Universitat Autònoma de Barcelona

ESTUDIS SINTÈTICS DIRIGITS ALS ALCALOIDES STENINA I SESSILIFOLIAMIDES B I C

TESI DOCTORAL

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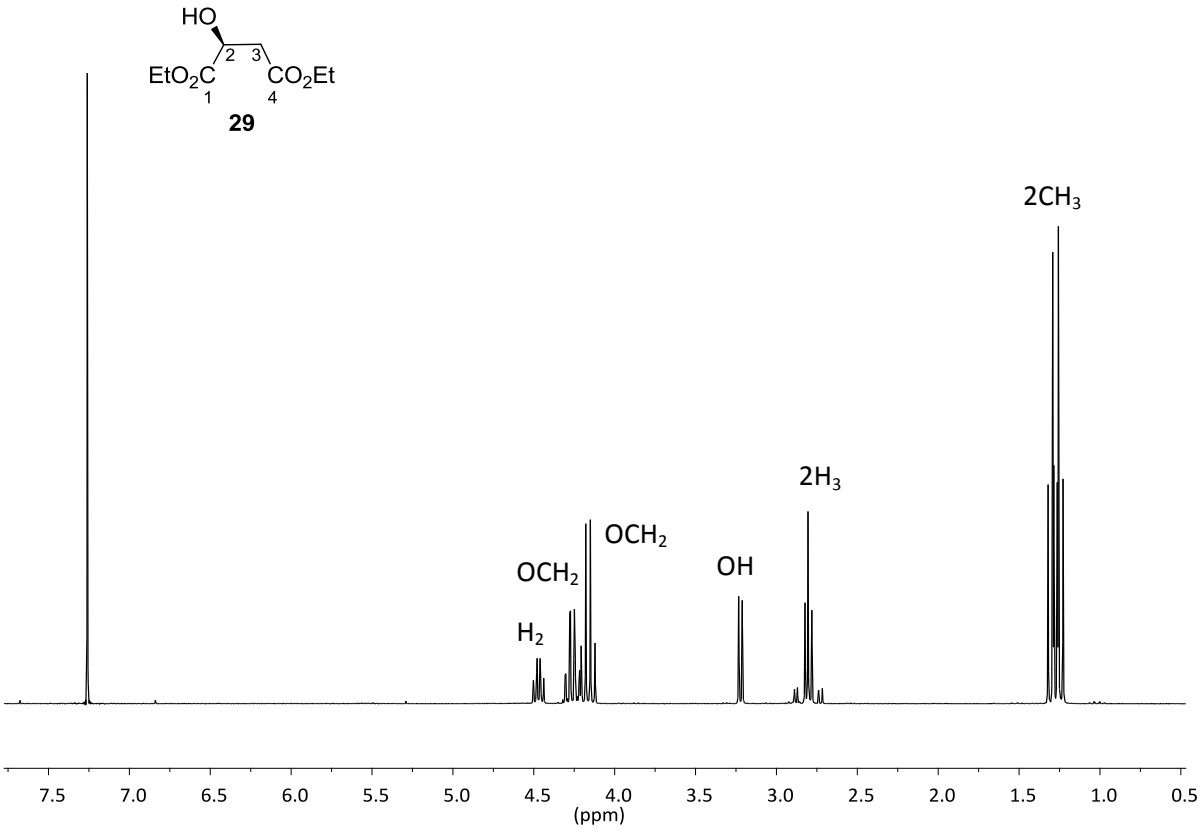
6.Recull d'espectres



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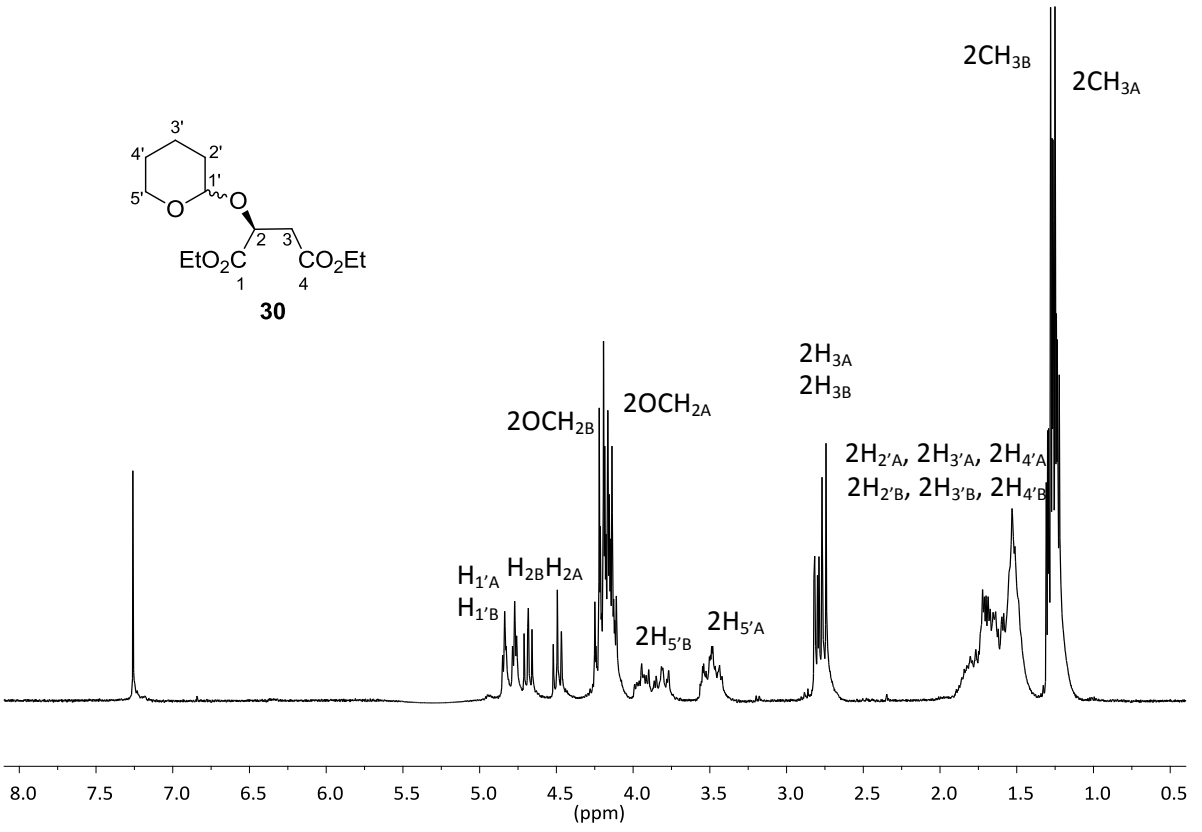

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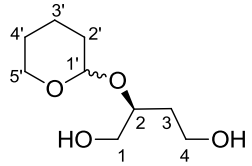

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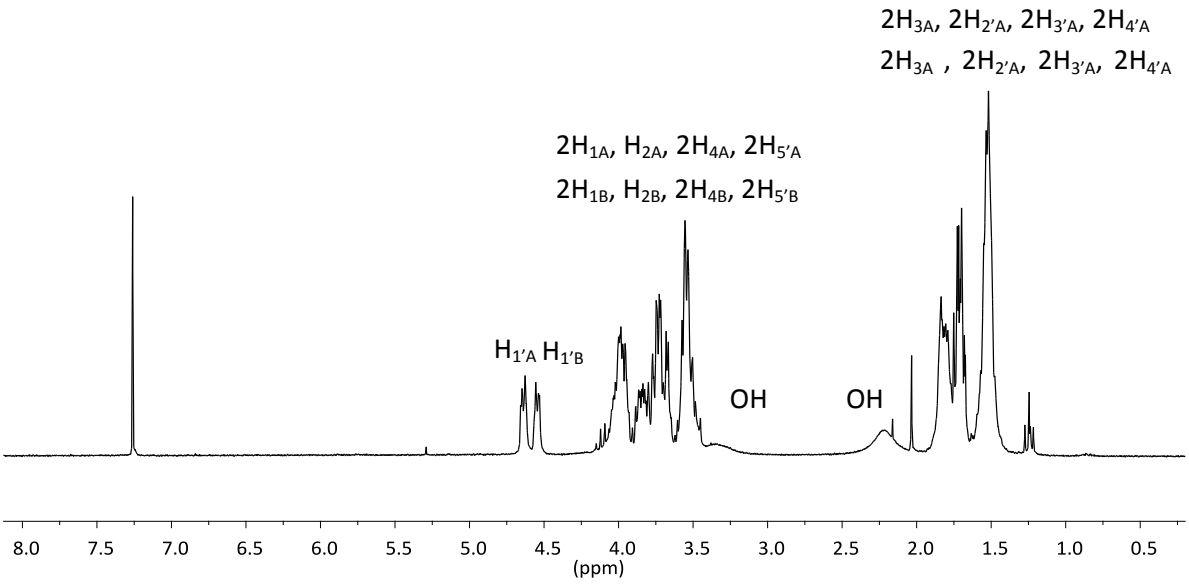

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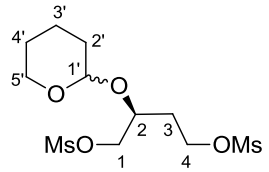

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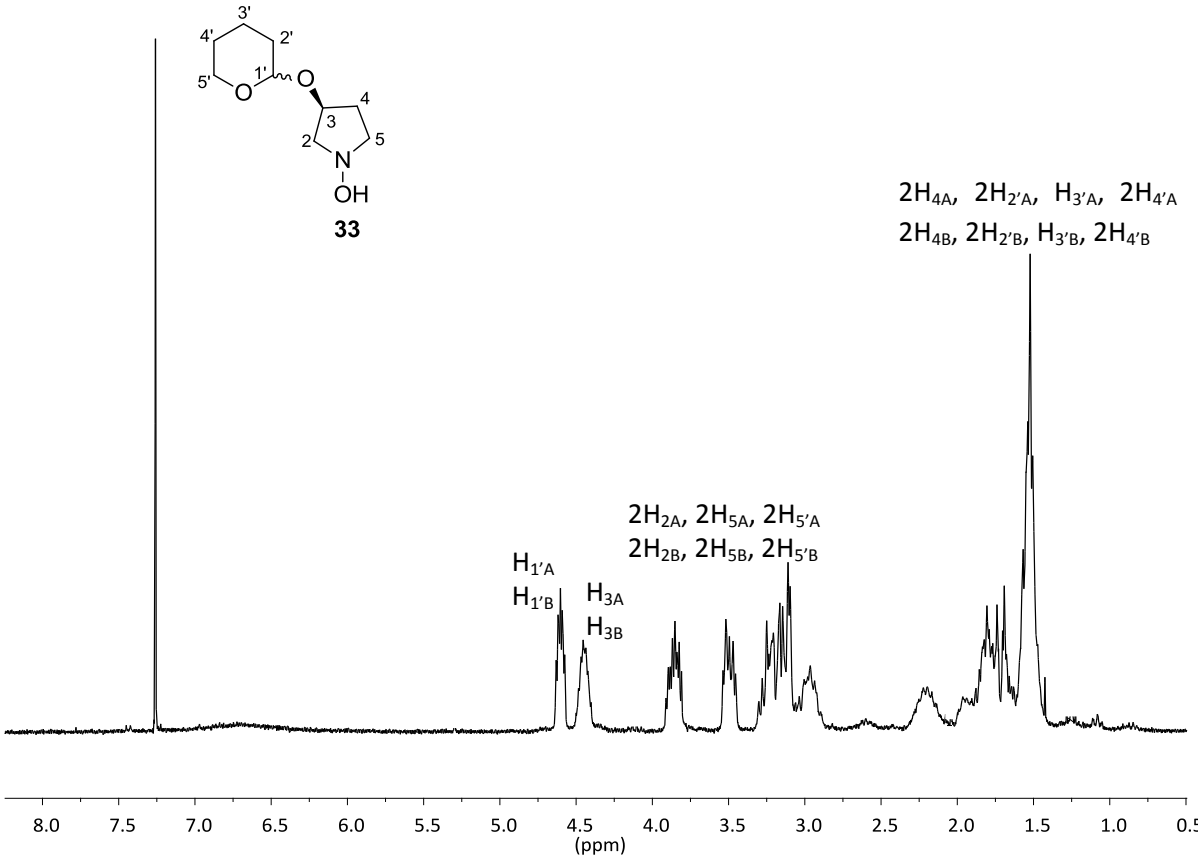

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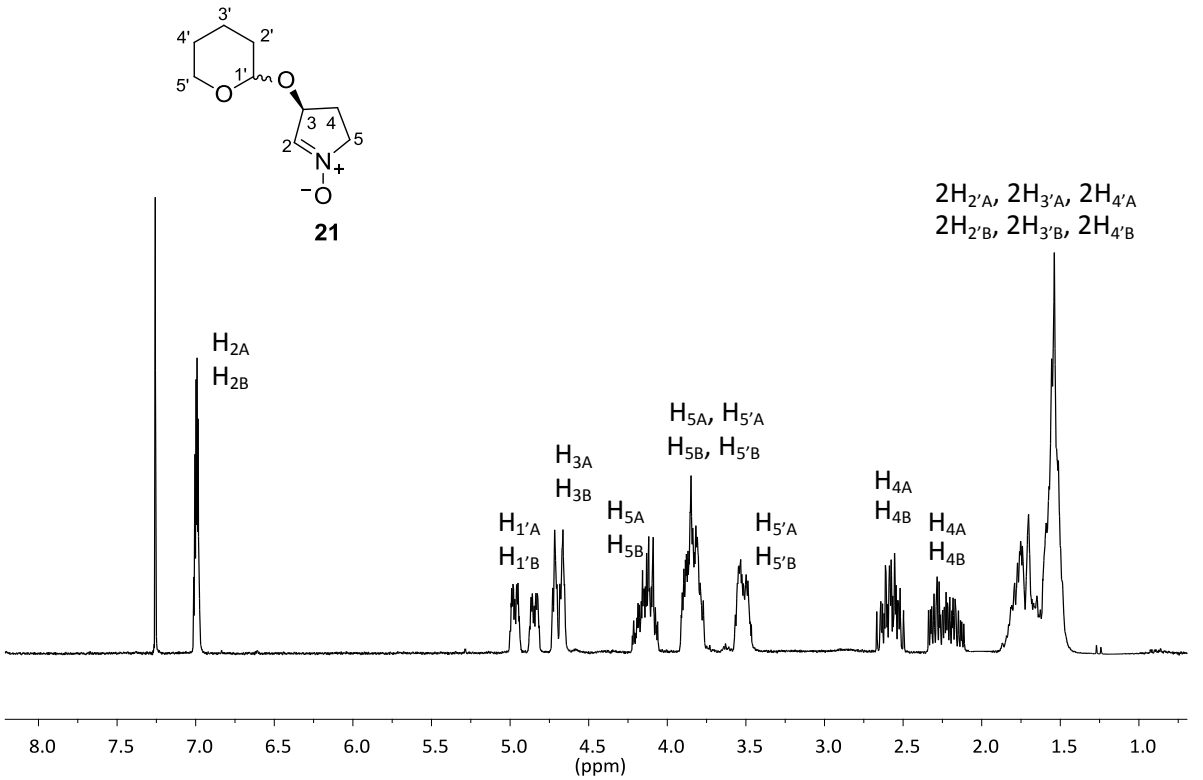

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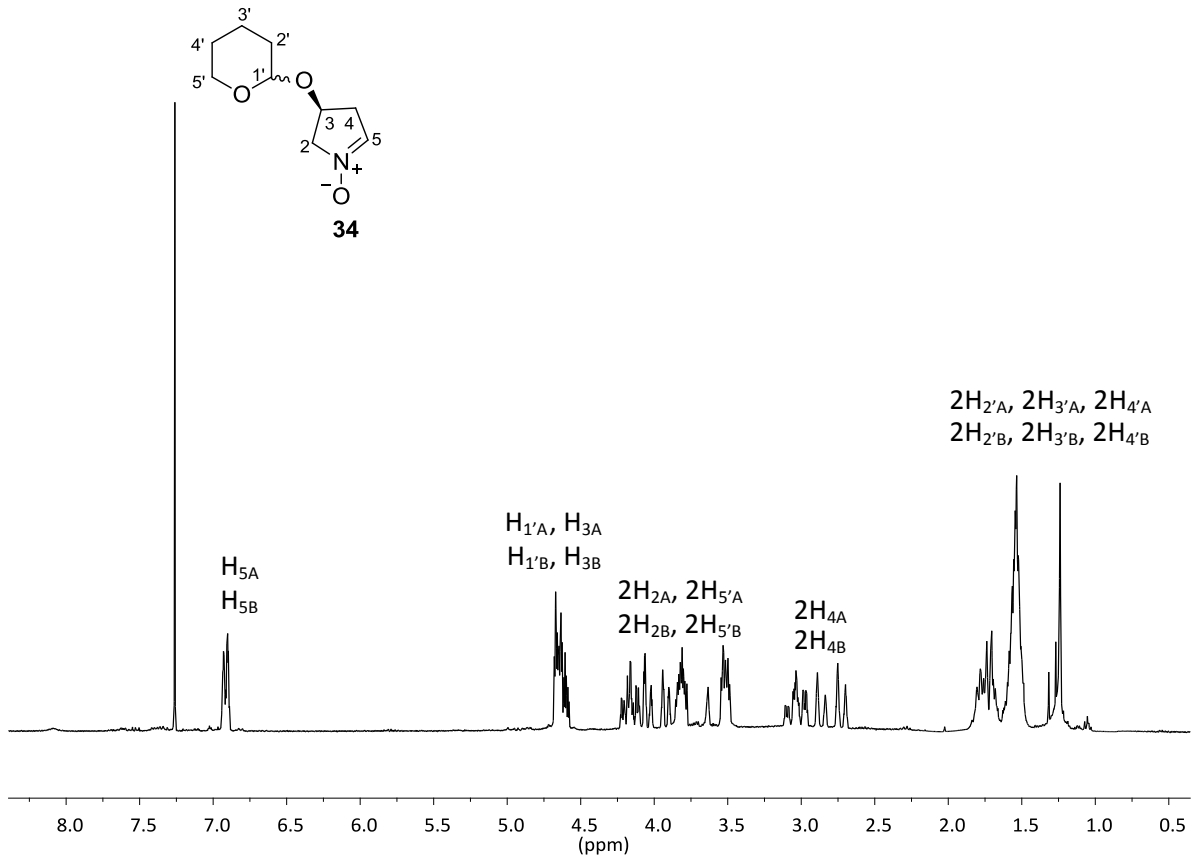

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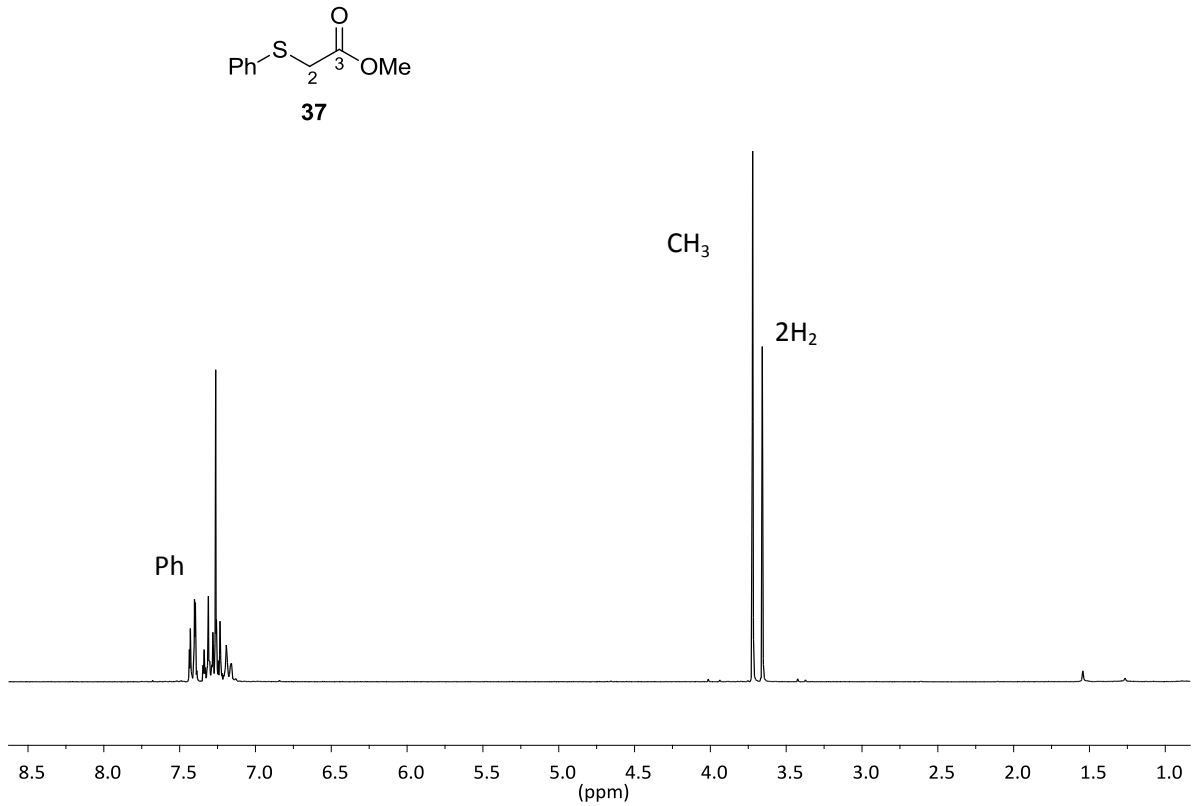

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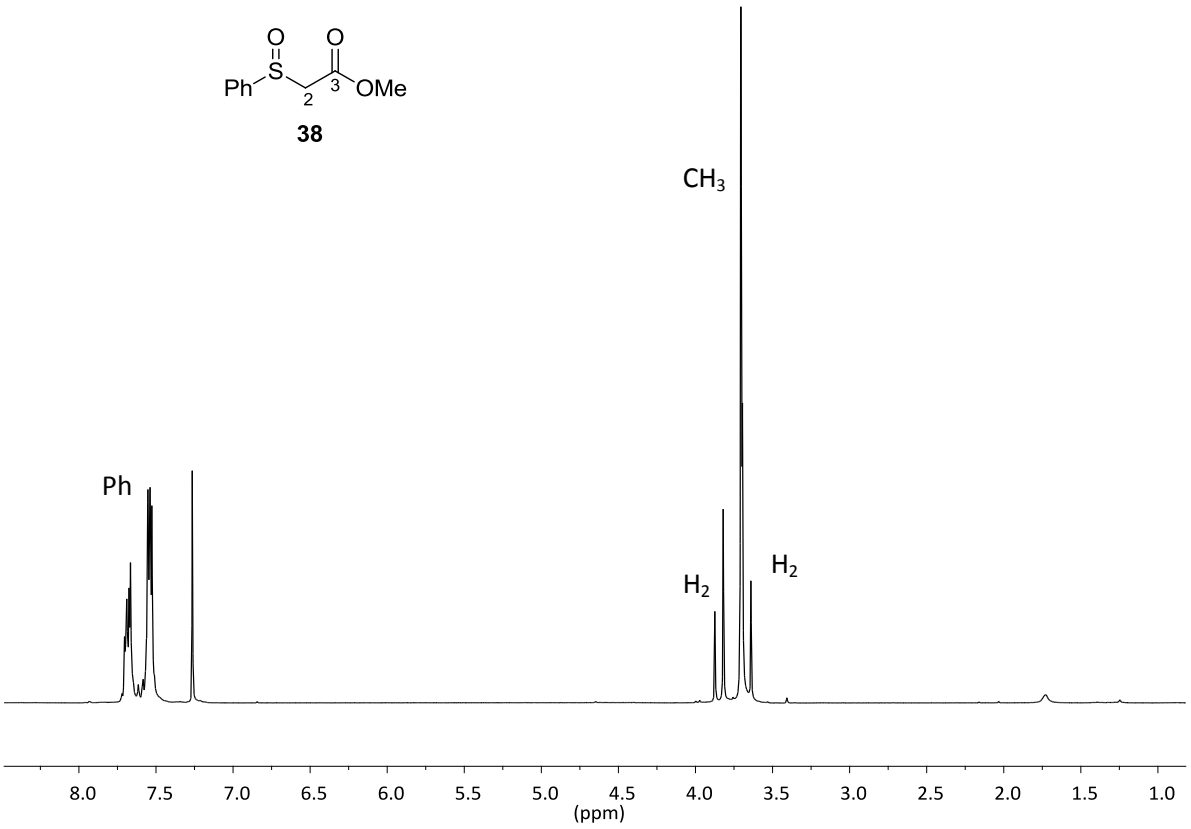

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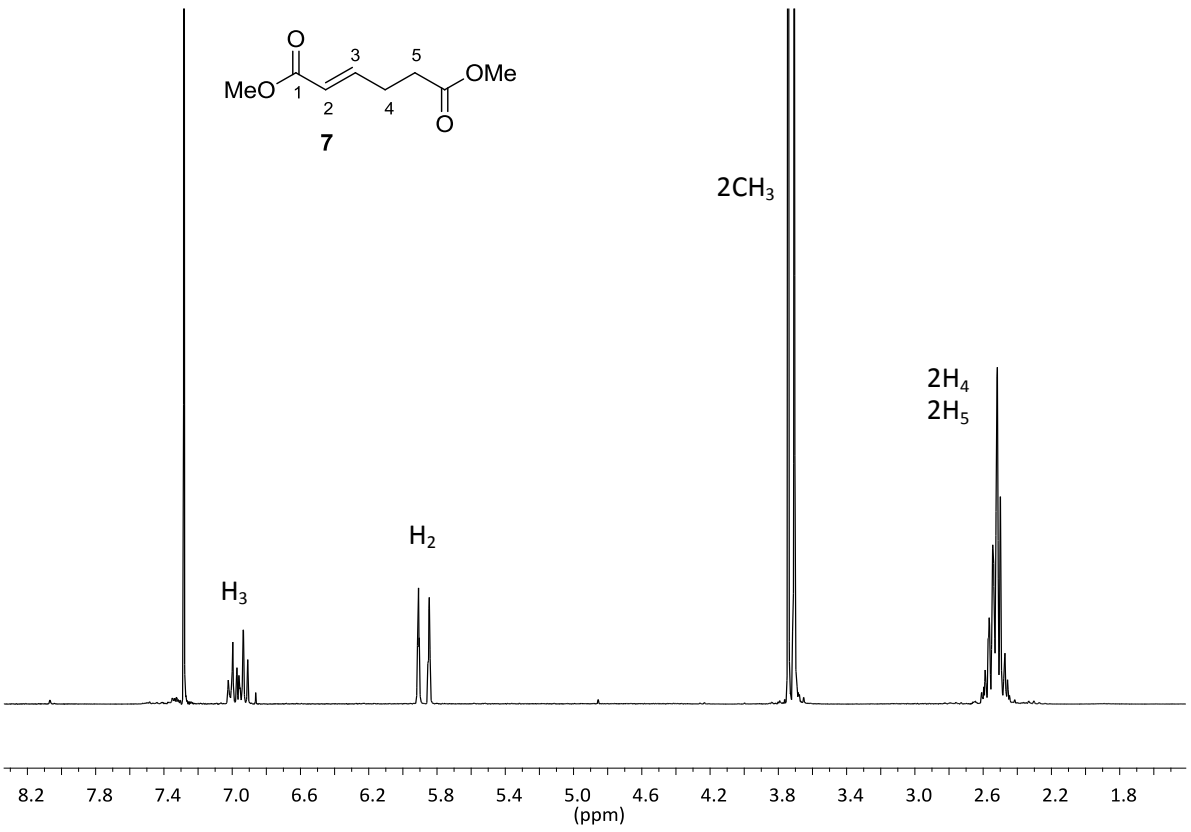

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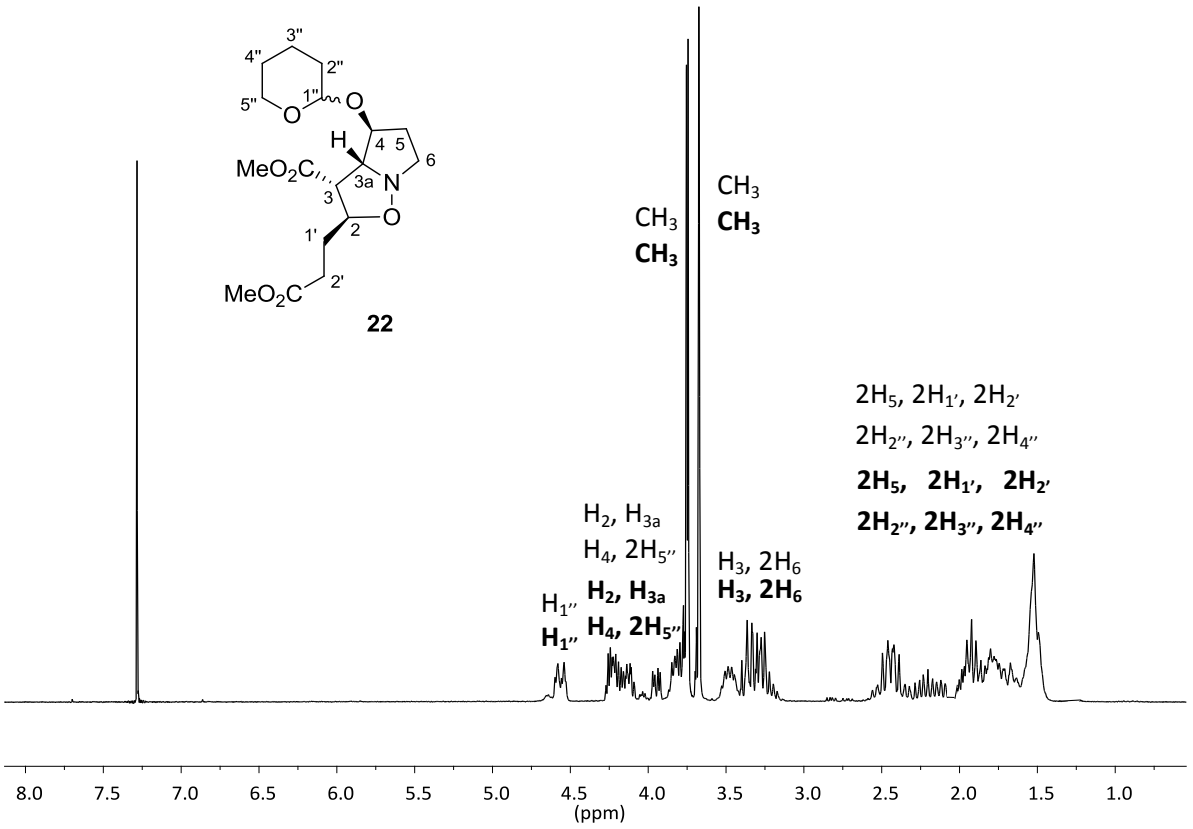

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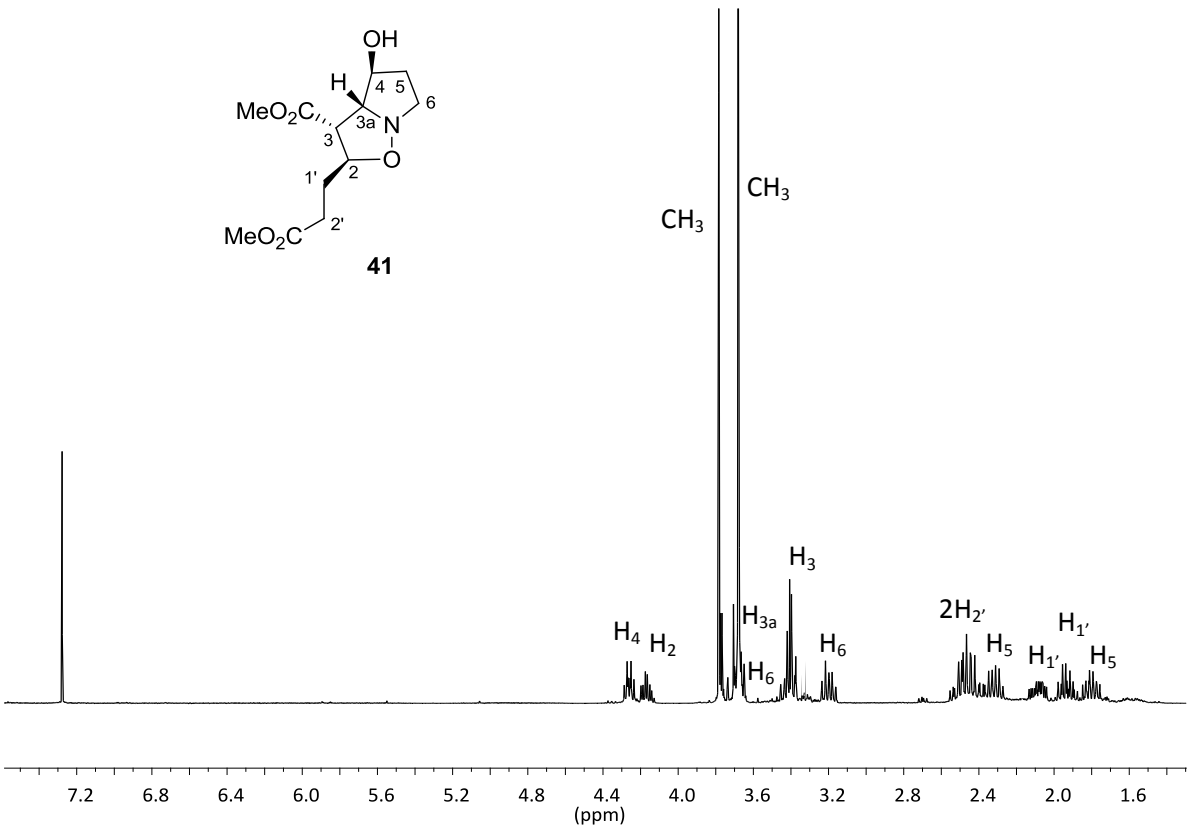

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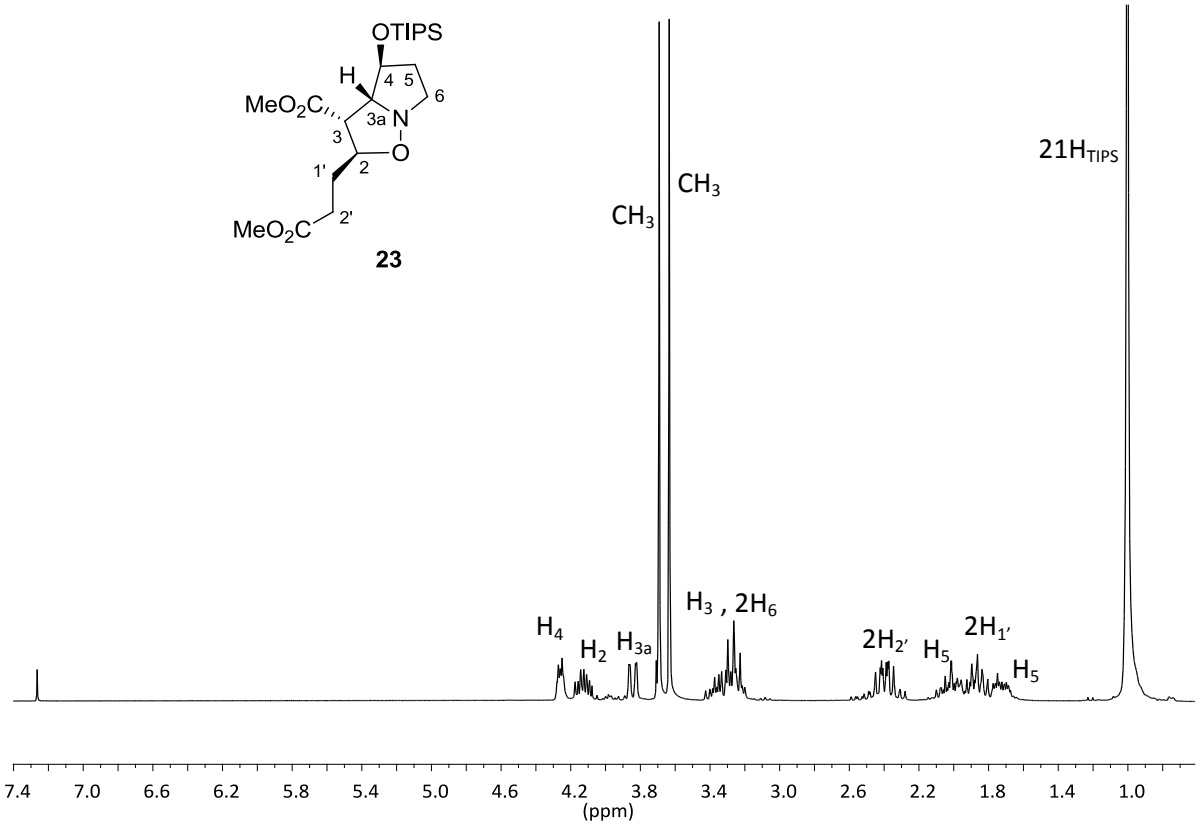

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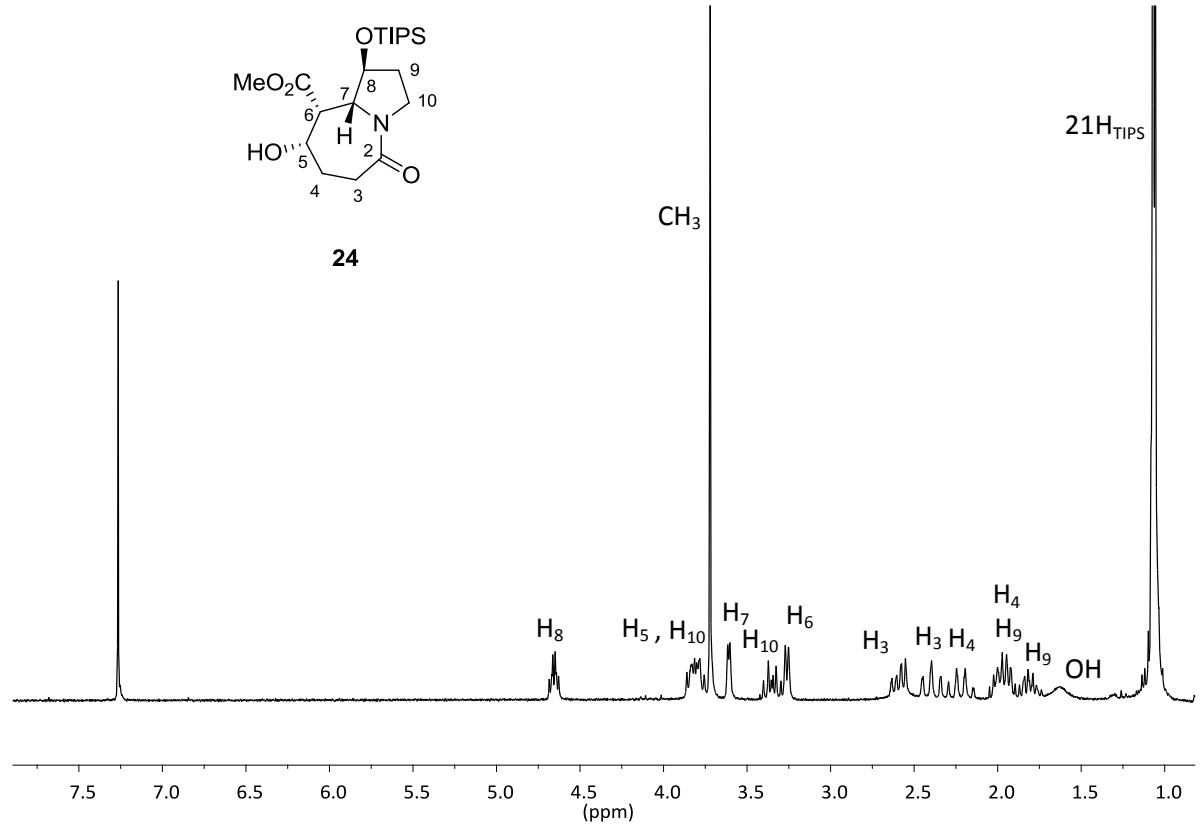

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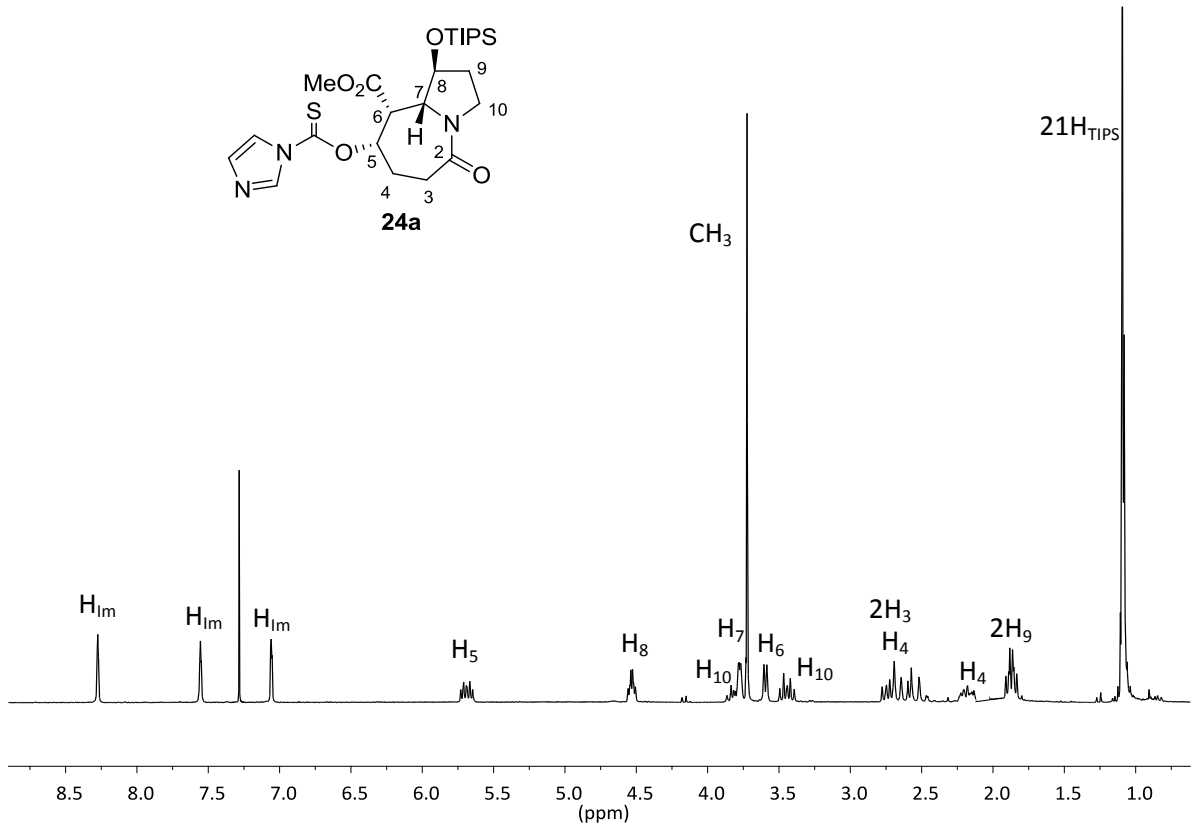

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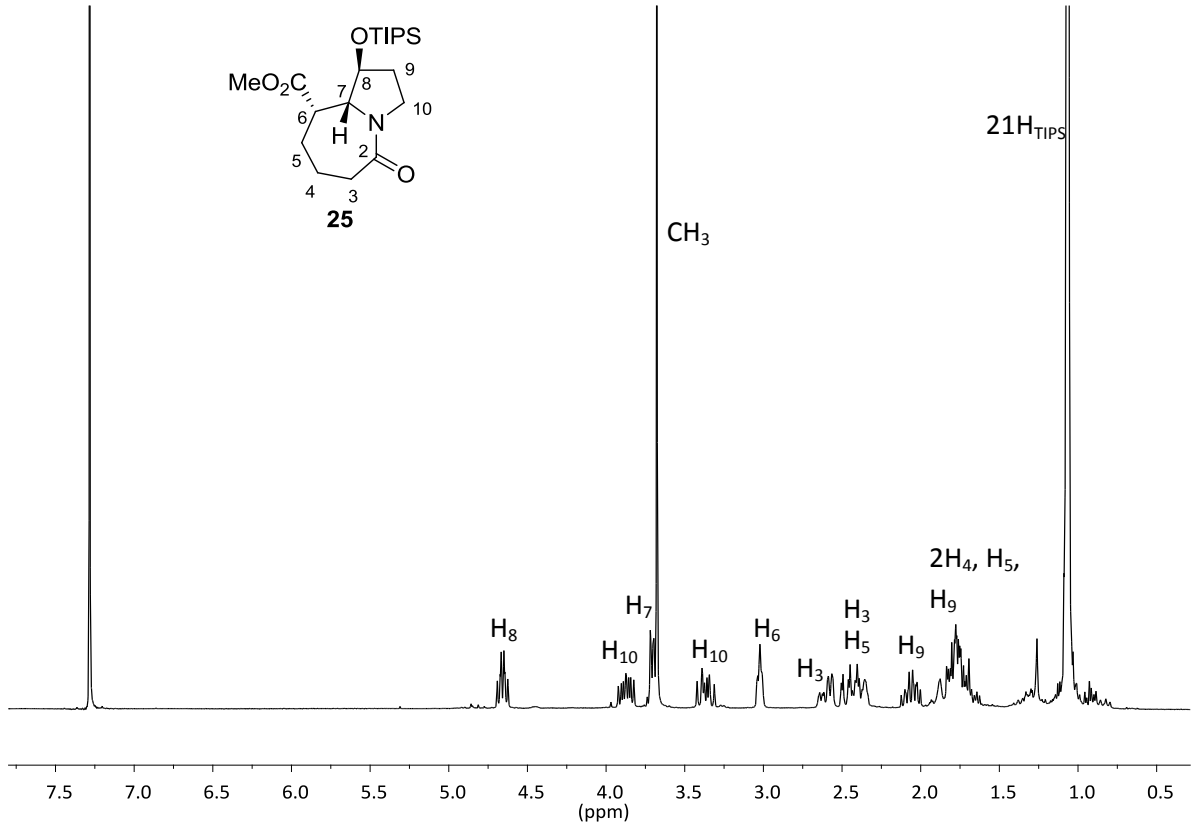

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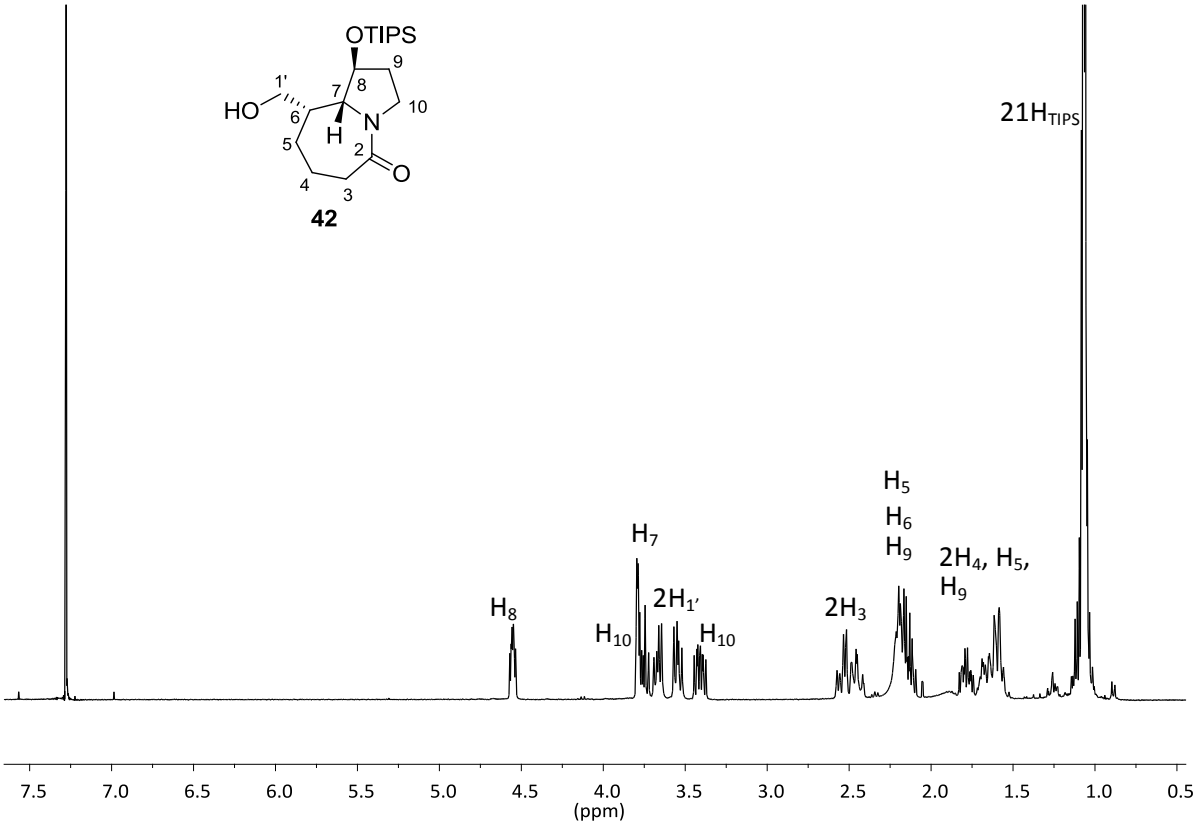

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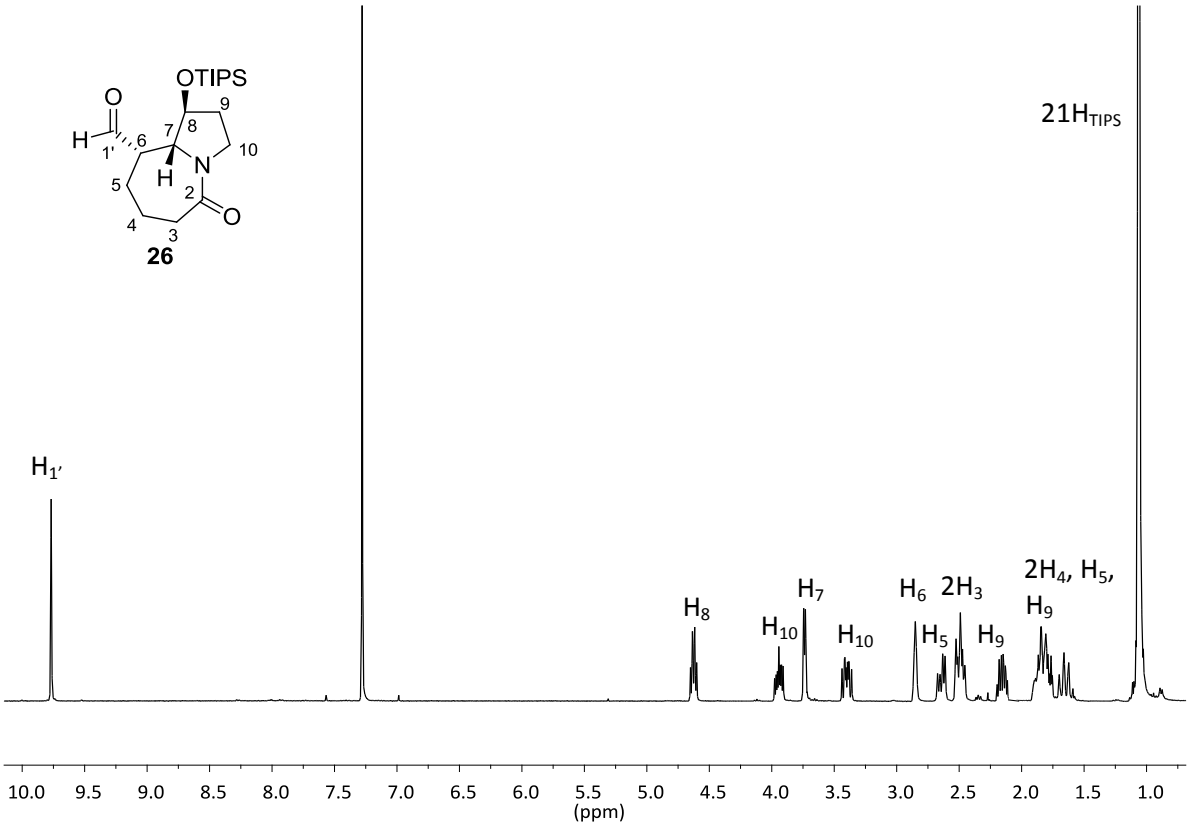

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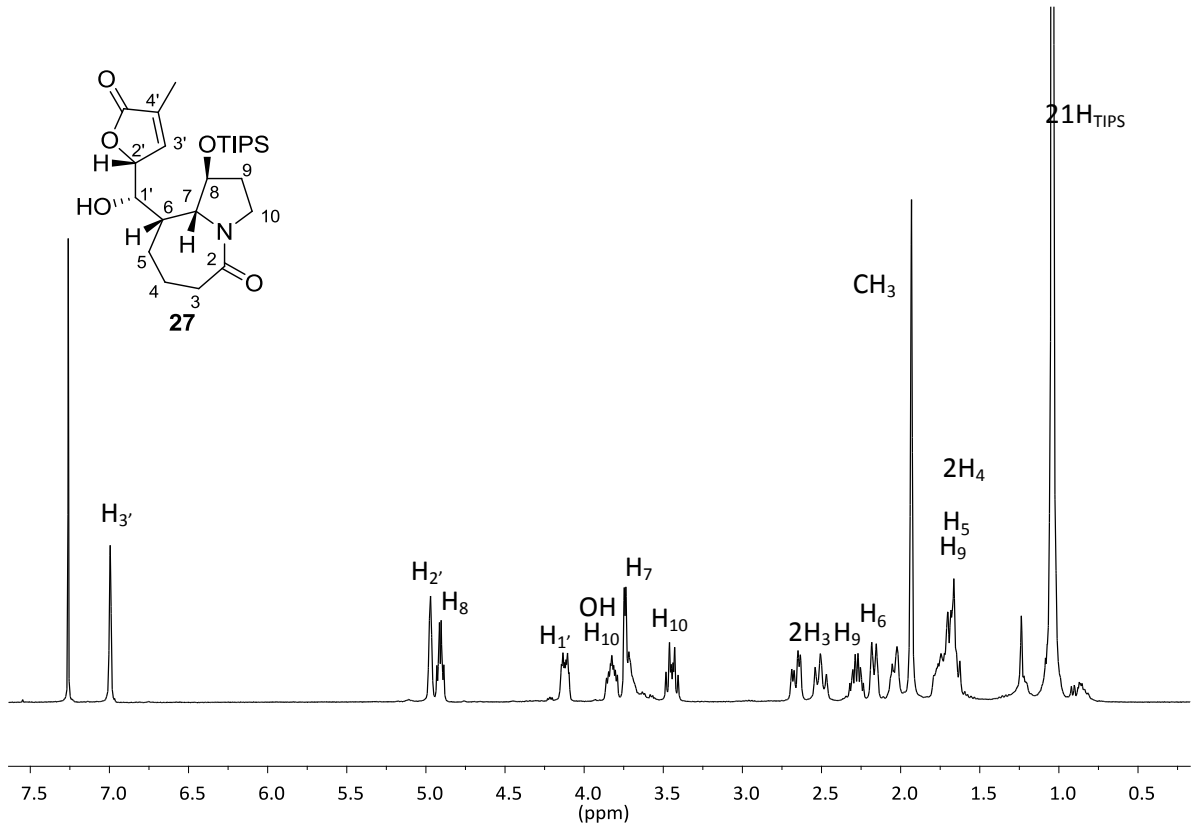

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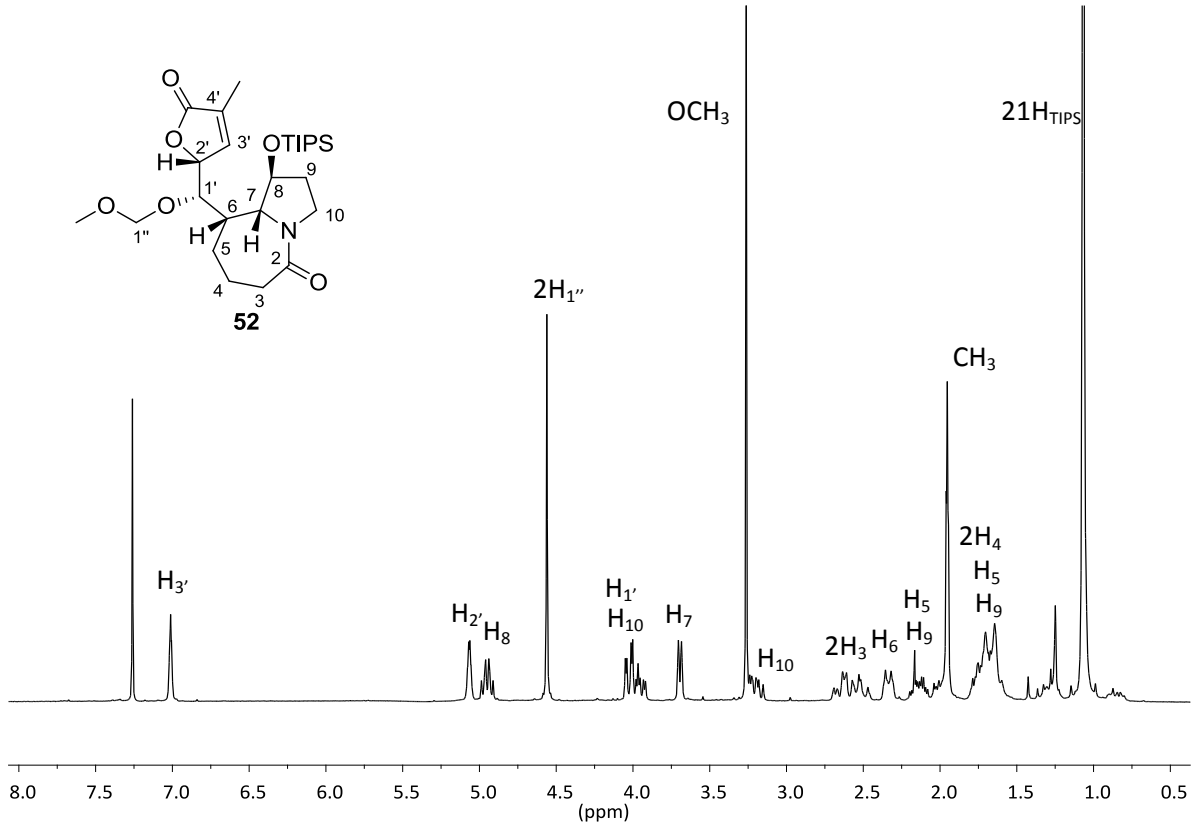

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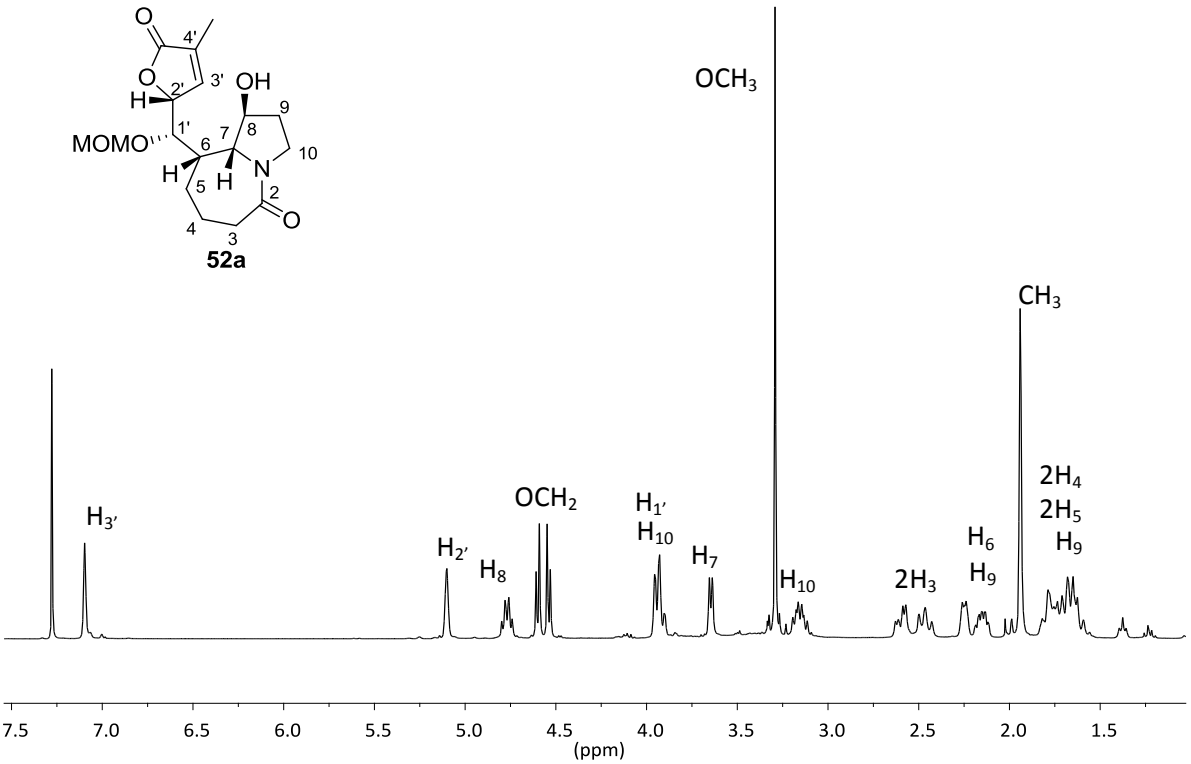

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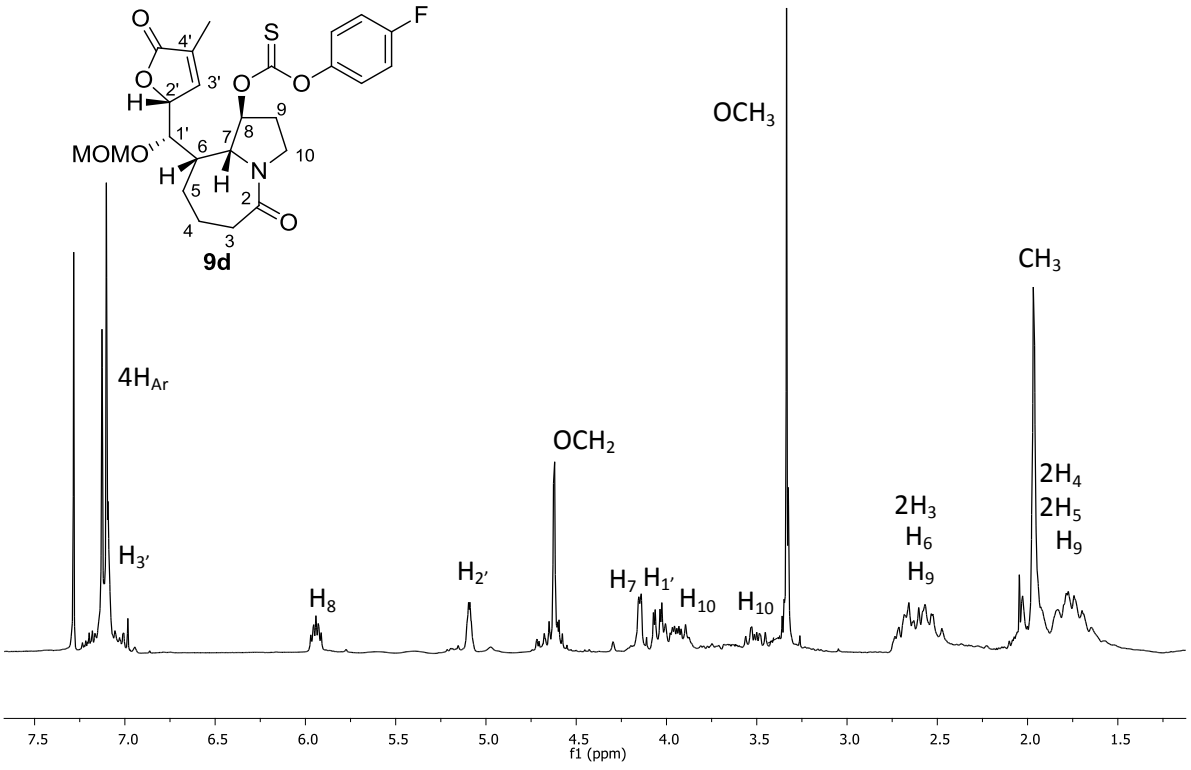

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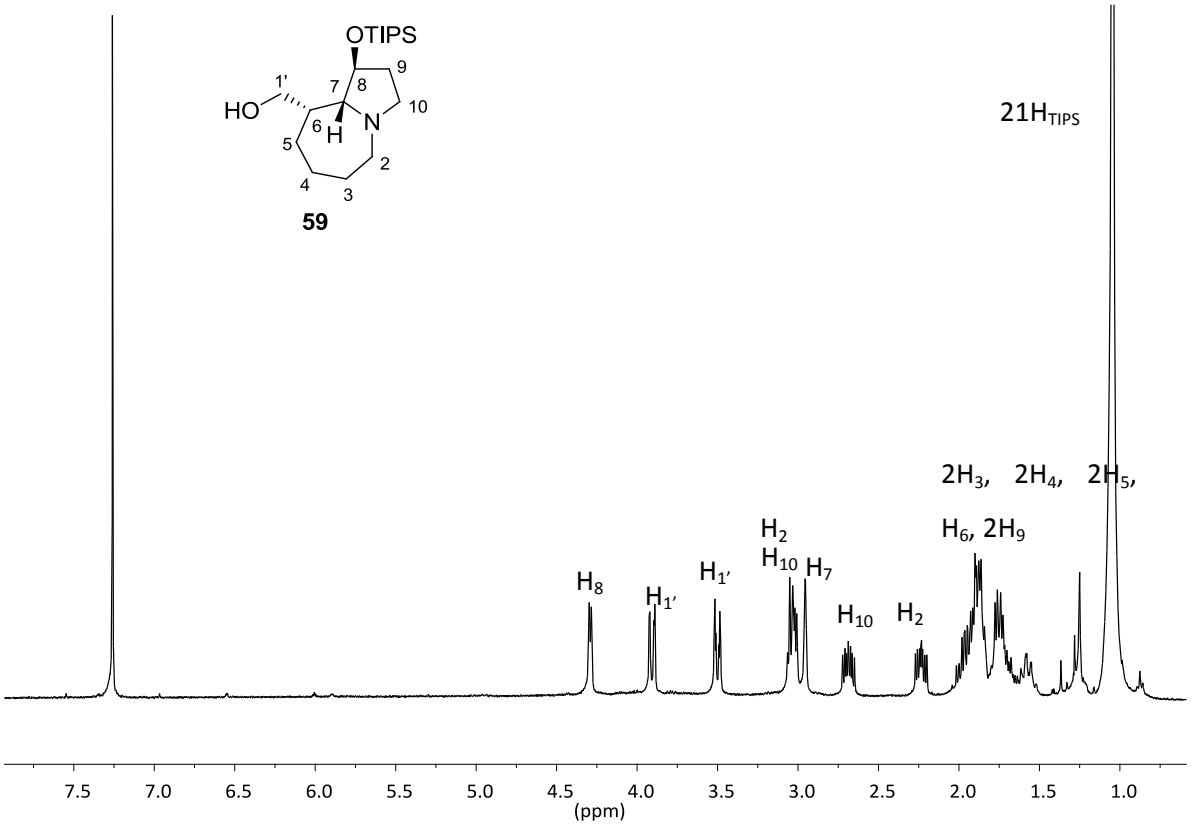

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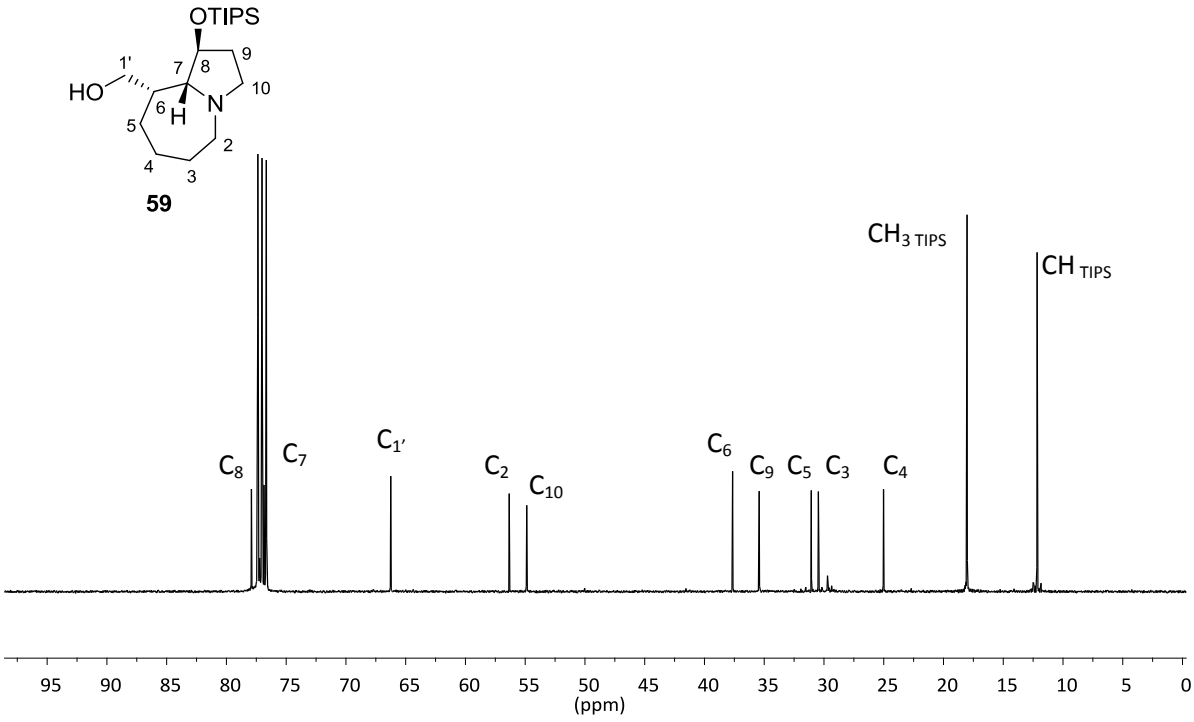

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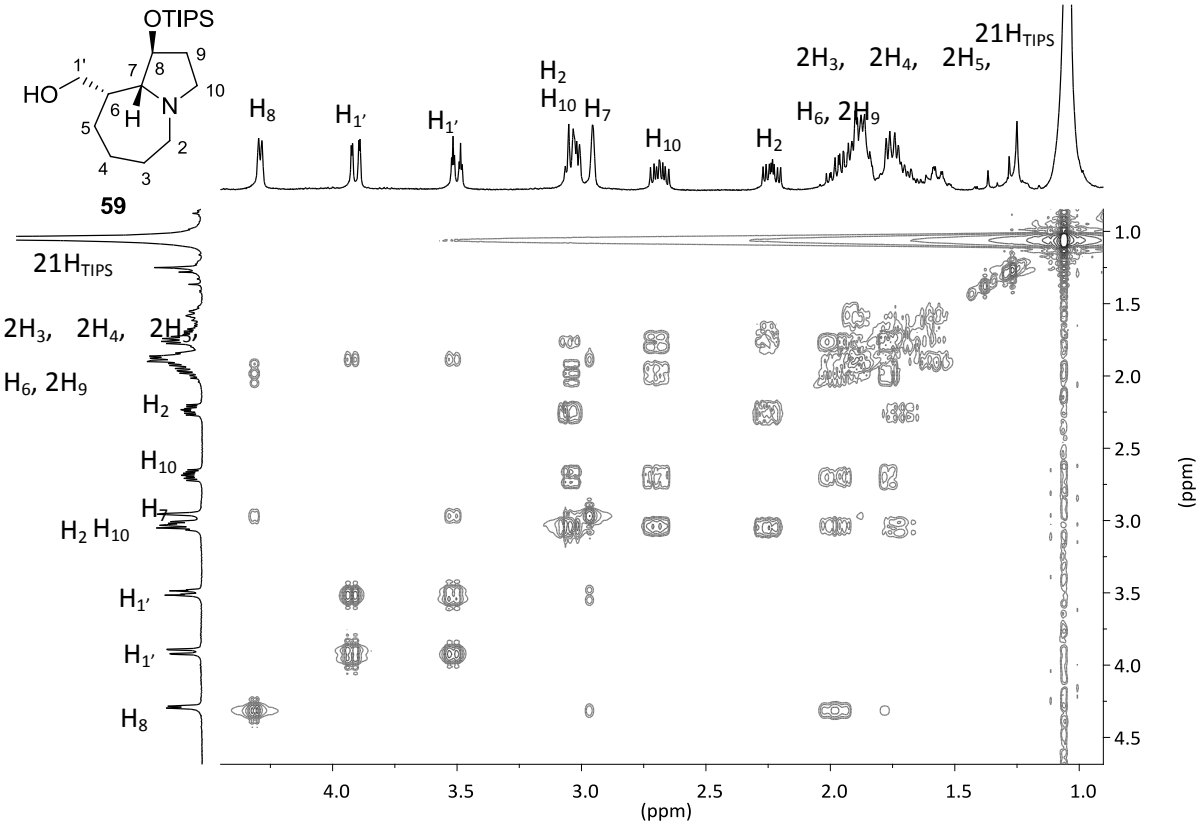

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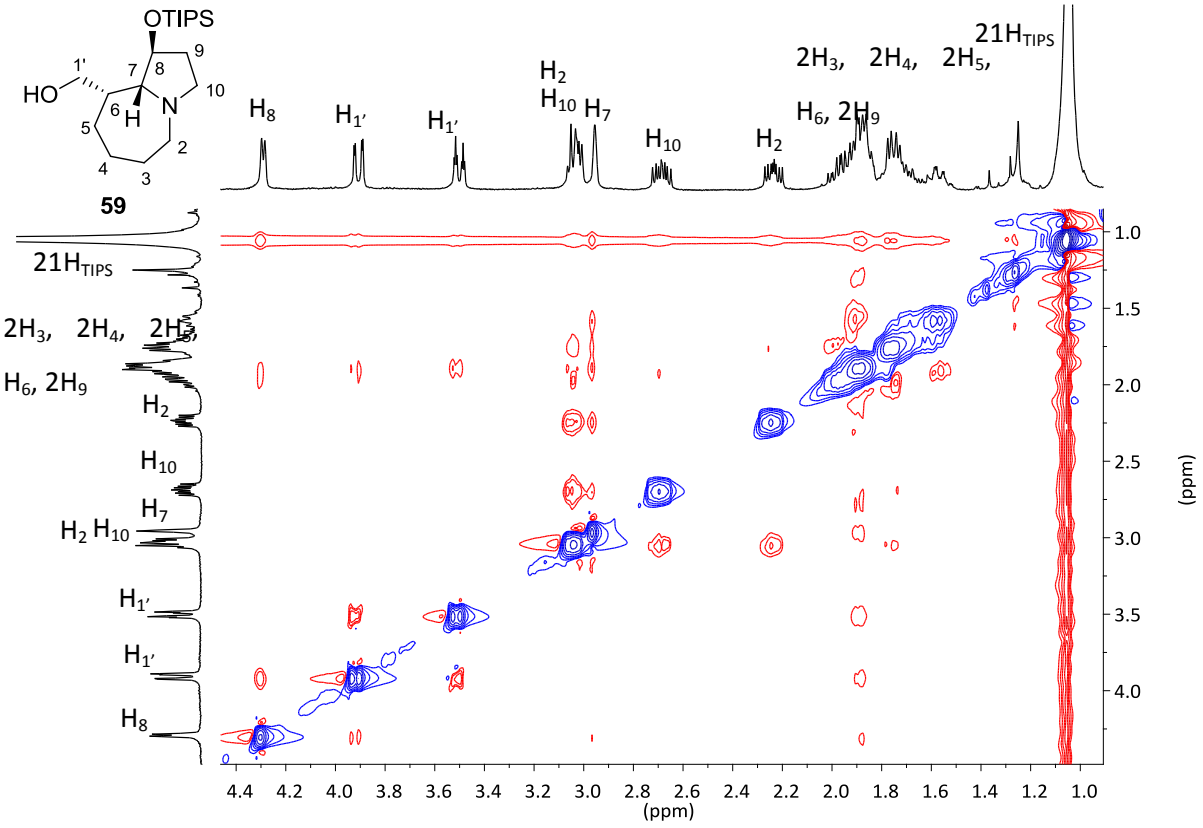

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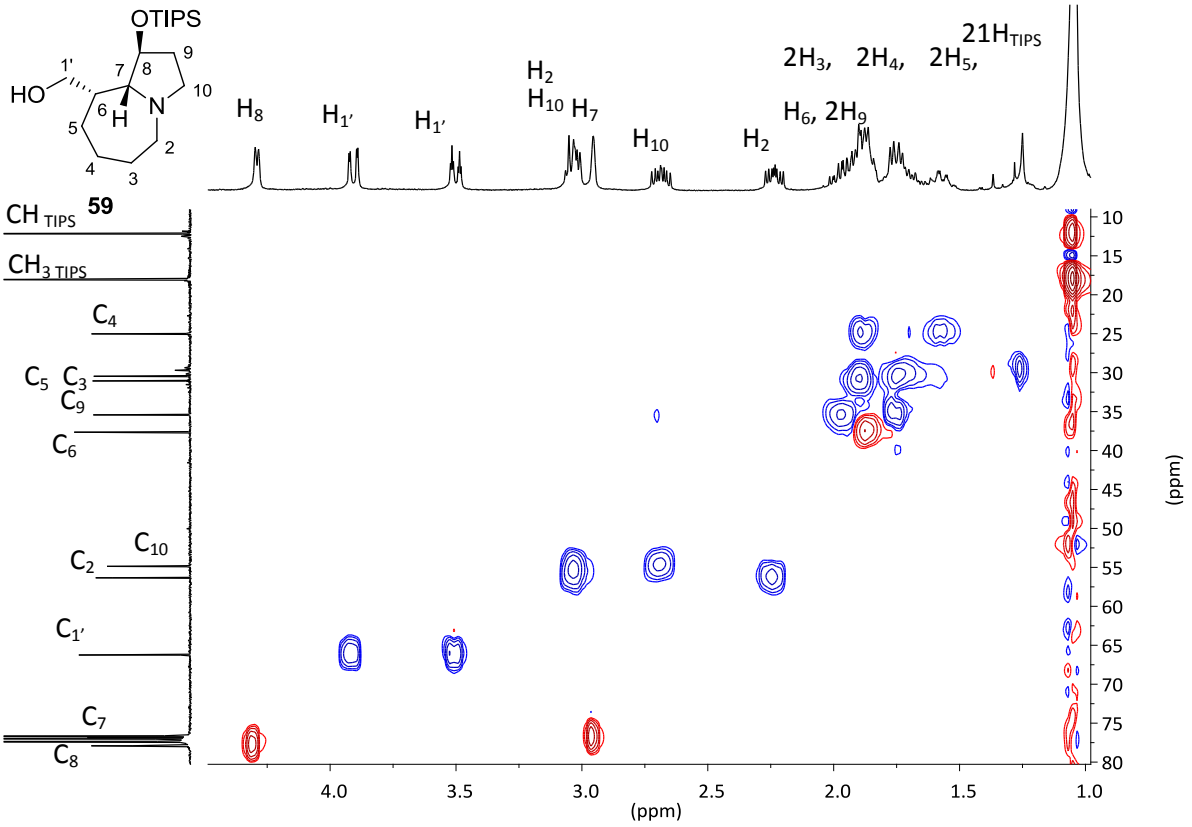

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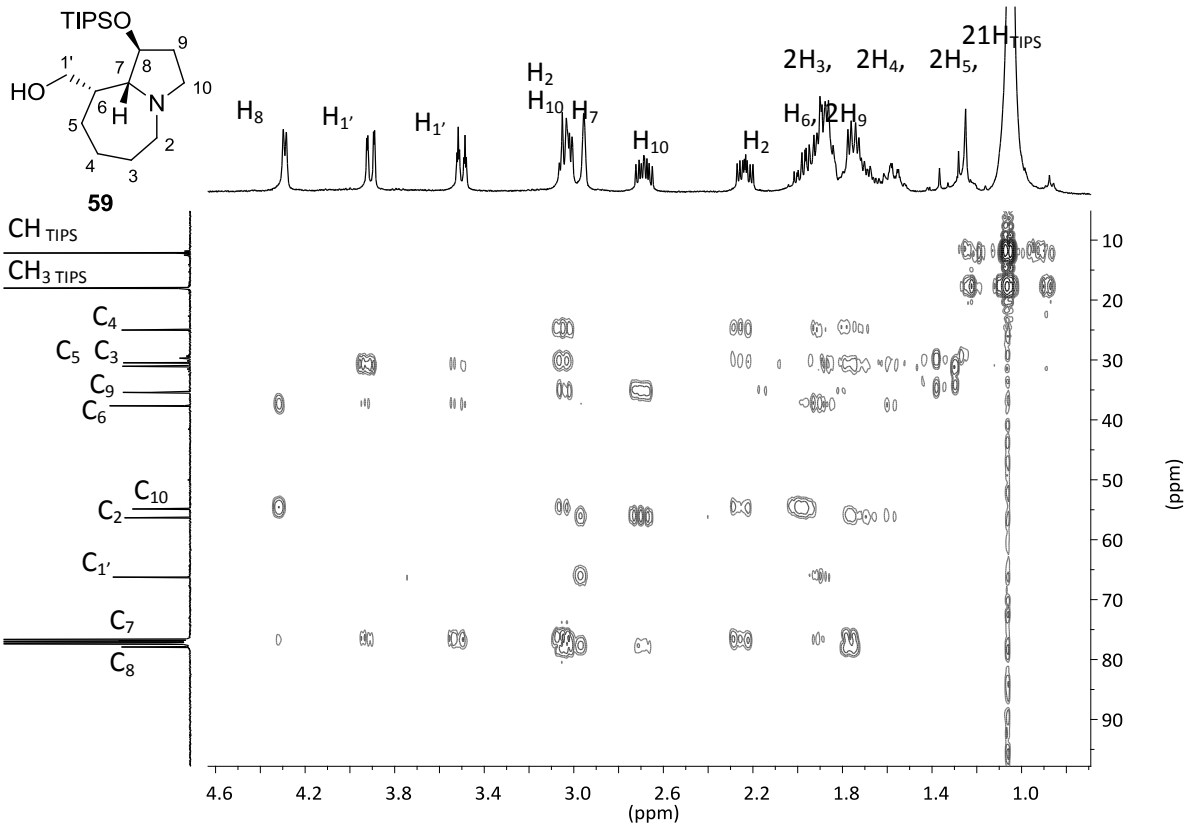

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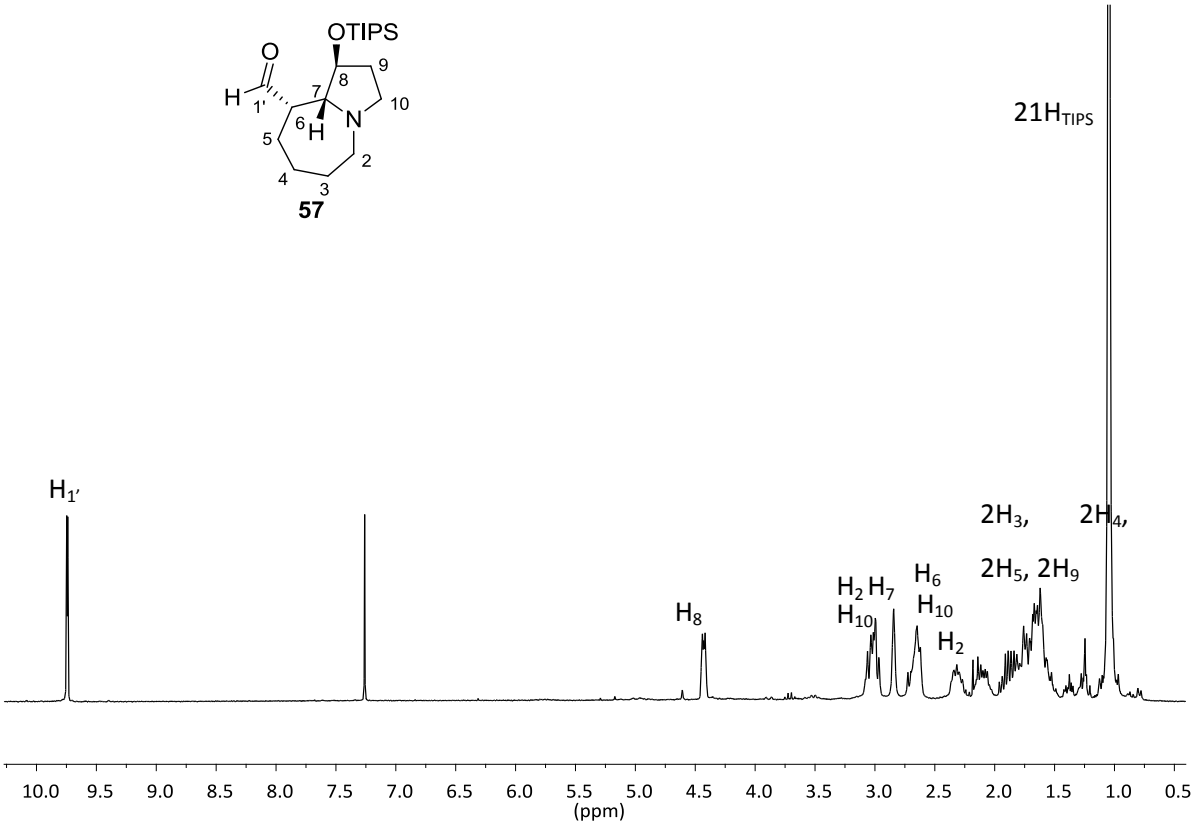

