

## Supporting Informations

### **Synthesis of $\alpha$ -amino-lipophosphonates as cationic lipids or co-lipids for DNA transfection in dendritic cells**

Mathieu Berchel<sup>1\*</sup>, Sohail Akhter<sup>2,3\*</sup>, Wilfried Berthe<sup>1</sup>, Cristine Gonçalves<sup>2</sup>, Marine Dubuisson<sup>2</sup>,  
Chantal Pichon<sup>2</sup>, Paul-Alain Jaffrès<sup>1</sup> and Patrick Midoux<sup>2</sup>

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Supplementary information (SI)

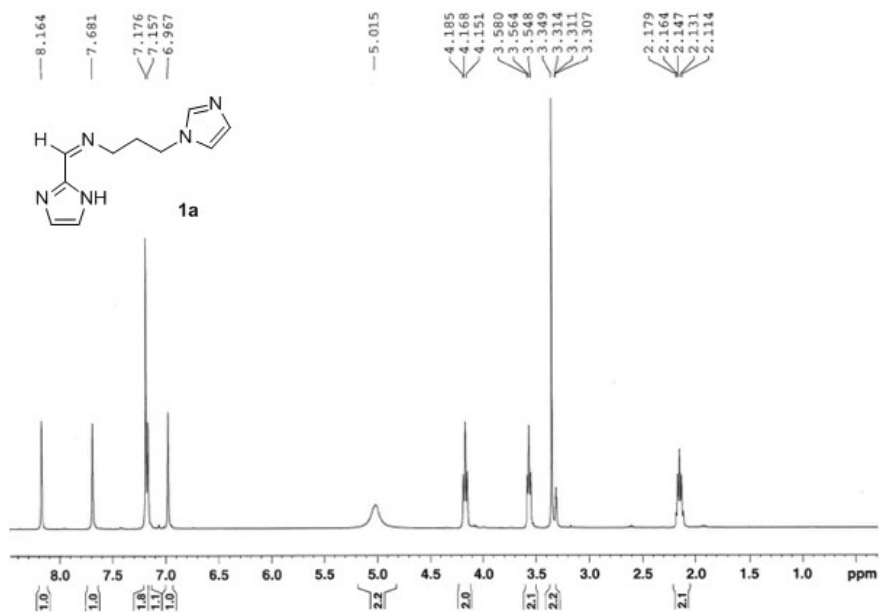
**SI; S-1:  $^1\text{H}$ ,  $^{31}\text{P}$ , &  $^{13}\text{C}$  NMR spectra**

**SI; S-2: Evaluation of the stability of compounds 5a in acidic media**

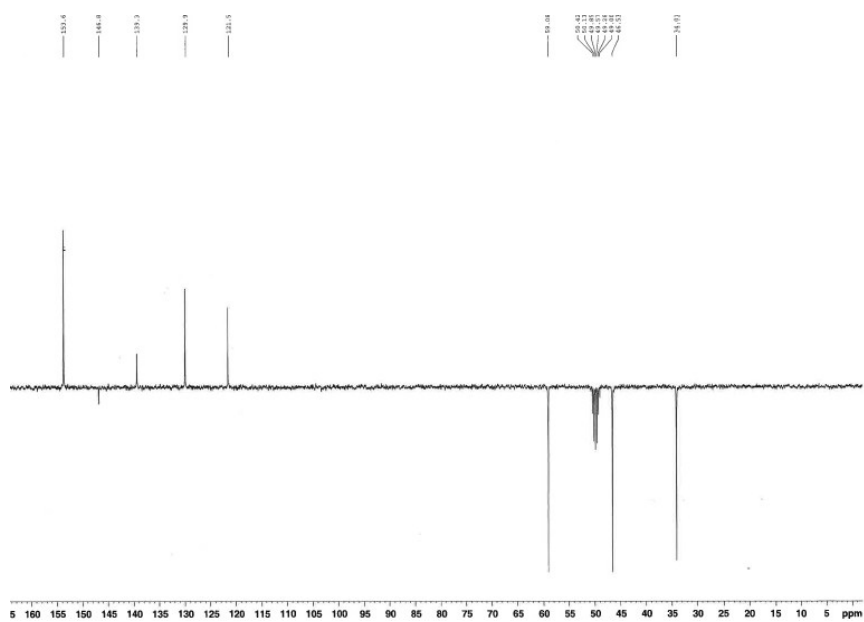
**SI; S-3: Evaluation of the stability of compounds 5b in acidic media**

## SI; S-1: $^1\text{H}$ , $^{31}\text{P}$ , & $^{13}\text{C}$ NMR spectra of new compounds

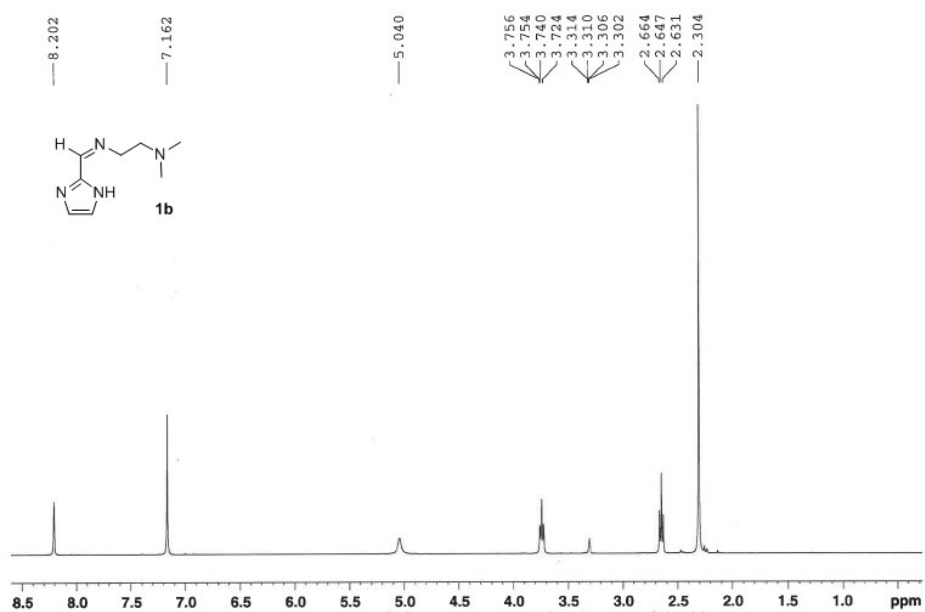
$^1\text{H}$  NMR (400 MHz,  $\text{CD}_3\text{OD}$ ) of compound **1a**.



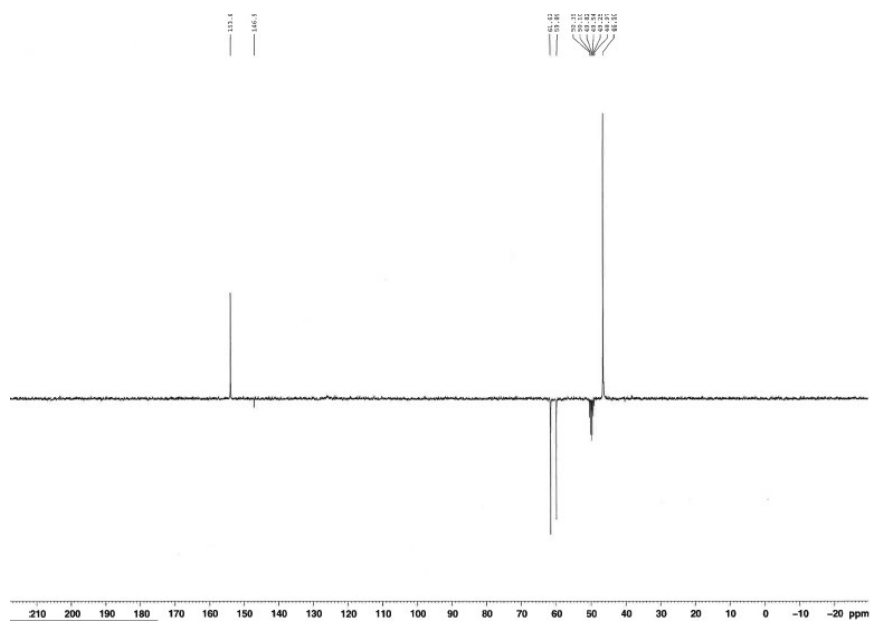
$^{13}\text{C}$  NMR (125 MHz,  $\text{CD}_3\text{OD}$ ) of compound **1a**.



