

## **Supporting information**

### **Substituted Epoxides by Lithiation of Terminal Epoxides**

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#### **(I) General details**

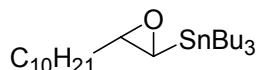
All reactions requiring anhydrous conditions were conducted in flame dried apparatus under an atmosphere of argon. Syringes and needles for the transfer of reagents were dried at 140 °C and allowed to cool in a desiccator over  $\text{P}_2\text{O}_5$  before use. Hexane was distilled from  $\text{CaH}_2$ , and other reagents were purified using standard techniques.<sup>1</sup> Internal reaction temperatures are quoted. Column chromatography was carried out on Florisil® [Aldrich, 100-200 mesh (75-150  $\mu\text{m}$ )] for epoxystannanes **6**, or Kieselgel 60 (40-63  $\mu\text{m}$ ) for substituted epoxides **2** unless stated otherwise.  $^1\text{H}$ ,  $^{13}\text{C}$  and  $^{119}\text{Sn}$  NMR spectra were recorded in  $\text{CDCl}_3$  using Bruker DPX400, Bruker AVANCE AV400 or

Bruker AMX500 spectrometers. Coupling constants ( $J$ ) are given in Hz. Only selected Sn ( $J_{Sn}$ ) coupling constants are reported. HRMS data for Sn-containing compounds are quoted for the most abundant Sn isotope, i.e.  $^{120}\text{Sn}$ . Tentative stereochemical assignments of epoxy alcohol diastereoisomers have been made by comparison with spectral data for structurally similar compounds.<sup>2</sup>

## References

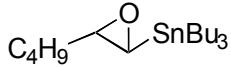
1. Armarego, W. L. F.; Perrin, D. D. *Purification of Laboratory Chemicals*, Fourth Edition, Butterworth-Heinemann, 1997.
  2. (a) Molander, G. A.; Mautner, K. *J. Org. Chem.* **1989**, *54*, 4042-4050; (b) Kawakami, T.; Shibata, I.; Baba, A.; Matsuda, H. *J. Org. Chem.* **1993**, *58*, 7608-7609.
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## (II) Characterization data for epoxystannanes 6



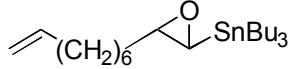
### **Trans-1-(tributylstannylyl)-1,2-epoxydodecane 6 (R = C<sub>10</sub>H<sub>21</sub>)**

IR (neat) 2961s, 2925s, 2865s, 2854s, 1464m, 1416m, 1377w, 1340w, 1263w, 1073w, 866m  $\text{cm}^{-1}$ ;  $^1\text{H}$  NMR (400 MHz)  $\delta$  2.83-2.79 (1 H, m, C(2)H), 2.46 (1 H, d,  $J$  3.6,  $J_{Sn-H}$  99, C(1)H), 1.70-1.20 (30 H, m, 9  $\times$  CH<sub>2</sub>, 3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub> and 3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>), 0.94-0.86 (18 H, m, 3  $\times$  SnCH<sub>2</sub>, 3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me and Me);  $^{13}\text{C}$  NMR (100 MHz)  $\delta$  56.2 (C(2)), 52.8 (C(1)), 34.8 (CH<sub>2</sub>), 31.9 (CH<sub>2</sub>), 29.6 (2  $\times$  CH<sub>2</sub>), 29.5 (CH<sub>2</sub>), 29.3 (CH<sub>2</sub>), 29.1 (CH<sub>2</sub>), 29.0 (3  $\times$  SnCH<sub>2</sub>C), 28.9 (CH<sub>2</sub>), 27.4 (CH<sub>2</sub>), 27.3 (3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>C), 27.0 (CH<sub>2</sub>), 26.3 (CH<sub>2</sub>), 22.6 (CH<sub>2</sub>), 14.1 (Me), 13.6 (3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me), 8.6 ( $J_{Sn-C}$  330, 3  $\times$  SnCH<sub>2</sub>);  $^{119}\text{Sn}$  NMR (186 MHz)  $\delta$  -33.2; MS EI  $m/z$  (rel. int.) 474 (M<sup>+</sup>, <1), 417 (M-Bu<sup>+</sup>, 5), 291 (10), 235 (42), 179 (68), 121 (20), 69 (20), 57 (61), 41 (100); HRMS  $m/z$  calcd for C<sub>24</sub>H<sub>50</sub>OSn, 474.2884, found 474.2884.