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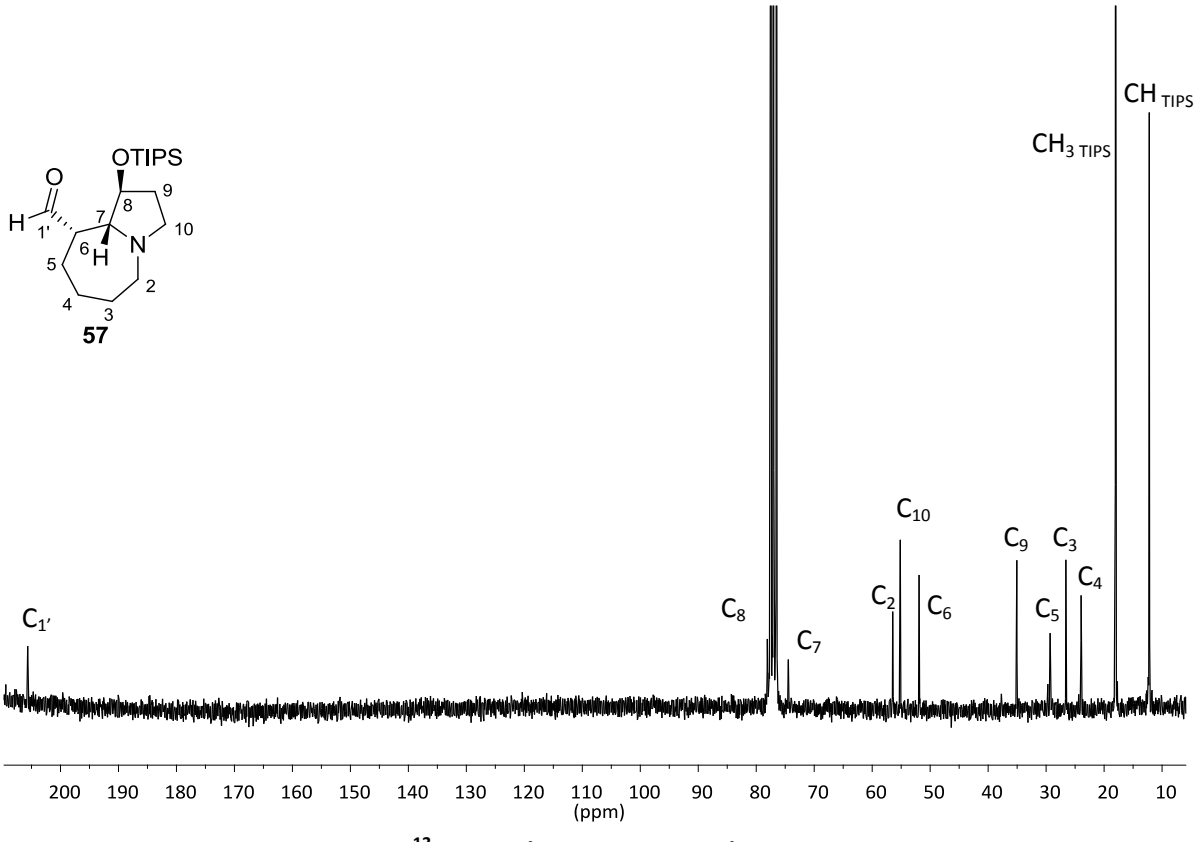

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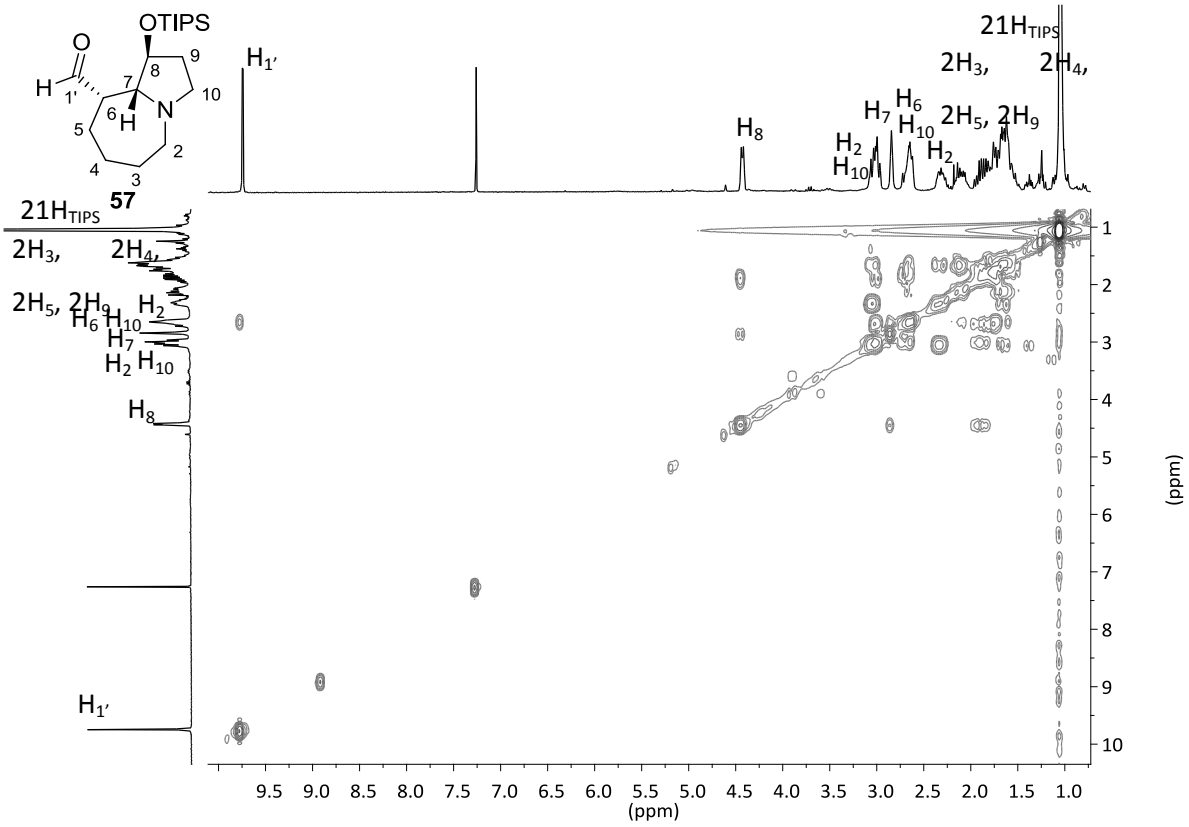

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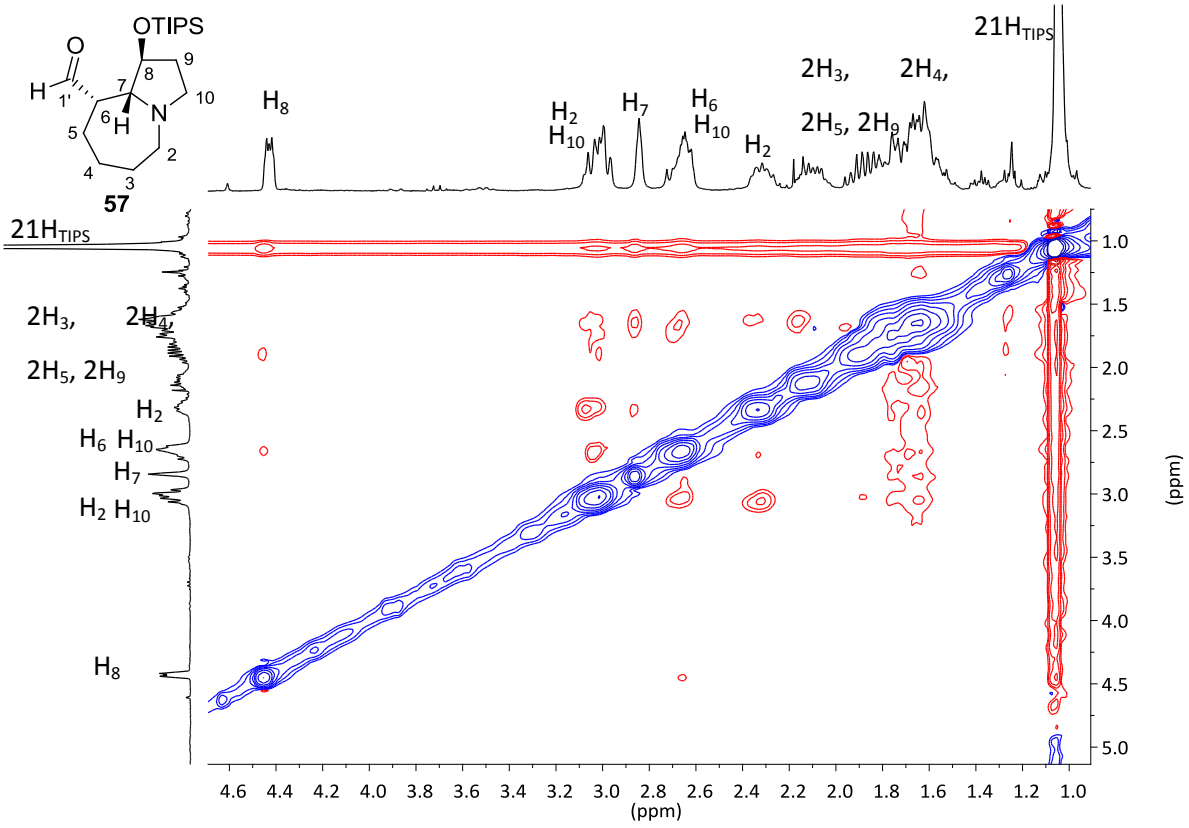

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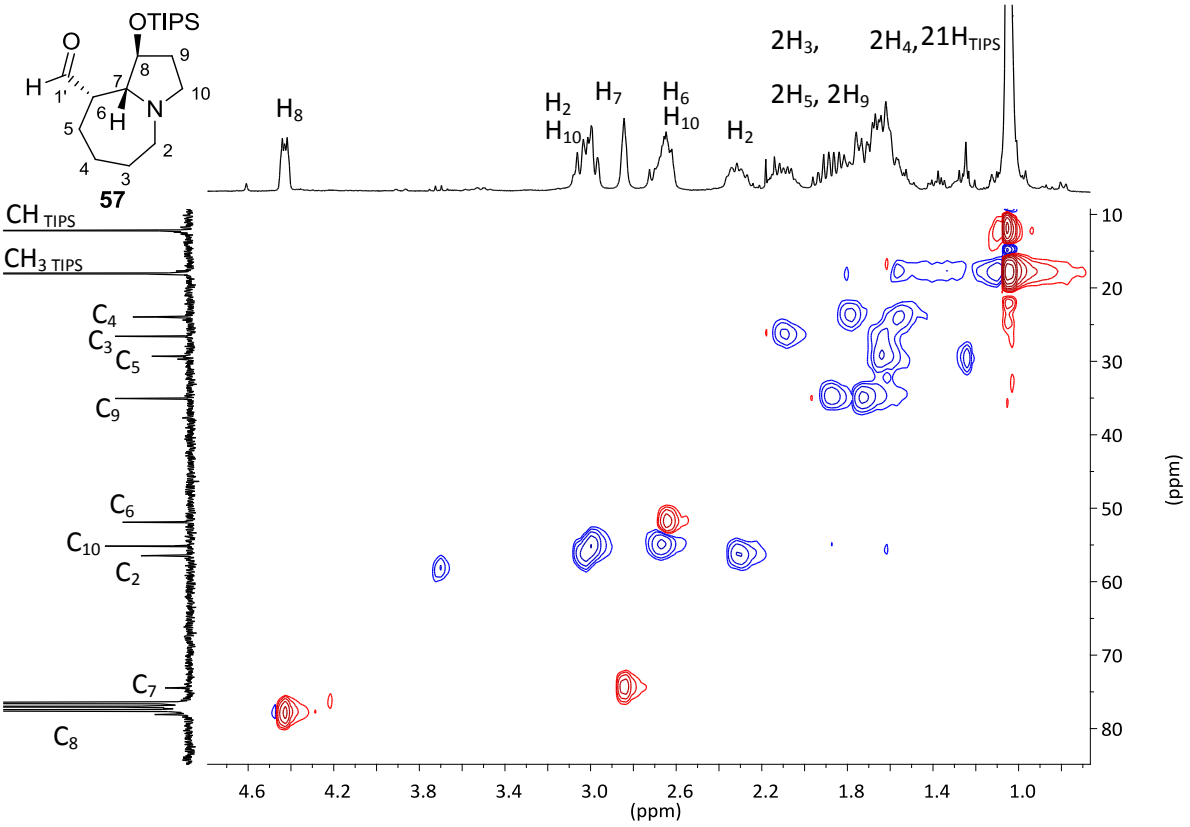

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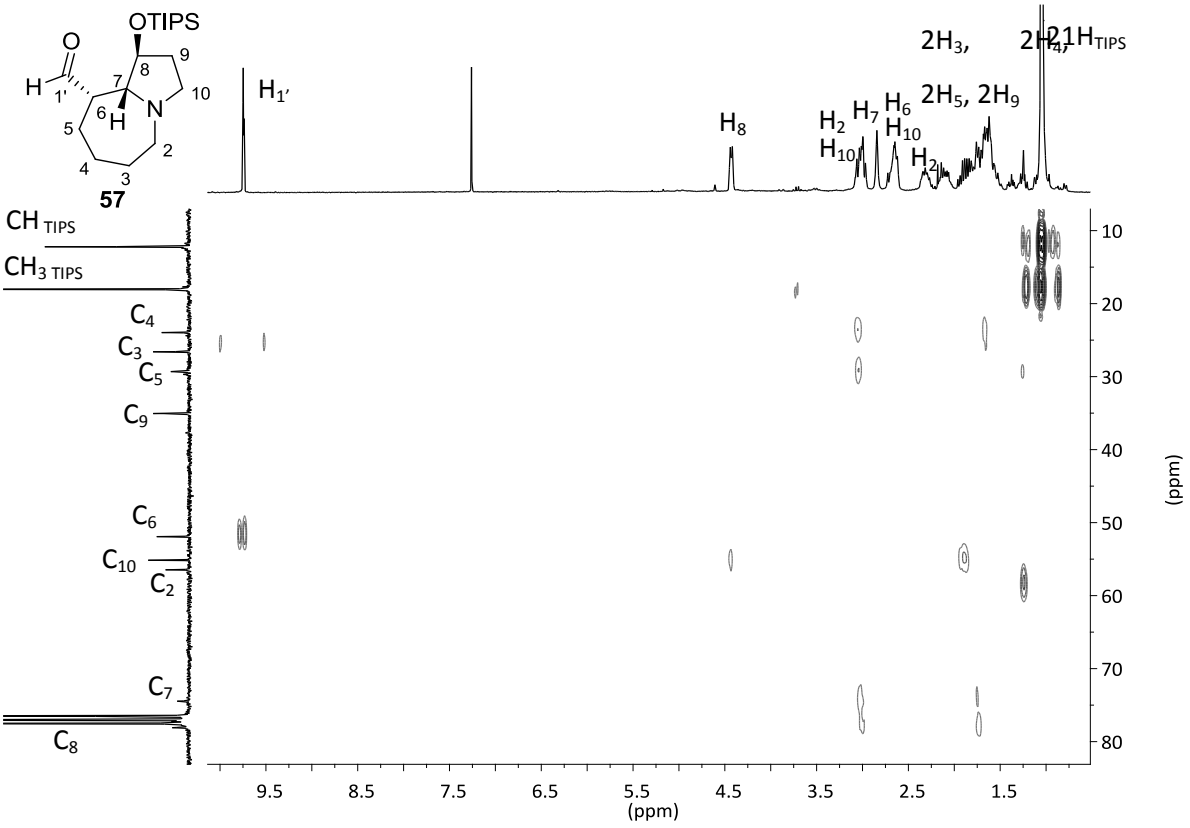

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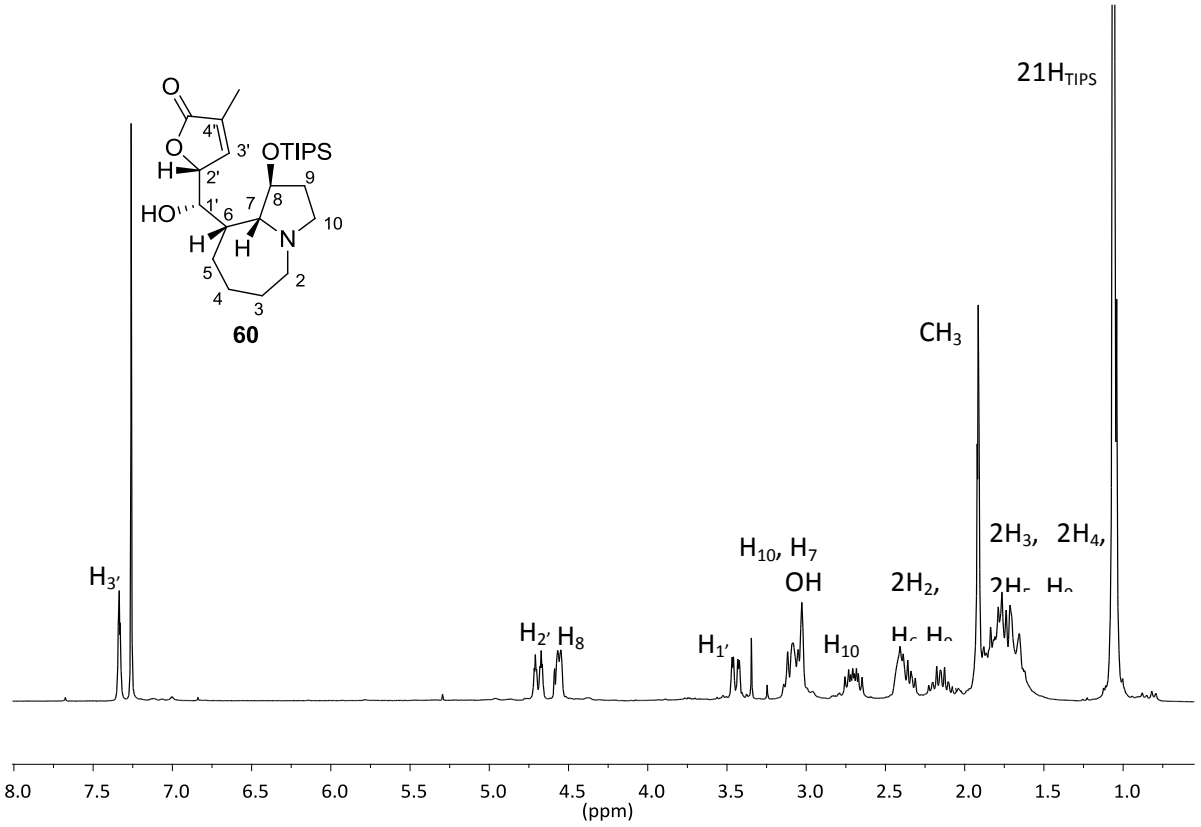

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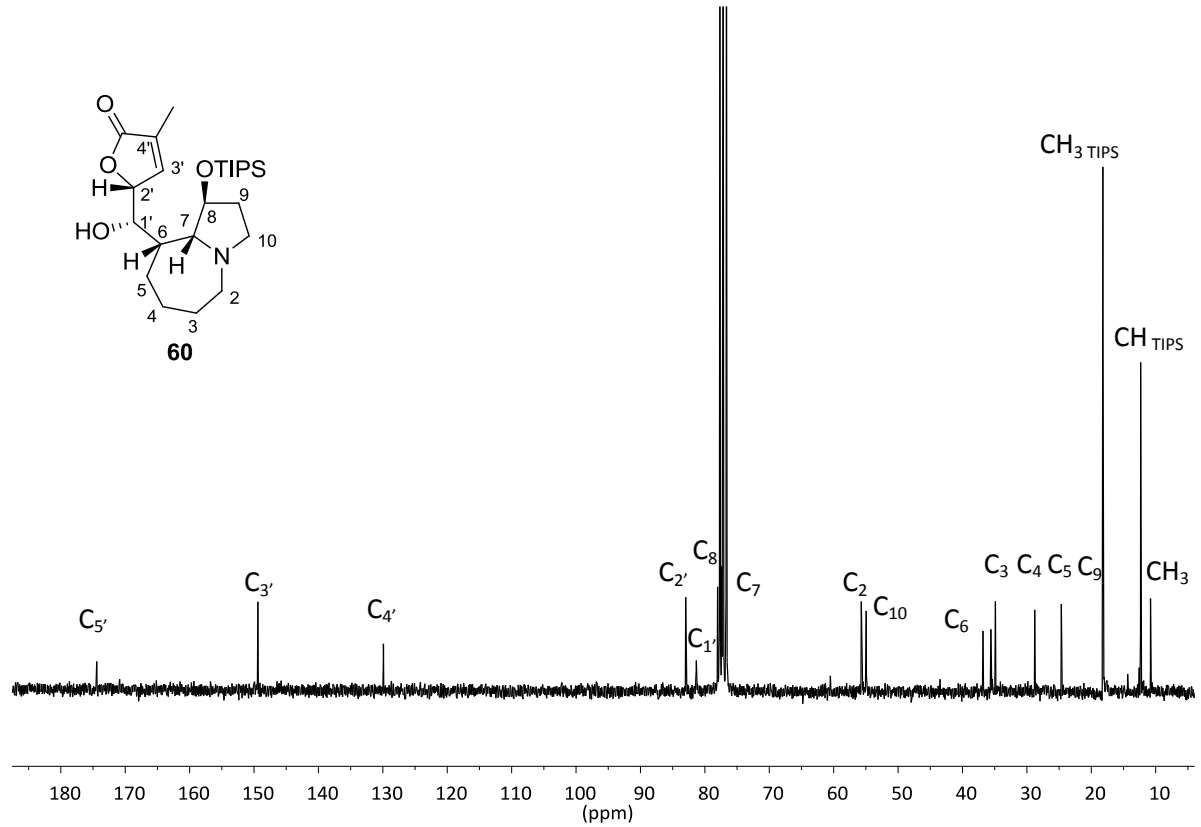

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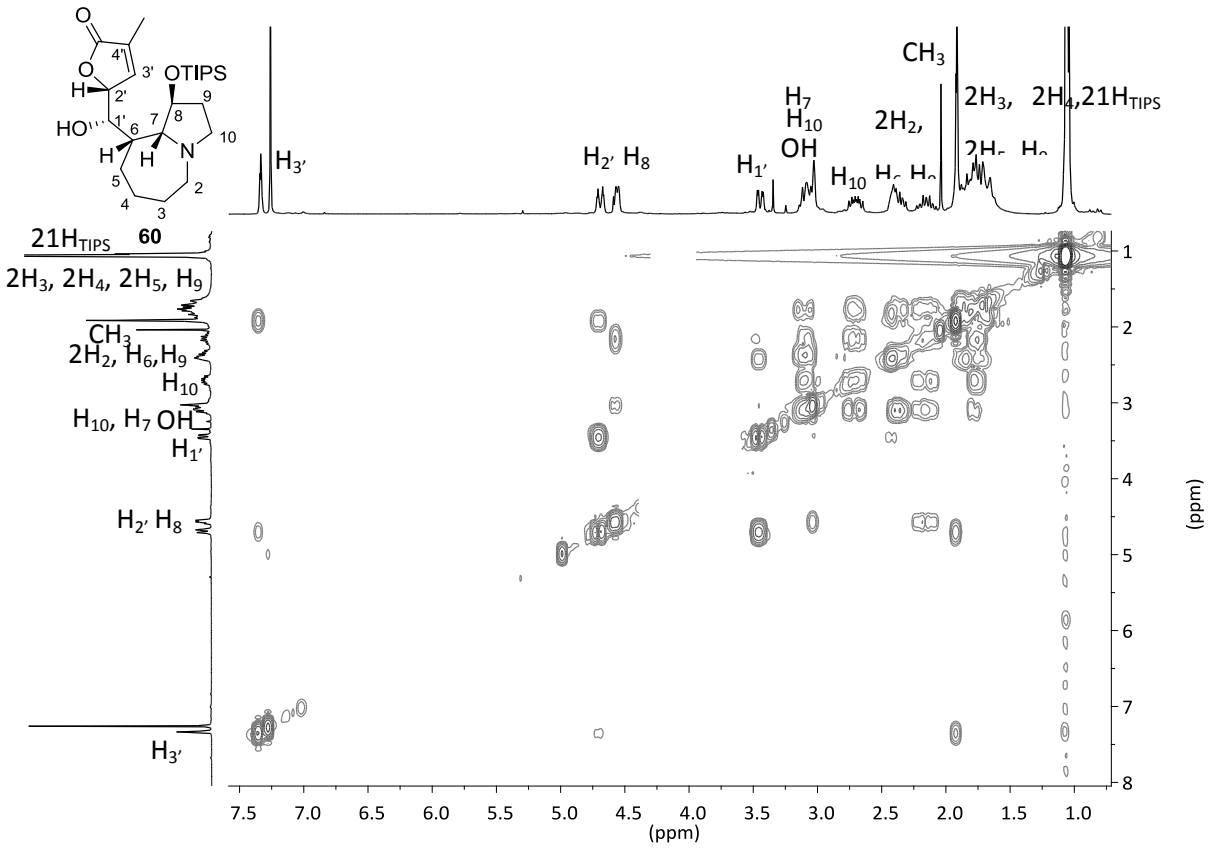

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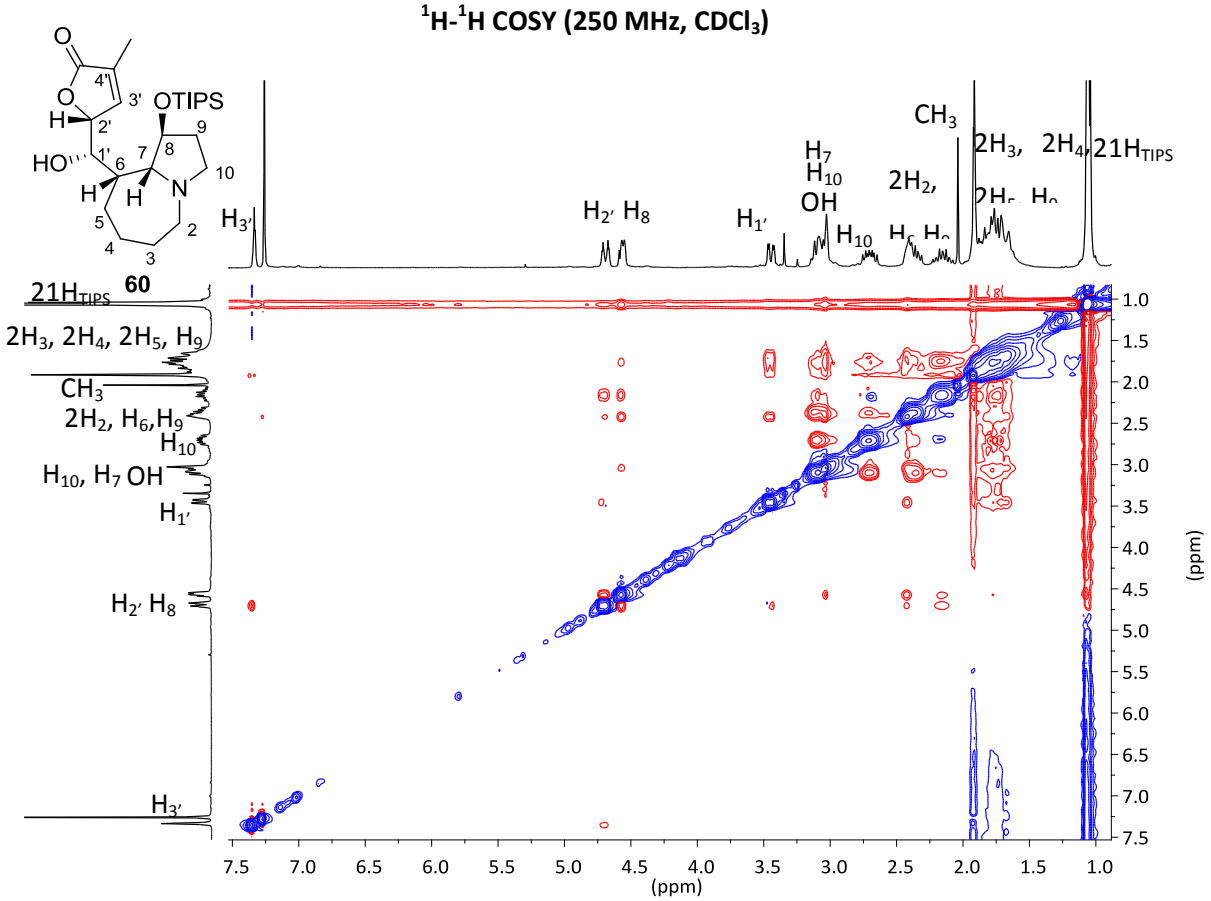

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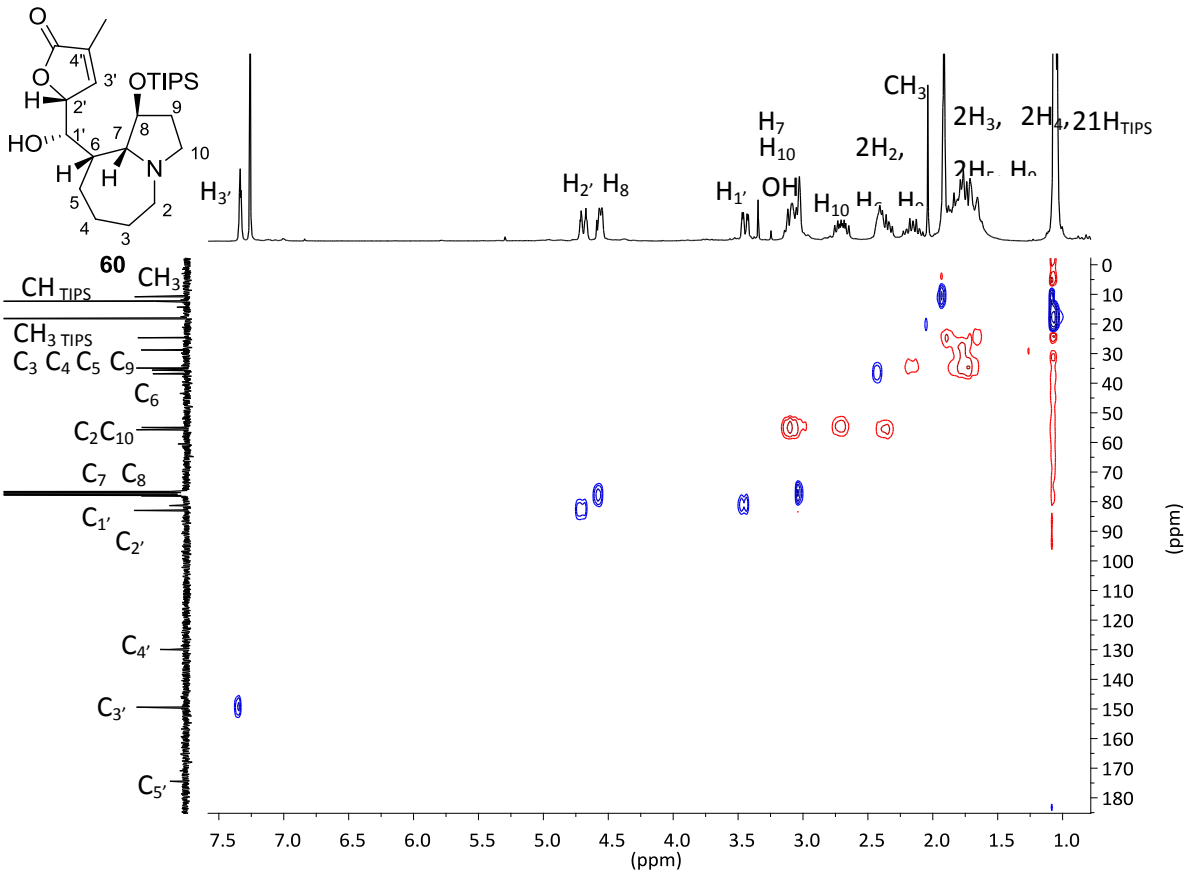
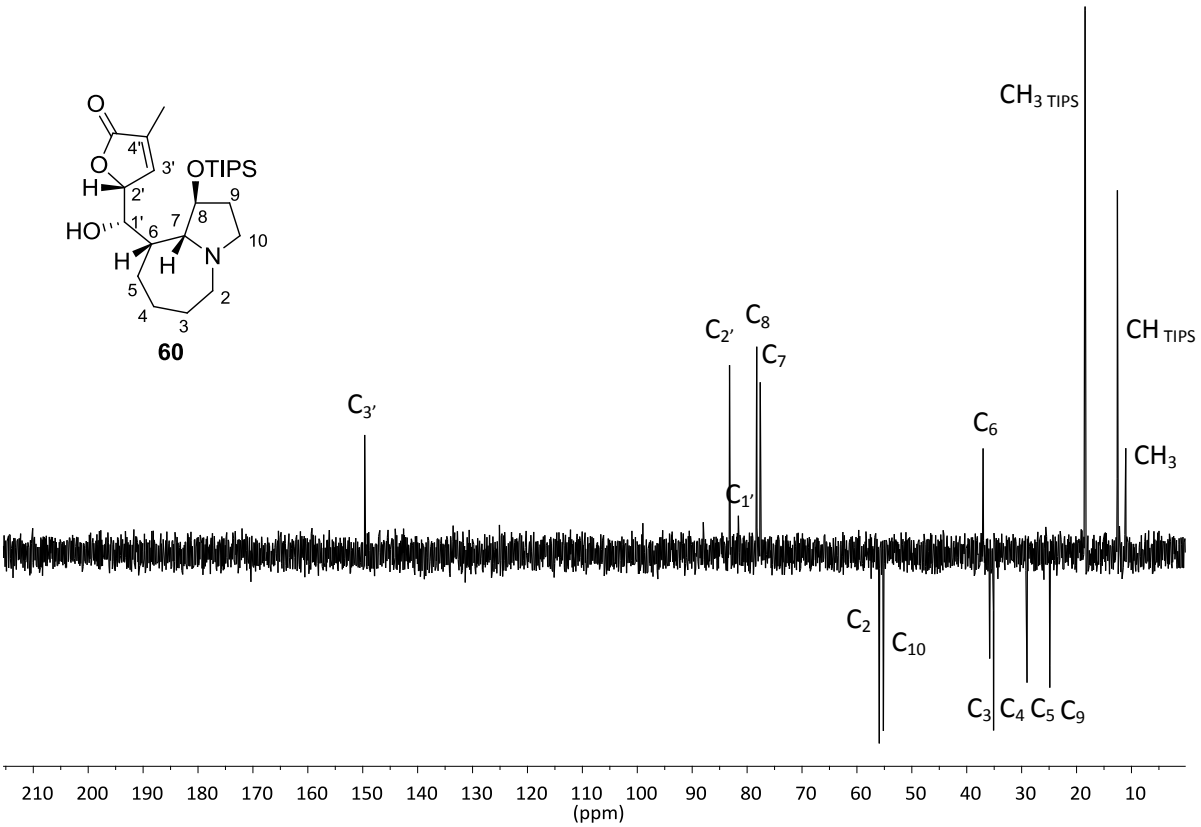
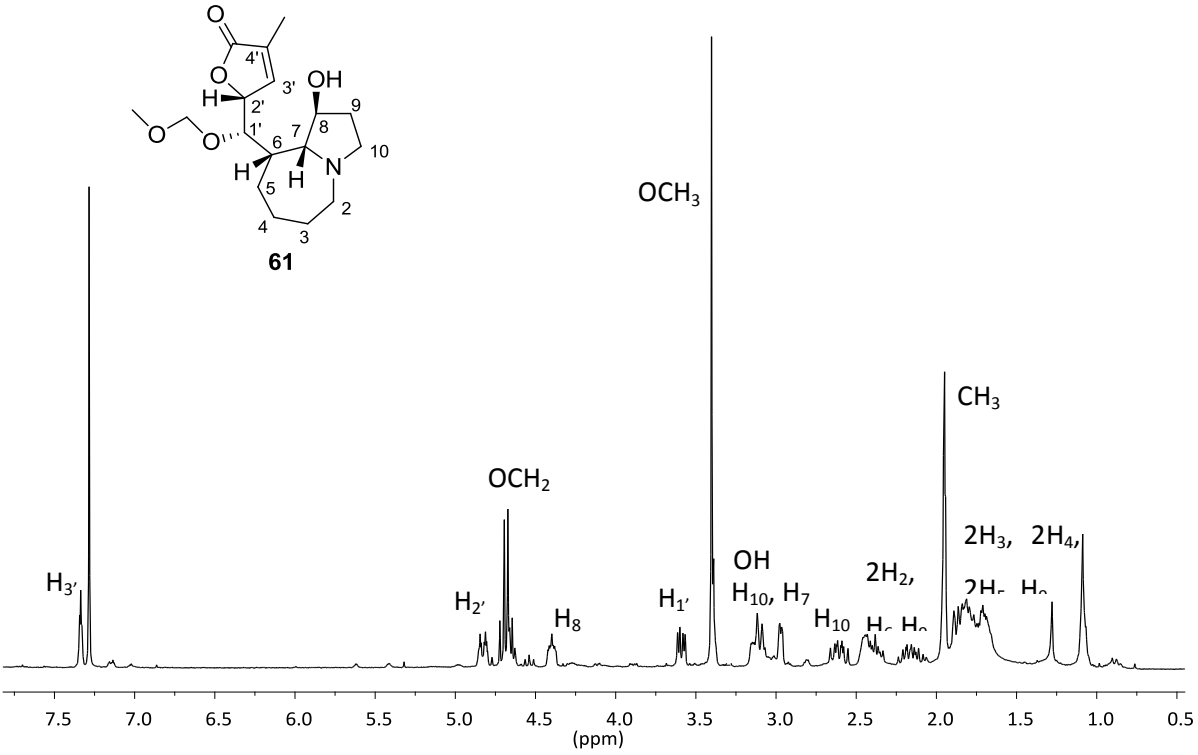


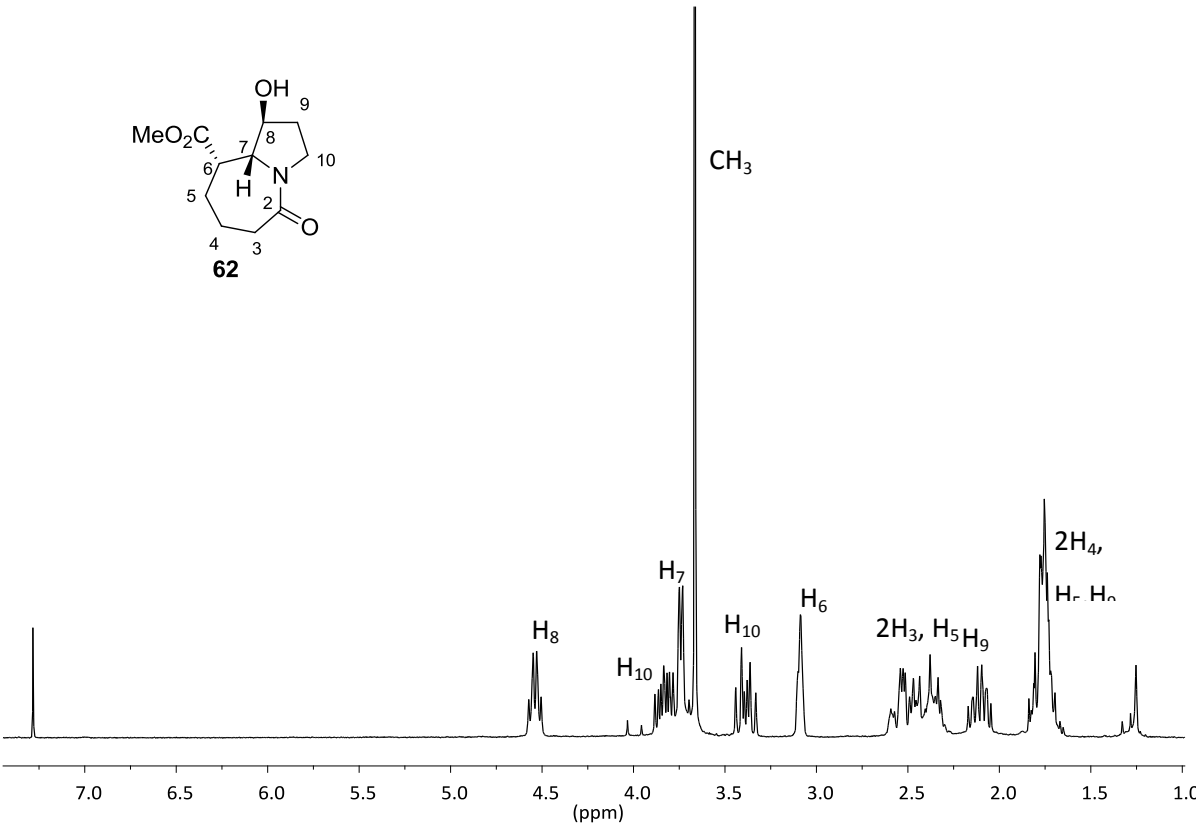
^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, CDCl$_3$)



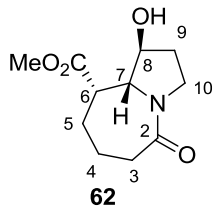
DEPT 135 (62.5 MHz, CDCl$_3$)



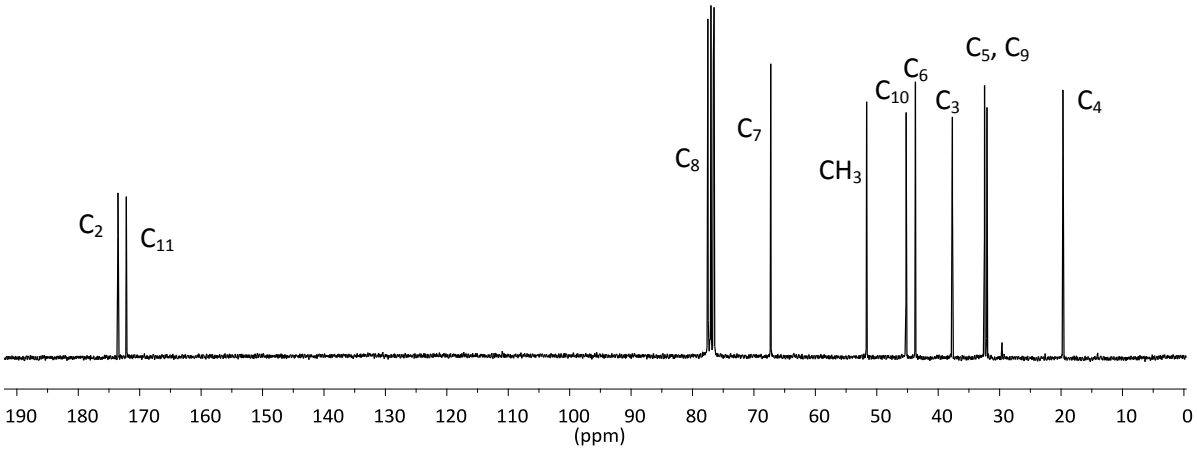
^{1}H-RMN (250 MHz, $CDCl_3$)



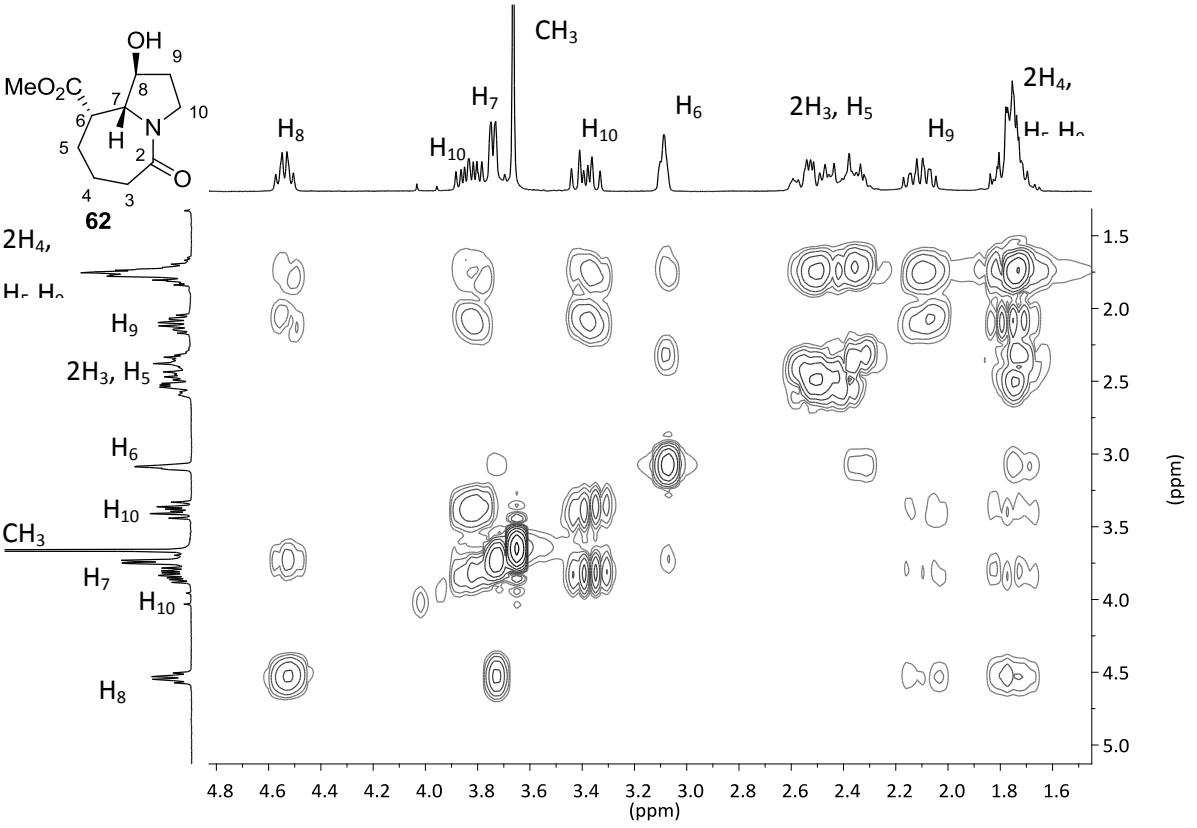
^{1}H-RMN (250 MHz, $CDCl_3$)



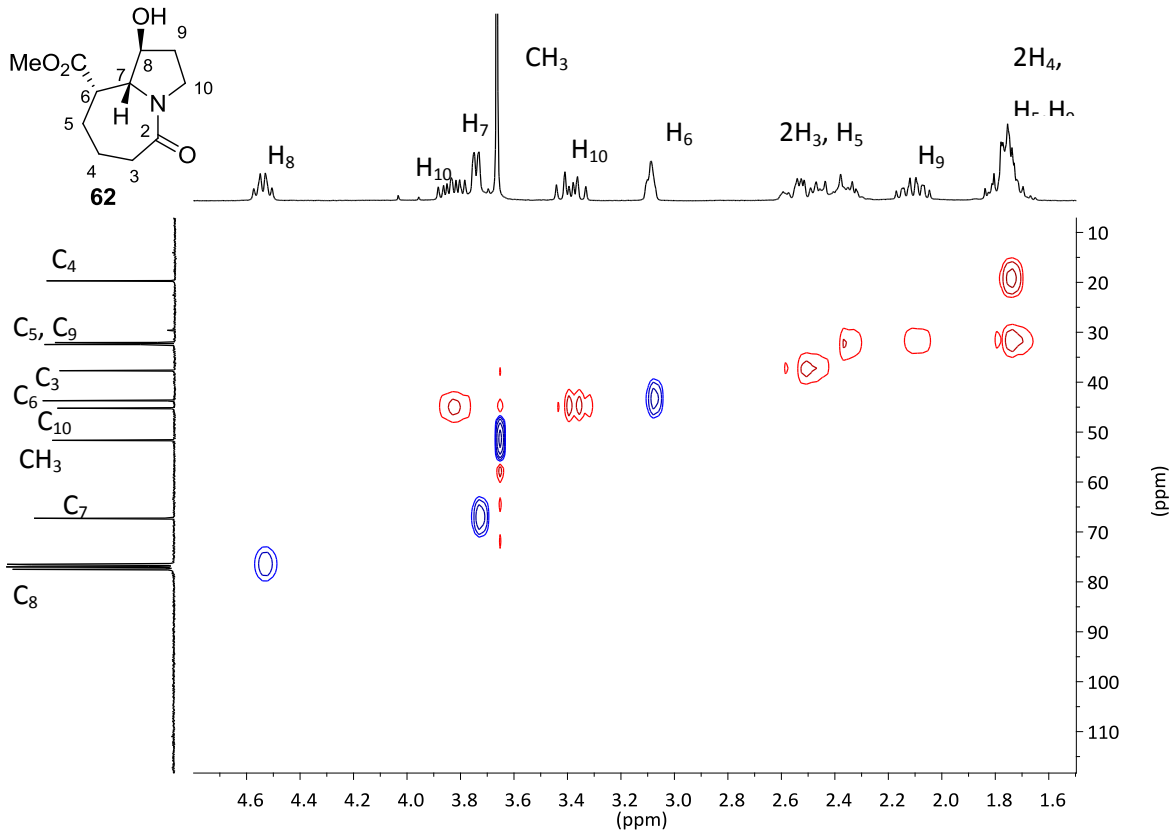
62



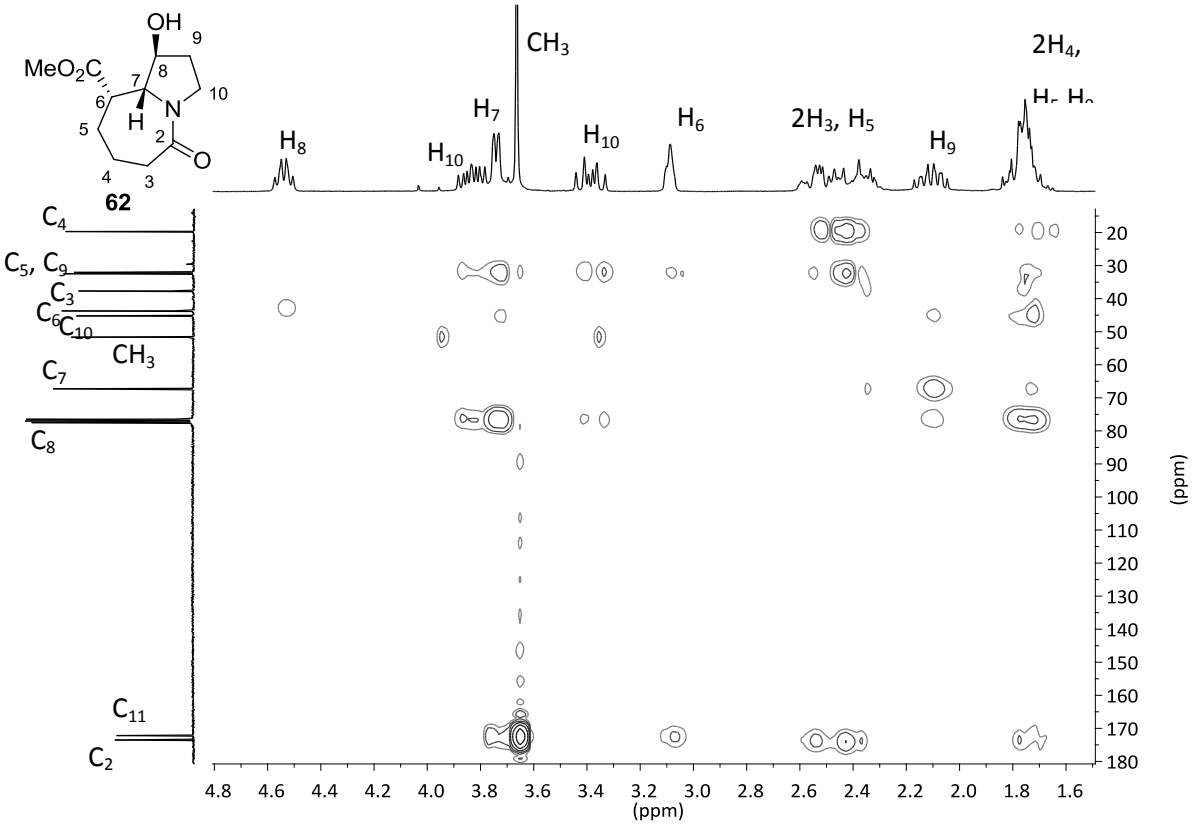
^{13}C-RMN (62.5 MHz, $CDCl_3$)



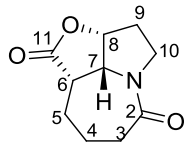
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, $CDCl_3$)



^{1}H-^{13}C HMBC (360 MHz, $CDCl_3$)



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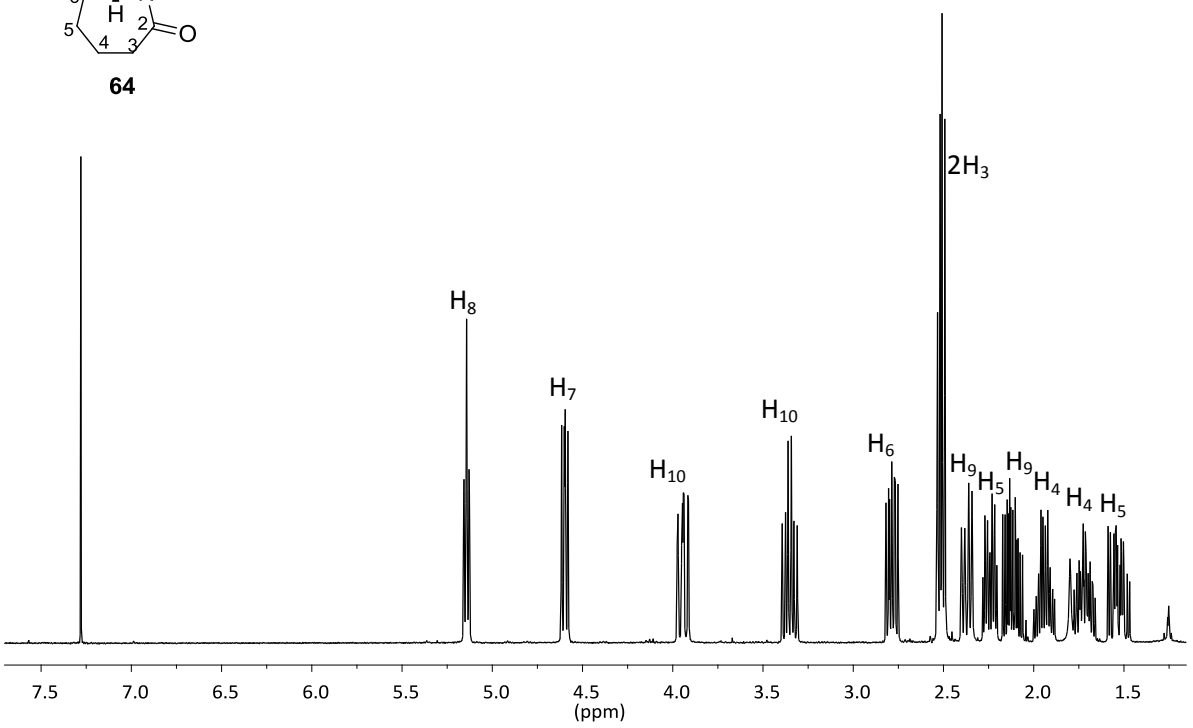
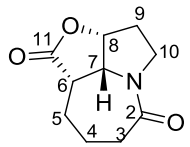


^{1}H-RMN (360 MHz, $CDCl_3$)



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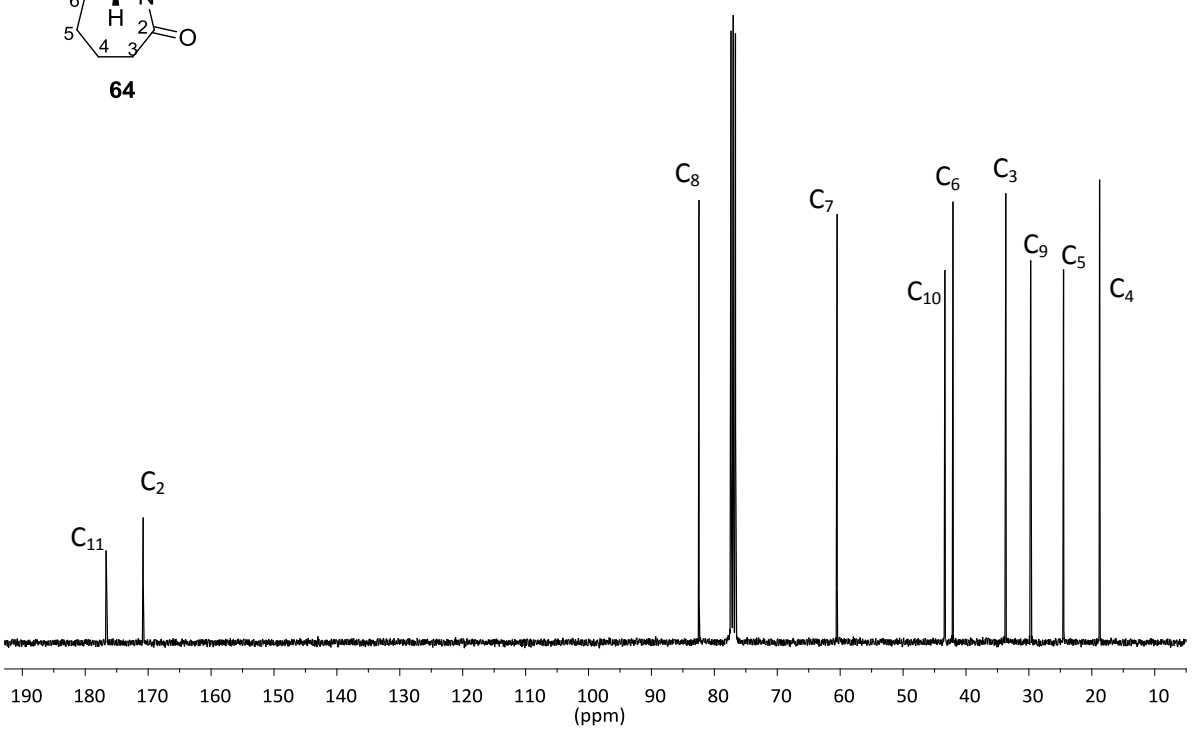
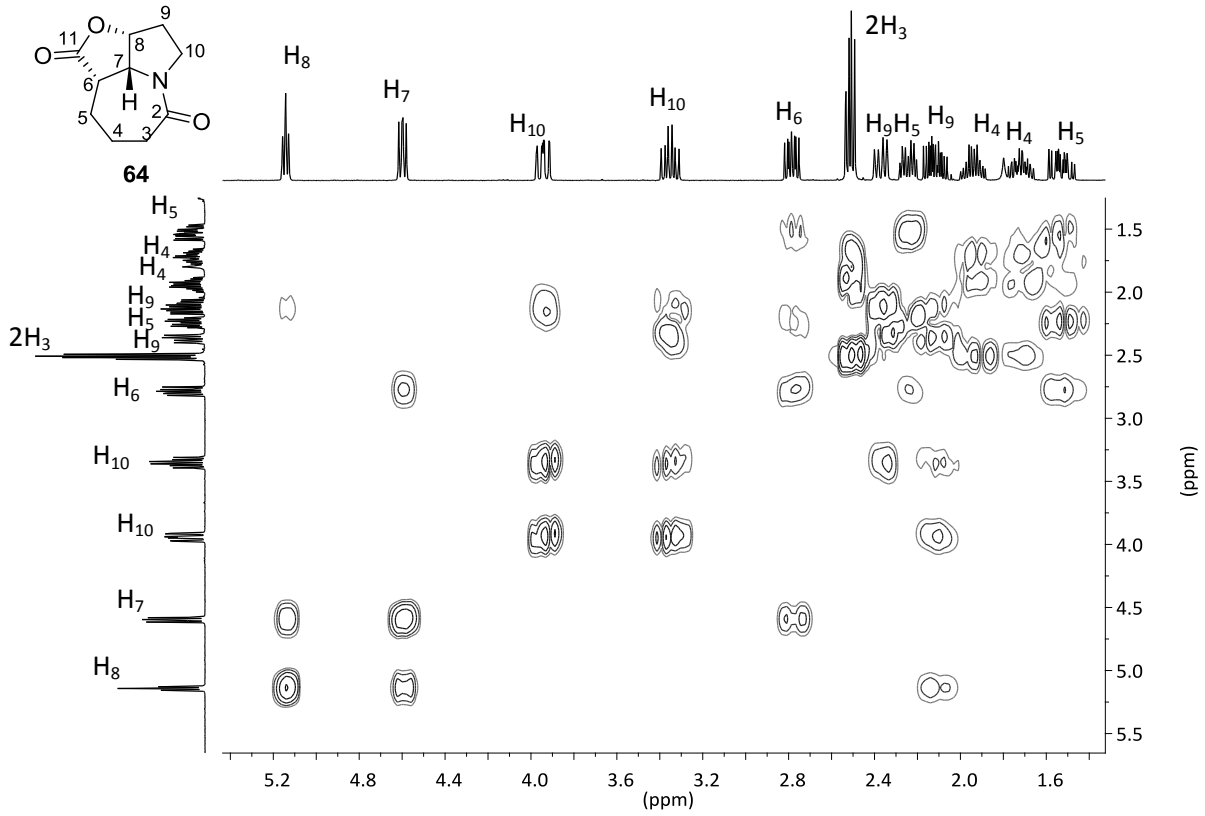
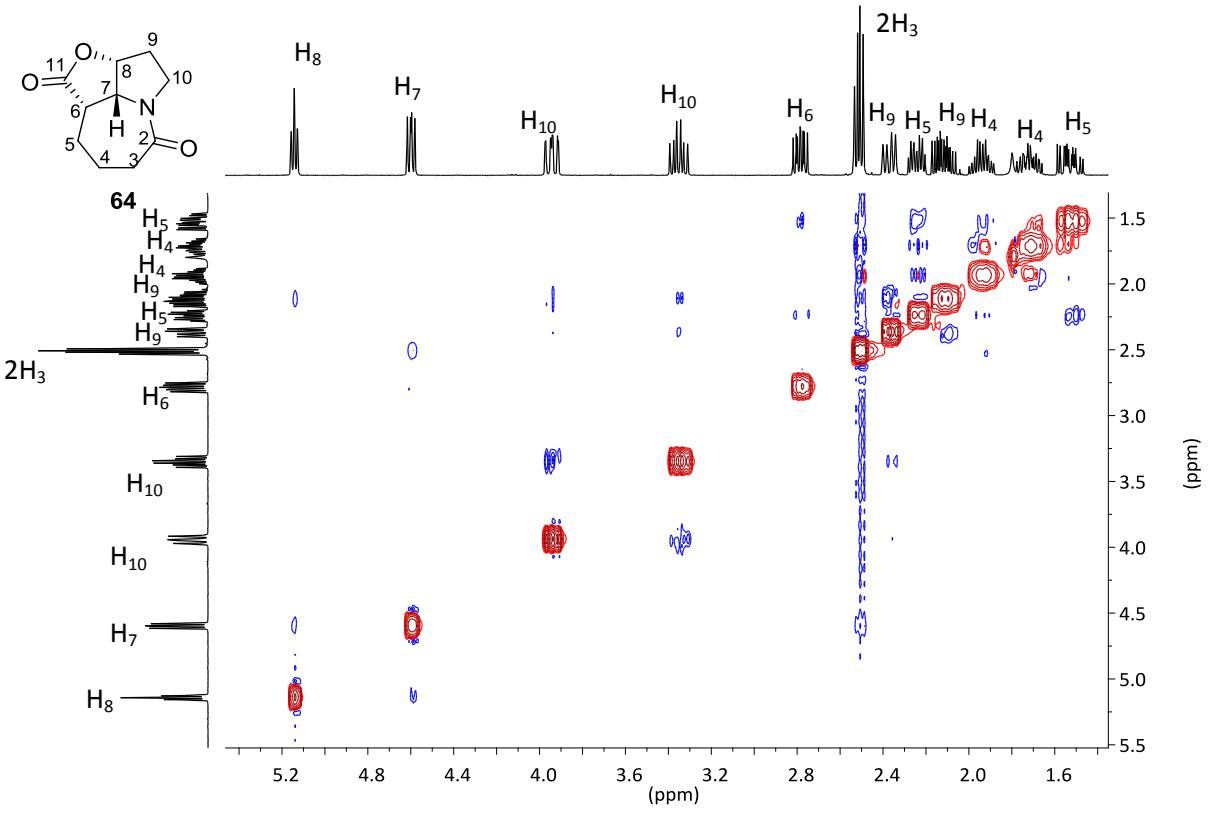


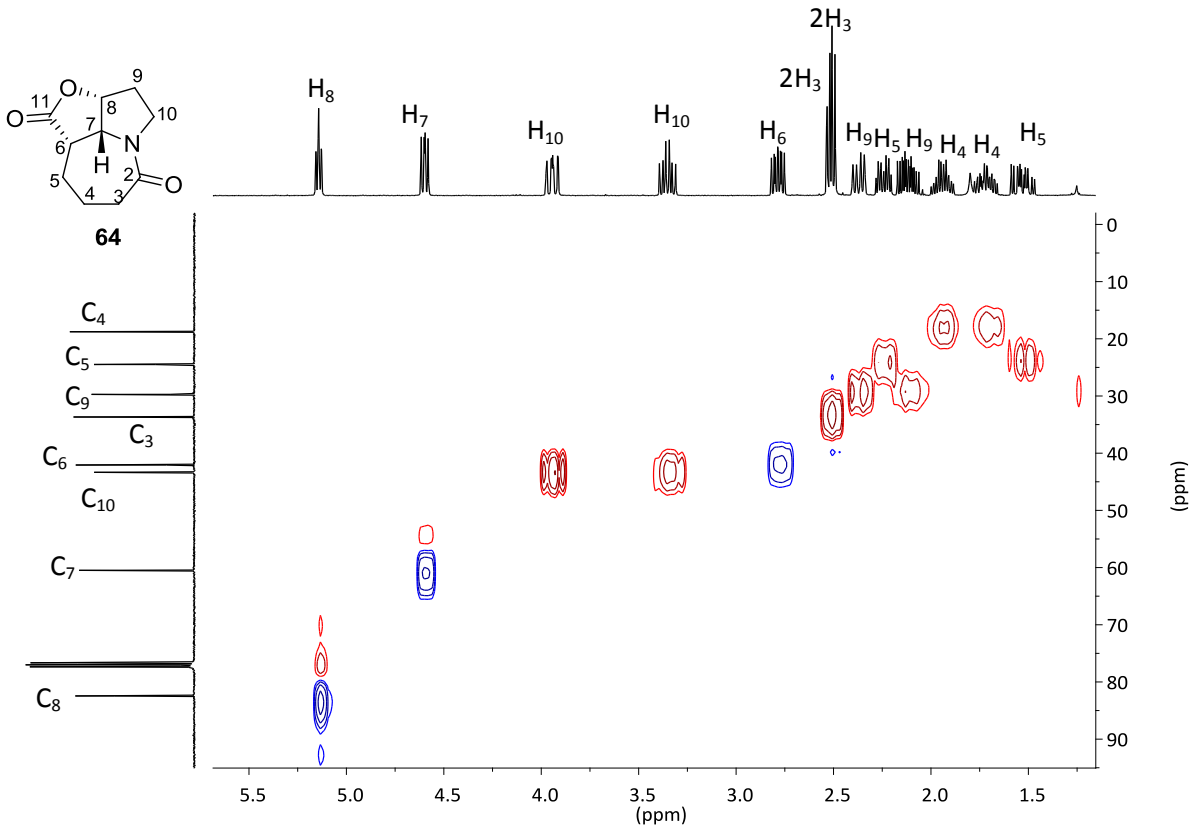
^{13}C-RMN (90 MHz, $CDCl_3$)



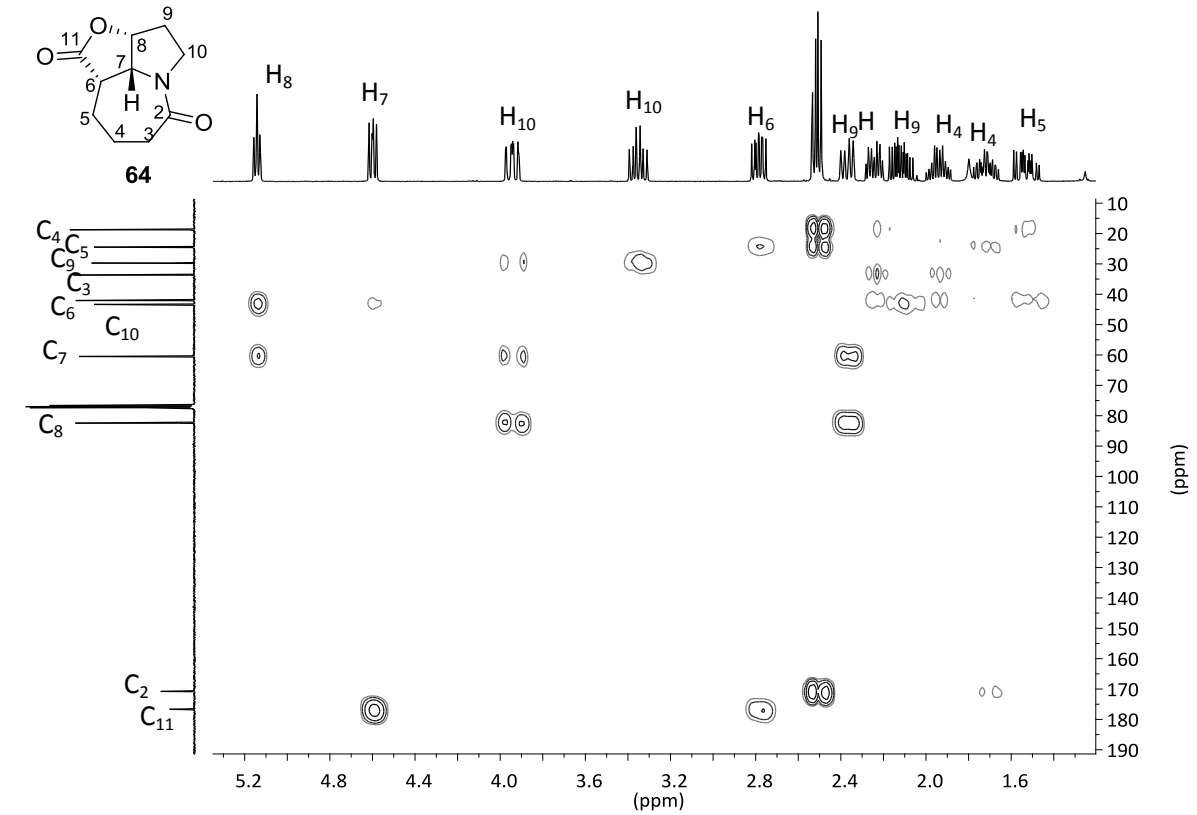
^{1}H-^{1}H COSY (360 MHz, $CDCl_3$)



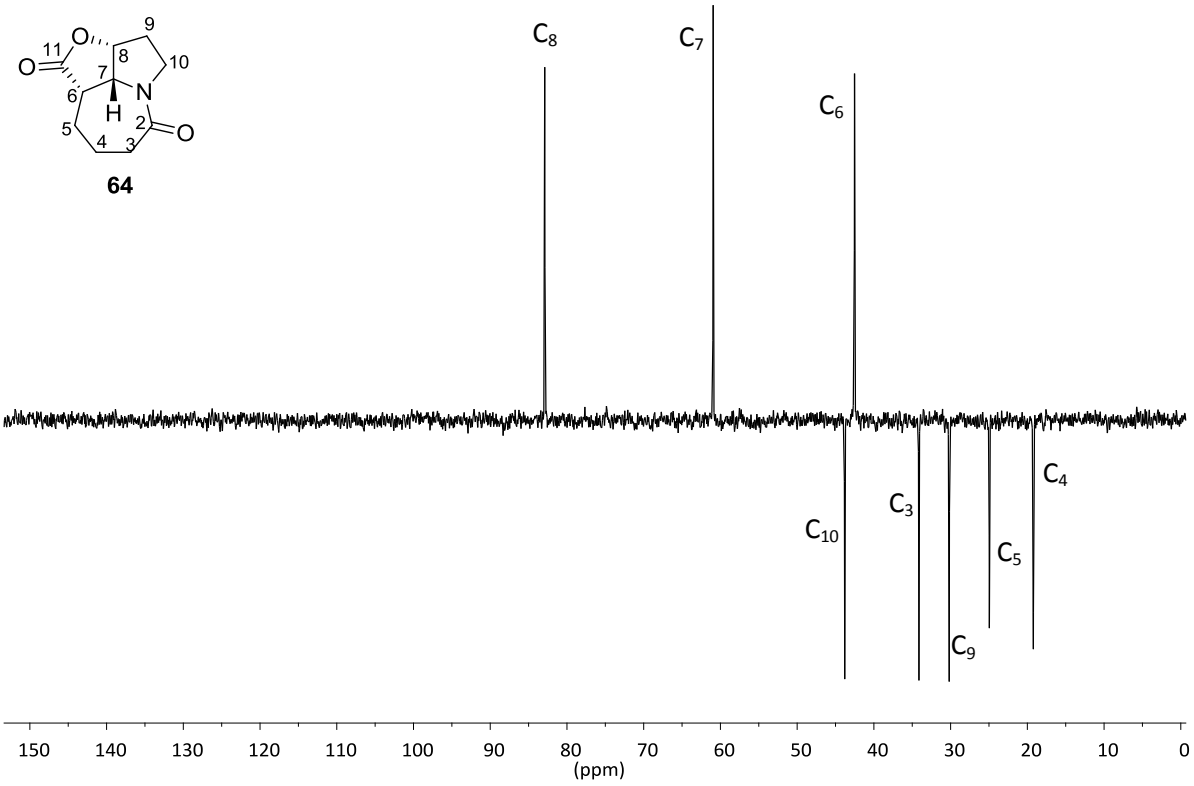
NOESY (360 MHz, $CDCl_3$)



^{1}H-^{13}C HSQC$_{ed}$ (360 MHz, $CDCl_3$)

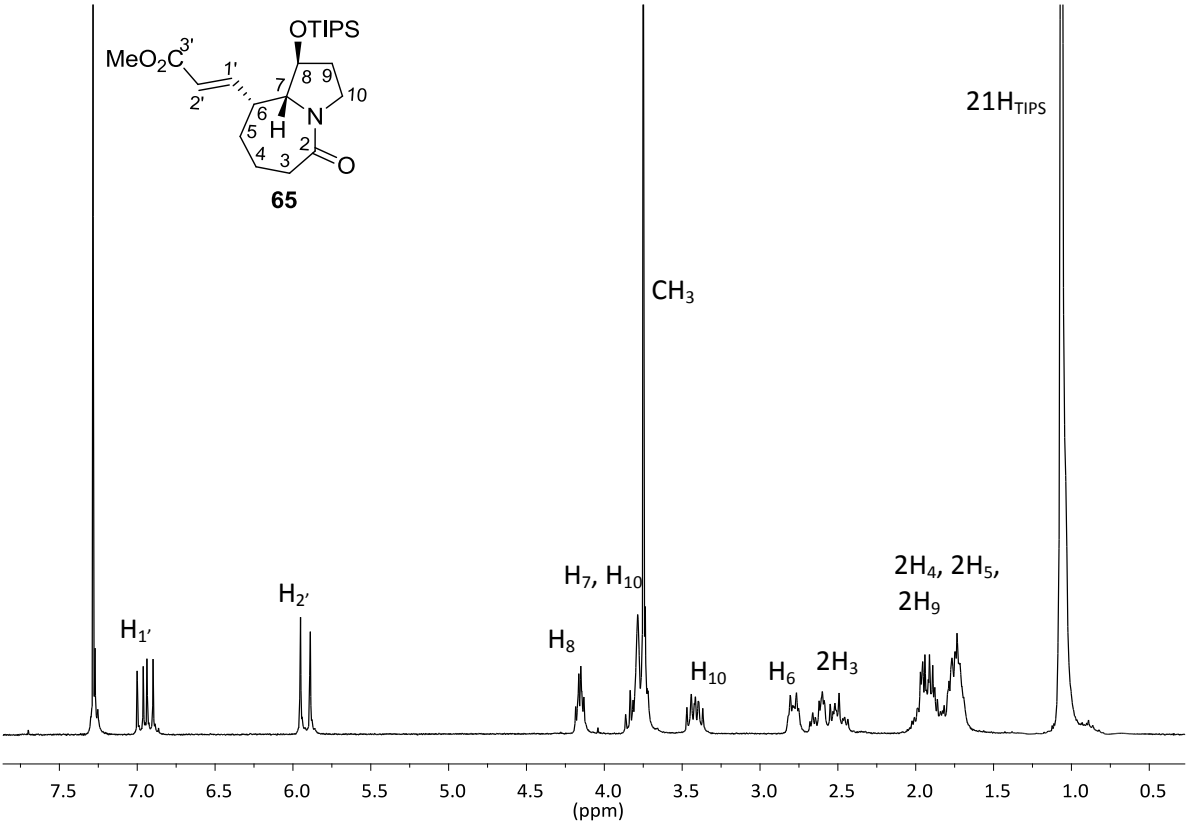


^{1}H-^{13}C HMBC (360 MHz, $CDCl_3$)



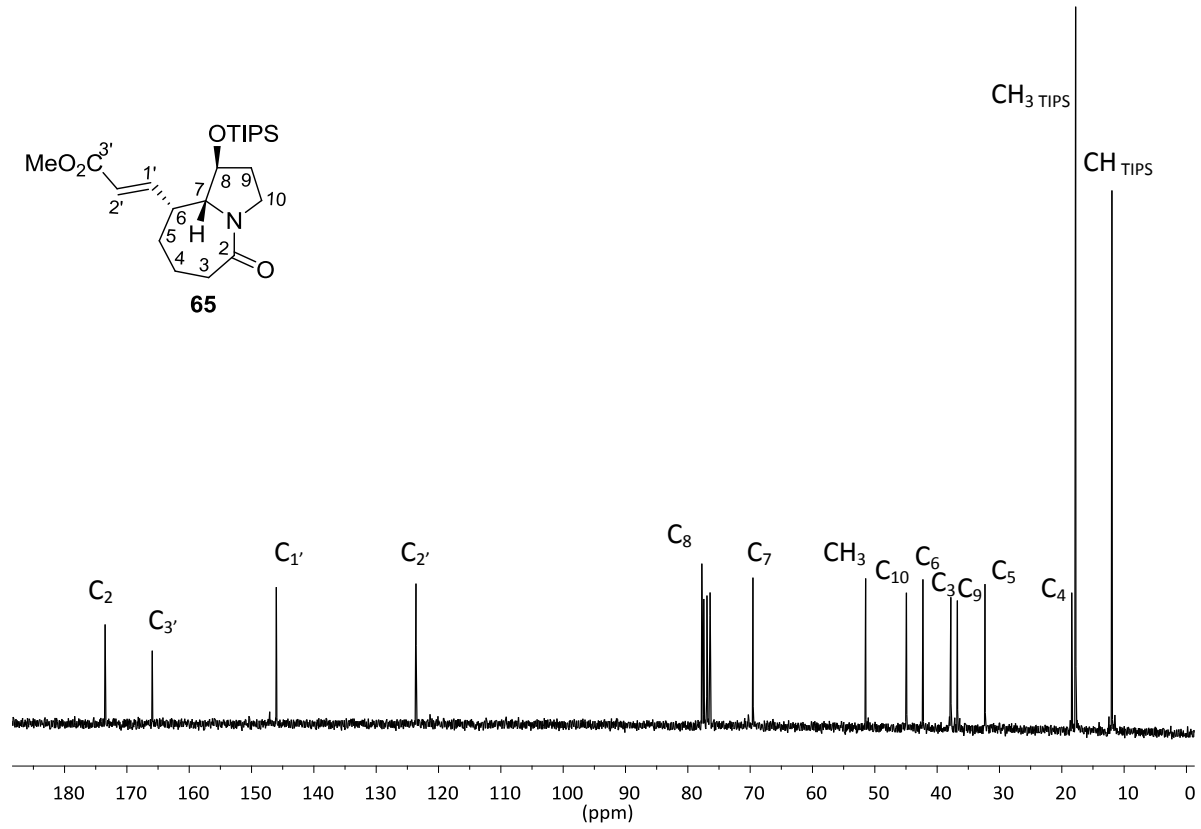
64

DEPT 135 (90 MHz, $CDCl_3$)

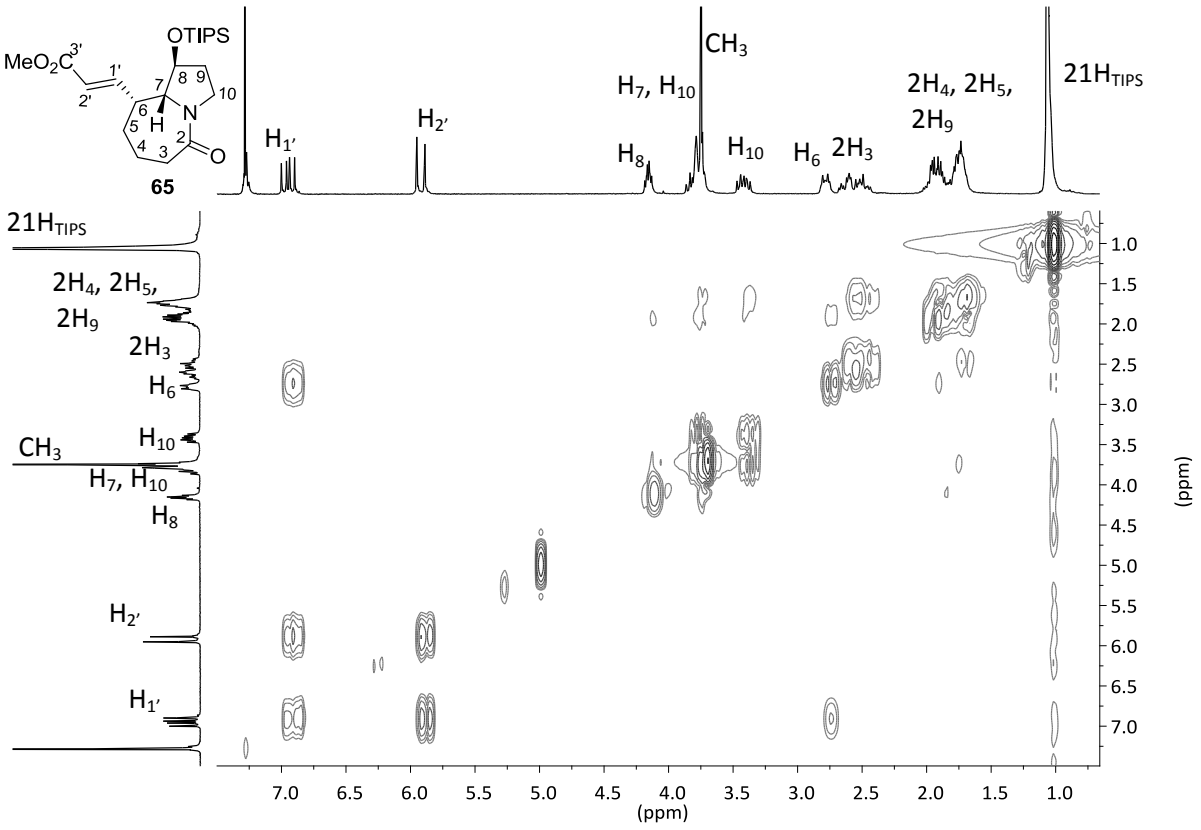


65

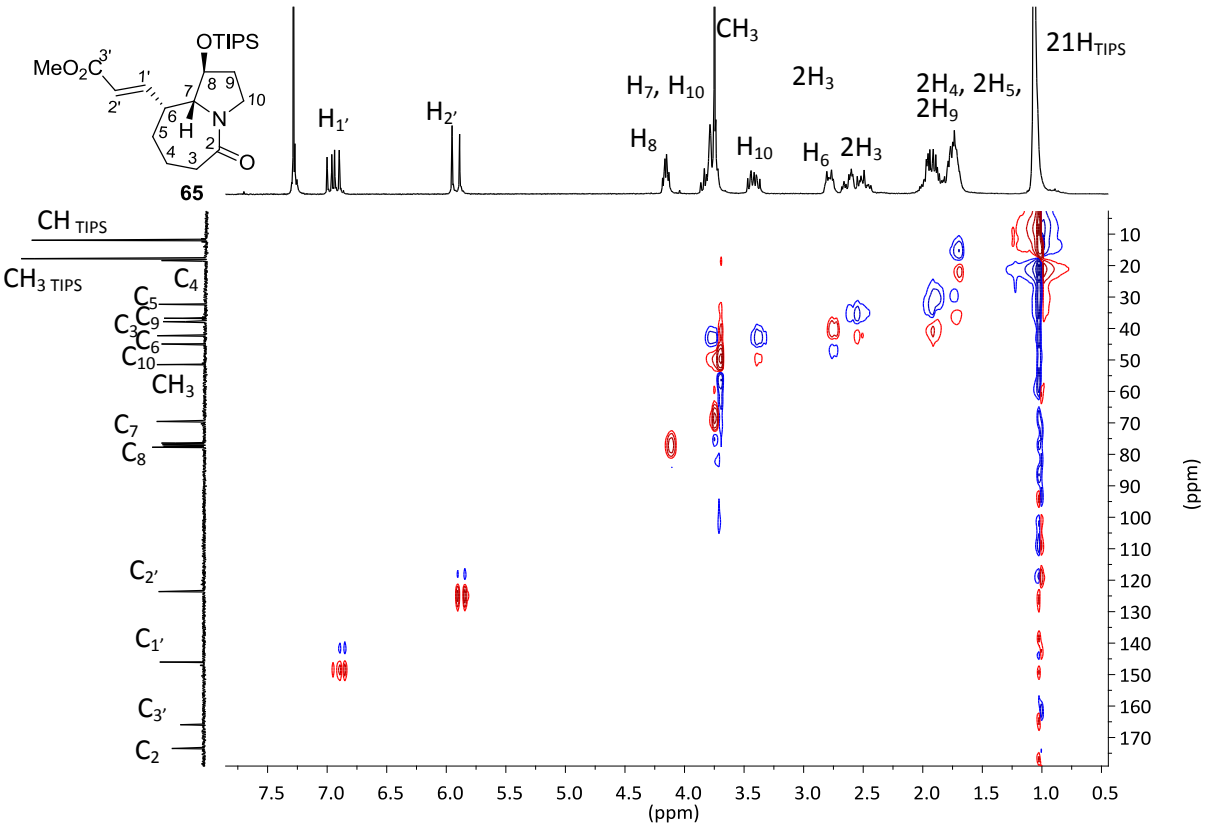
^{1}H-RMN (250 MHz, $CDCl_3$)