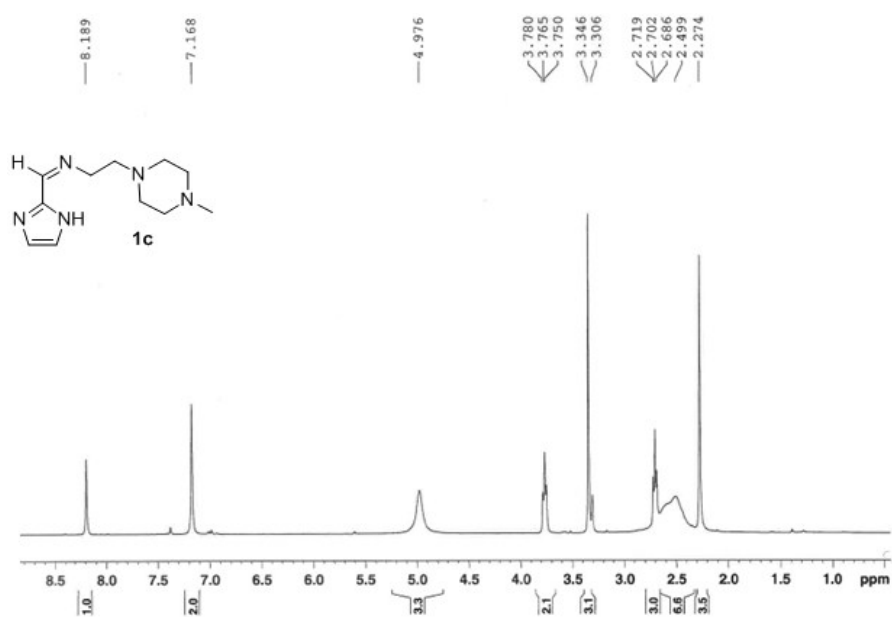
**<sup>1</sup>H NMR (400 MHz, CD<sub>3</sub>OD) of compound **1b**.**



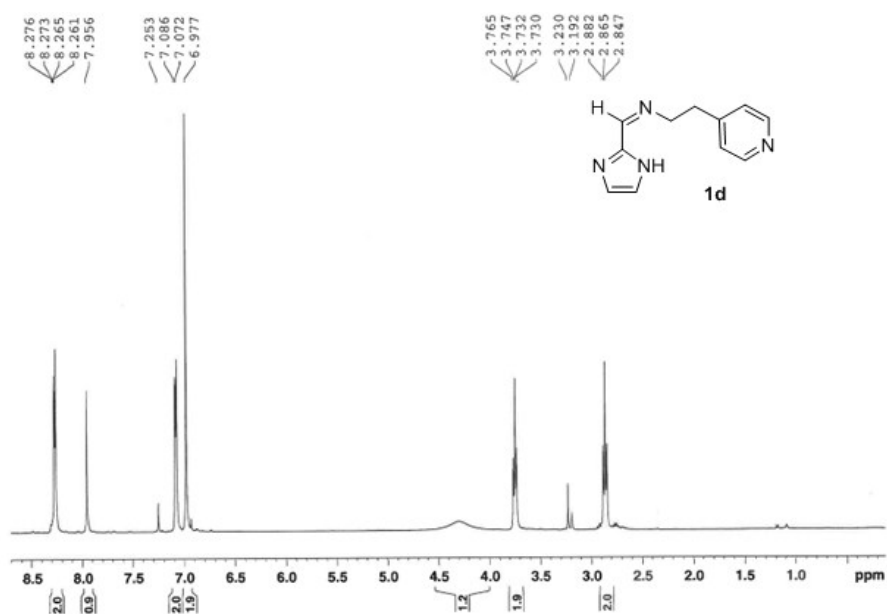
**<sup>13</sup>C NMR (125 MHz, CD<sub>3</sub>OD) of compound **1b**.**



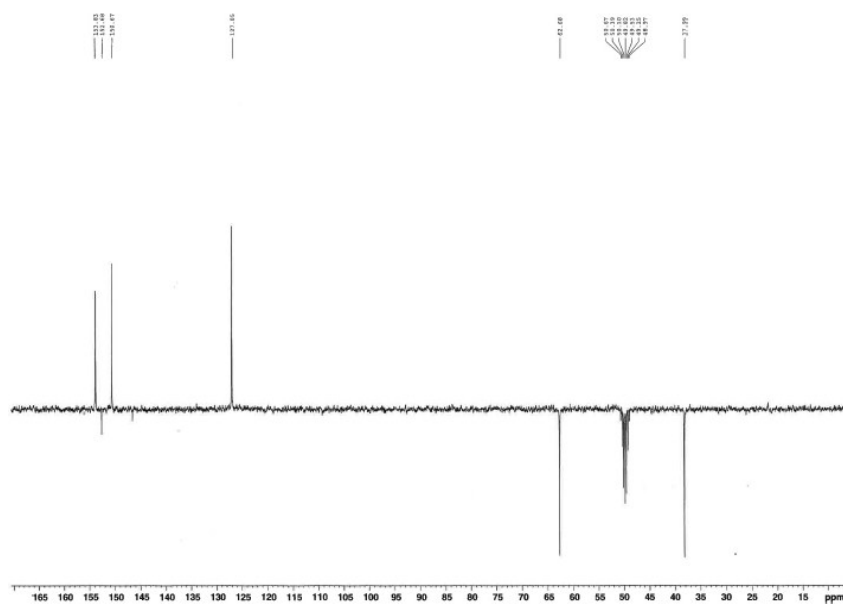
**<sup>1</sup>H NMR (400 MHz, CD<sub>3</sub>OD) of compound **1c**.**



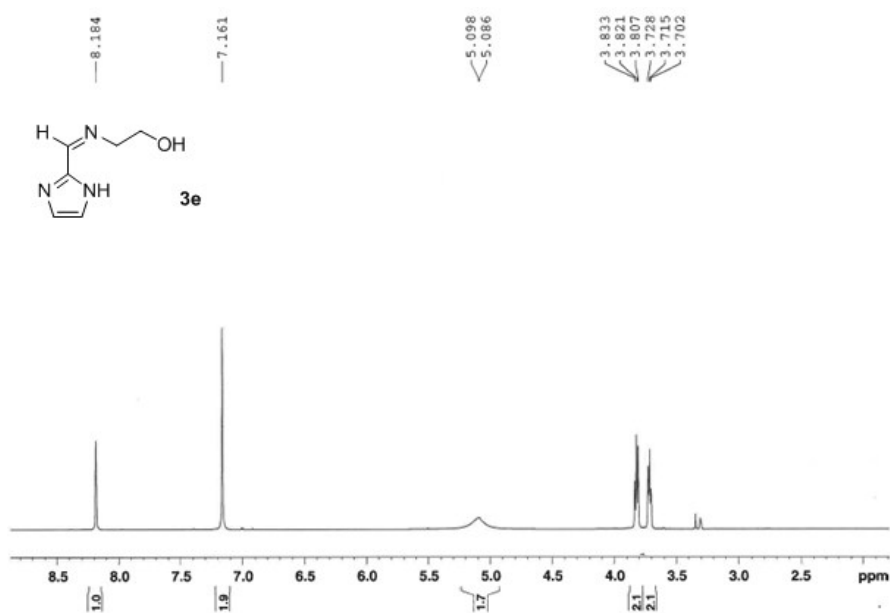
**<sup>1</sup>H NMR (400 MHz, CD<sub>3</sub>OD) of compound **1d**.**



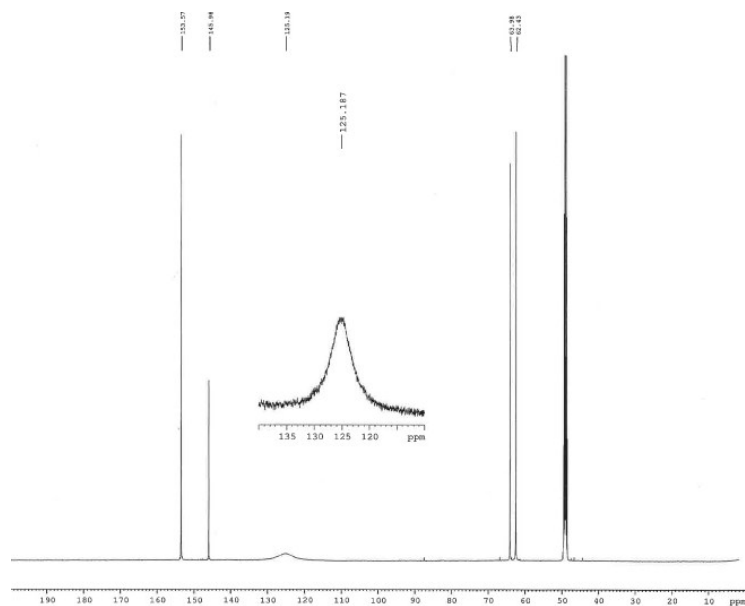
**<sup>13</sup>C NMR** (125 MHz, CD<sub>3</sub>OD) of compound **1d**.