**Trans-1-(tributylstanny)-1,2-epoxyhexane 6 (R = C<sub>4</sub>H<sub>9</sub>)**

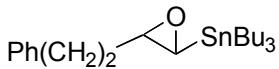
IR (neat) cm<sup>-1</sup> 2957s, 2928s, 2872s, 2855s, 1465m, 1416w, 1377w, 1340w, 1292w, 1266w, 1152w, 1072w, 1045w, 1021w, 863m, 750w cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 2.86-2.77 (1 H, m, C(2)H), 2.46 (1 H, d, *J* 3.8, *J<sub>Sn-H</sub>* 97, C(1)H), 1.71-1.24 (18 H, m, C(3)H<sub>2</sub>, C(4)H<sub>2</sub>, C(5)H<sub>2</sub>, 3 × SnCH<sub>2</sub>CH<sub>2</sub> and 3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>), 1.01-0.83 (18 H, m, 3 × SnCH<sub>2</sub>, 3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me and Me); <sup>13</sup>C NMR (100 MHz) δ 56.1 (C(2)), 52.8 (C(1)), 34.5 (C(3)), 29.0 (3 × SnCH<sub>2</sub>C), 28.5 (C(4)), 27.3 (3 × SnCH<sub>2</sub>CH<sub>2</sub>C), 22.6 (C(5)H), 14.0 (C(6)), 13.6 (3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me), 8.7 (*J<sub>Sn-C</sub>* 329, 3 × SnCH<sub>2</sub>); <sup>119</sup>Sn NMR (186 MHz) δ -33.2; MS ES *m/z* (rel. int.) 408 (M+NH<sub>4</sub><sup>+</sup>, 2), 332 (M-Bu<sup>+</sup>, 2), 308 (100), 291 (11), 268 (5), 252 (5), 196 (3), 155; HRMS *m/z* calcd for C<sub>18</sub>H<sub>42</sub>NOSn, 408.2283, found 408.2280.



**Trans-1-(tributylstanny)-1,2-epoxy-9-decene 6 [R = H<sub>2</sub>C=CH(CH<sub>2</sub>)<sub>6</sub>]**

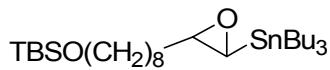
IR (neat) 3077w, 2956s, 2927s, 2871m, 2854s, 1464m, 1416w, 1376w, 1340w, 1266w, 1182w, 1145w, 1073w, 909m, 873m, 864m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 5.87-5.75 (1 H, m, C(9)H), 5.03-4.90 (2 H, m, C(10)H<sub>2</sub>), 2.85-2.77 (1 H, m, C(2)H), 2.46 (1 H, d, *J* 3.8, *J<sub>Sn-H</sub>* 98, C(1)H), 2.09-2.00 (2 H, m, C(8)H<sub>2</sub>), 1.69-1.26 (22 H, m, 5 × CH<sub>2</sub>, 3 × SnCH<sub>2</sub>CH<sub>2</sub> and 3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>), 1.00-0.85 (15 H, m, 3 × SnCH<sub>2</sub> and 3 × Me); <sup>13</sup>C NMR (100 MHz) δ 139.1 (C(9)), 114.1 (C(10)), 56.1 (C(2)), 52.8 (C(1)), 34.8 (C(3)), 33.7 (C(8)), 29.4 (CH<sub>2</sub>), 29.0 (1 × CH<sub>2</sub> and 3 × SnCH<sub>2</sub>C), 28.8 (CH<sub>2</sub>), 27.3 (3 × SnCH<sub>2</sub>CH<sub>2</sub>C), 26.3 (CH<sub>2</sub>), 13.6 (3 × Me), 8.7 (*J<sub>Sn-C</sub>* 328, 3 × SnCH<sub>2</sub>); <sup>119</sup>Sn

NMR (186 MHz)  $\delta$  -33.1; MS ES  $m/z$  (rel. int.) 462 ( $M+NH_4^+$ , 2), 386 ( $M-Bu^+$ , 2), 308 (100), 291 (7), 268 (4), 252 (3), 172 (10), 154 (7); HRMS  $m/z$  calcd for  $C_{22}H_{48}NOSn$ , 462.2752, found 462.2751.