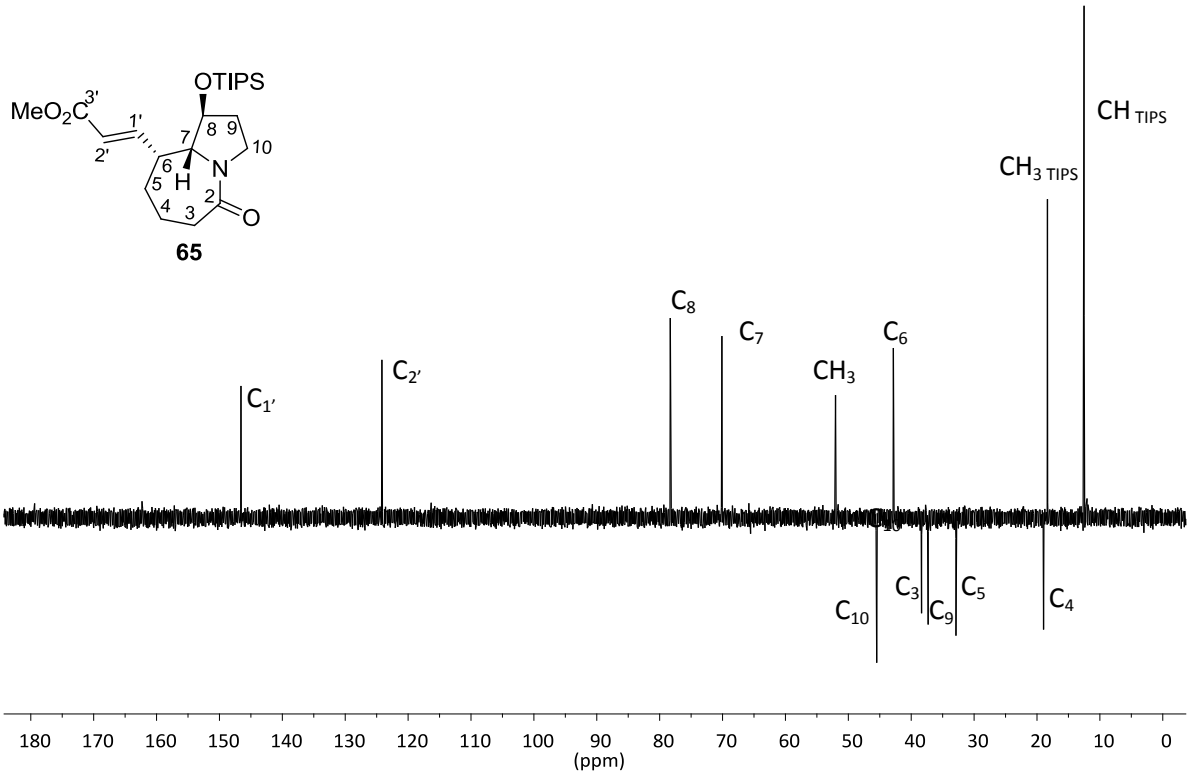
^{13}C-RMN (62.5 MHz, $CDCl_3$)



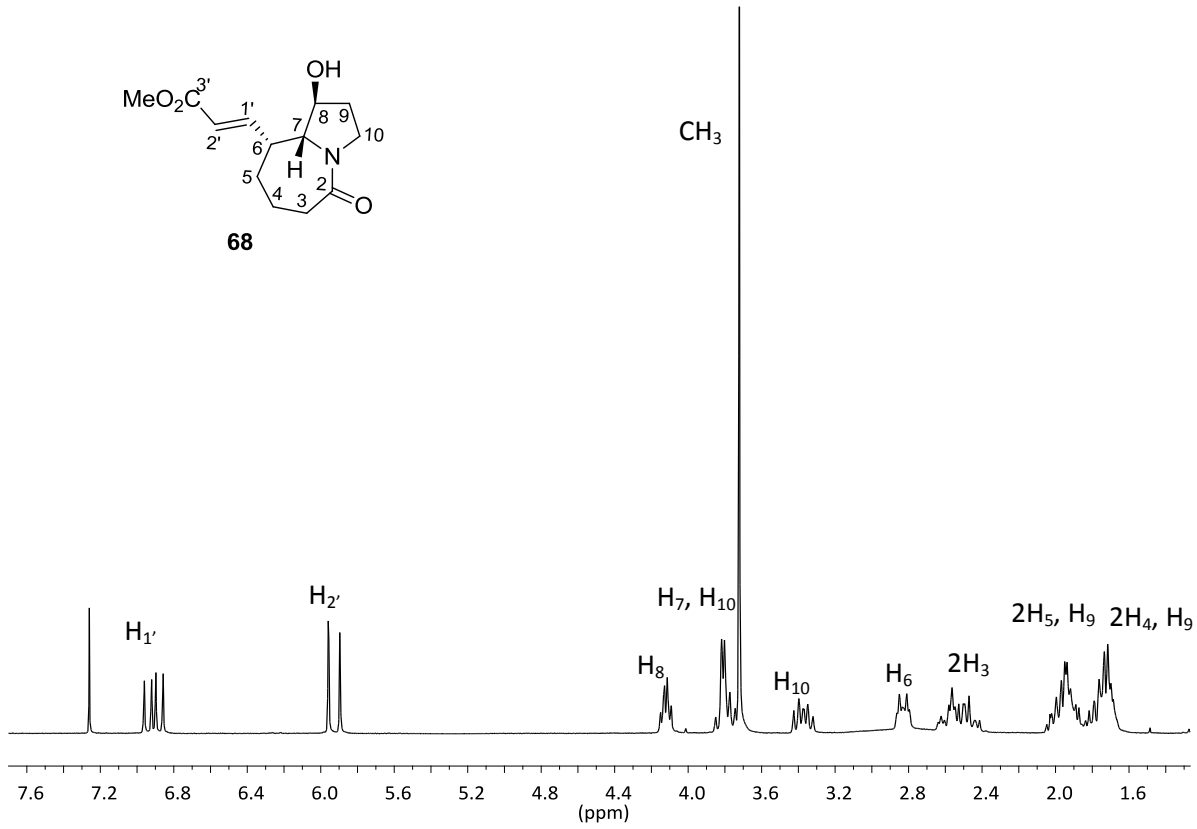
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



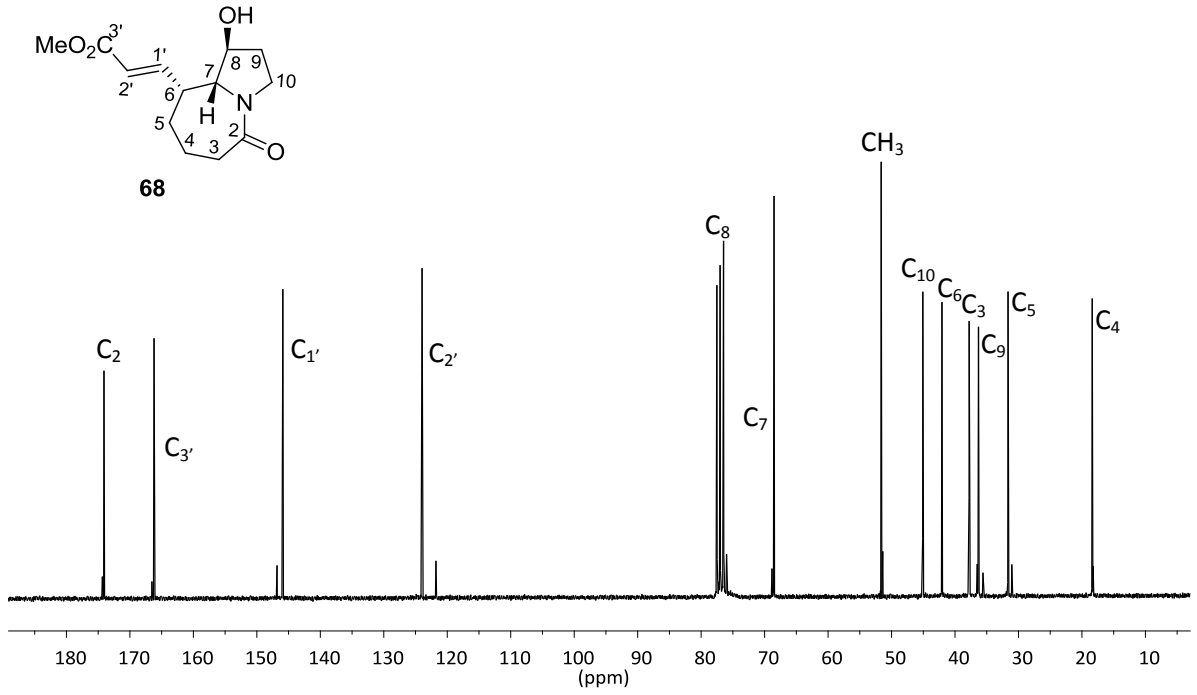
^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, $CDCl_3$)



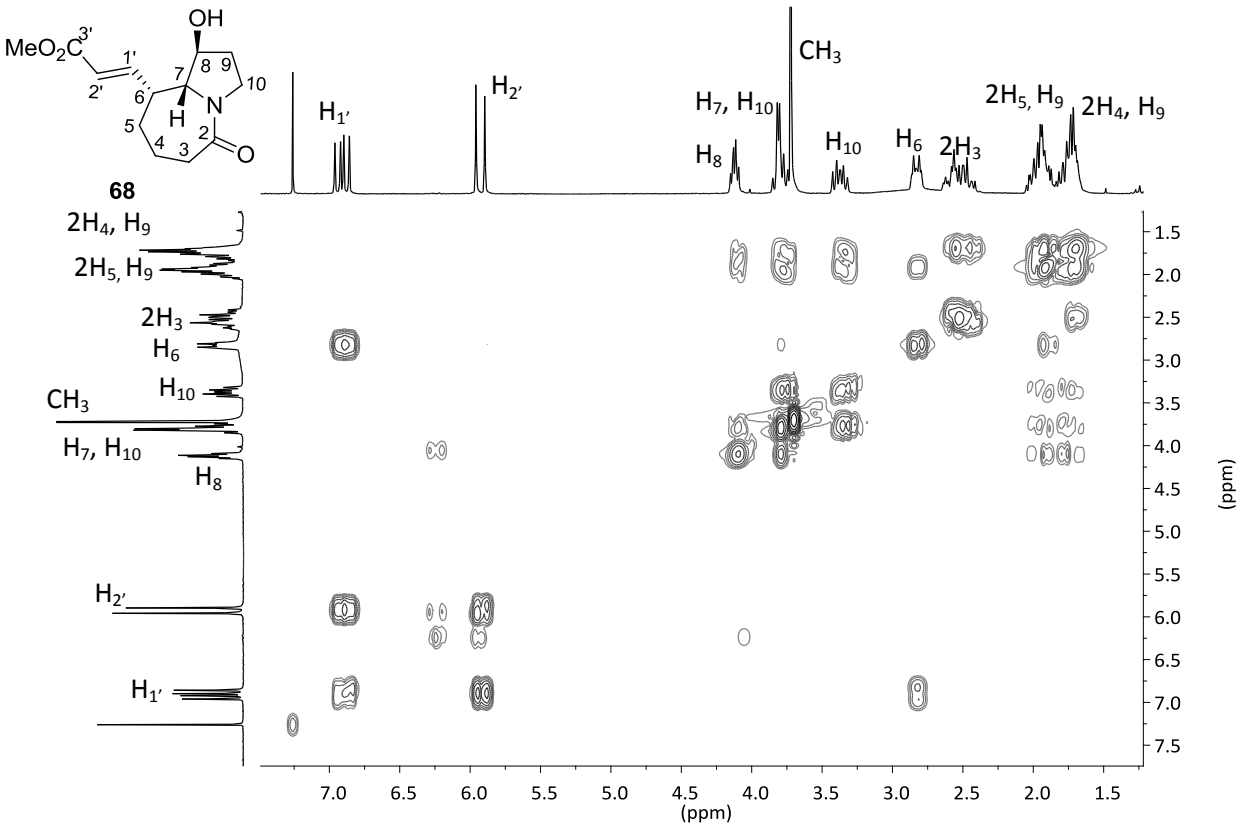
DEPT 135 (62.5 MHz, $CDCl_3$)



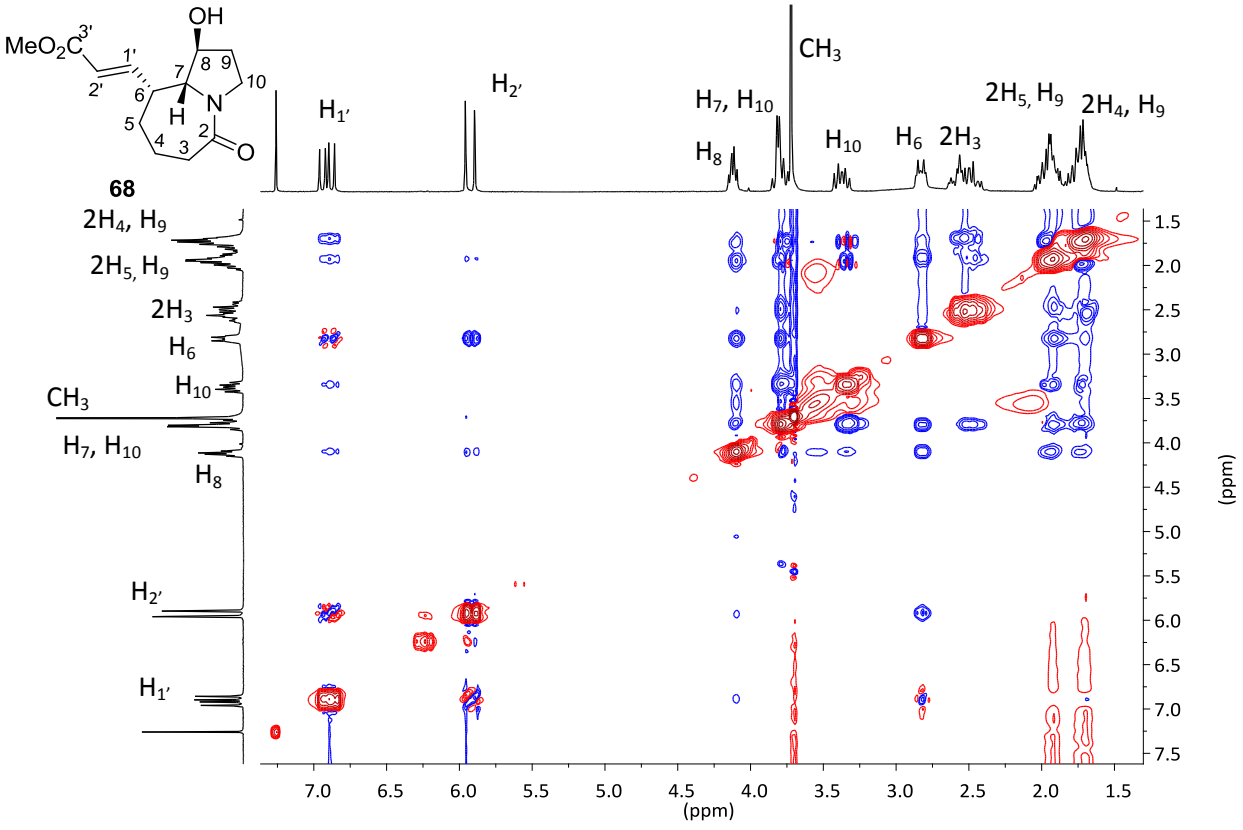
^{1}H-RMN (250 MHz, $CDCl_3$)



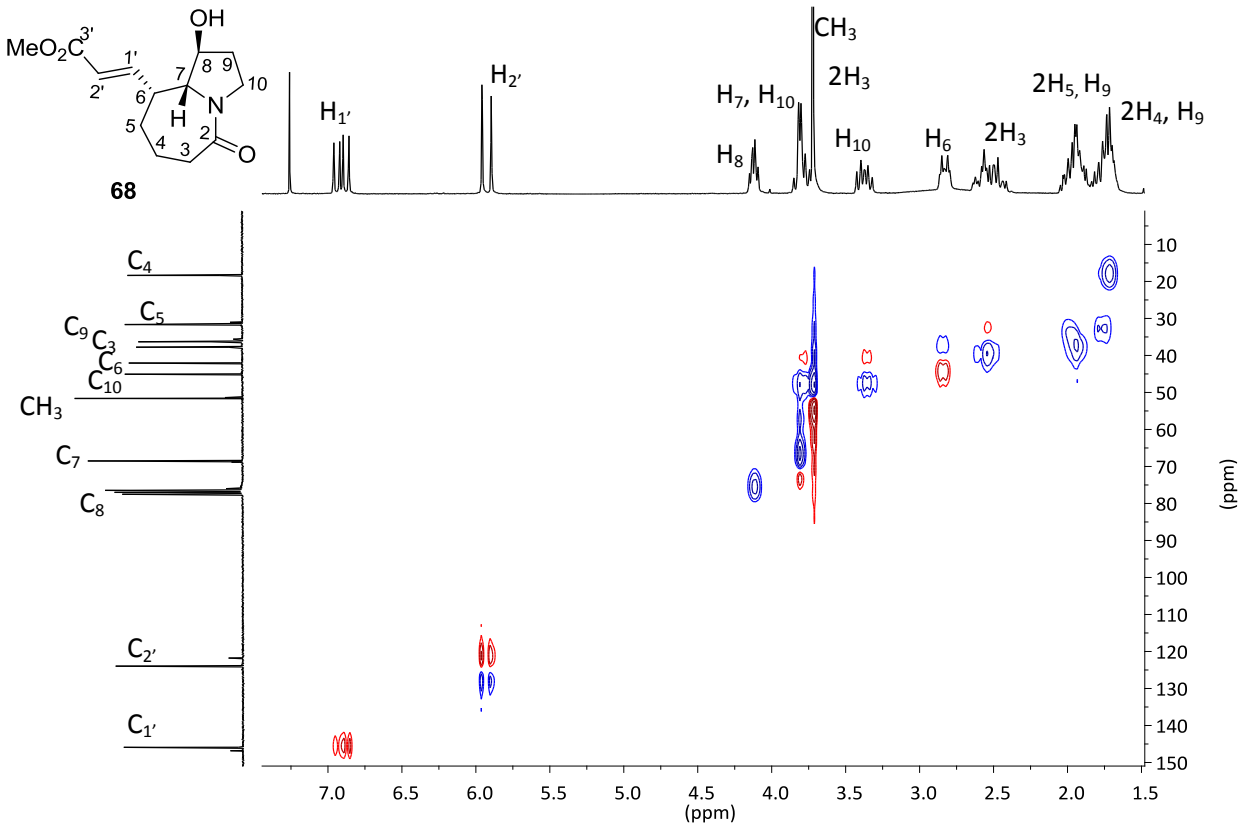
^{13}C-RMN (62.5 MHz, $CDCl_3$)



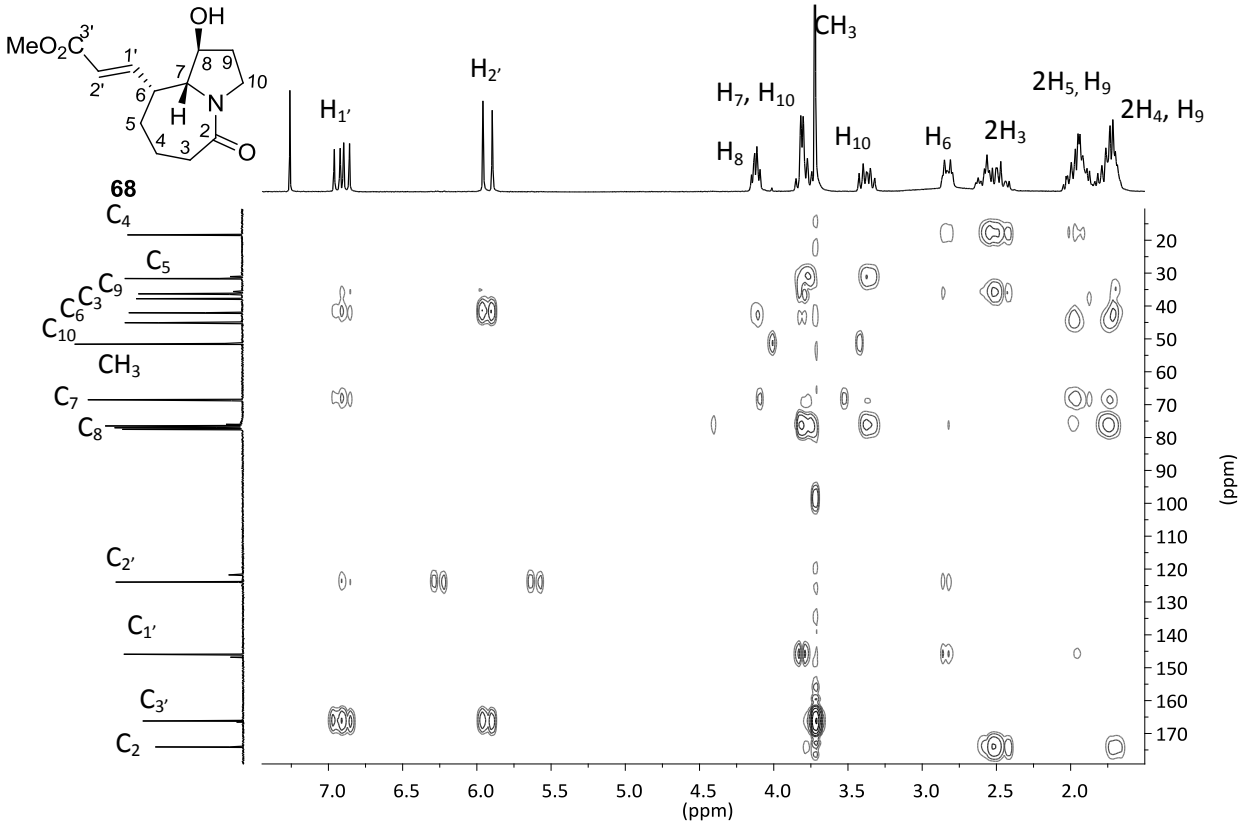
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



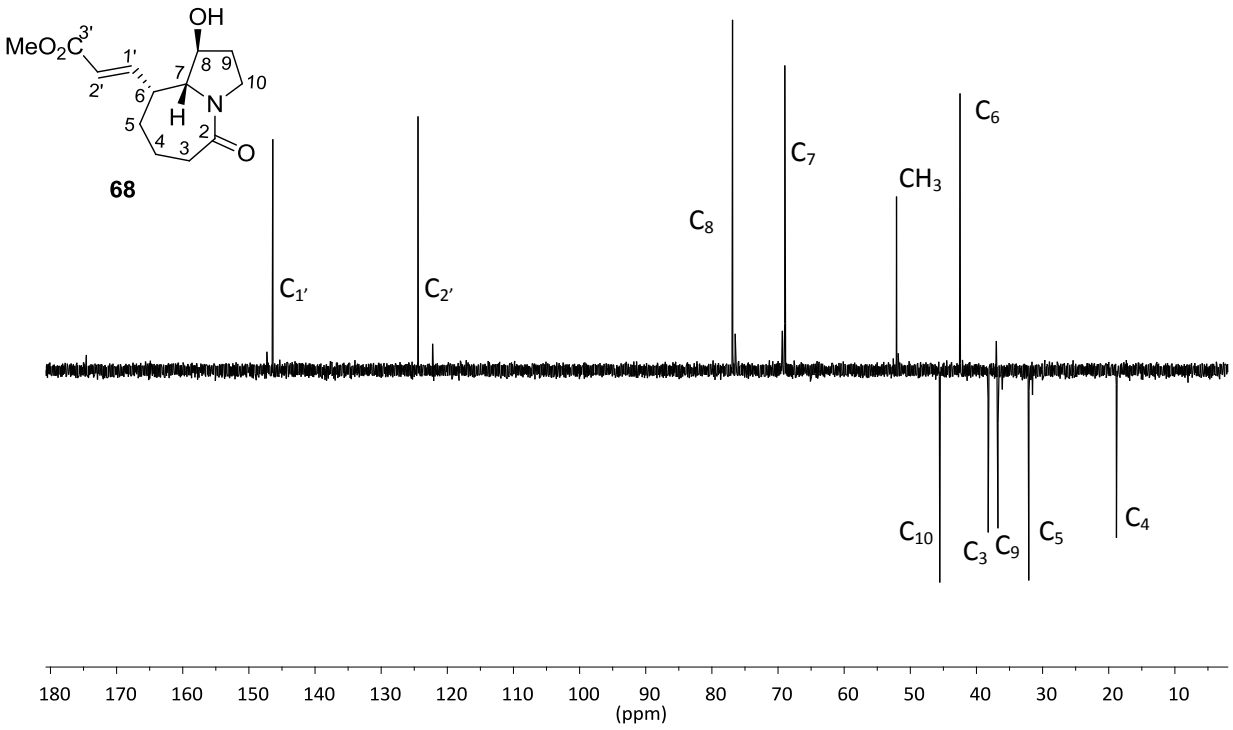
NOESY (250 MHz, $CDCl_3$)



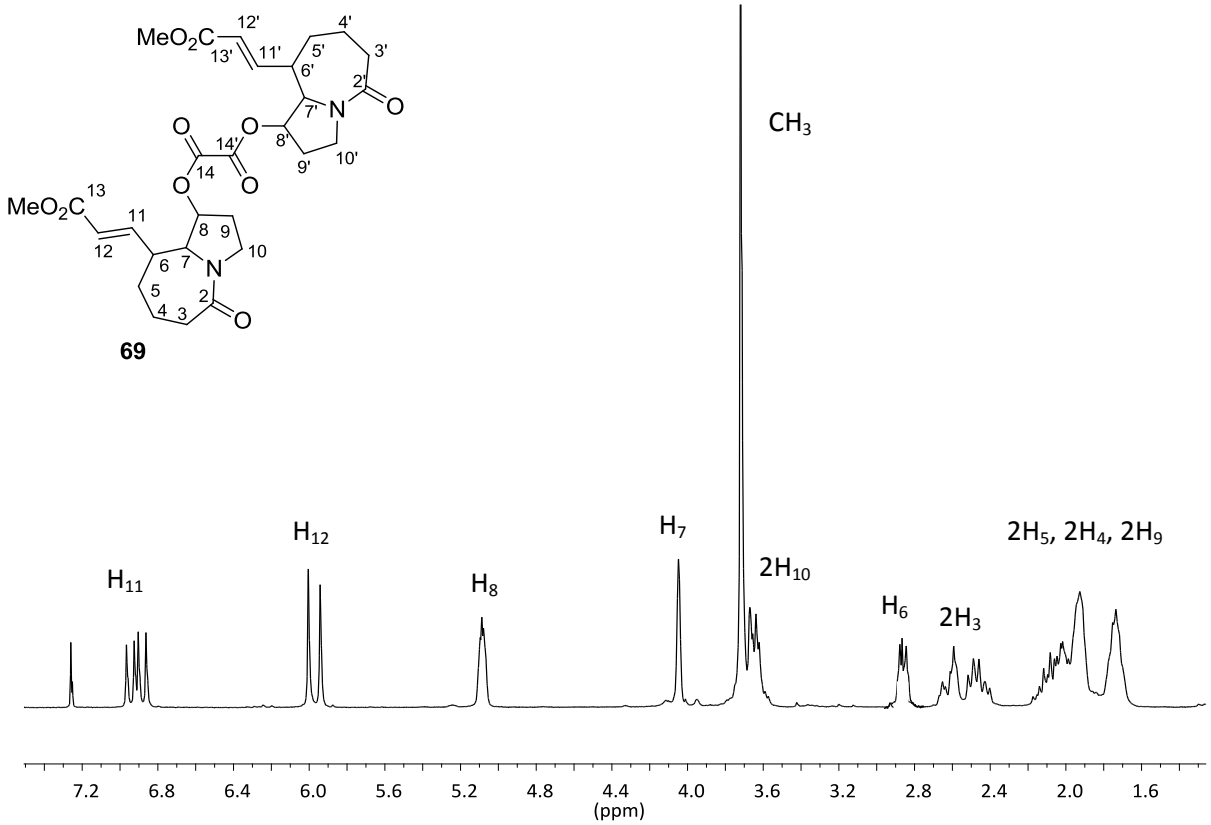
^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, $CDCl_3$)



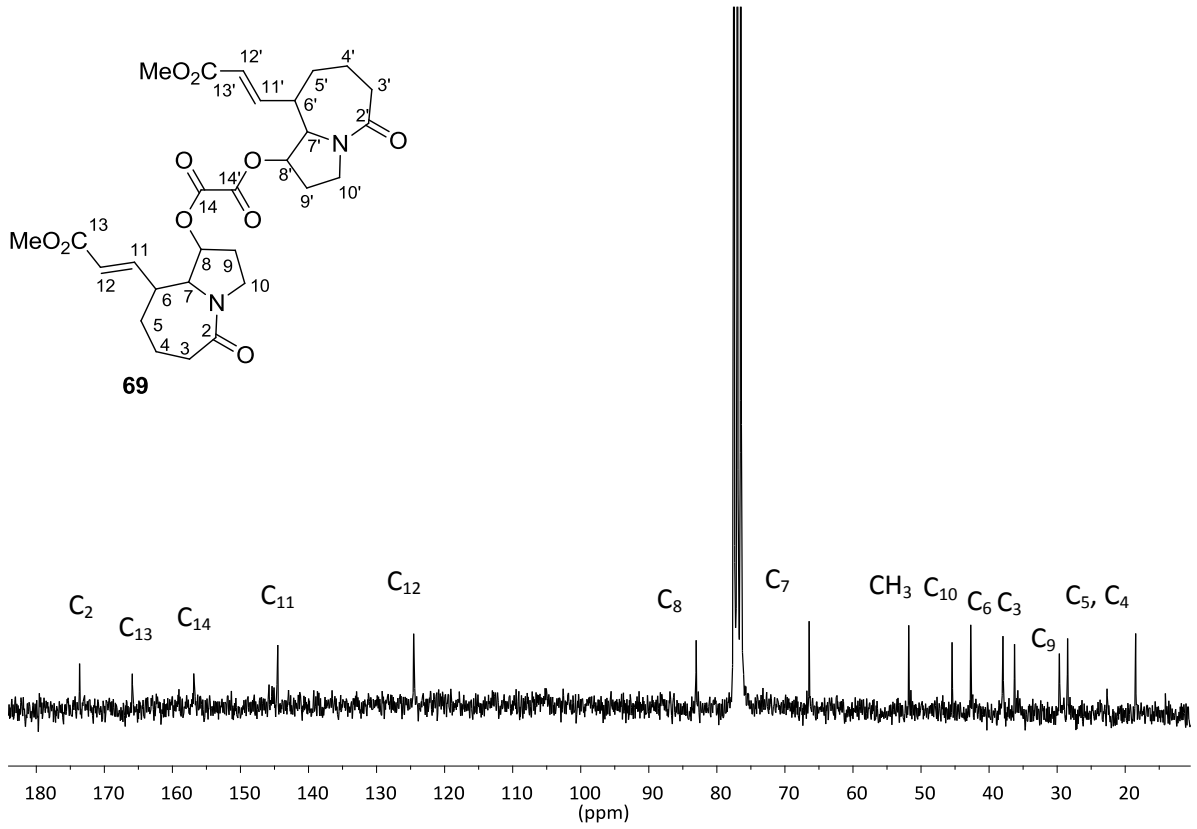
^{1}H-^{13}C HMBC (250 MHz, $CDCl_3$)



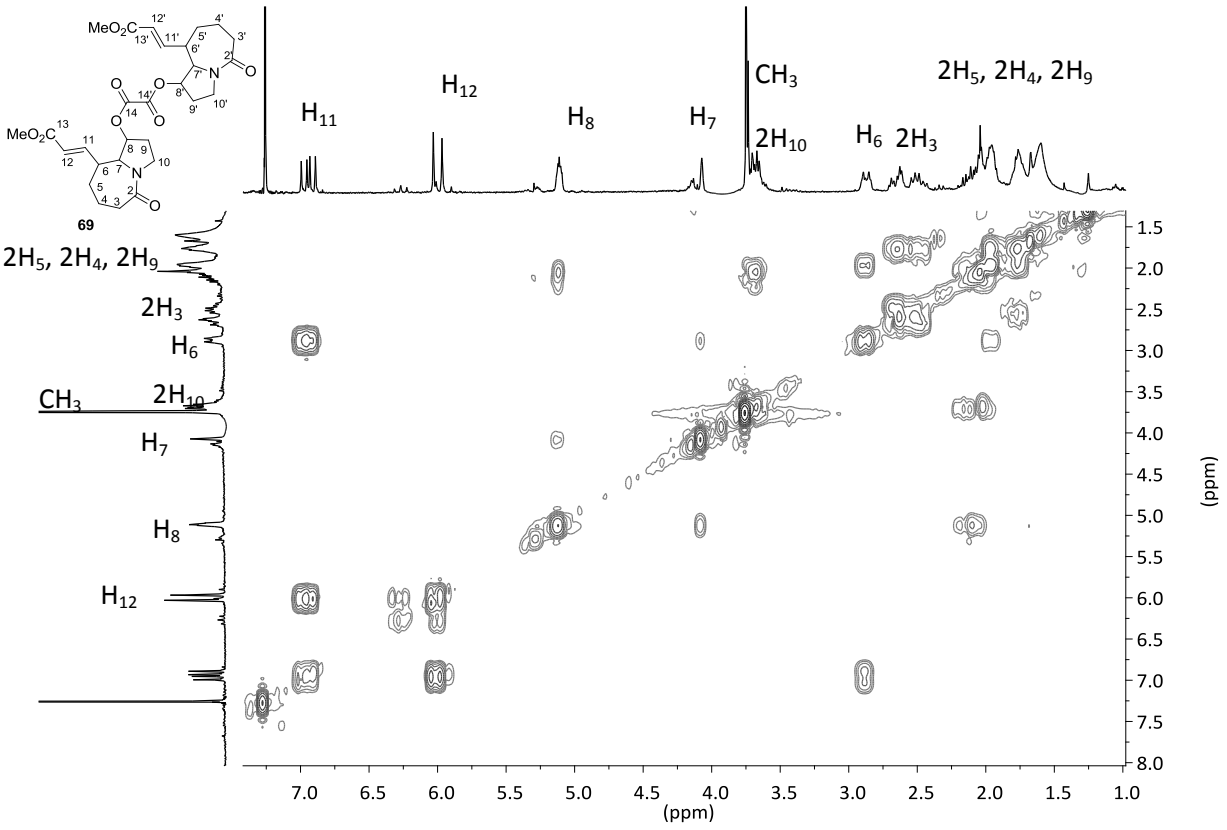
DEPT 135 (62.5 MHz, $CDCl_3$)



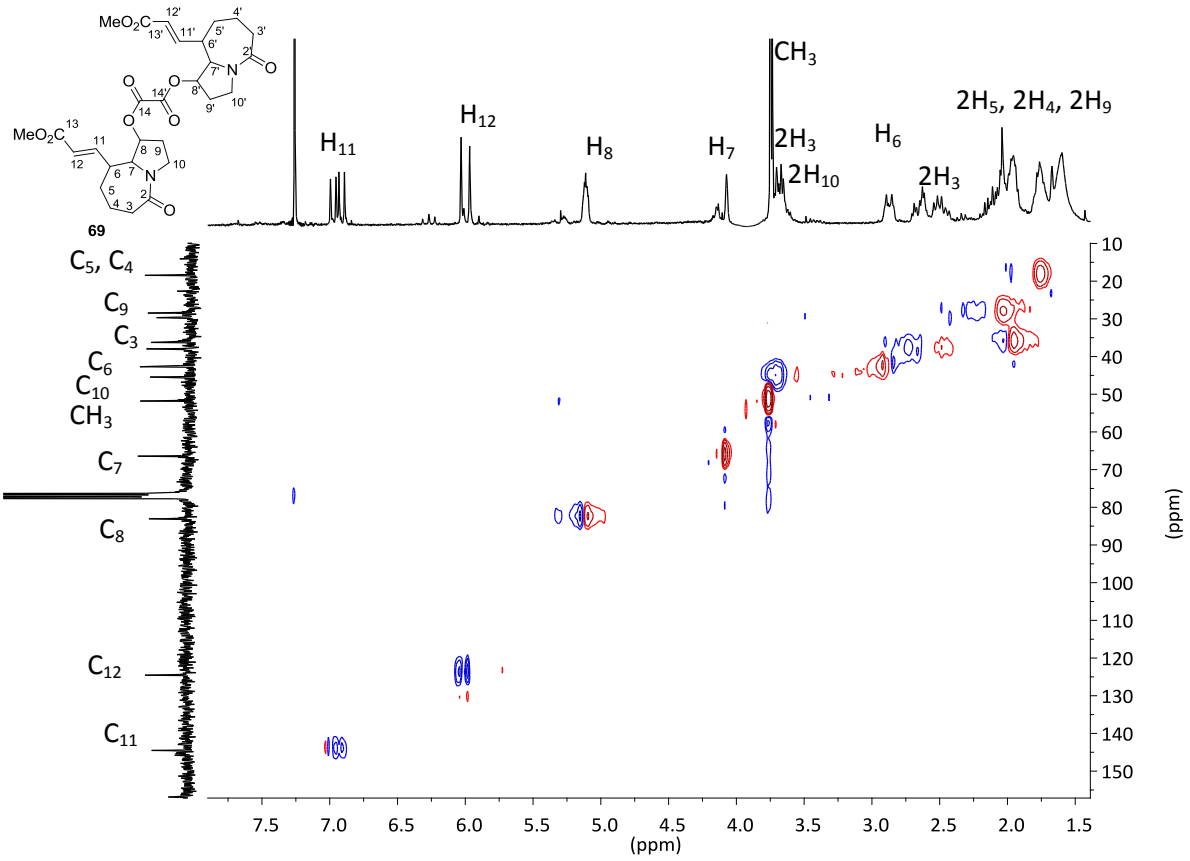
^{1}H-RMN (250 MHz, $CDCl_3$)



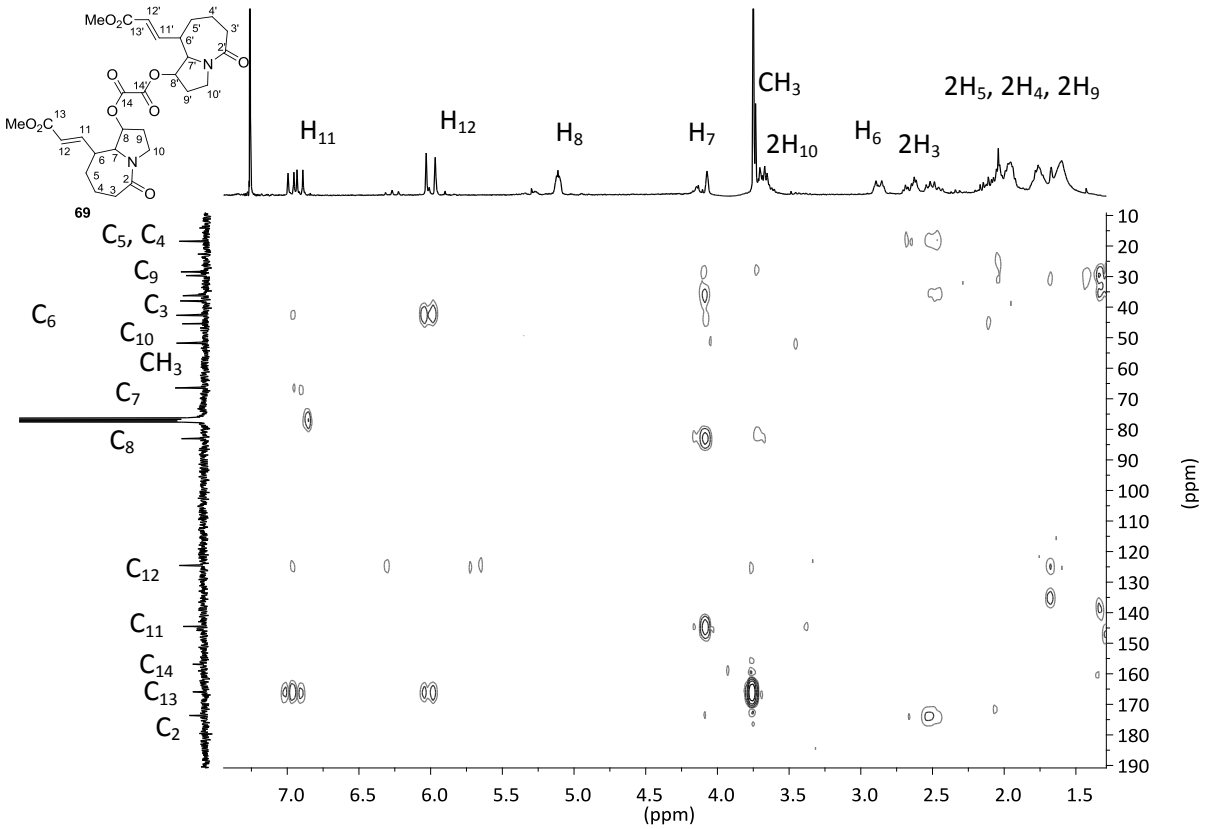
^{13}C-RMN (62.5 MHz, $CDCl_3$)



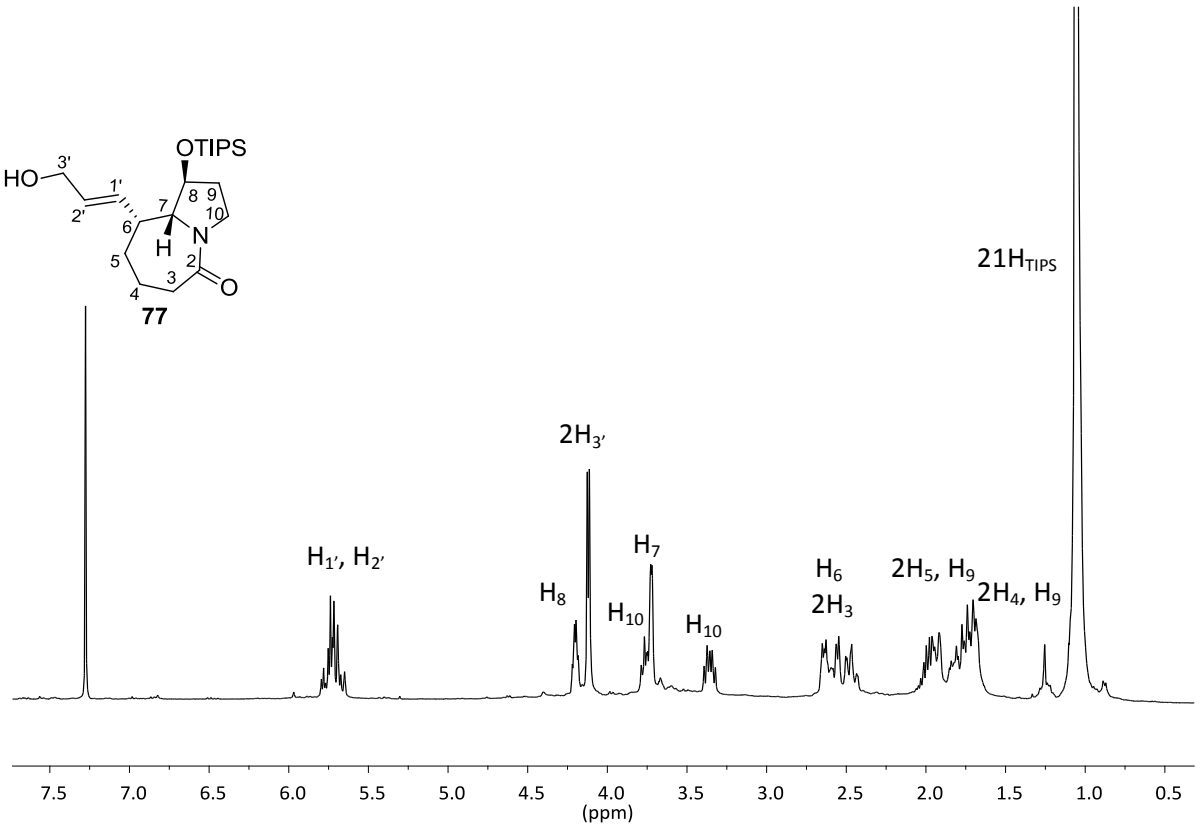
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



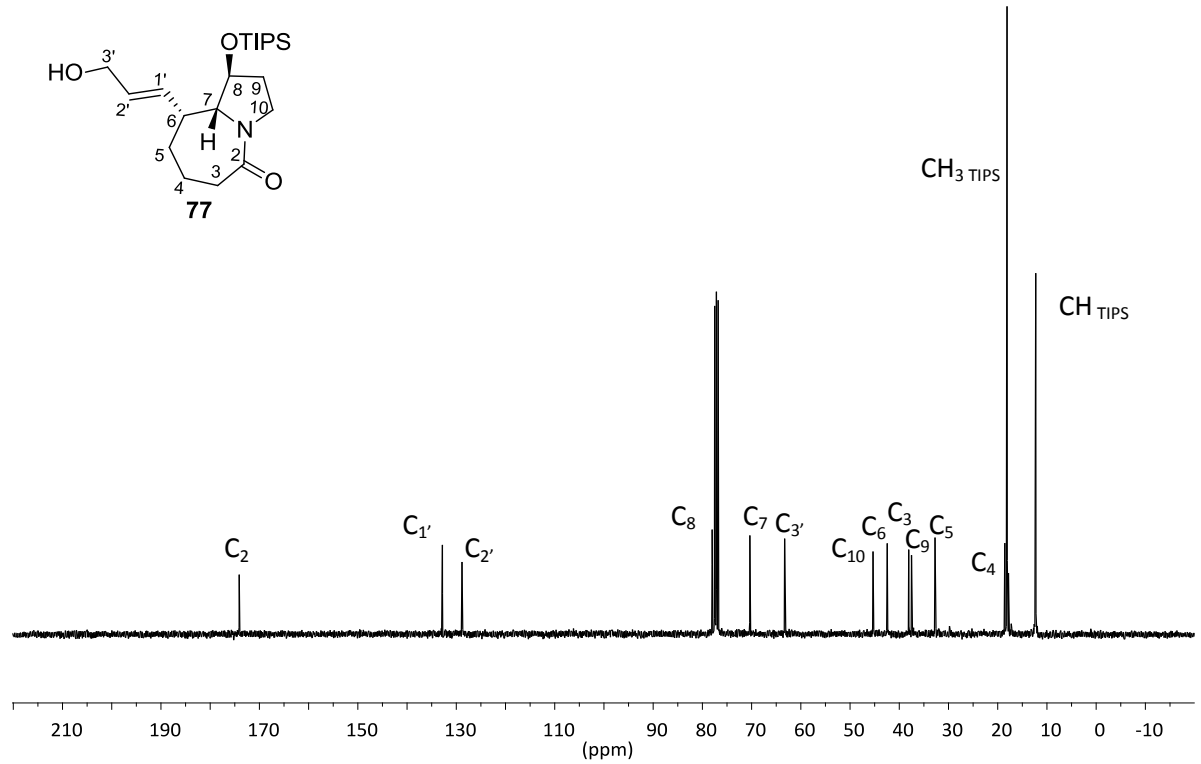
^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, CDCl$_3$)



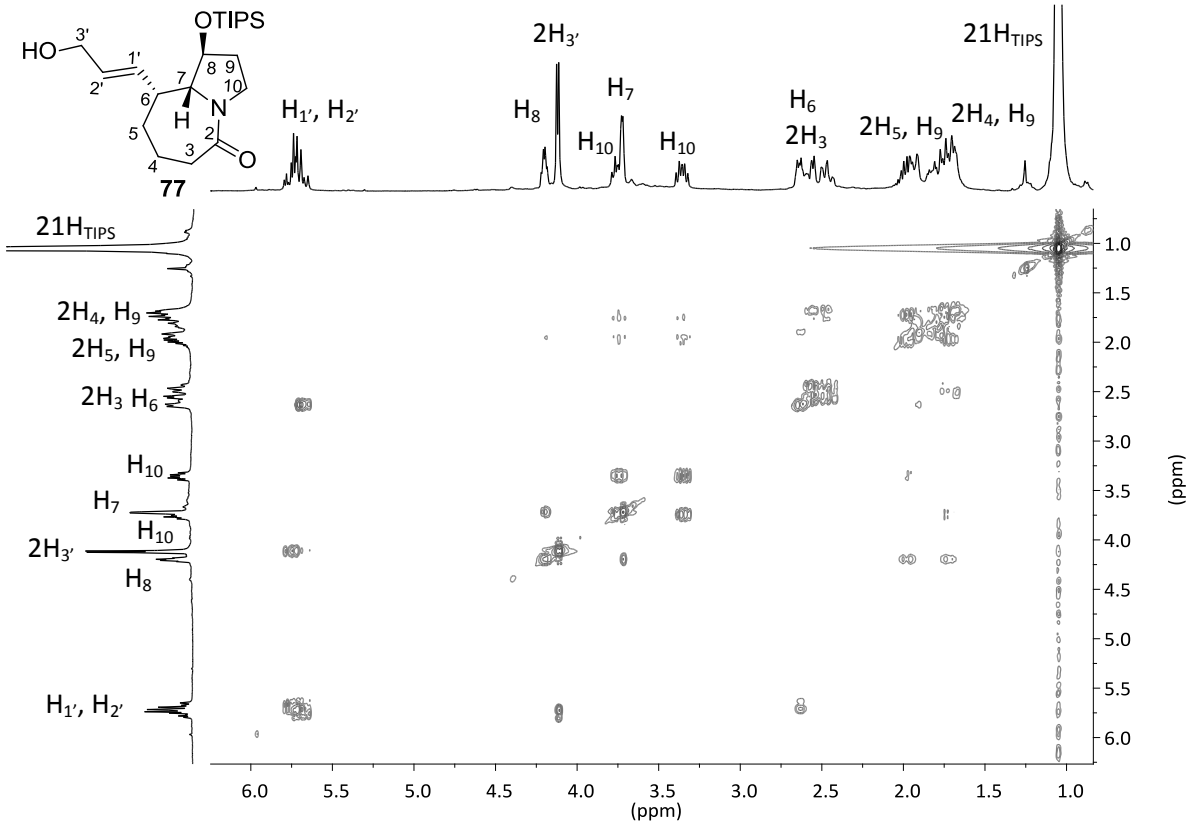
^{1}H-^{13}C HMBC (250 MHz, CDCl$_3$)



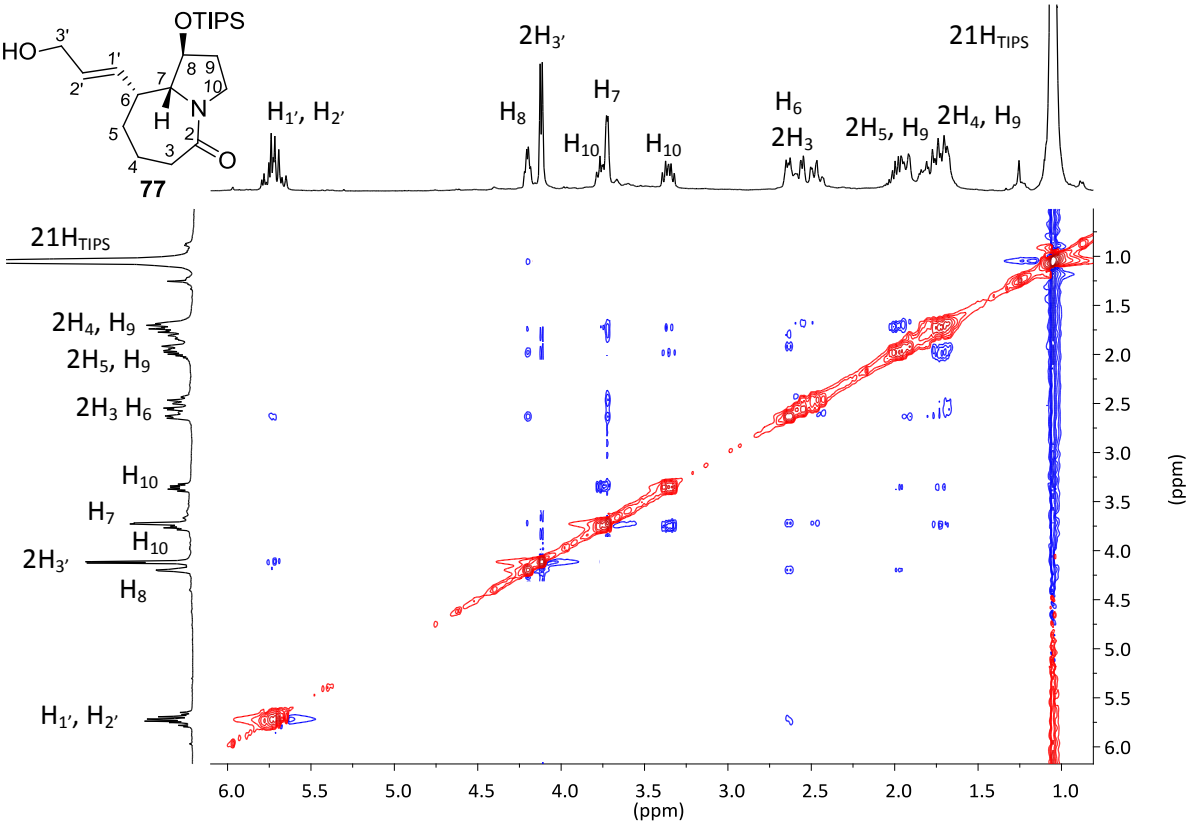
^{1}H-RMN (360 MHz, $CDCl_3$)



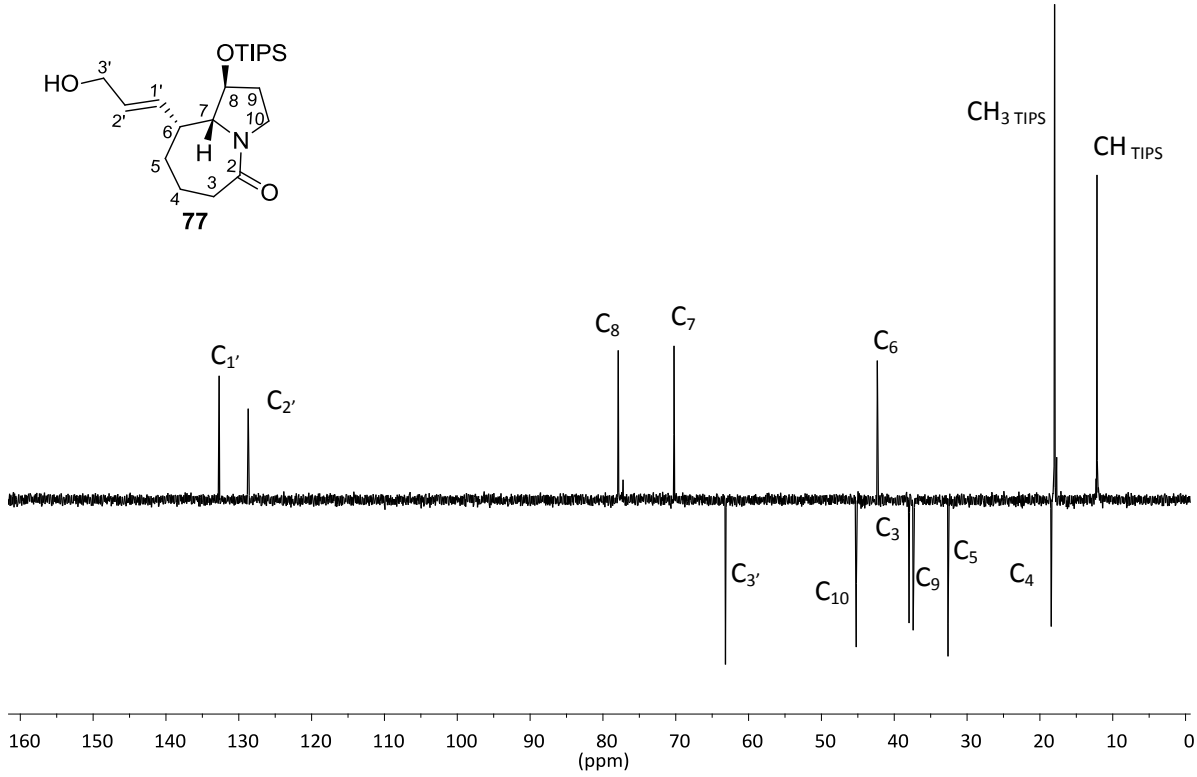
^{13}C-RMN (90 MHz, $CDCl_3$)



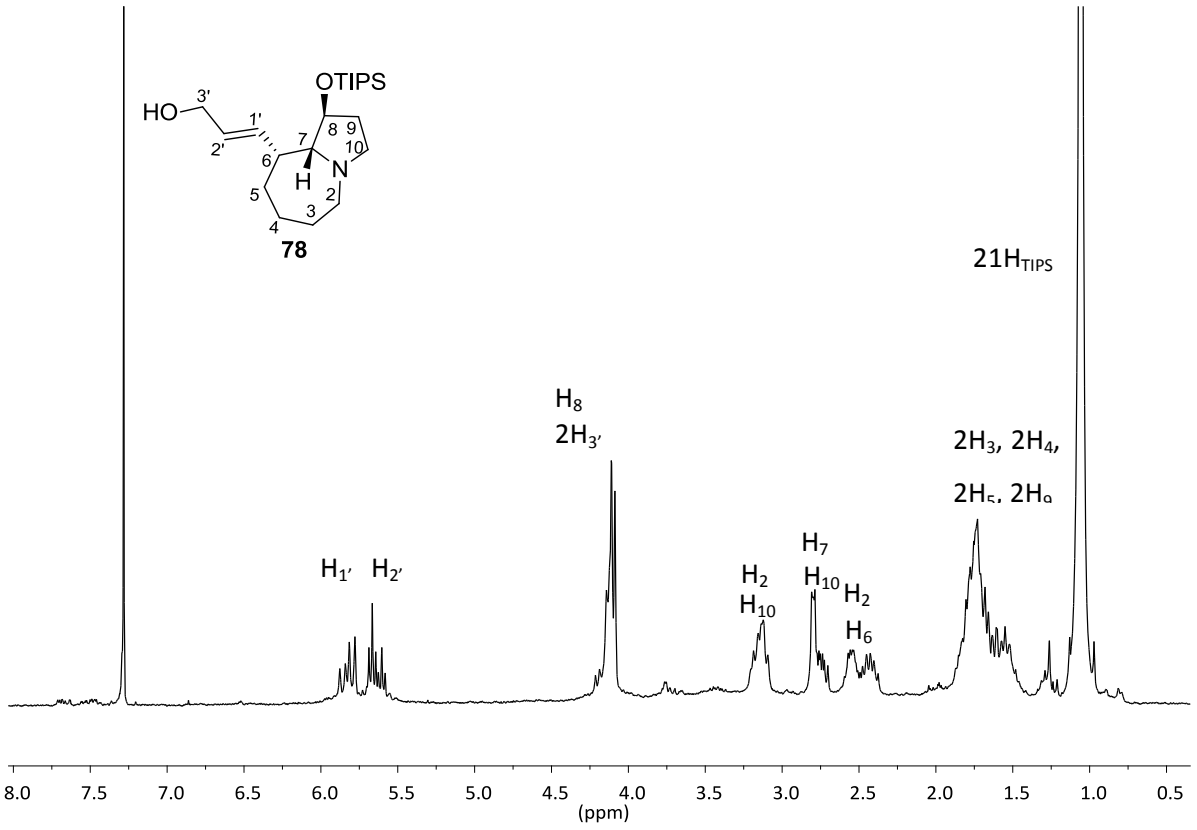
^{1}H-^{1}H COSY (360 MHz, $CDCl_3$)



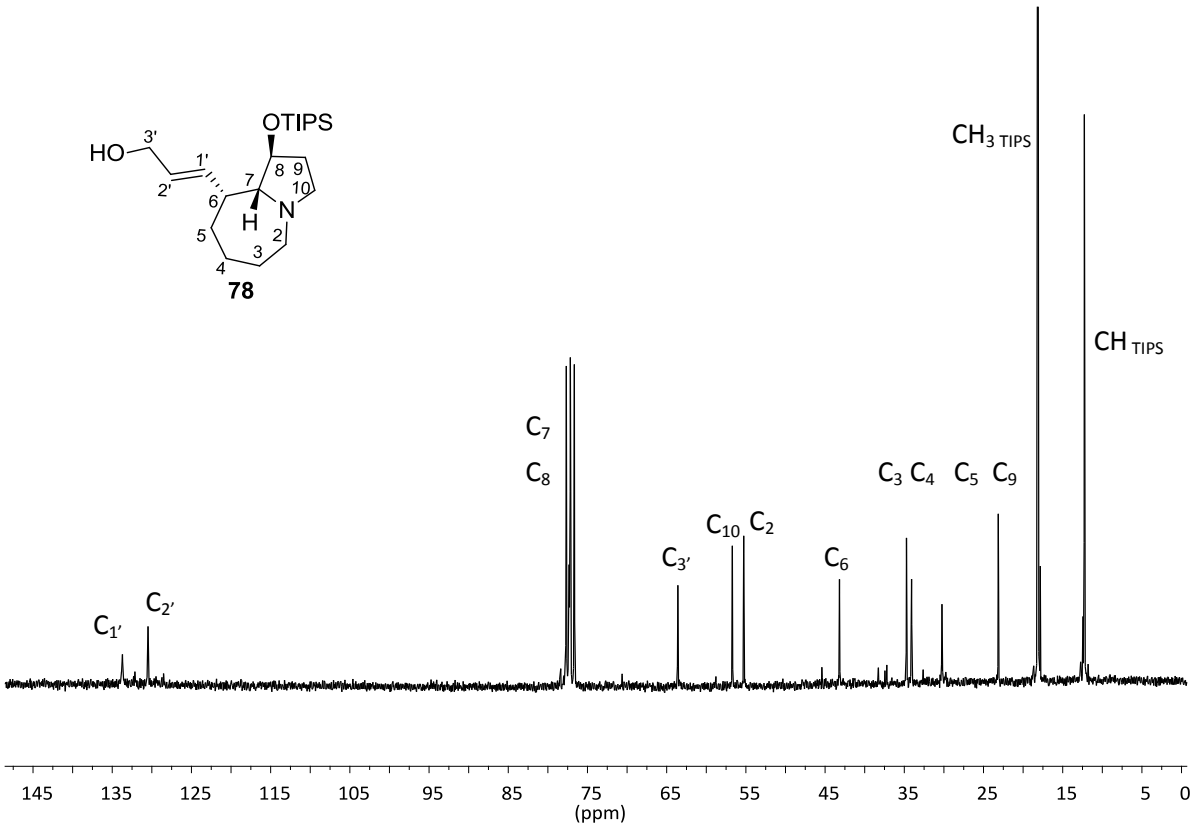
NOESY (360 MHz, $CDCl_3$)



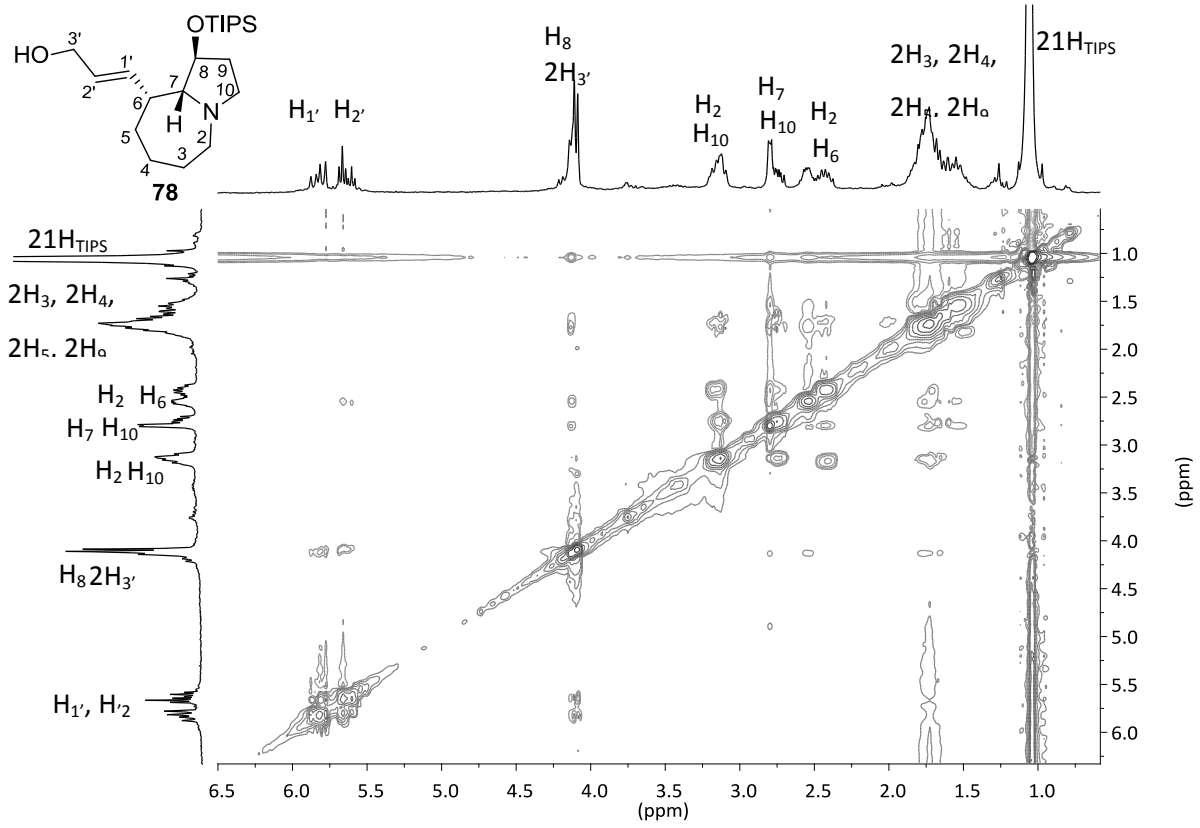
DEPT 135 (90 MHz, $CDCl_3$)



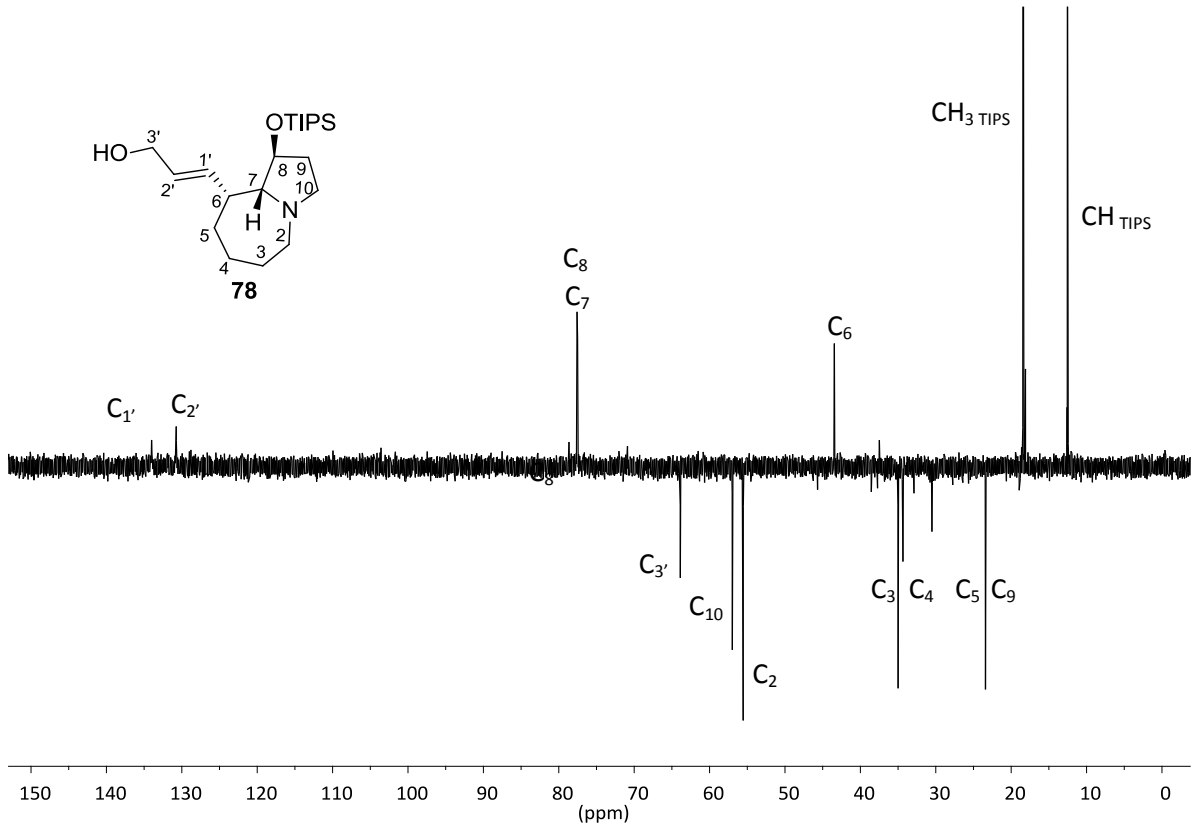
^{1}H-RMN (250 MHz, $CDCl_3$)



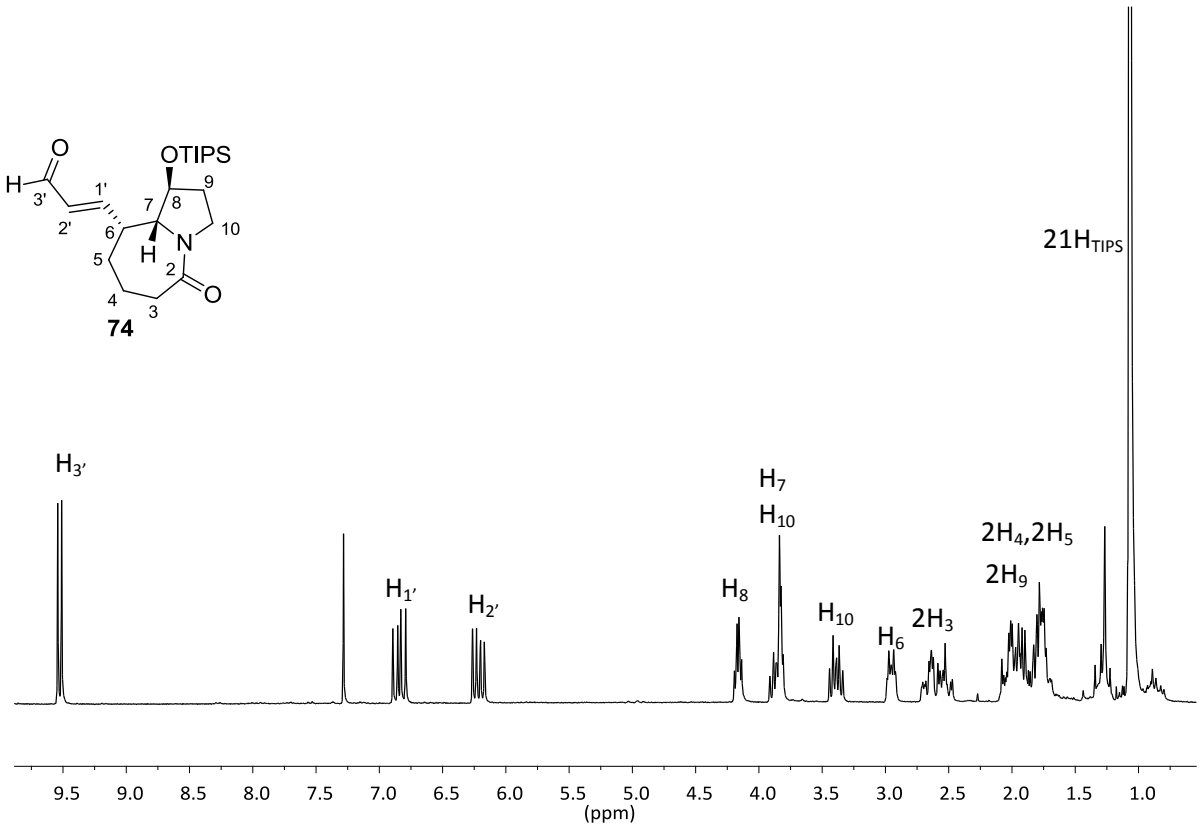
^{13}C-RMN (62.5 MHz, $CDCl_3$)



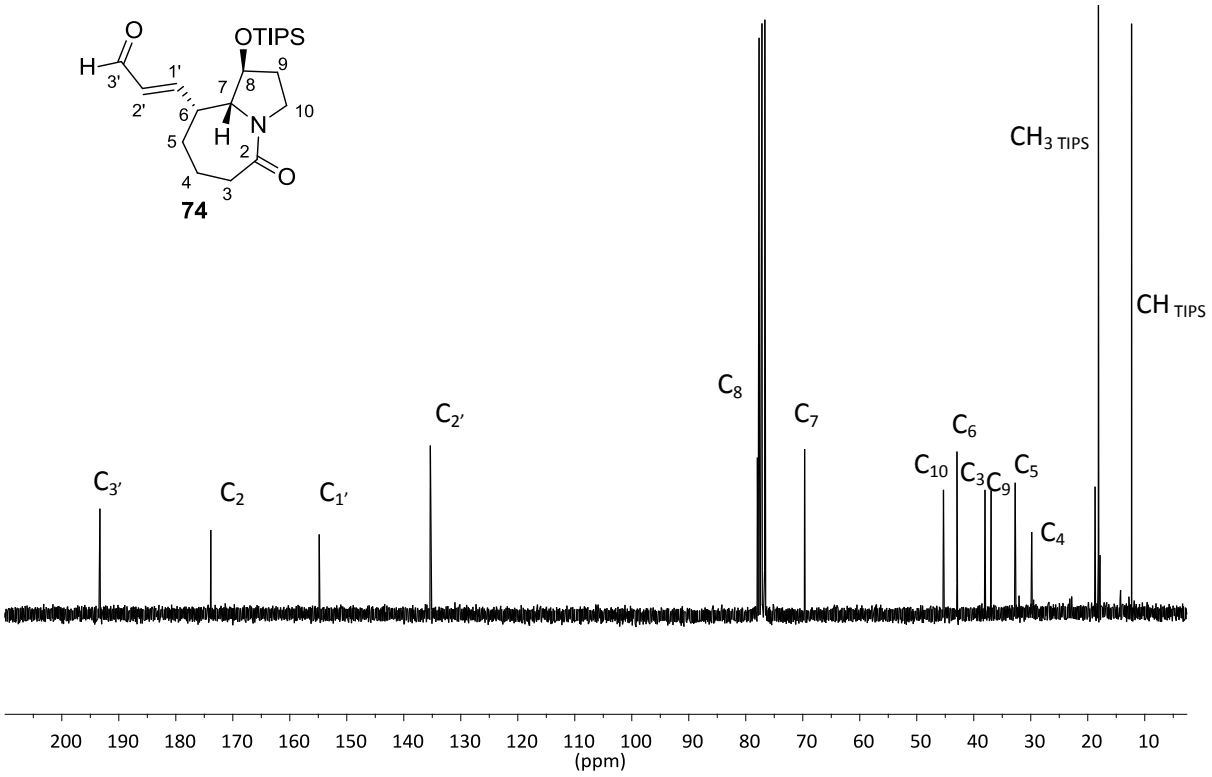
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



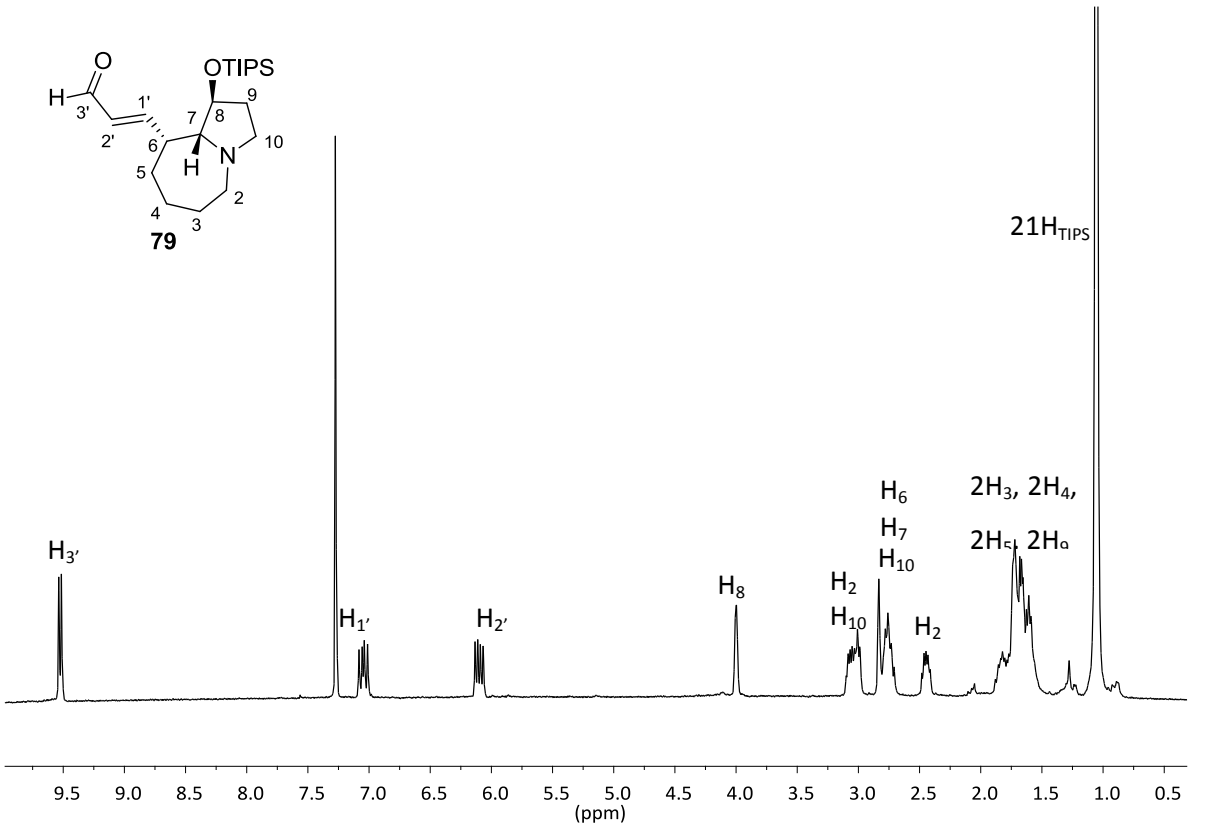
DEPT 135 (62.5 MHz, $CDCl_3$)



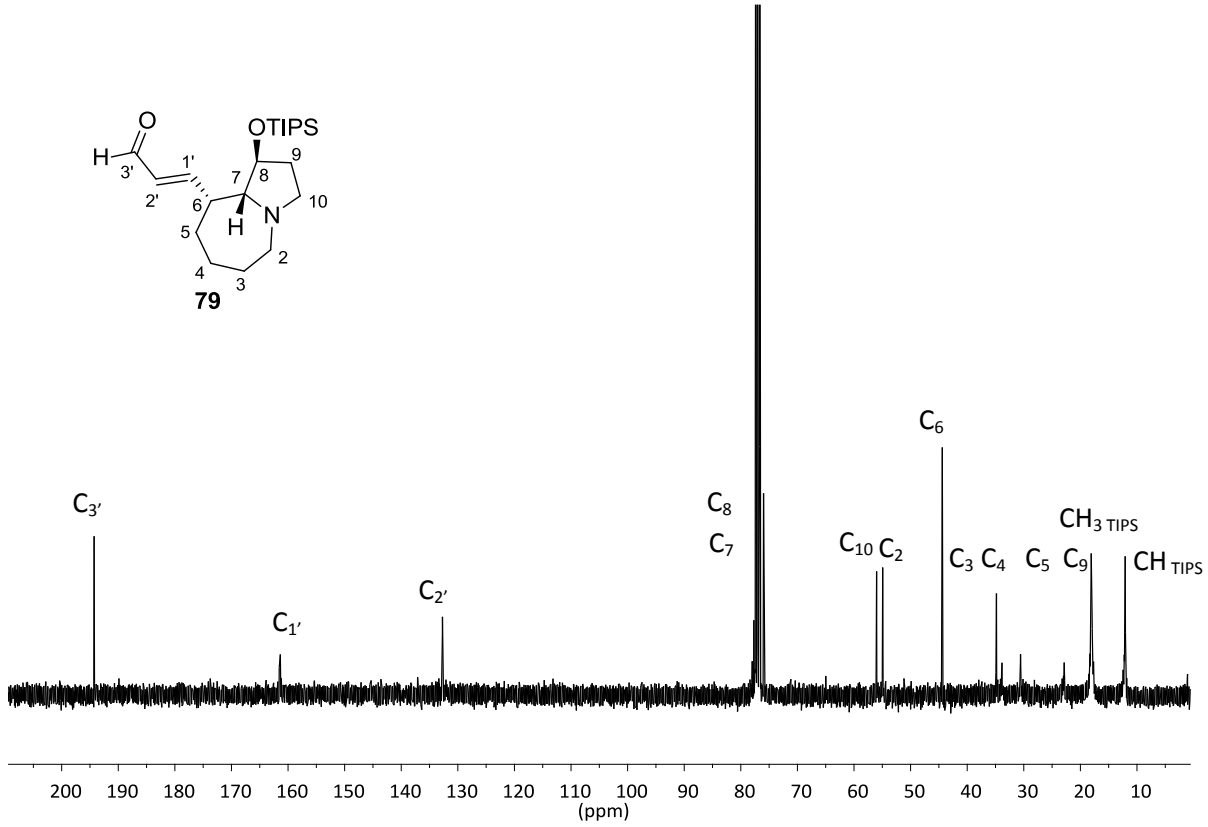
^{1}H-RMN (250 MHz, $CDCl_3$)



