

## Supplementary Material

### Synthesis of [28-<sup>13</sup>C]-24-methylenecholesterol using 1-*tert*-butyl-1*H*-tetrazol-5-yl [<sup>13</sup>C]-methyl sulfone to methylenate an isopropyl ketone intermediate

Eliseo E. Quiroz,<sup>a</sup> Pannaporn Prapapongpan,<sup>a</sup> Gunnar Resch,<sup>a</sup> Priyadarshini Chakrabarti,<sup>b,c</sup>  
Ramesh R. Sagili,<sup>c</sup> and Paul R. Blakemore<sup>a,\*</sup>

<sup>a</sup>*Department of Chemistry, Oregon State University, Corvallis, OR 97331, USA*

<sup>b</sup>*Department of Biochemistry, Molecular Biology, Entomology and Plant Pathology, Mississippi State University, Mississippi State, MS 39768, USA*

<sup>c</sup>*Department of Horticulture, Oregon State University, Corvallis, OR 97331, USA*

Email: [paul.blakemore@oregonstate.edu](mailto:paul.blakemore@oregonstate.edu)

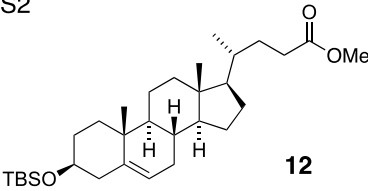
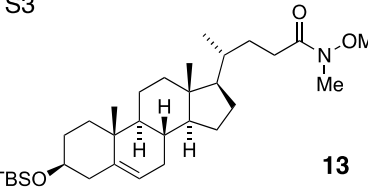
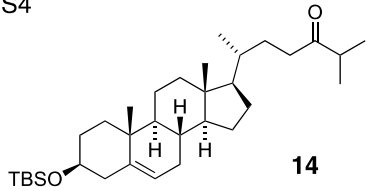
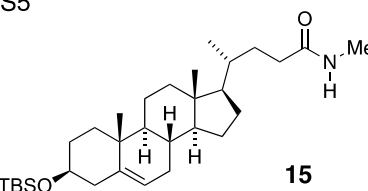
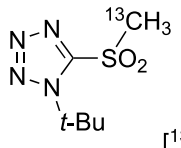
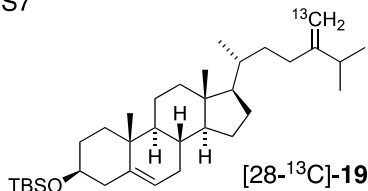
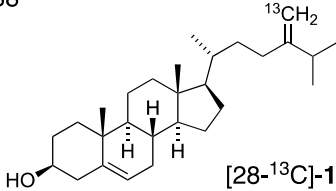
#### Table of Contents

