

## Supplementary Information

### Synthetic studies on the preparation of nucleoside 5'-H-phosphonate monoesters under the Mitsunobu reaction conditions

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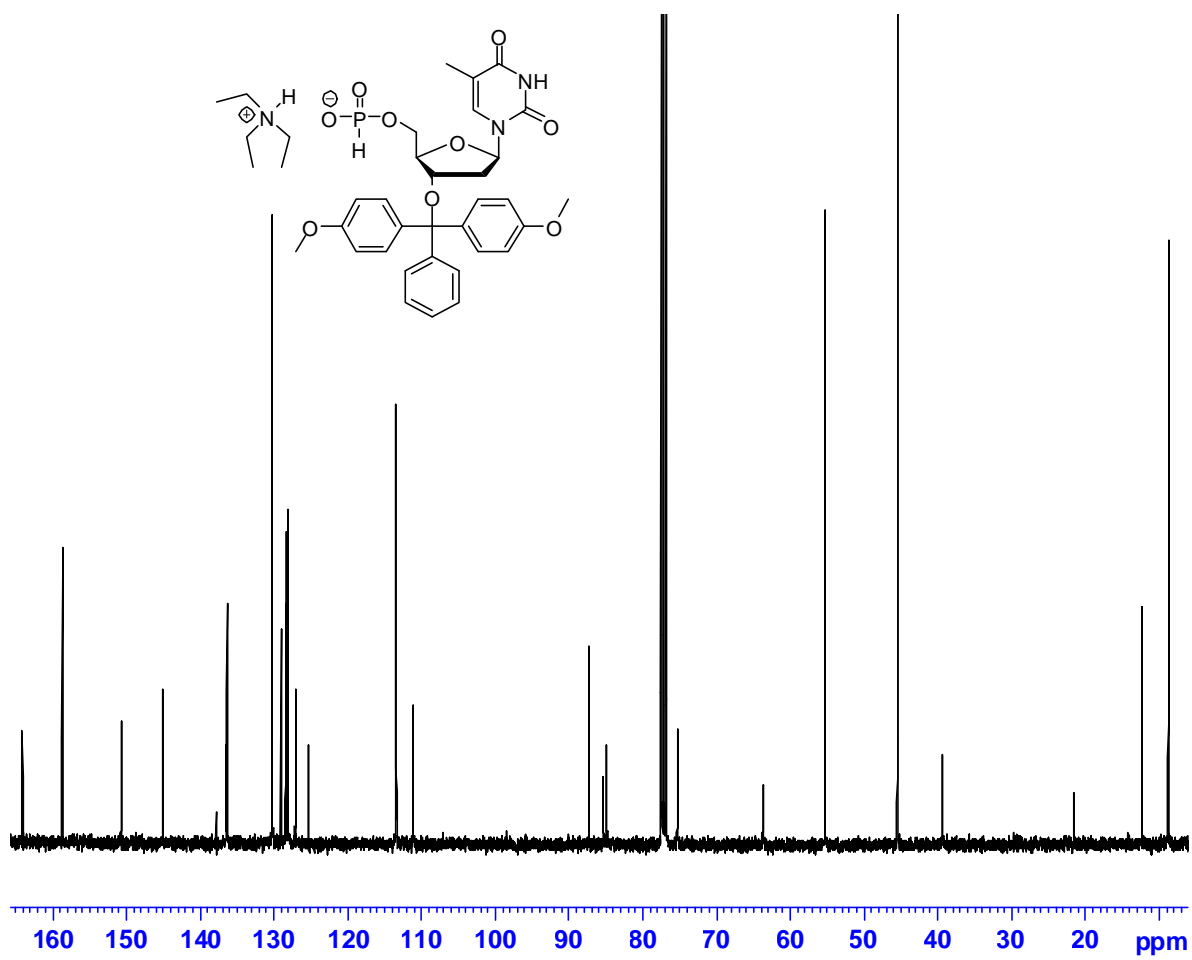
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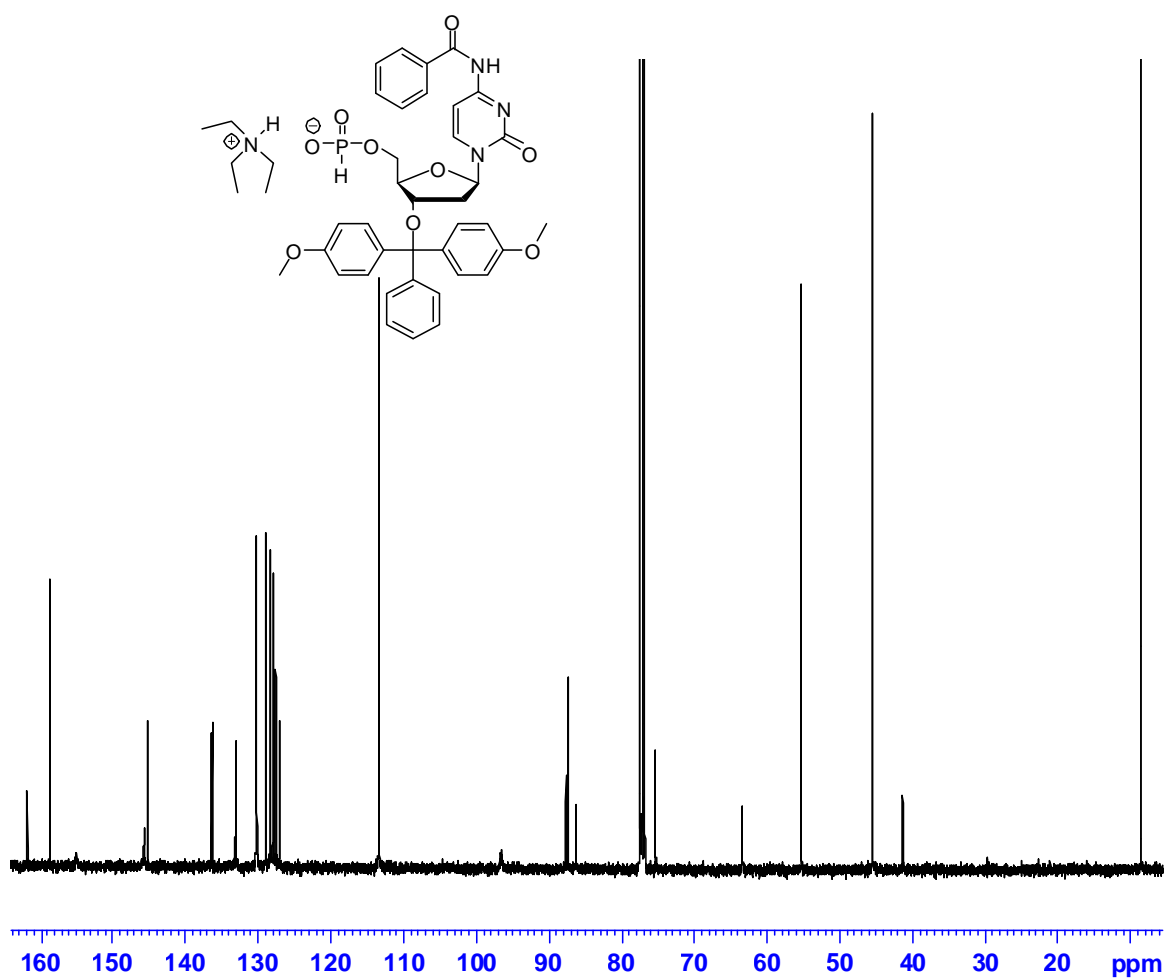
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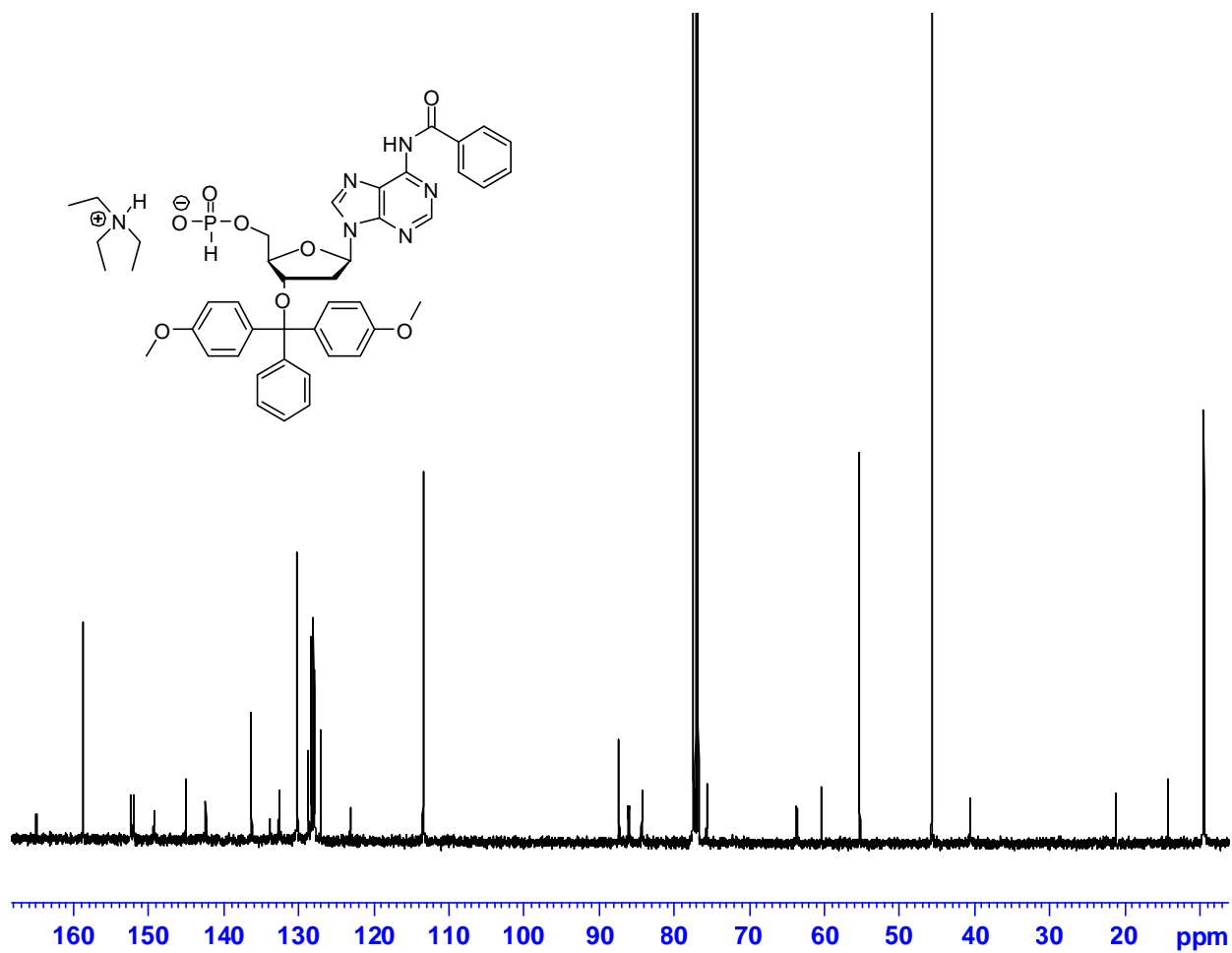
1. 3'-O-(4,4-Dimethoxytrityl)thymidin-5'-yl H-phosphonate, triethylammonium salt (**2a**). S2
2. 3'-O-(4,4-Dimethoxytrityl)-*N*<sup>4</sup>-benzoyldeoxycytidin-5'-yl H-phosphonate, triethylammonium salt, triethylammonium salt (**2b**). S3
3. 3'-O-(4,4-Dimethoxytrityl)-*N*<sup>6</sup>-benzoyldeoxyadenosin-5'-yl H-phosphonate, triethylammonium salt (**2c**). S4
4. 3'-O-(4,4-Dimethoxytrityl)-*N*<sup>2</sup>-isobutyryldeoxyguanosin-5'-yl H-phosphonate, triethylammonium salt (**2d**). S5