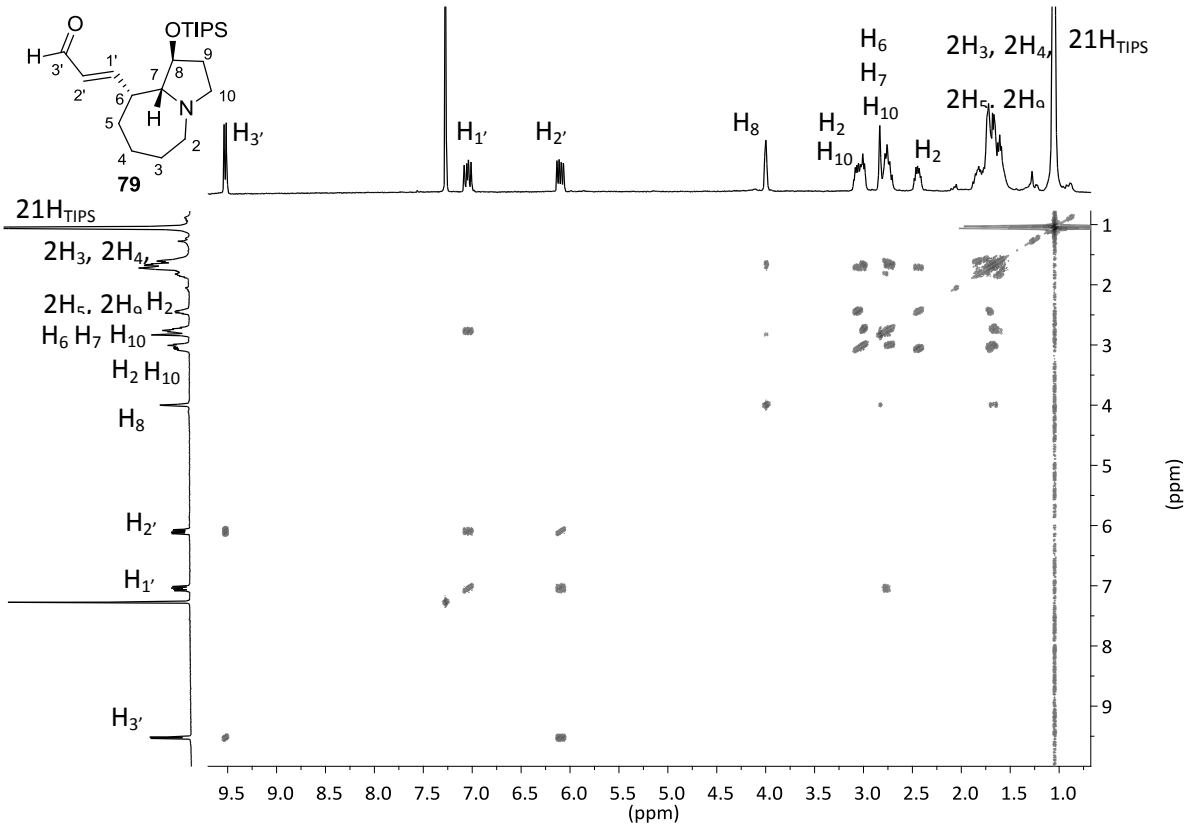
^{13}C-RMN (90 MHz, $CDCl_3$)



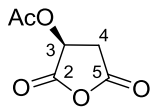
^{1}H-RMN (360 MHz, $CDCl_3$)



^{13}C-RMN (90 MHz, $CDCl_3$)



^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



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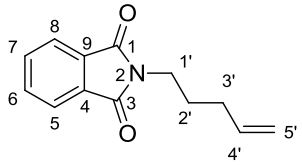
^{1}H-RMN (250 MHz, $CDCl_3$)



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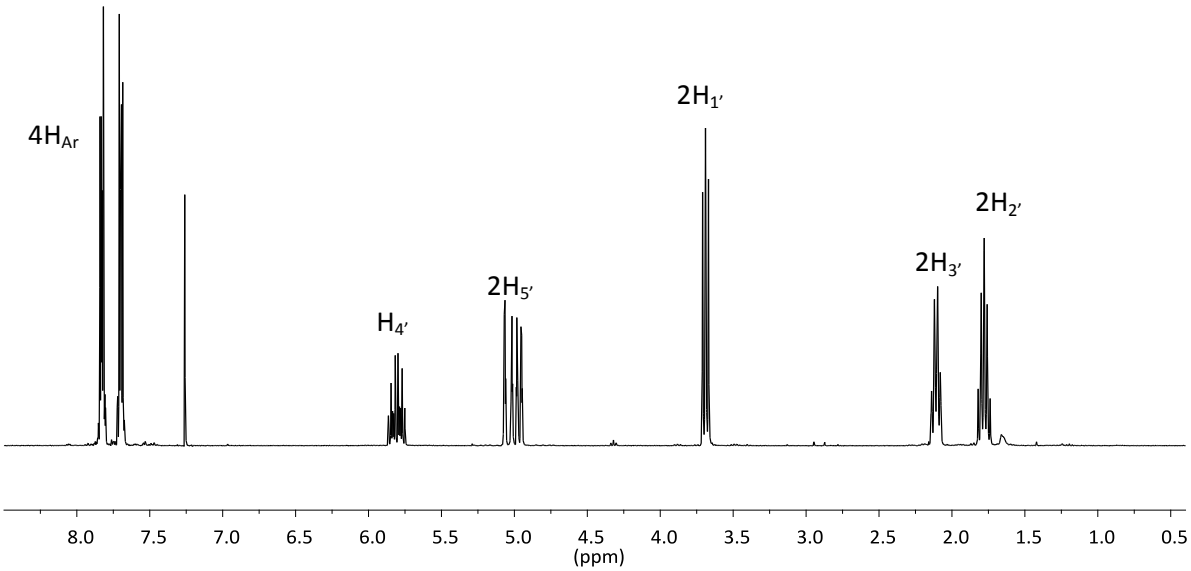
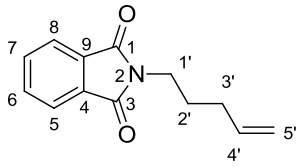
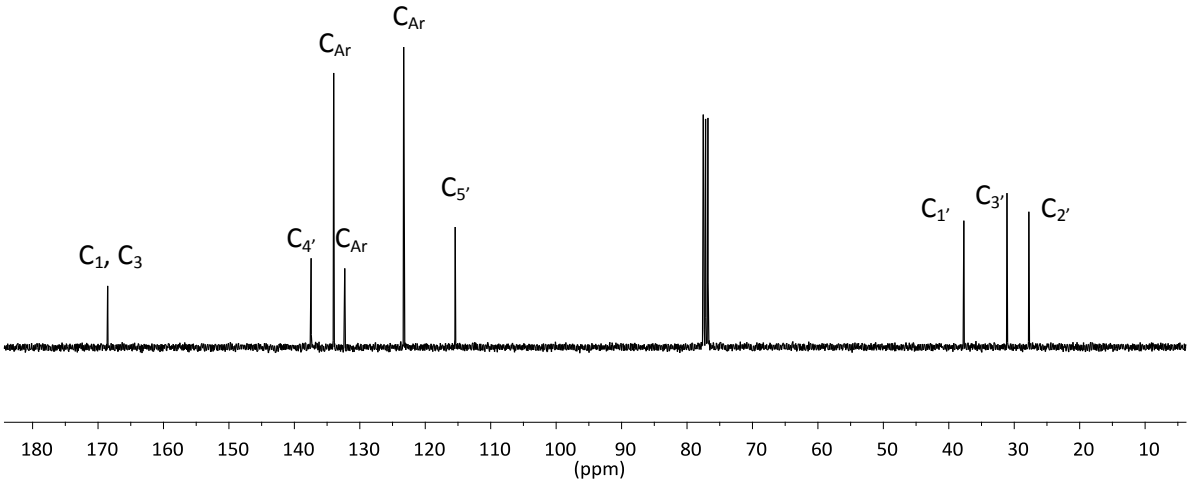


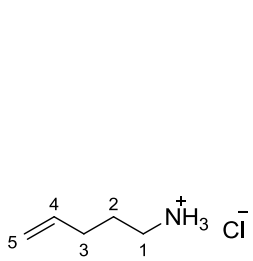
^{1}H-RMN (360 MHz, $CDCl_3$)



102

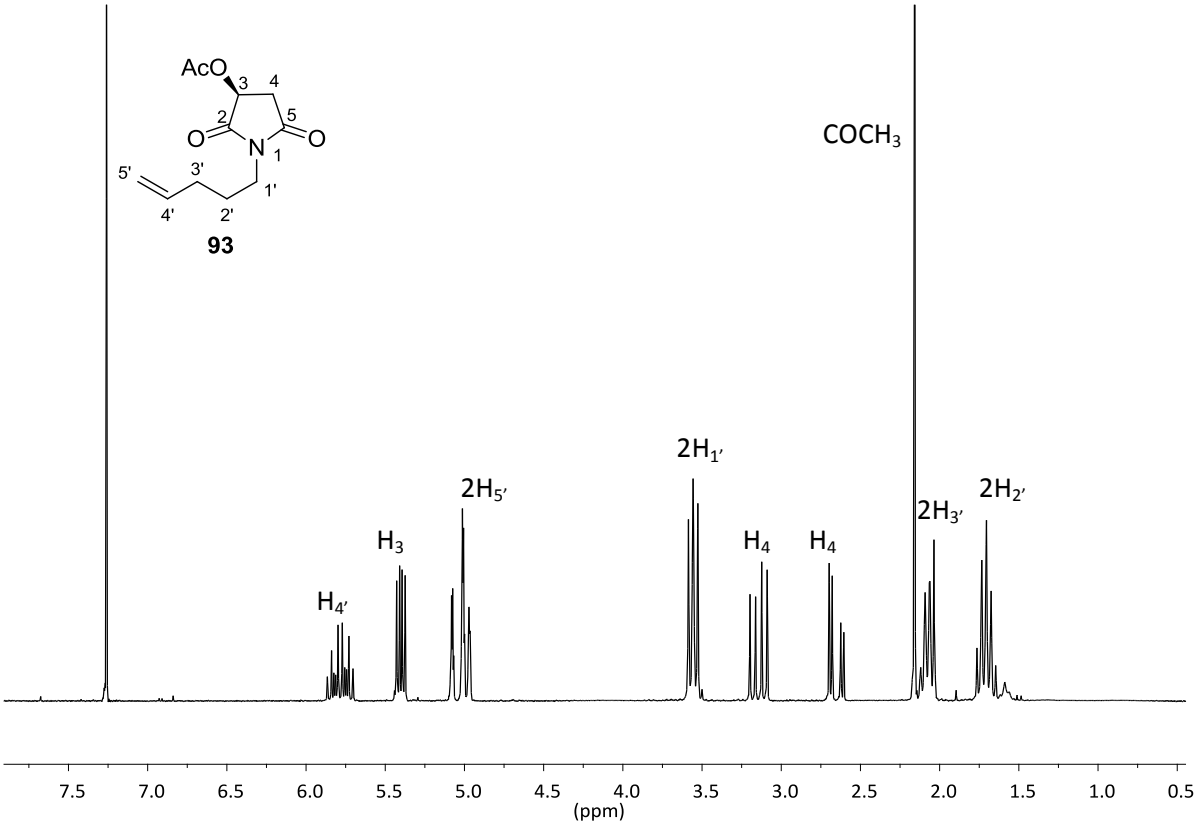


^{13}C-RMN (90 MHz, $CDCl_3$)

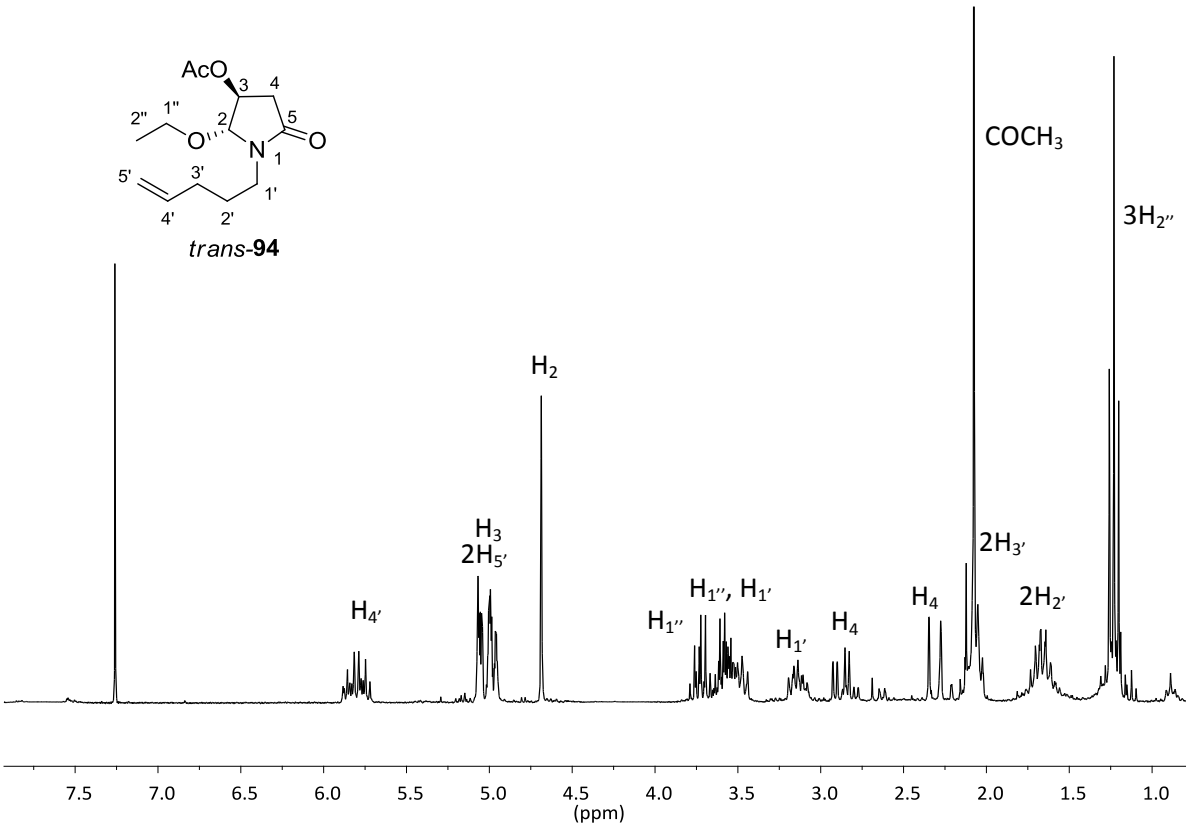


103

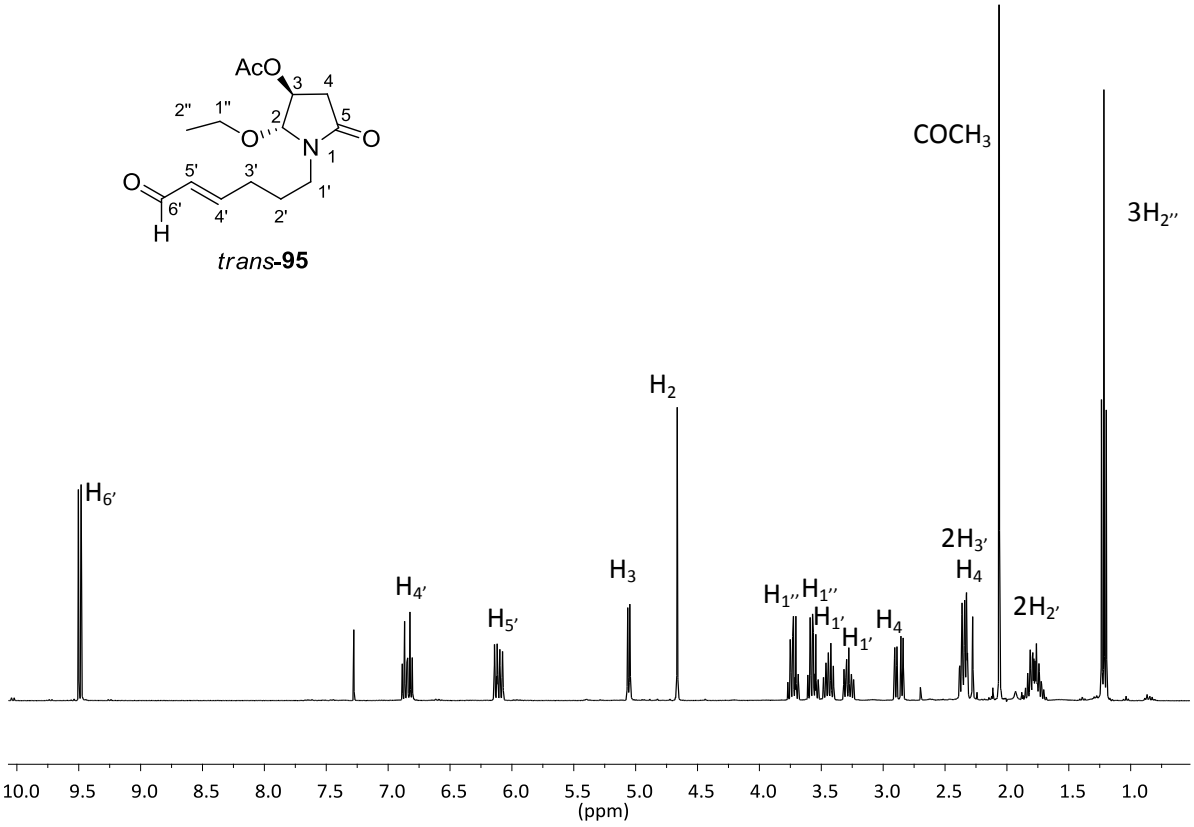
^{1}H-RMN (250 MHz, D_2O)



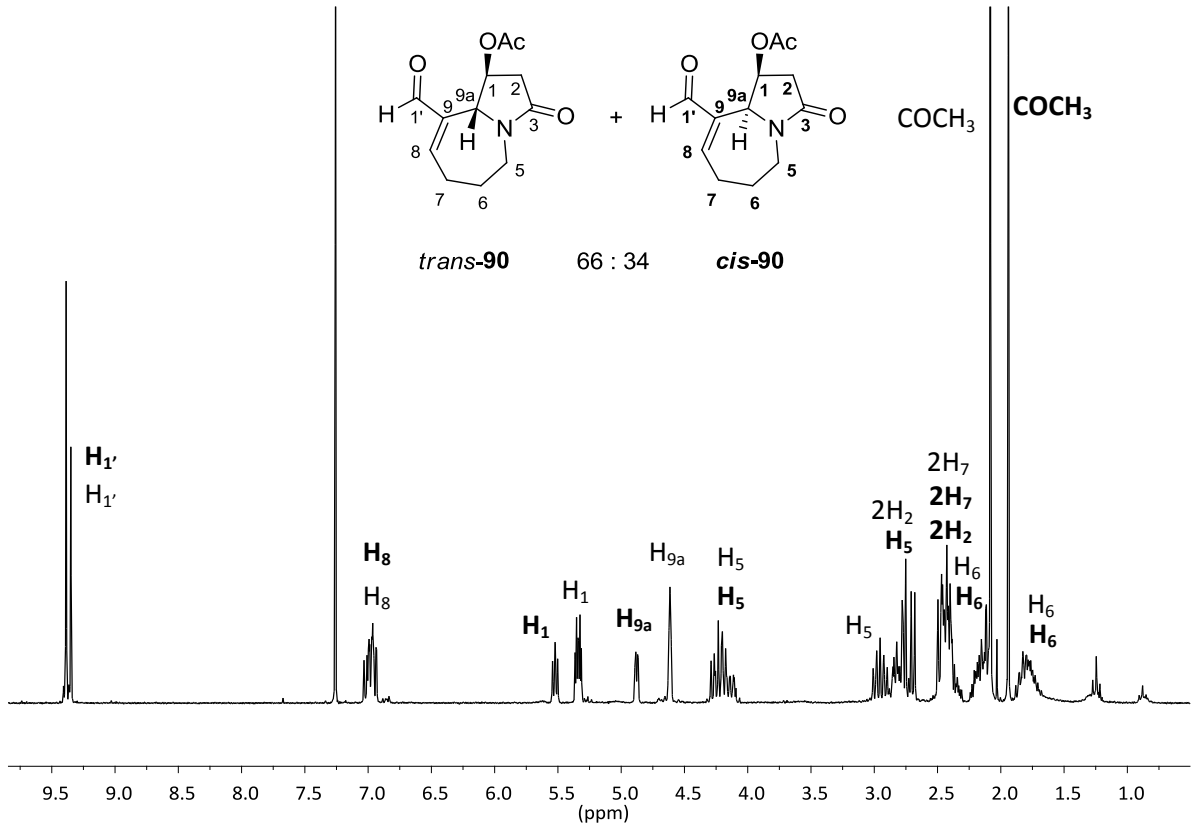
^{1}H-RMN (250 MHz, $CDCl_3$)



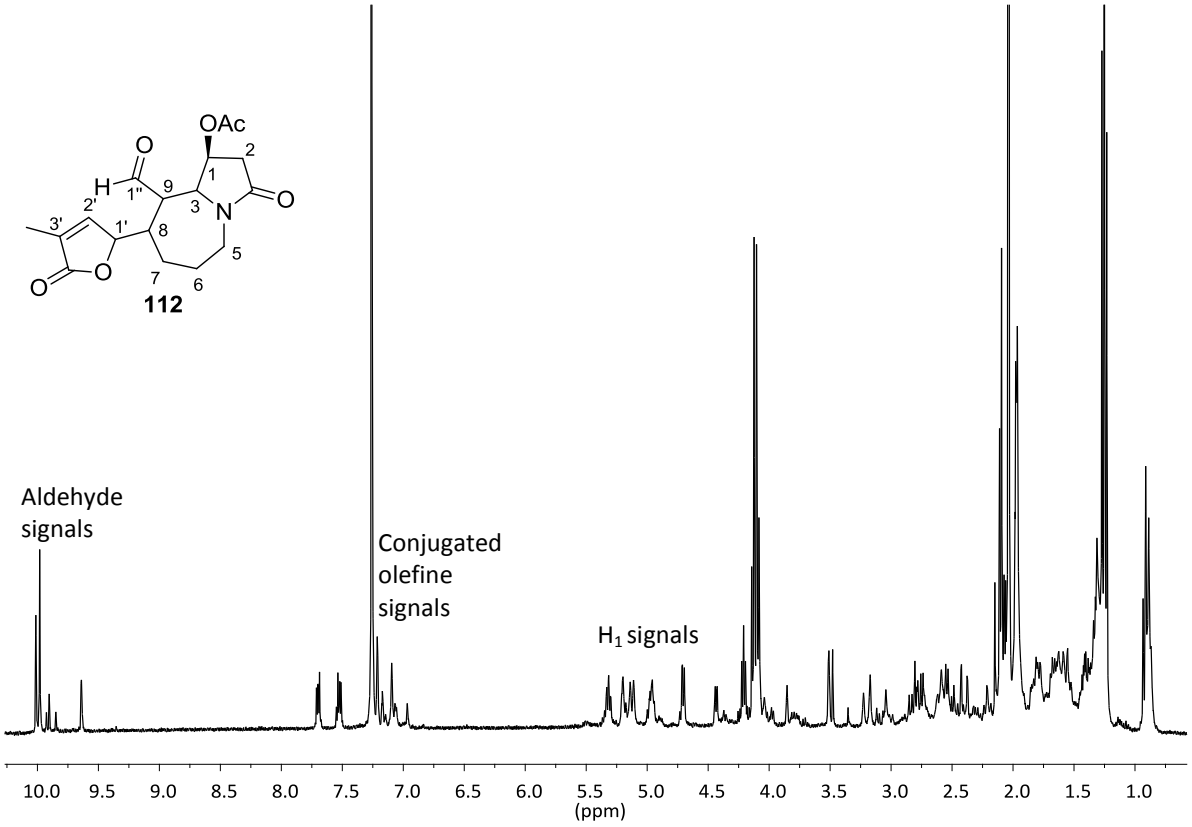
^{1}H-RMN (250 MHz, $CDCl_3$)



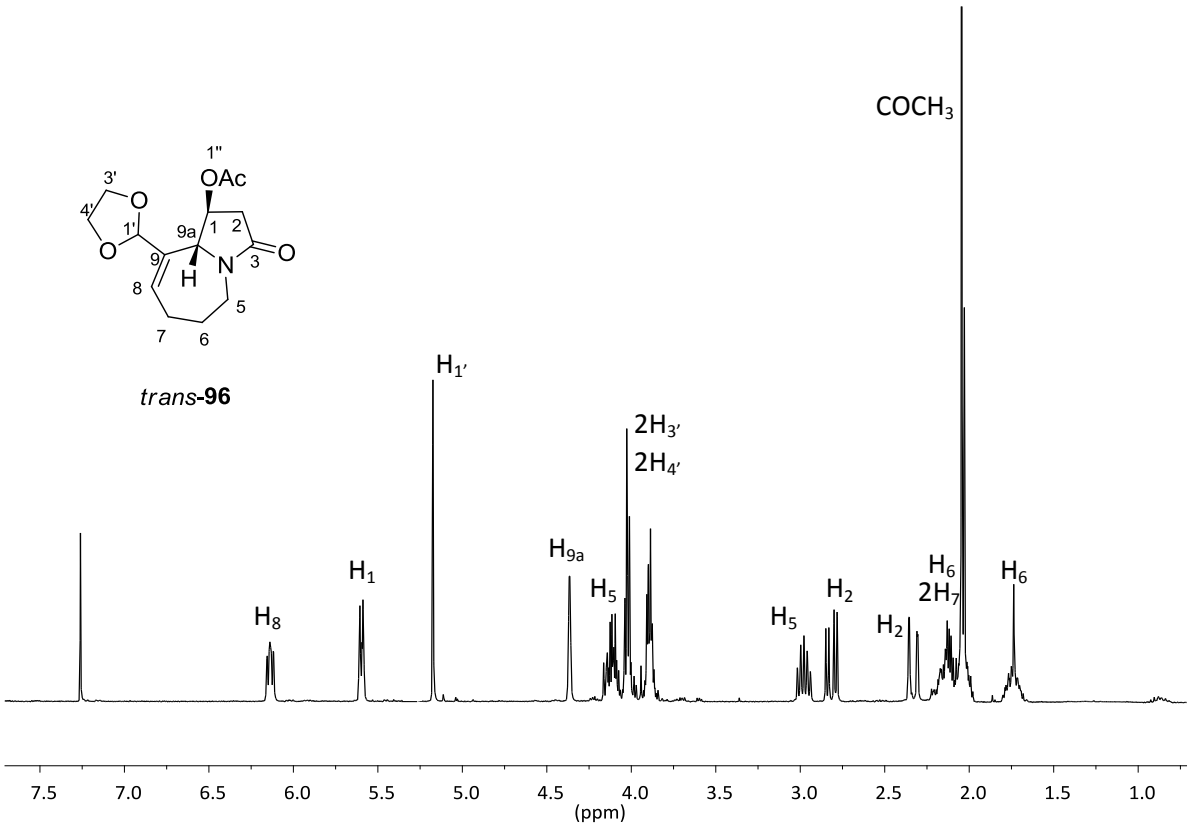
^{1}H-RMN (360 MHz, $CDCl_3$)



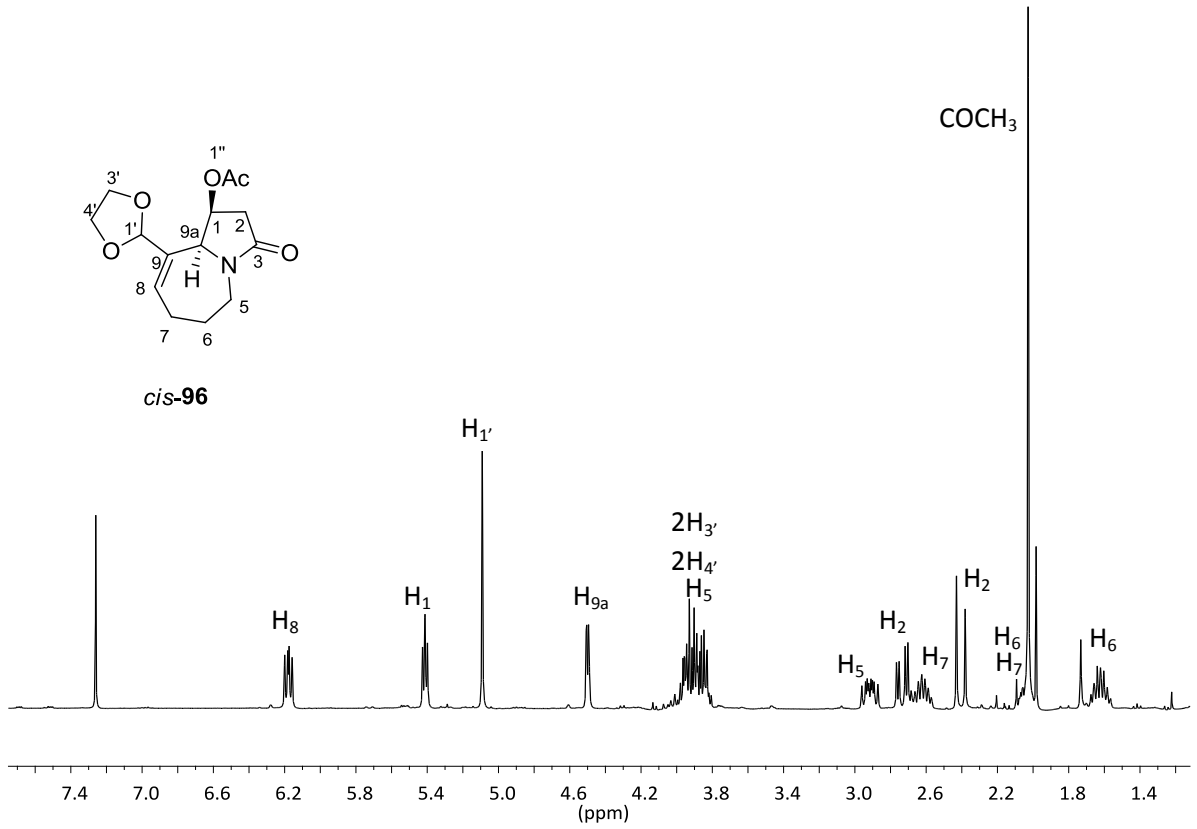
^{1}H-RMN (250 MHz, $CDCl_3$)



^{1}H-RMN (360 MHz, $CDCl_3$)

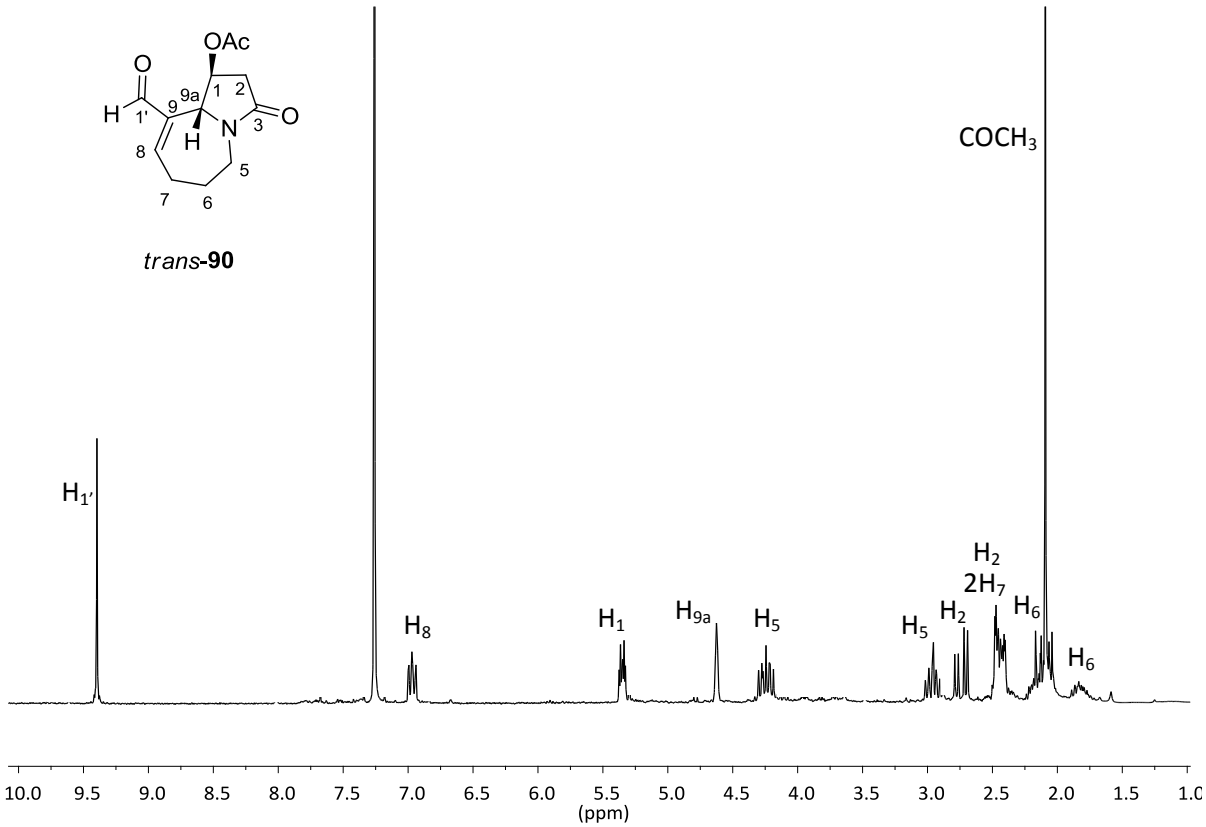


^{1}H-RMN (360 MHz, $CDCl_3$)



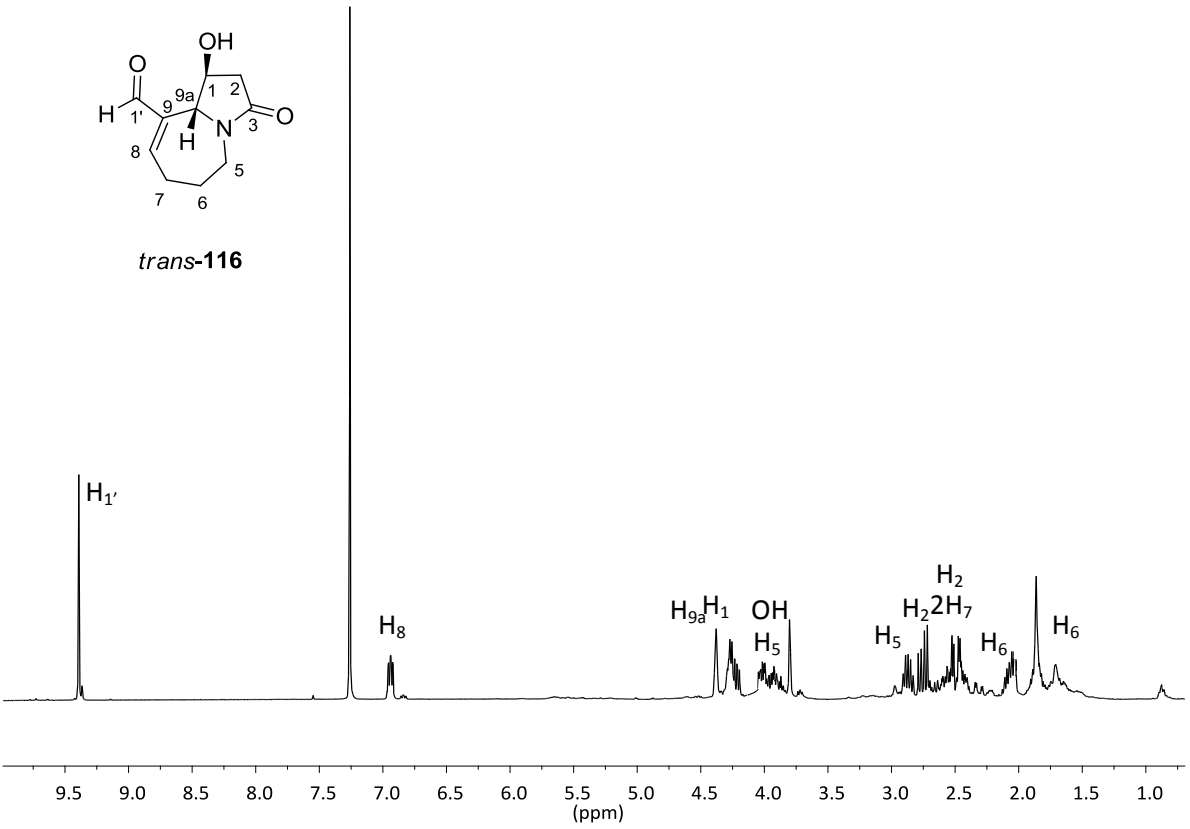
cis-**96**

^{1}H-RMN (360 MHz, $CDCl_3$)



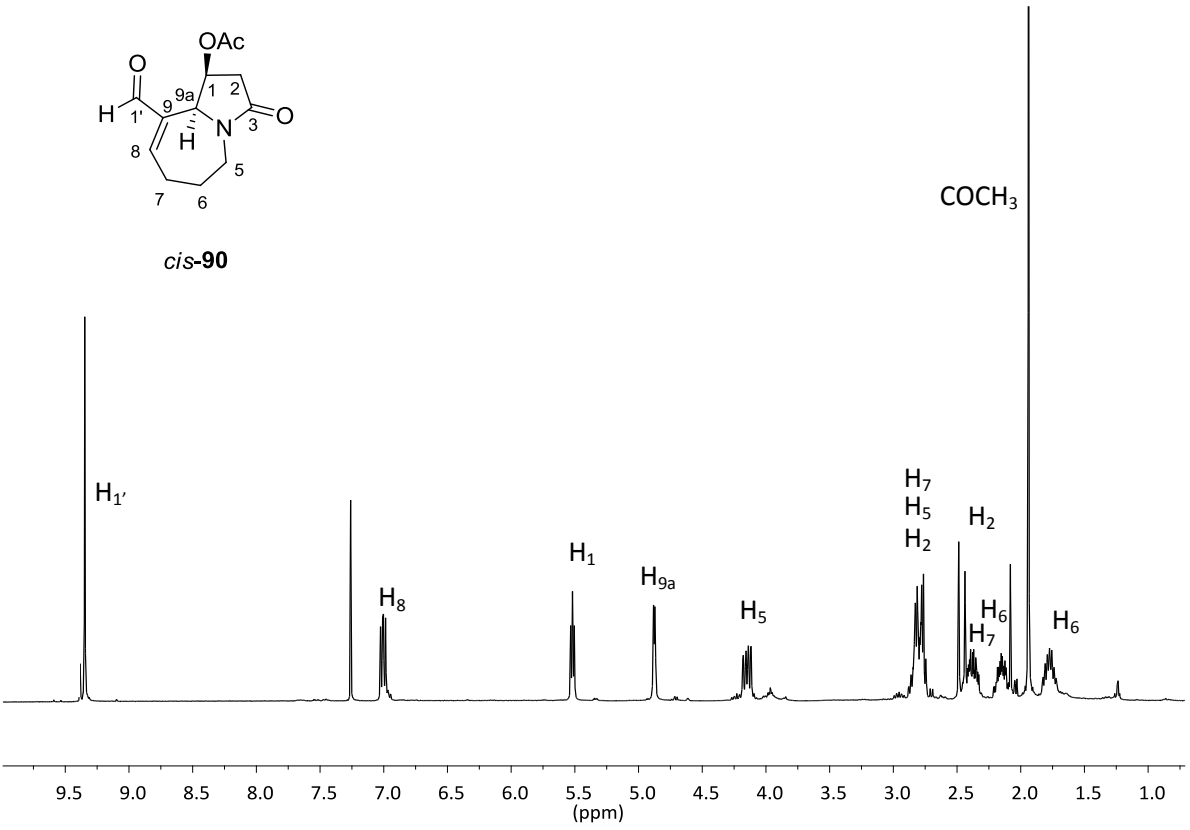
trans-**90**

^{1}H-RMN (250 MHz, $CDCl_3$)



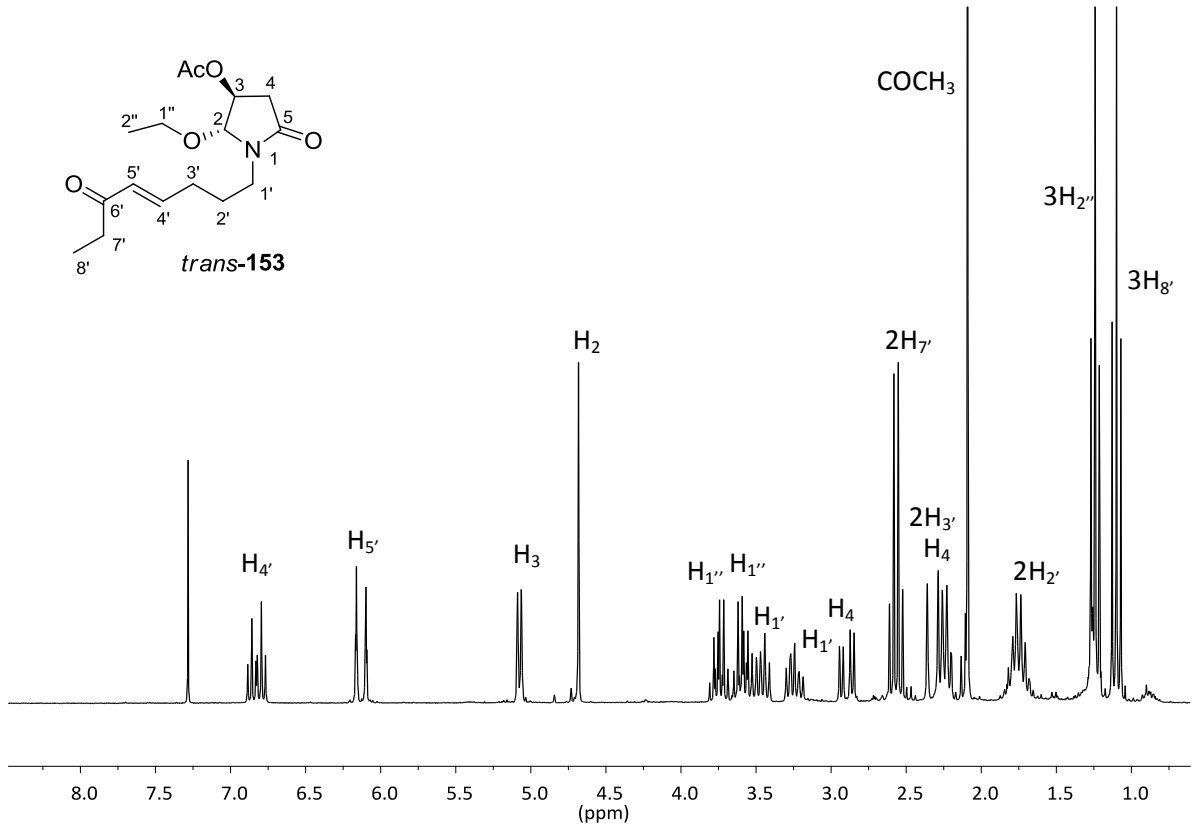
trans-**116**

^{1}H-RMN (360 MHz, $CDCl_3$)

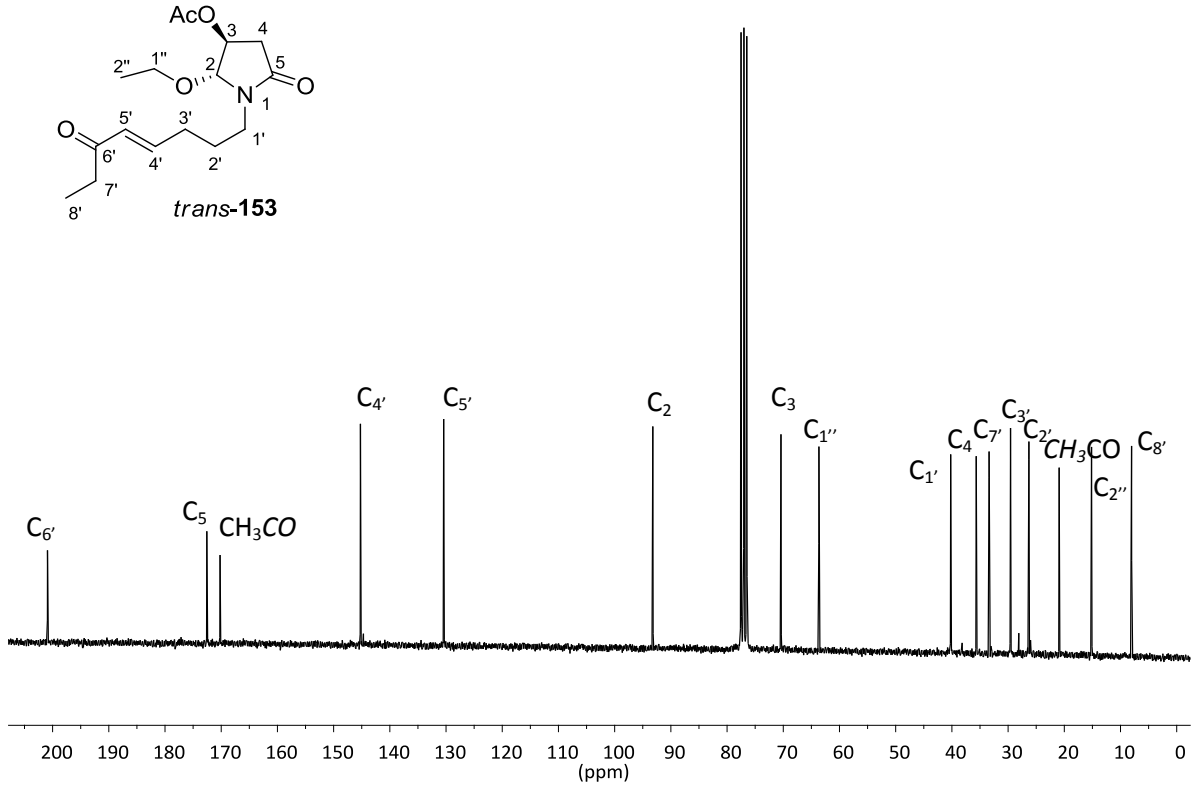


cis-**90**

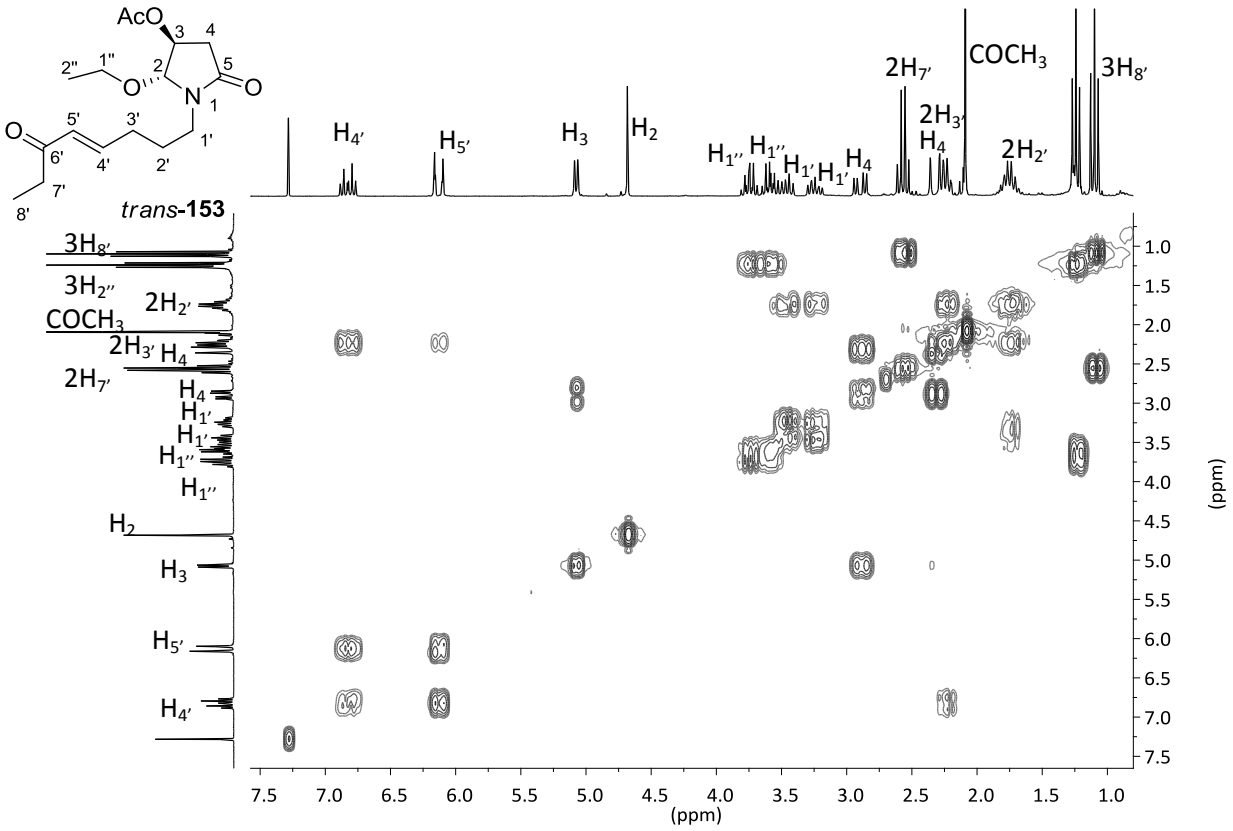
^{1}H-RMN (250 MHz, $CDCl_3$)



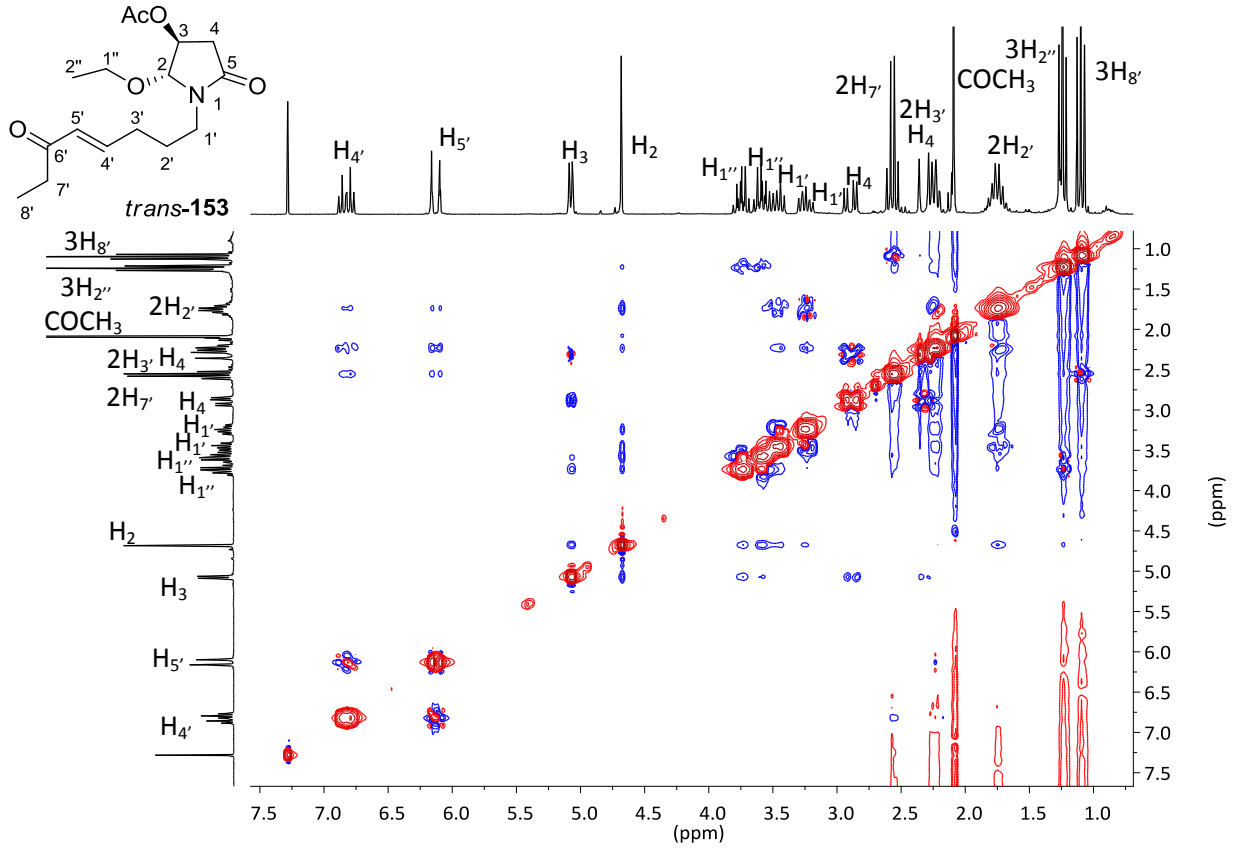
^{1}H-RMN (250 MHz, $CDCl_3$)



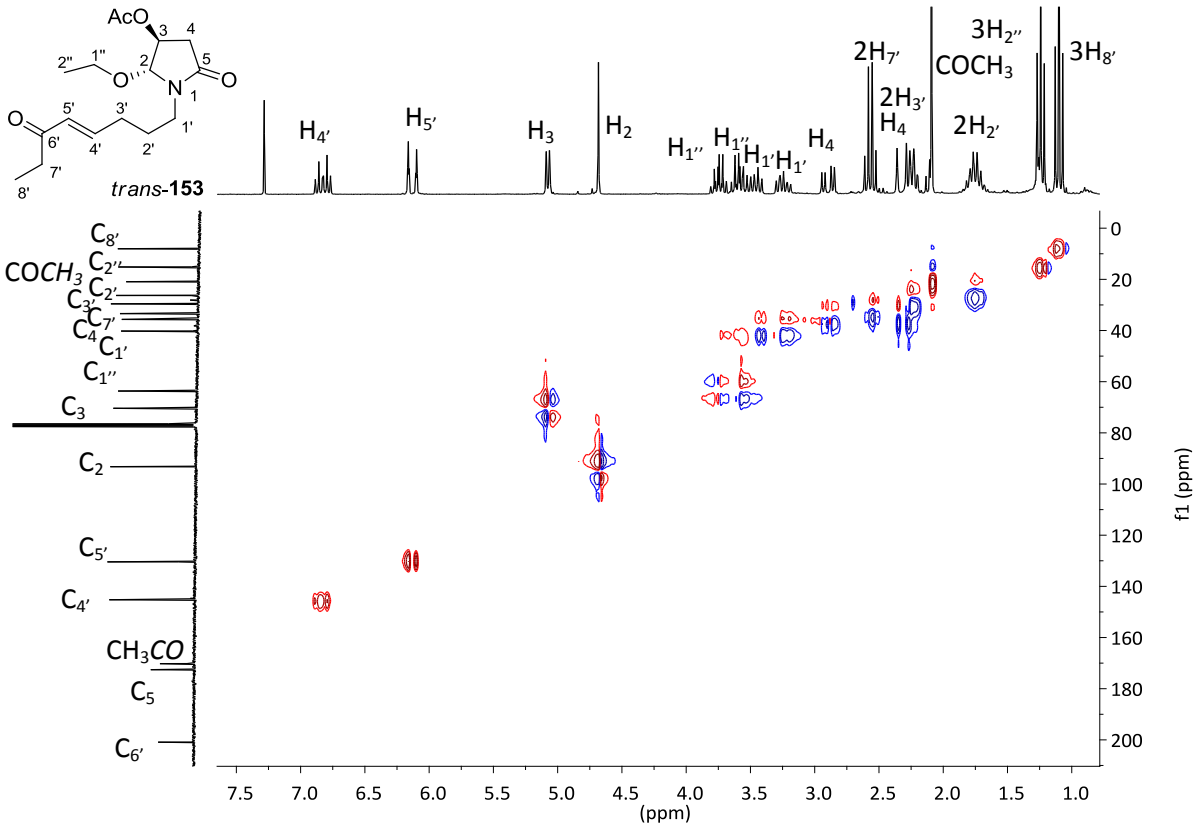
^{13}C-RMN (62.5 MHz, $CDCl_3$)



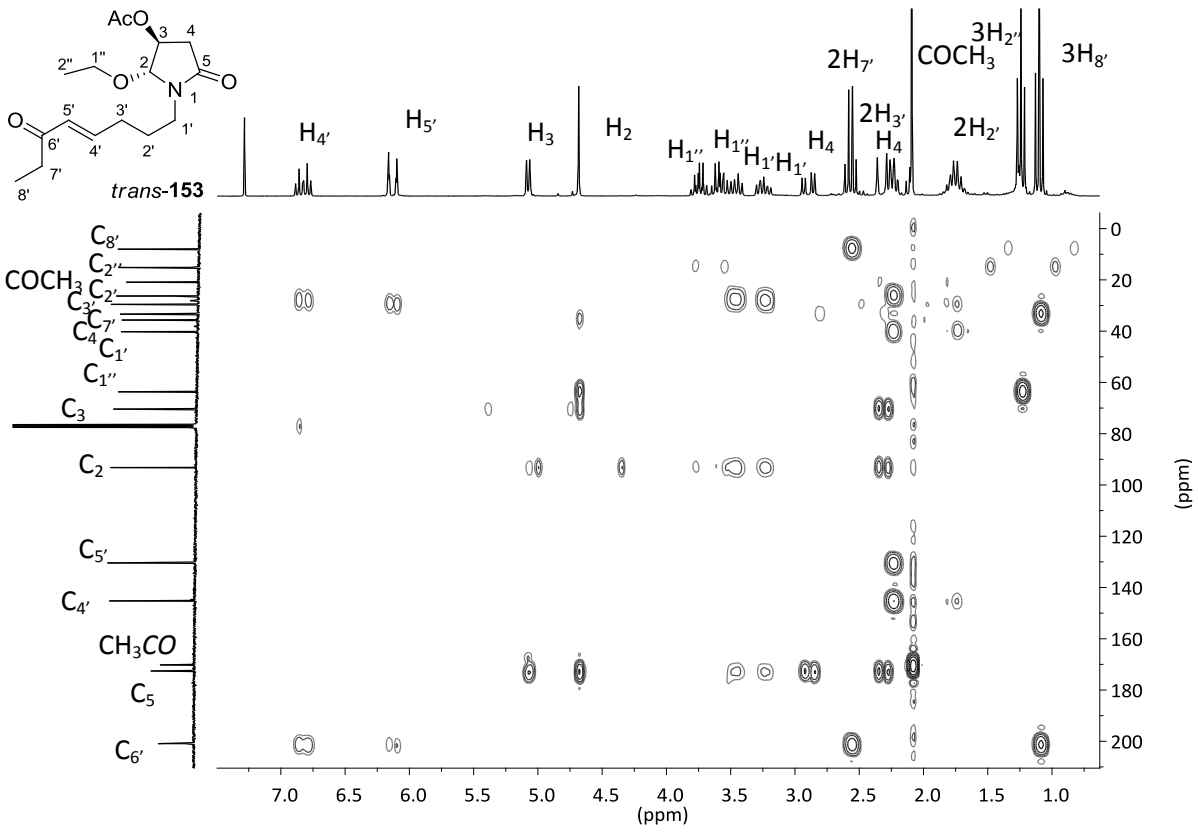
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



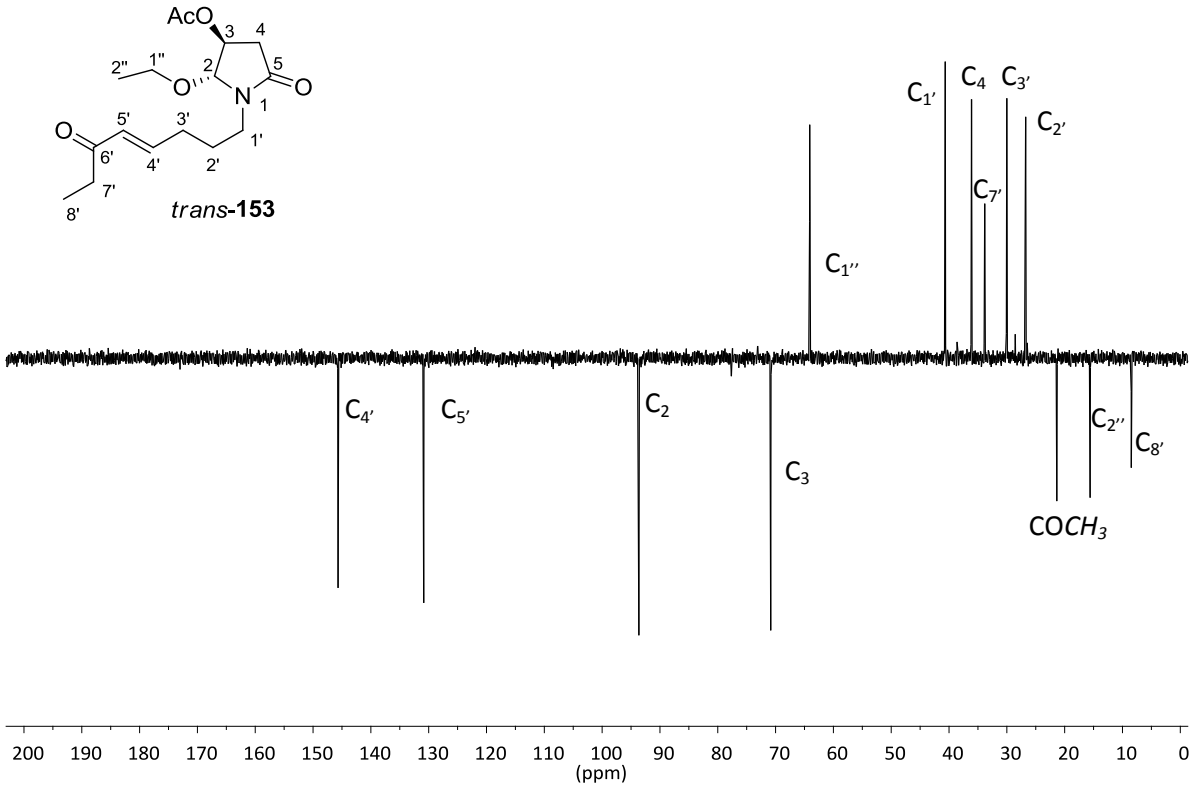
NOESY (250 MHz, $CDCl_3$)



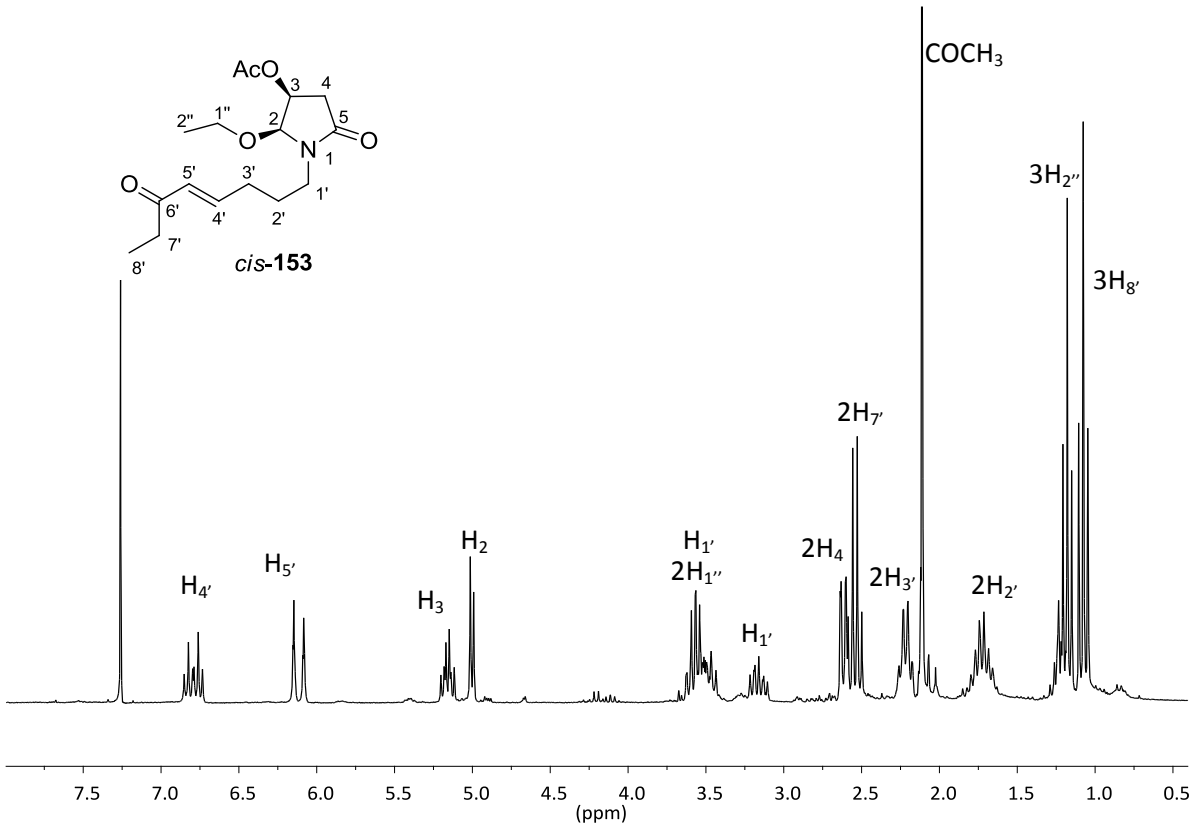
^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, $CDCl_3$)



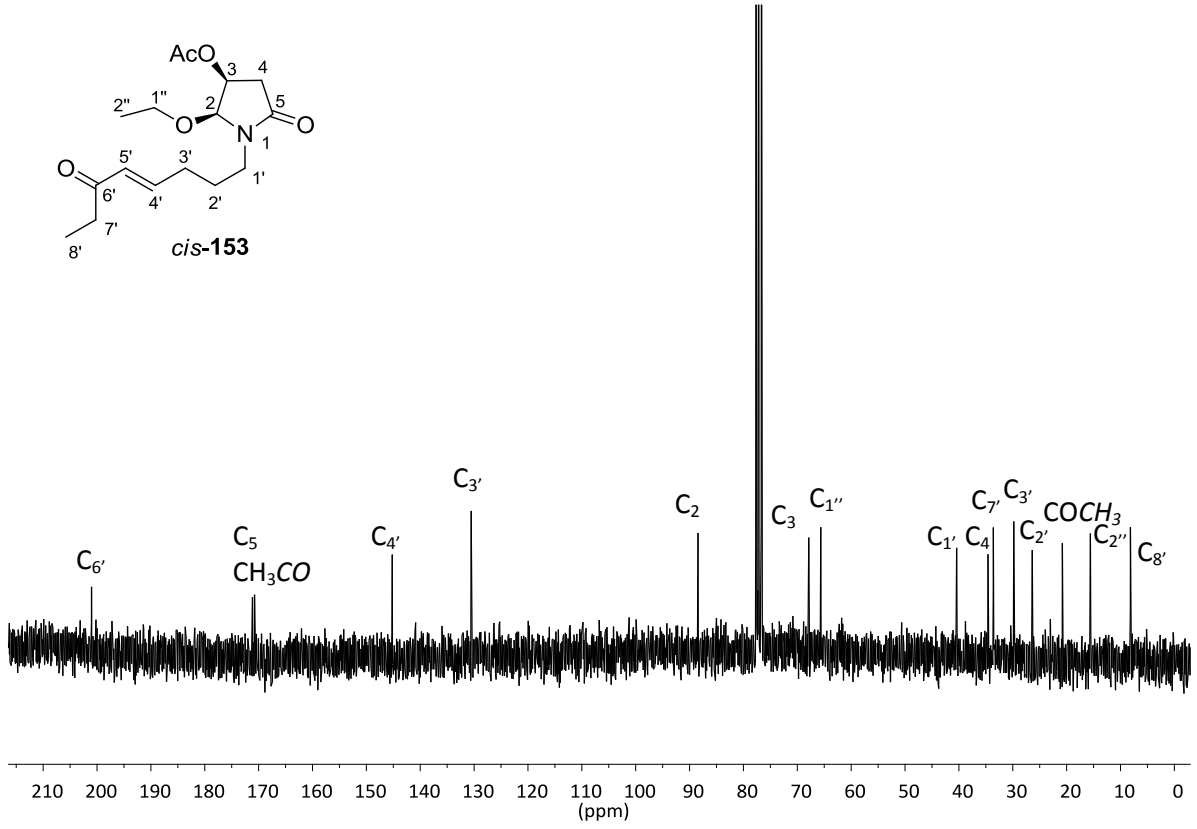
^{1}H-^{13}C HMBC (250 MHz, $CDCl_3$)



^{13}C-RMN (62.5 MHz, $CDCl_3$)

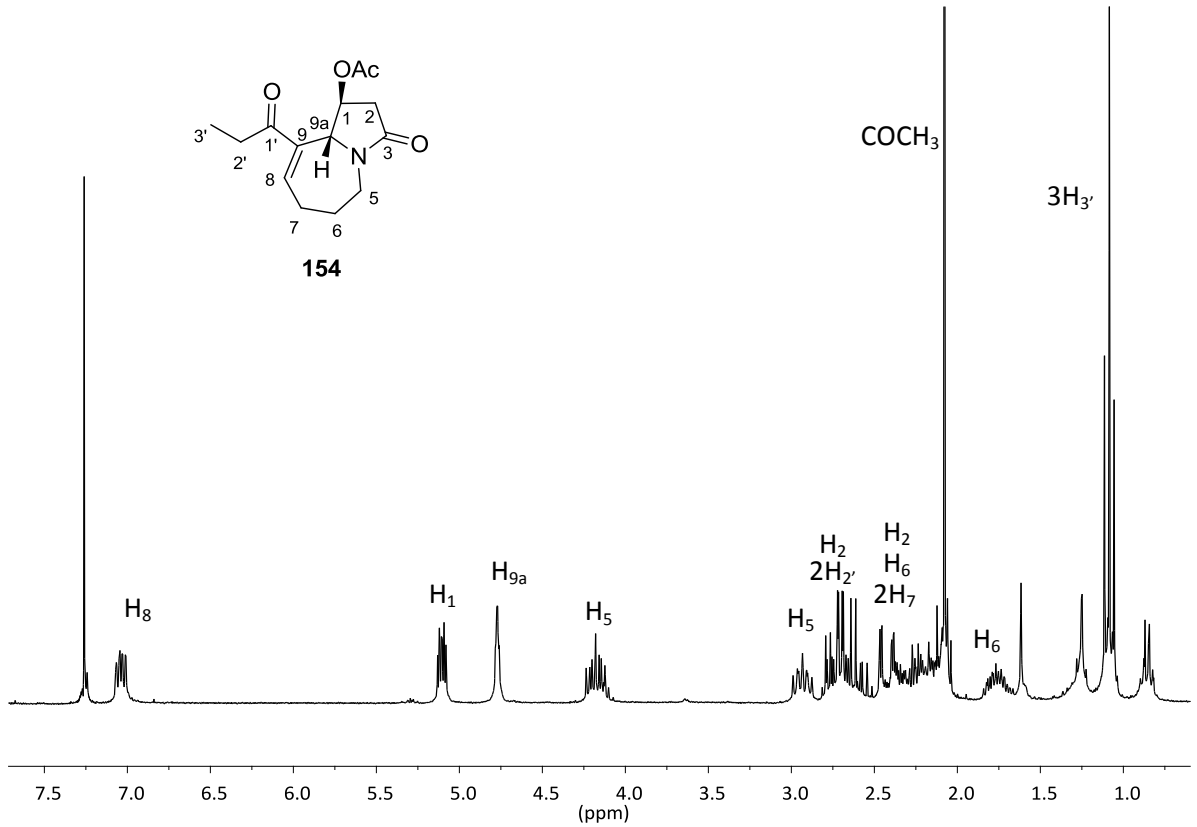


^{1}H-RMN (250 MHz, $CDCl_3$)



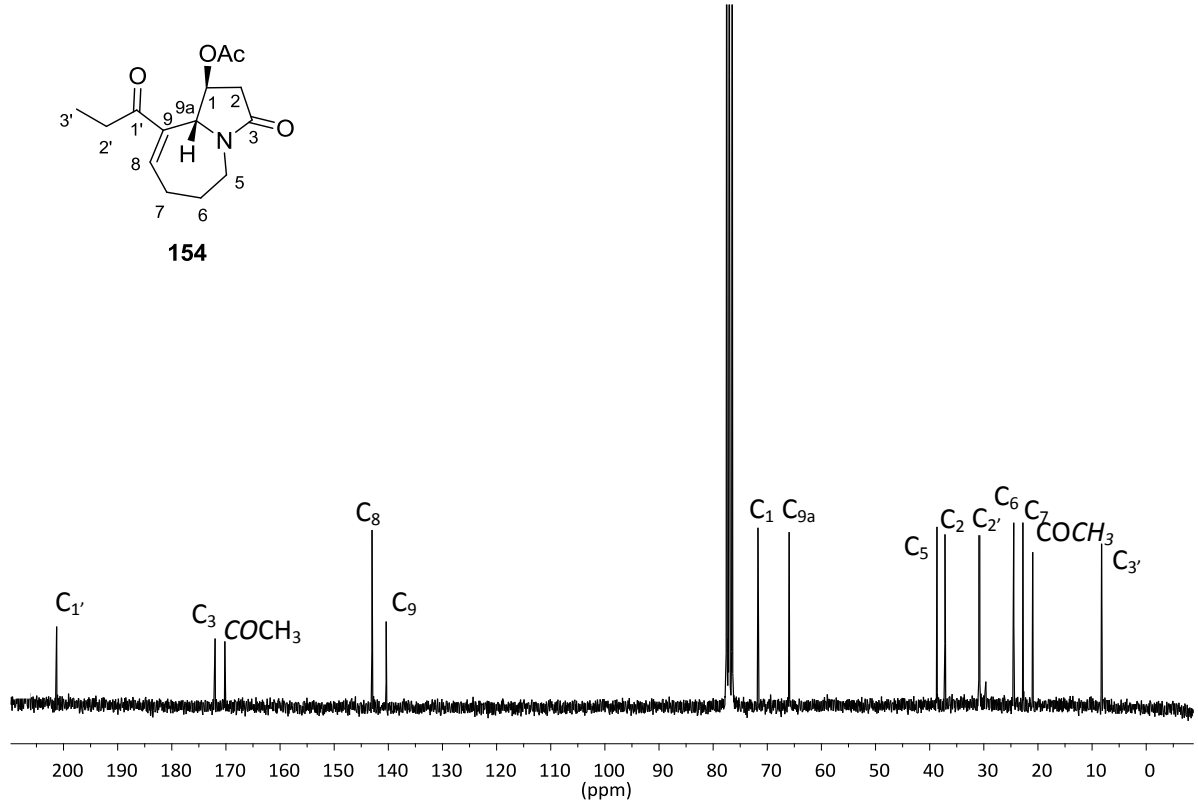
cis-**153**

^{13}C-RMN (62.5 MHz, $CDCl_3$)

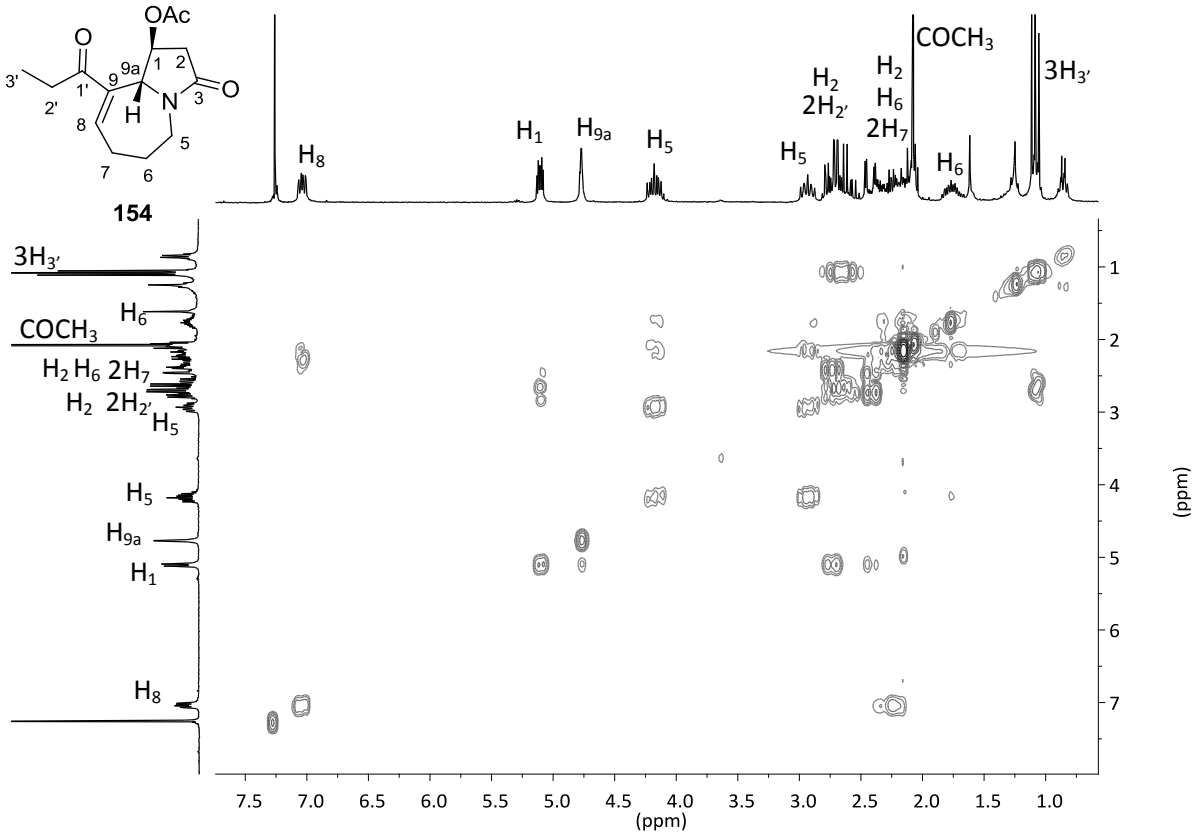


154

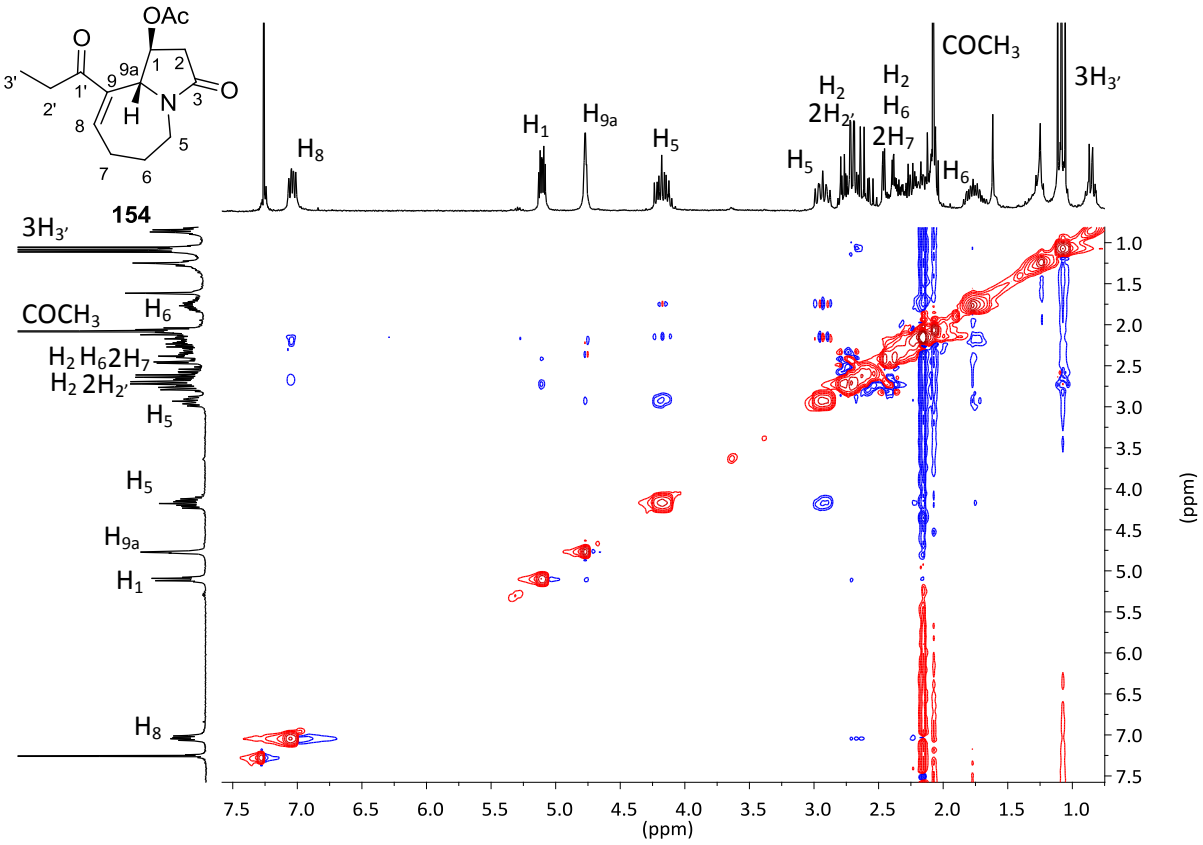
^{1}H-RMN (250 MHz, $CDCl_3$)



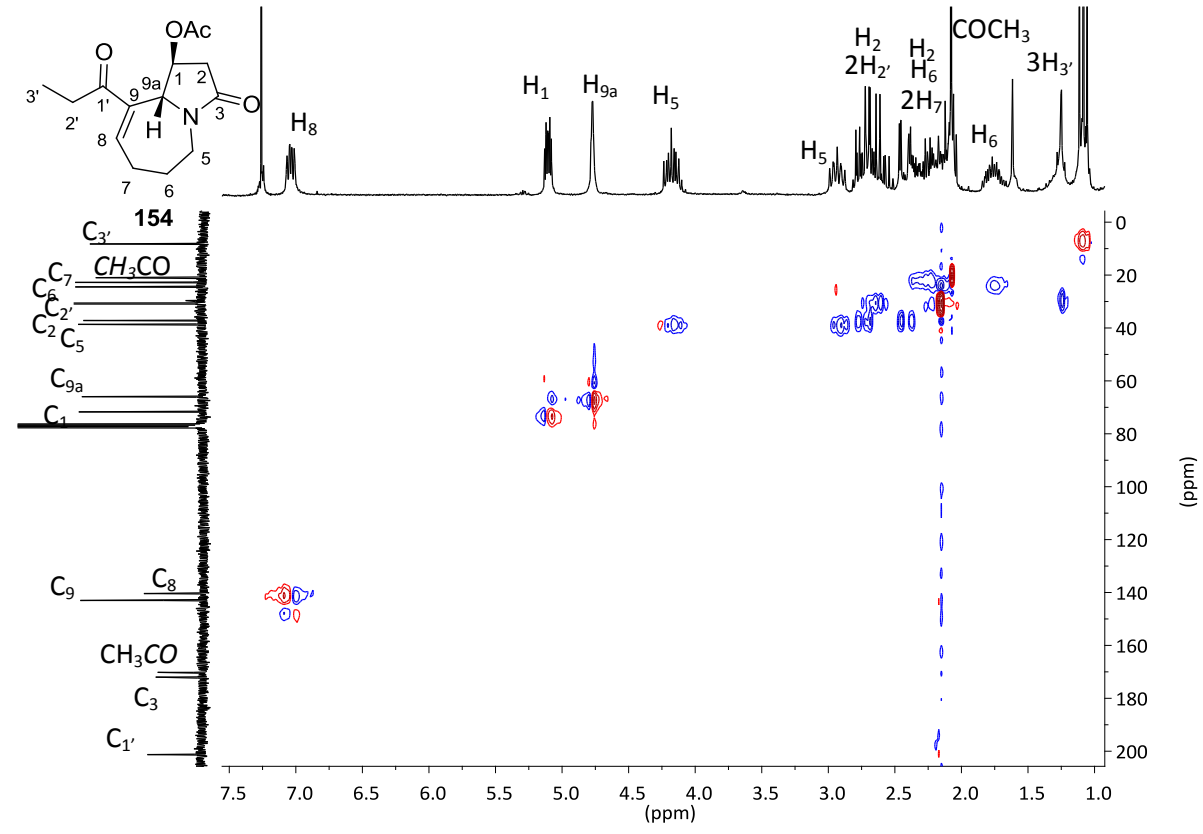
^{13}C-RMN (62.5 MHz, $CDCl_3$)



