

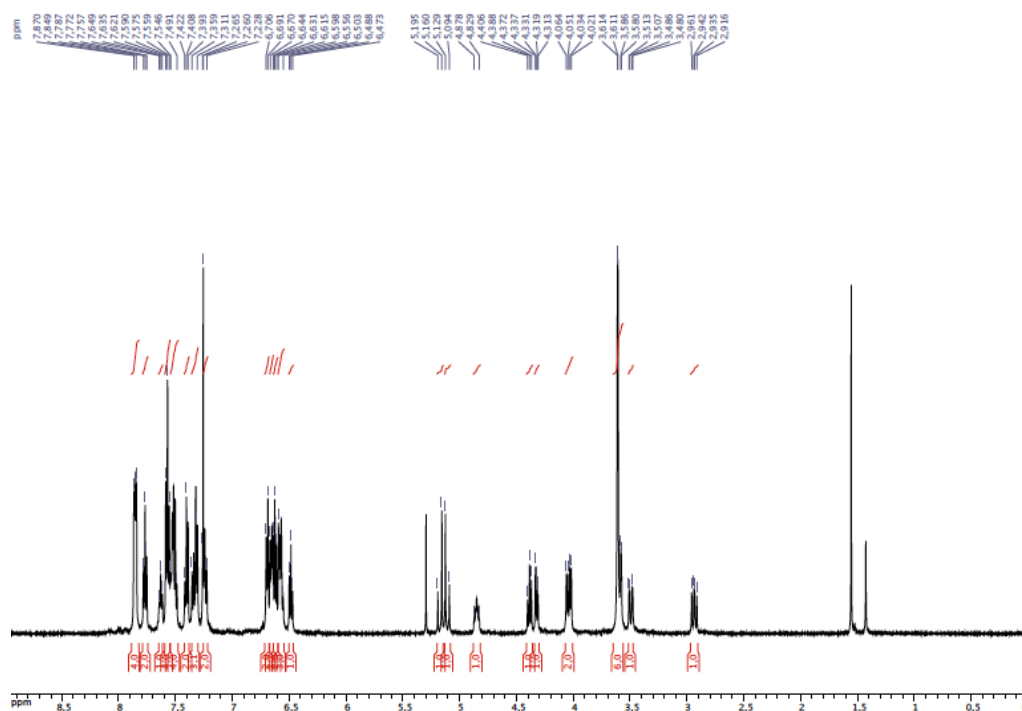
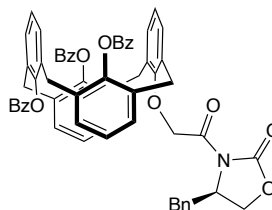
# Optically Pure Calixarenyl Phosphine via Stereospecific Alkylation on Evans' Oxazolidinone Moiety

Claude Bauder and David Sémeril

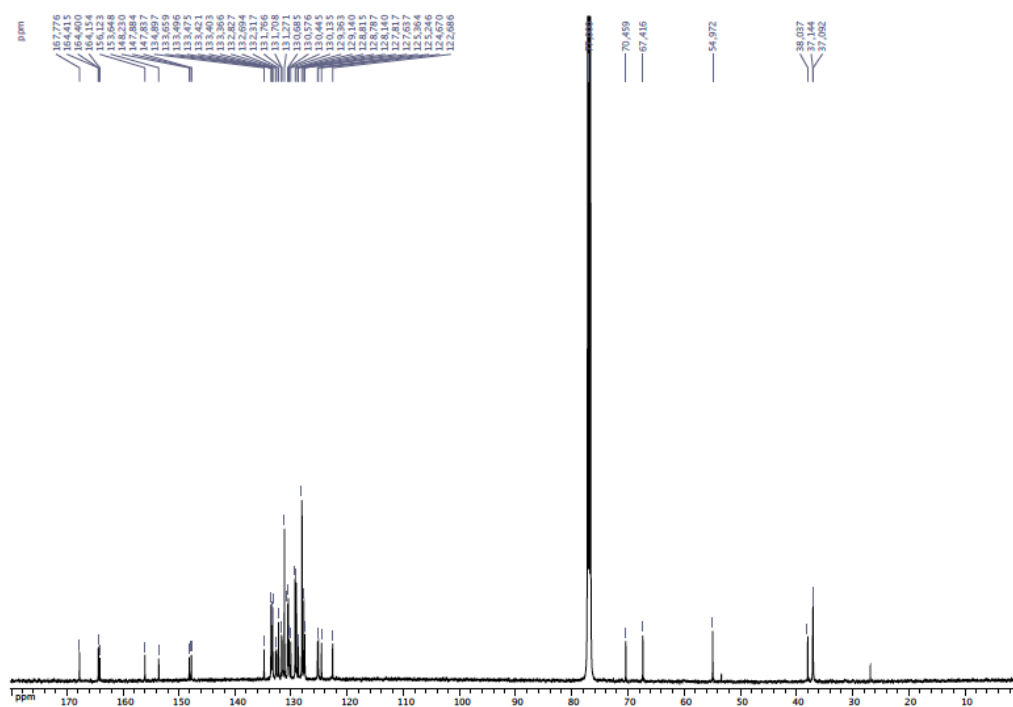
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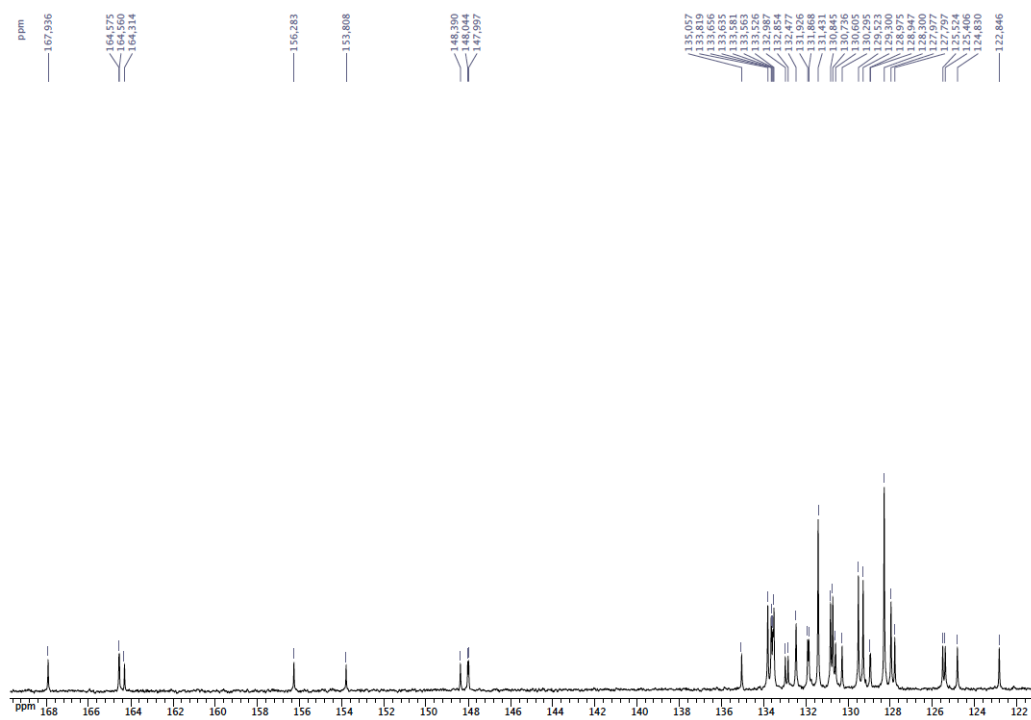
**25,26,27-Tribenzoyl-28-  
[2-((*R*)-4-benzyl-2-oxooxazolidin-3-yl)-  
2-oxoethoxy]calix[4]arene  
(1,3-alternate) (4)**