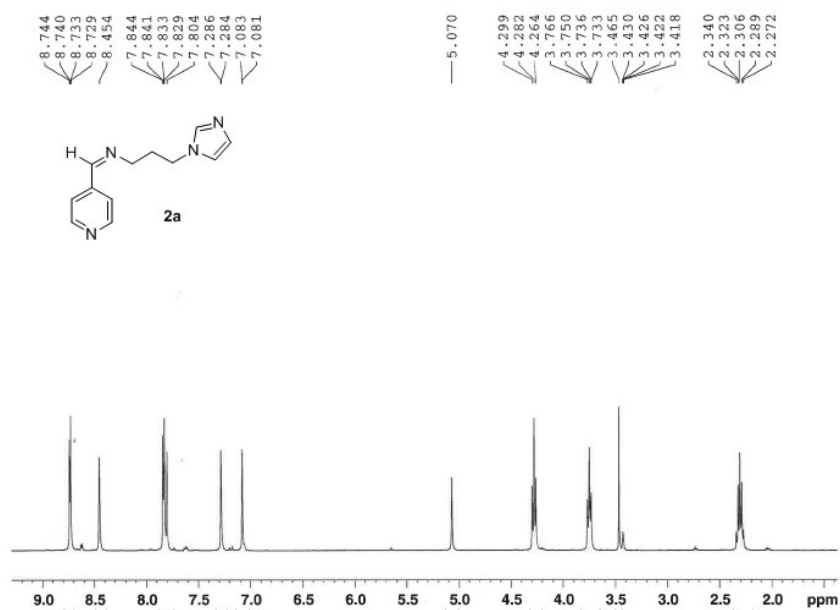
**<sup>1</sup>H NMR** (400 MHz, CD<sub>3</sub>OD) of compound **1e**.



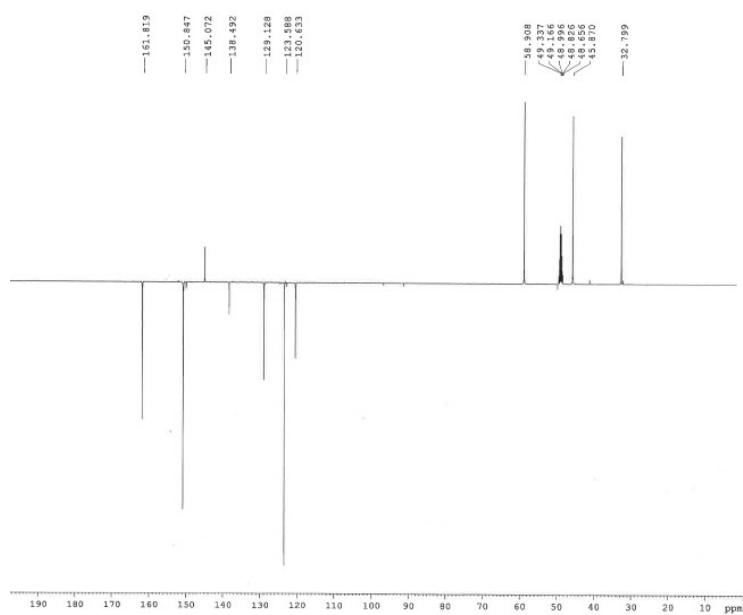
**$^{13}\text{C}$  NMR** (125 MHz,  $\text{CDCl}_3$ ) of compound **3e**.



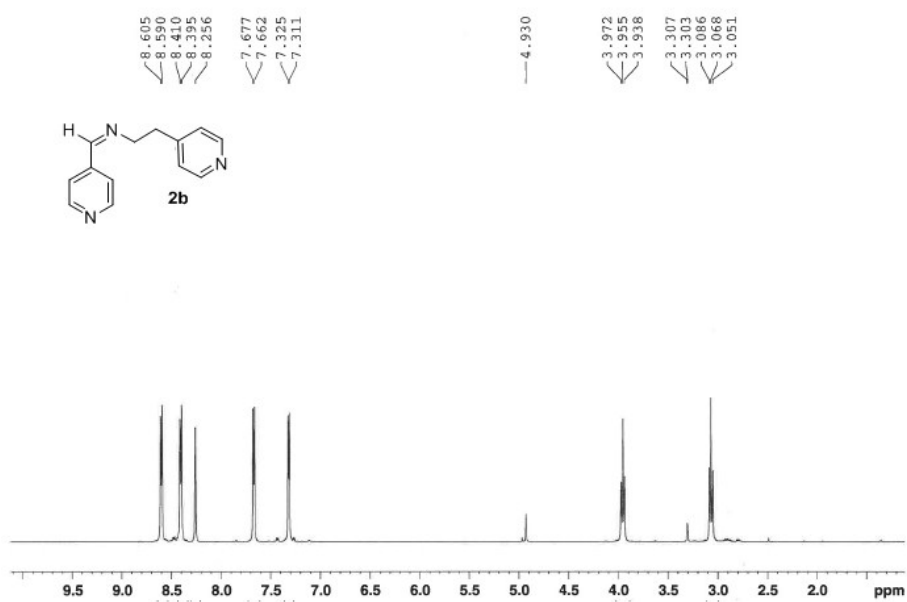
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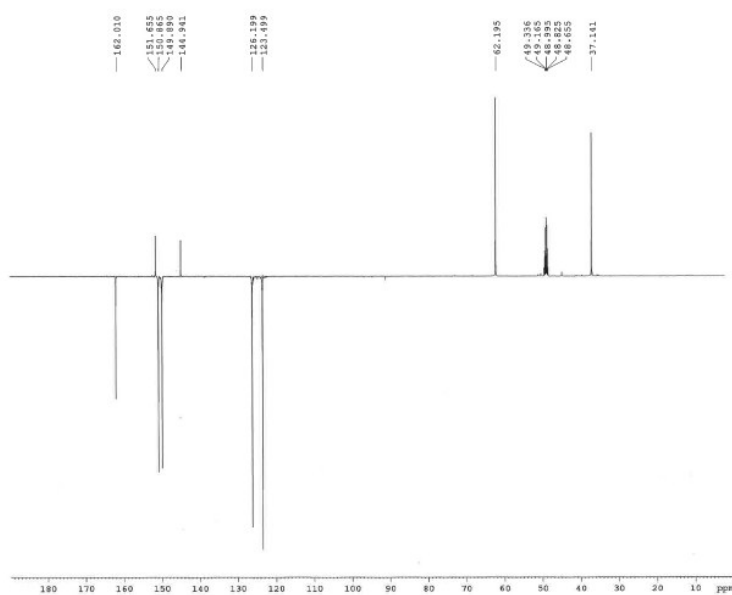
**$^{13}\text{C}$  NMR (125 MHz,  $\text{CDCl}_3$ ) of compound **2a**.**



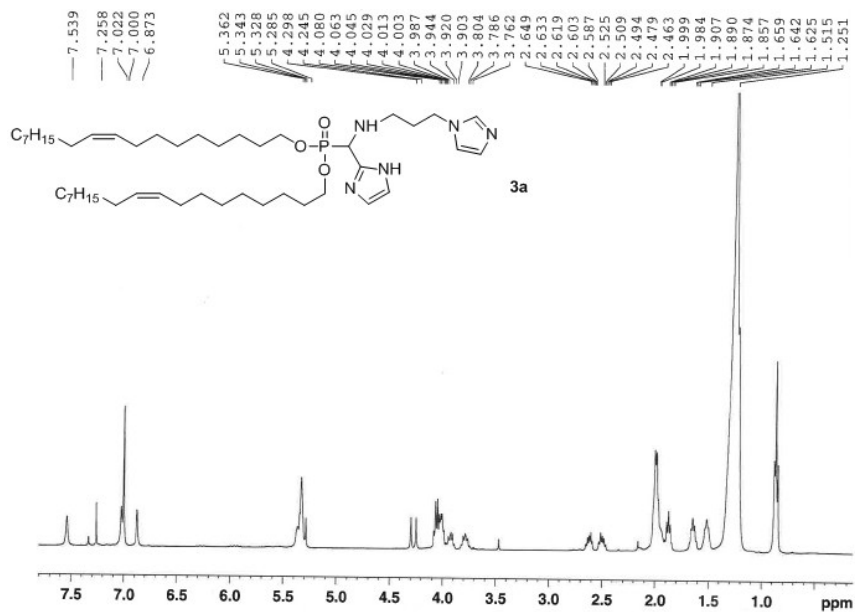
**$^1\text{H}$  NMR (400 MHz,  $\text{CD}_3\text{OD}$ ) of compound **2b**.**