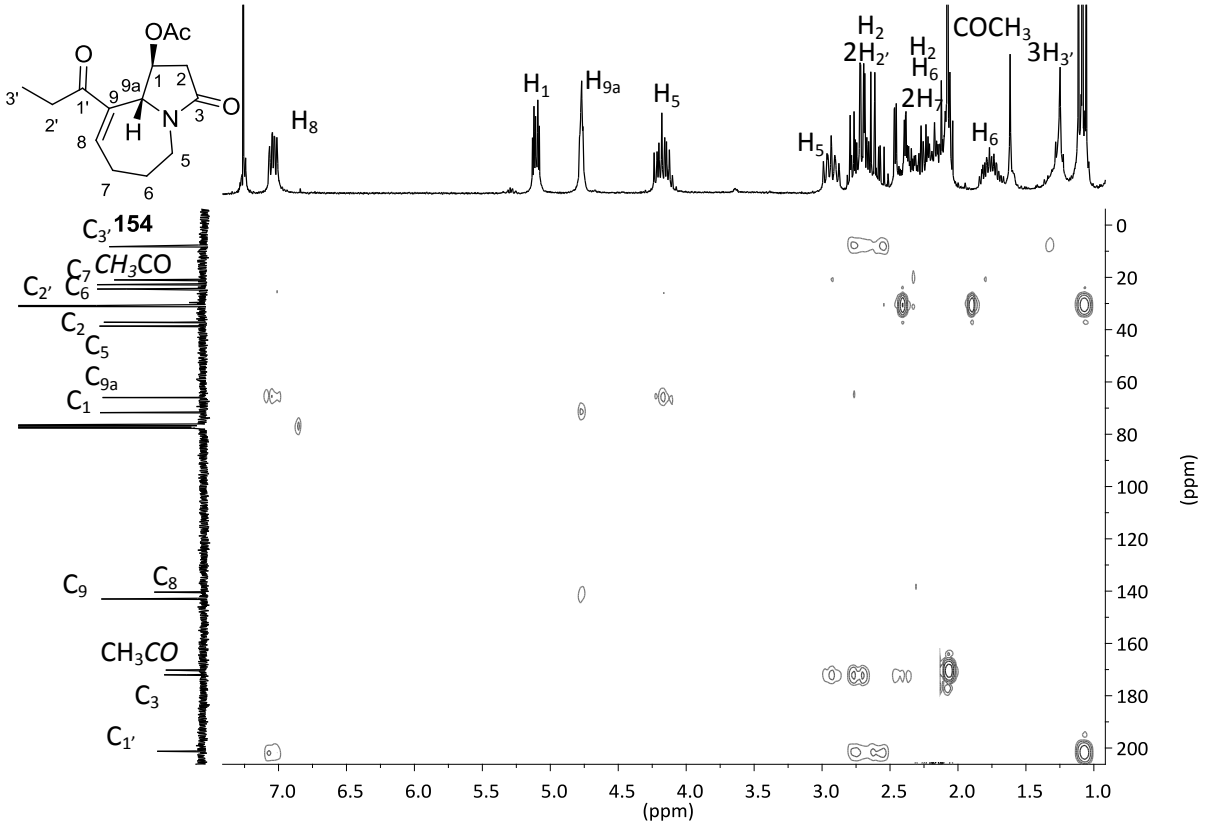
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



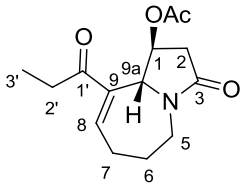
NOESY (250 MHz, $CDCl_3$)



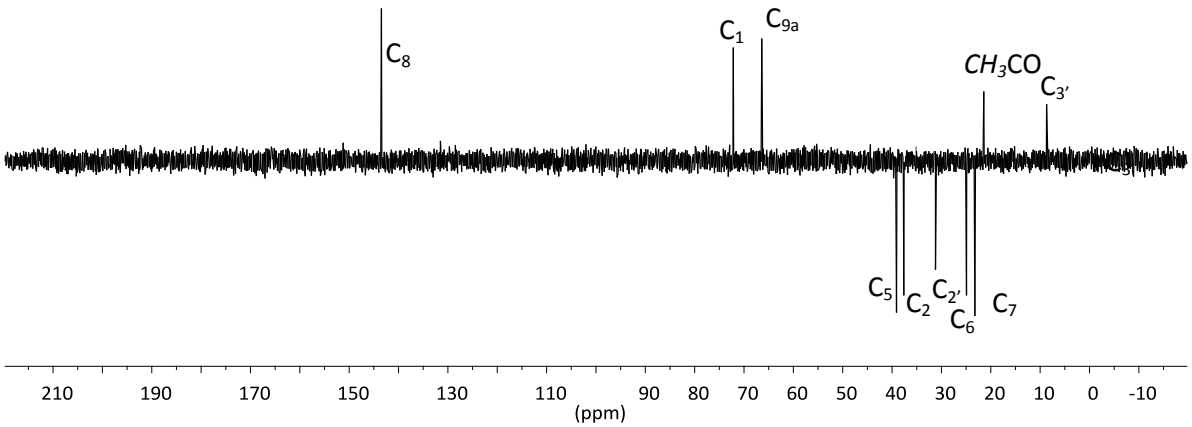
^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, $CDCl_3$)



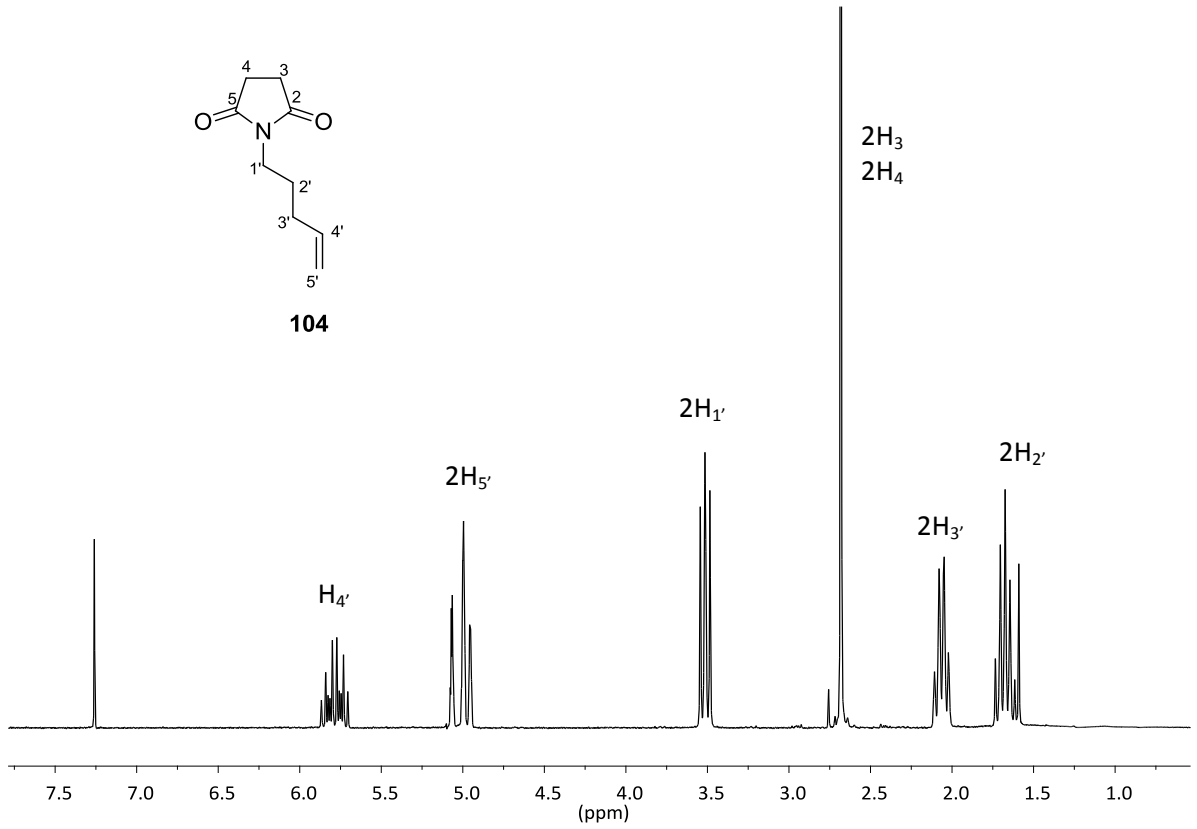
^{1}H-^{13}C HMBC (250 MHz, $CDCl_3$)



154

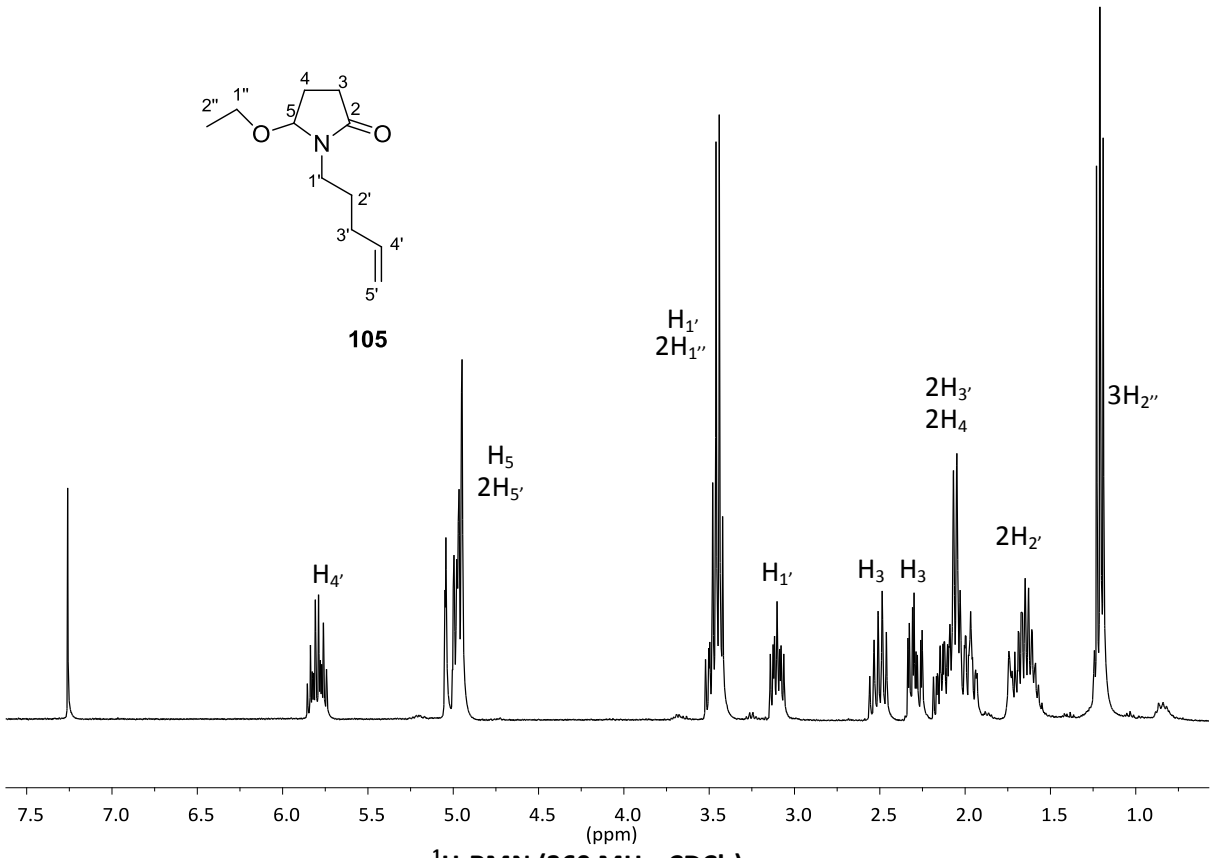


DEPT 135 (62.5 MHz, $CDCl_3$)



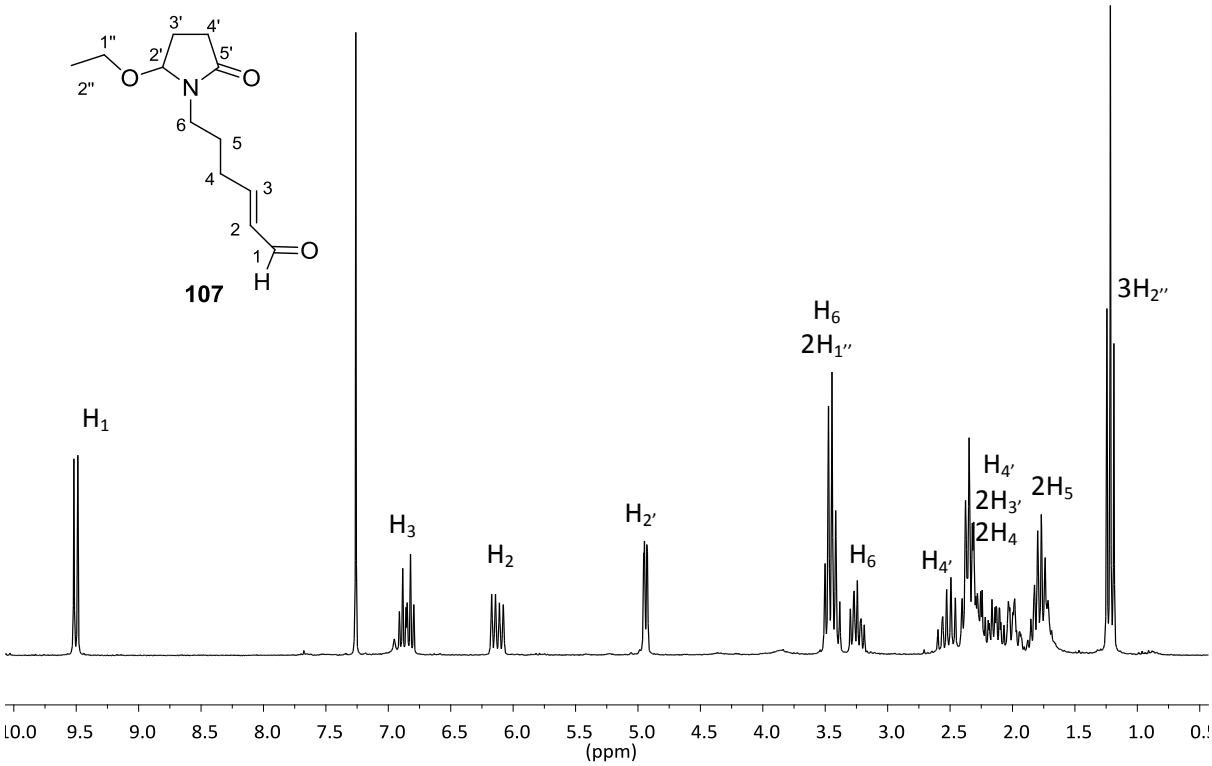
104

^{1}H-RMN (250 MHz, $CDCl_3$)

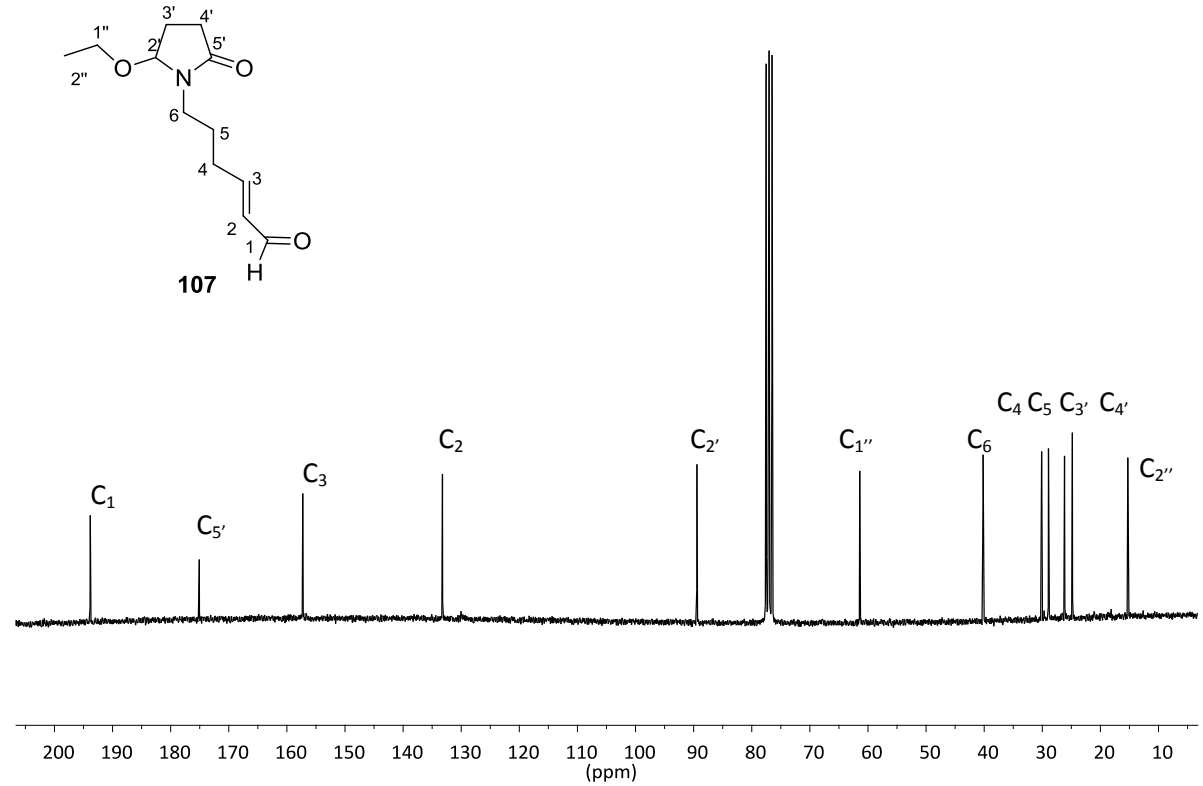


105

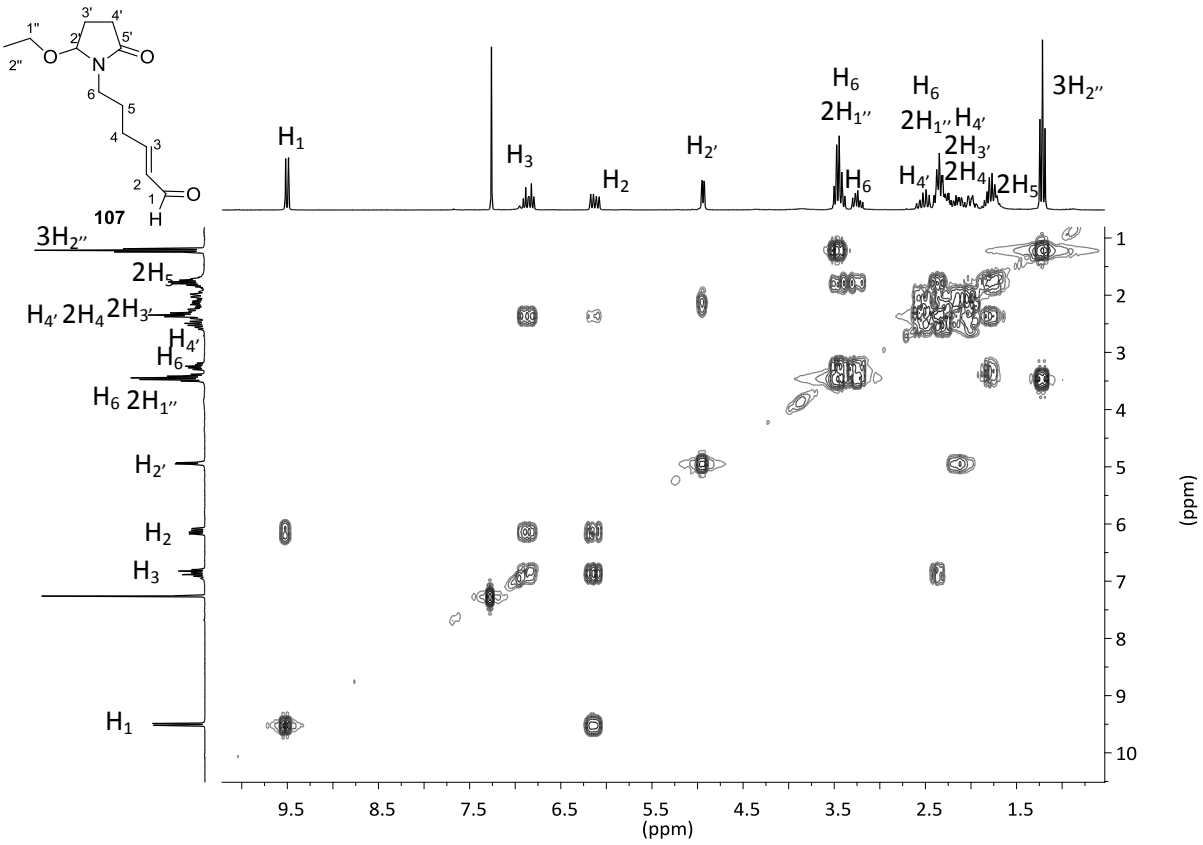
^{1}H-RMN (360 MHz, $CDCl_3$)



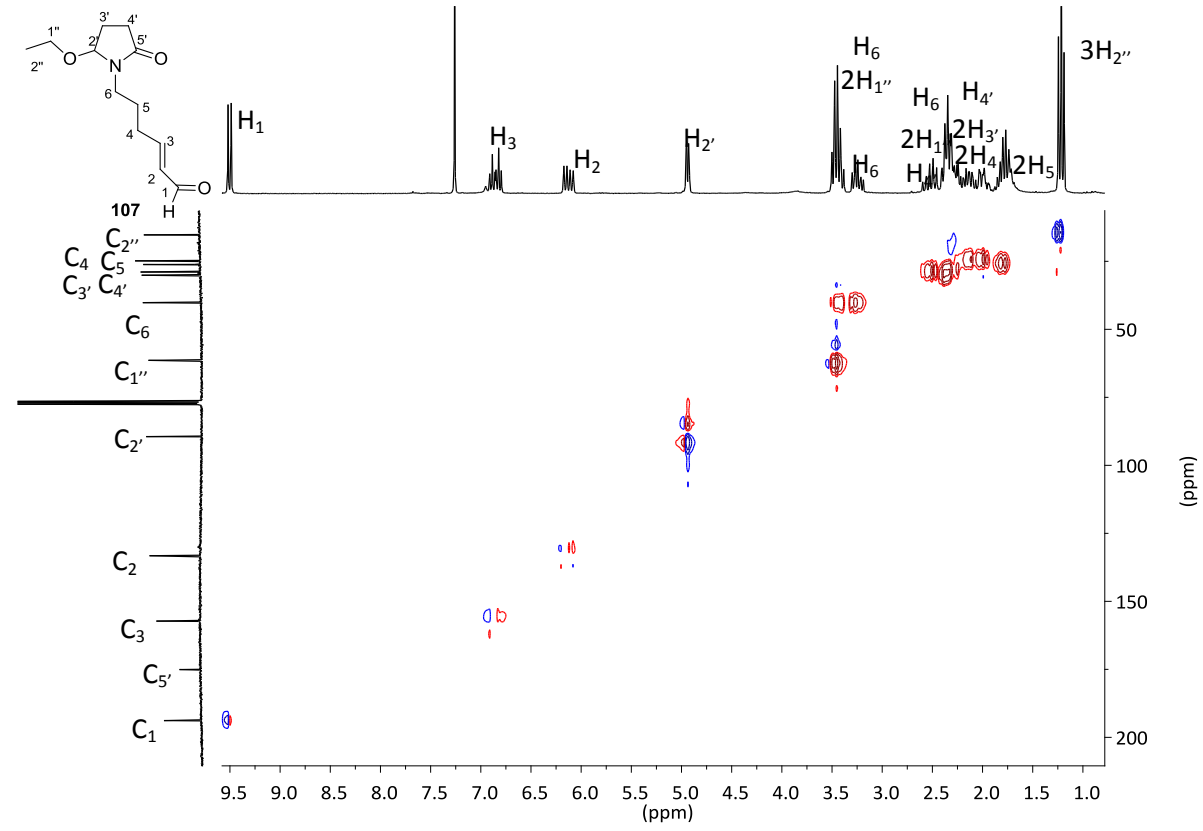
^{1}H-RMN (250 MHz, $CDCl_3$)



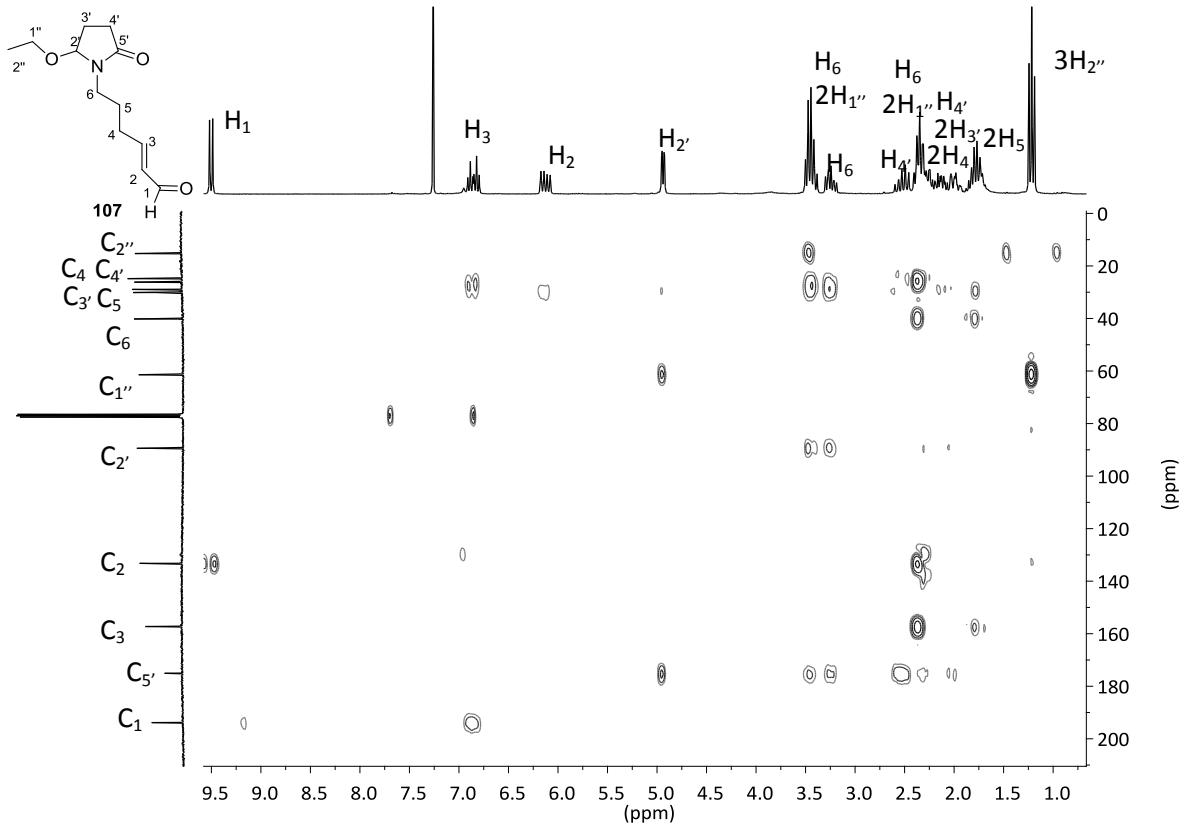
^{13}C-RMN (62.5 MHz, $CDCl_3$)



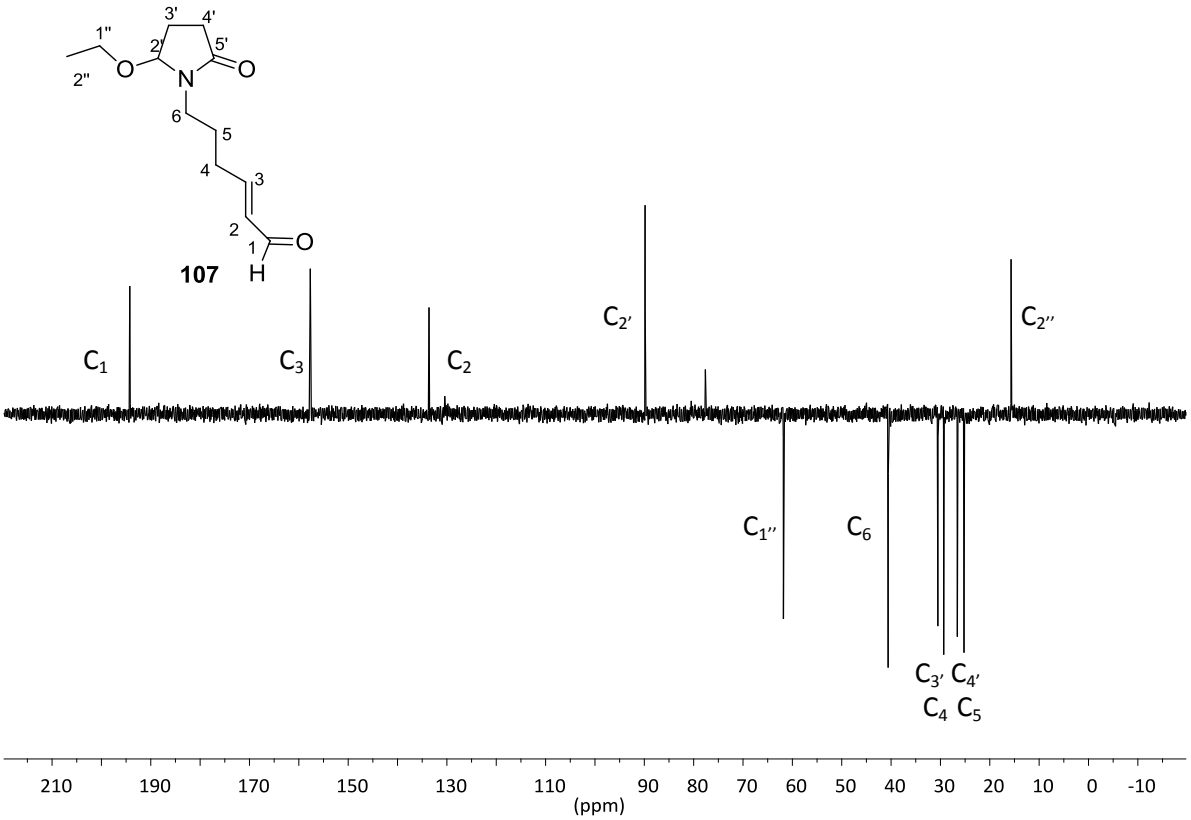
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



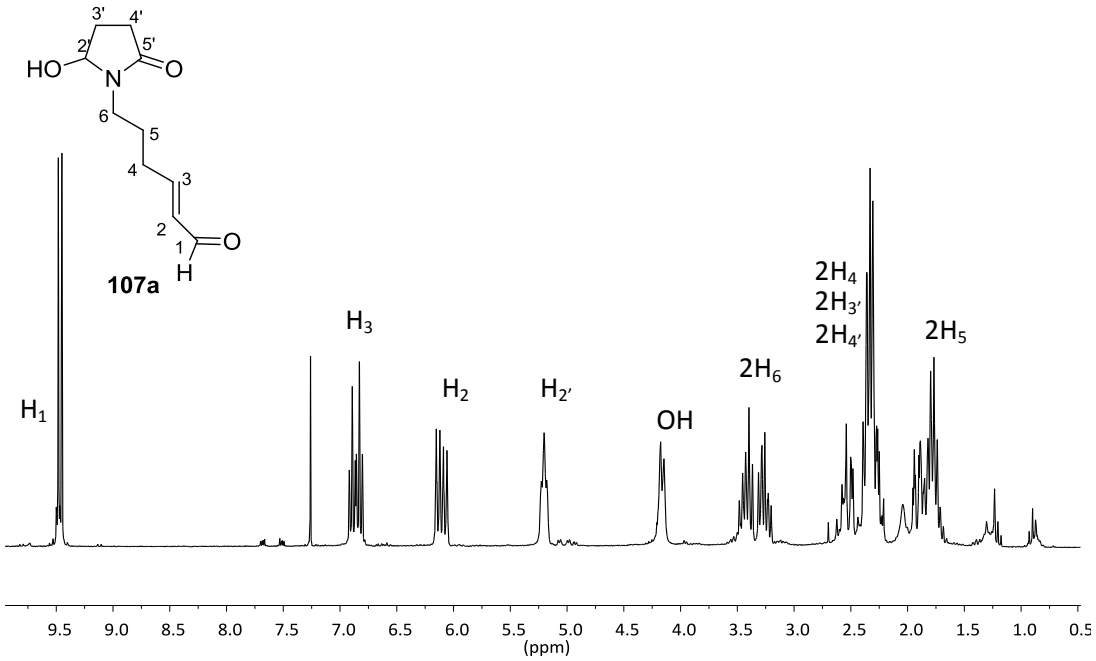
^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, $CDCl_3$)



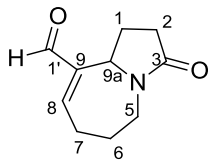
^{1}H-^{13}C HMBC (250 MHz, $CDCl_3$)



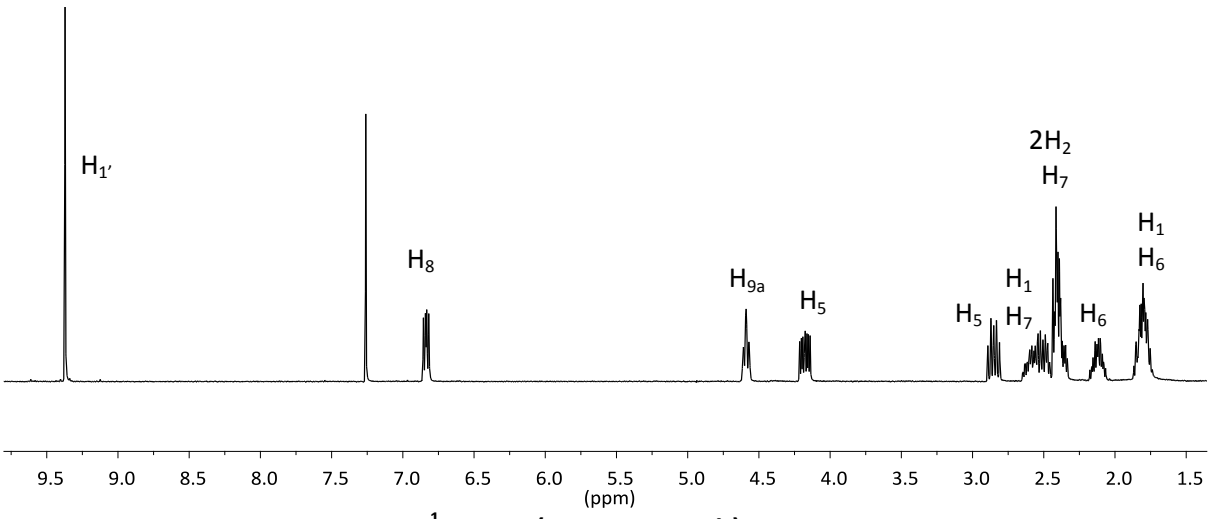
DEPT 135 (62.5 MHz, $CDCl_3$)



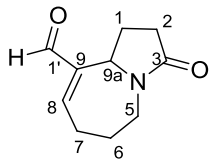
^{1}H-RMN (250 MHz, $CDCl_3$)



92

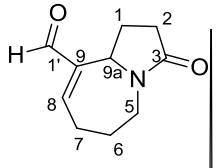


^{1}H-RMN (360 MHz, $CDCl_3$)



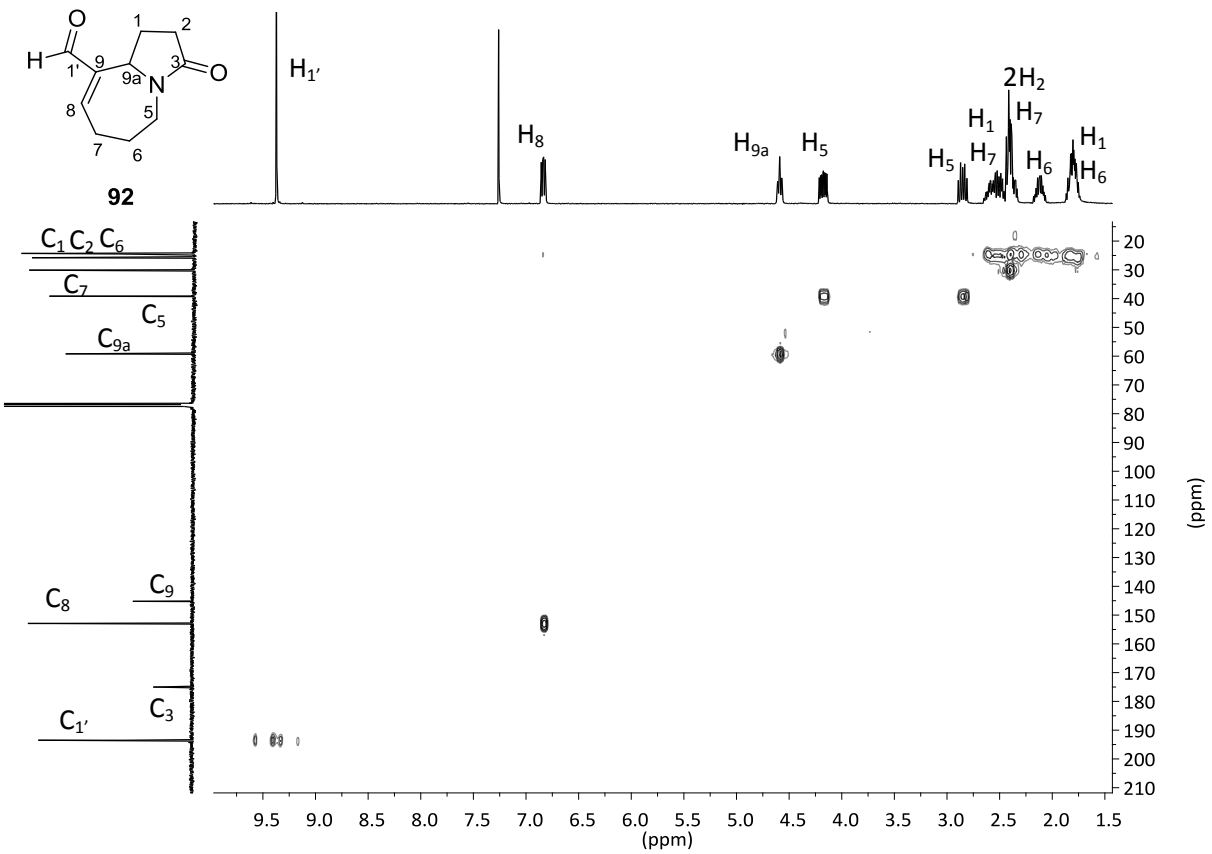
92

^{13}C-RMN (90 MHz, $CDCl_3$)

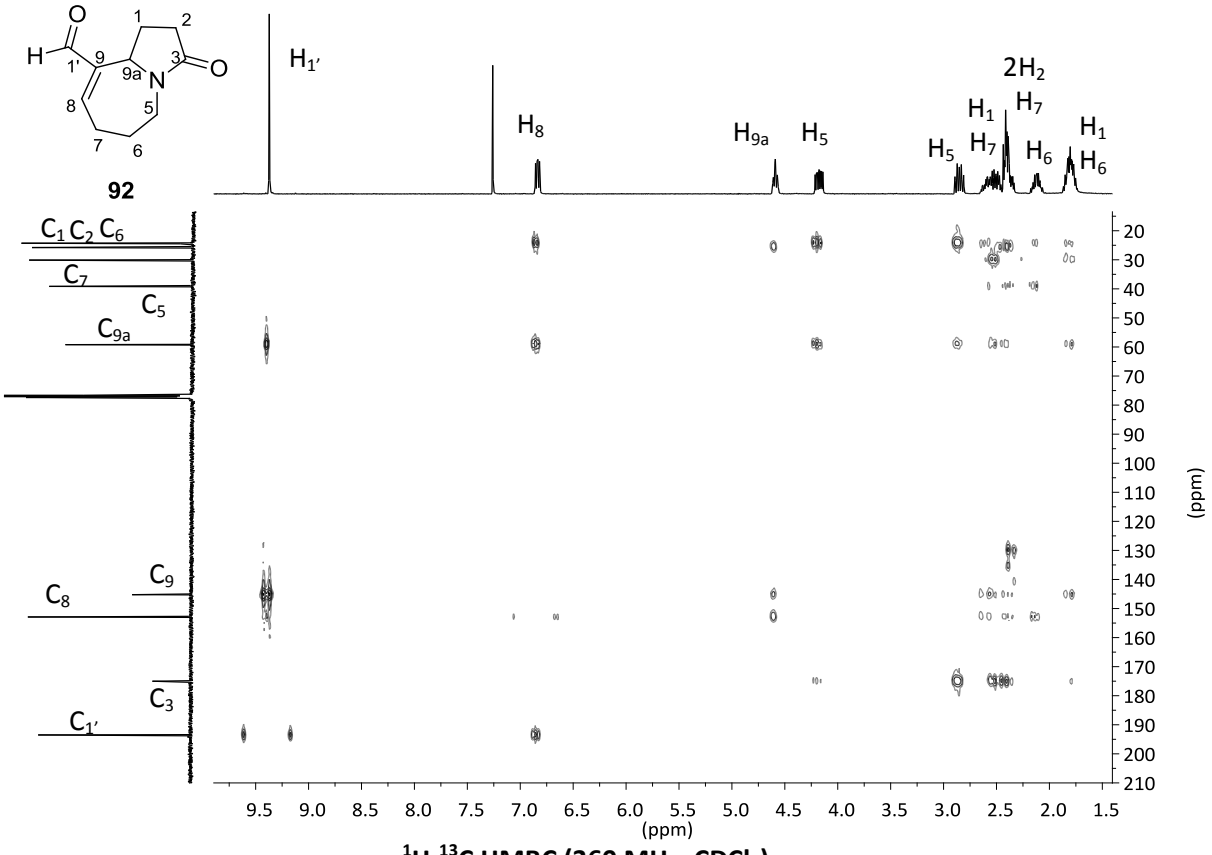


92

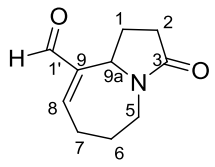
^{1}H-^{1}H COSY (360 MHz, $CDCl_3$)



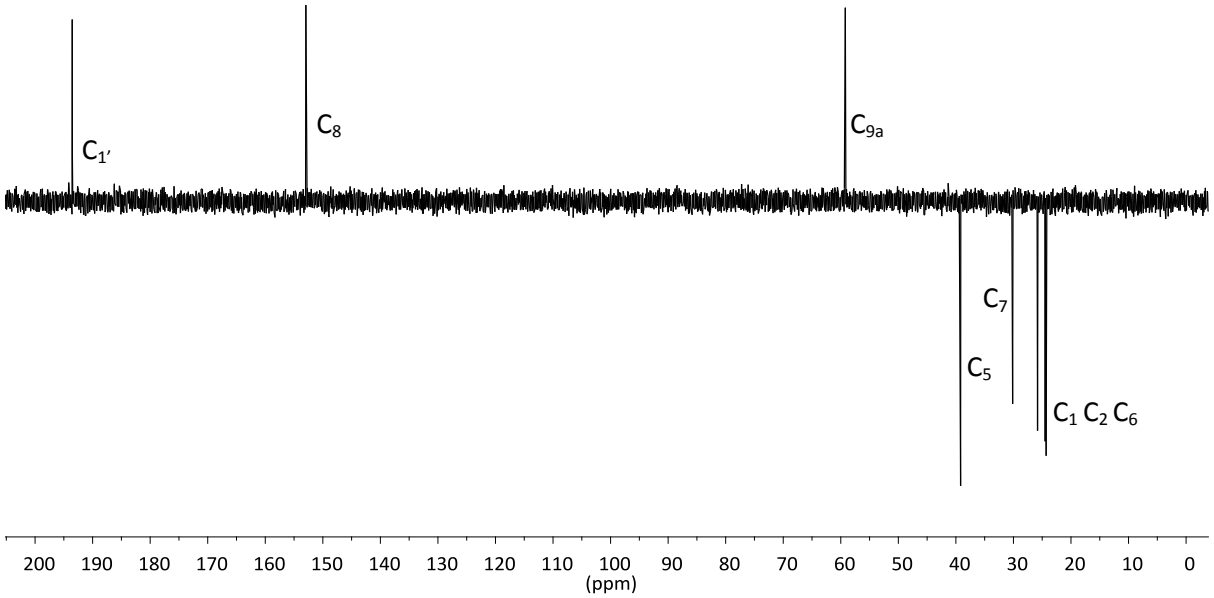
^{1}H-^{13}C HSQC (360 MHz, $CDCl_3$)



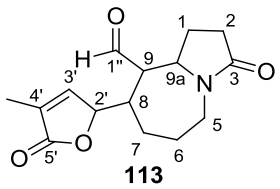
^{1}H-^{13}C HMBC (360 MHz, $CDCl_3$)



92

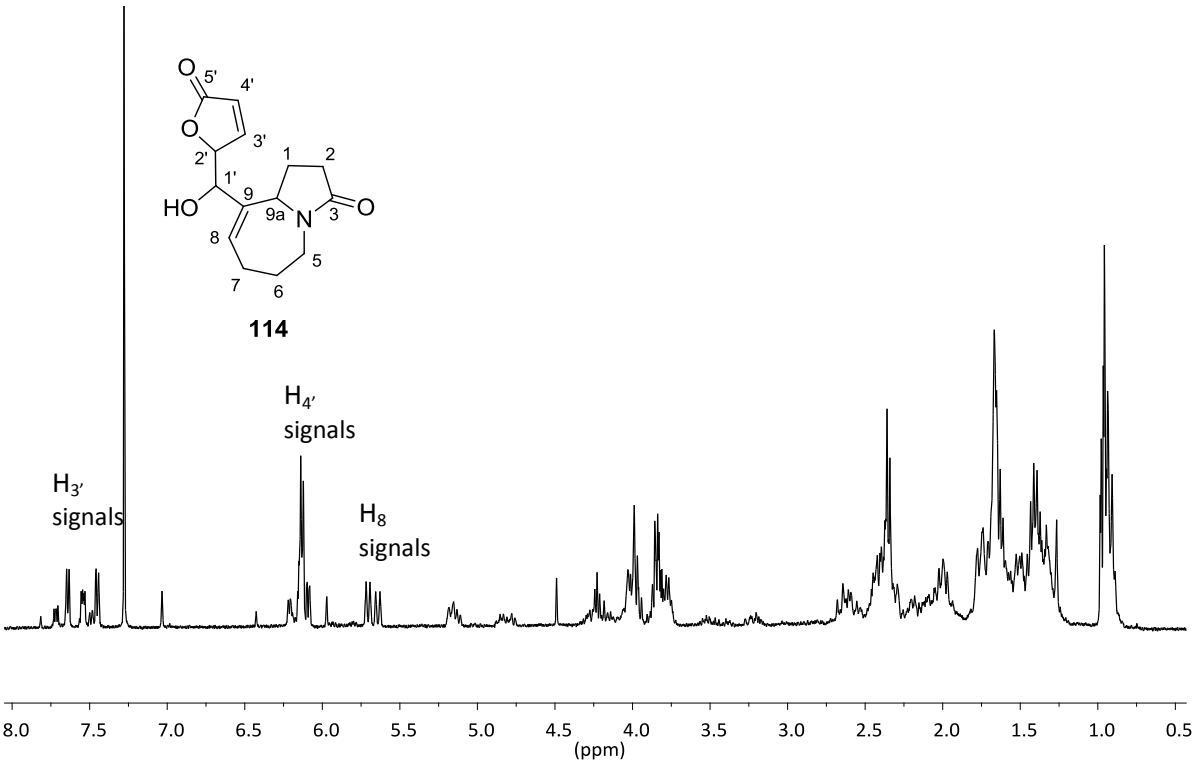


DEPT 135 (90 MHz, $CDCl_3$)



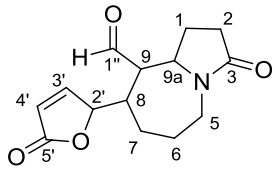
113

^{1}H-RMN (250 MHz, $CDCl_3$)

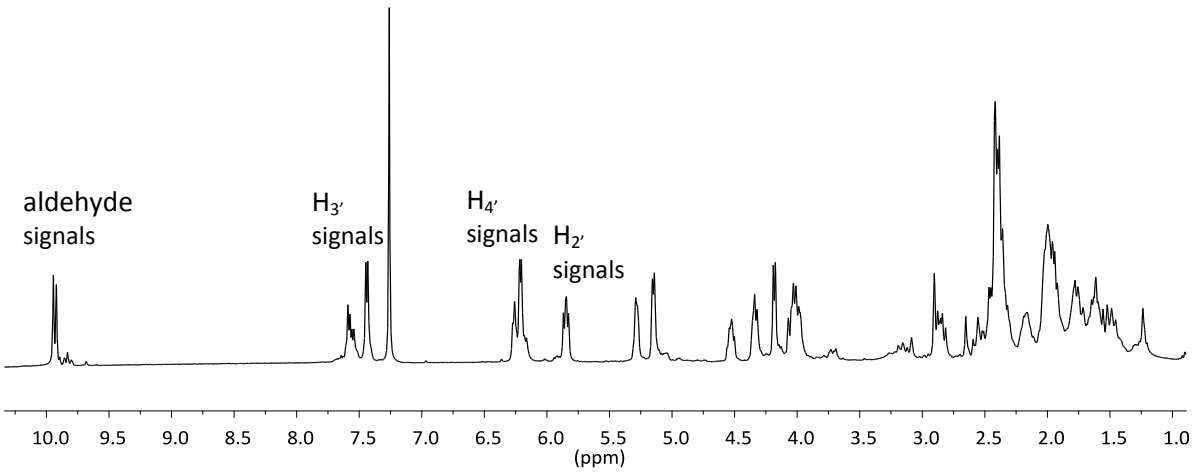


114

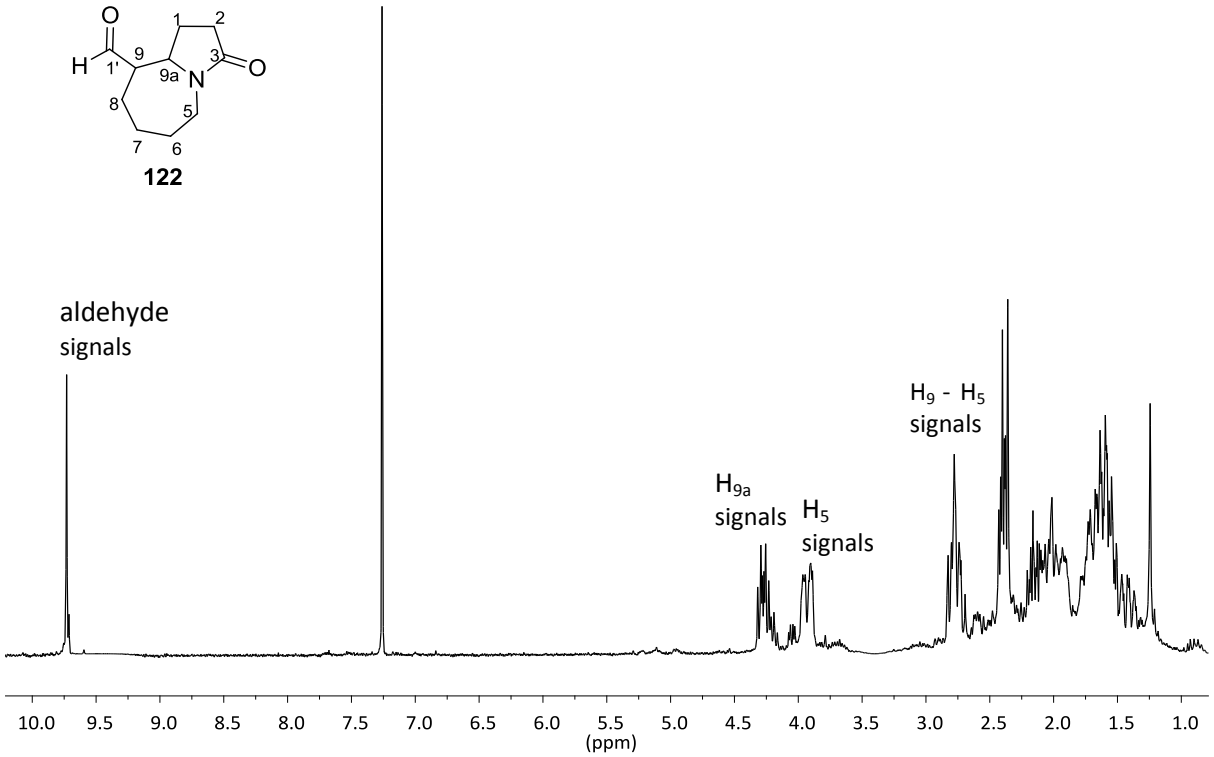
^{1}H-RMN (250 MHz, $CDCl_3$)



115

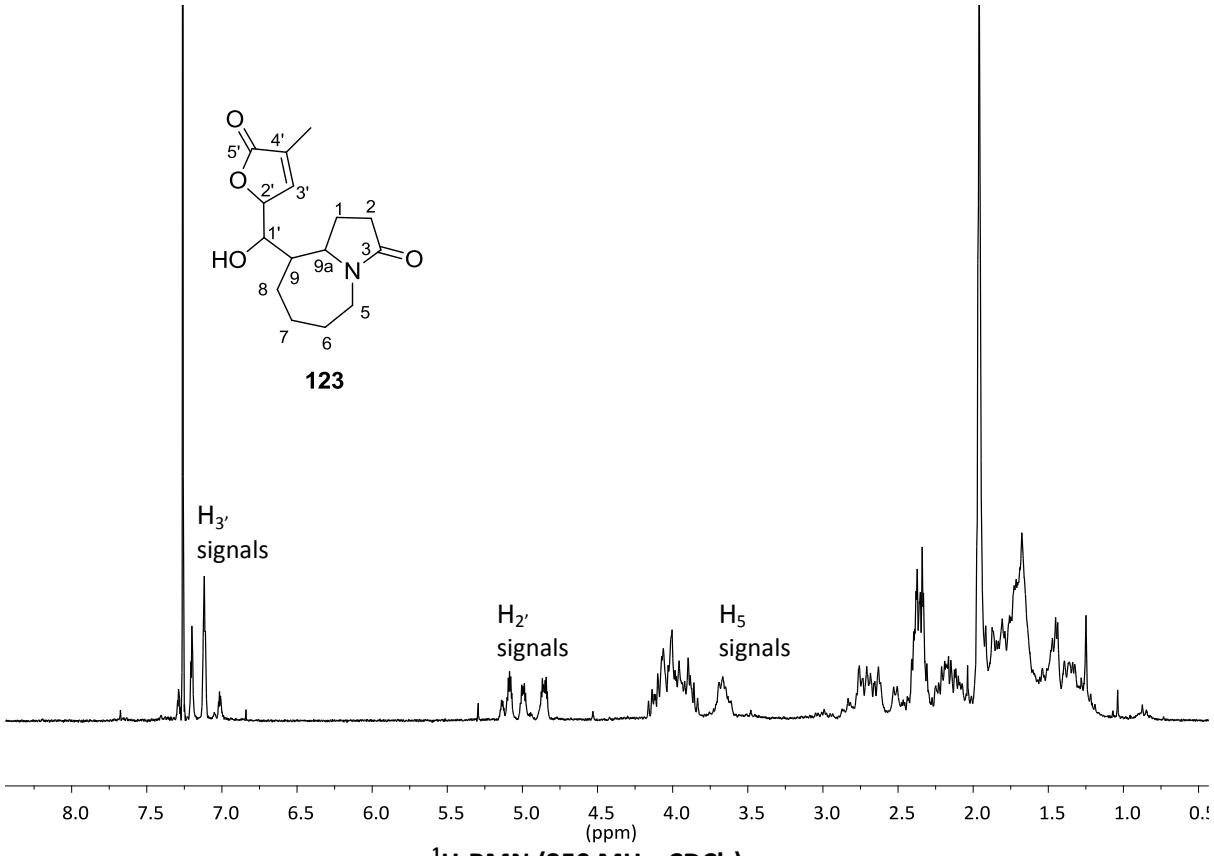


^{1}H-RMN (250 MHz, $CDCl_3$)



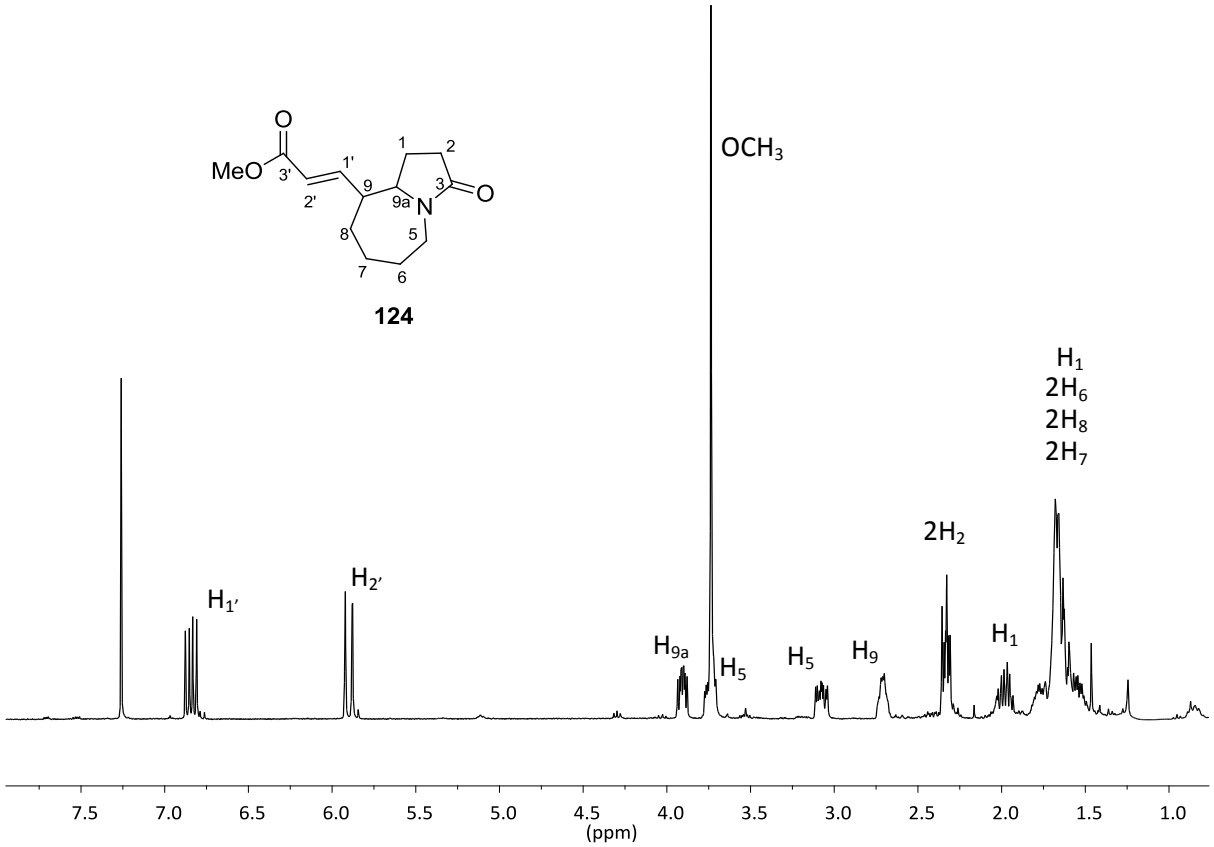
122

^{1}H-RMN (250 MHz, $CDCl_3$)

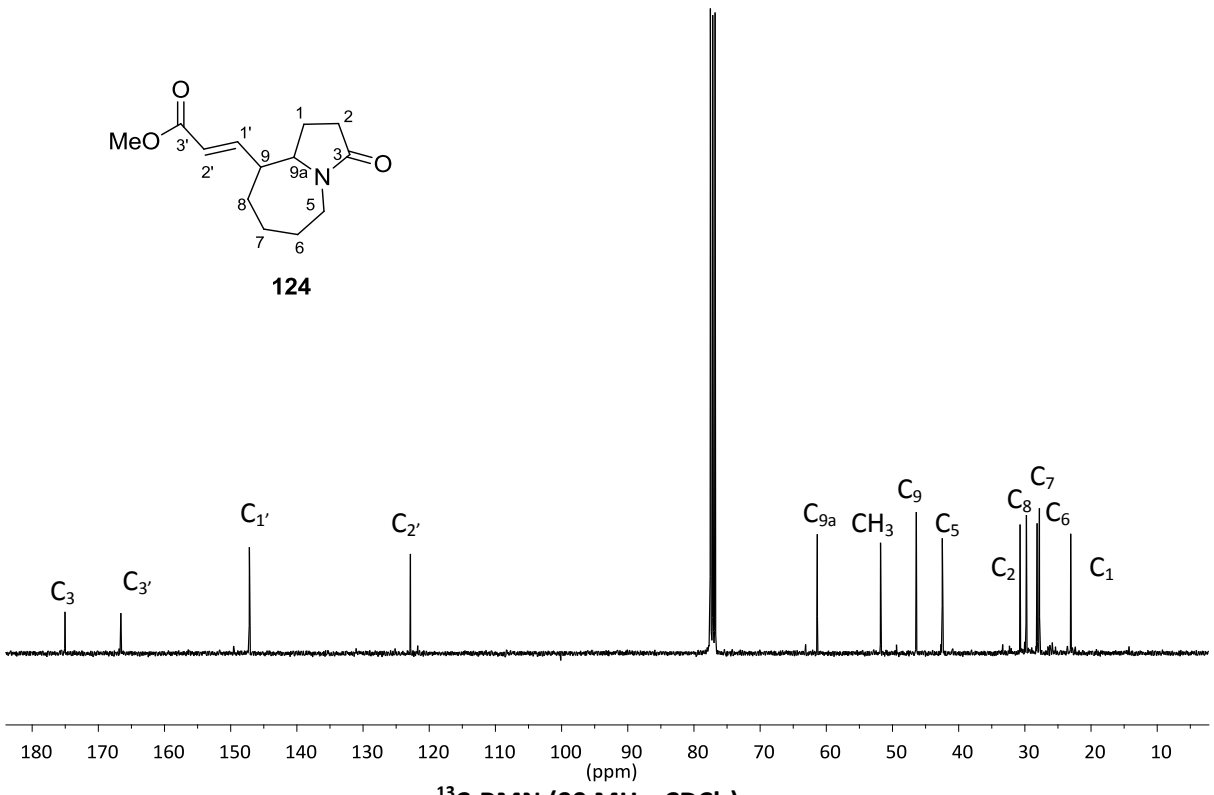


123

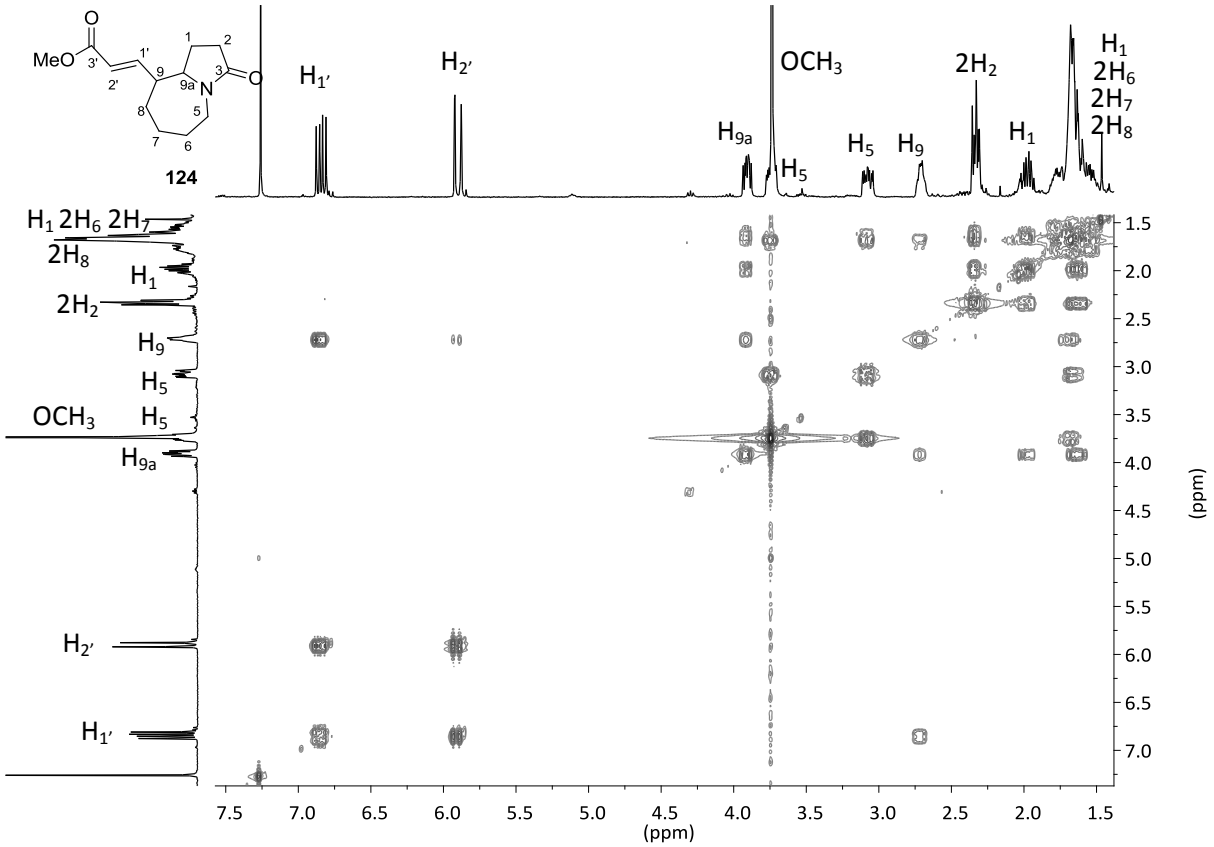
^{1}H-RMN (250 MHz, $CDCl_3$)



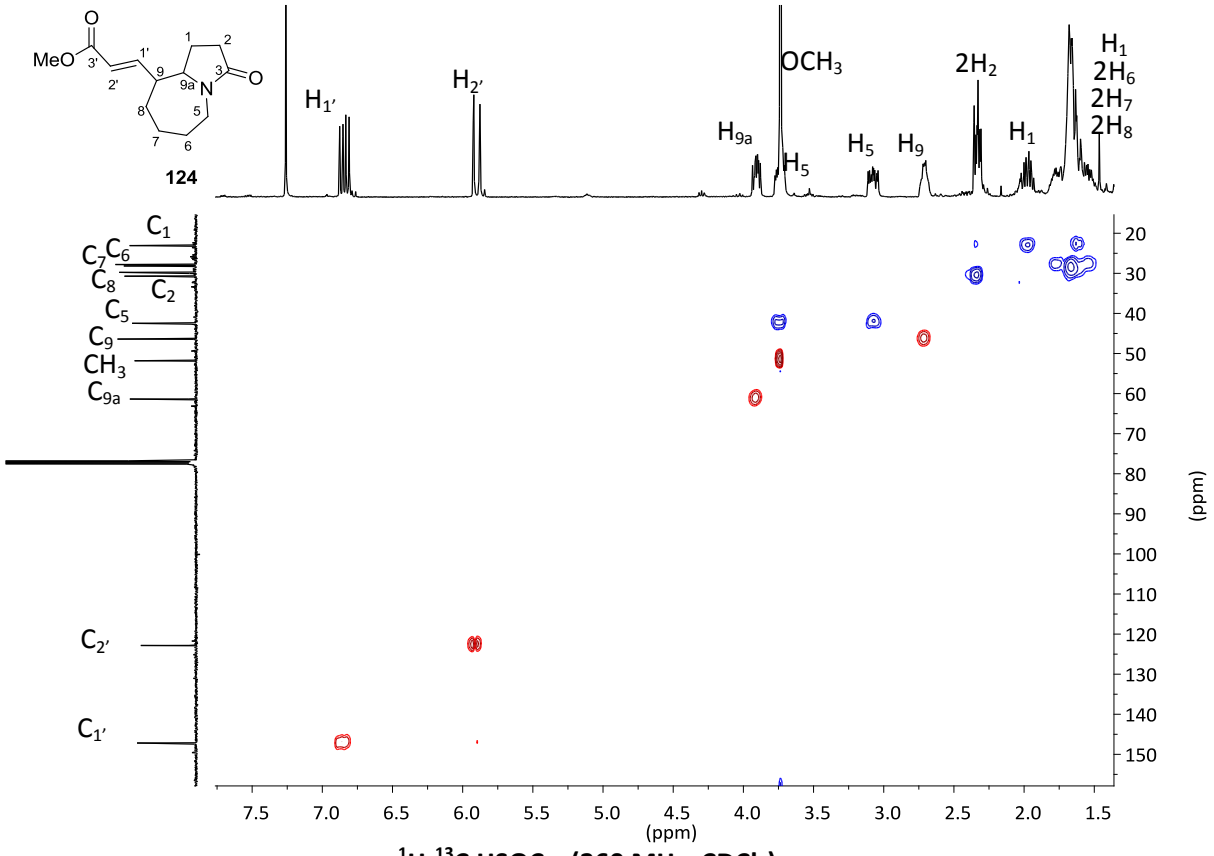
^{1}H-RMN (360 MHz, $CDCl_3$)



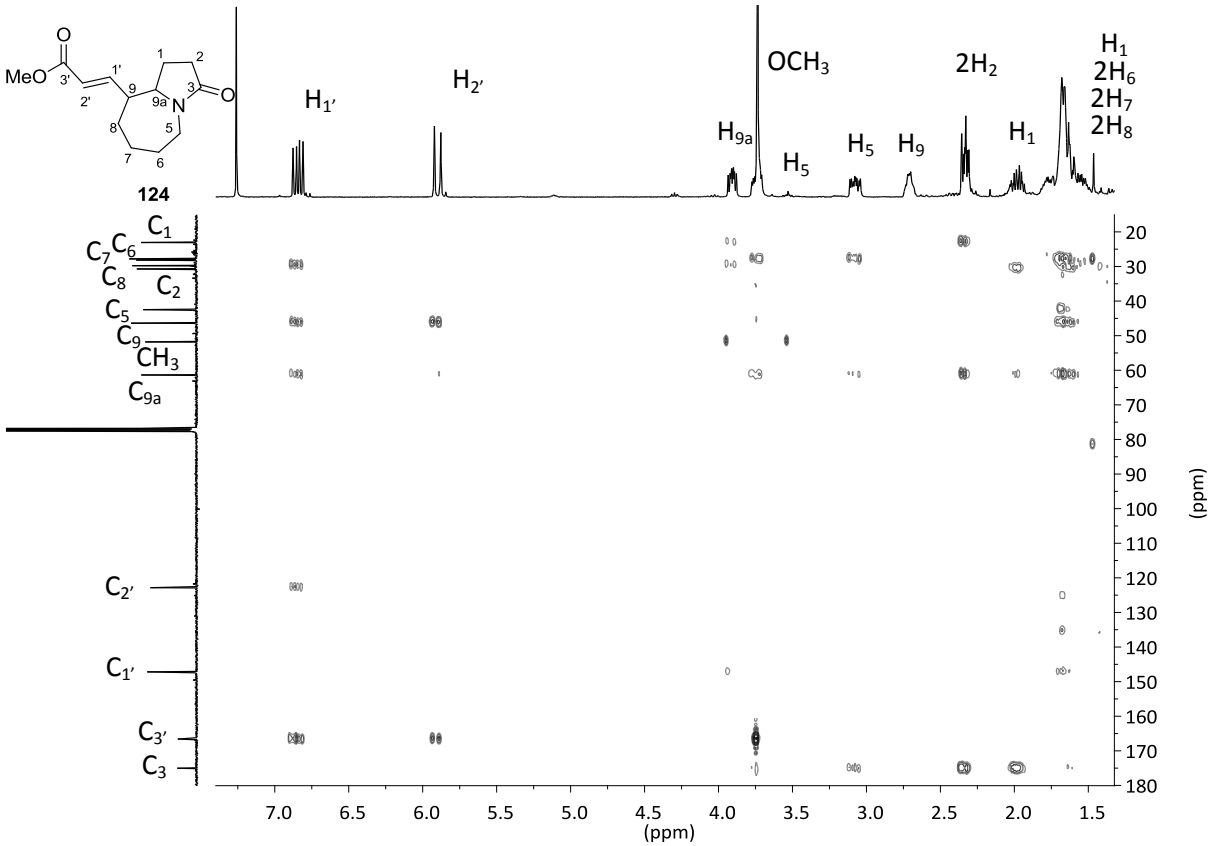
^{13}C-RMN (90 MHz, $CDCl_3$)



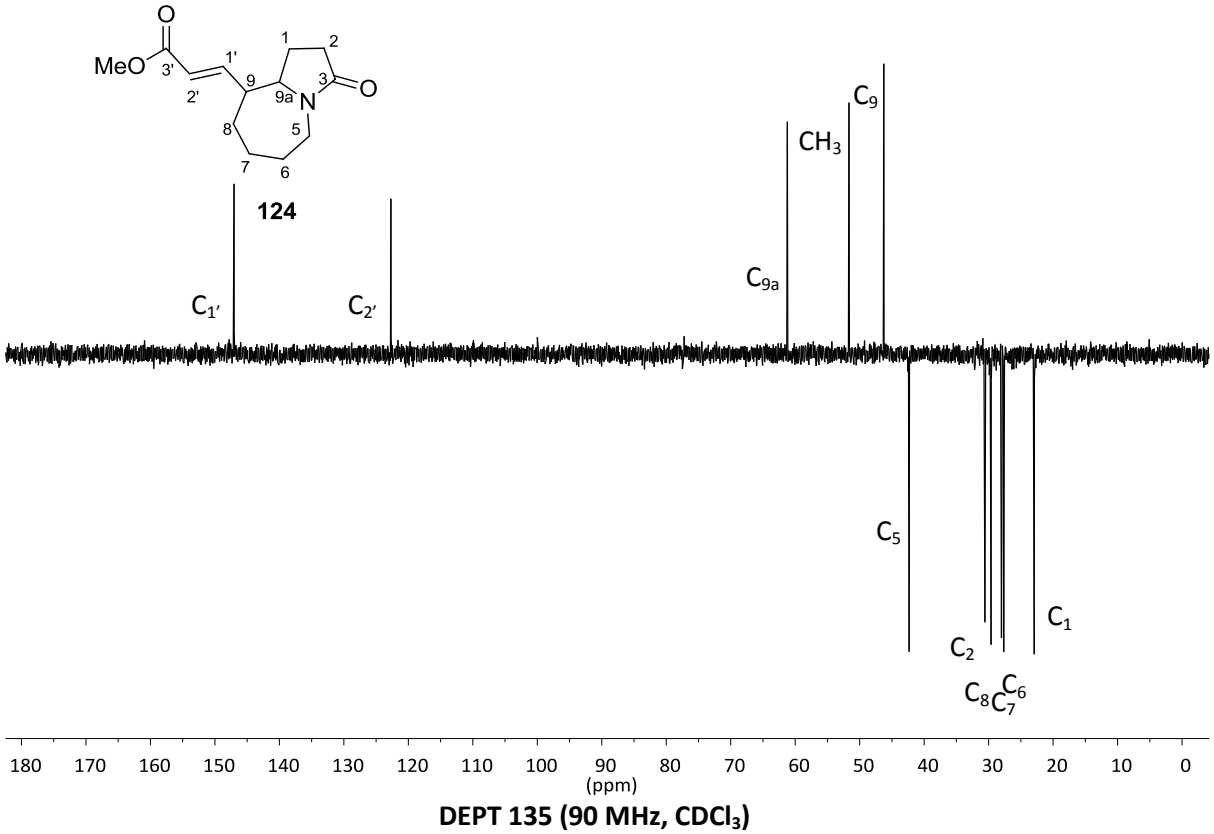
^{1}H-^{1}H COSY (360 MHz, $CDCl_3$)



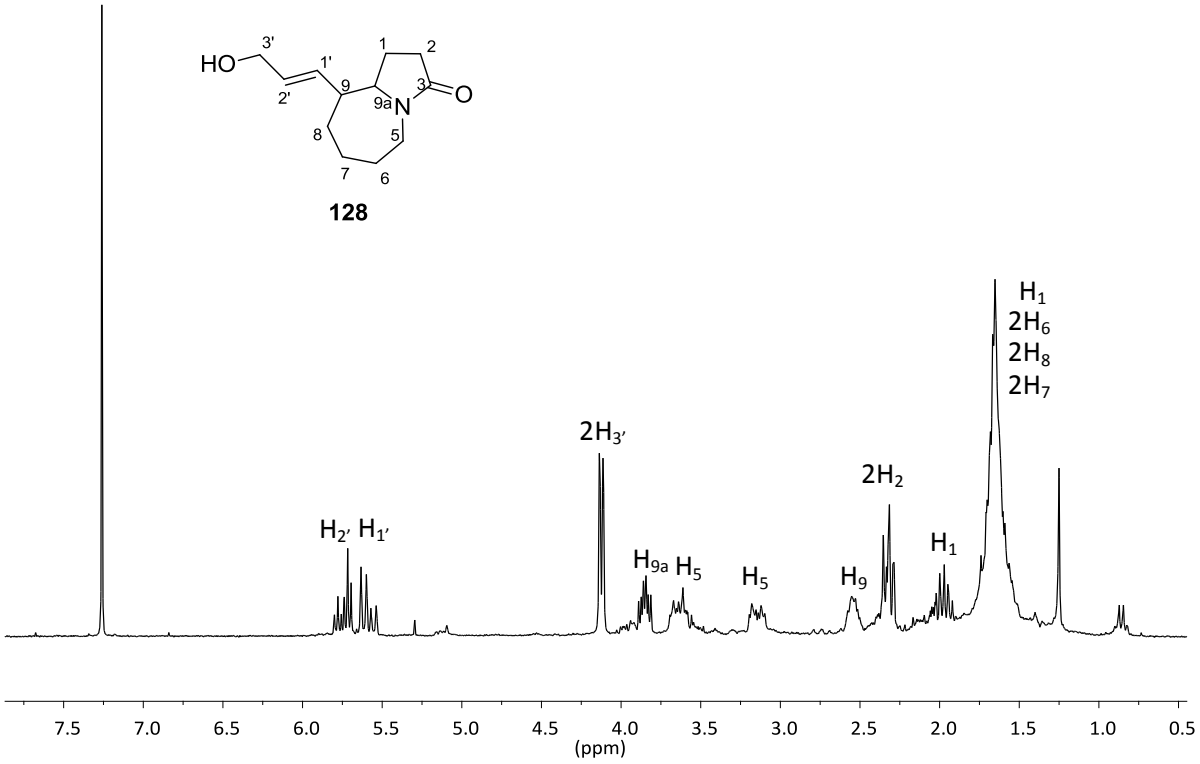
^{1}H-^{13}C HSQC$_{ed}$ (360 MHz, $CDCl_3$)



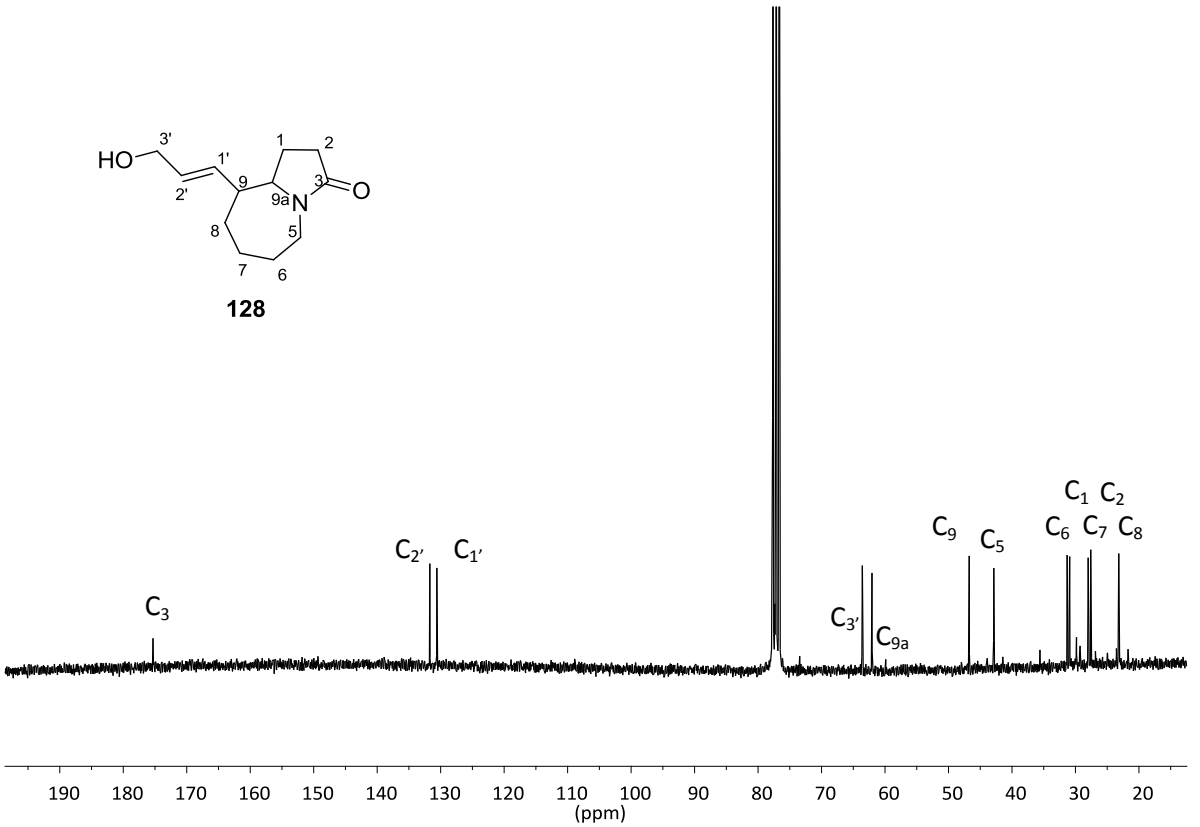
^{1}H-^{13}C HMBC (360 MHz, $CDCl_3$)



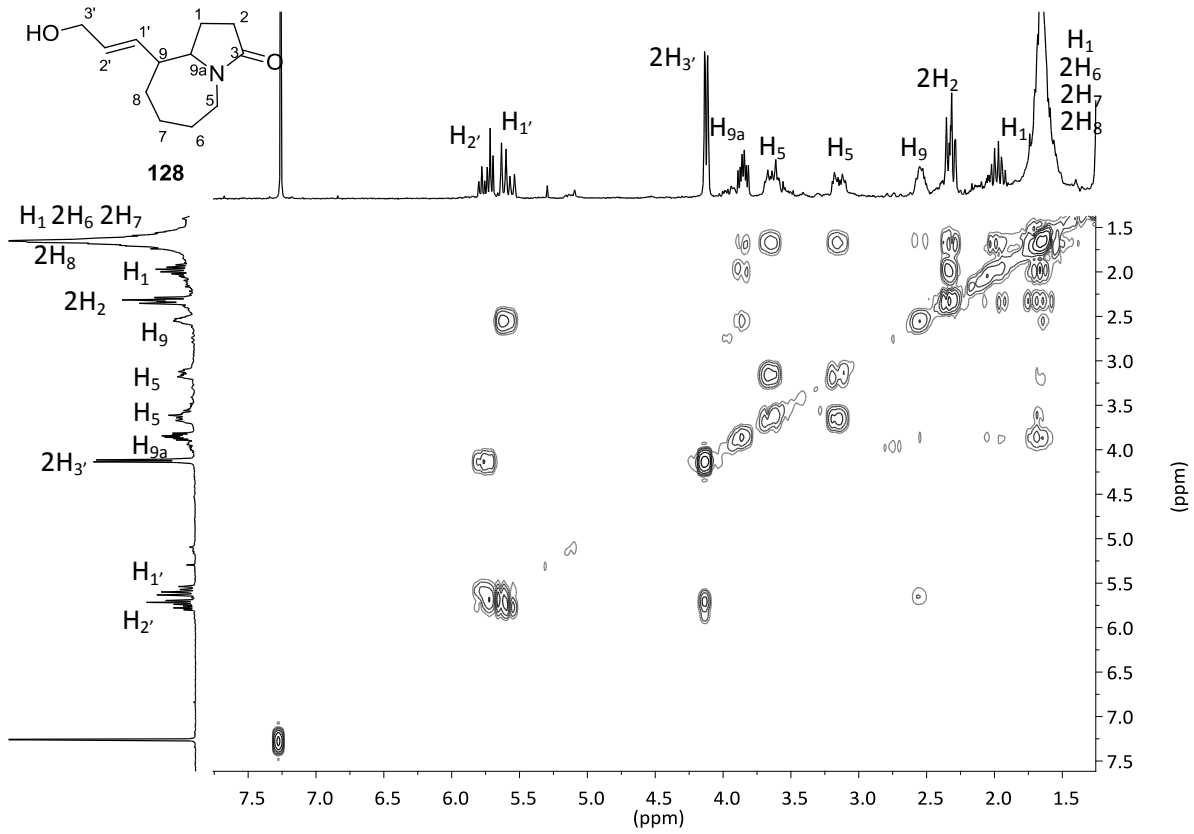
DEPT 135 (90 MHz, $CDCl_3$)