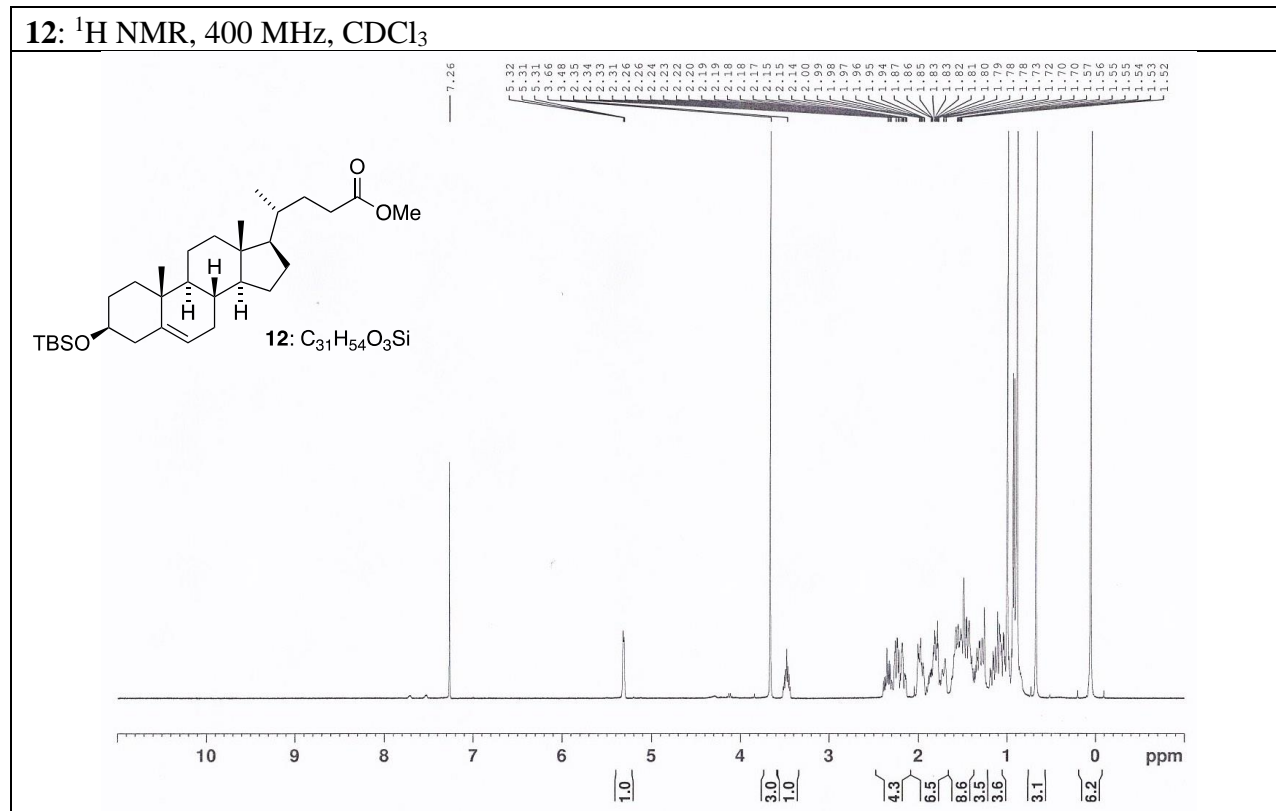
<sup>1</sup> H and <sup>13</sup> C NMR Spectra.....	S2
---	----