**Figure S1.**  $^1\text{H}$  NMR spectrum ( $\text{CDCl}_3$ )

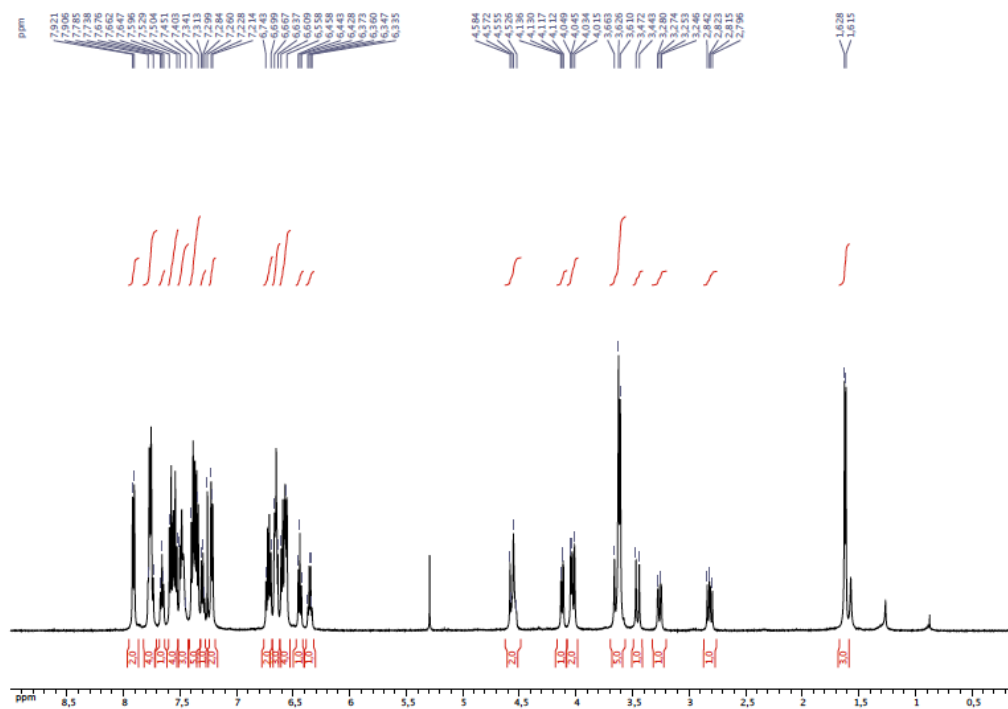
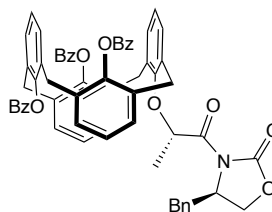


**Figure S2.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )

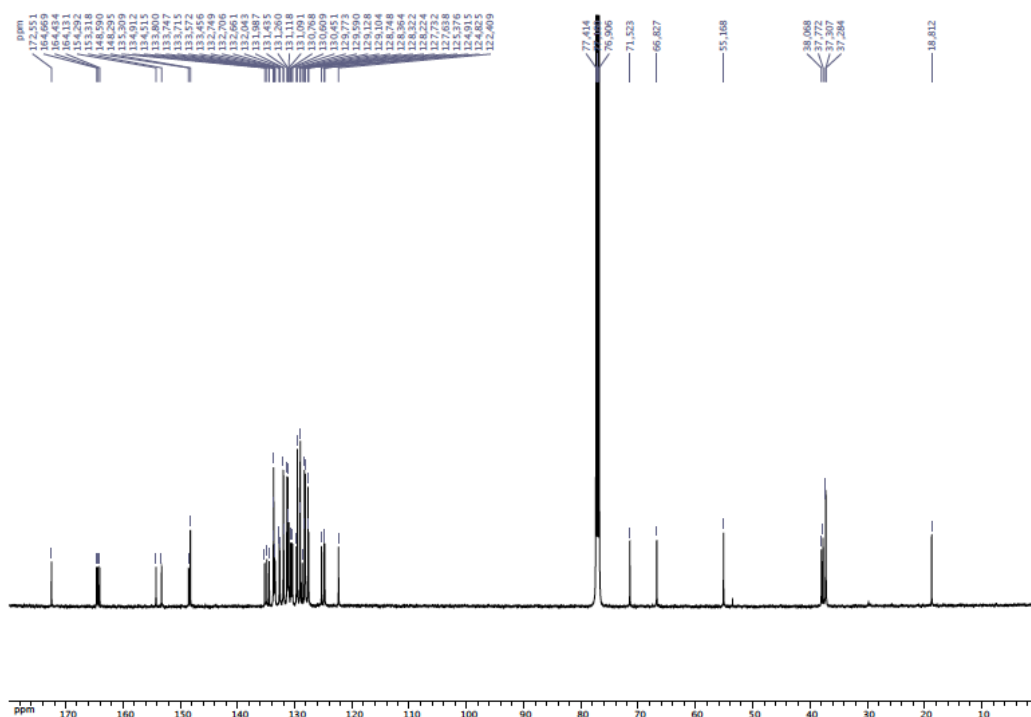


**Figure S2-zoom.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )

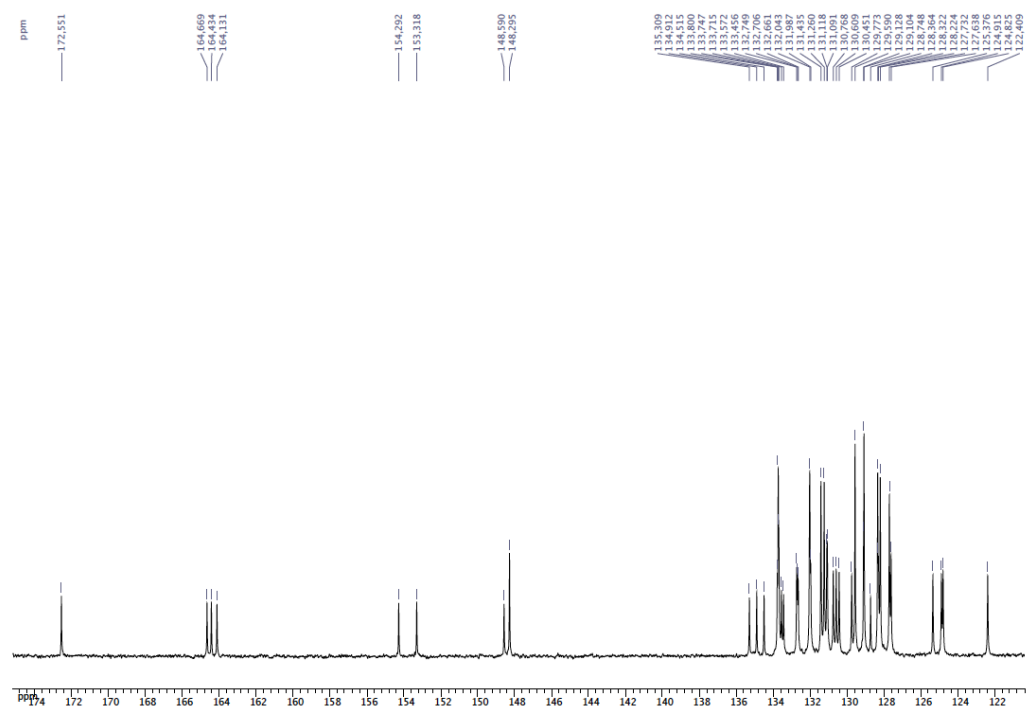
**25,26,27-Tribenzoyl-28-{(S)-1-[(R)-4-benzyl-2-oxooxazolidin-3-yl]-1-oxopropan-2-yl}oxy}-calix[4]arene (1,3-alternate) (5)**