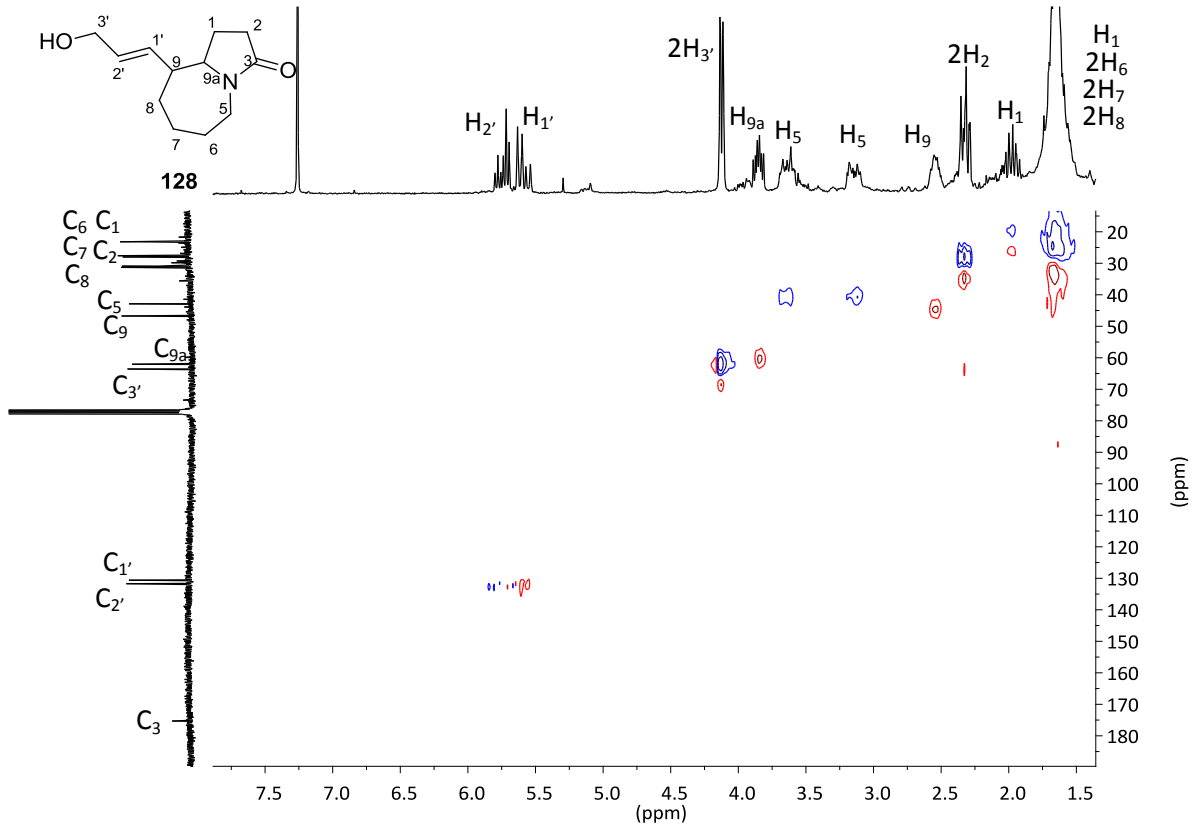
^{1}H-RMN (250 MHz, $CDCl_3$)



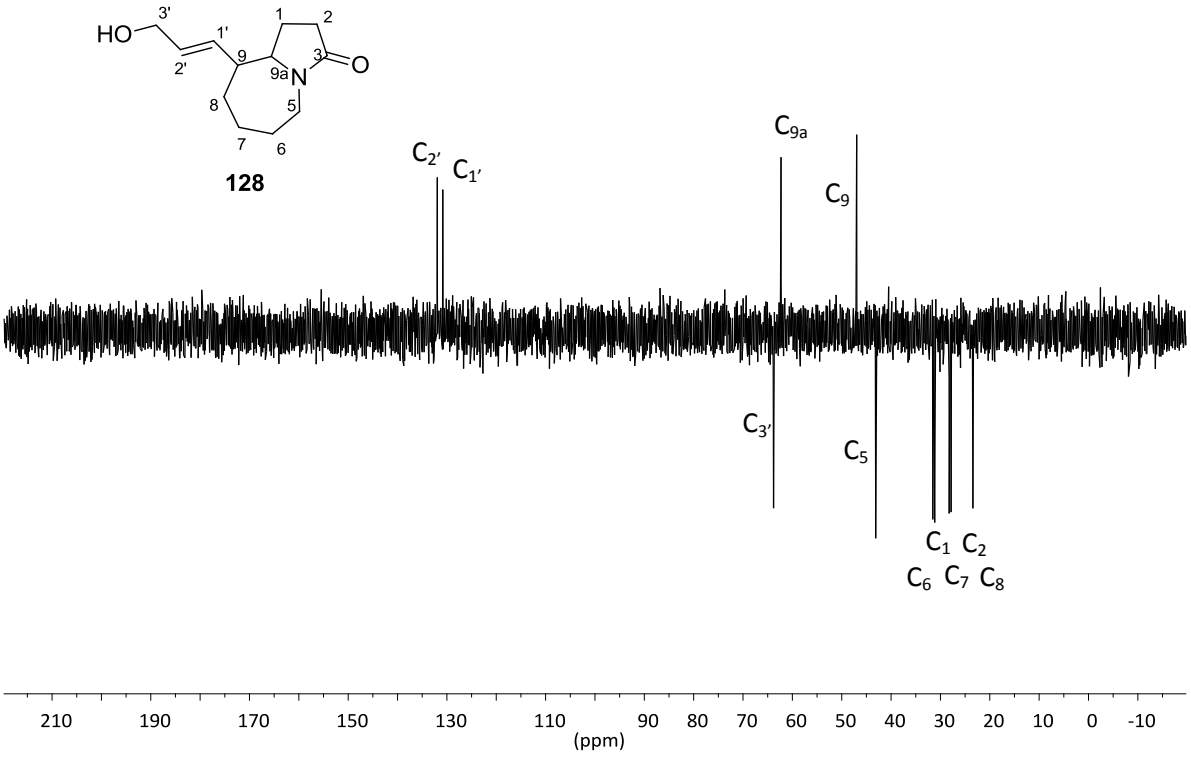
^{13}C-RMN (62.5 MHz, $CDCl_3$)



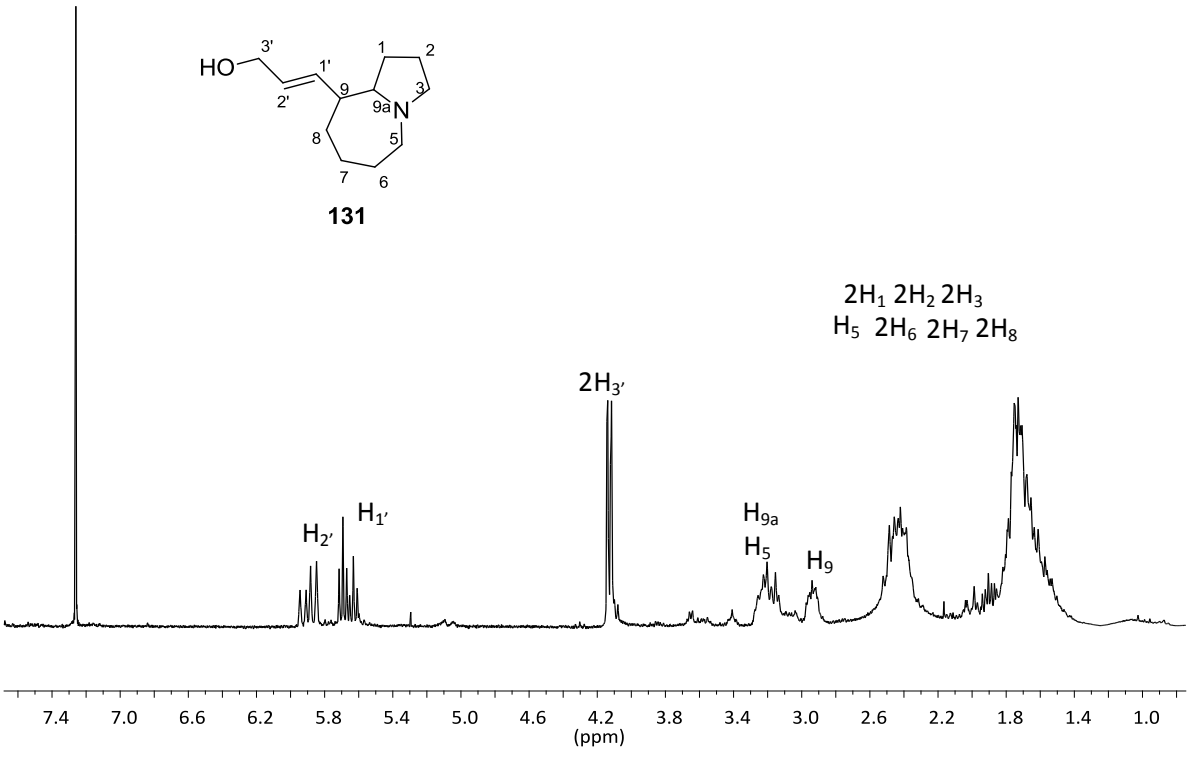
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



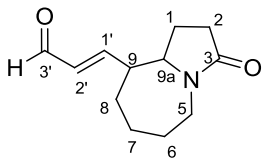
^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, $CDCl_3$)



DEPT 135 (62.5 MHz, $CDCl_3$)

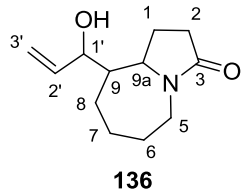


^{1}H-RMN (250 MHz, $CDCl_3$)



129

^{1}H-RMN (250 MHz, $CDCl_3$)



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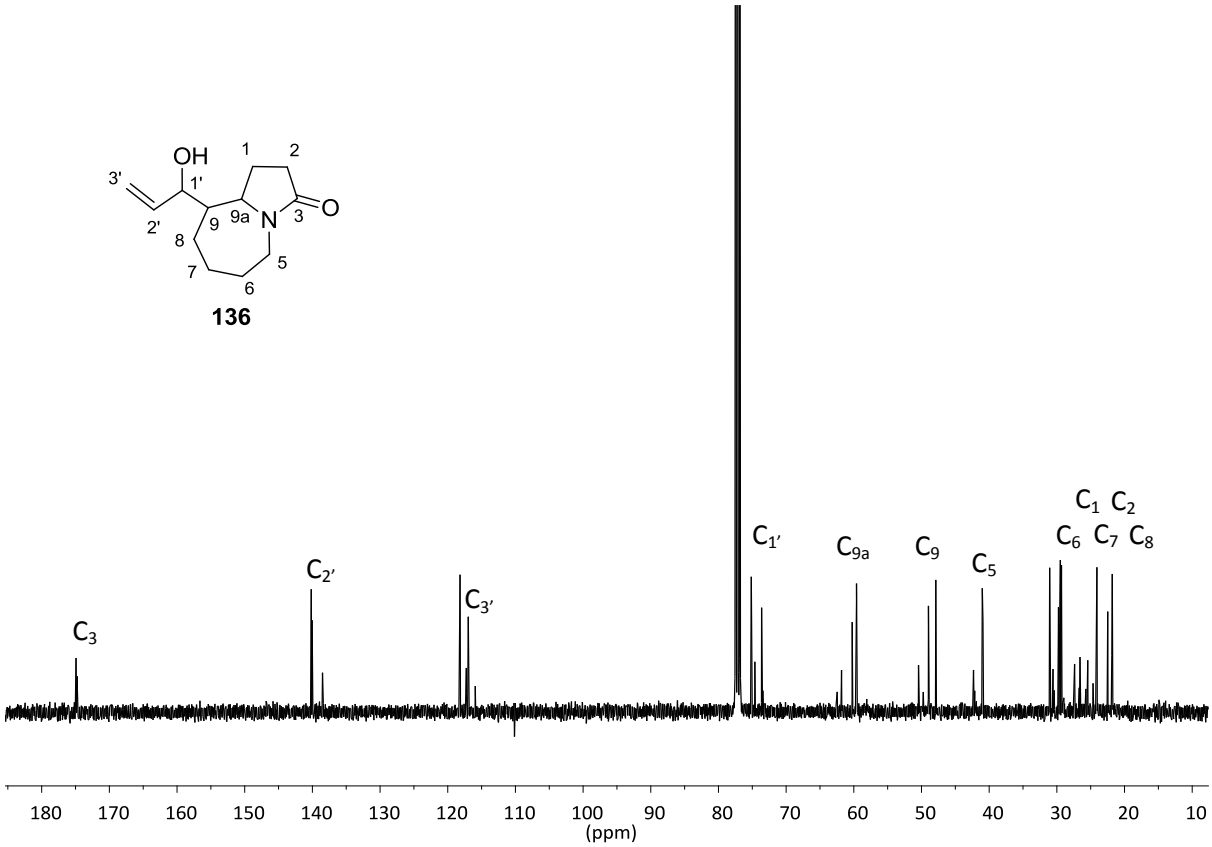
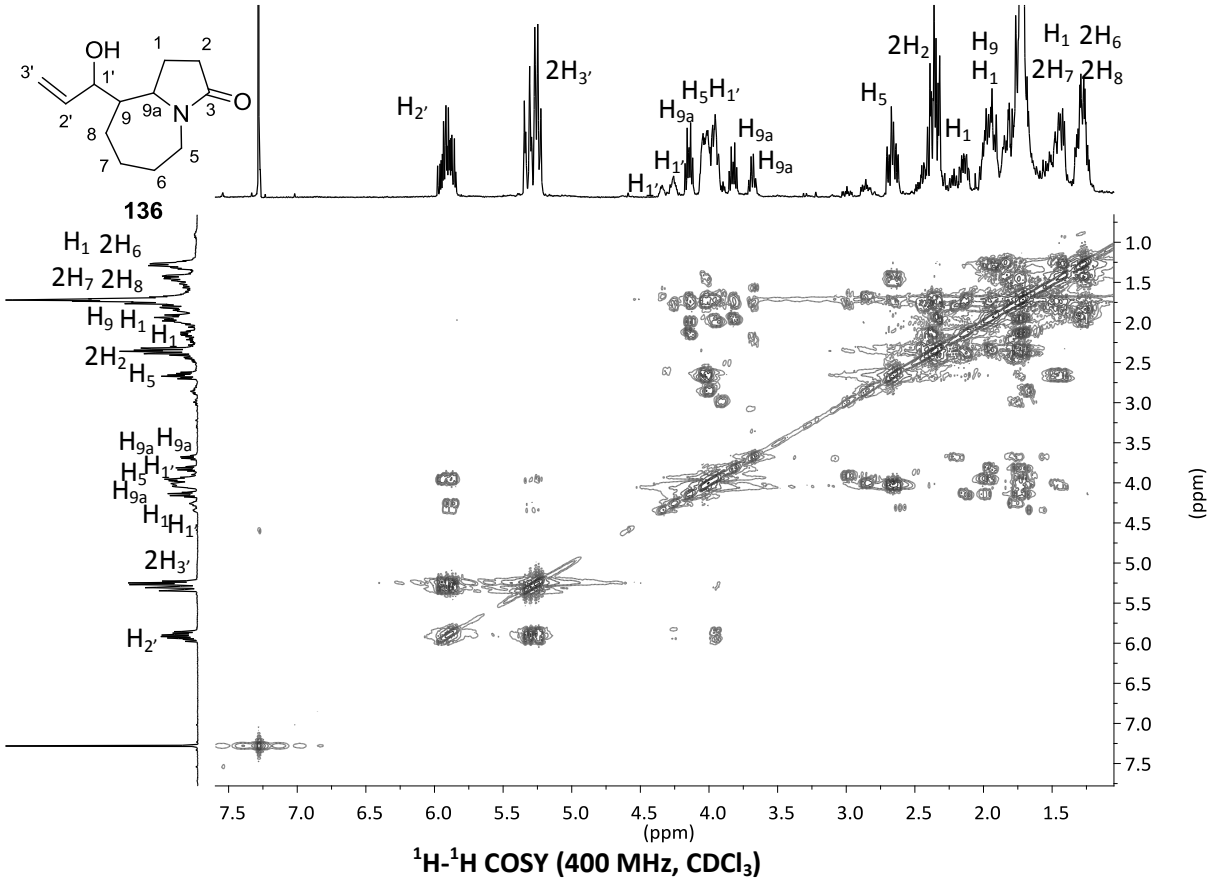
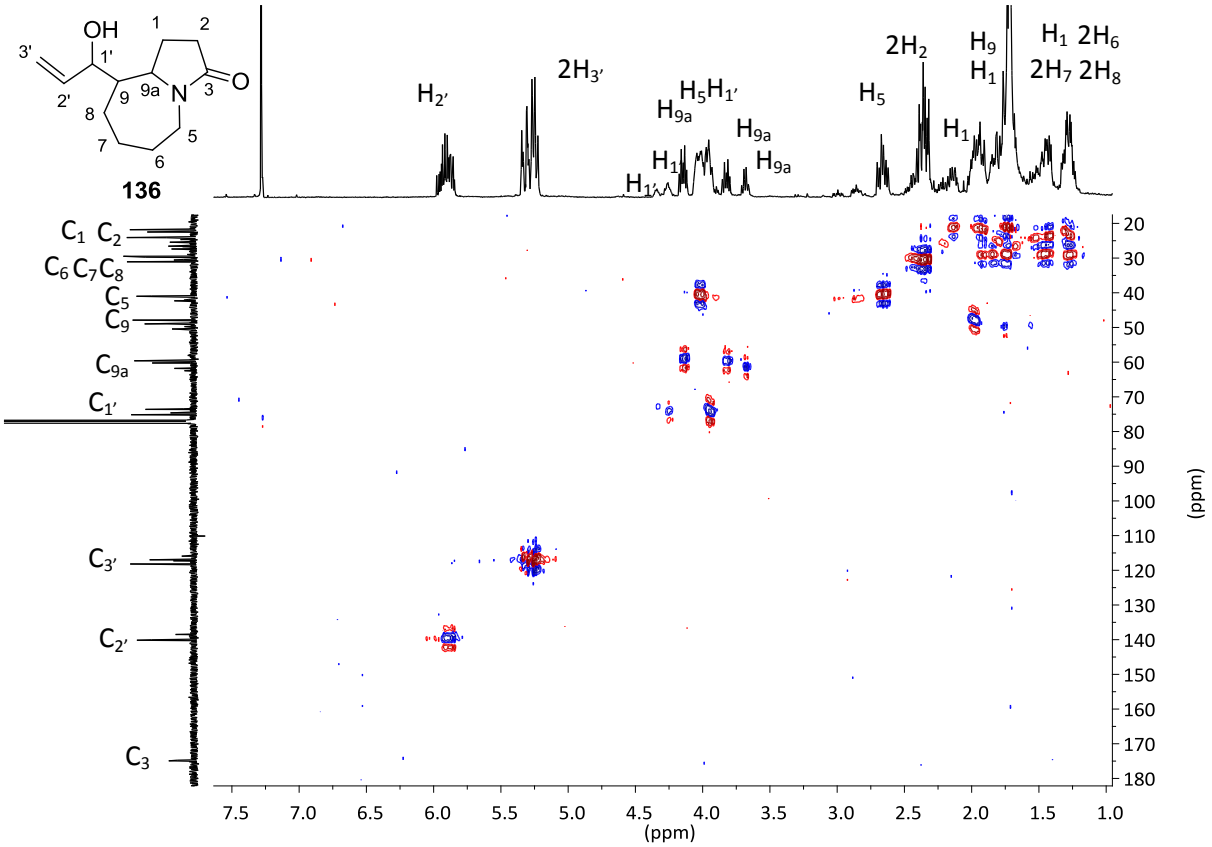
^{1}H-RMN (400 MHz, $CDCl_3$)



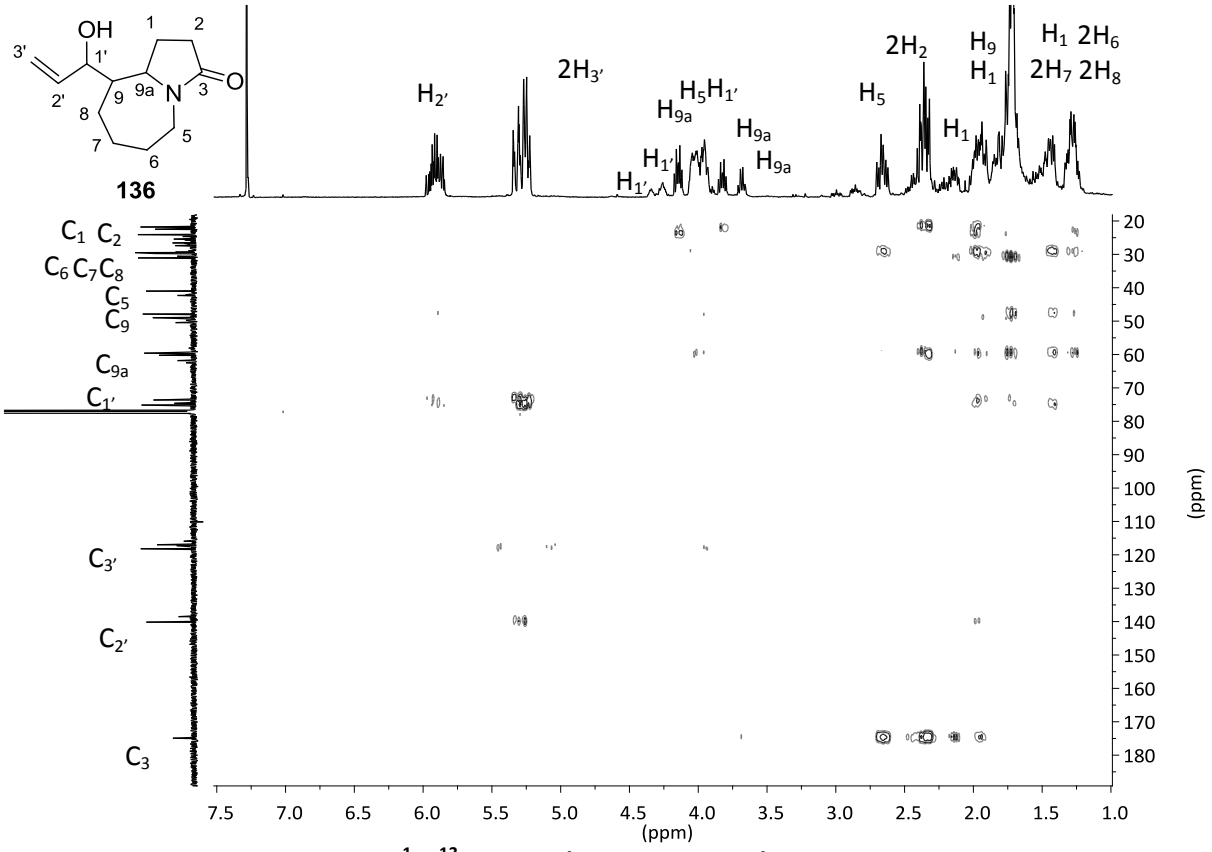
^{13}C-RMN (100 MHz, $CDCl_3$)



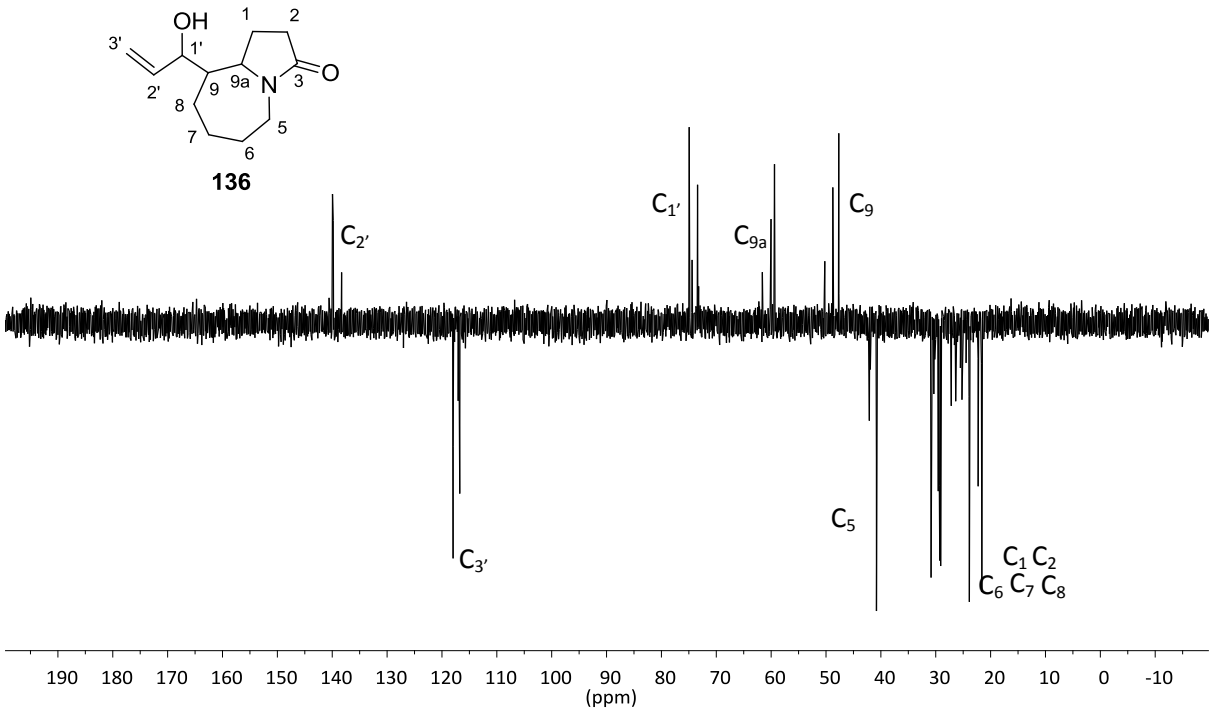
^{1}H-^{1}H COSY (400 MHz, $CDCl_3$)



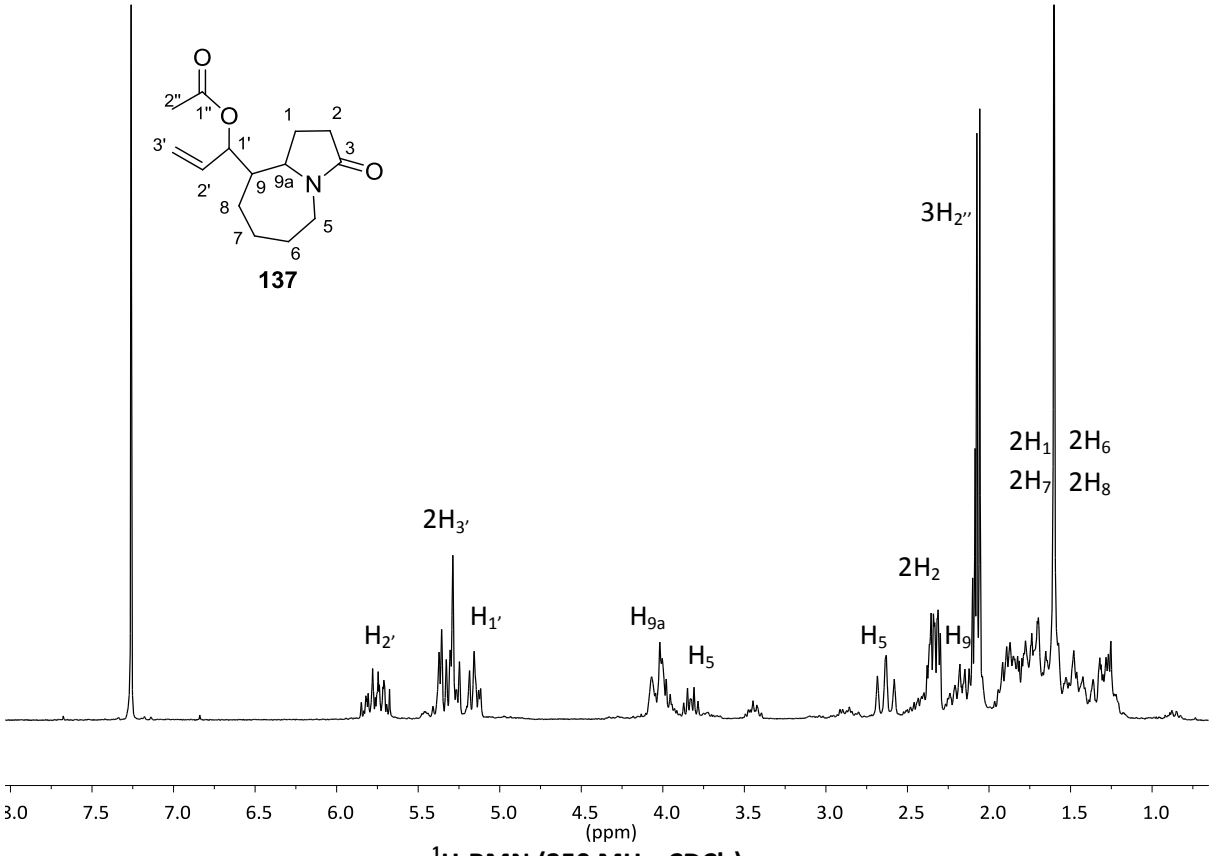
^{1}H-^{13}C HSQC$_{ed}$ (400 MHz, $CDCl_3$)



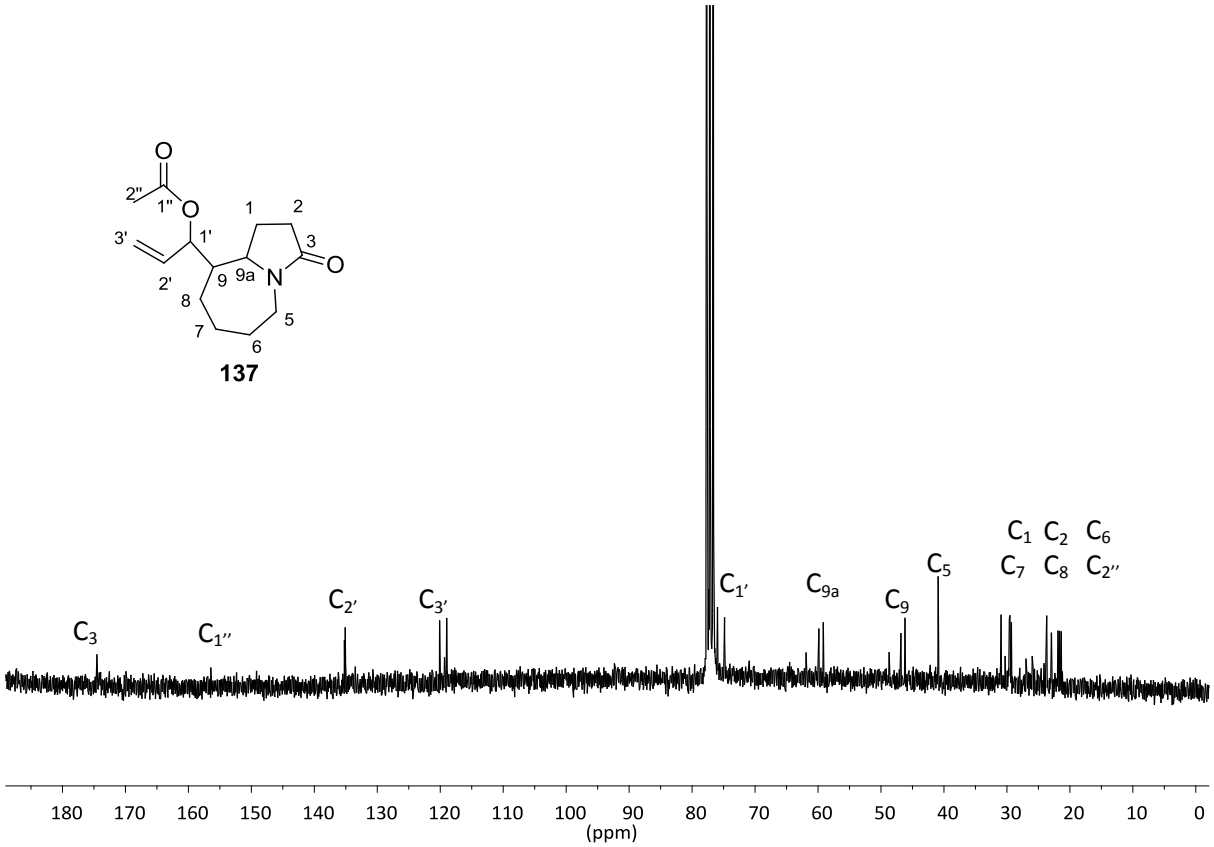
^{1}H-^{13}C HMBC (400 MHz, $CDCl_3$)



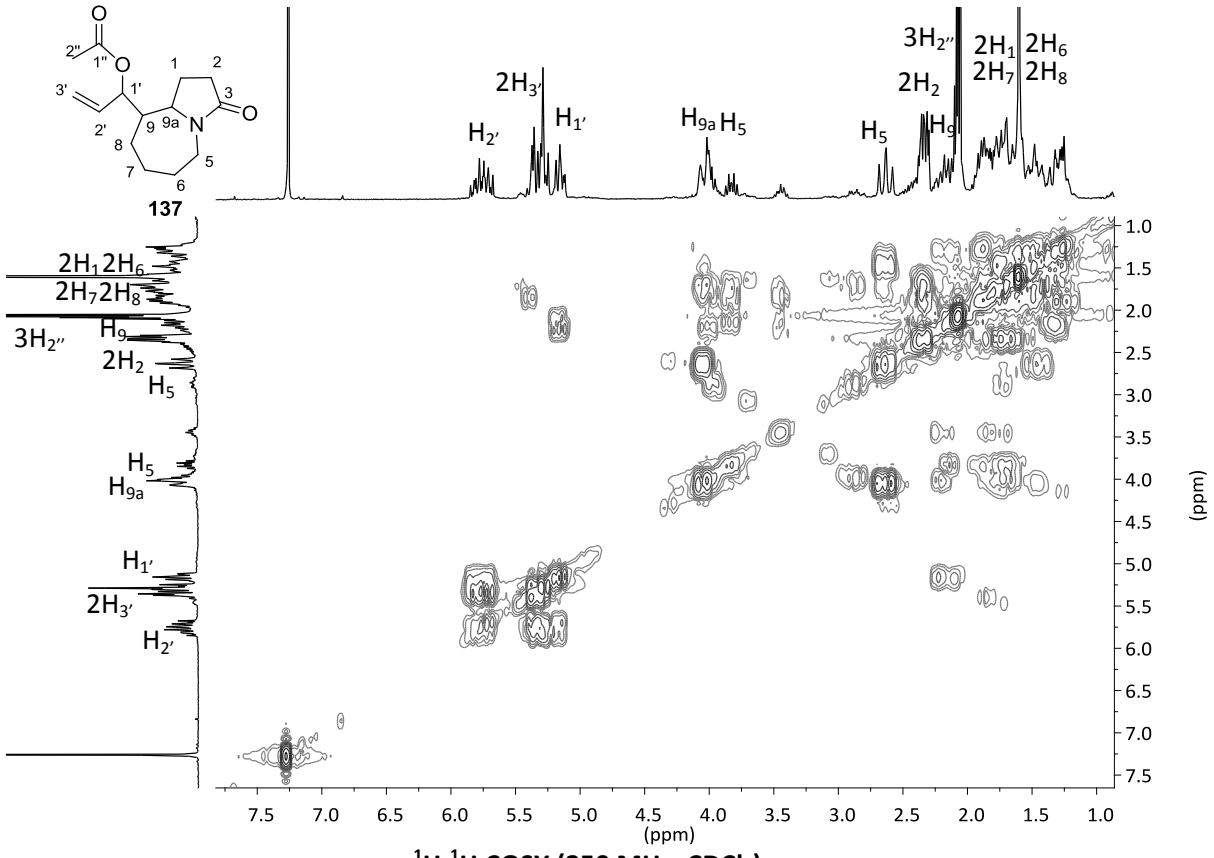
DEPT 135 (100 MHz, $CDCl_3$)



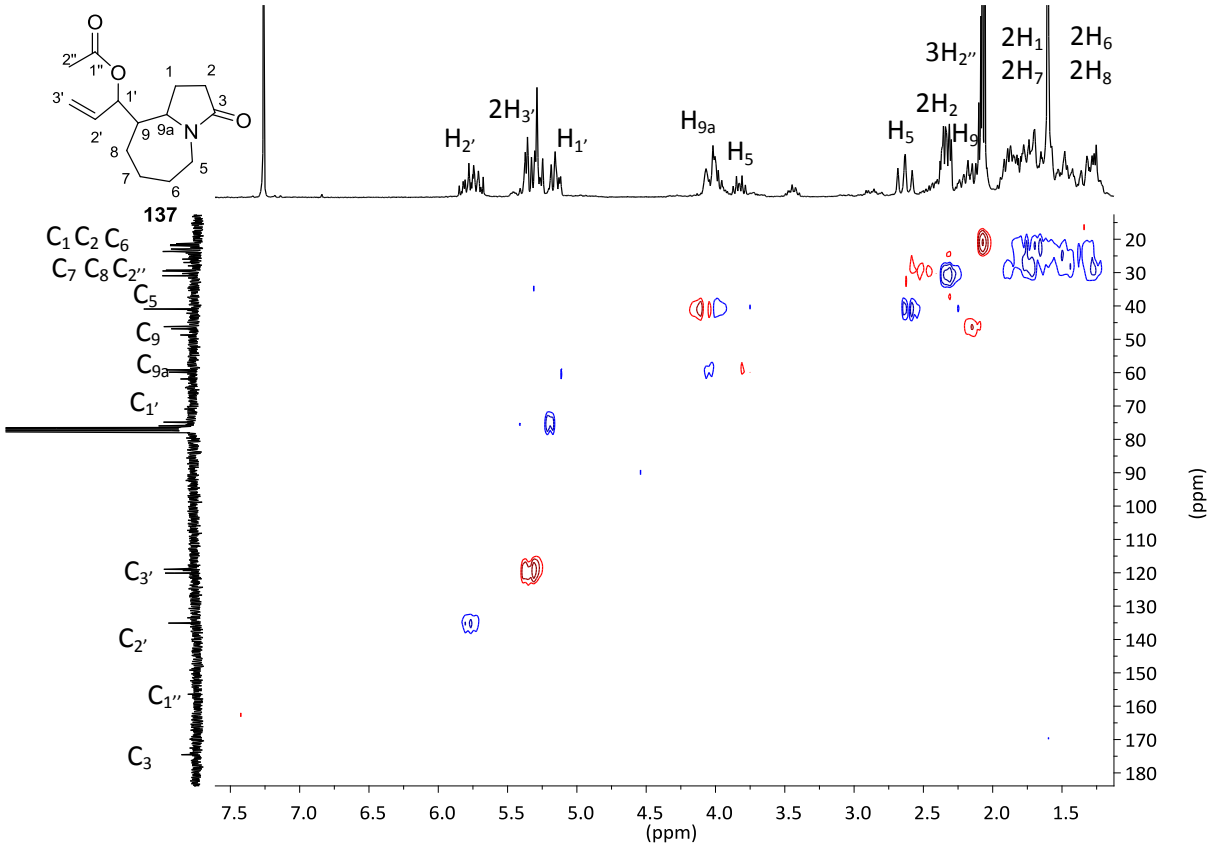
^{1}H-RMN (250 MHz, $CDCl_3$)



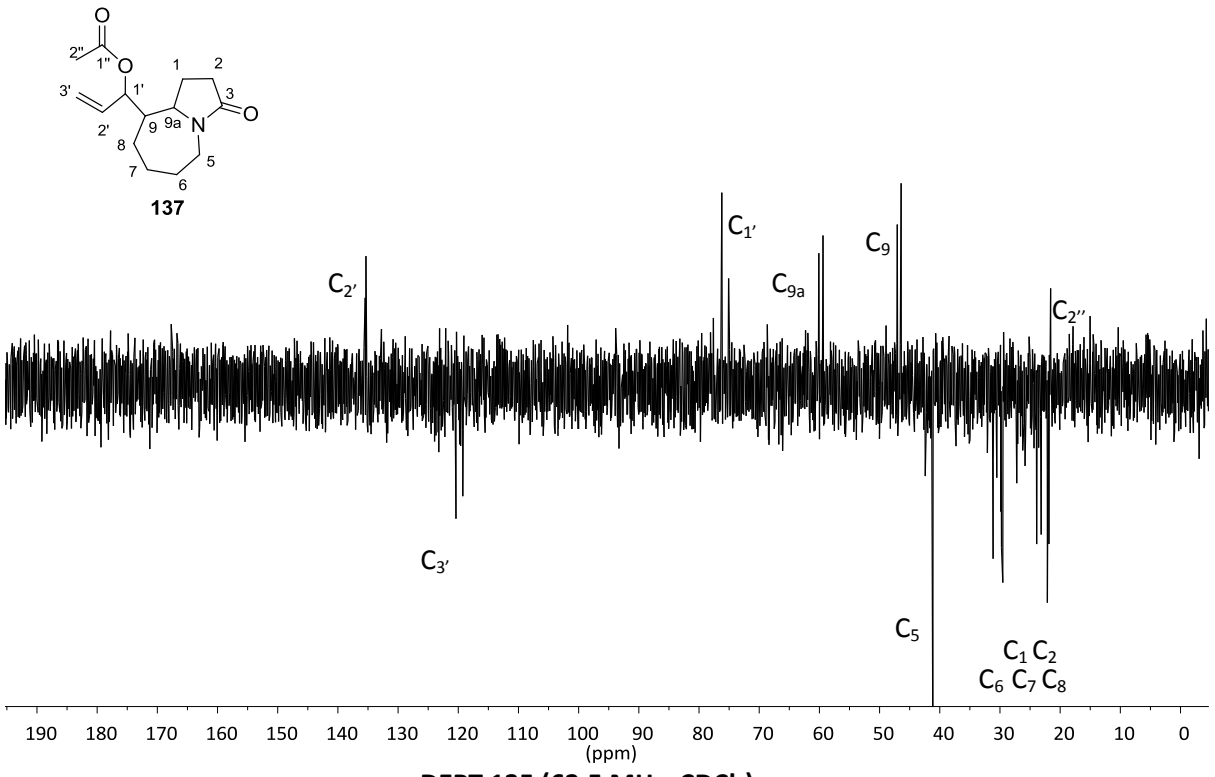
^{13}C-RMN (62.5 MHz, $CDCl_3$)



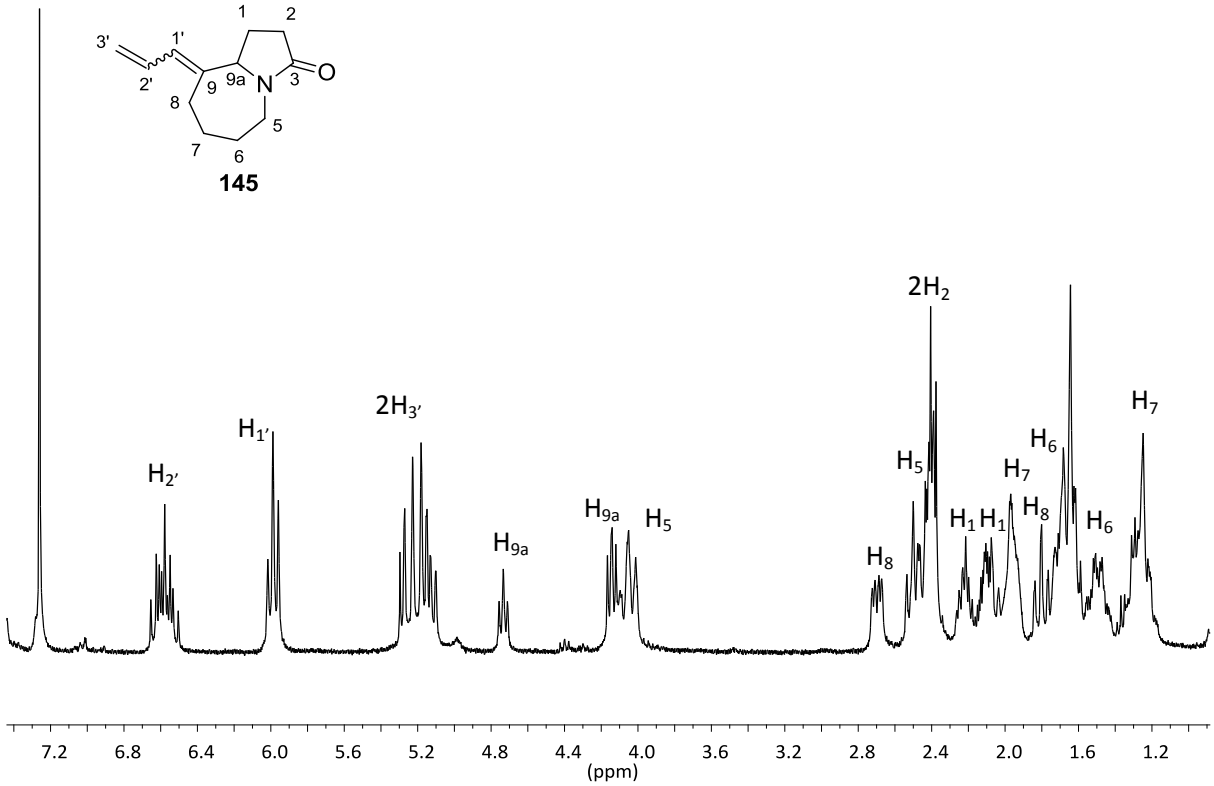
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



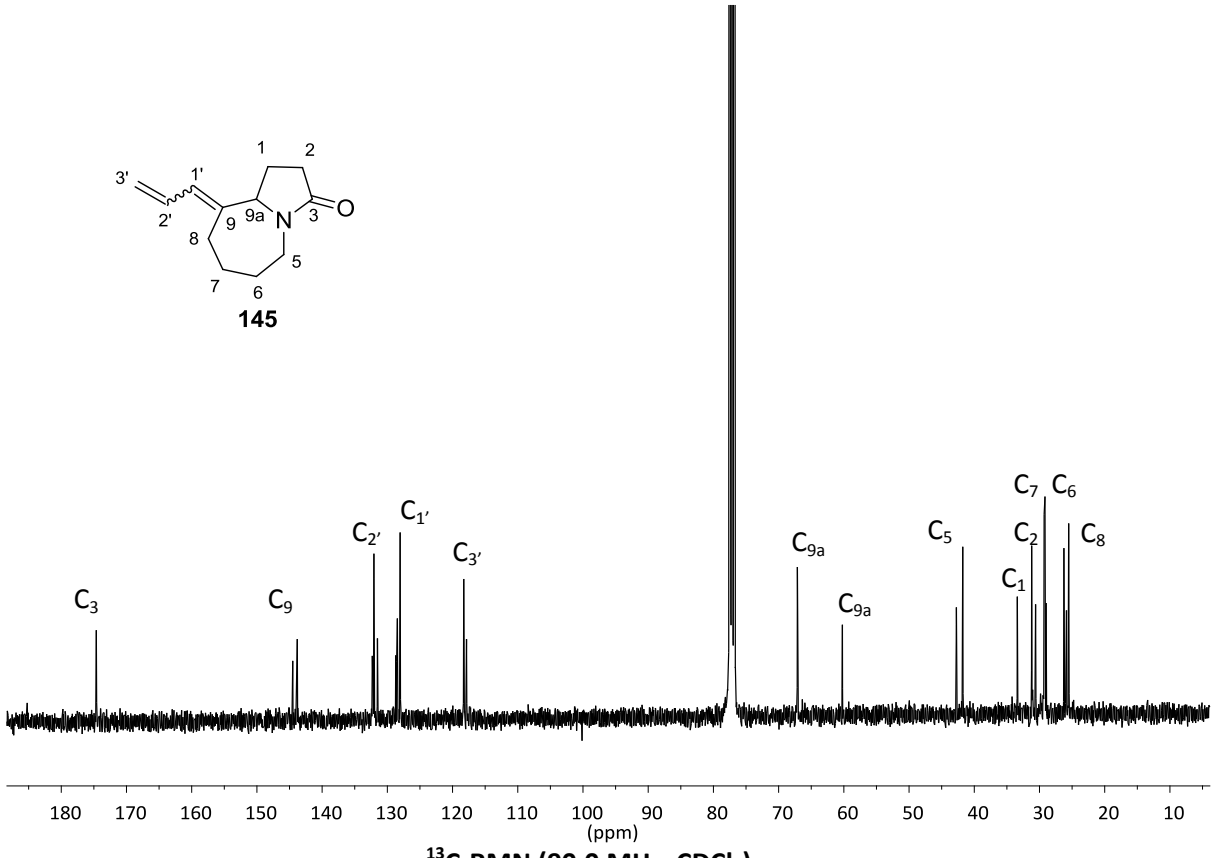
^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, $CDCl_3$)



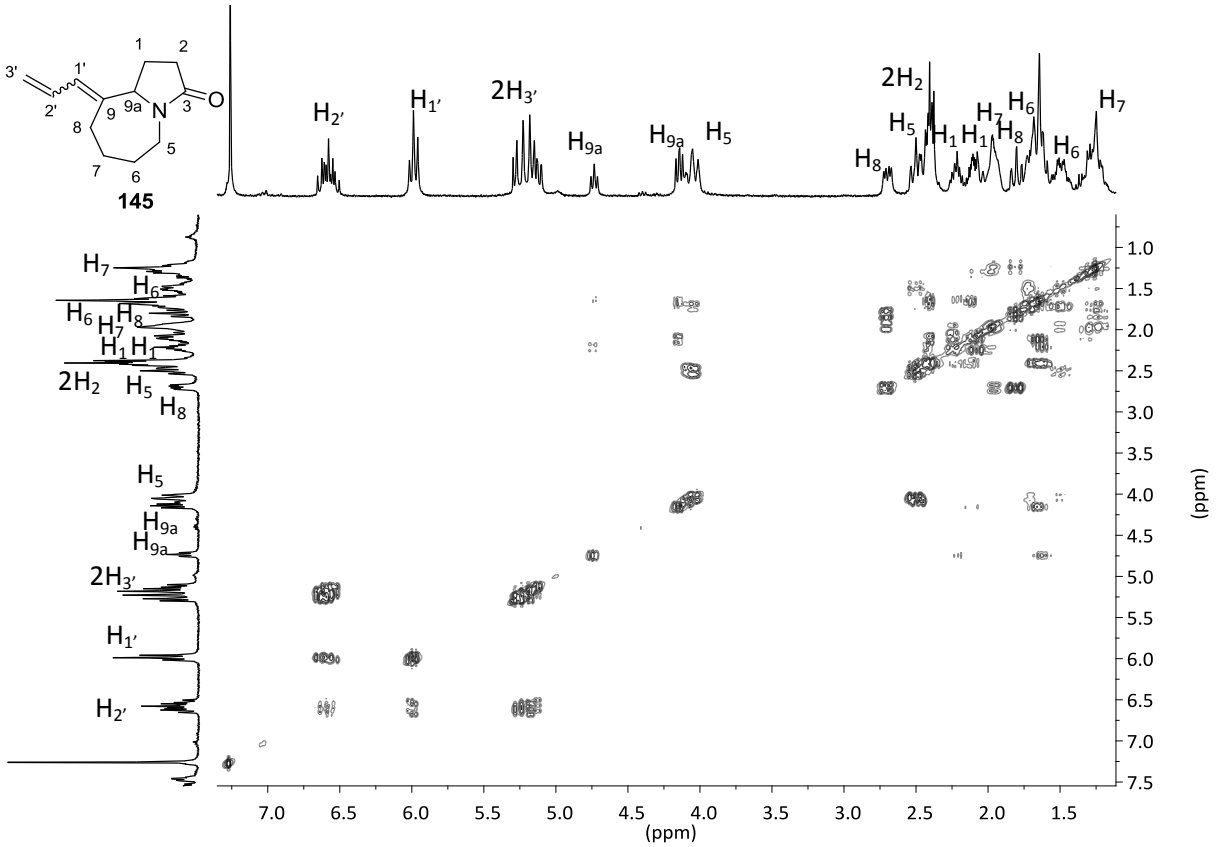
DEPT 135 (62.5 MHz, $CDCl_3$)



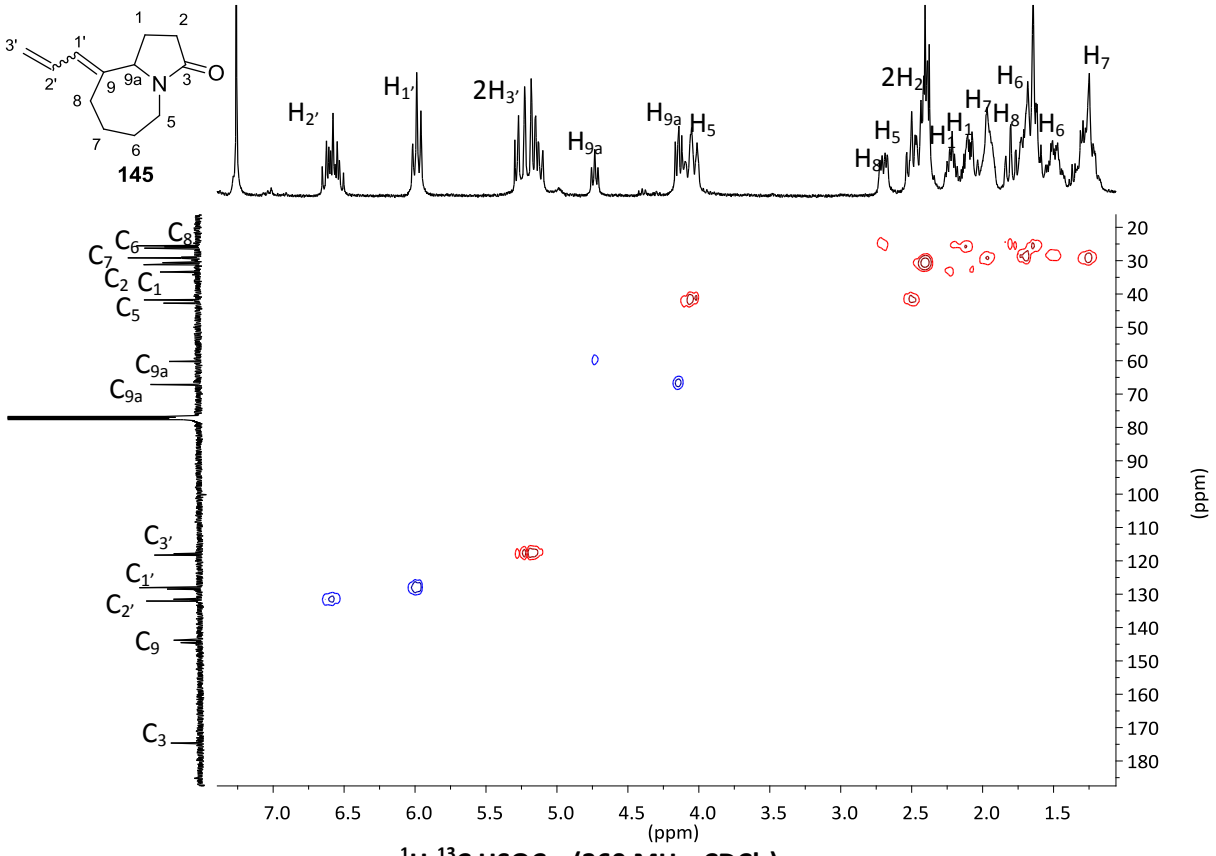
^{1}H-RMN (360 MHz, $CDCl_3$)



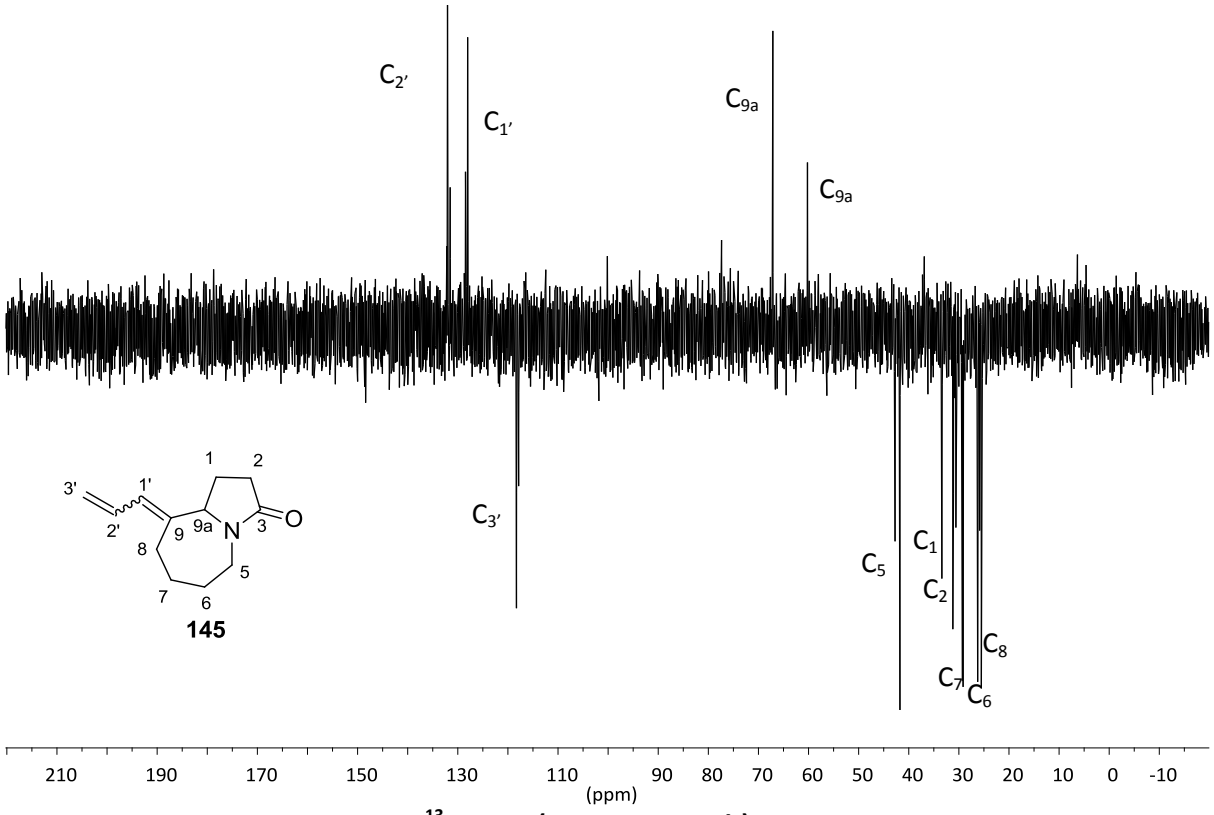
^{13}C-RMN (90.0 MHz, $CDCl_3$)



^{1}H-^{1}H COSY (360 MHz, $CDCl_3$)



^{1}H-^{13}C HSQC$_{ed}$ (360 MHz, $CDCl_3$)



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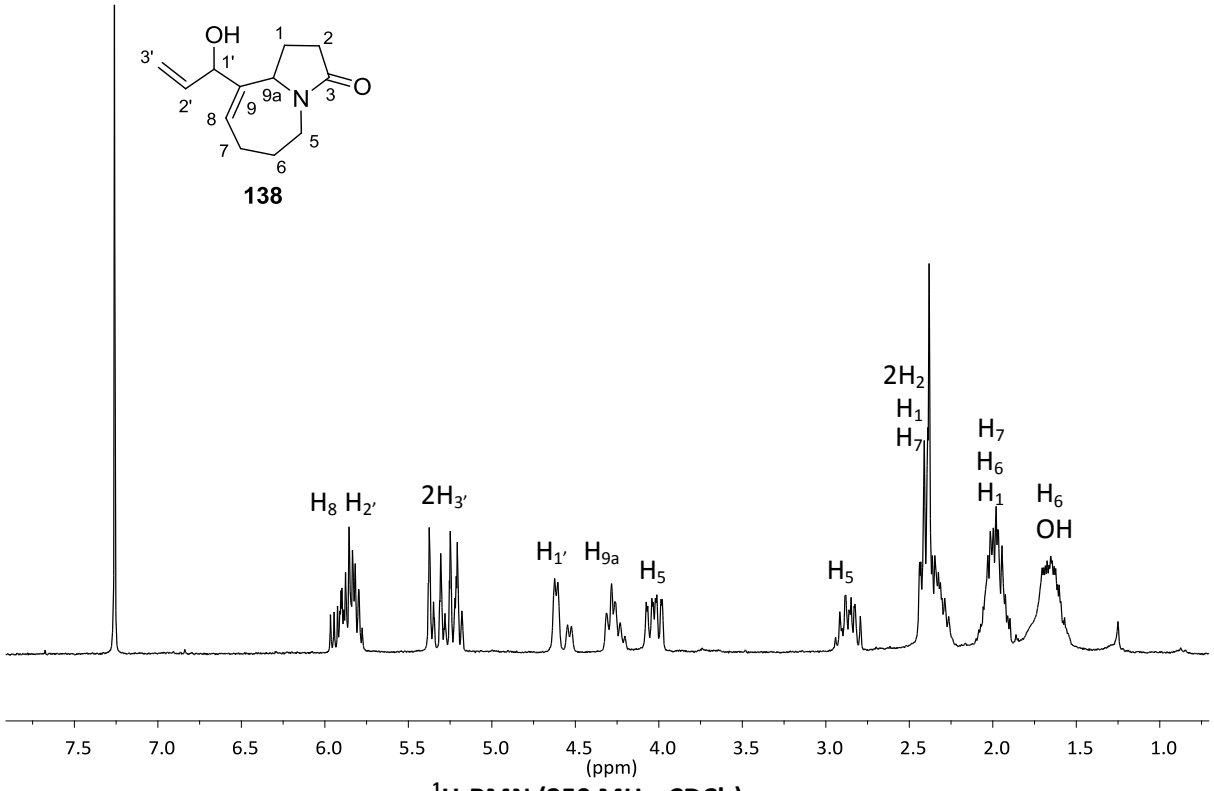
^{13}C-RMN (90.0 MHz, $CDCl_3$)



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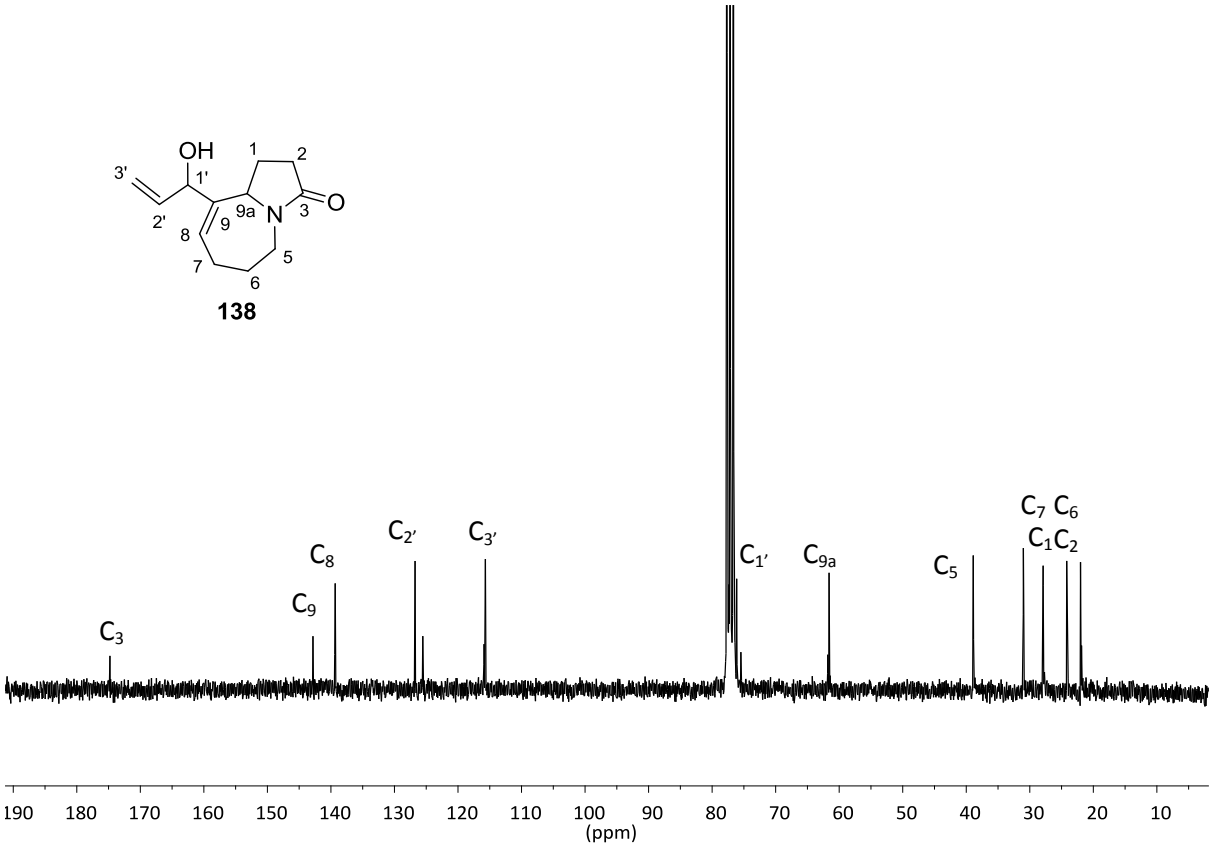
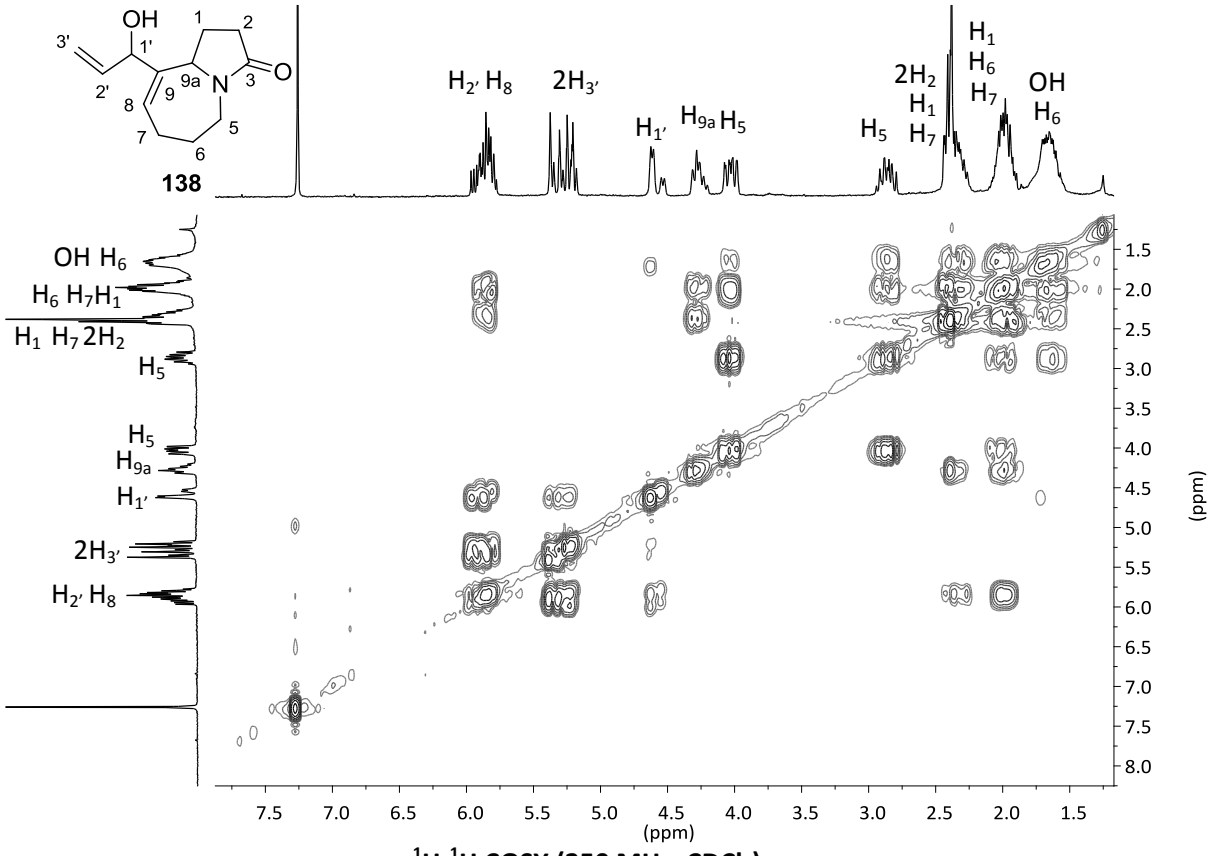
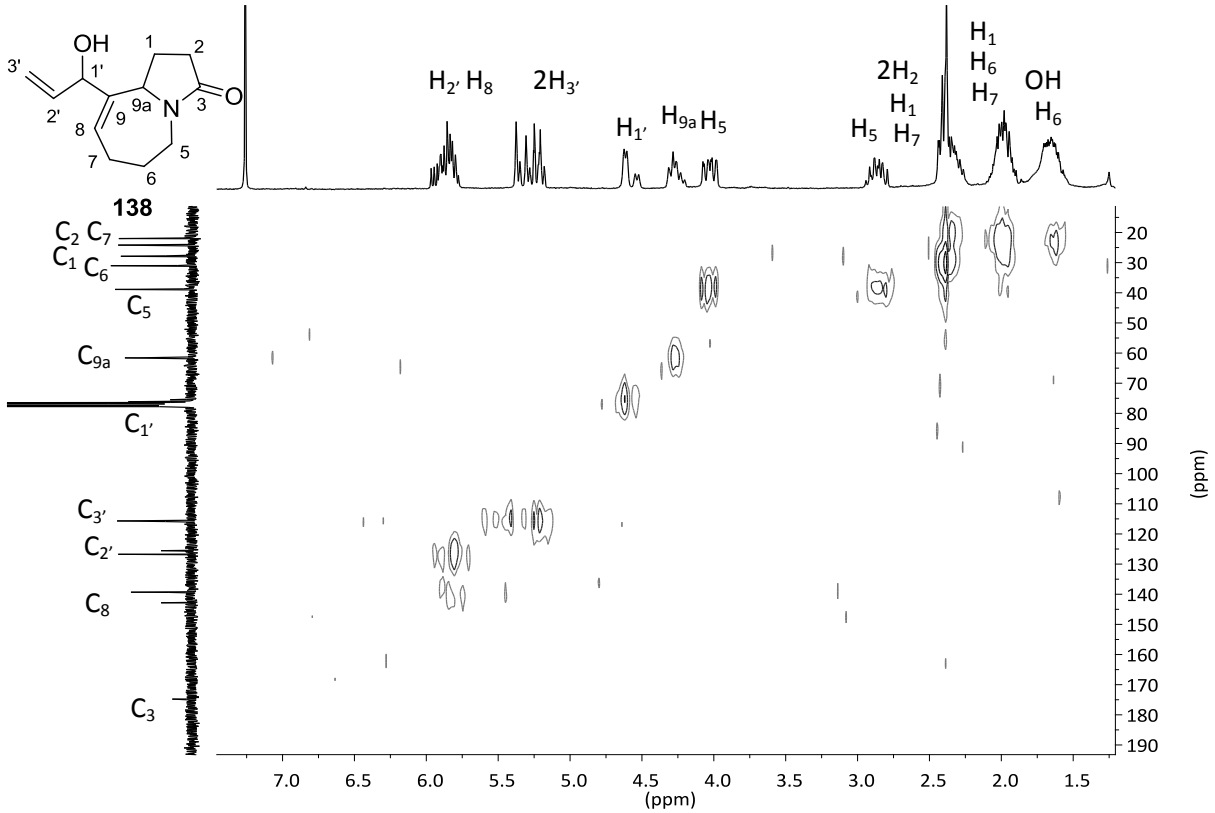
^{1}H-RMN (250 MHz, $CDCl_3$)



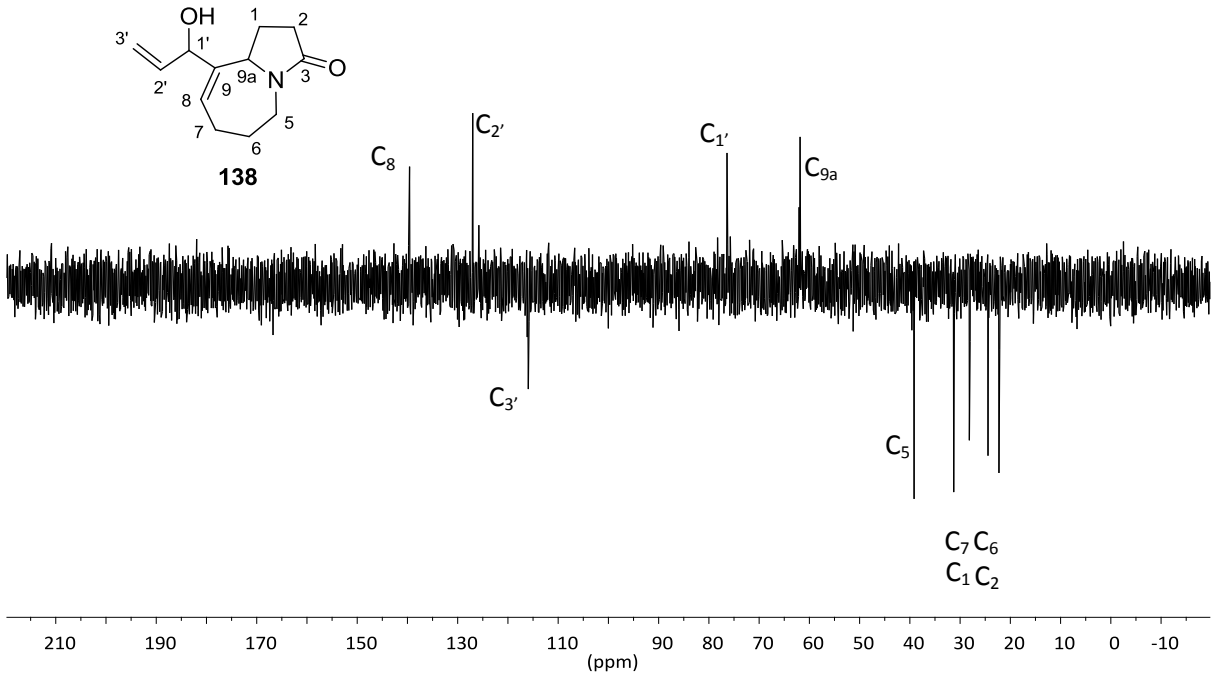
^{13}C-RMN (62.5 MHz, $CDCl_3$)



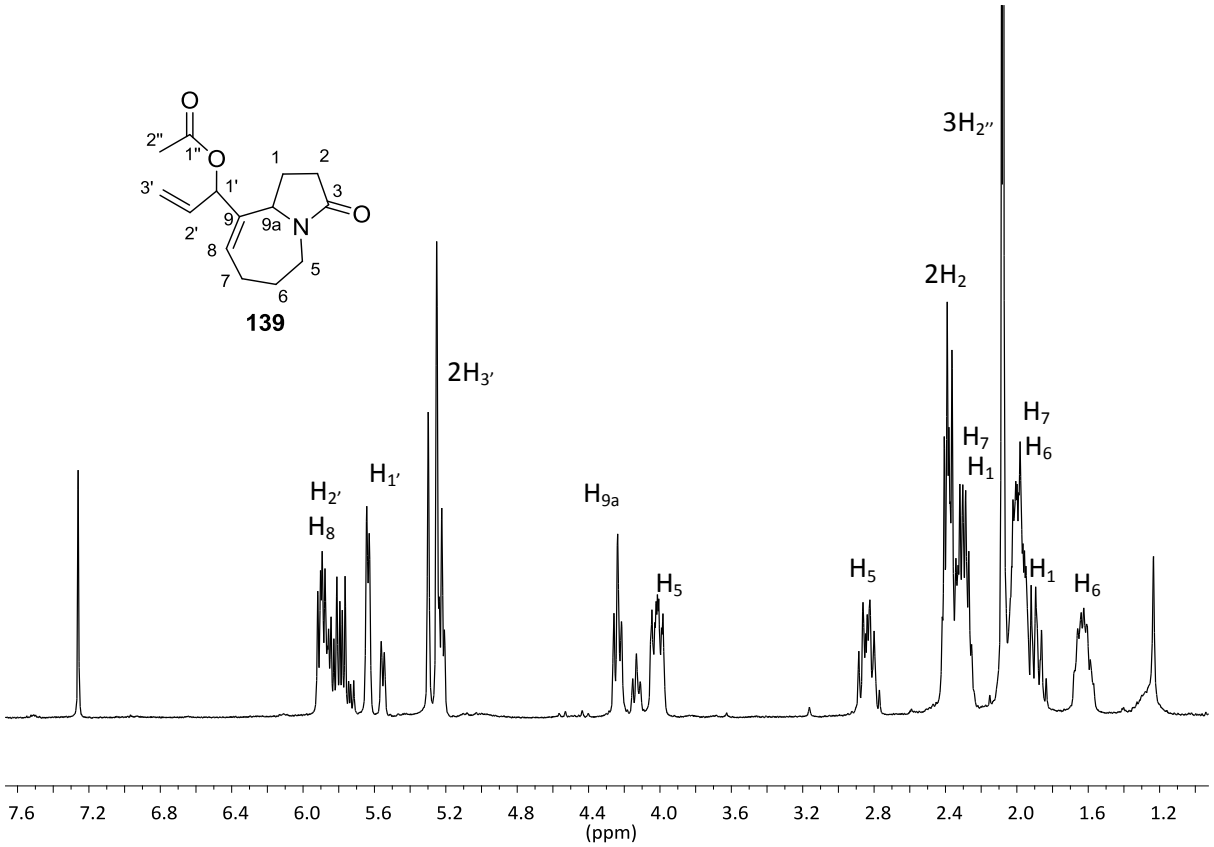
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



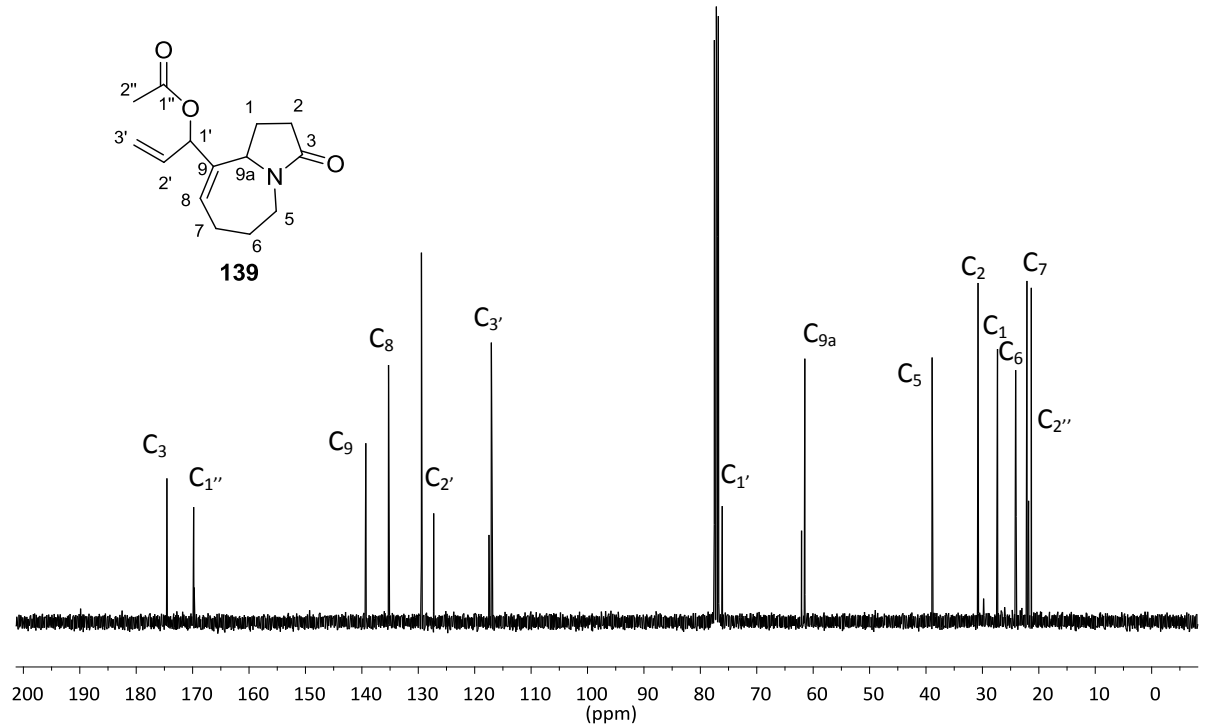
^{1}H-^{13}C HSQC (250 MHz, $CDCl_3$)



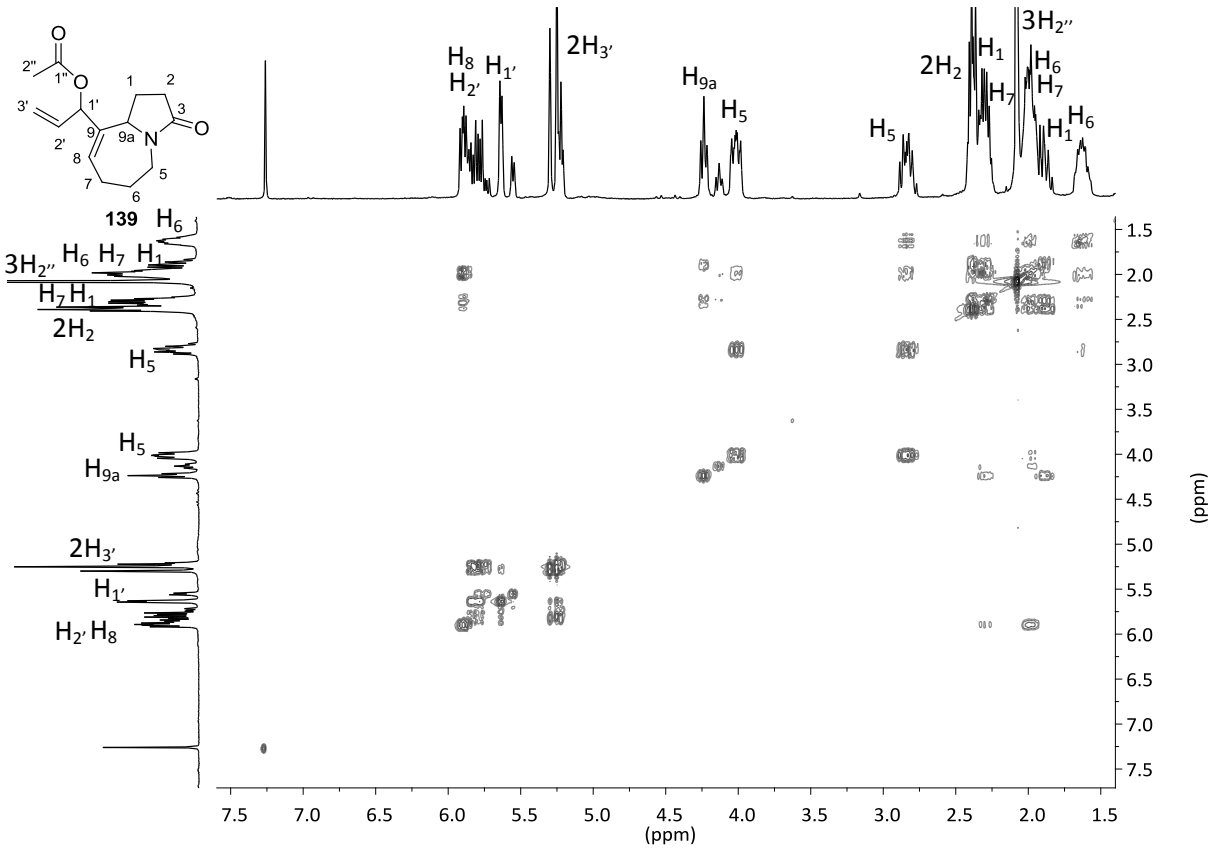
DEPT 135 (62.5 MHz, $CDCl_3$)