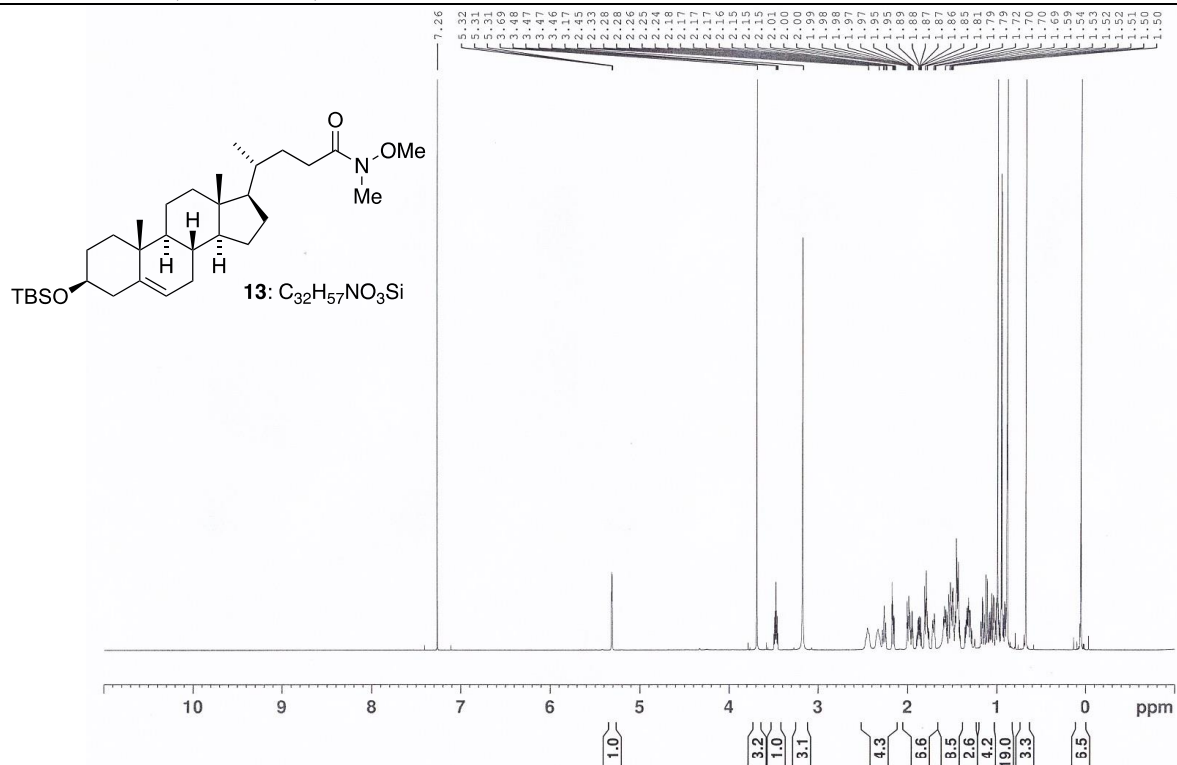
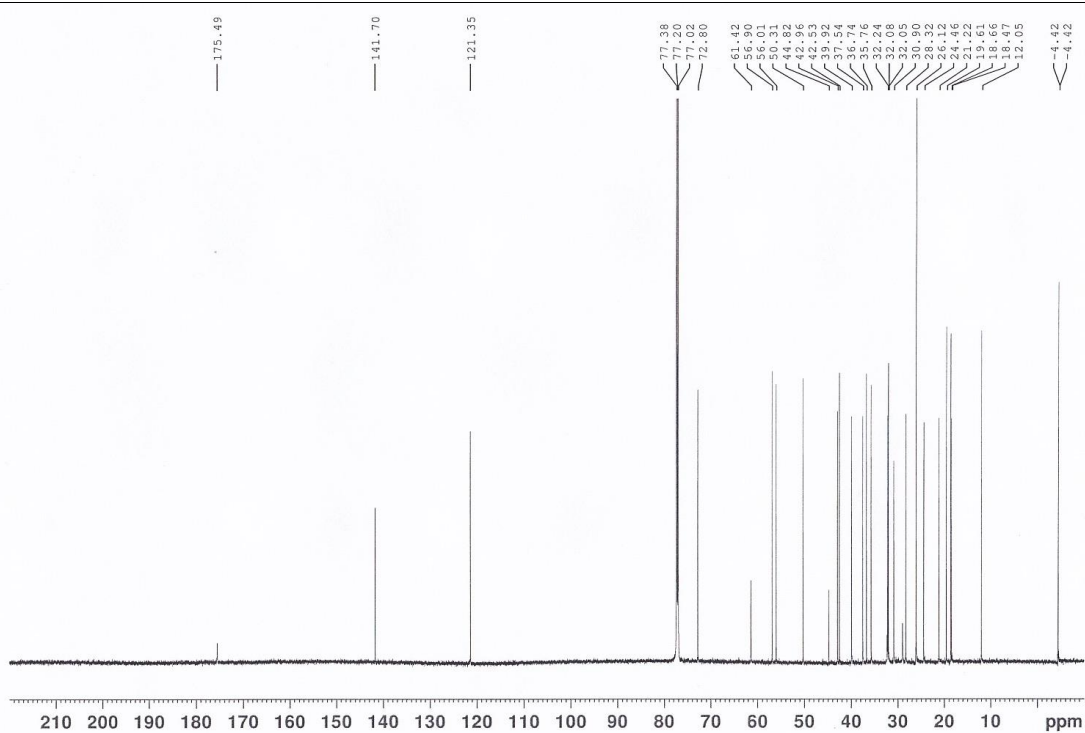
– <sup>1</sup>H and <sup>13</sup>C NMR Spectra –

<sup>1</sup>H and <sup>13</sup>C NMR spectra were recorded in Fourier transform mode at the field strength specified using standard 5 mm diameter tubes. Chemical shift in ppm is quoted relative to residual solvent signals calibrated as follows:

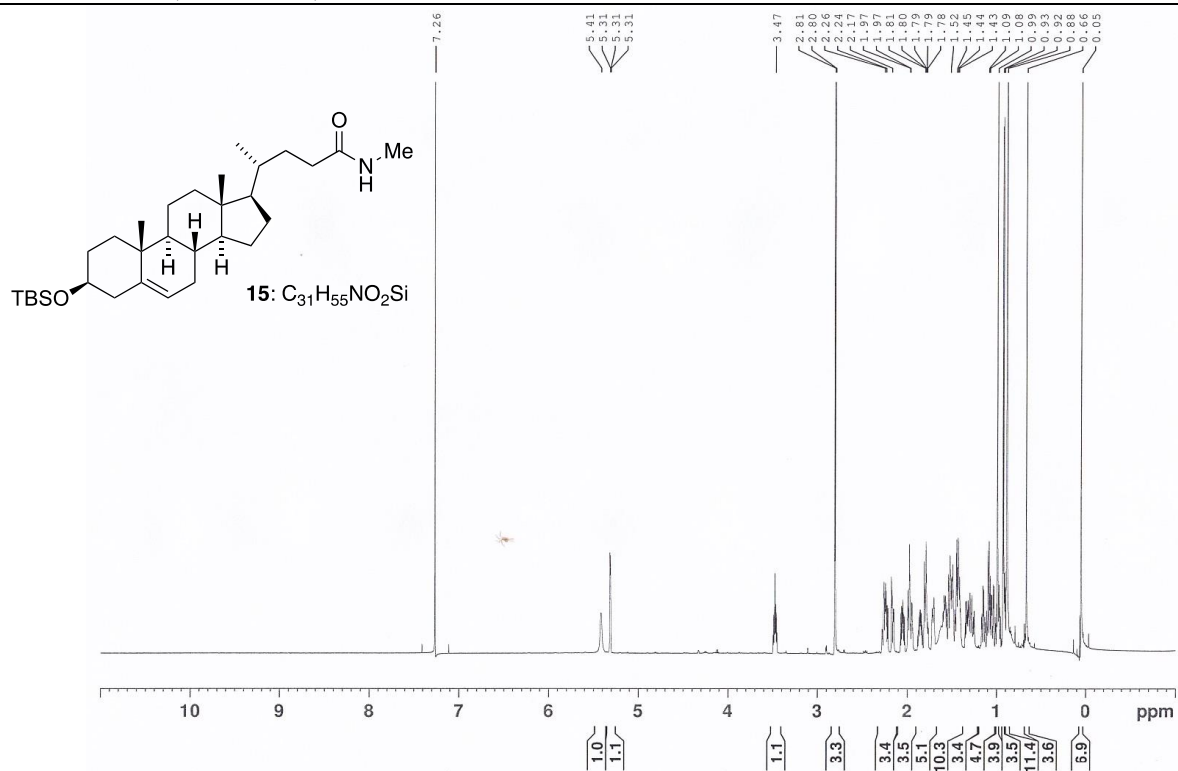
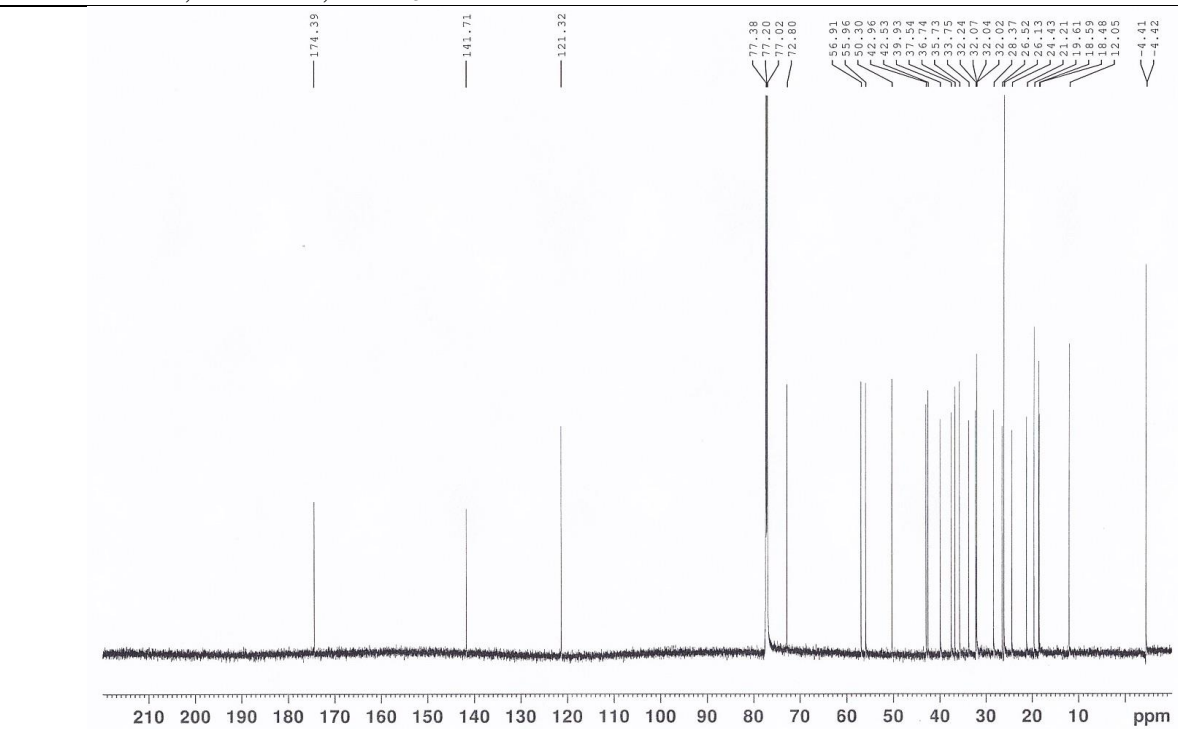
$$\text{CDCl}_3 \delta_{\text{H}} (\text{CHCl}_3) = 7.26 \text{ ppm}, \delta_{\text{C}} (\text{CDCl}_3) = 77.2 \text{ ppm}$$