**Figure S3.**  $^1\text{H}$  NMR spectrum ( $\text{CDCl}_3$ )

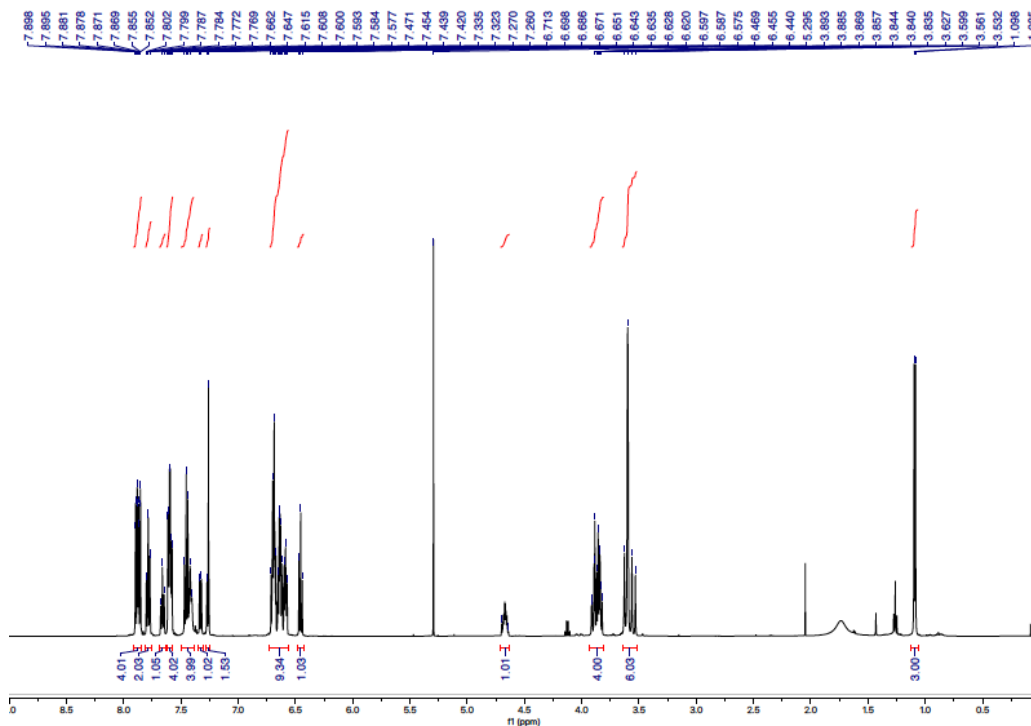
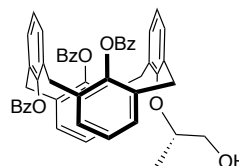


**Figure S4.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )

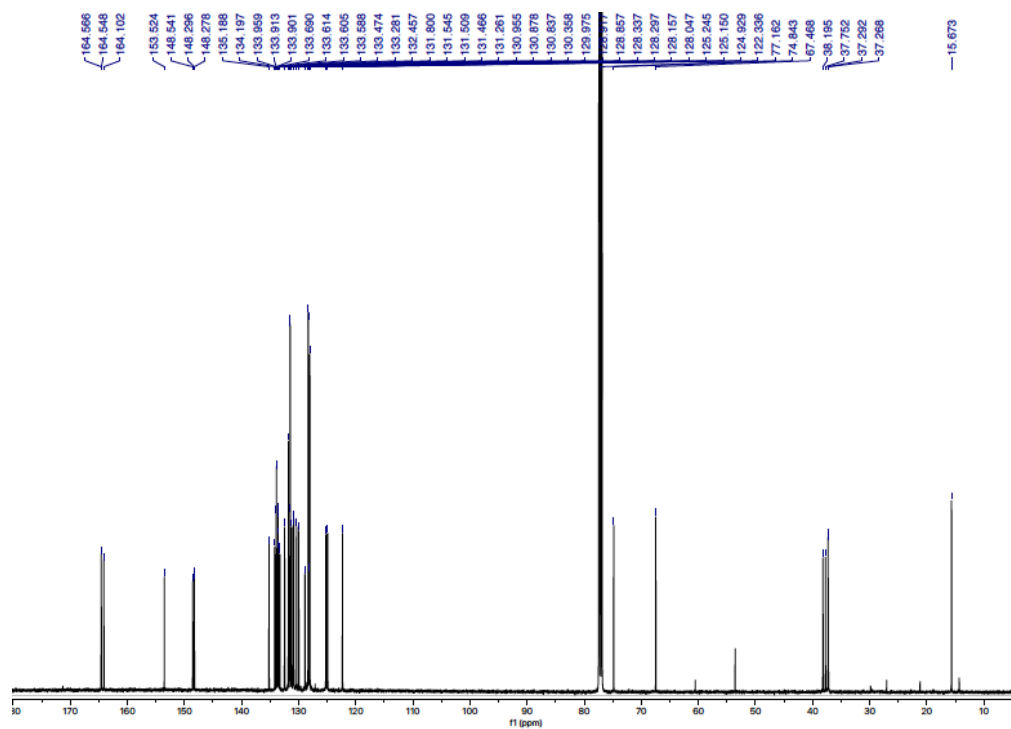


**Figure S4-zoom.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )

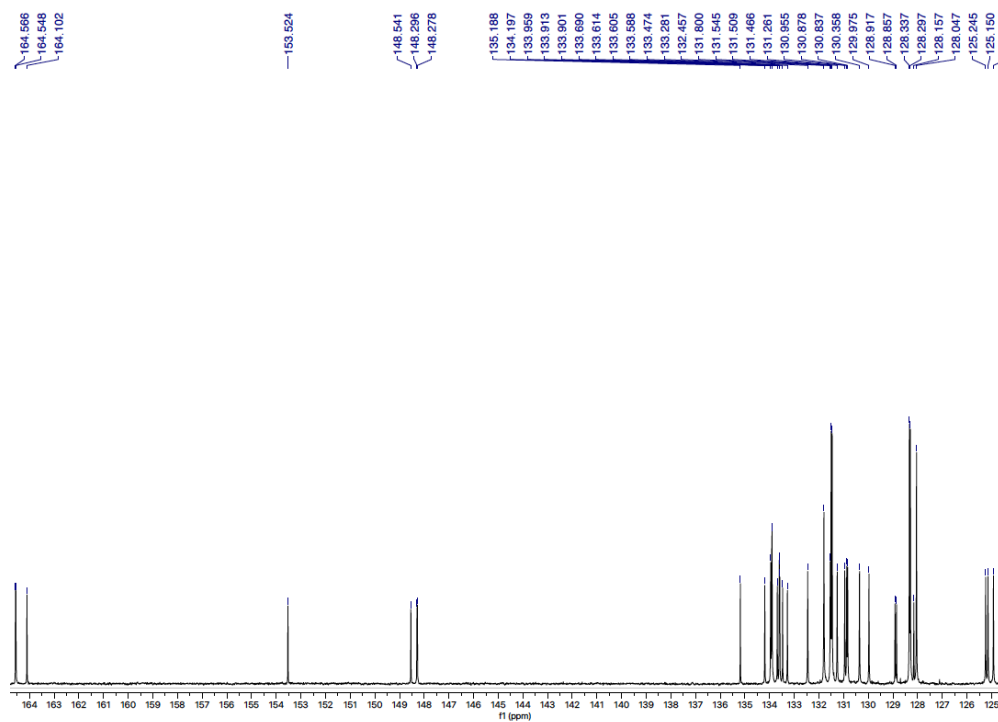
**25,26,27-Tribenzoyl-28-  
[*((S)*-1-hydroxypropan-2-yl)oxy]-  
calix[4]arene (1,3-alternate) (6)**