**$^{13}\text{C}$  NMR (125 MHz,  $\text{CDCl}_3$ ) of compound **2b**.**

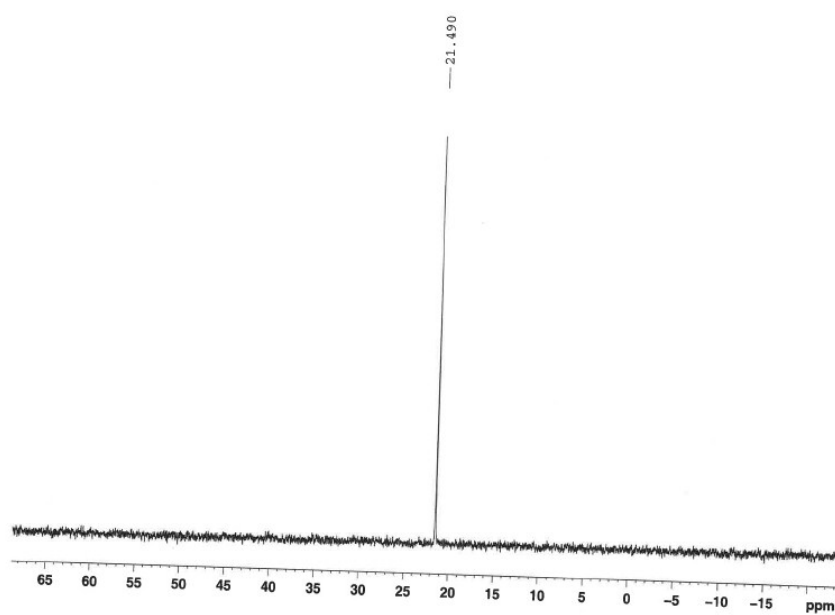


**$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) of compound **3a**.**

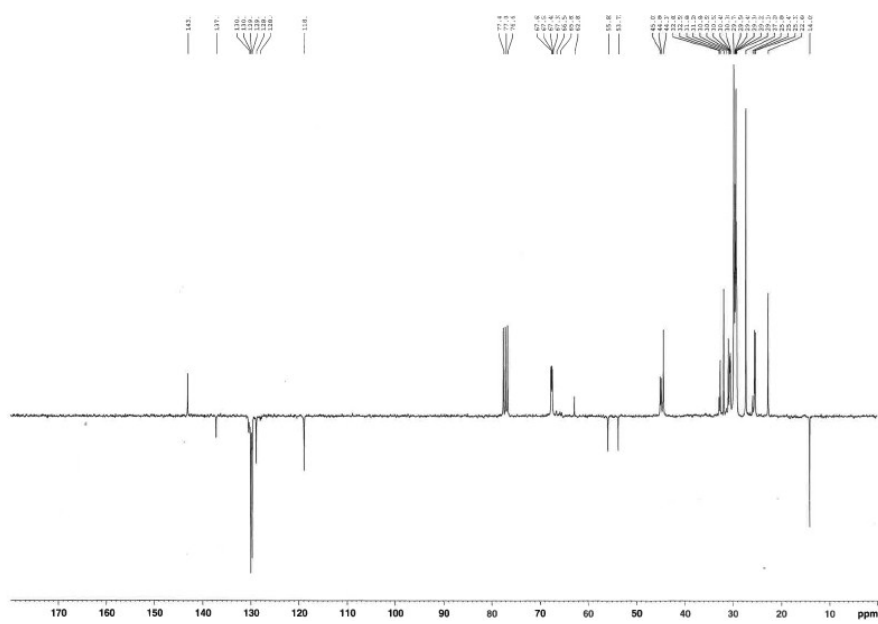




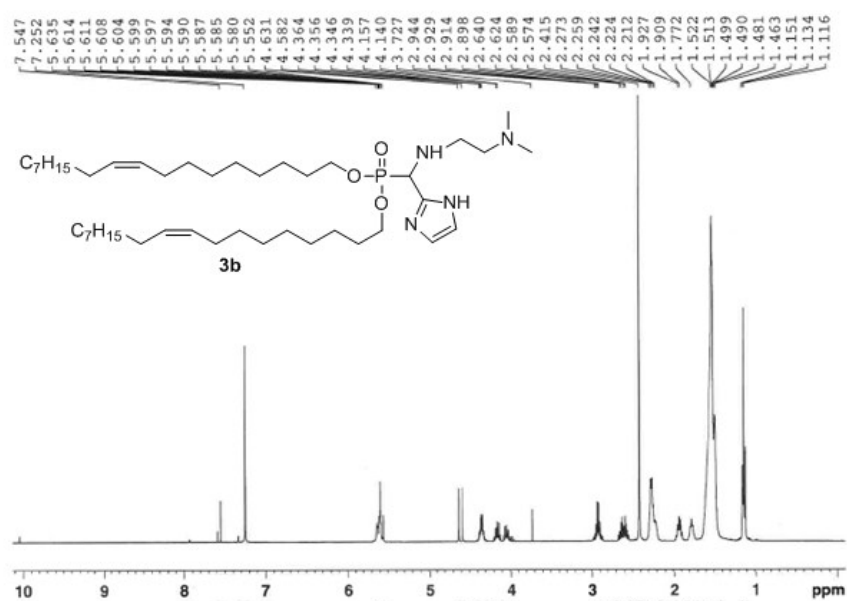
**$^{31}\text{P}$  NMR (162 MHz,  $\text{CDCl}_3$ ) of compound **3a**.**



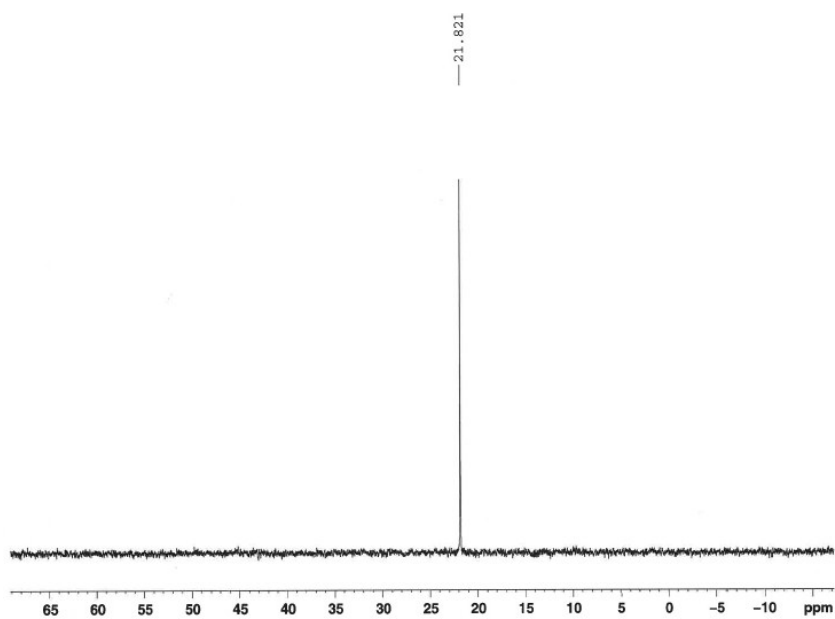
**$^{13}\text{C}$  NMR (125 MHz,  $\text{CDCl}_3$ ) of compound **3a**.**



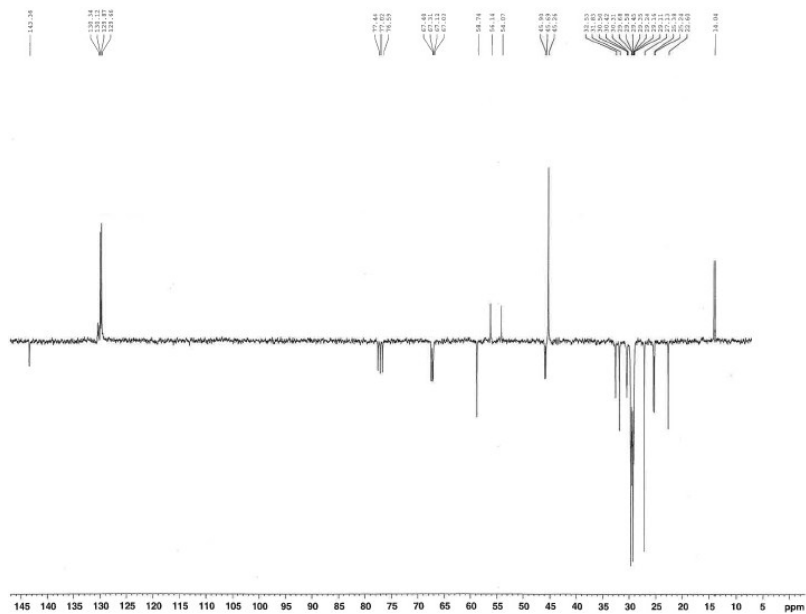
**$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) of compound **3b**.**