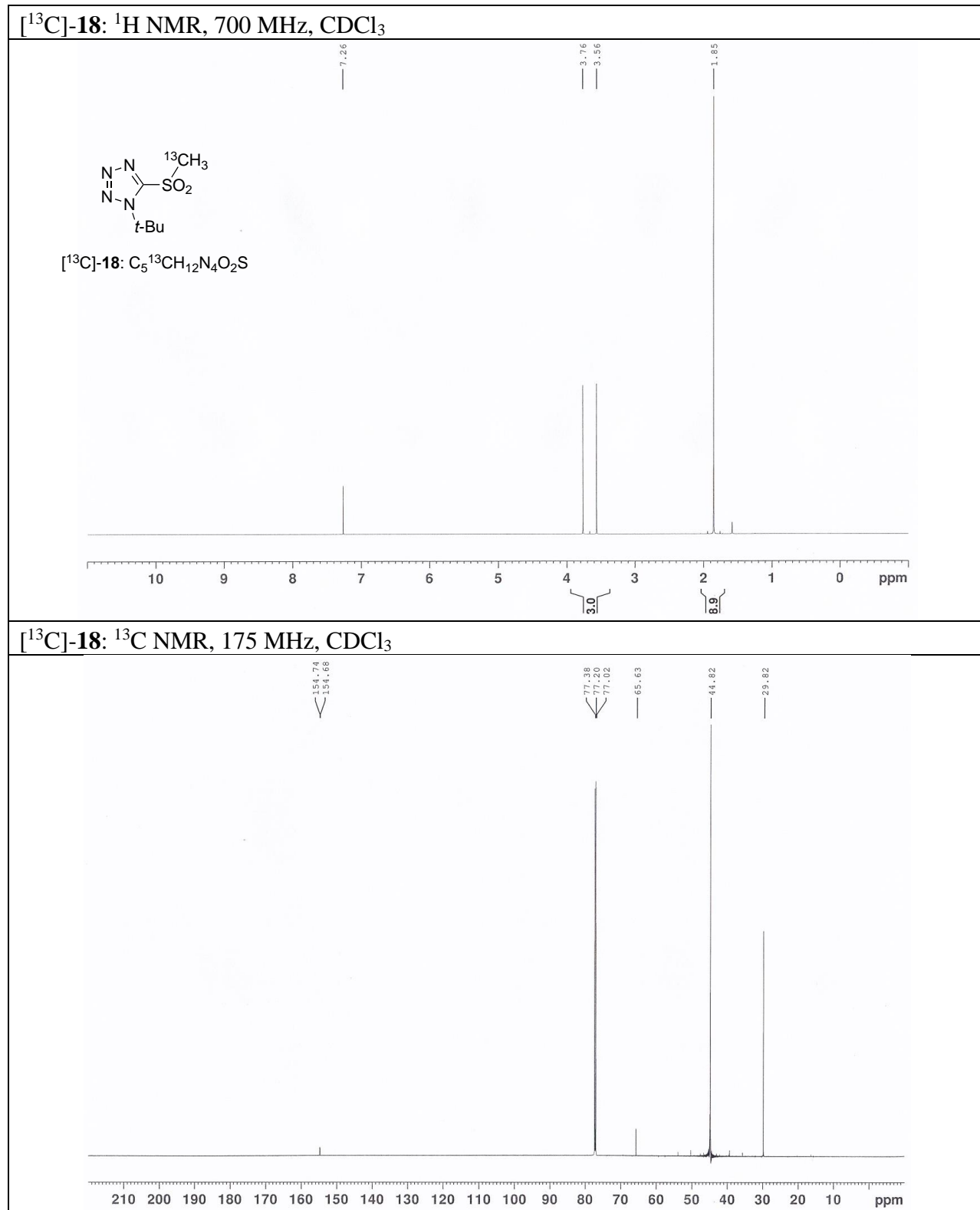
<p>S2</p>  <p align="right"><b>12</b></p>	<p>S3</p>  <p align="right"><b>13</b></p>	<p>S4</p>  <p align="right"><b>14</b></p>
<p>S5</p>  <p align="right"><b>15</b></p>	<p>S6</p>  <p align="right">[<sup>13</sup>C]-<b>18</b></p>	<p>S7</p>  <p align="right">[28-<sup>13</sup>C]-<b>19</b></p>
<p>S8</p>  <p align="right">[28-<sup>13</sup>C]-<b>1</b></p>		

