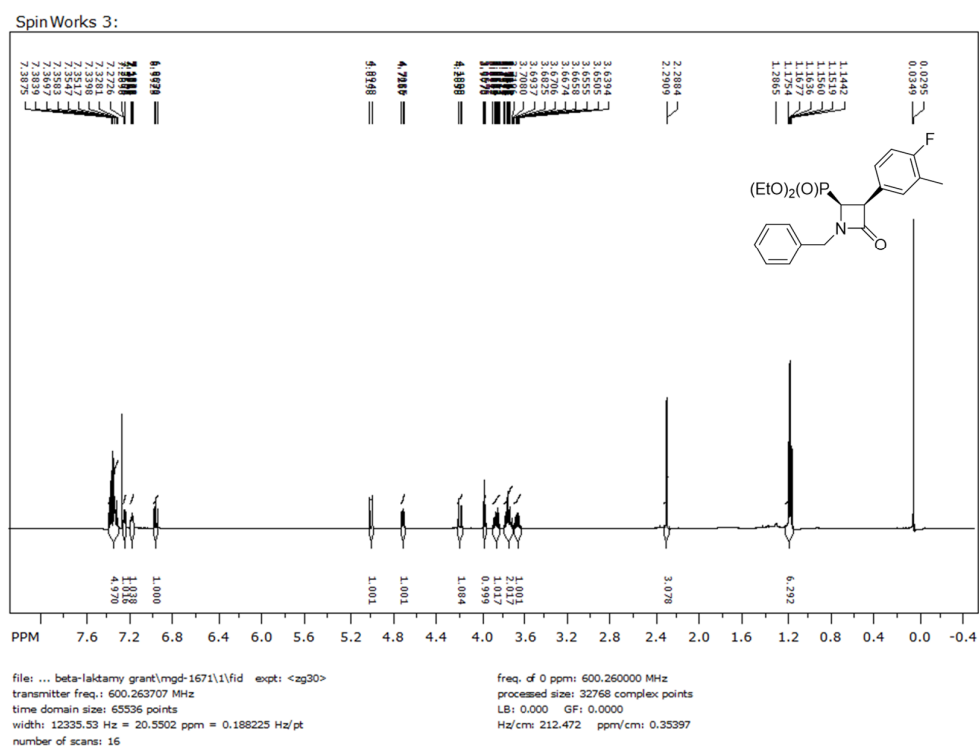


Figure S55: ^1H NMR Spectrum for *cis*-**11f** in CDCl_3

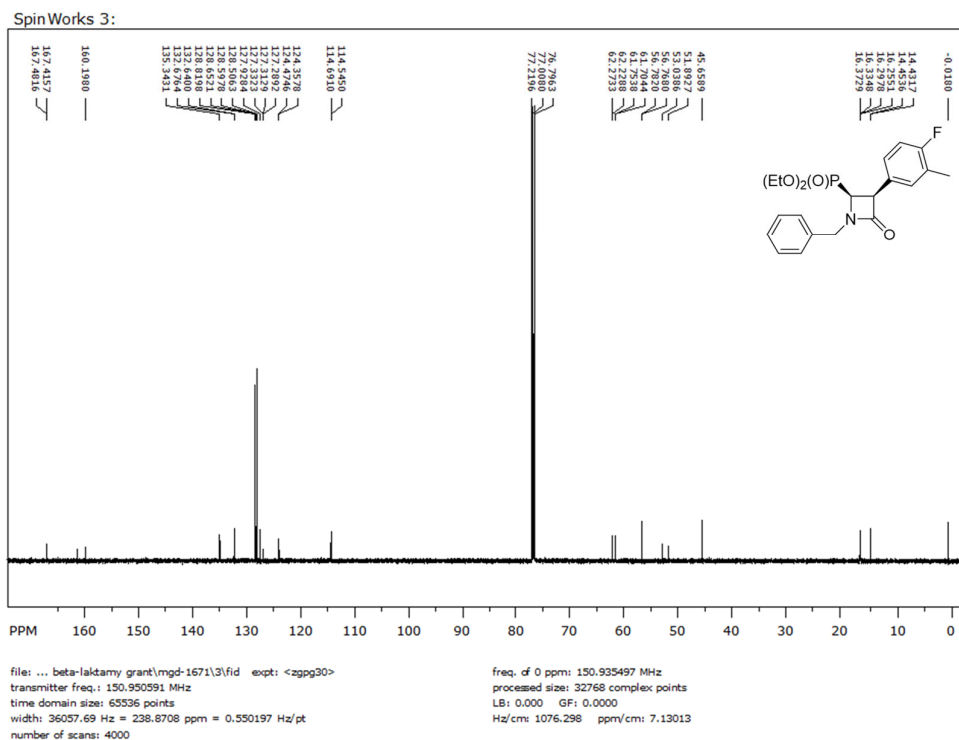


Figure S56: ^{13}C NMR Spectrum for *cis*-**11f** in CDCl_3