**Figure S5.**  $^1\text{H}$  NMR spectrum ( $\text{CDCl}_3$ )

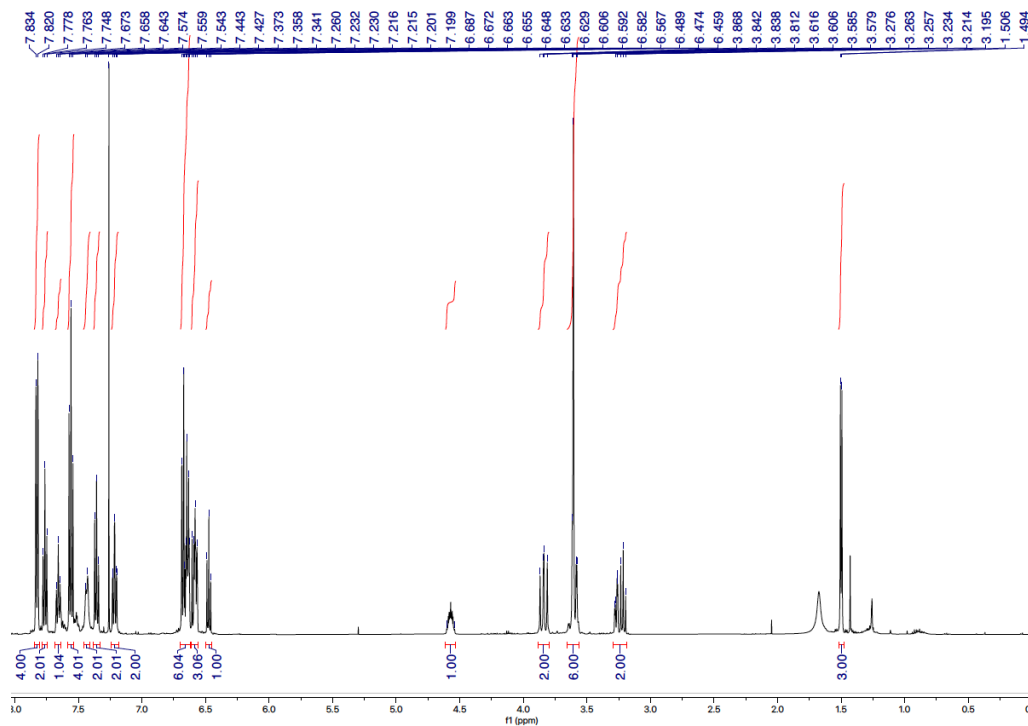
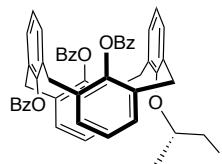


**Figure S6.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )

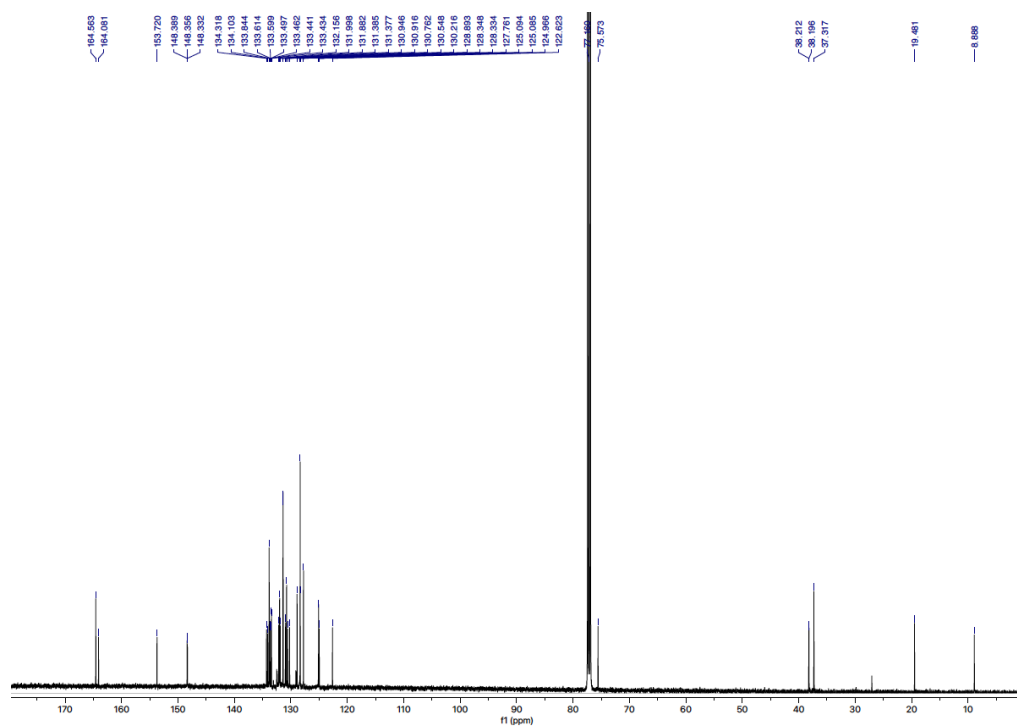


**Figure S6-zoom.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )

**25,26,27-Tribenzoyl-28-  
[[(*S*)-1-iodopropan-2-yl]oxy]-  
calix[4]arene (1,3-alternate) (7)**

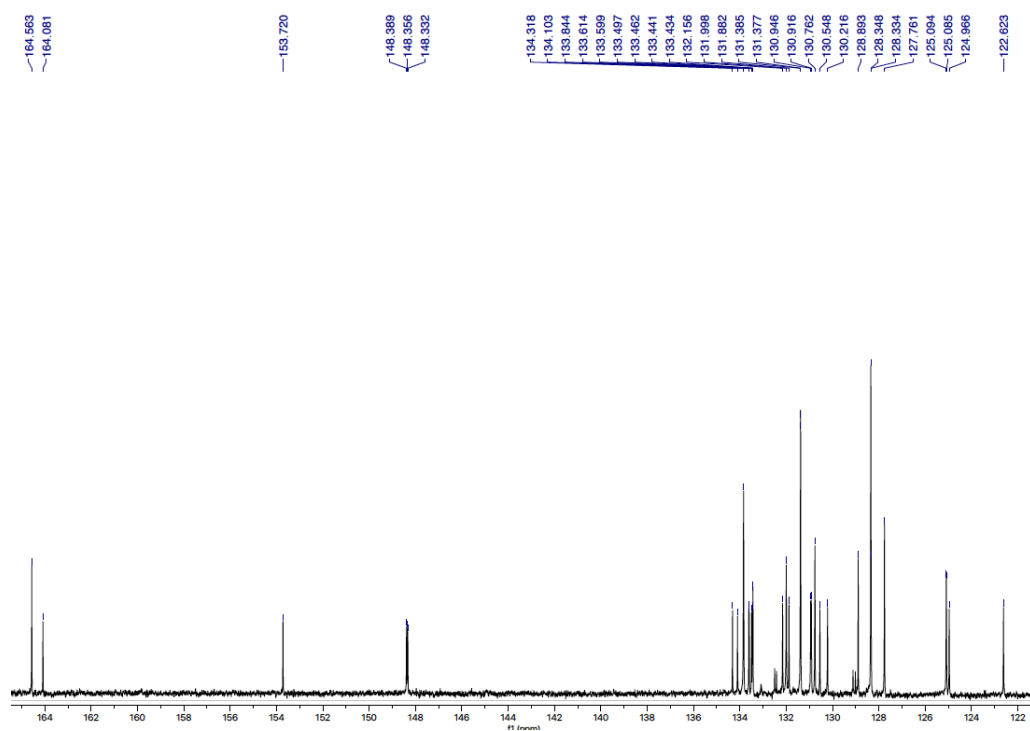


**Figure S7.**  $^1\text{H}$  NMR spectrum ( $\text{CDCl}_3$ )



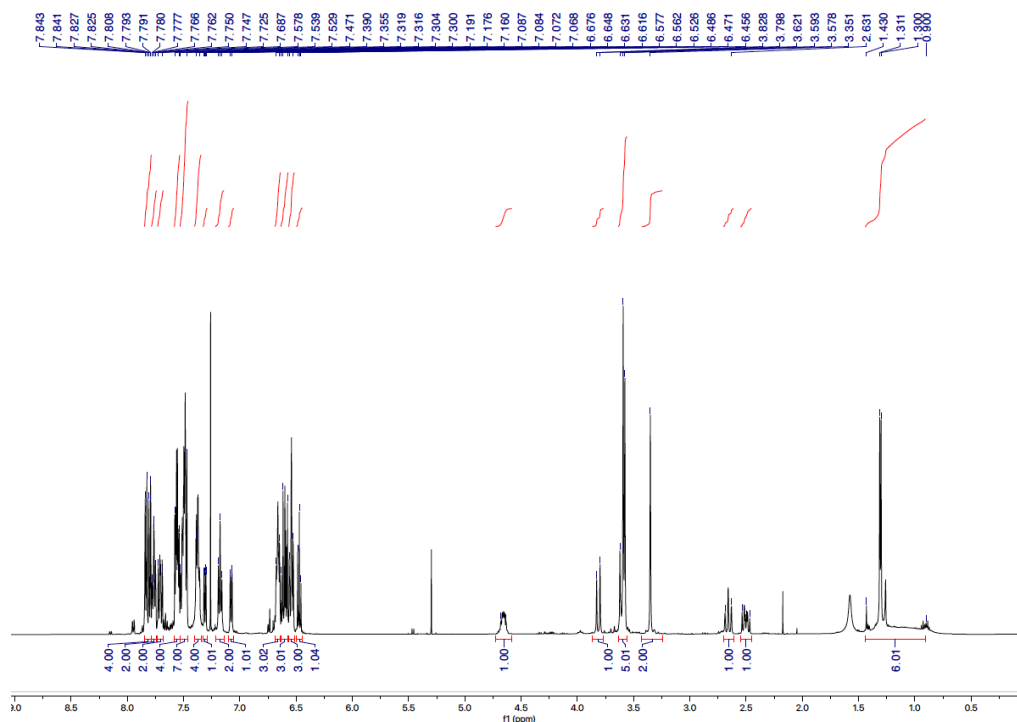
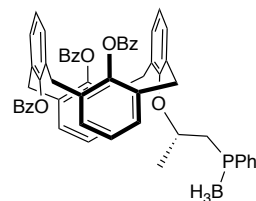
**Figure S8.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )



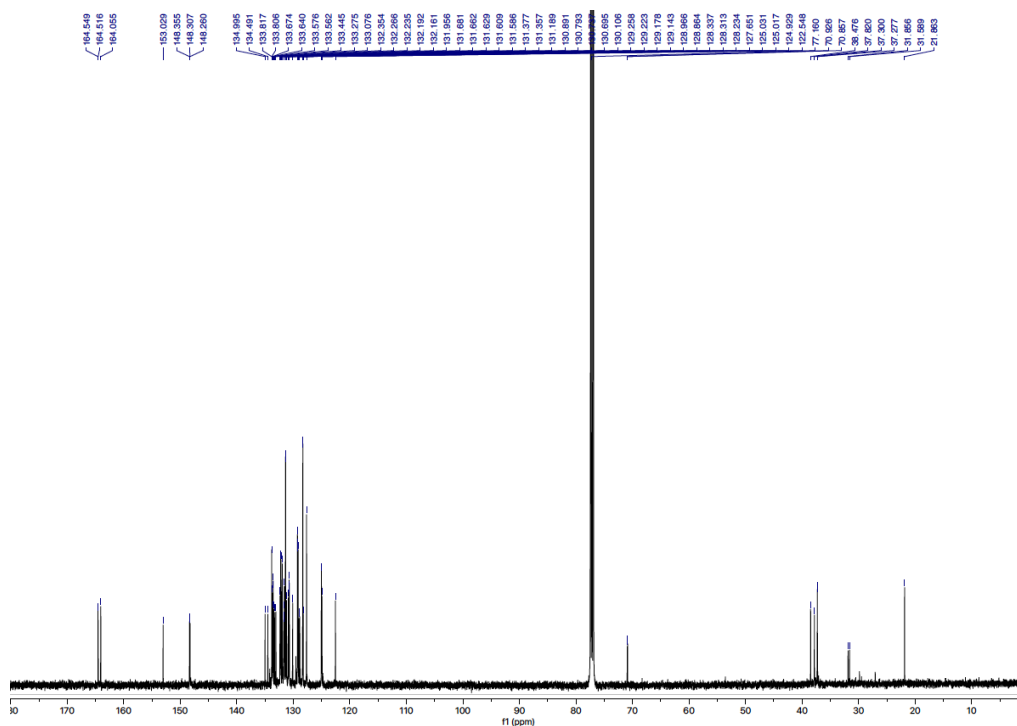


**Figure S8-zoom.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )

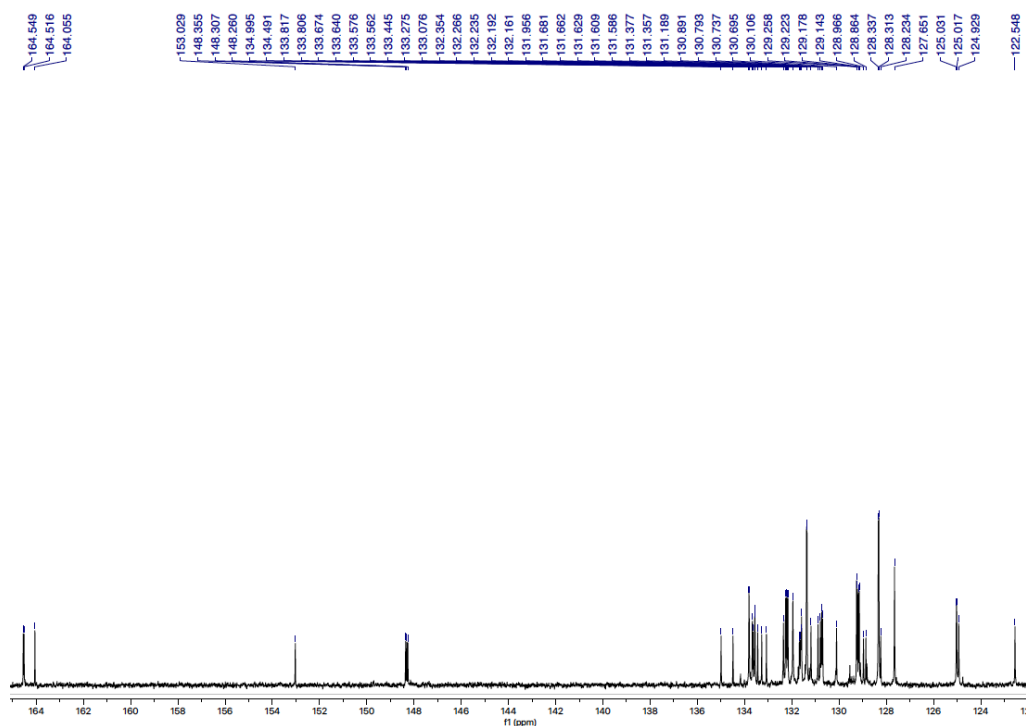
**{25,26,27-Tribenzoyl-28-  
[[(*S*)-1-diphenylphosphanyl-propan-2-yl]oxy]-  
calix[4]arene} borane  
(1,3-alternate) (8)**



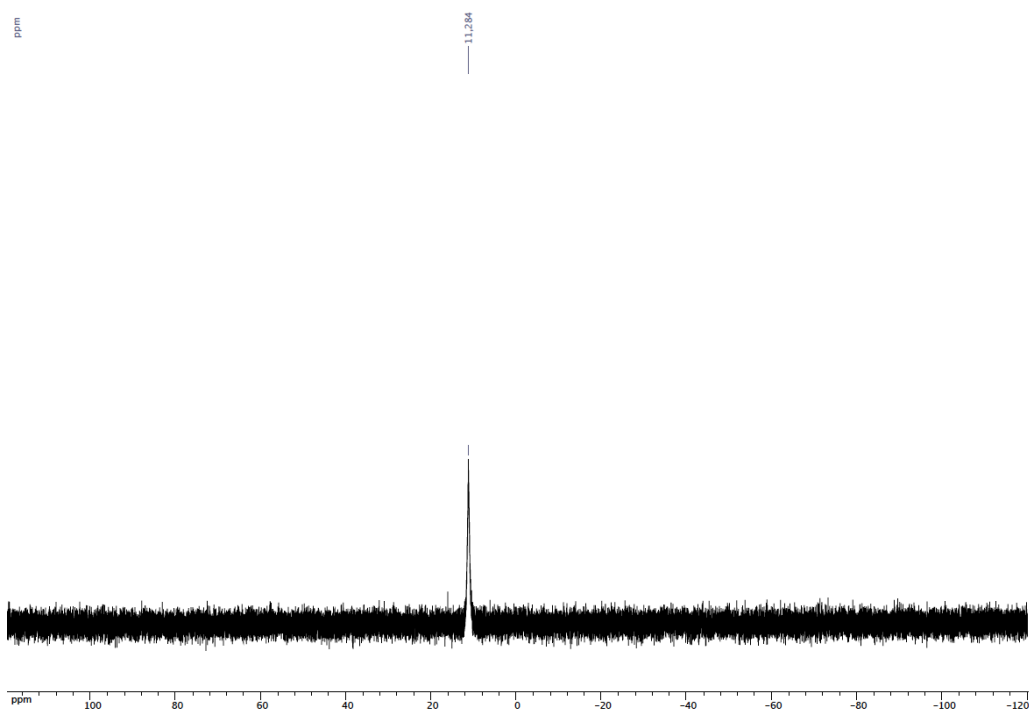
**Figure S9.**  $^1\text{H}$  NMR spectrum ( $\text{CDCl}_3$ )