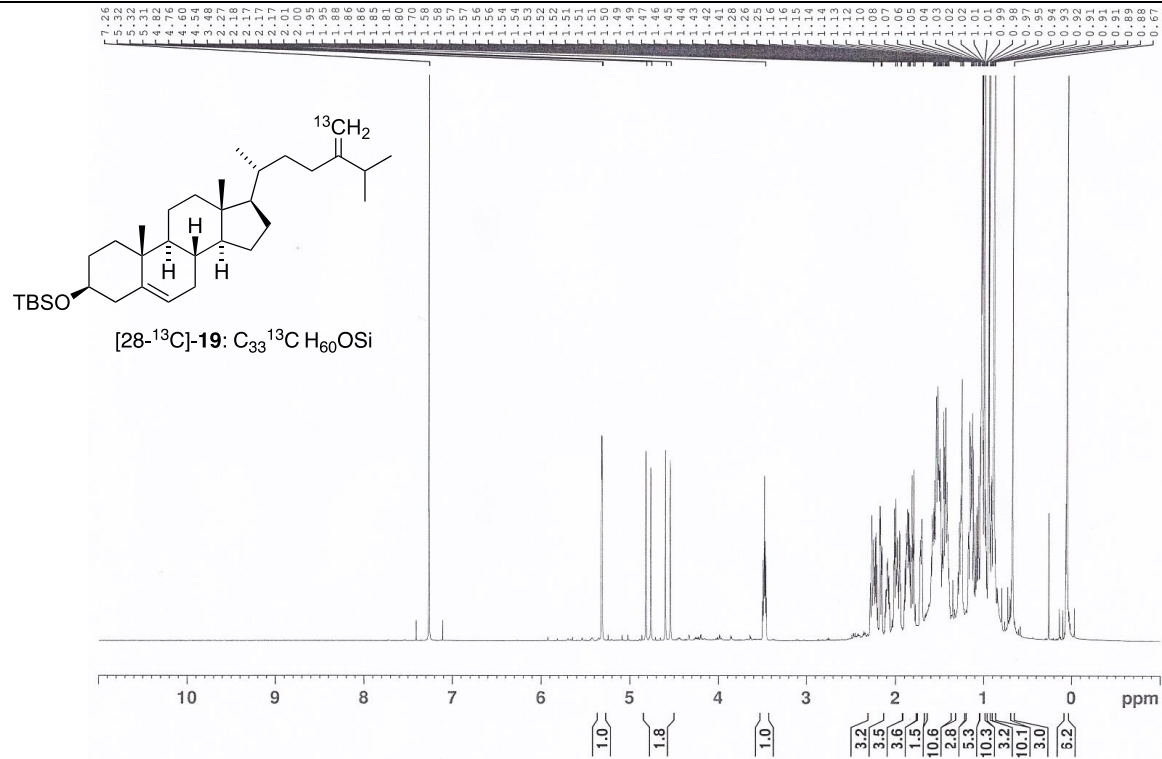
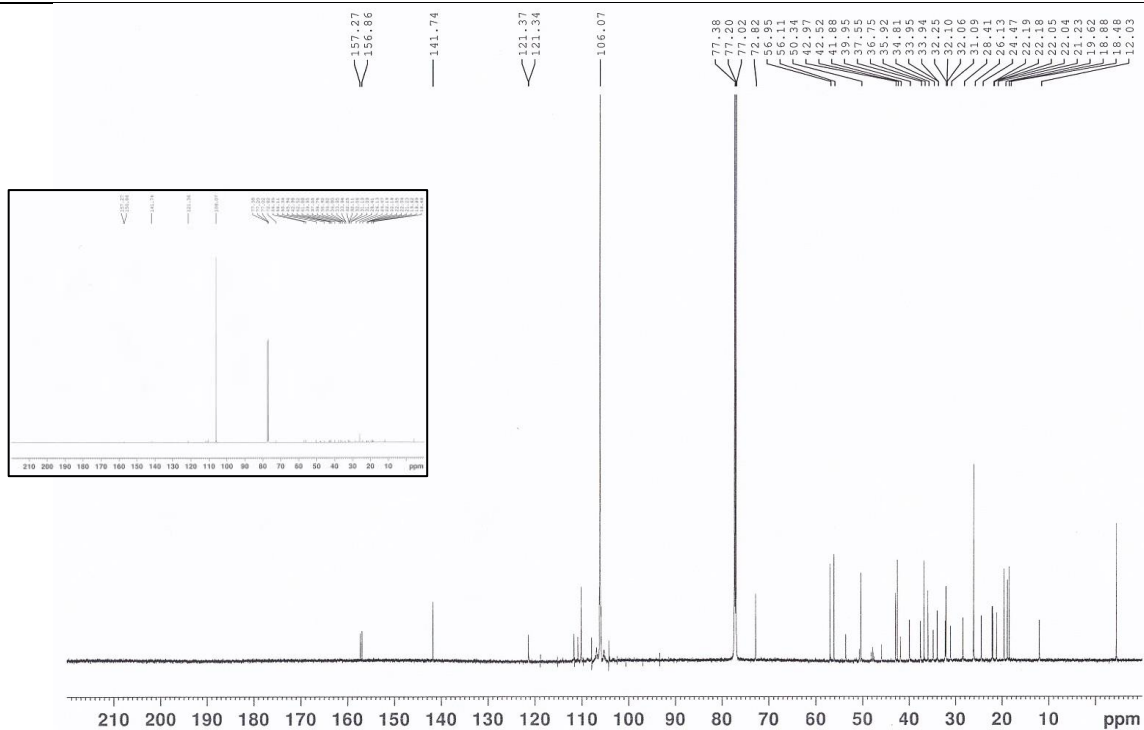