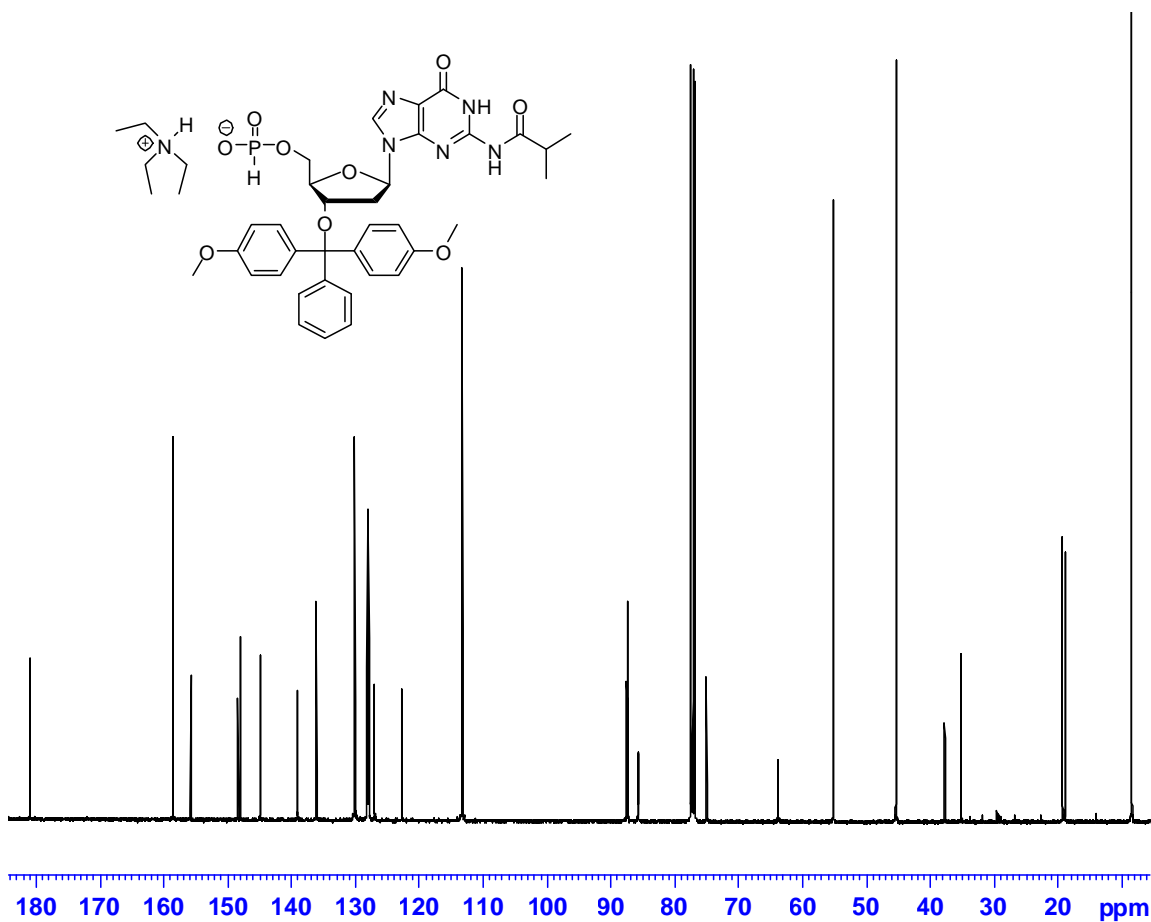
**Scheme 1.** 3'-O-(4,4-Dimethoxytrityl)thymidin-5'-yl H-phosphonate, triethylammonium salt (2a).