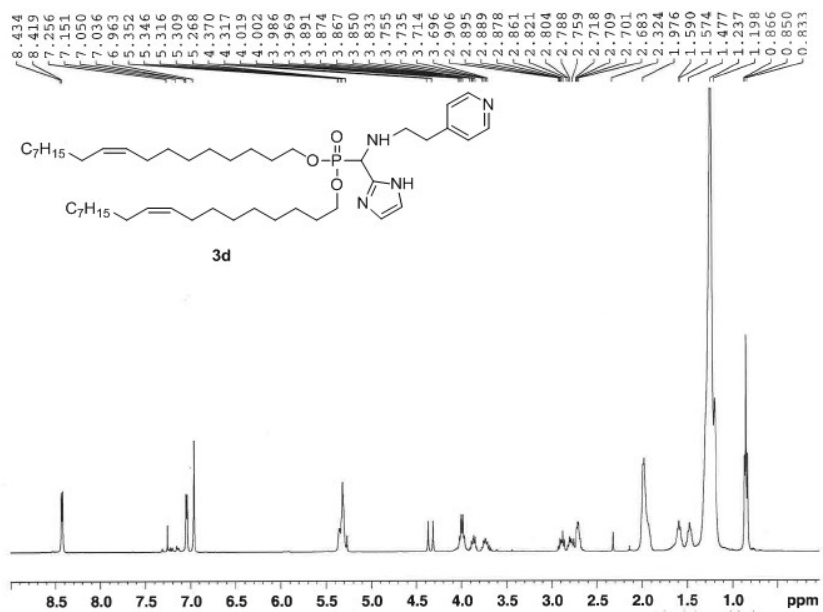
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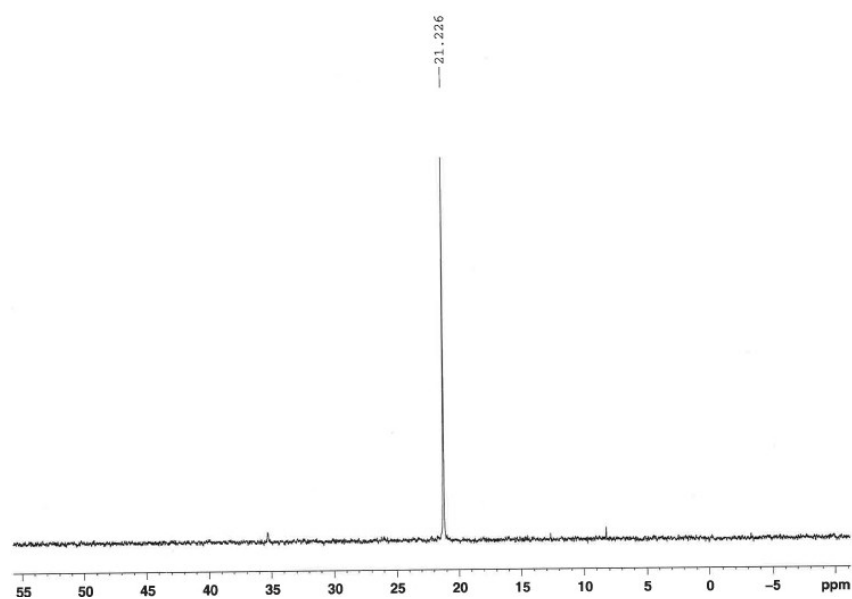
**<sup>13</sup>C NMR** (125 MHz, CDCl<sub>3</sub>) of compound **3b**.



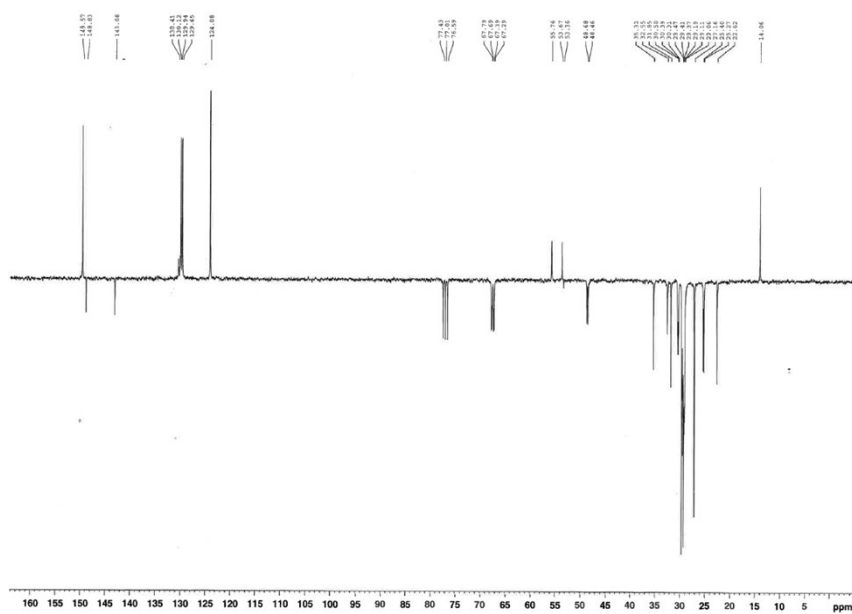
**<sup>1</sup>H NMR** (400 MHz, CDCl<sub>3</sub>) of compound **3d**.



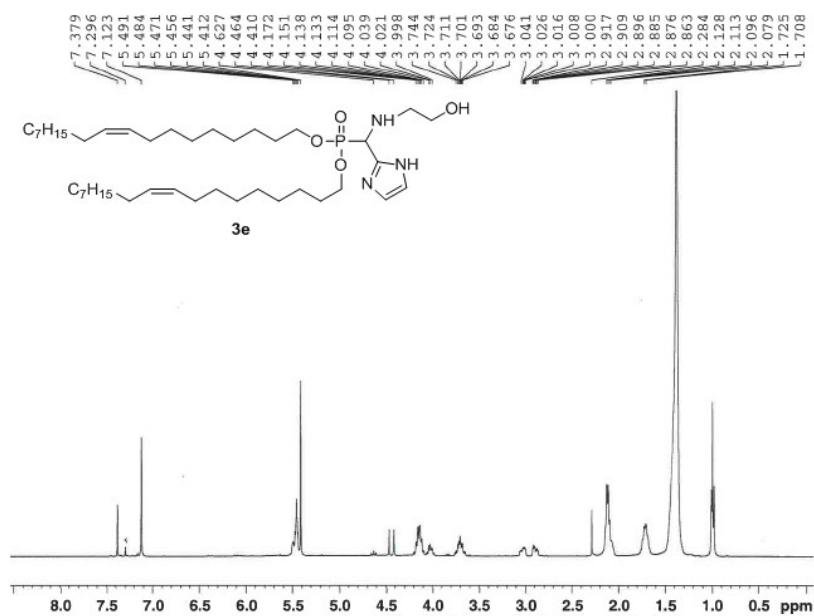
**$^{31}\text{P}$  NMR** (162 MHz,  $\text{CDCl}_3$ ) of compound **3d**.



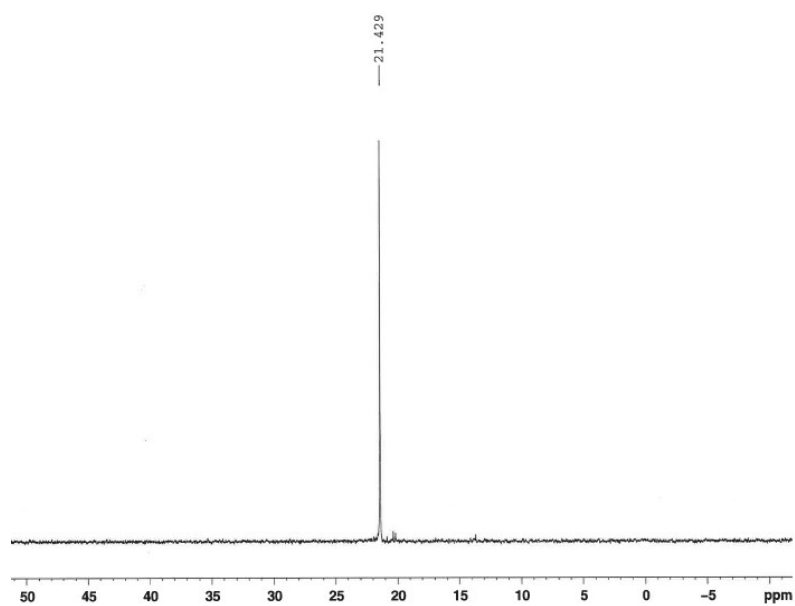
**$^{13}\text{C}$  NMR** (125 MHz,  $\text{CDCl}_3$ ) of compound **3d**.