**Figure S10.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )

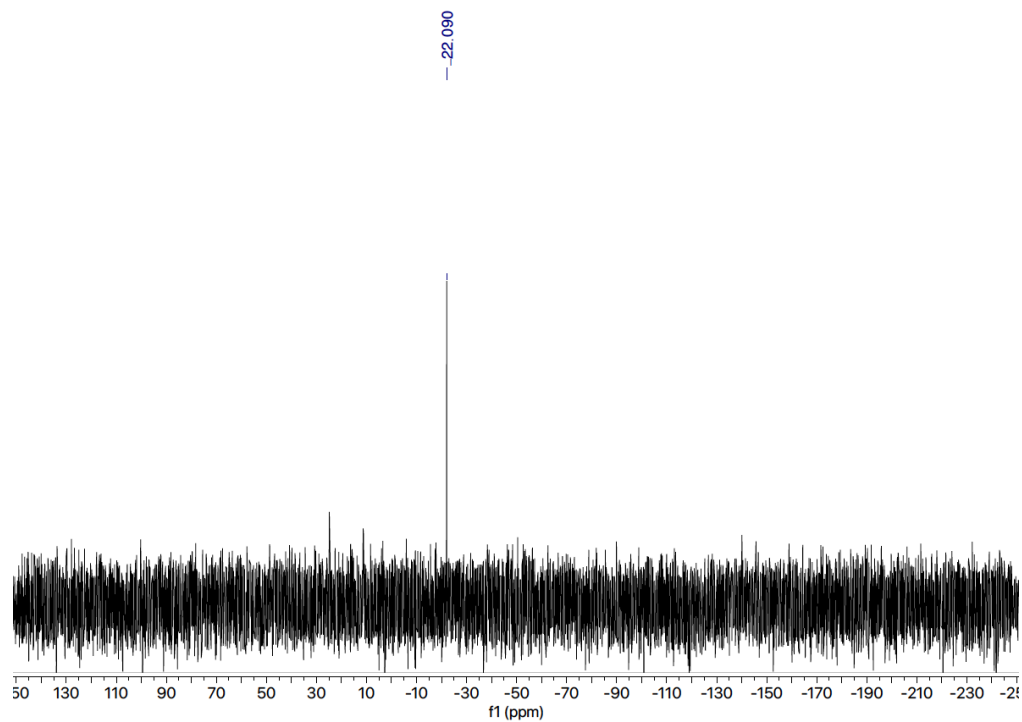
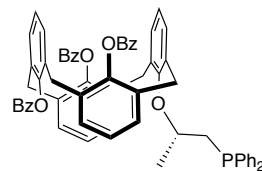


**Figure S10-zoom.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )



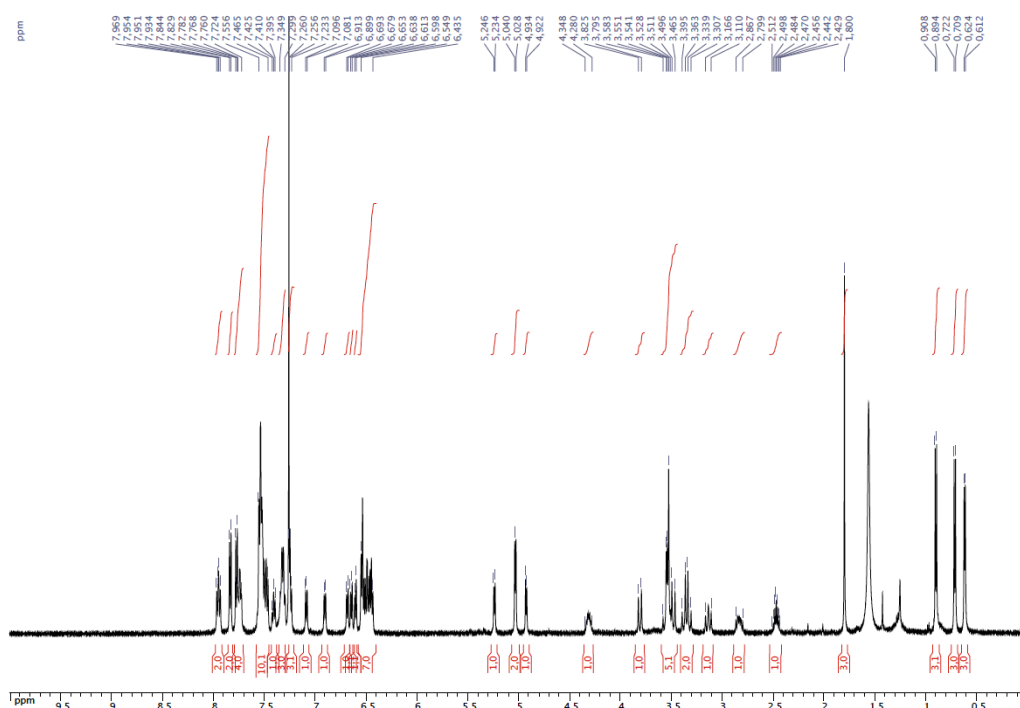
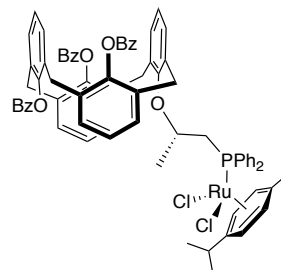
**Figure S11.**  $^{31}\text{P}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )