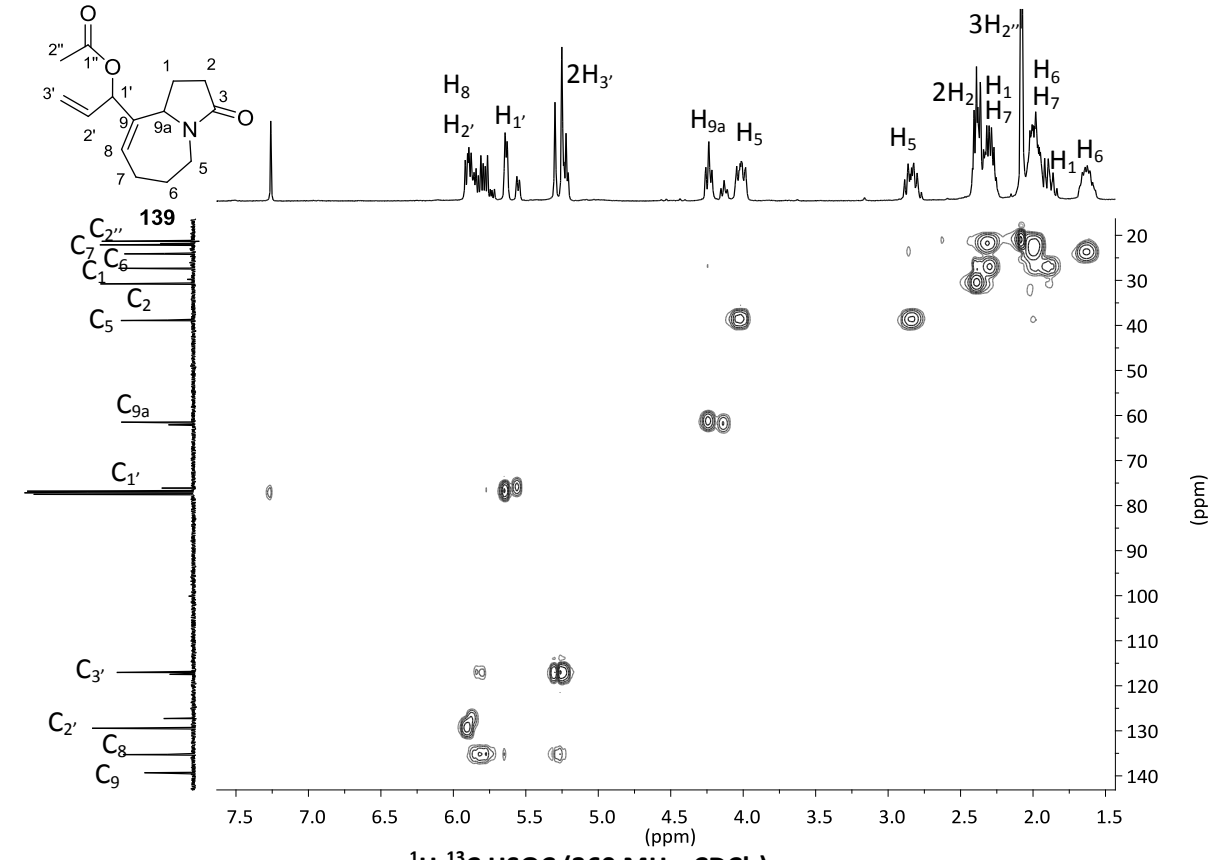
^{1}H-RMN (360 MHz, $CDCl_3$)



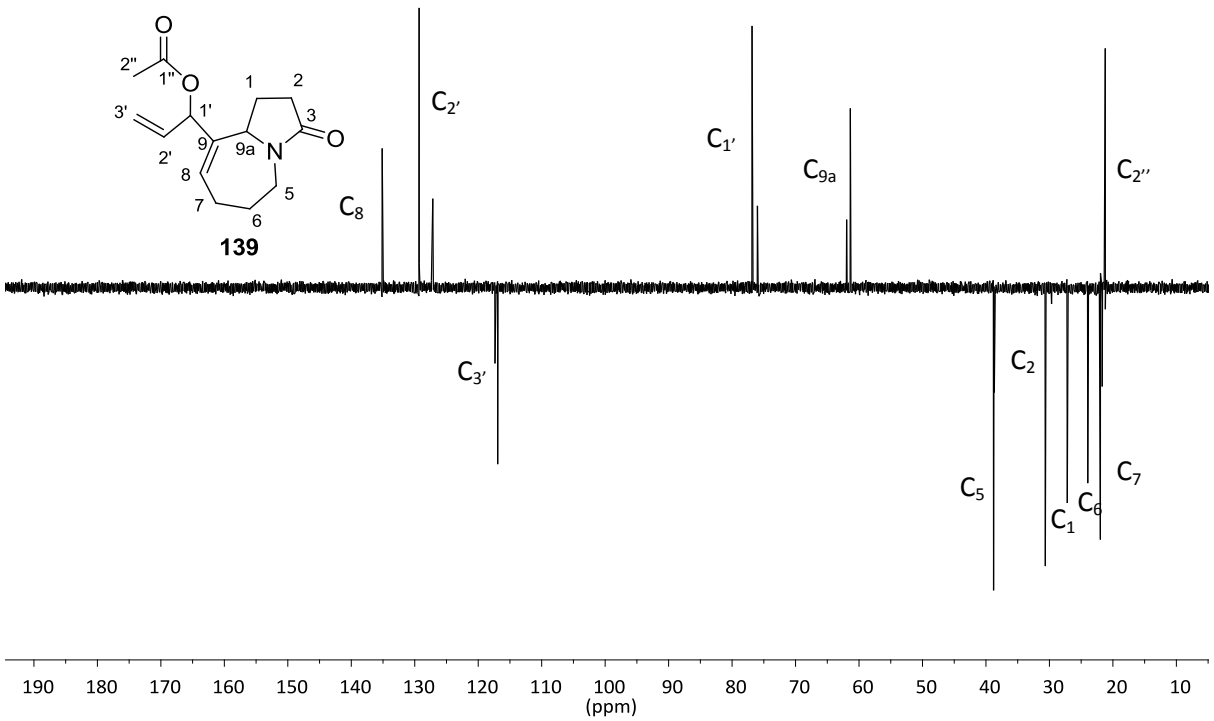
^{13}C-NMR (90.0 MHz, $CDCl_3$)



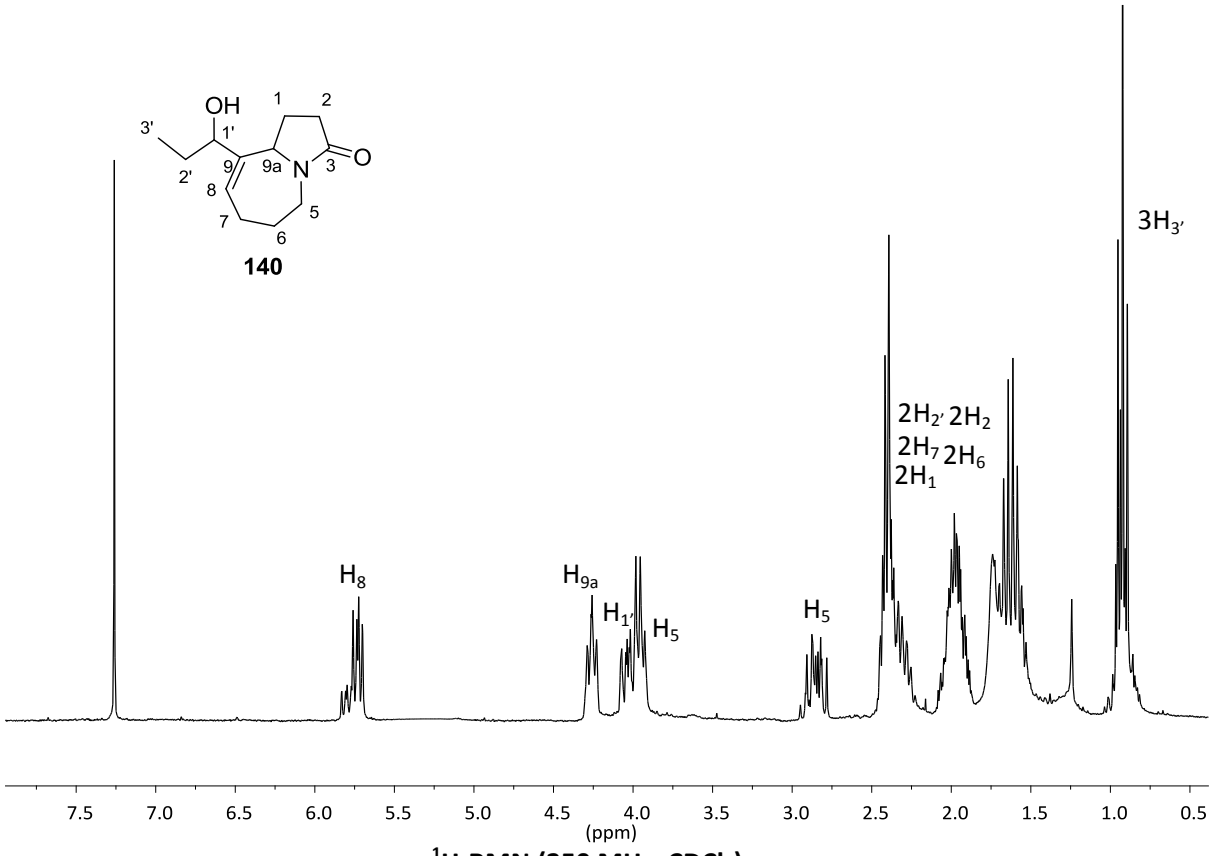
^{1}H-^{1}H COSY (360 MHz, $CDCl_3$)



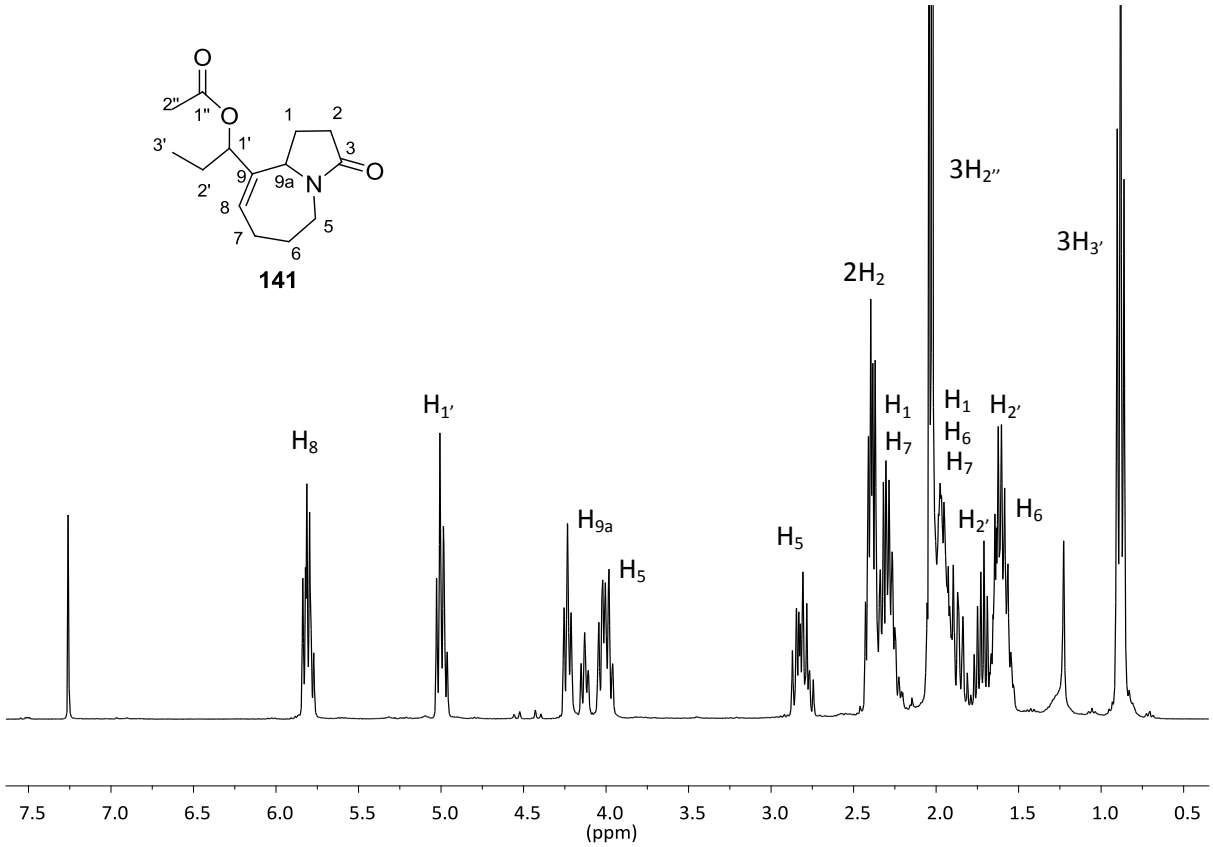
^{1}H-^{13}C HSQC (360 MHz, $CDCl_3$)



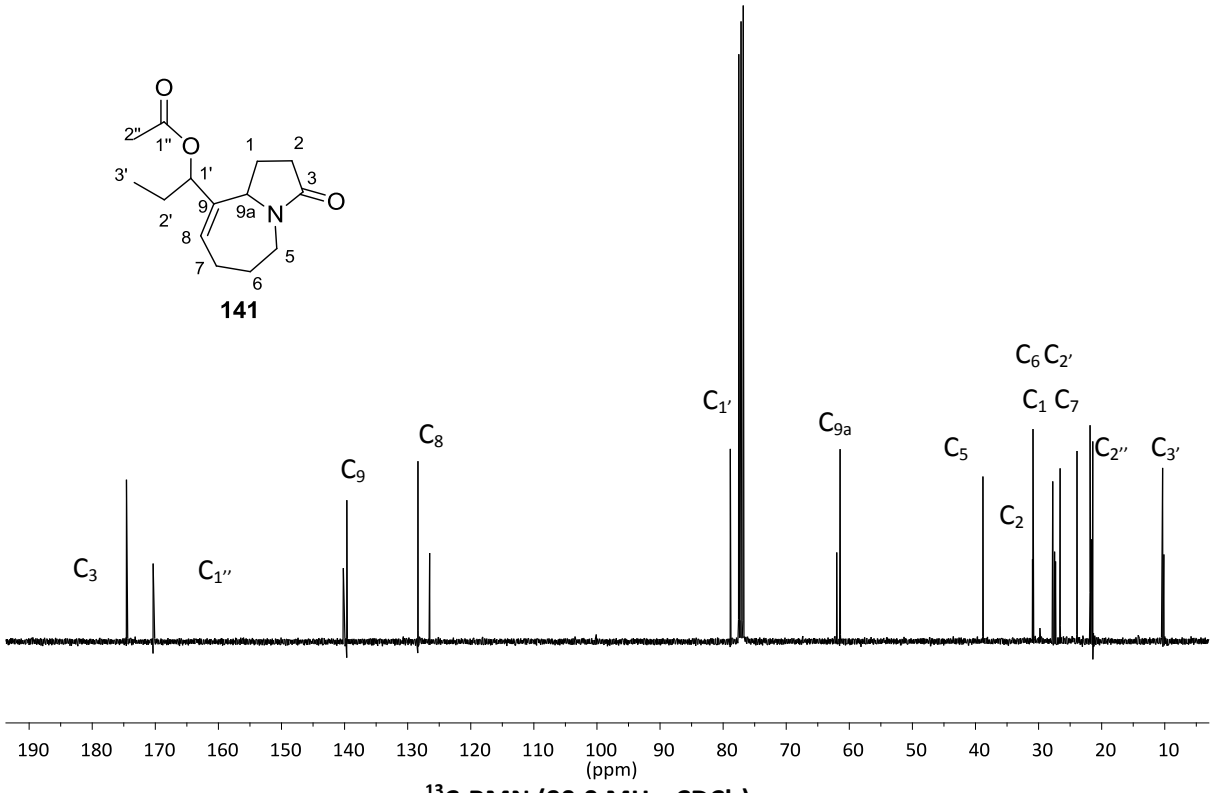
DEPT 135 (90.0 MHz, $CDCl_3$)



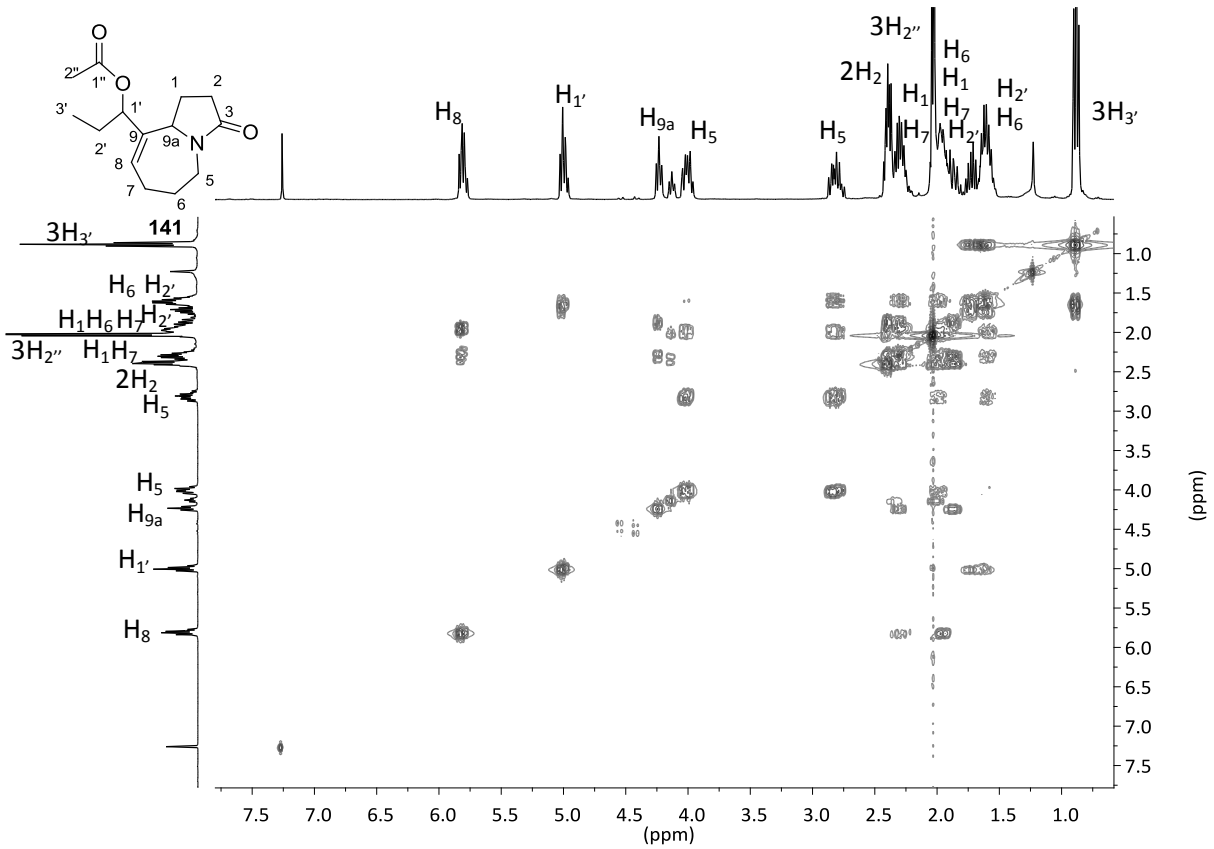
^{1}H-RMN (250 MHz, $CDCl_3$)



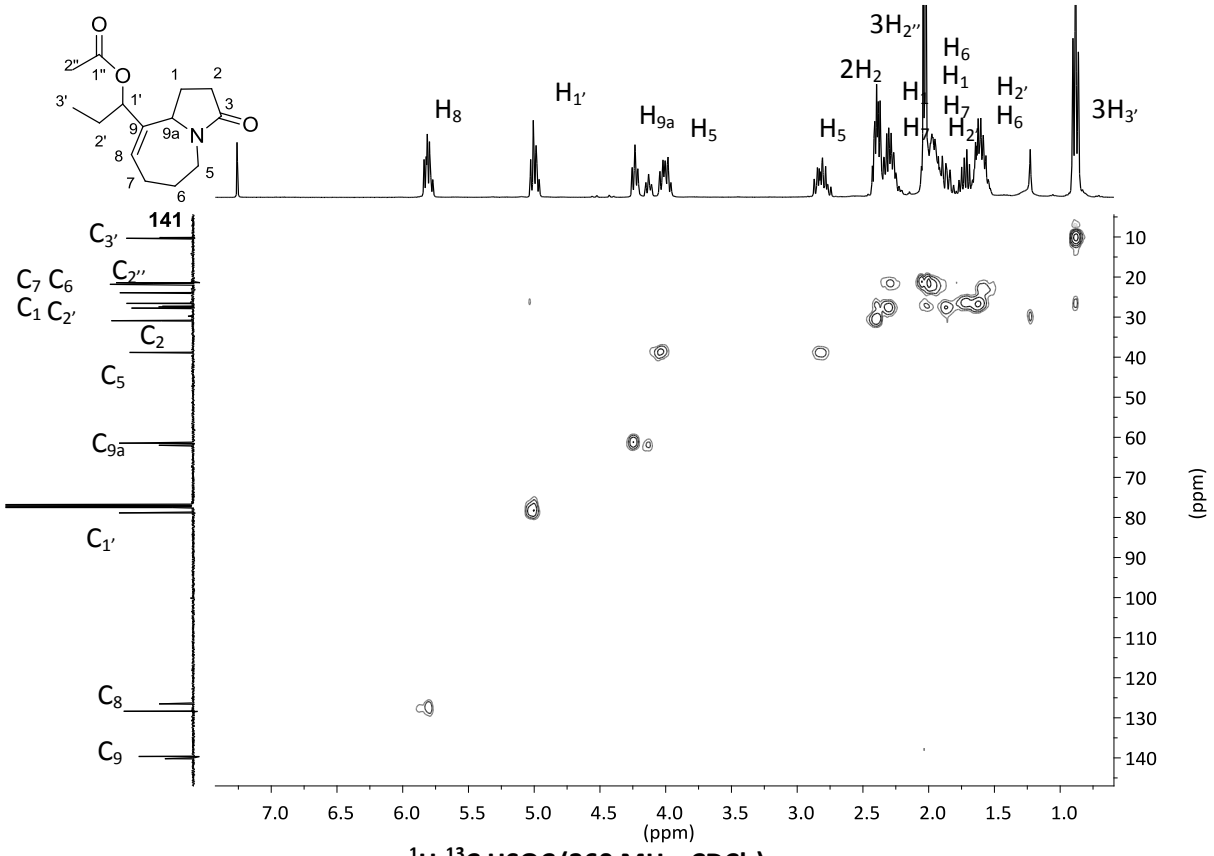
^{1}H-RMN (360 MHz, $CDCl_3$)



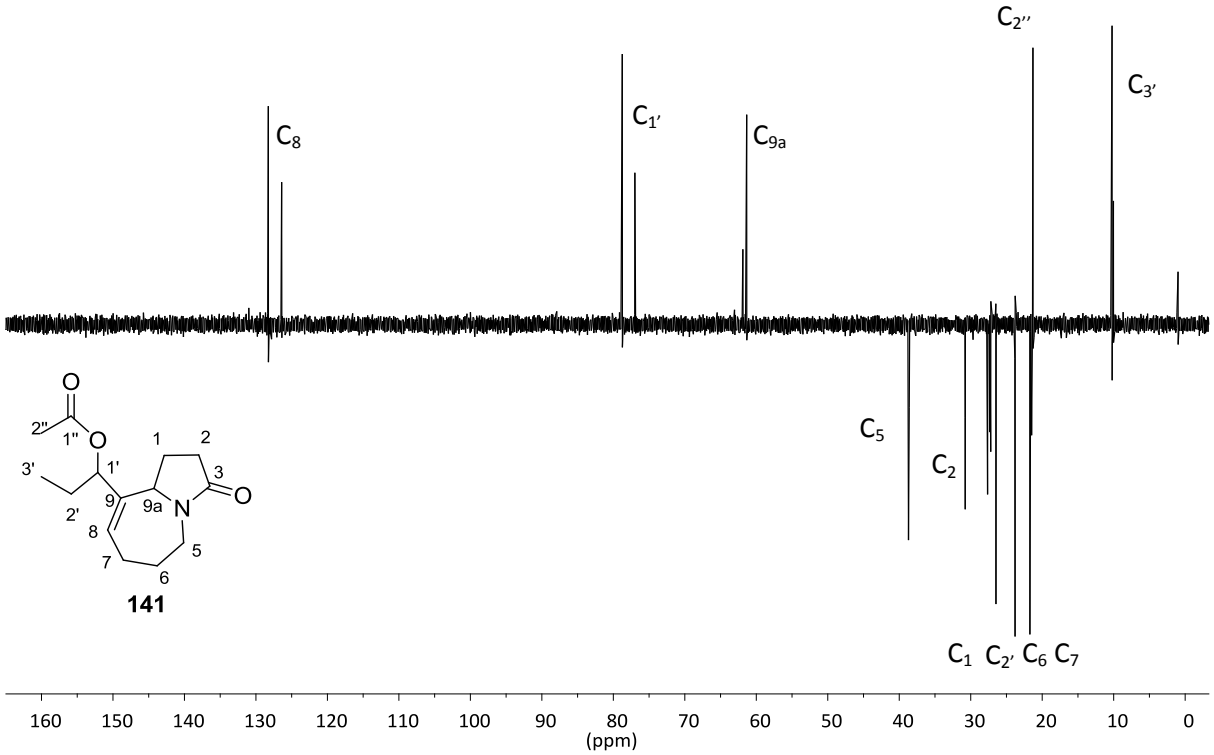
^{13}C-RMN (90.0 MHz, $CDCl_3$)



^{1}H-^{1}H COSY (360 MHz, $CDCl_3$)



^{1}H-^{13}C HSQC (360 MHz, $CDCl_3$)



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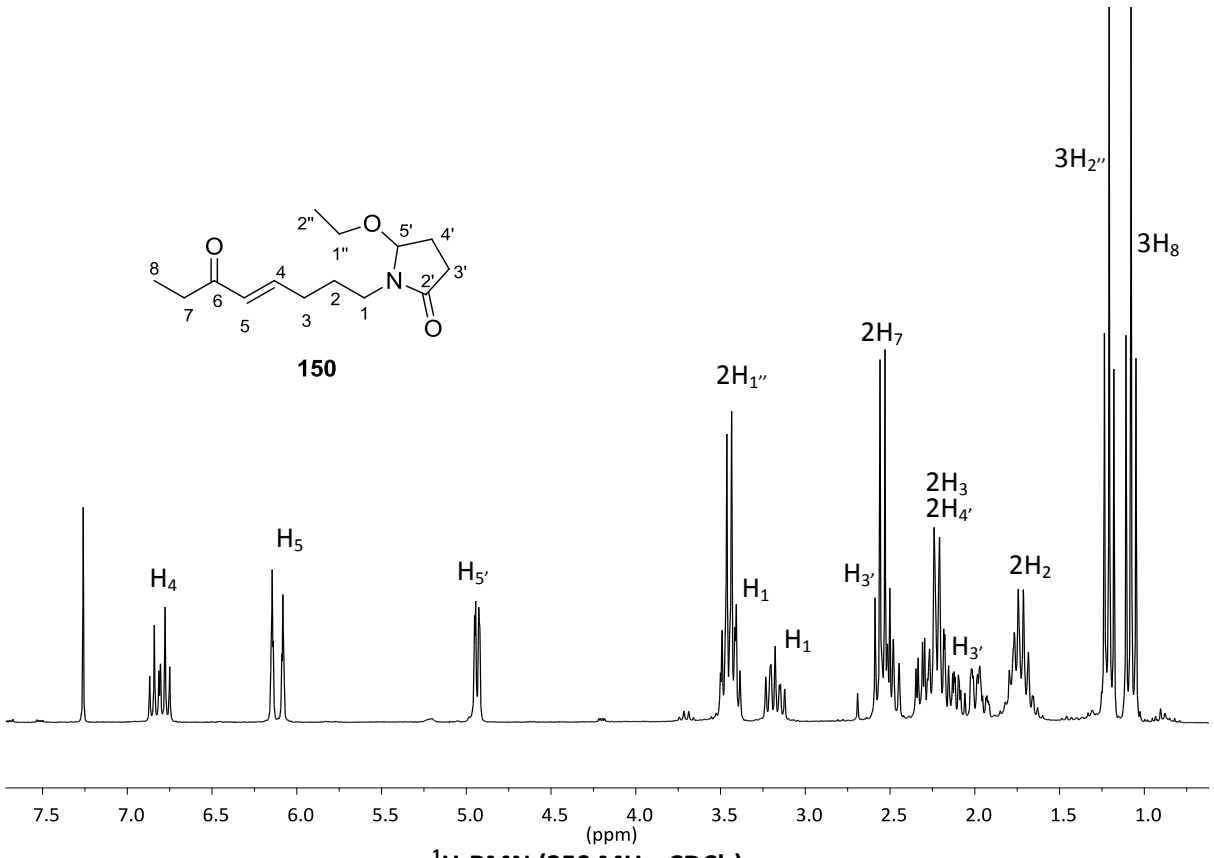
DEPT 135 (90.0 MHz, $CDCl_3$)



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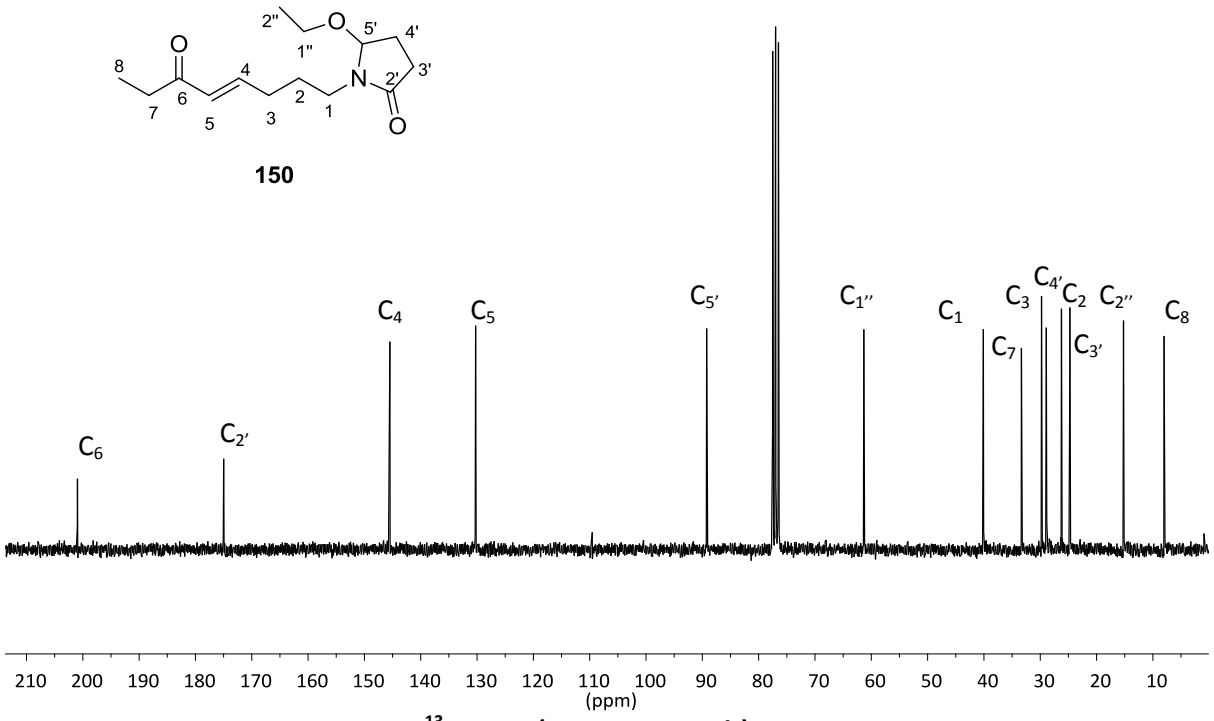
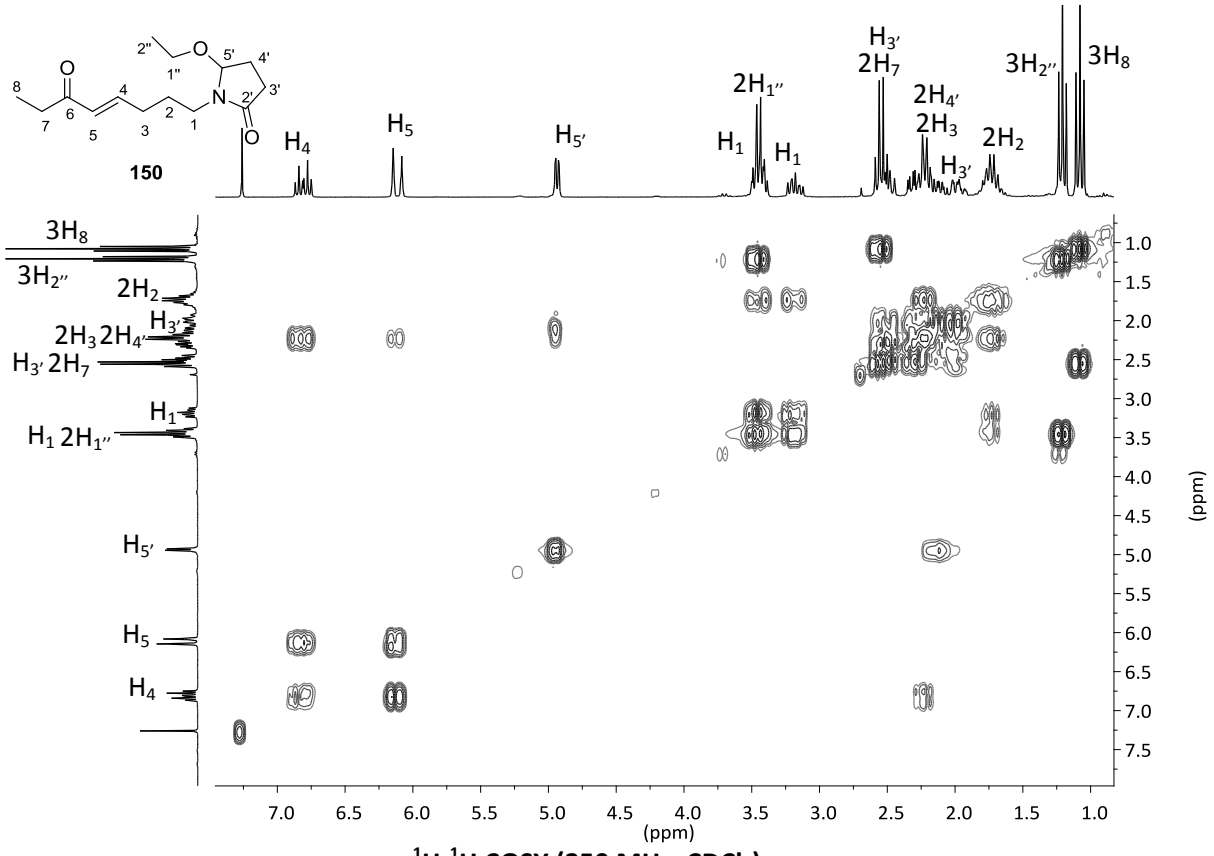
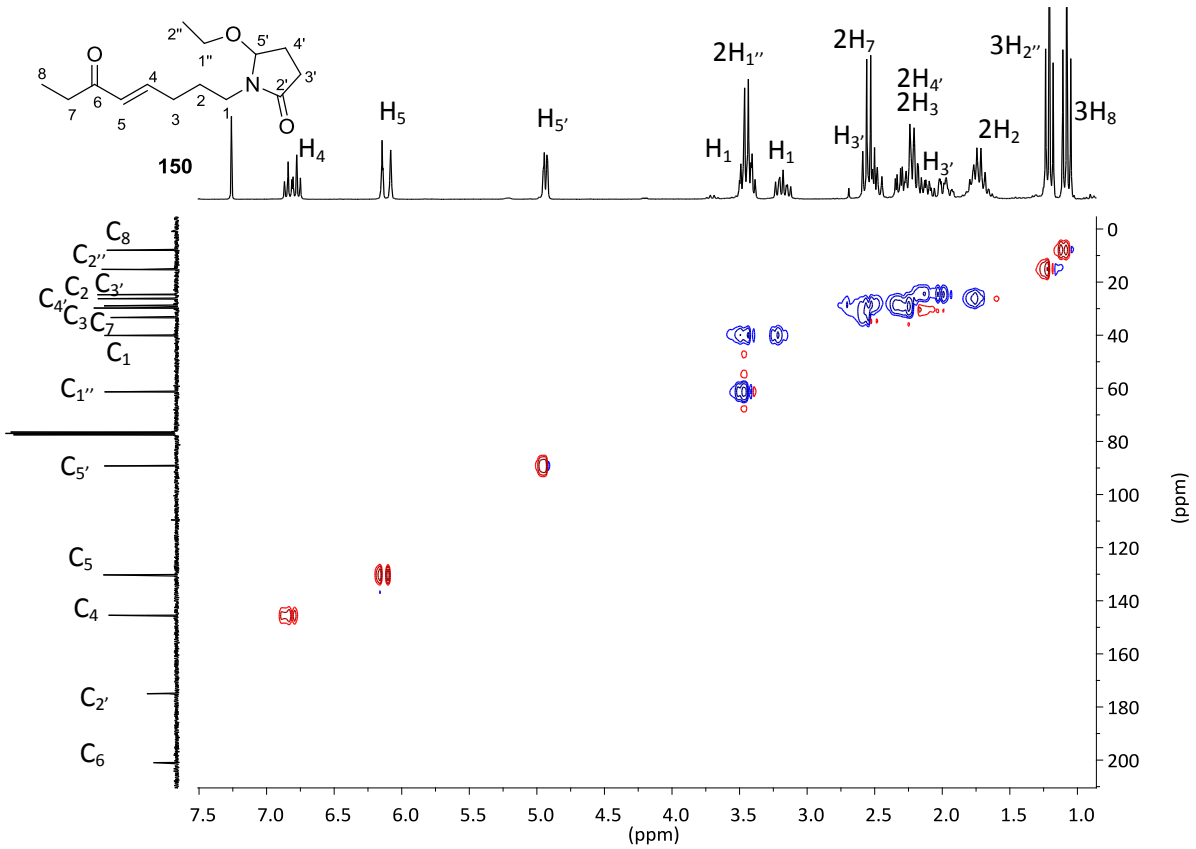
^{1}H-RMN (250 MHz, $CDCl_3$)



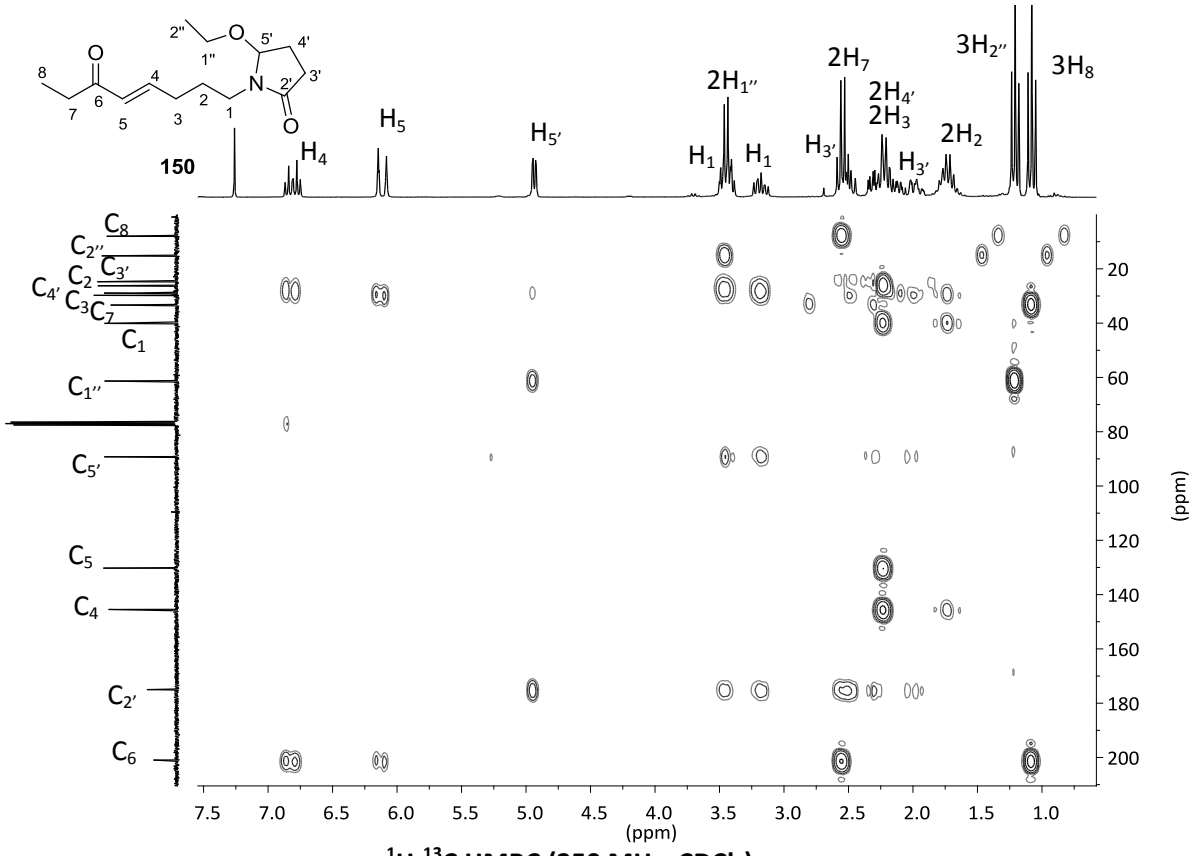
^{13}C-RMN (62.5 MHz, $CDCl_3$)



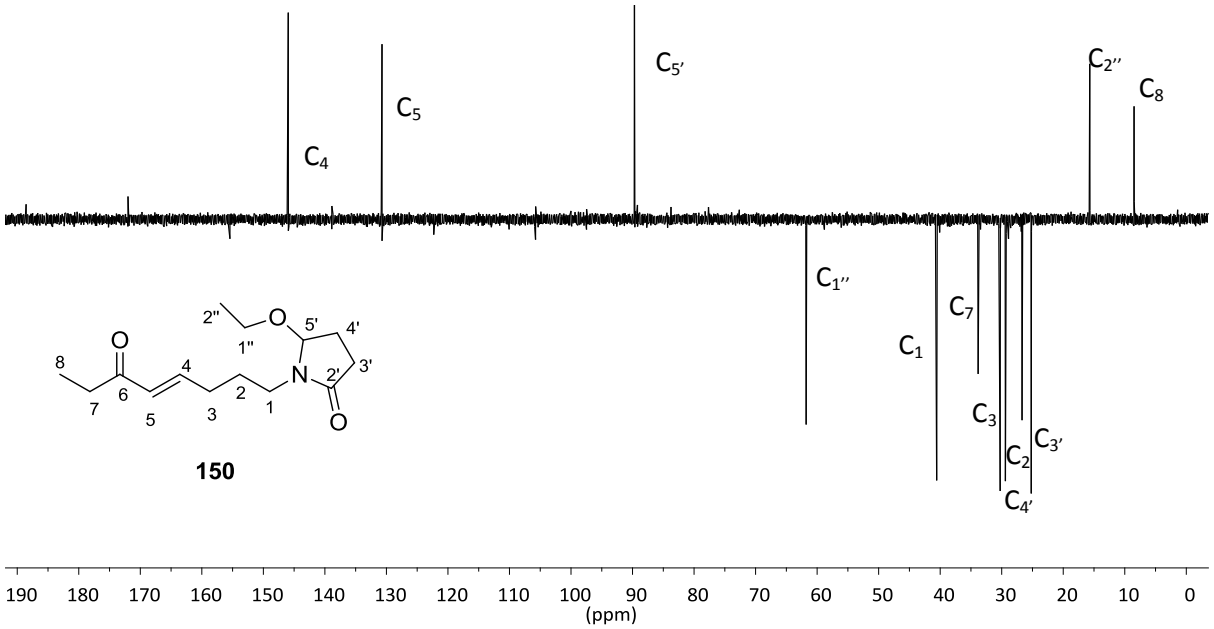
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



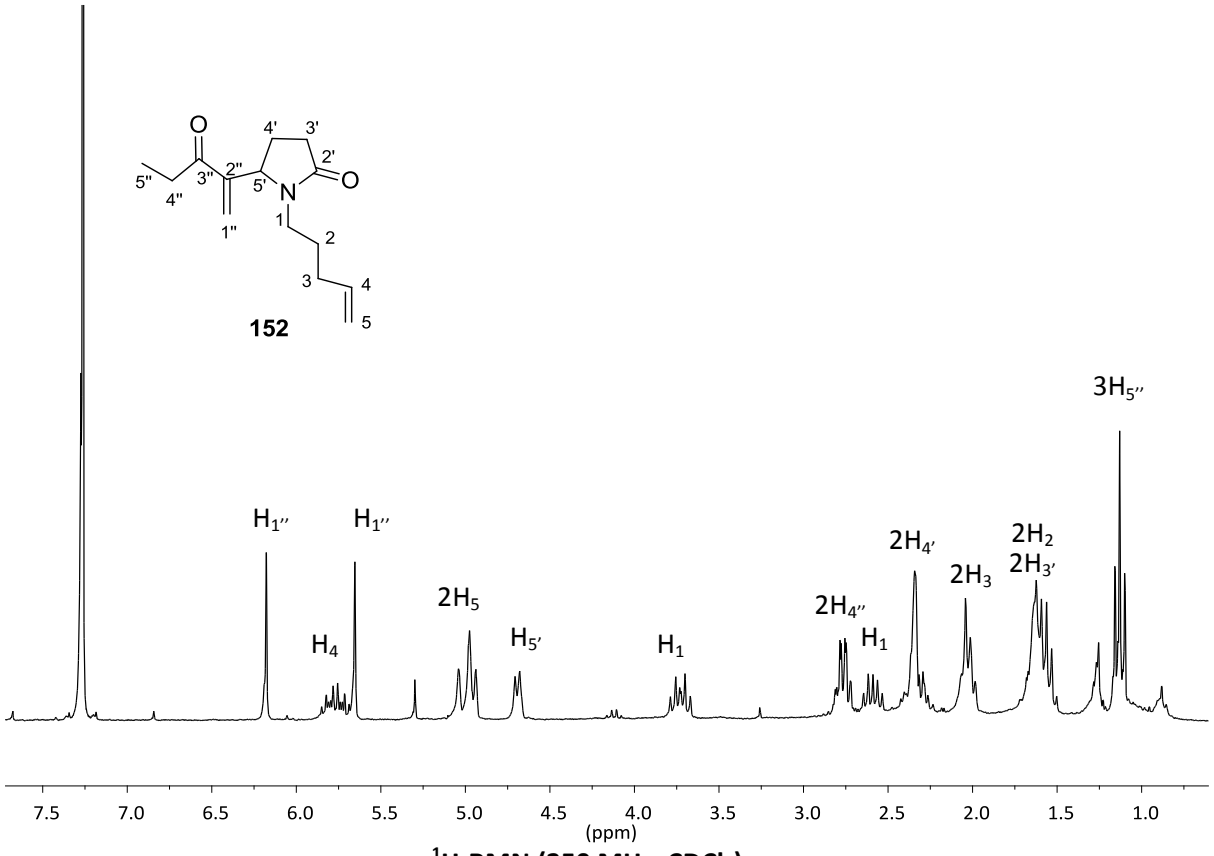
^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, $CDCl_3$)



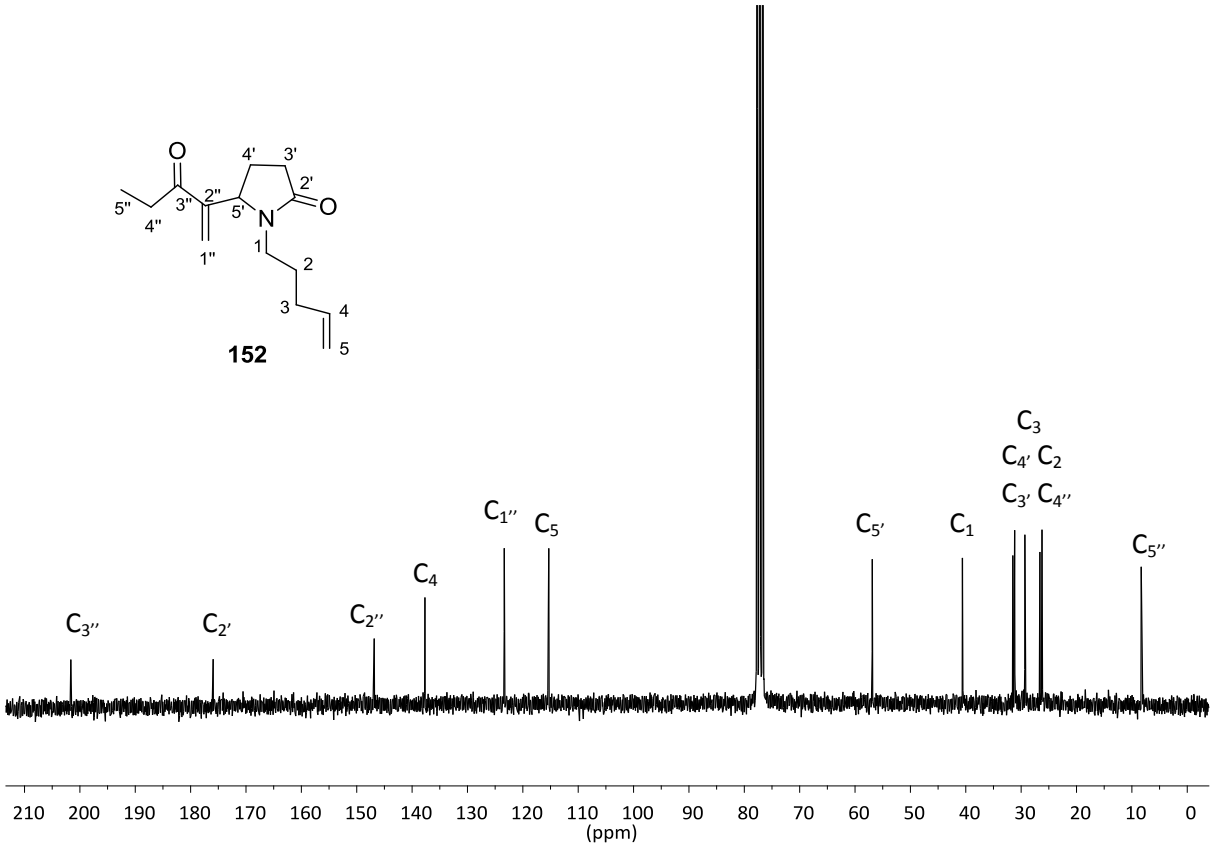
^{1}H-^{13}C HMBC (250 MHz, $CDCl_3$)



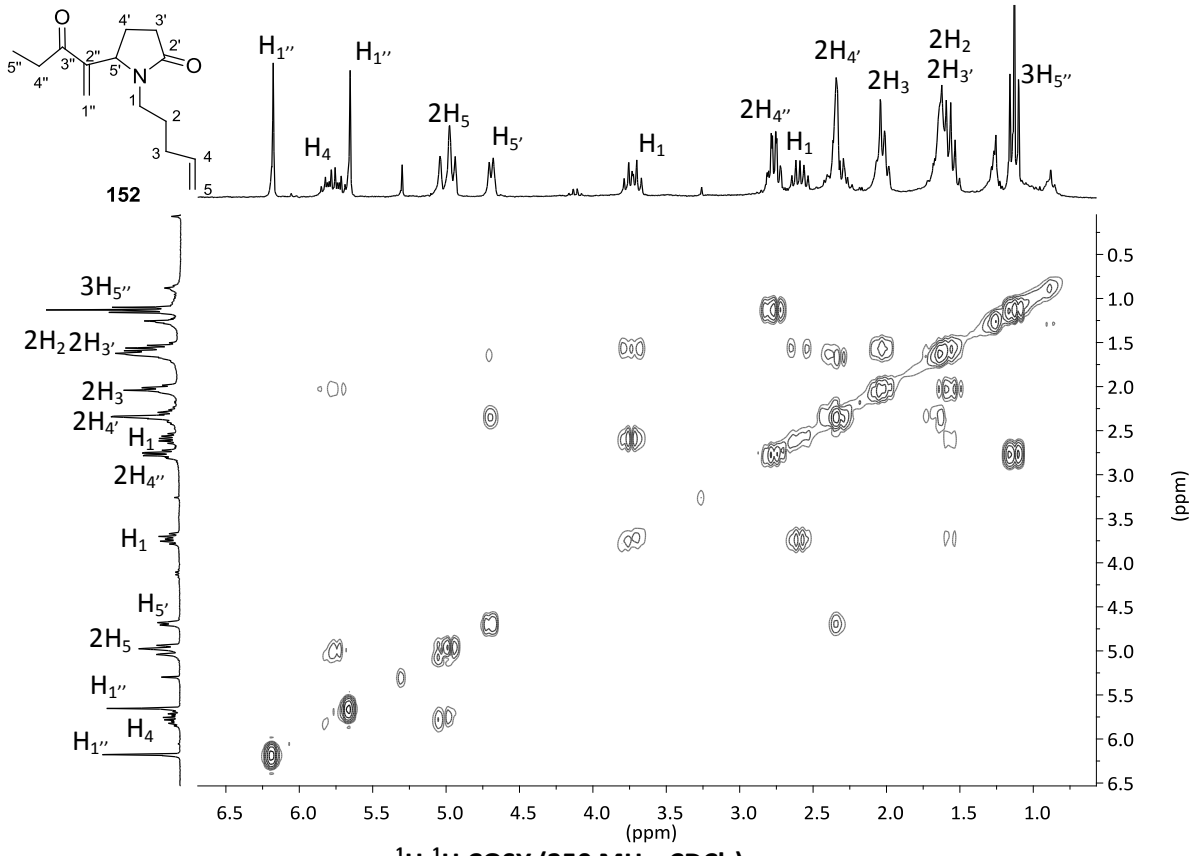
DEPT 135 (62.5 MHz, $CDCl_3$)



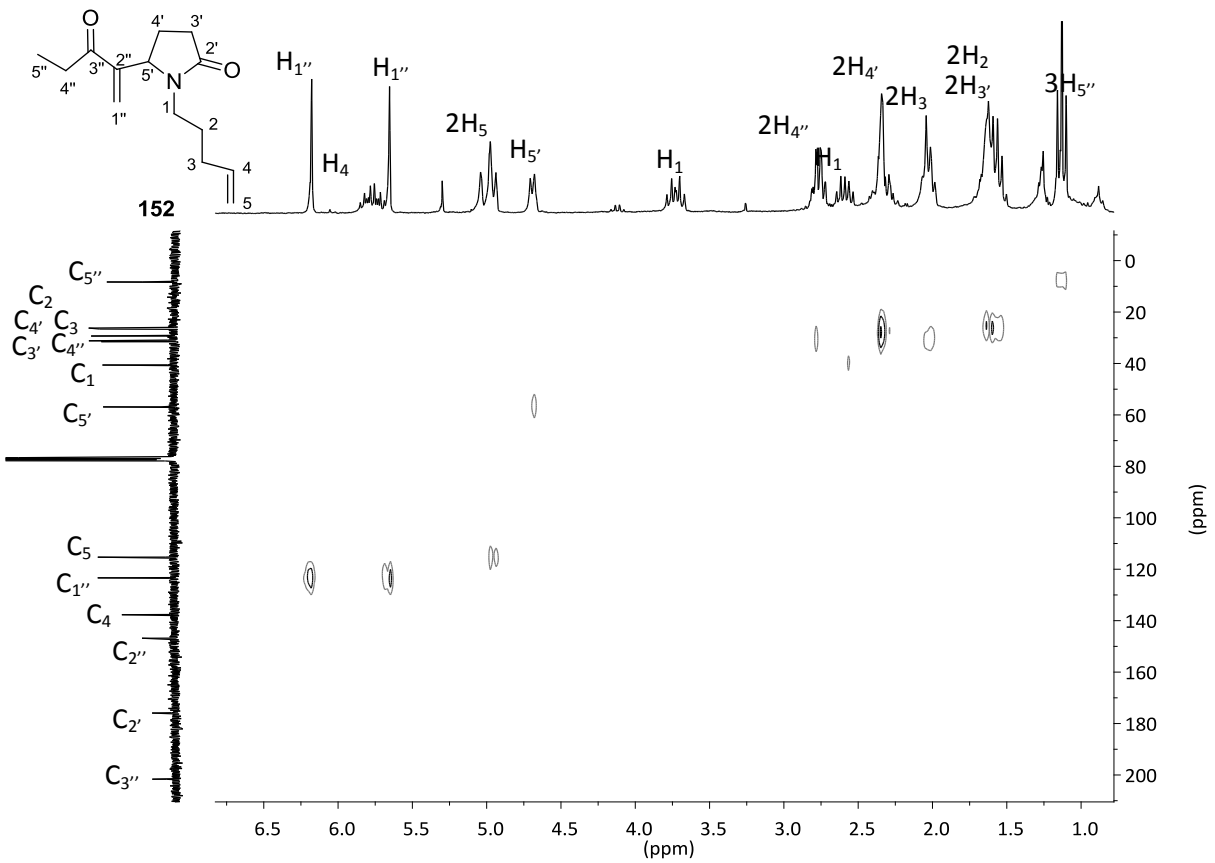
^{1}H-RMN (250 MHz, $CDCl_3$)



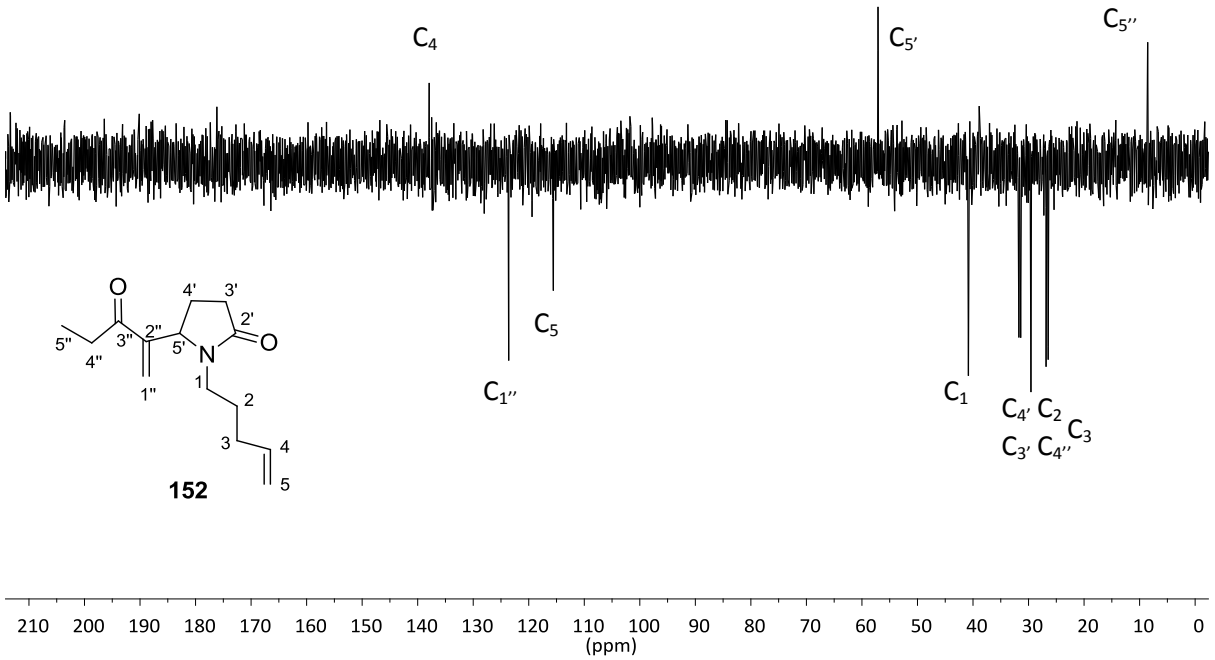
^{13}C-RMN (62.5 MHz, $CDCl_3$)



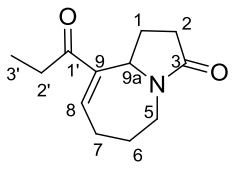
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



^{1}H-^{13}C HSQC (250 MHz, $CDCl_3$)

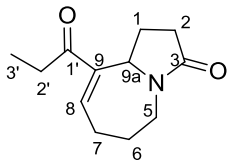


DEPT 135 (62.5 MHz, $CDCl_3$)



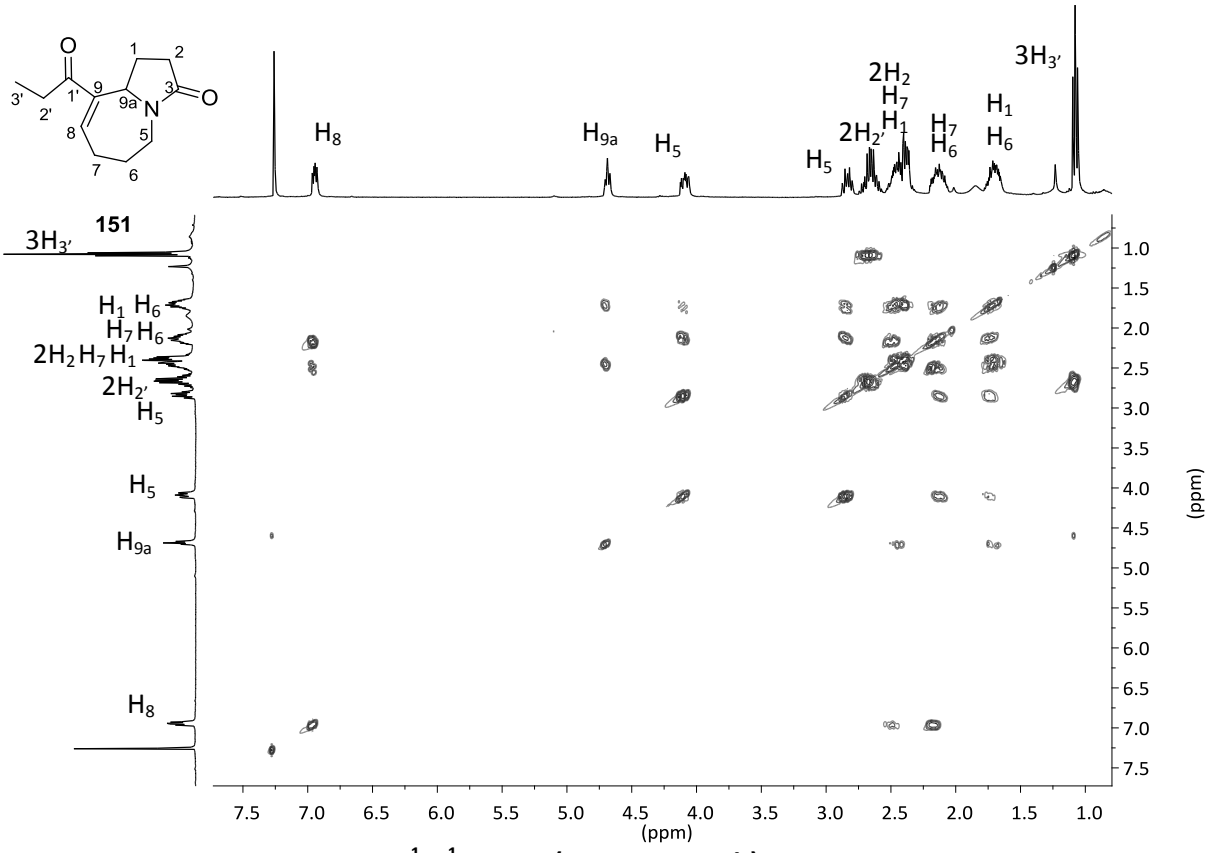
151

^{1}H-RMN (400 MHz, $CDCl_3$)

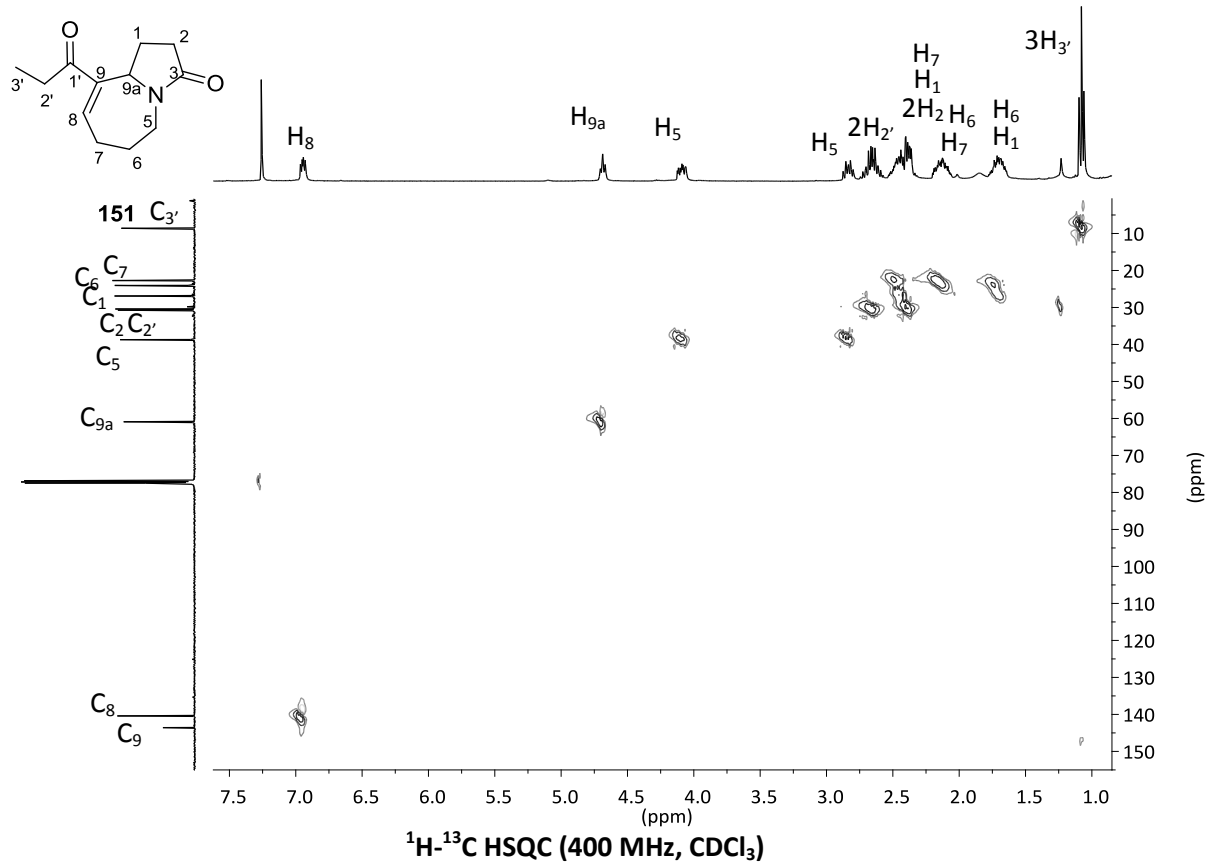


151

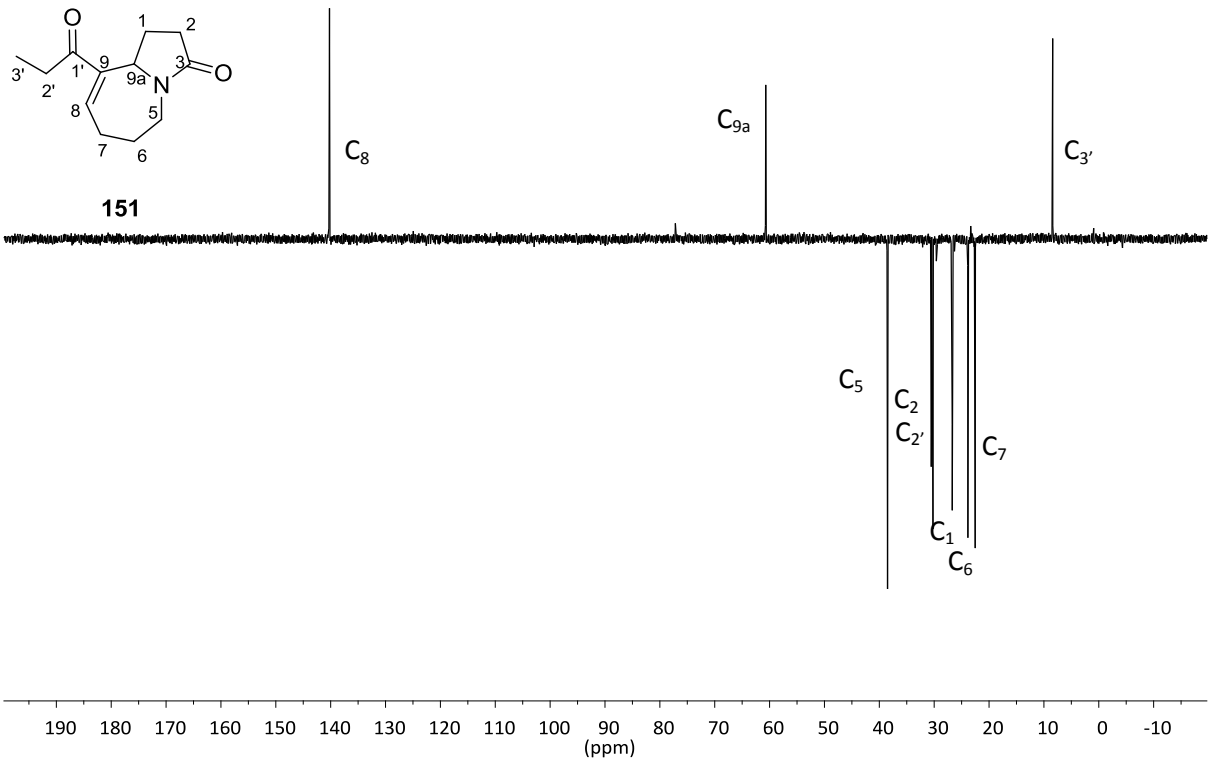
^{13}C-RMN (100.0 MHz, $CDCl_3$)



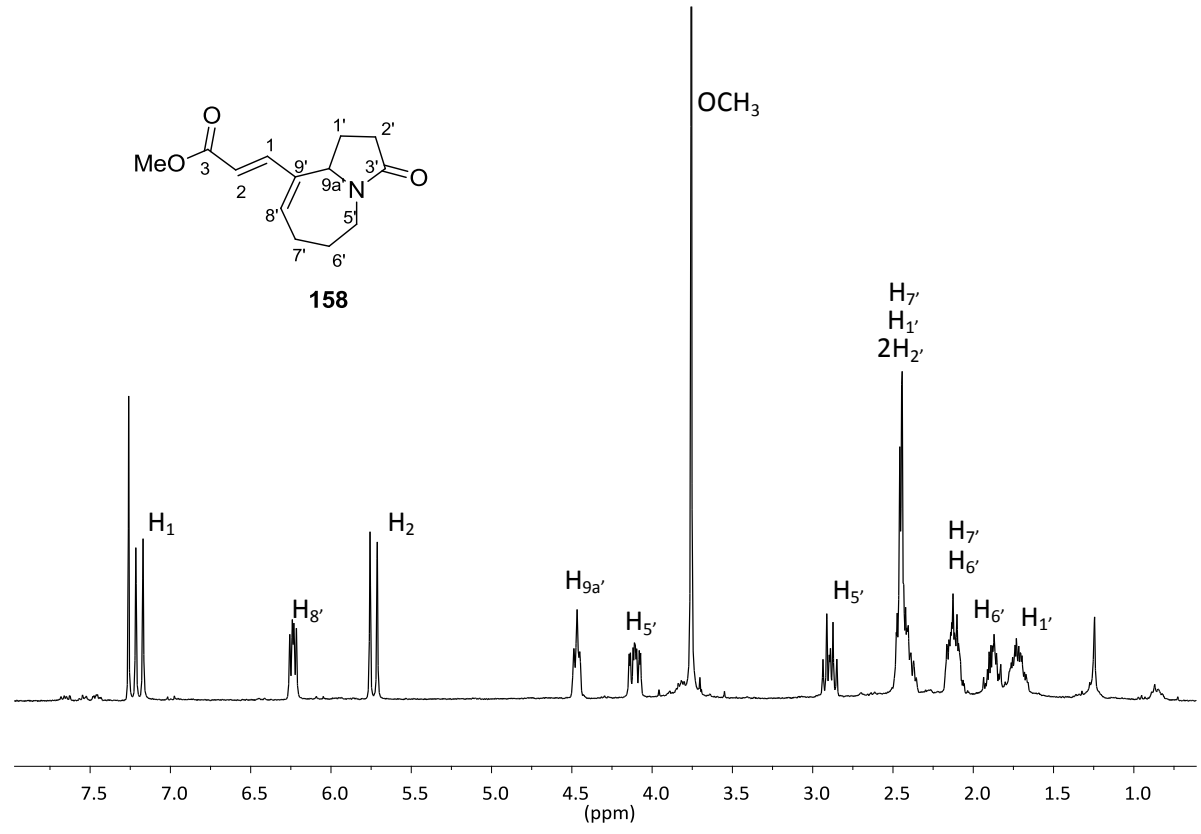
^{1}H-^{1}H COSY (400 MHz, $CDCl_3$)



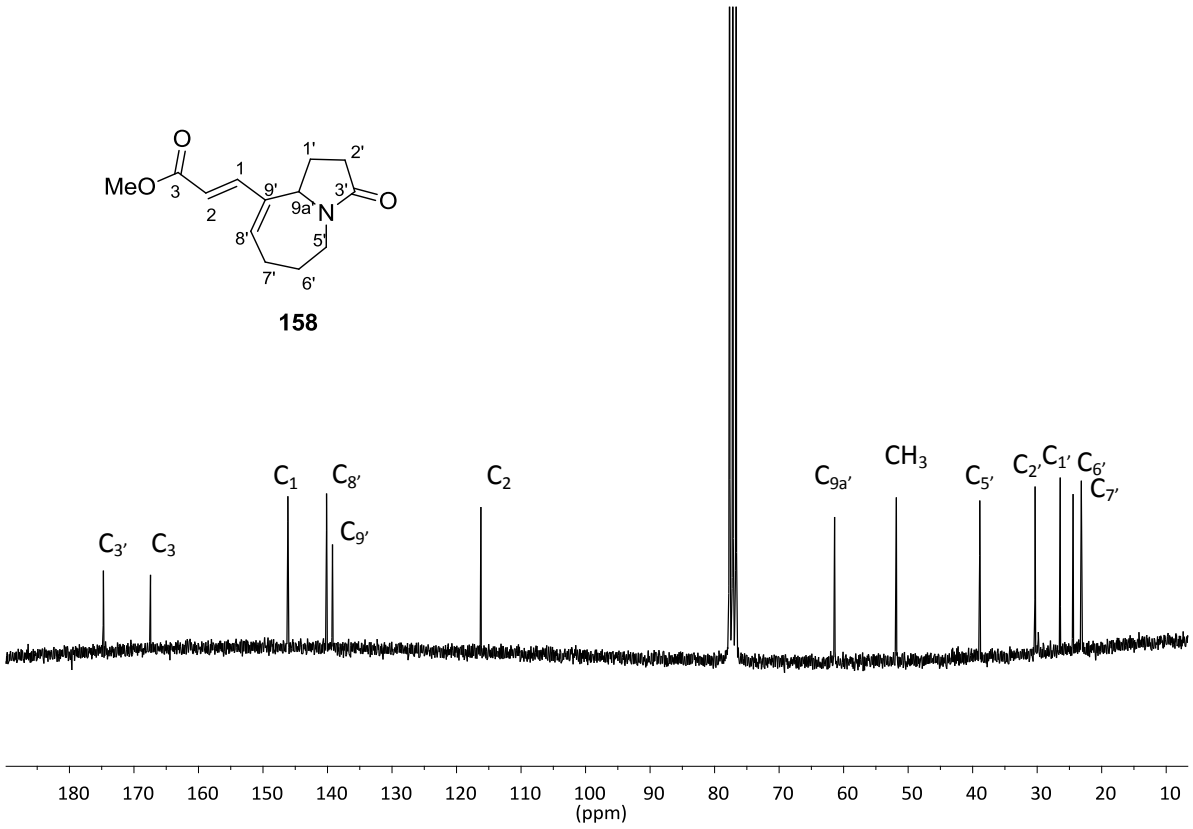
^{1}H-^{13}C HSQC (400 MHz, $CDCl_3$)



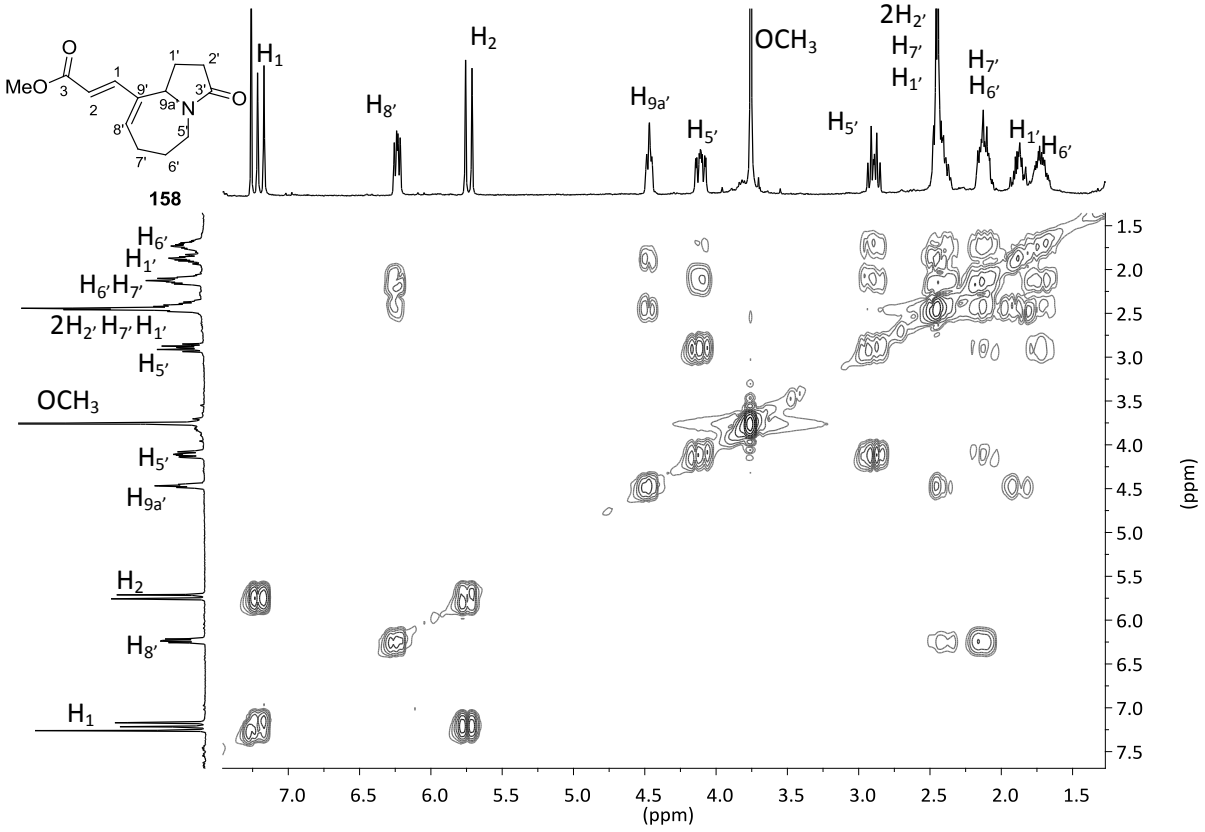
DEPT 135 (100 MHz, $CDCl_3$)



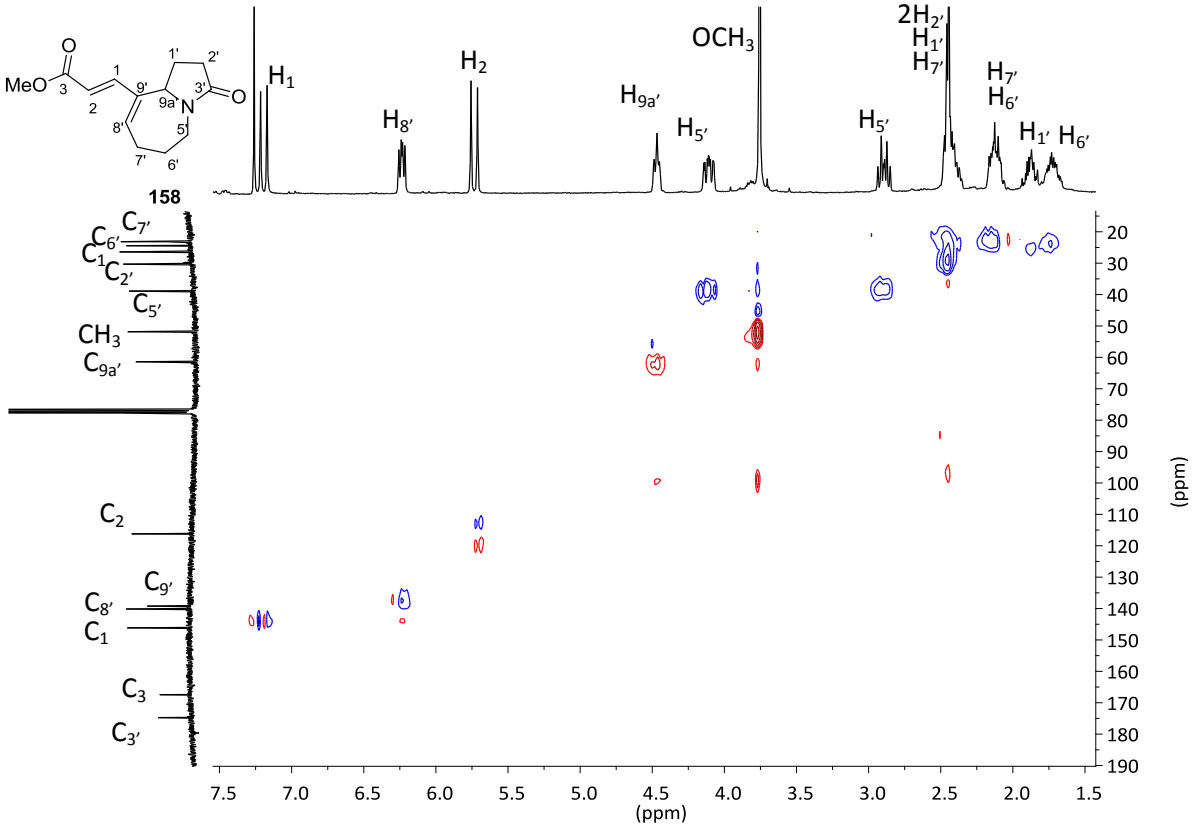
^{1}H-RMN (250 MHz, $CDCl_3$)



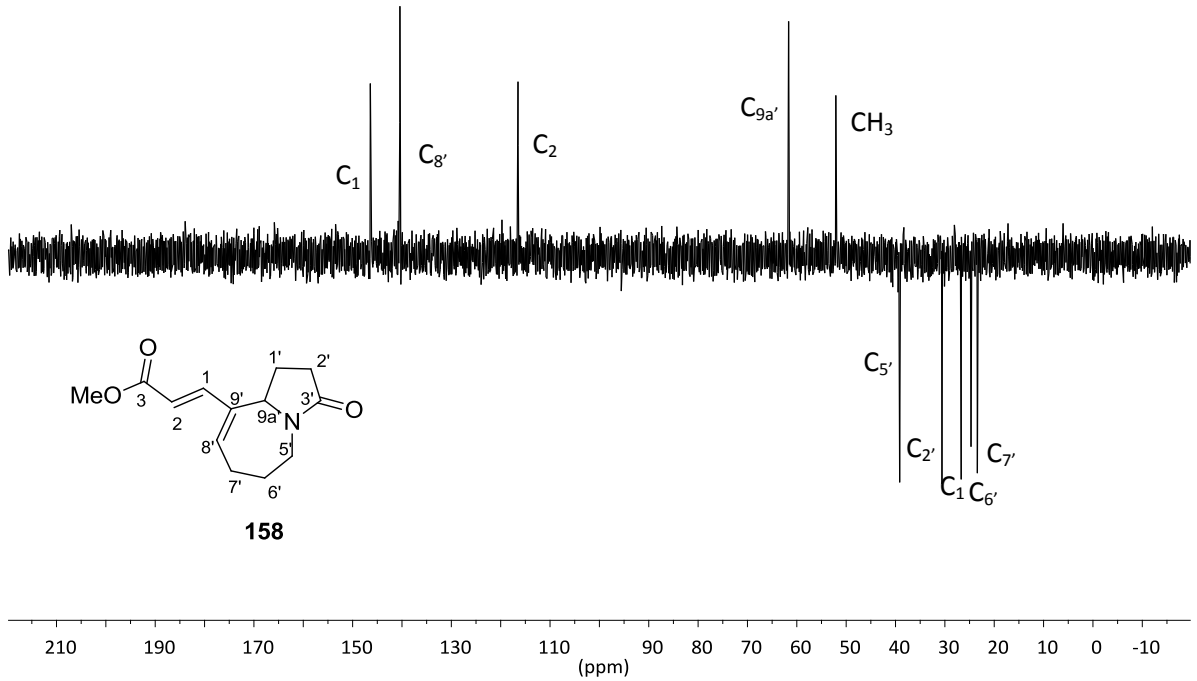
^{13}C-RMN (62.5 MHz, $CDCl_3$)



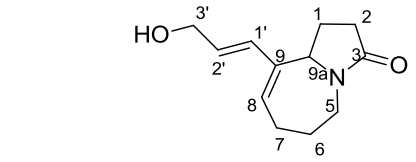
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, CDCl$_3$)

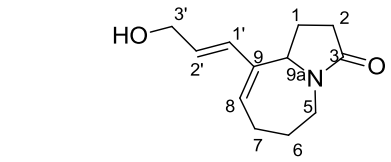


DEPT 135 (62.5 MHz, CDCl$_3$)