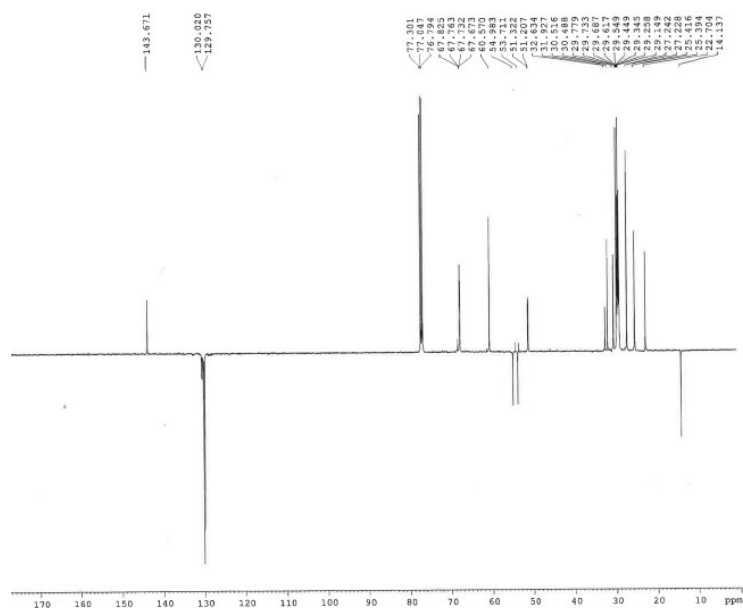
**$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) of compound **3e**.**



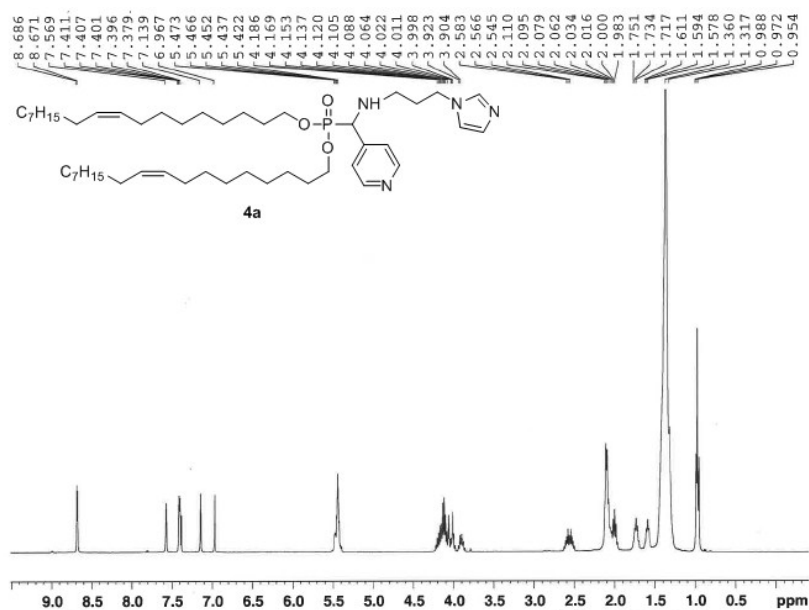
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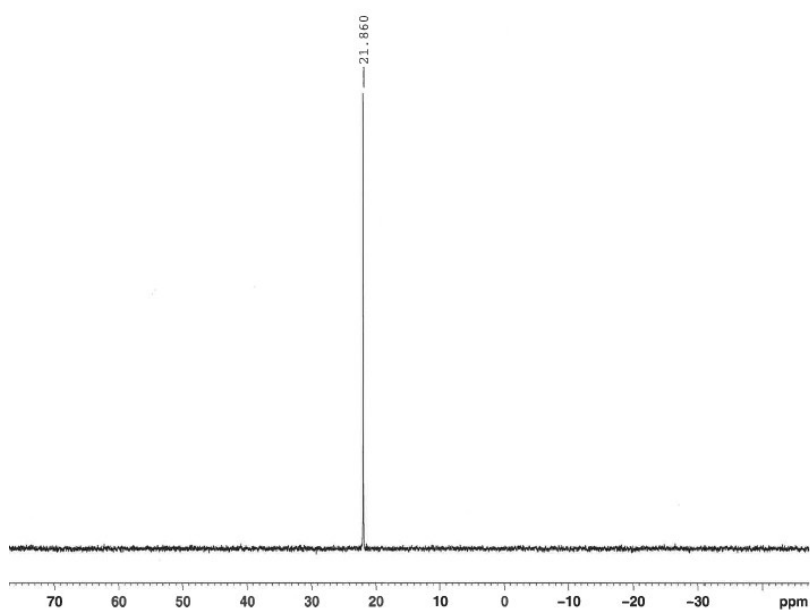
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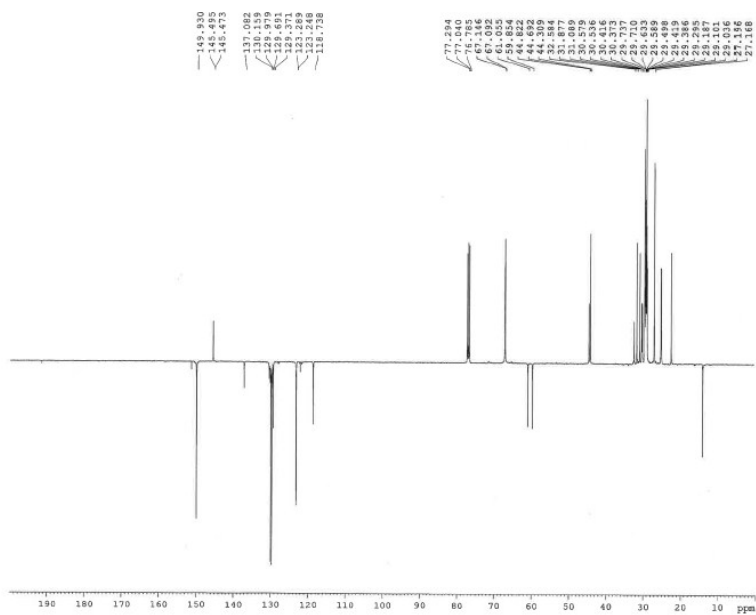
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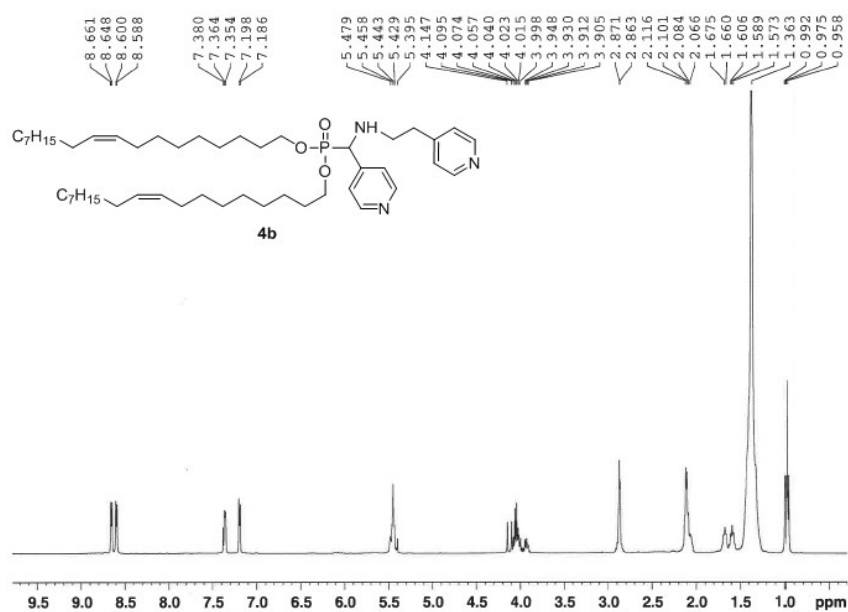
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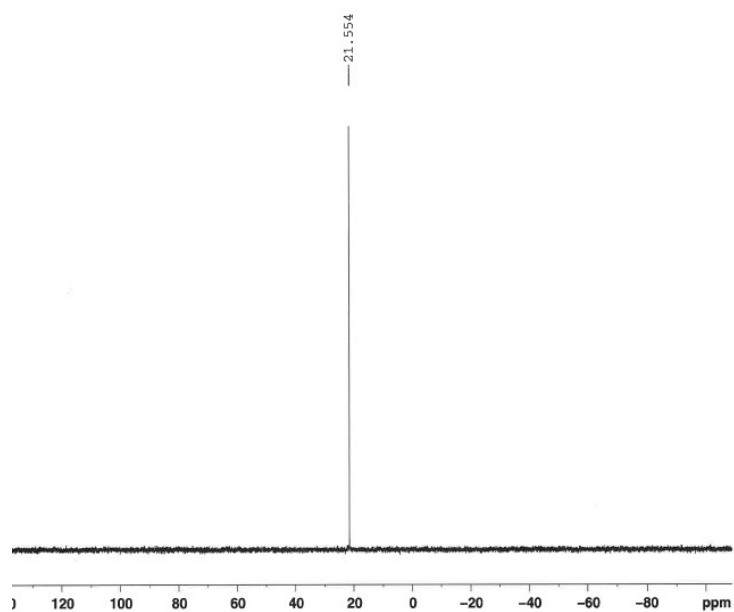
**$^{13}\text{C}$  NMR (125 MHz,  $\text{CDCl}_3$ ) of compound **4a**.**