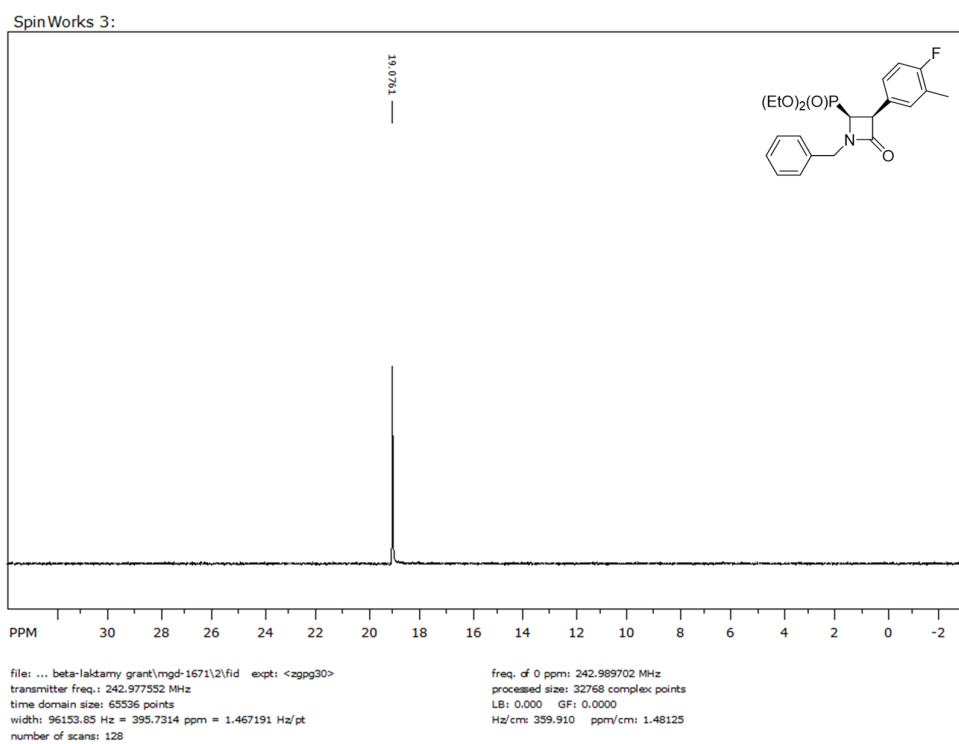


Figure S57: ^{31}P NMR Spectrum for *cis*-**11f** in CDCl_3

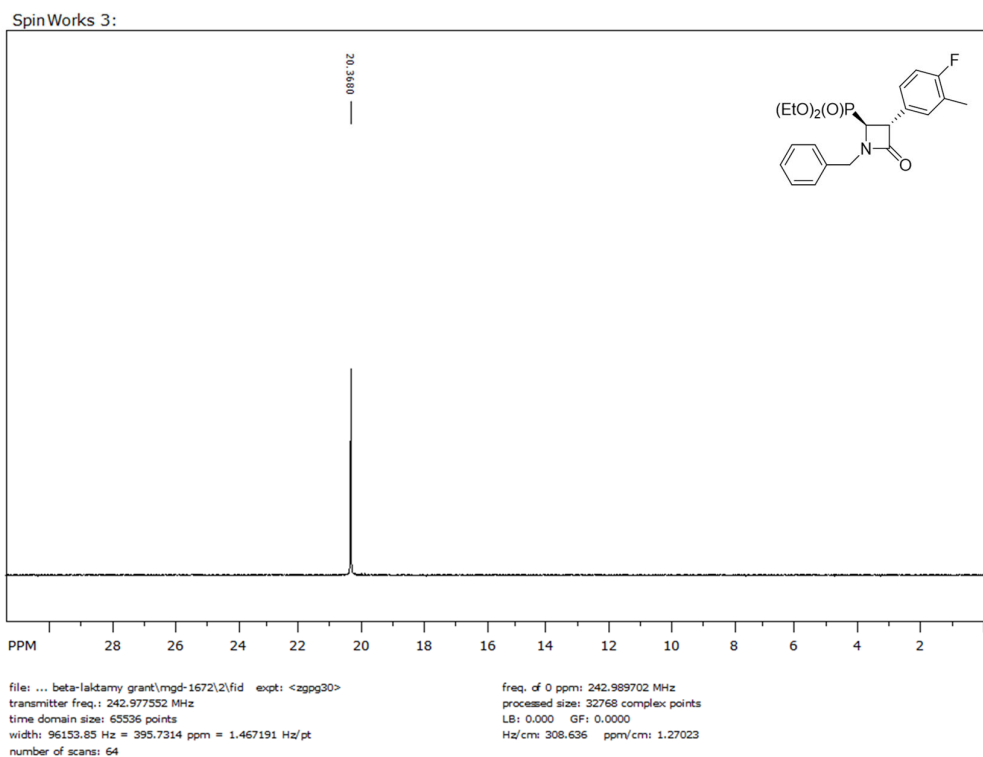


Figure S60: ^{31}P NMR Spectrum for *trans*-**11f** in CDCl_3