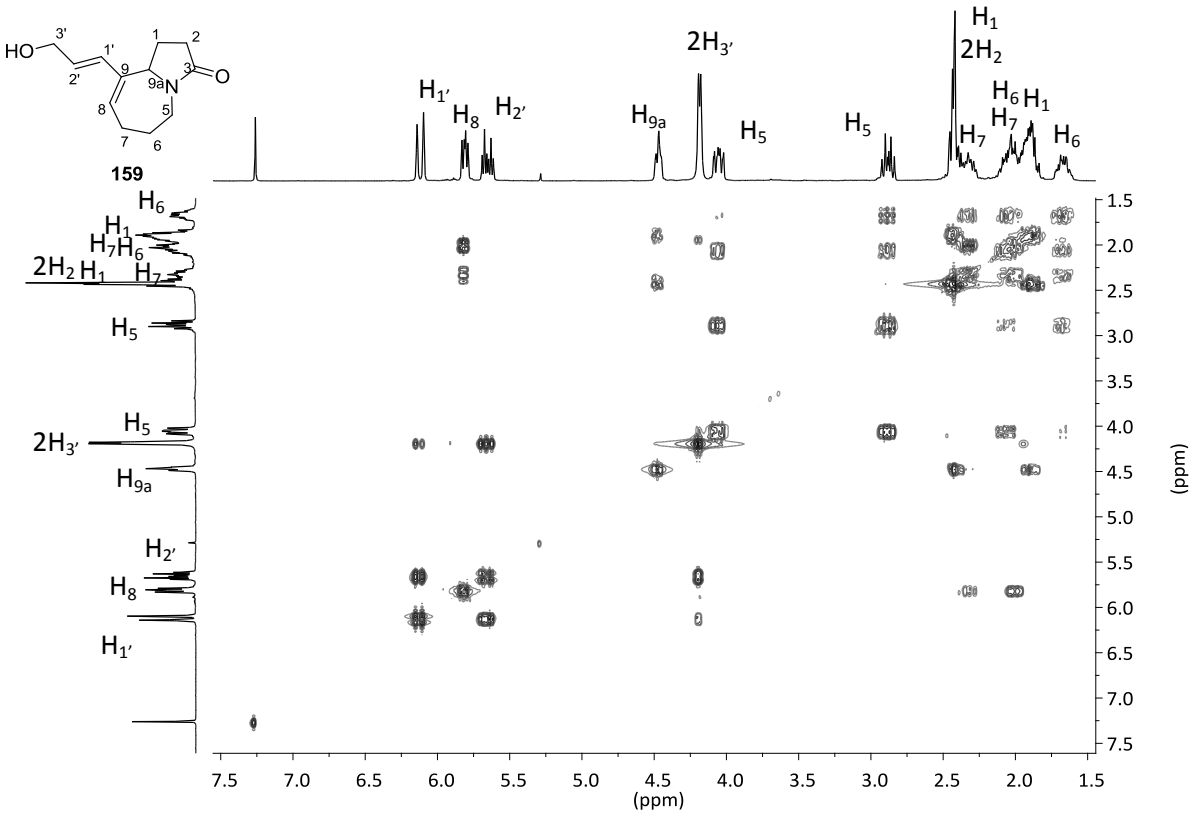
159

^{1}H-RMN (360 MHz, $CDCl_3$)

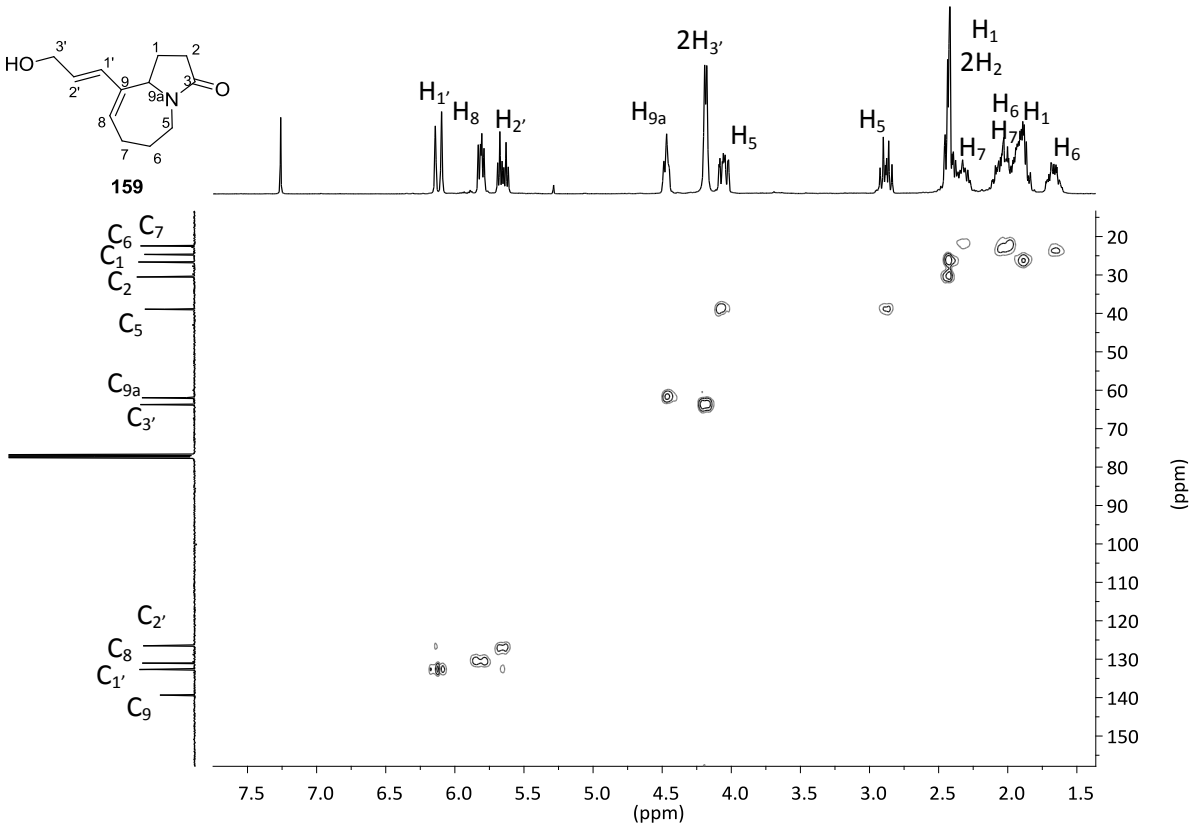


159

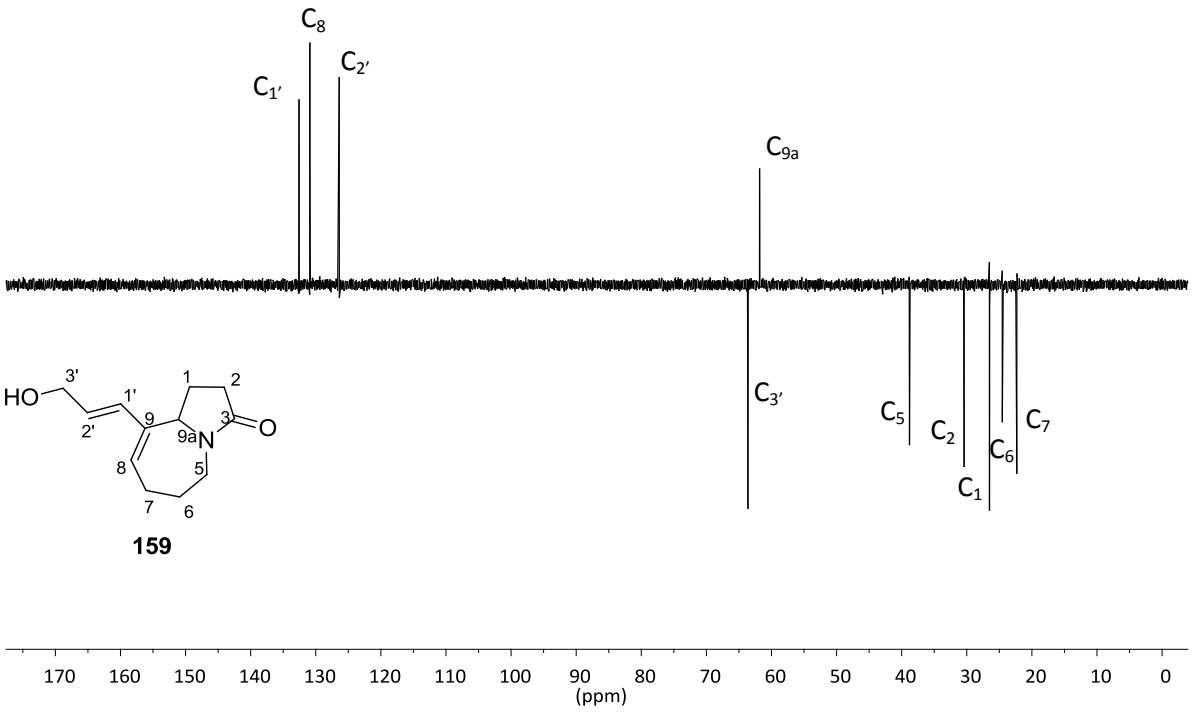
^{13}C-RMN (90 MHz, $CDCl_3$)



^{1}H-^{1}H COSY (360 MHz, $CDCl_3$)

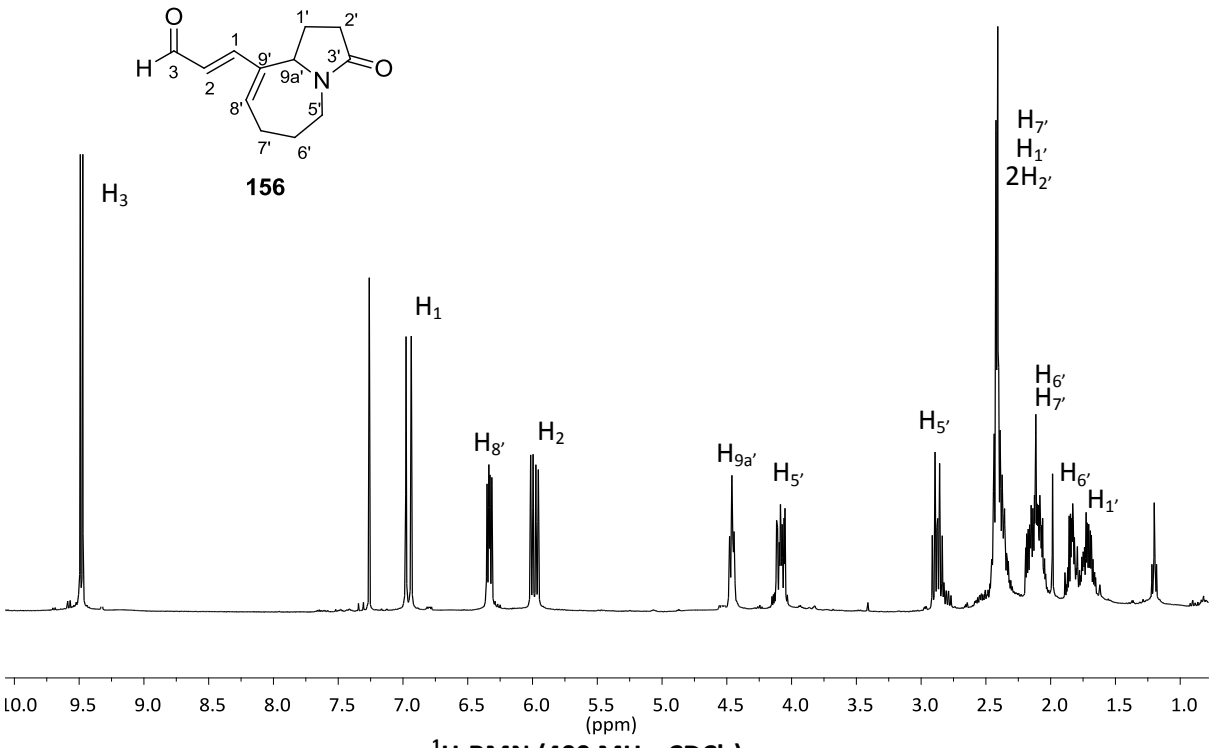


^{1}H-^{13}C HSQC (360 MHz, $CDCl_3$)



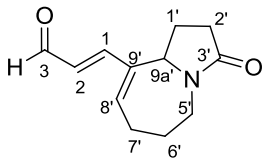
159

DEPT 135 (90 MHz, $CDCl_3$)

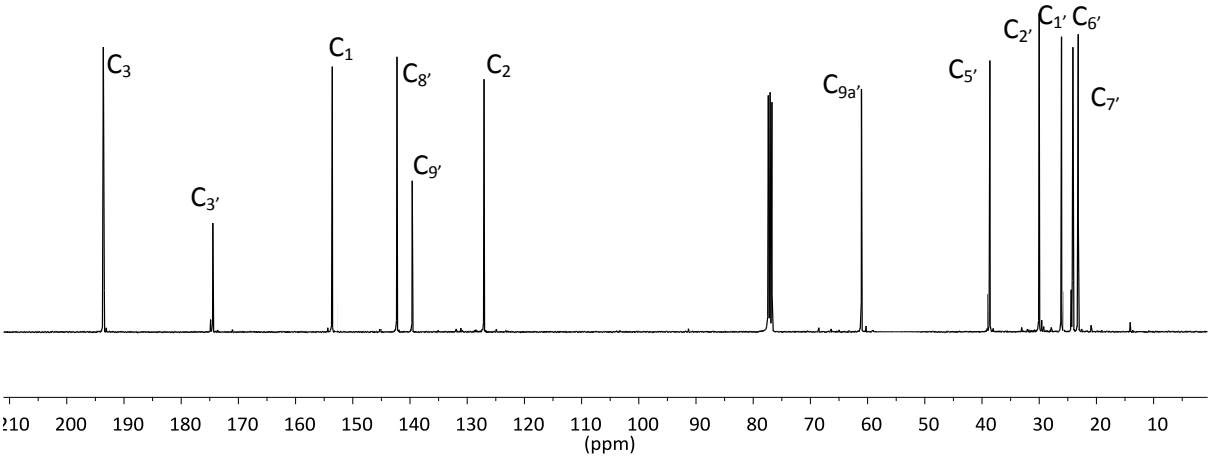


156

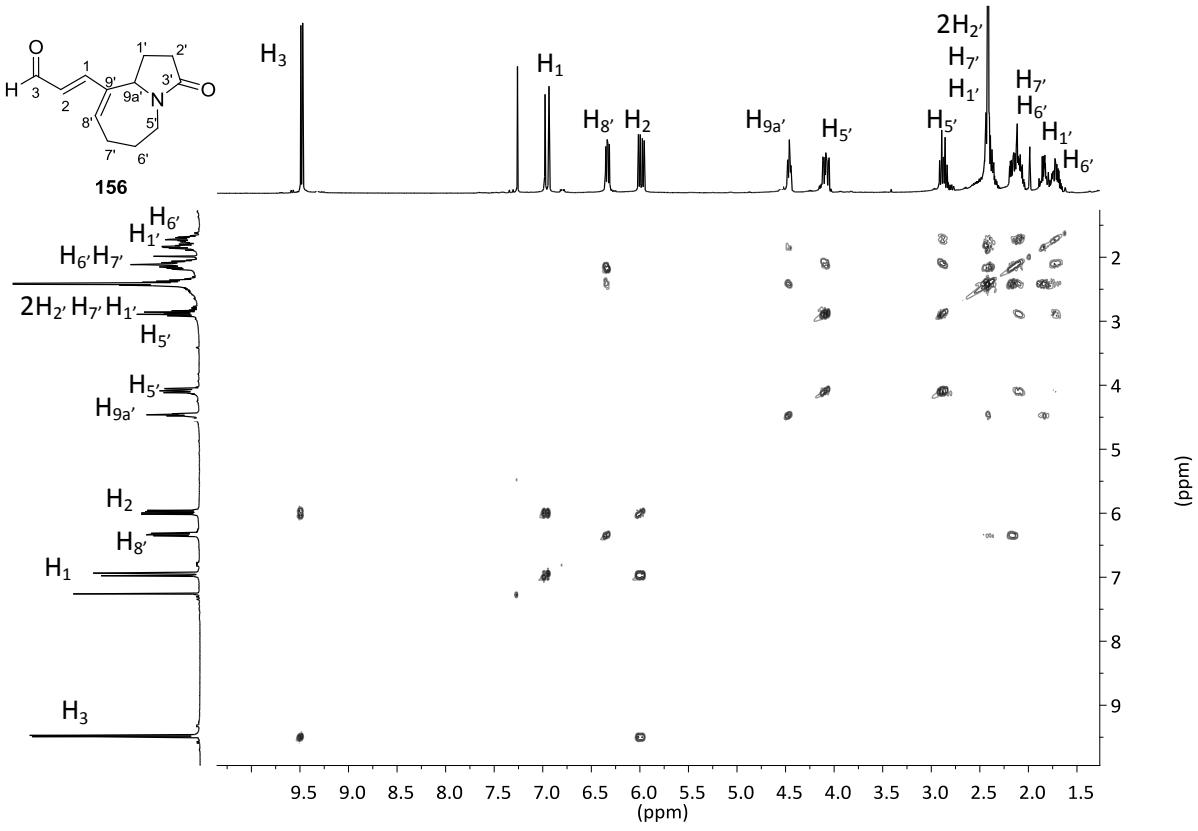
^{1}H-RMN (400 MHz, $CDCl_3$)



156

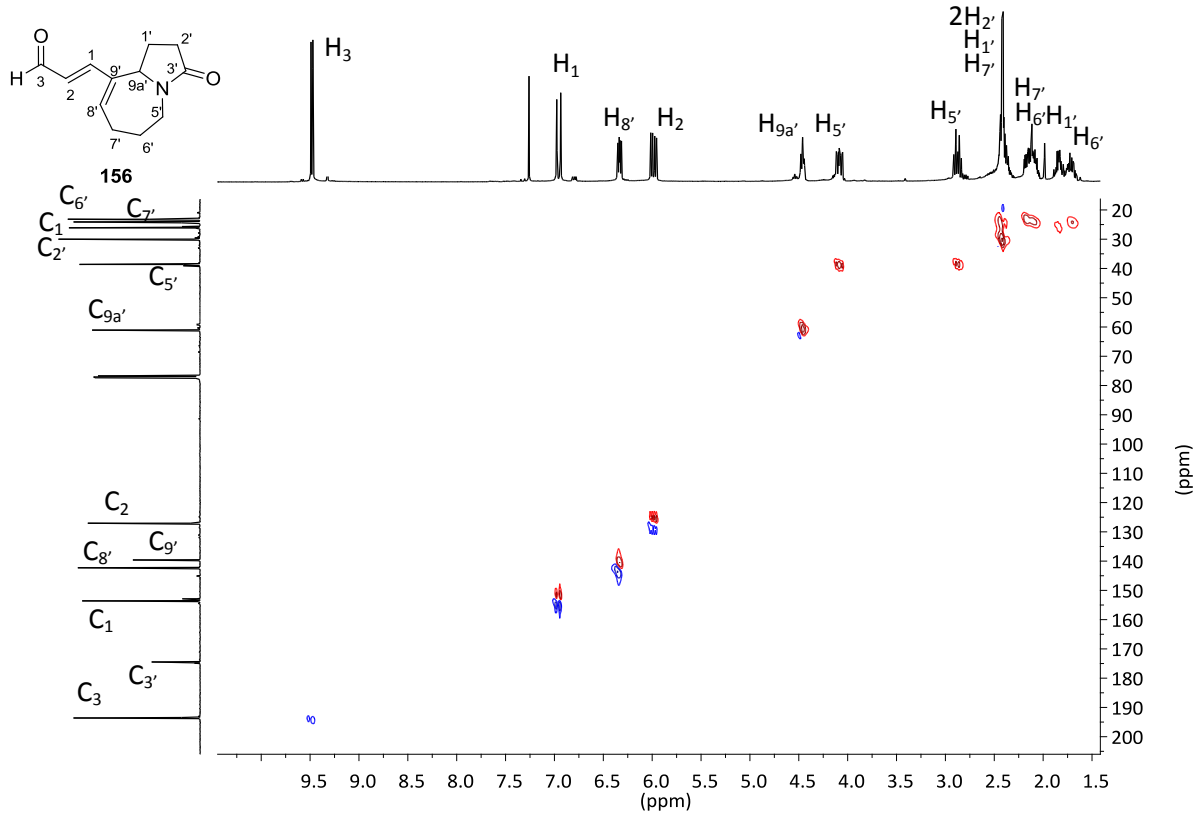


^{13}C-RMN (100 MHz, $CDCl_3$)

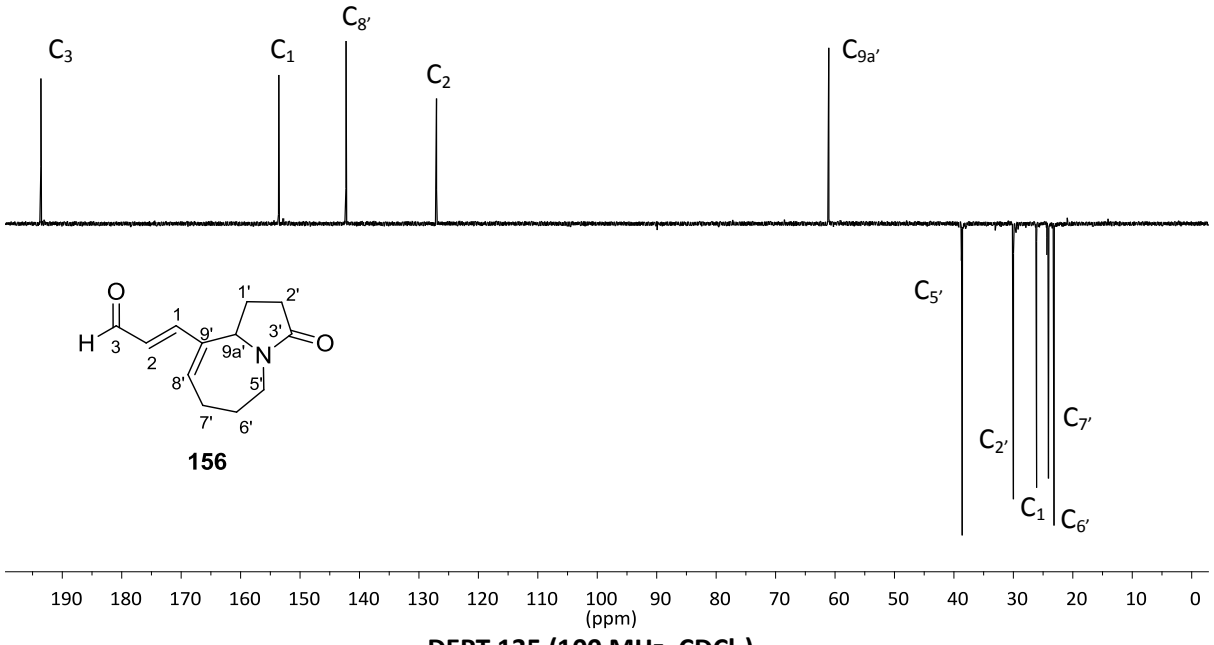


156

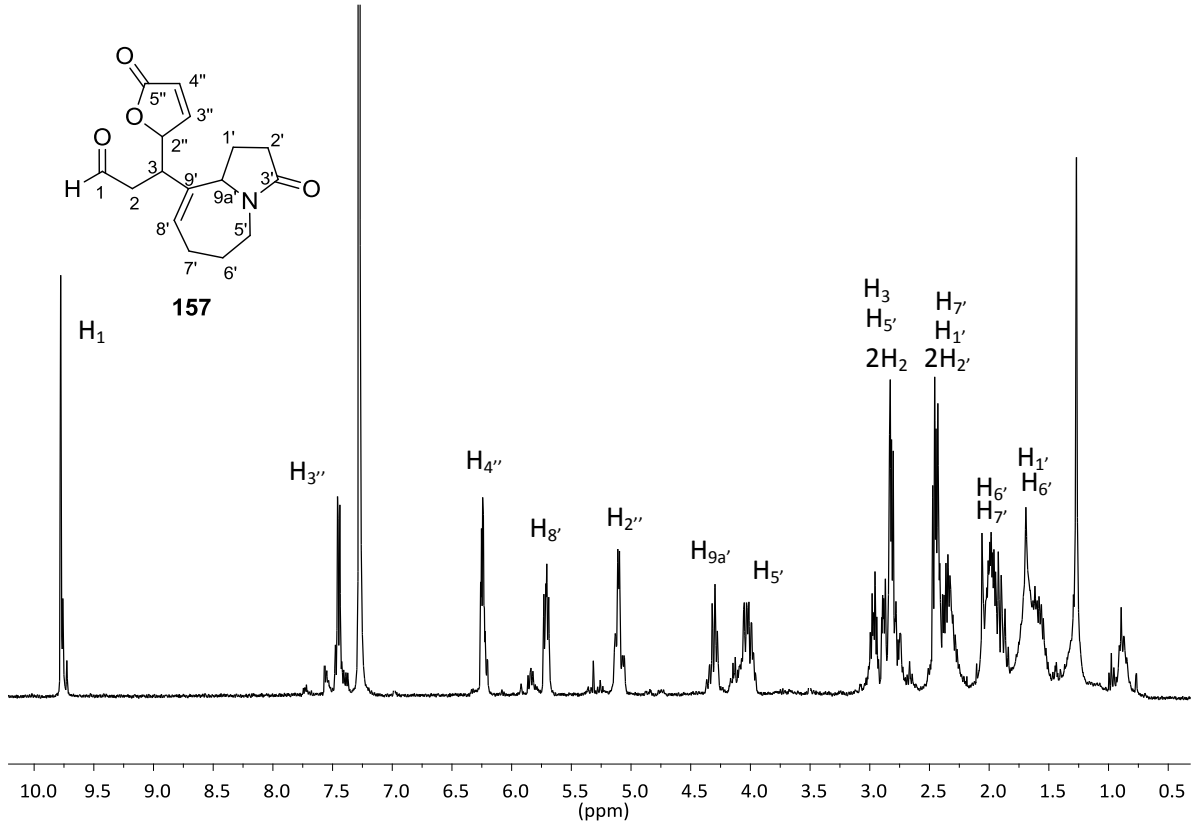
^{1}H-^{1}H COSY (400 MHz, $CDCl_3$)



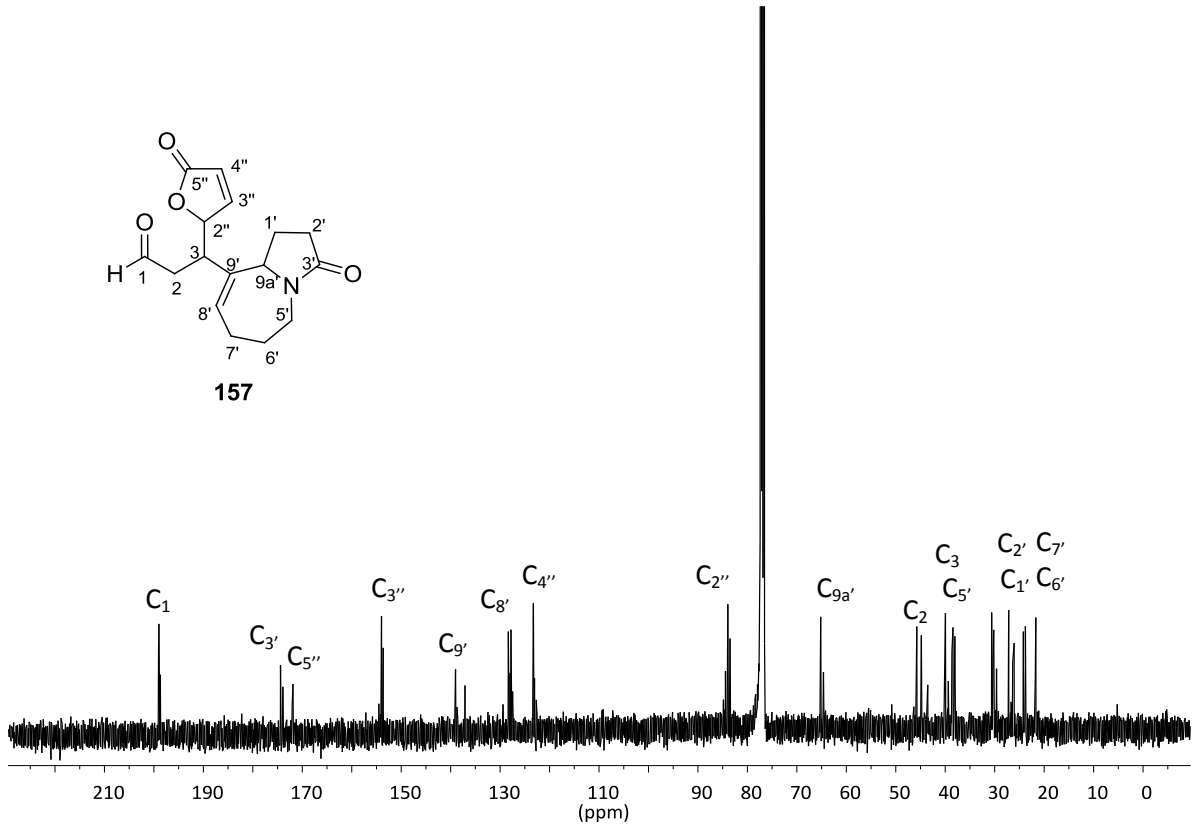
^{1}H-^{13}C HSQC$_{ed}$ (400 MHz, CDCl$_3$)



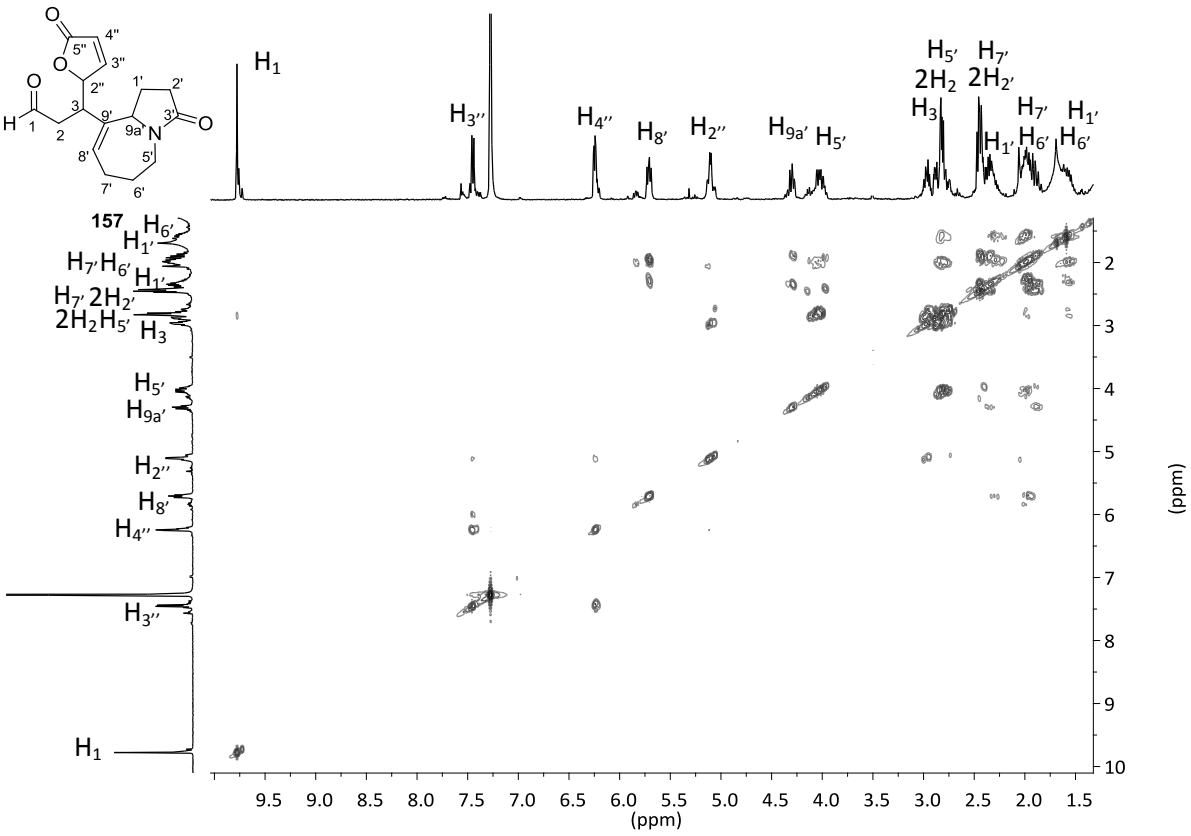
DEPT 135 (100 MHz, CDCl$_3$)



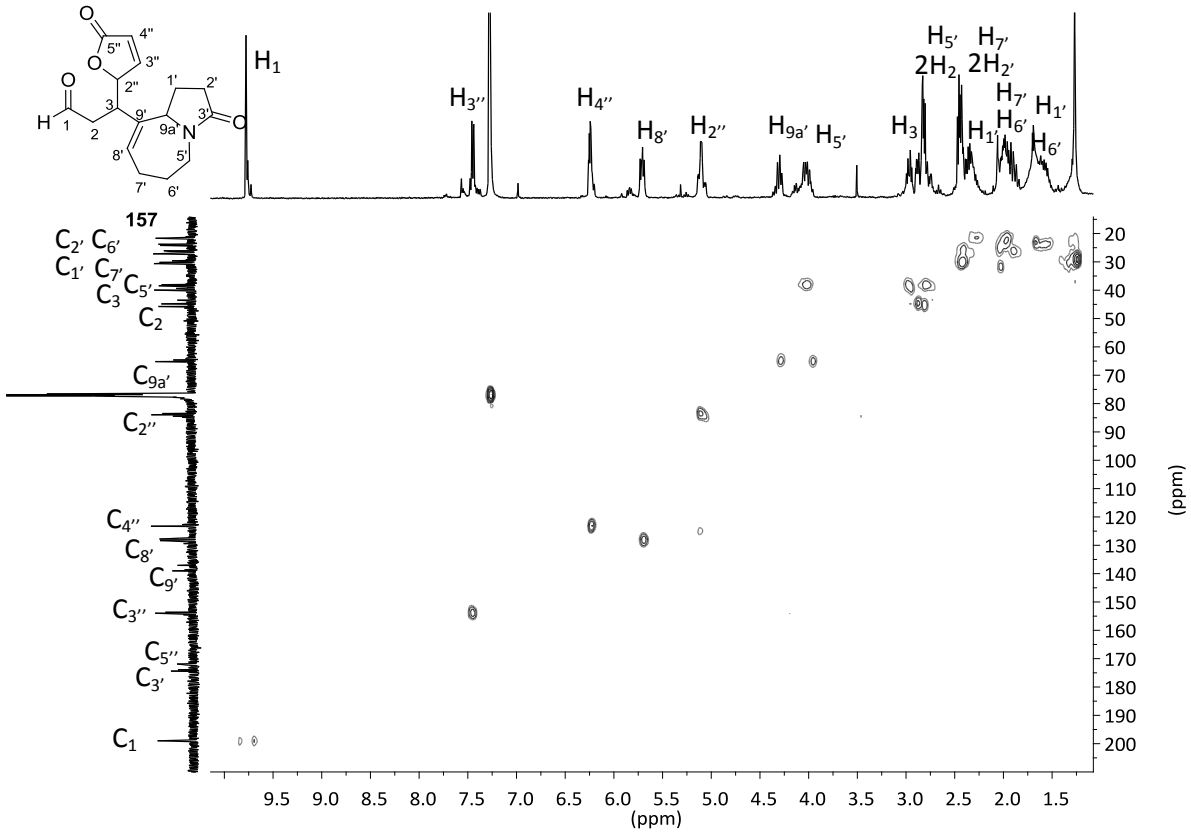
^{1}H-RMN (360 MHz, $CDCl_3$)



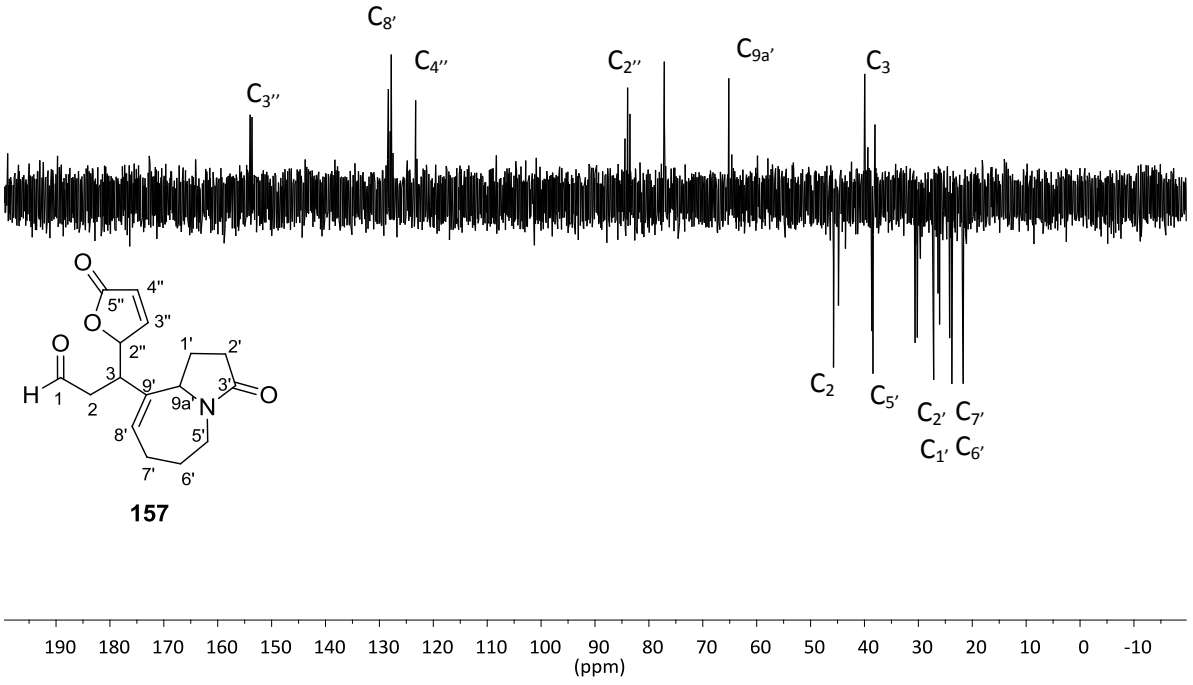
^{13}C-RMN (100 MHz, $CDCl_3$)



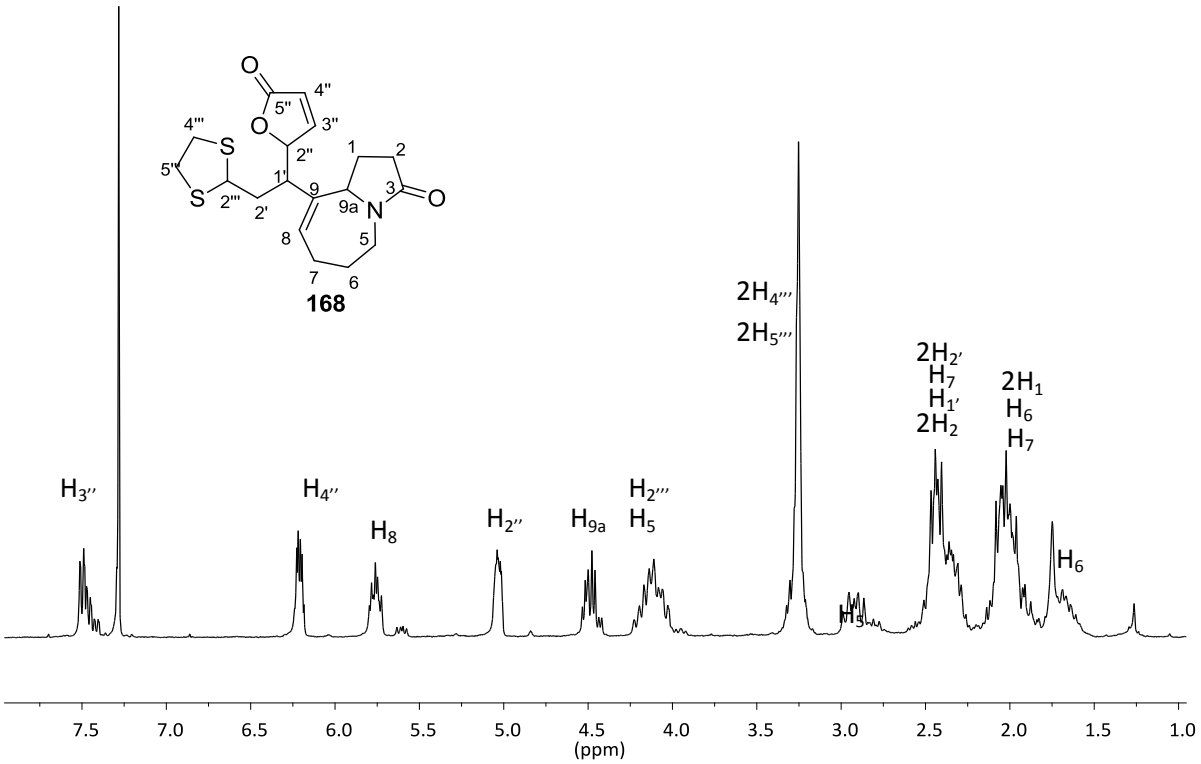
^{1}H-^{1}H COSY (400 MHz, $CDCl_3$)



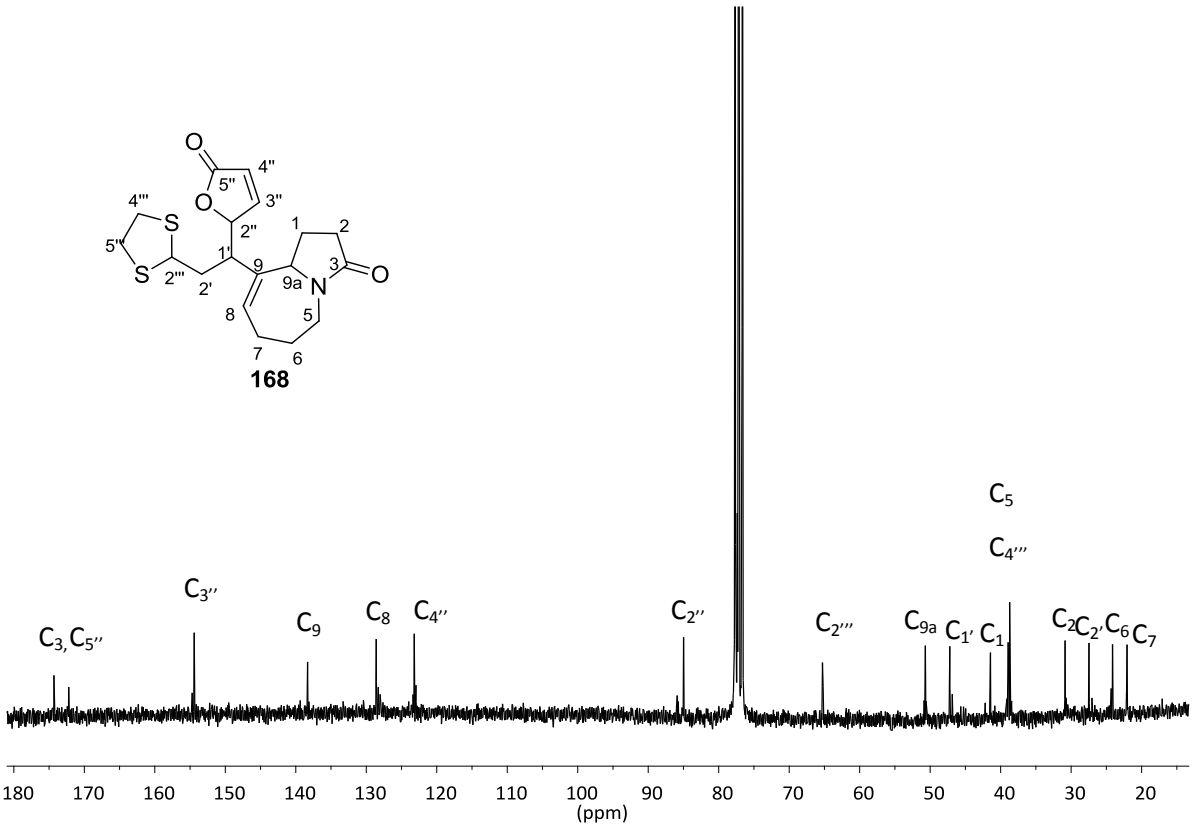
^{1}H-^{13}C HSQC (400 MHz, $CDCl_3$)



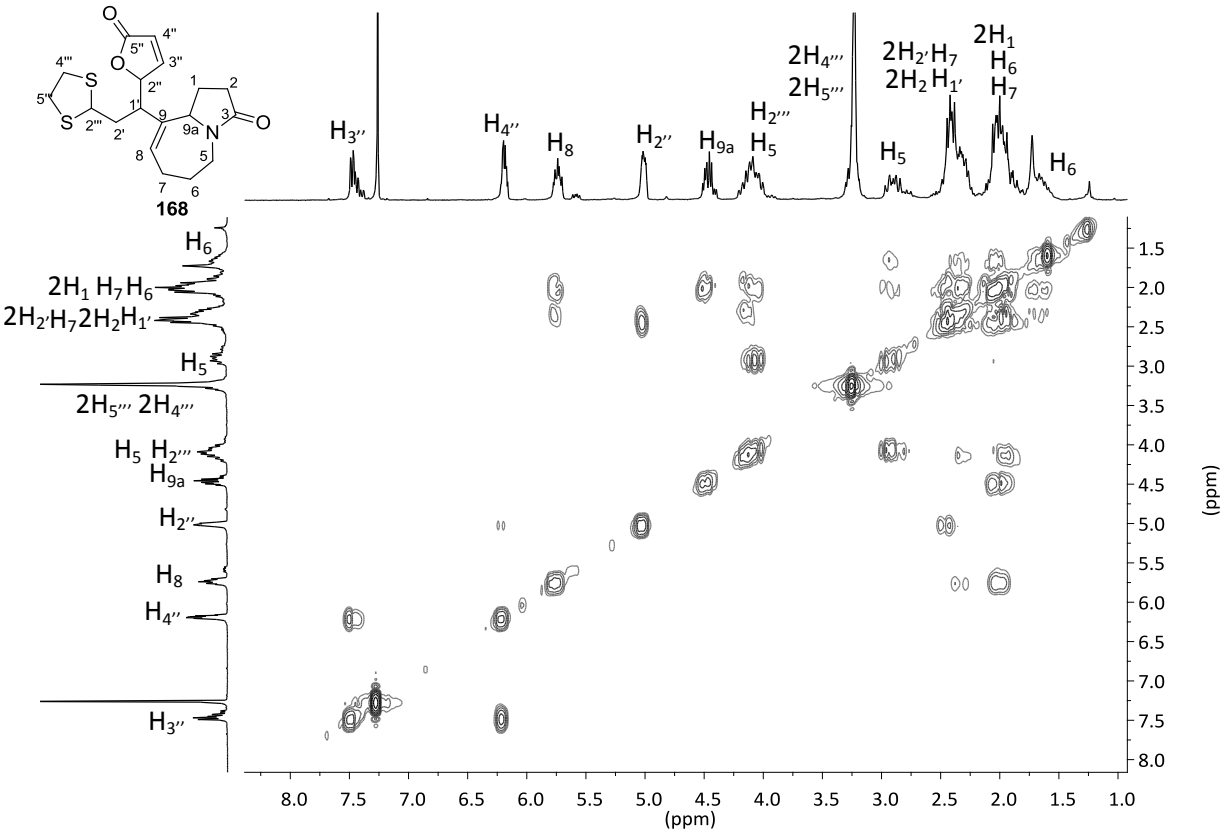
DEPT 135 (100 MHz, $CDCl_3$)



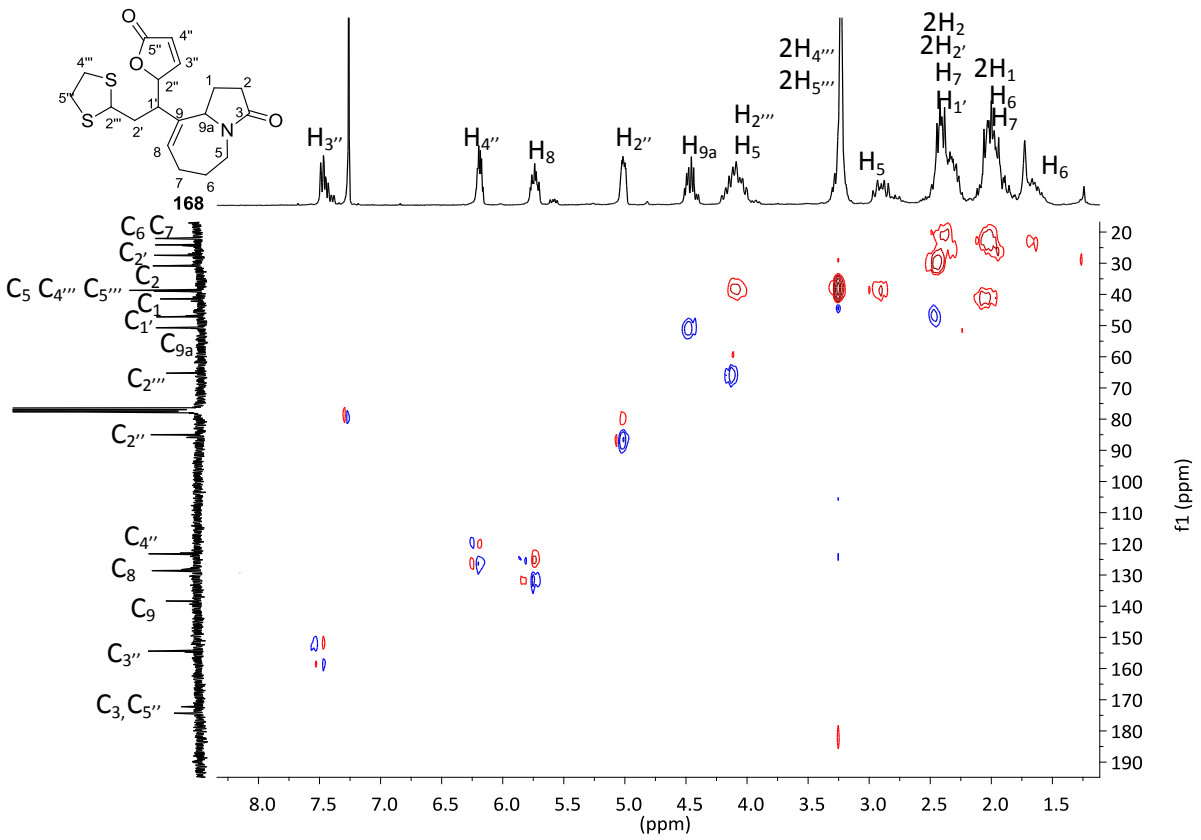
^{1}H-RMN (250 MHz, $CDCl_3$)



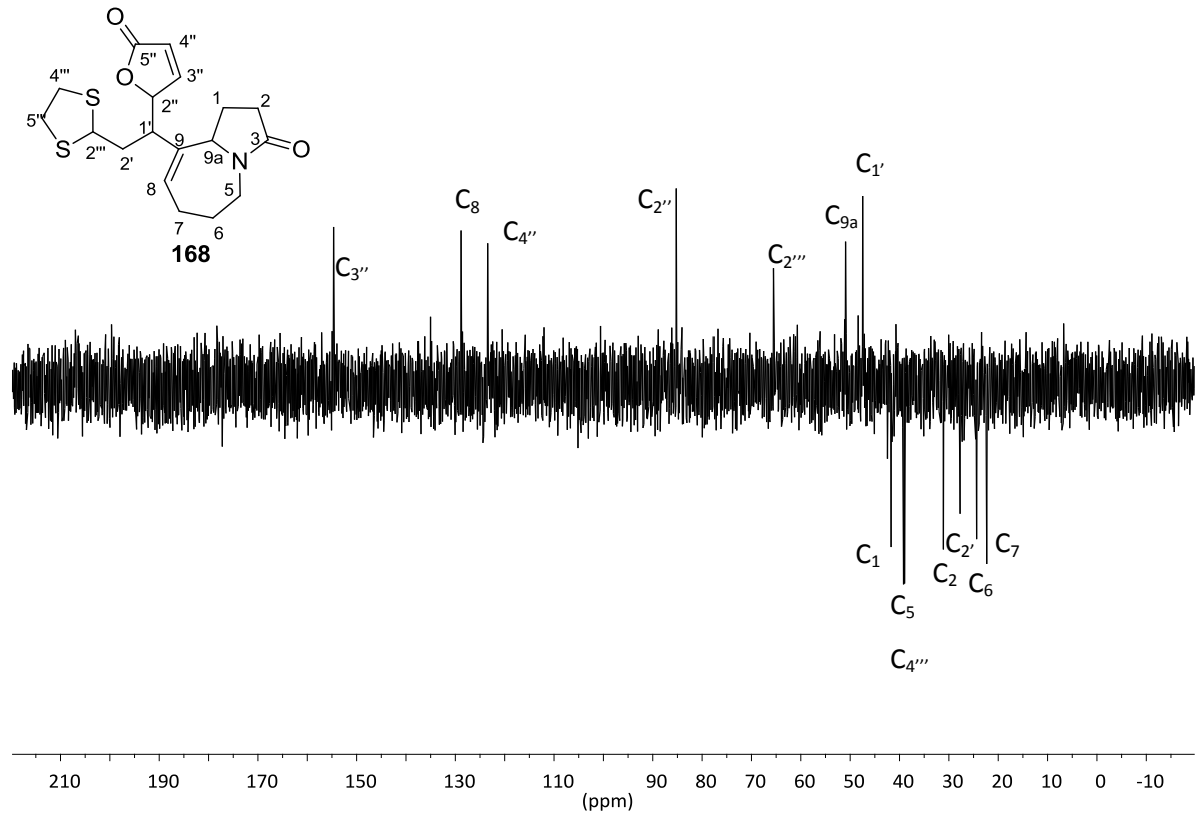
^{13}C-RMN (62.5 MHz, $CDCl_3$)



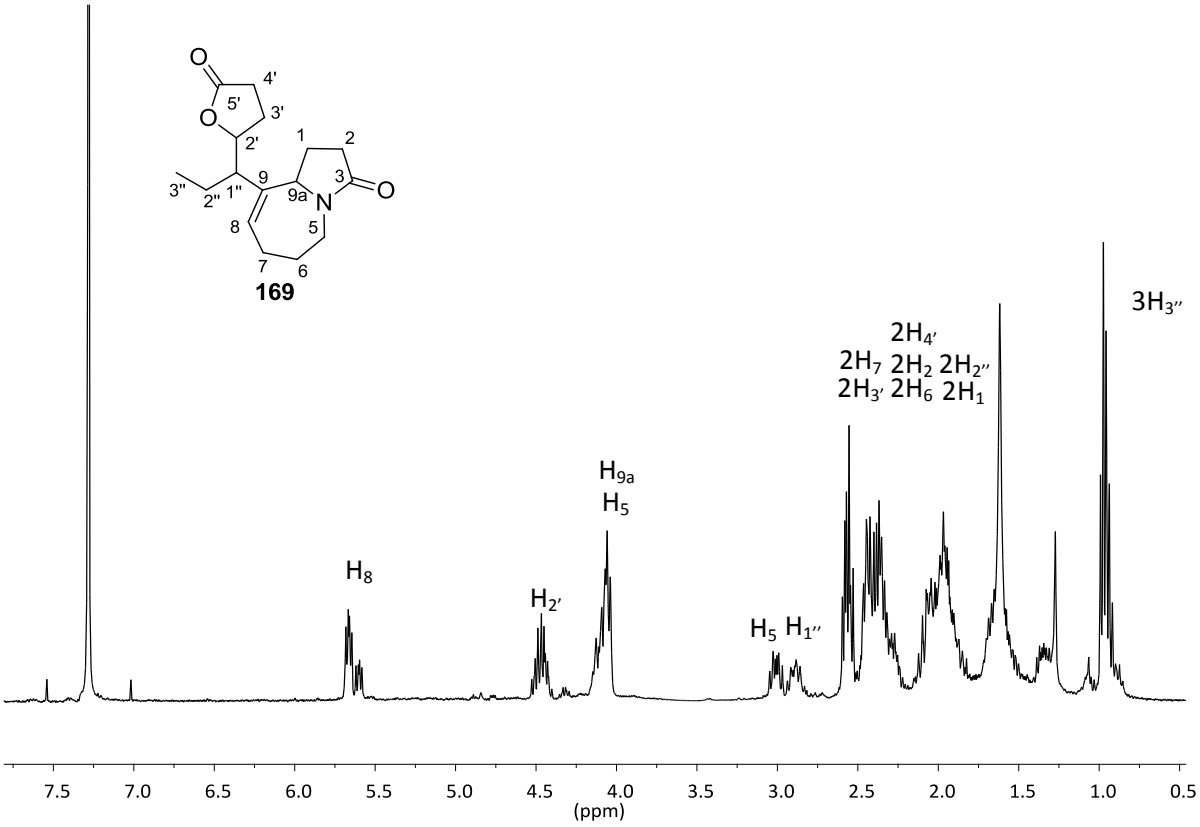
^{1}H-^{1}H COSY (250 MHz, $CDCl_3$)



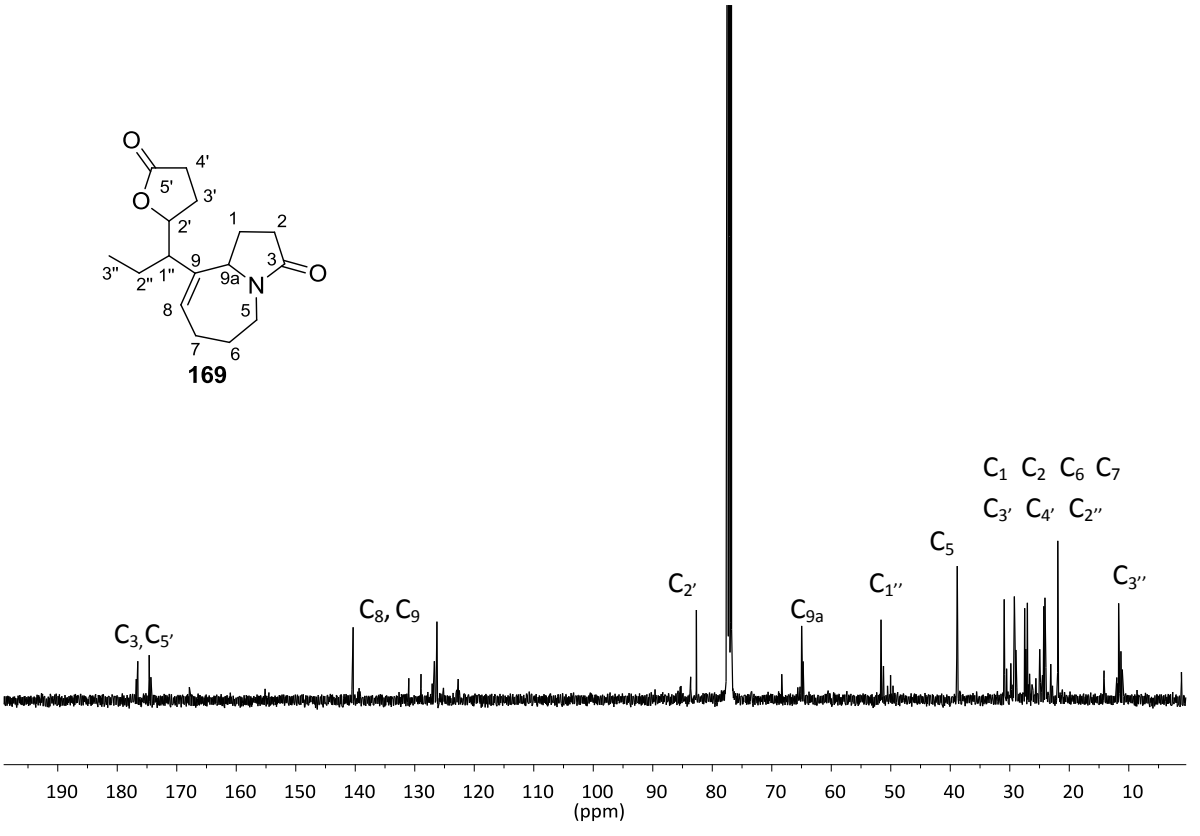
^{1}H-^{13}C HSQC$_{ed}$ (250 MHz, CDCl$_3$)



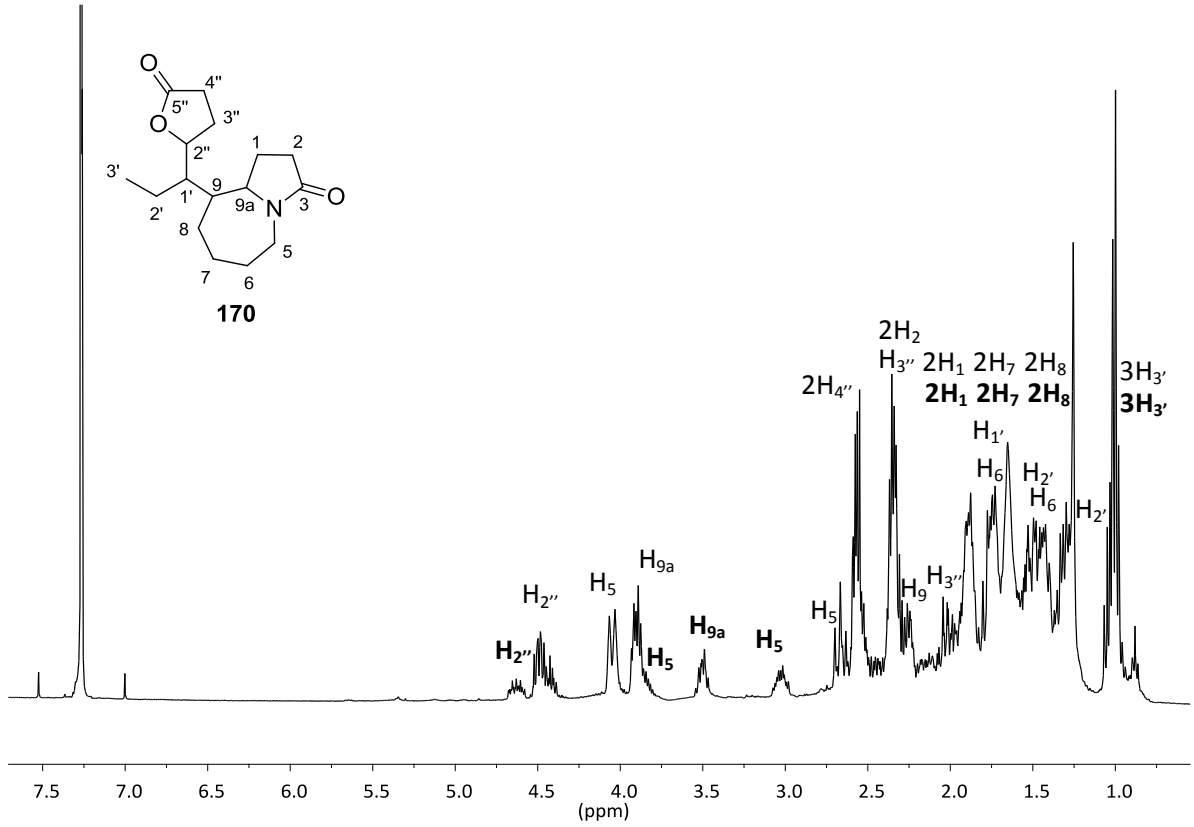
DEPT 135 (62.5 MHz, CDCl$_3$)



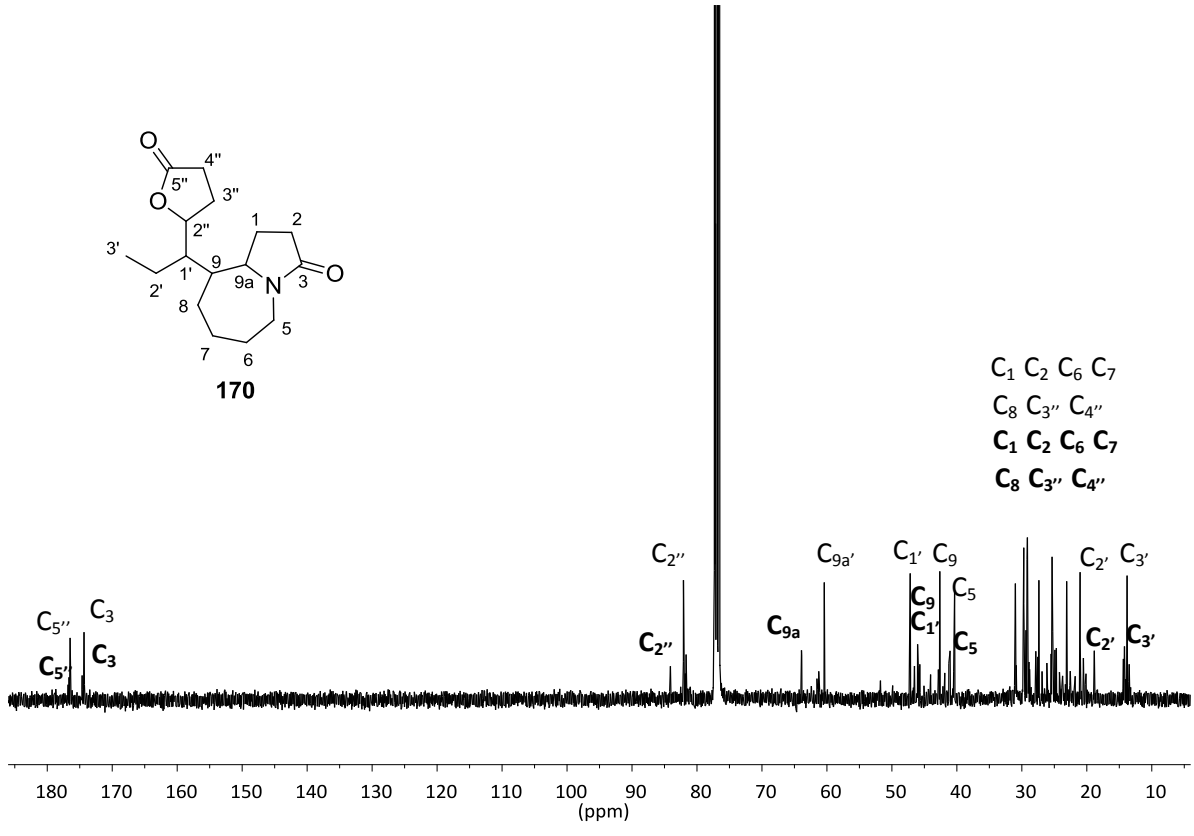
^{1}H-RMN (400 MHz, $CDCl_3$)



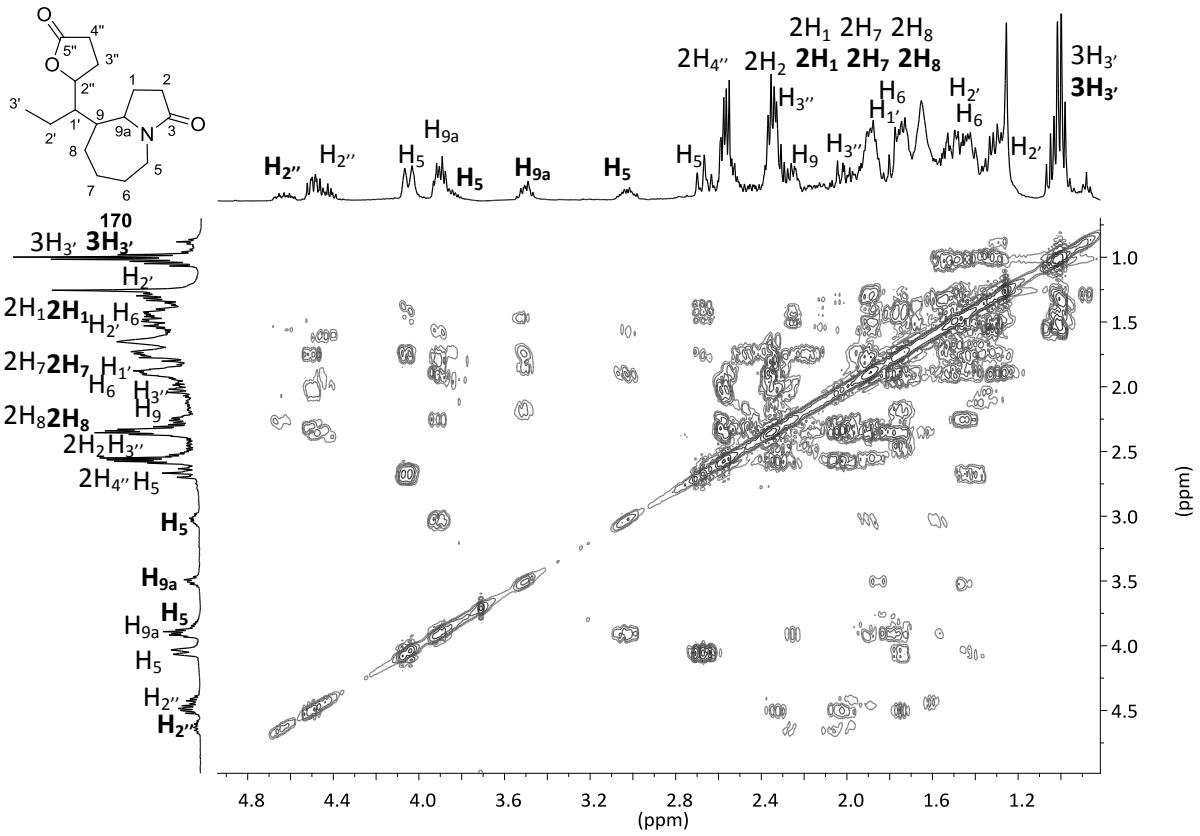
^{13}C-RMN (100 MHz, $CDCl_3$)



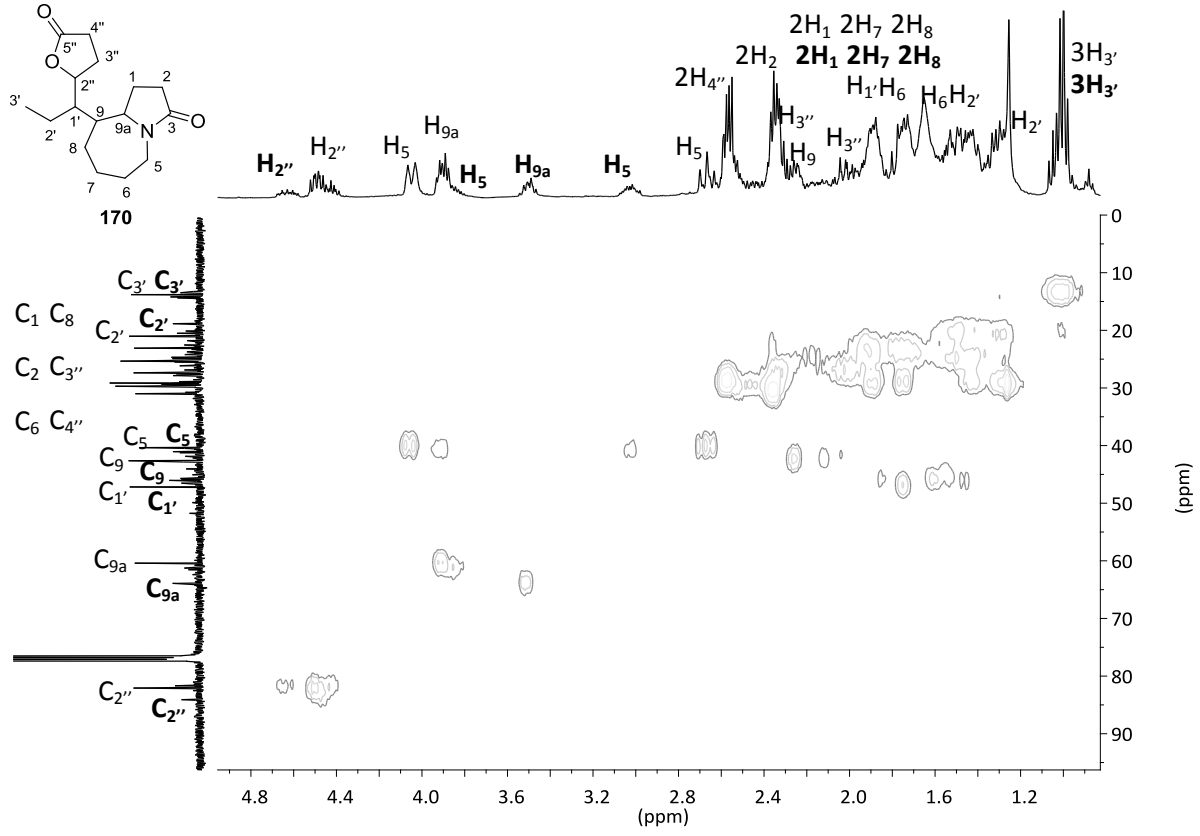
^{1}H-RMN (400 MHz, $CDCl_3$)



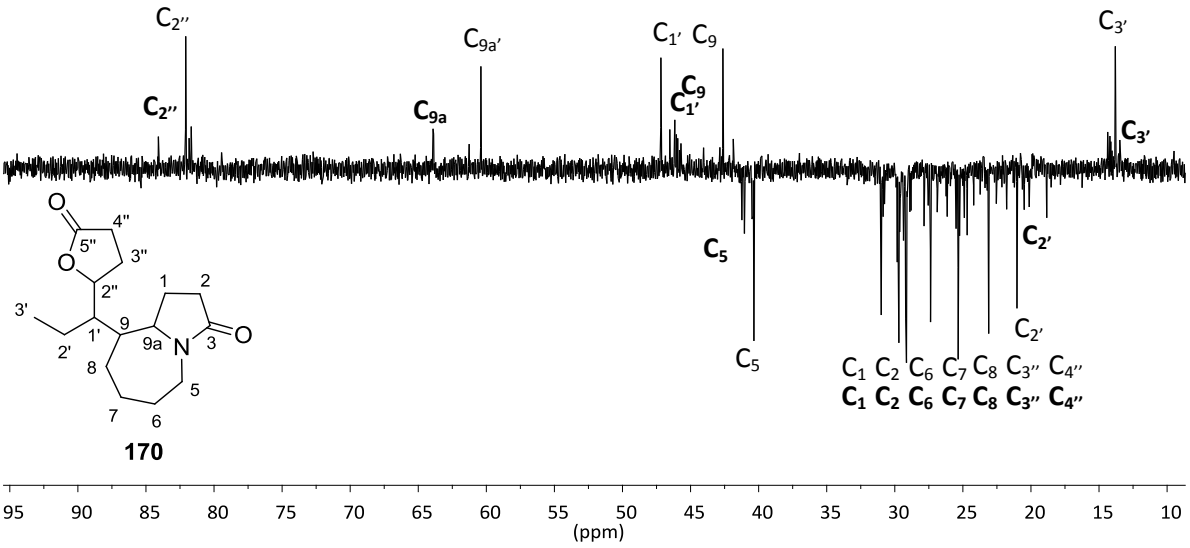
^{13}C-RMN (100 MHz, $CDCl_3$)



^{1}H-^{1}H COSY (400 MHz, $CDCl_3$)

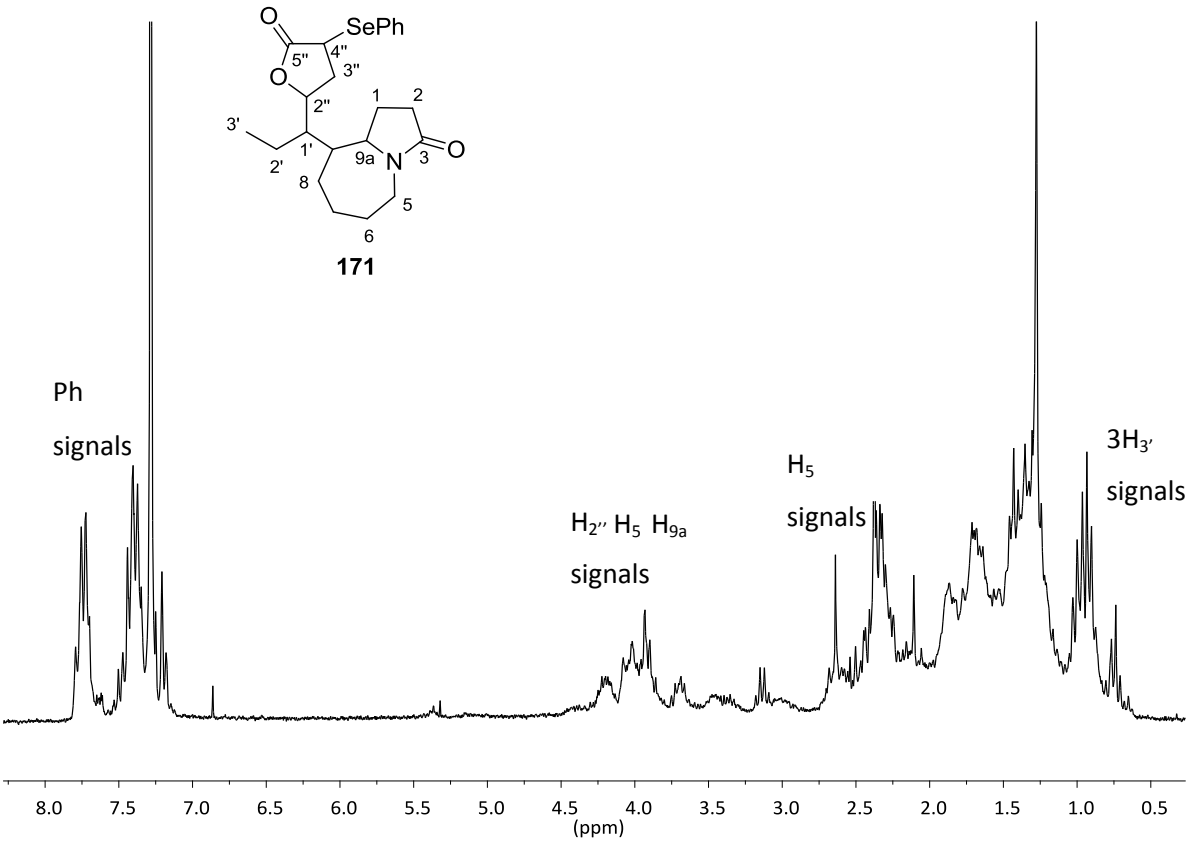


^{1}H-^{13}C HSQC (400 MHz, $CDCl_3$)



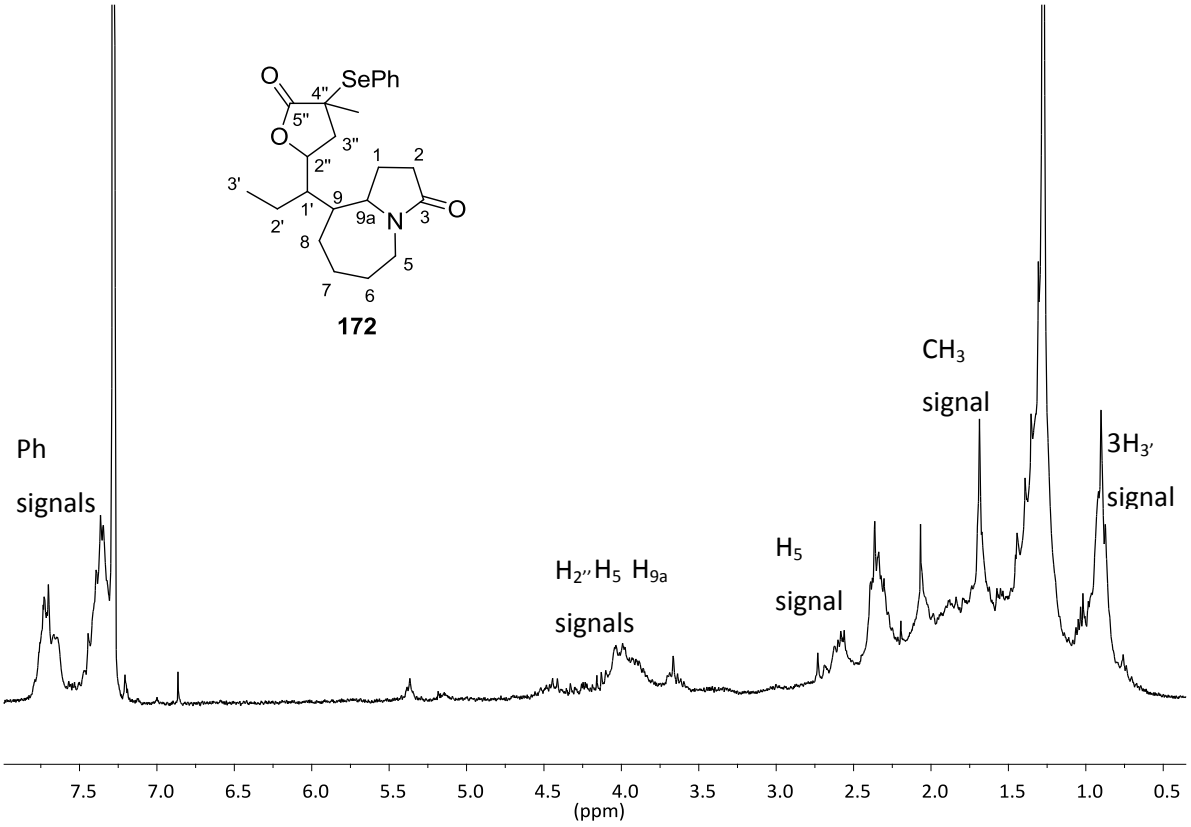
170

DEPT 135 (100 MHz, $CDCl_3$)

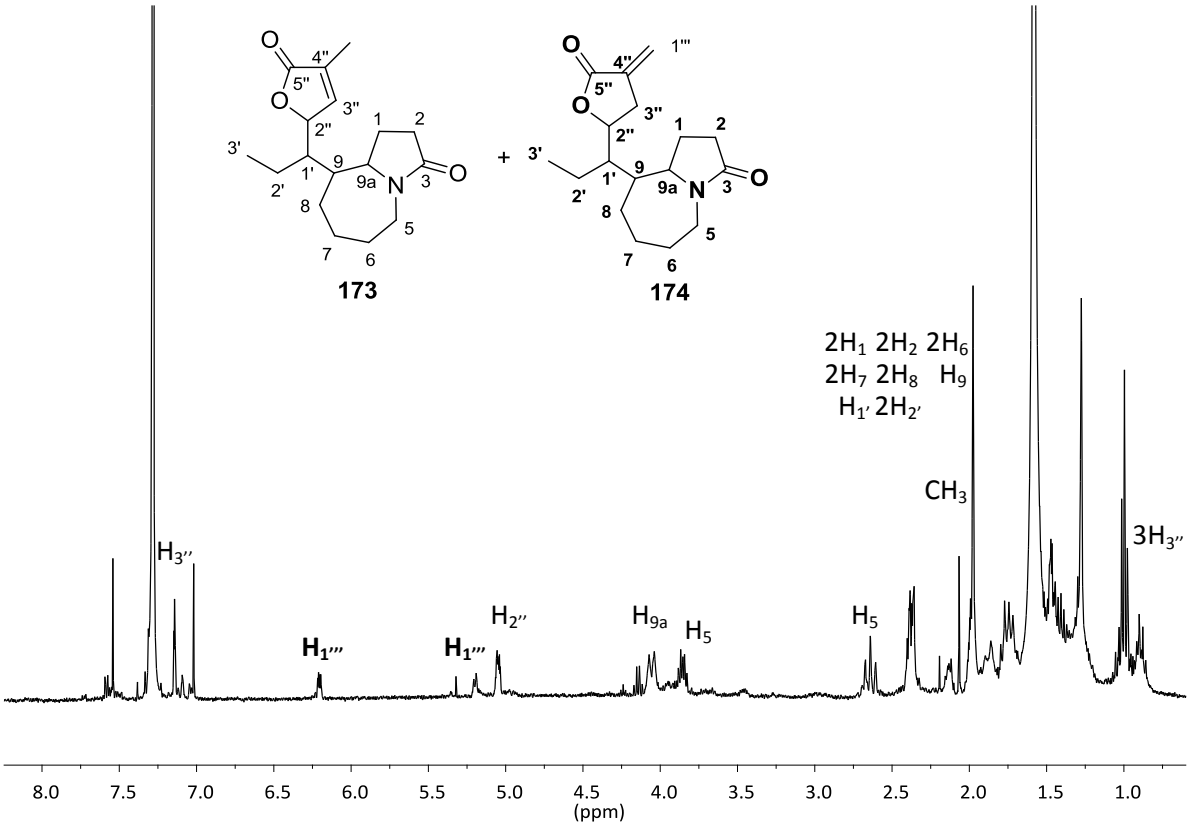


171

^{1}H-RMN (250 MHz, $CDCl_3$)



^{1}H-RMN (250 MHz, $CDCl_3$)



^{1}H-RMN (400 MHz, $CDCl_3$)