**$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) of compound **4b**.**

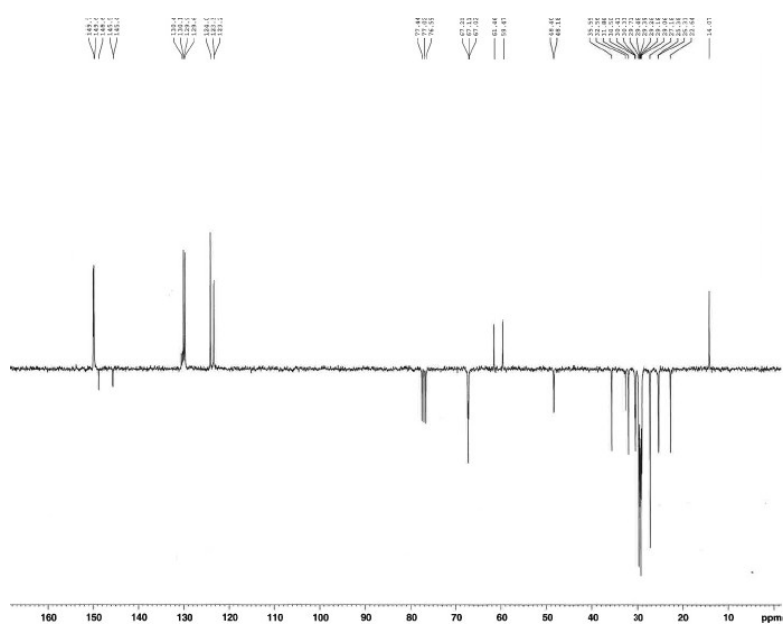


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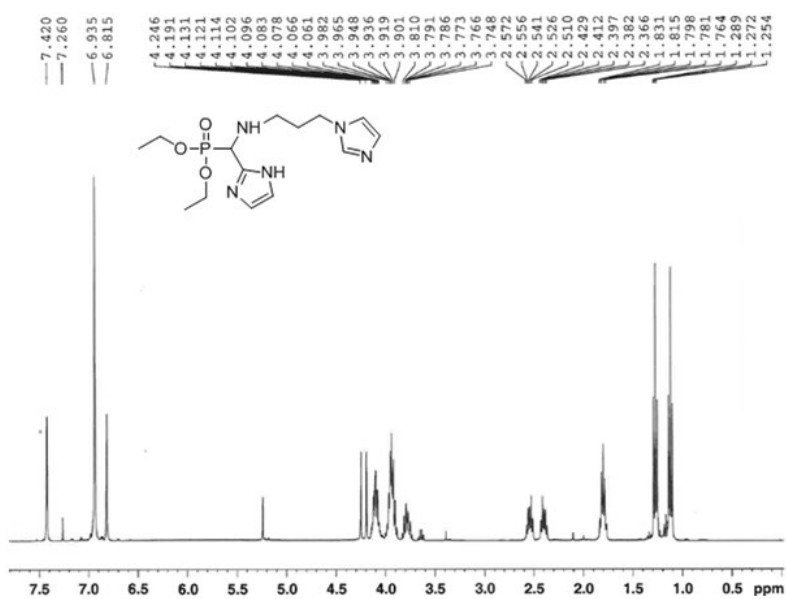




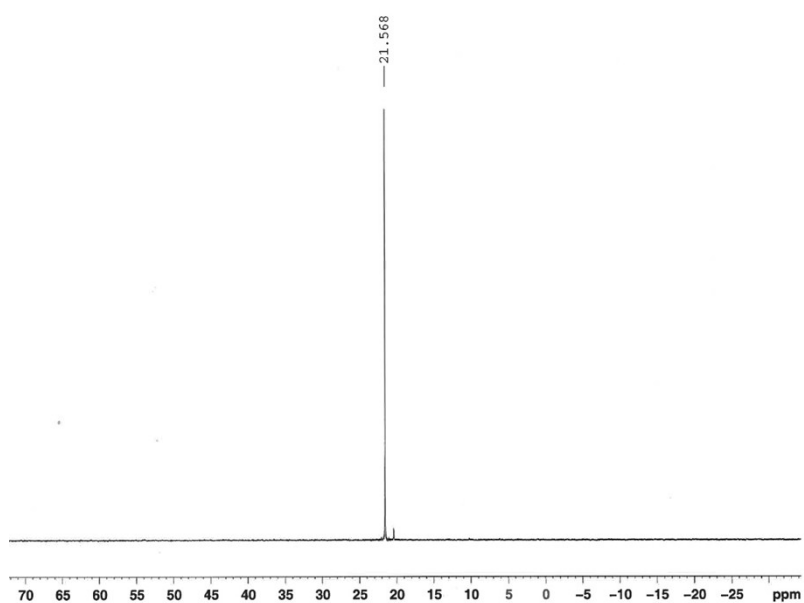
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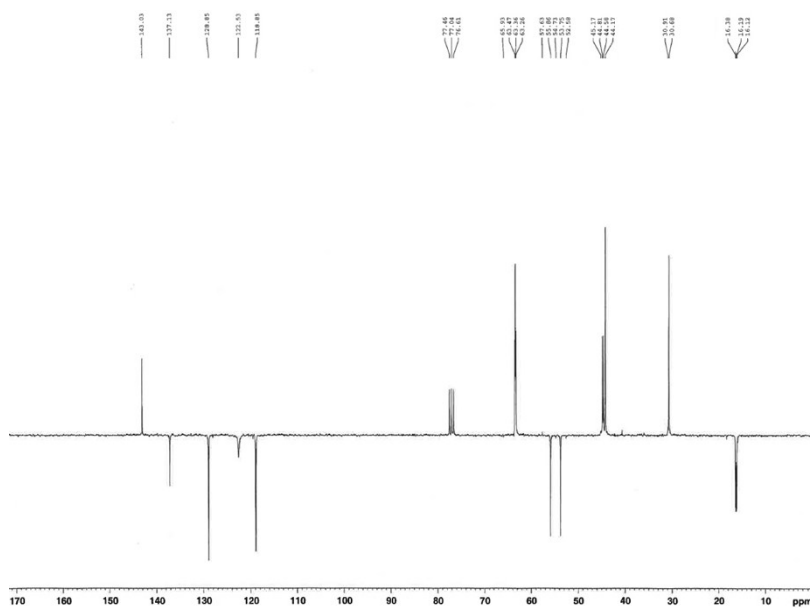
**$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) of compound **5a**.**



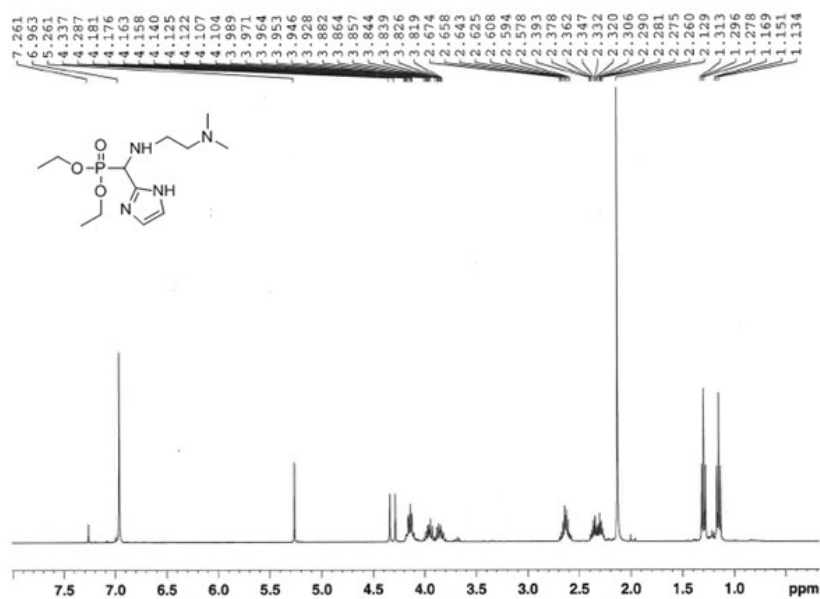
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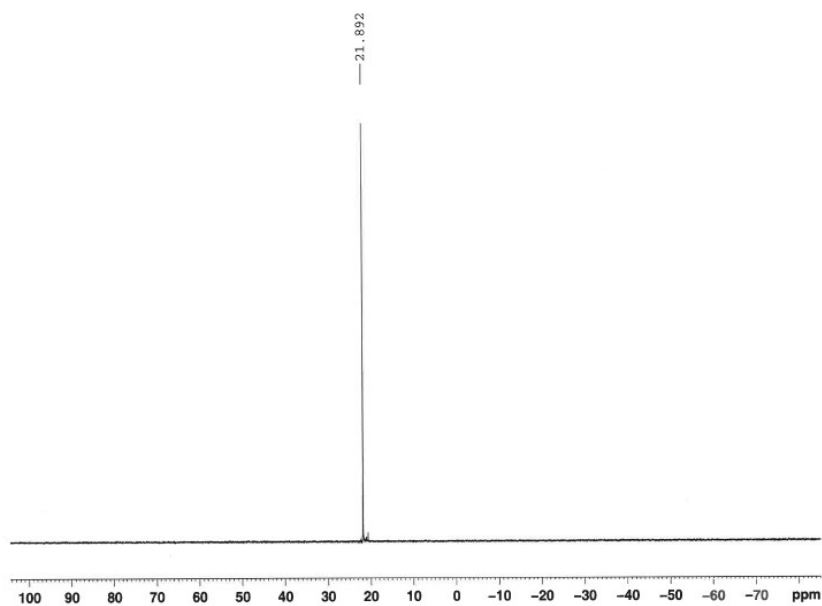
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**$^1\text{H}$  NMR (400 MHz,  $\text{CDCl}_3$ ) of compound **5b**.**