**25,26,27-Tribenzoyl-28-  
[*(S)*-1-diphenylphosphanyl-propan-2-yl]oxy]-  
calix[4]arene  
(1,3-alternate) (1)**

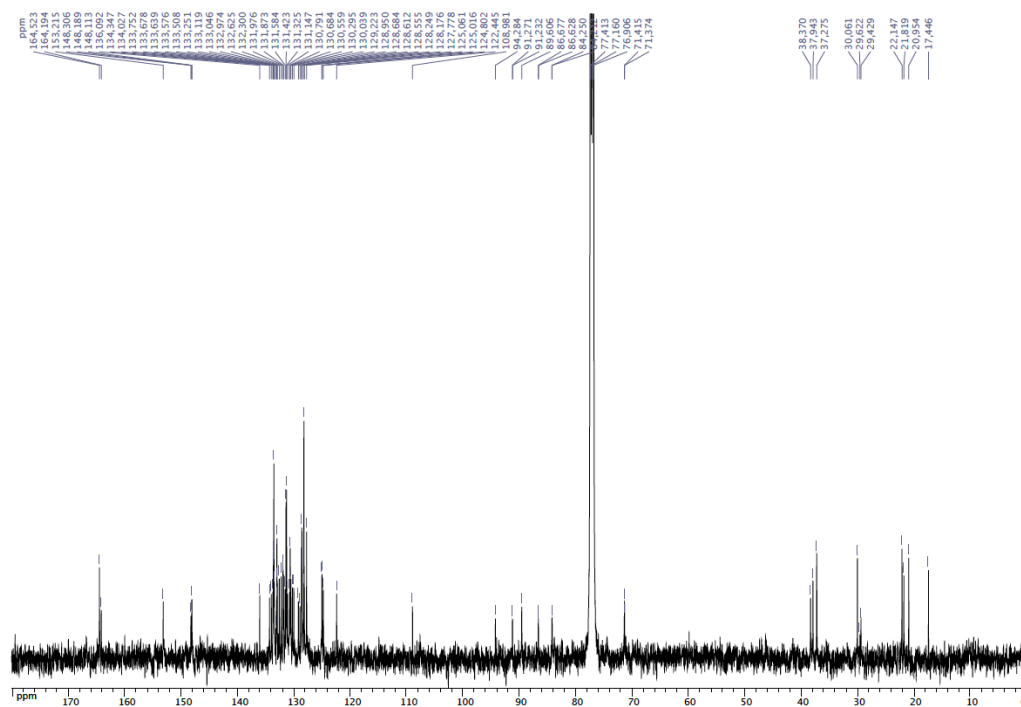


**Figure S12.**  $^{31}\text{P}\{^1\text{H}\}$  NMR spectrum ( $\text{C}_6\text{D}_6$ )

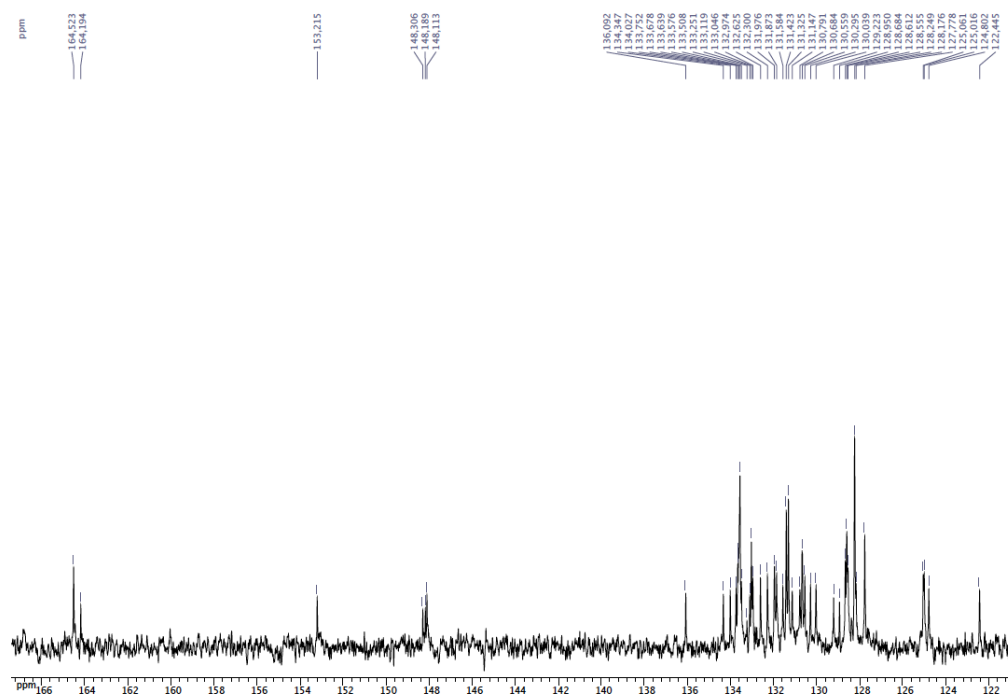
**Dichloro-*P*-{25,26,27-tribenzoyl-28-[(*S*)-1-diphenylphosphanyl-propan-2-yl]oxy}-calix[4]arene}(*p*-cymene)ruthenium(II) (1,3-alternate) (9)**



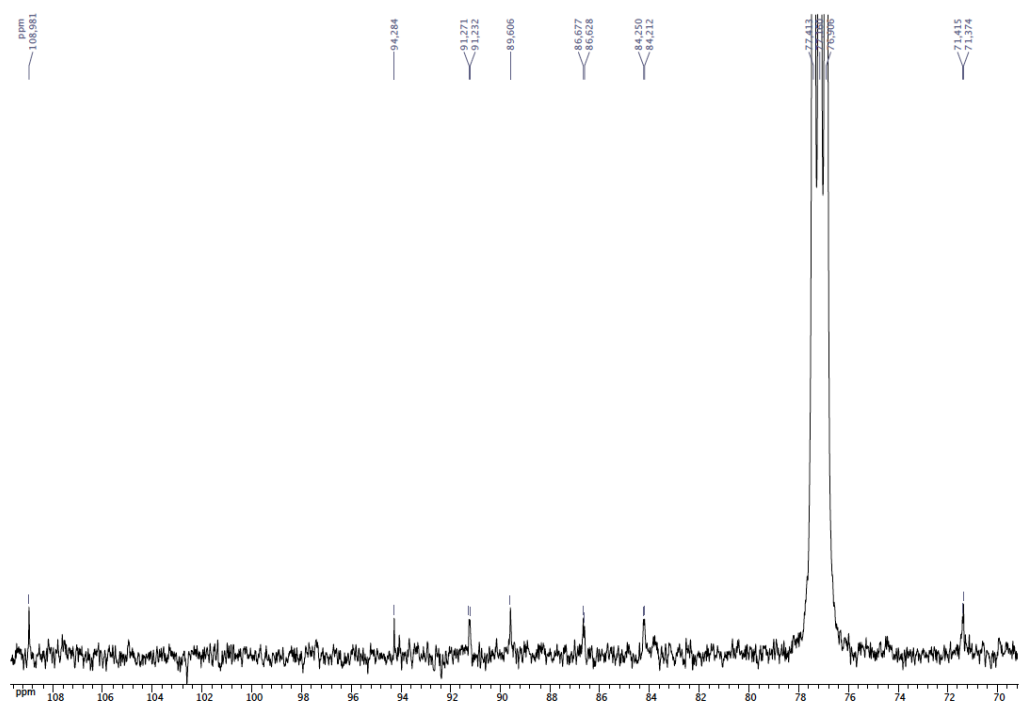
**Figure S13.**  $^1\text{H}$  NMR spectrum ( $\text{CDCl}_3$ )



**Figure S14.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )



**Figure S14-zoom.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )



**Figure S14-zoom.**  $^{13}\text{C}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )

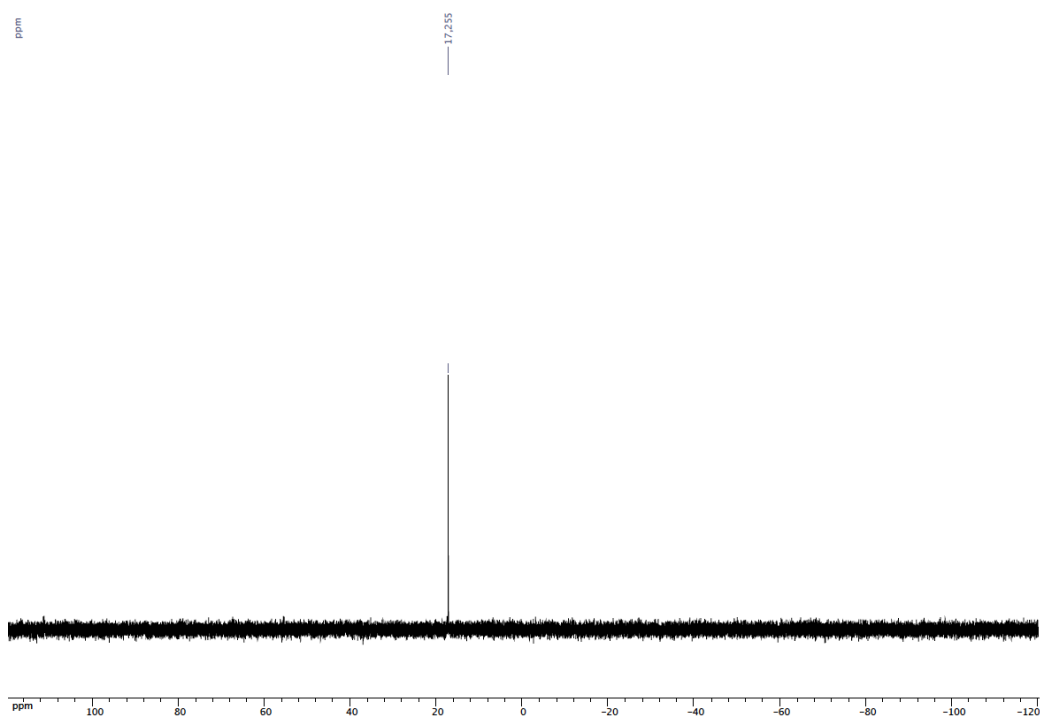


Figure S15.  $^{31}\text{P}\{^1\text{H}\}$  NMR spectrum ( $\text{CDCl}_3$ )