**13:**  $^1\text{H}$  NMR, 700 MHz,  $\text{CDCl}_3$ **13:**  $^{13}\text{C}$  NMR, 175 MHz,  $\text{CDCl}_3$ 

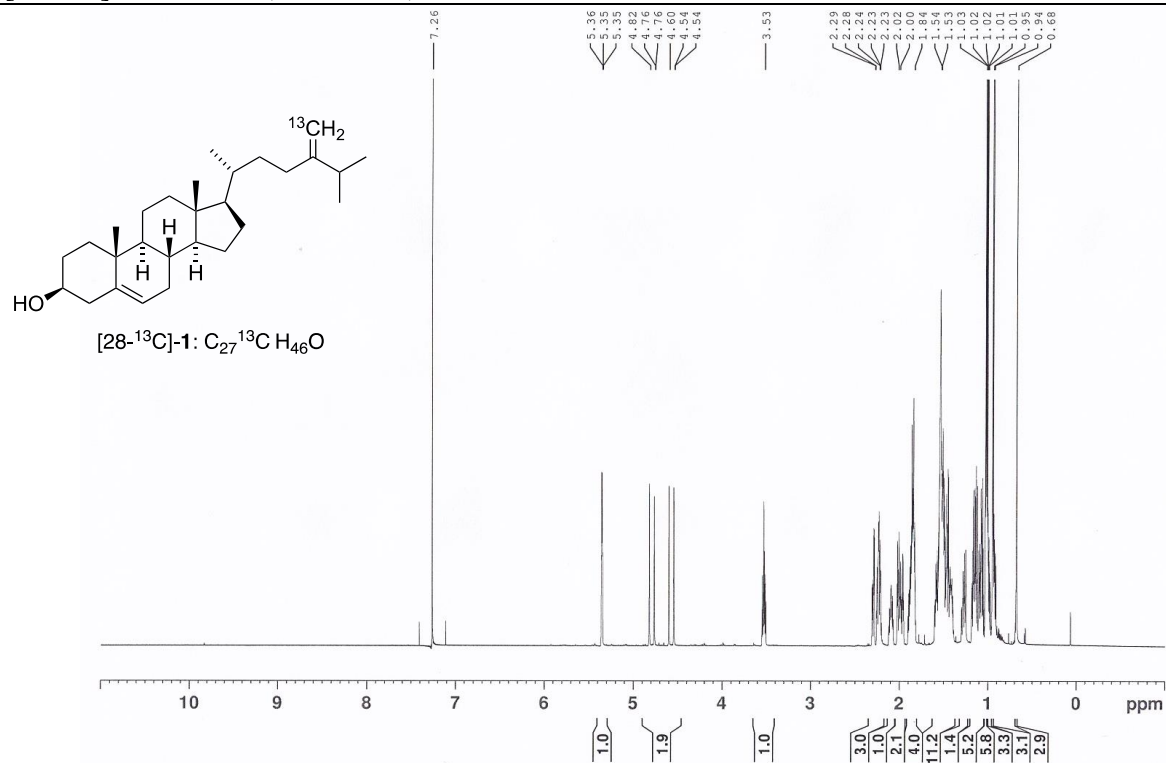


**15:**  $^1\text{H}$  NMR, 700 MHz,  $\text{CDCl}_3$ **15:**  $^{13}\text{C}$  NMR, 175 MHz,  $\text{CDCl}_3$ 



**[28-<sup>13</sup>C]-19: <sup>1</sup>H NMR, 700 MHz, CDCl<sub>3</sub>****[28-<sup>13</sup>C]-19: <sup>13</sup>C NMR, 175 MHz, CDCl<sub>3</sub>**



**[28-<sup>13</sup>C]-1: <sup>1</sup>H NMR, 700 MHz, CDCl<sub>3</sub>****[28-<sup>13</sup>C]-1: <sup>13</sup>C NMR, 175 MHz, CDCl<sub>3</sub>**