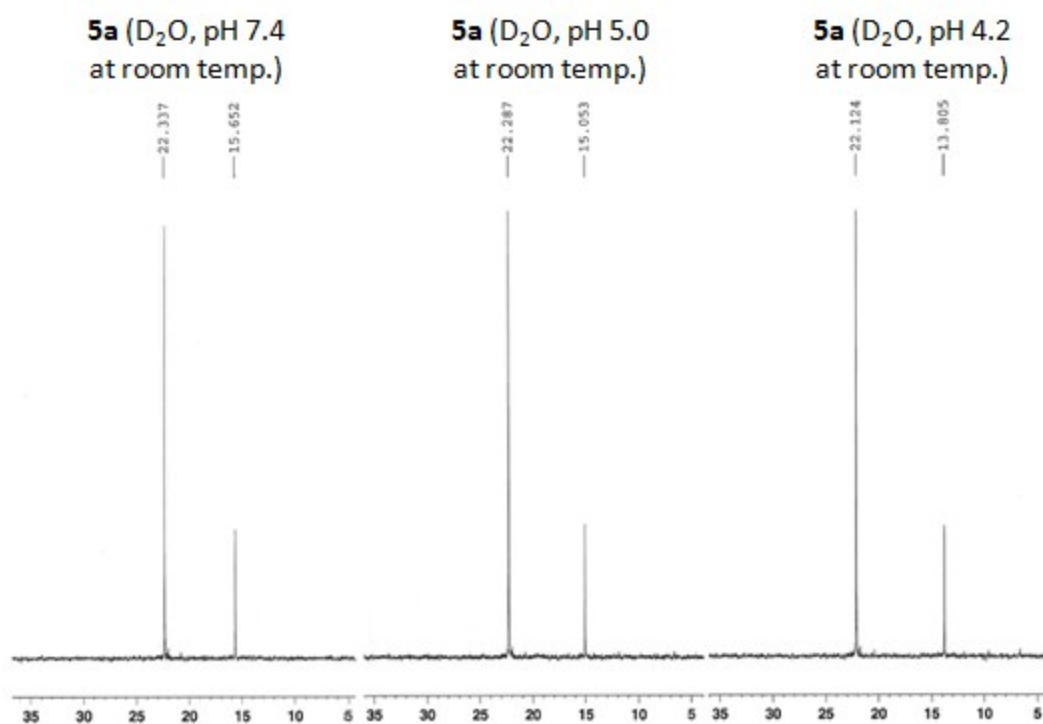


**$^{31}\text{P}$  NMR (162 MHz,  $\text{CDCl}_3$ ) of compound **5b**.**

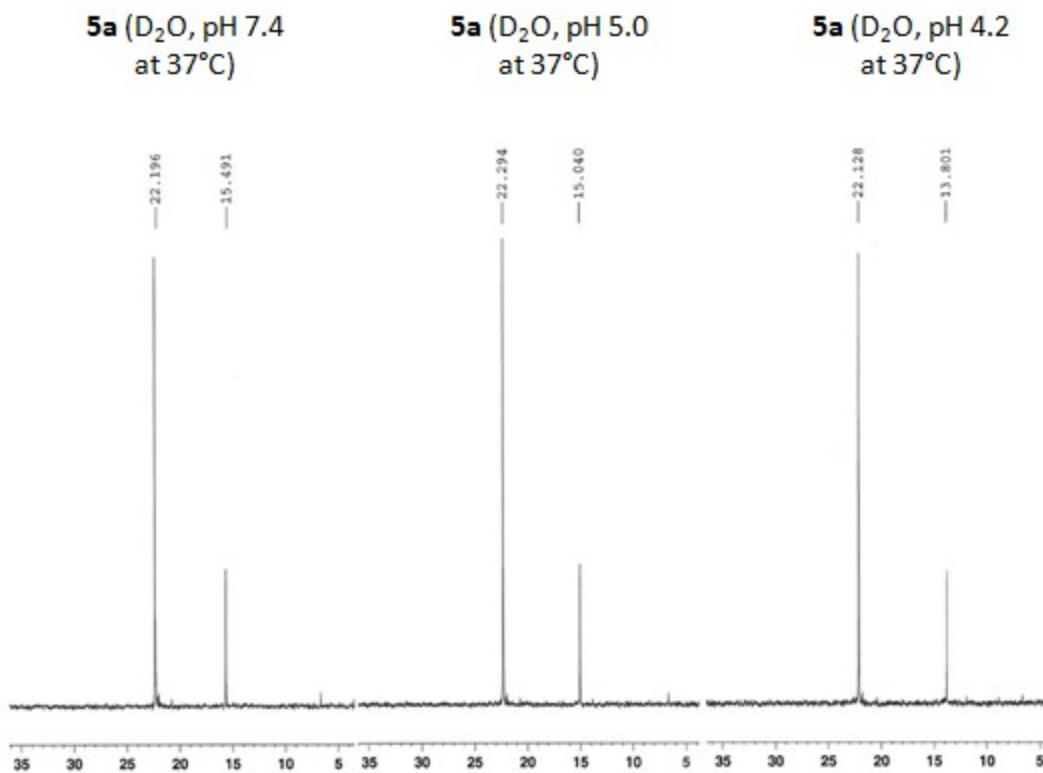


## SI; S-2: Evaluation of the stability of compounds 5a in acidic media

1- At room temperature at  $t_0$  (in acetate buffer, D<sub>2</sub>O as internal probe)

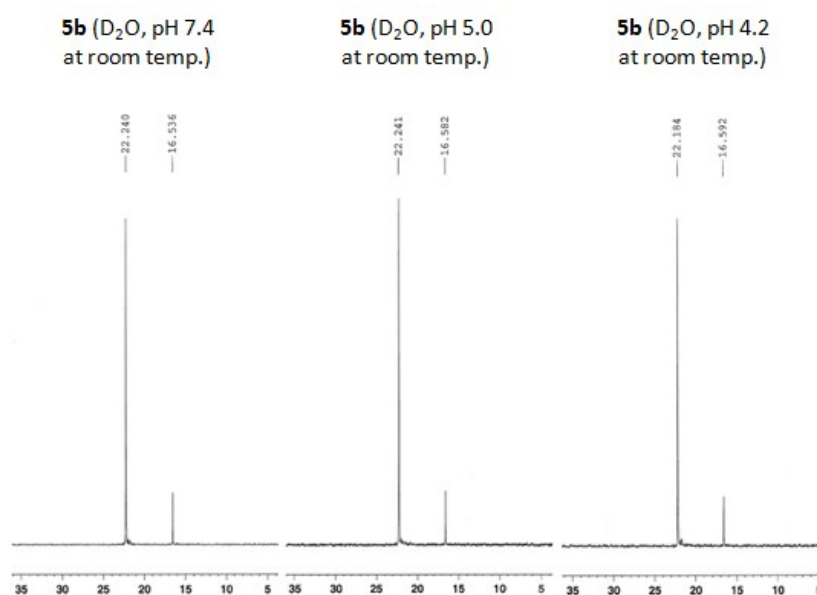


2- At room temperature after 5h at 37°C (in acetate buffer, D<sub>2</sub>O as internal probe)



## SI; S-3: Evaluation of the stability of compounds **5b** in acidic media

1- At room temperature at  $t_0$  (in acetate buffer,  $D_2O$  as internal probe)



2- At room temperature after 5h at 37°C (in acetate buffer,  $D_2O$  as internal probe)