**Scheme 2.** 3'-O-(4,4-Dimethoxytrityl)-N<sup>4</sup>-benzoyldeoxycytidin-5'-yl H-phosphonate, triethylammonium salt, triethylammonium salt (**2b**).



**Scheme 3.** 3'-O-(4,4-Dimethoxytrityl)-N<sup>6</sup>-benzoyldeoxyadenosin-5'-yl H-phosphate, triethylammonium salt (**2c**).



**Scheme 4.** 3'-*O*-(4,4-Dimethoxytrityl)-*N*<sup>2</sup>-isobutyryldeoxyguanosin-5'-yl H-phosphonate, triethylammonium salt (**2d**).

**TLC system: Chloroform : Methanol 9:1**

3'-*O*-(4,4-Dimethoxytrityl)thymidin-5'-yl H-phosphonate, triethylammonium salt (**2a**).  
R<sub>f</sub> = 0.975

3'-*O*-(4,4-Dimethoxytrityl)-*N*<sup>4</sup>-benzoyldeoxycytidin-5'-yl H-phosphonate, triethylammonium salt, triethylammonium salt (**2b**).  
R<sub>f</sub> = 0.90

3'-*O*-(4,4-Dimethoxytrityl)-*N*<sup>6</sup>-benzoyldeoxyadenosin-5'-yl H-phosphonate, triethylammonium salt (**2c**).  
R<sub>f</sub> = 0.95

3'-*O*-(4,4-Dimethoxytrityl)-*N*<sup>2</sup>-isobutyryldeoxyguanosin-5'-yl H-phosphonate, triethylammonium salt (**2d**).  
R<sub>f</sub> = 0.95