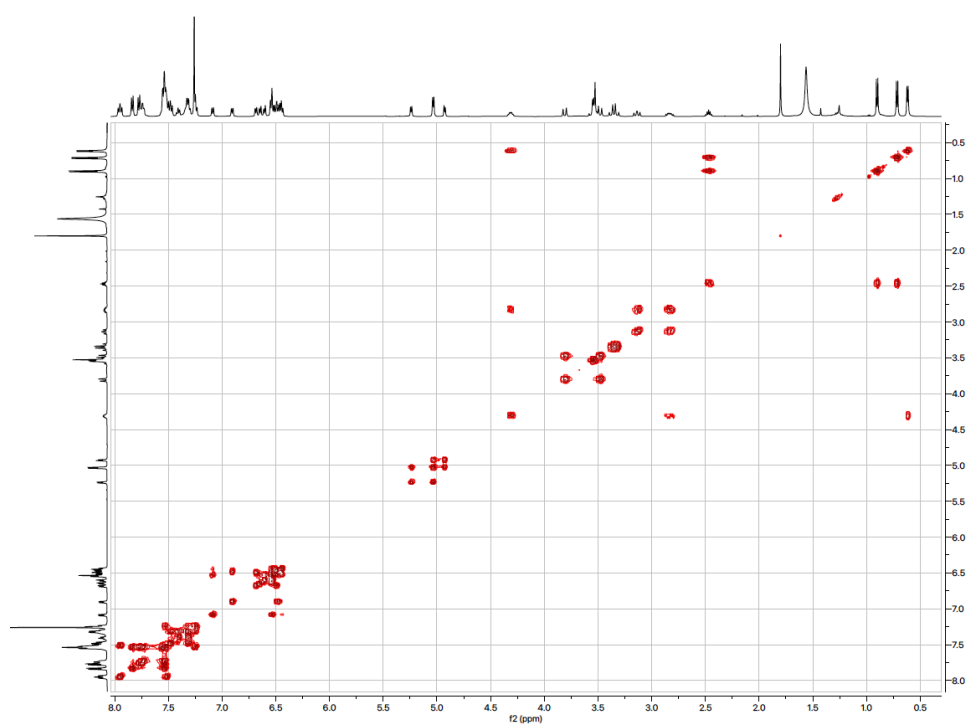
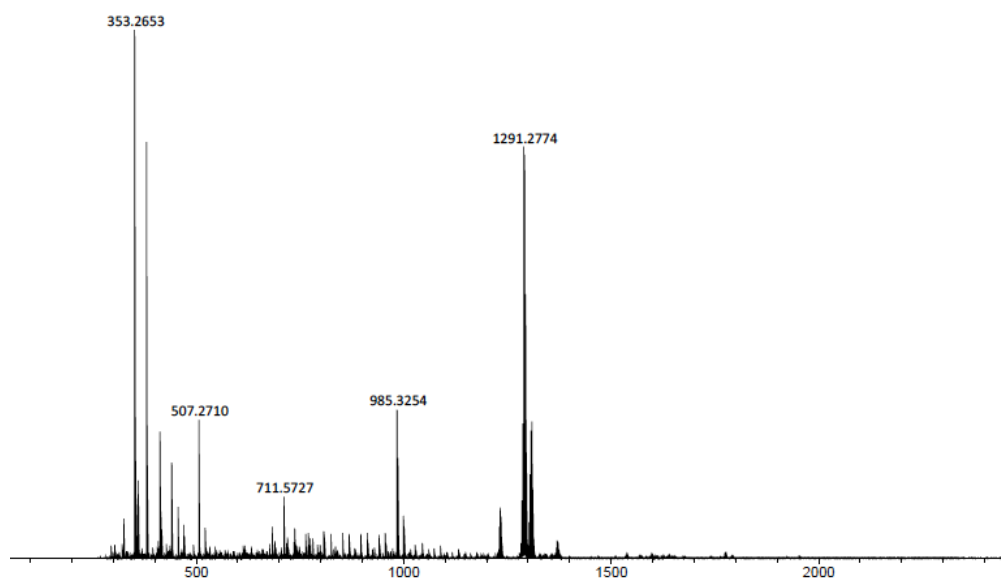
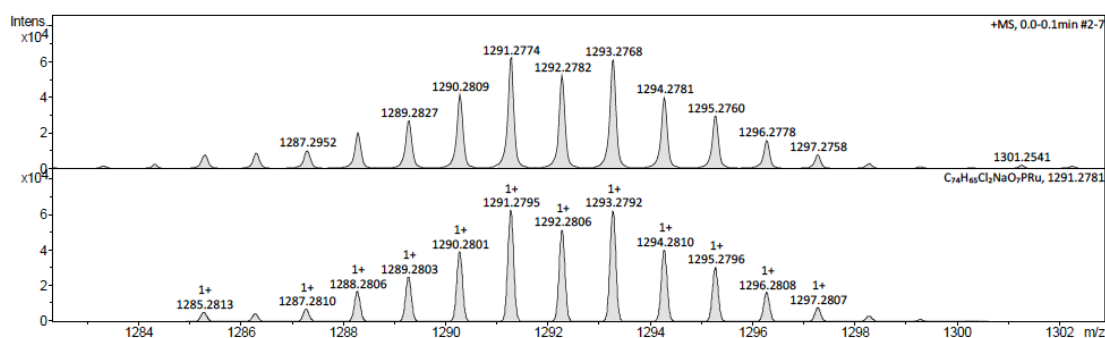


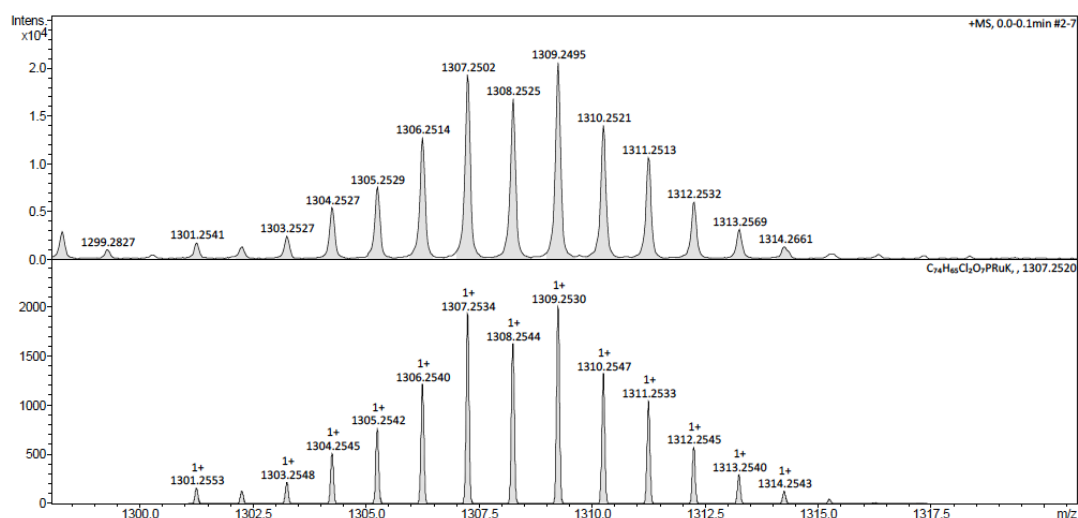
Figure S16.  $^1\text{H}/^1\text{H}$  COSY spectrum ( $\text{CDCl}_3$ )



**Figure S17.** High-resolution mass spectrum (ESI-TOF)



**Figure S18.** High-resolution mass spectrum (ESI-TOF): exp. spectrum (top); calc. spectrum (bottom) for  $C_{74}H_{65}Cl_2O_7PRuNa$



**Figure S19.** High-resolution mass spectrum (ESI-TOF): exp. spectrum (top); calc. spectrum (bottom) for  $C_{74}H_{65}Cl_2O_7PRuK$