Supporting Information

Synthesis of Anti-HIV Lithospermic Acid by Two Diverse Strategies

Tirumala G. Varadaraju† and Jih Ru Hwu*,†,‡

†Department of Chemistry and Frontier Research Center on Fundamental and Applied
Sciences of Matters, National Tsing Hua University, Hsinchu, Taiwan 30013, R.O.C.;

‡Department of Chemistry, National Central University, Jhongli, Taoyuan, Taiwan 32001,
R.O.C.

E-mail: jrhwu@mx.nthu.edu.tw

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$^1$H NMR and $^{13}$C NMR Spectra of Compounds 11, (±)-12, (±)-13, (±)-5, 16, 8, (±)-17, (±)-18, (±)-19, 20, and 21
$^1$H NMR spectrum of compound (±)-12

$^{13}$C NMR spectrum of compound (±)-12
$^{1}$H NMR spectrum of compound (±)-13

$^{13}$C NMR spectrum of compound (±)-13
**1H NMR spectrum of compound (±)-5**

**13C NMR spectrum of compound (±)-5**
$^1$H NMR spectrum of compound 16

$^{13}$C NMR spectrum of compound 16
$^1$H NMR spectrum of compound 8

$^{13}$C NMR spectrum of compound 8
$^{1} \text{H NMR spectrum of compound (±)-17}$

$^{13} \text{C NMR spectrum of compound (±)-17}$
\( ^1\text{H NMR spectrum of compound (±)-18} \)

\( ^{13}\text{C NMR spectrum of compound (±)-18} \)
$^1$H NMR spectrum of compound (±)-19

$^{13}$C NMR spectrum of compound (±)-19
$^1$H NMR spectrum of compound 20

$^{13}$C NMR spectrum of compound 20
$^{1}H$ NMR spectrum of compound 21

$^{13}C$ NMR spectrum of compound 21
Determination of Enantiomeric Excess with Chiralcel OD Chiral Column

HPLC Chromatograms of Compound 3

Note: The enantiomeric excess of compound (+)-3 was determined as >99%ee by HPLC with a Chiralcel OD column and isopropyl alcohol (10%) in hexane as the eluent. The major fraction showed up at $t_r = 18.94$ min and the minor fraction at $t_r = 16.02$ min by use of a UV detector with $\lambda = 279$ nm.
Purity of Compounds (+)-3, (±)-3, 11, (±)-12, 16, 8, (±)-17, (±)-18, (±)-19, 20, and 21 as Checked by Lichrosorb Si-100 column

HPLC chromatogram of compound (±)-3

HPLC chromatogram of compound (+)-3
HPLC chromatogram of compound 11

HPLC chromatogram of compound (±)-12
HPLC chromatogram of compound 16

HPLC chromatogram of compound 8
HPLC chromatogram of compound (±)-17

<table>
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<tr>
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<th>% Area</th>
<th>Height</th>
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<td>63128</td>
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HPLC chromatogram of compound (±)-18

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<td>2</td>
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HPLC chromatogram of compound (±)-19

HPLC chromatogram of compound 20
HPLC chromatogram of compound 21
Table. Compound Purity Obtained by HPLC

<table>
<thead>
<tr>
<th>compound</th>
<th>gradient A/B</th>
<th>purity (%)</th>
<th>$t_R$ (min)</th>
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<tbody>
<tr>
<td>(+)-3</td>
<td>8:92</td>
<td>99.7</td>
<td>8.85</td>
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<tr>
<td>(+)-3</td>
<td>8:92</td>
<td>99.3</td>
<td>8.83</td>
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<tr>
<td>11</td>
<td>8:92</td>
<td>98.0</td>
<td>8.33</td>
</tr>
<tr>
<td>(±)-12</td>
<td>15:85</td>
<td>98.0</td>
<td>8.02</td>
</tr>
<tr>
<td>16</td>
<td>3:97</td>
<td>98.3</td>
<td>7.37</td>
</tr>
<tr>
<td>8</td>
<td>5:95</td>
<td>99.6</td>
<td>3.13</td>
</tr>
<tr>
<td>(±)-17</td>
<td>15:85</td>
<td>99.5</td>
<td>3.77</td>
</tr>
<tr>
<td>(±)-18</td>
<td>5:95</td>
<td>99.1</td>
<td>4.73</td>
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<tr>
<td>(±)-19</td>
<td>2:98</td>
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<td>5.31</td>
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<tr>
<td>20</td>
<td>4:96</td>
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<tr>
<td>21</td>
<td>4:96</td>
<td>99.5</td>
<td>4.37</td>
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Mobile phase: solvent A, isopropyl alcohol; solvent B, hexane.
Column: Lichrosorb Si-100 (200 × 4.6 mm, 5 µm)
Detection: $\lambda$ 279 nm.
Flow rate: 1.0 mL/min.
$^1$H NMR spectrum of compound 2

$^{13}$C NMR spectrum of compound 2