**Trans-1-(tributylstanny)-1,2-epoxy-4-phenyl-butane 6 [R = Ph(CH<sub>2</sub>)<sub>2</sub>]**

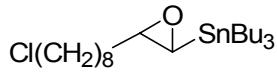
IR (neat) 3063w, 3027m, 2957s, 2926s, 2865s, 2845s, 1604m, 1586w, 1496m, 1455m, 1416m, 1376m, 1340m, 1268w, 1181w, 1073m, 1030w, 870m, 748m  $cm^{-1}$ ; <sup>1</sup>H NMR (400 MHz)  $\delta$  7.32-7.27 (2 H, m,  $2 \times C_{Ar}H$ ), 7.24-7.18 (3 H, m,  $3 \times C_{Ar}H$ ), 2.91-2.71 (3 H, m, C(2)H and C(4)H<sub>2</sub>), 2.48 (1 H, d,  $J$  3.7,  $J_{Sn-H}$  96, C(1)H), 2.02-1.81 (2 H, m C(3)H<sub>2</sub>), 1.62-1.40 (6 H, m,  $3 \times SnCH_2CH_2$ ), 1.32 (6 H, tq,  $J$  7.5, 3  $\times SnCH_2CH_2CH_2$ ), 1.01-0.81 (15 H, m,  $3 \times SnCH_2$  and  $3 \times Me$ ); <sup>13</sup>C NMR (100 MHz)  $\delta$  141.6 ( $C_{Ar}$  quat), 128.4 ( $2 \times C_{Ar}$ ), 128.3 ( $2 \times C_{Ar}$ ), 125.9 ( $C_{Ar}$ ), 55.6 (C(2)), 53.1 (C(1)), 36.6 (C(3)), 32.6 (C(4)), 29.0 ( $3 \times SnCH_2C$ ), 27.3 ( $3 \times SnCH_2CH_2C$ ), 13.7 ( $3 \times SnCH_2CH_2CH_2C$ ), 8.7 ( $J_{Sn-C}$  332,  $3 \times SnCH_2$ ); <sup>119</sup>Sn NMR (186 MHz)  $\delta$  -33.4; MS ES  $m/z$  (rel. int.) 456 ( $M+NH_4^+$ , 12), 308 (42), 166 (100); HRMS  $m/z$  calcd for  $C_{22}H_{42}NOSn$ , 456.2283, found 456.2285.



**Trans-1-(tributylstanny)-1,2-epoxy-10-(tertbutyldimethylsilyloxy)decane 6 [R = TBSO(CH<sub>2</sub>)<sub>8</sub>]**

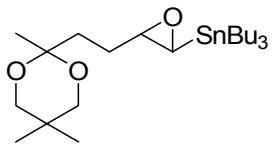
IR (neat) 2956s, 2928s, 2856s, 1464m, 1412w, 1377w, 1360w, 1255m, 1102m, 1006w, 836m, 775m  $cm^{-1}$ ; <sup>1</sup>H NMR (400 MHz)  $\delta$  3.60 (2 H, t,  $J$  6.6, C(10)H<sub>2</sub>), 2.83-

2.79 (1 H, m, C(2)H), 2.46 (1 H, d,  $J$  3.8,  $J_{Sn-H}$  99, C(1)H), 1.70-1.24 (26 H, m, 7  $\times$  CH<sub>2</sub>, 3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub> and 3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>), 1.01-0.82 (24 H, m, 3  $\times$  SnCH<sub>2</sub>, <sup>t</sup>Bu and 3  $\times$  CH<sub>2</sub>Me), 0.05 (6 H, s, SiMe<sub>2</sub>); <sup>13</sup>C NMR (100 MHz)  $\delta$  63.3 (C(10)), 56.2 (C(2)), 52.8 (C(1)), 34.8 (C(3)), 32.9 (C(9)), 29.6 (CH<sub>2</sub>), 29.5(CH<sub>2</sub>), 29.3 (CH<sub>2</sub>), 29.0 (3  $\times$  SnCH<sub>2</sub>C), 27.3 (3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>C), 26.3 (CH<sub>2</sub>), 26.0 (CMe<sub>3</sub>), 25.8 (CH<sub>2</sub>), 18.4 (CMe<sub>3</sub>), 13.7 (3  $\times$  CH<sub>2</sub>Me), 8.7 ( $J_{Sn-C}$  328, 3  $\times$  SnCH<sub>2</sub>), -5.3 (SiMe<sub>2</sub>); <sup>119</sup>Sn NMR (186 MHz)  $\delta$  -33.2; MS EI  $m/z$  (rel. int.) 594 (M+NH<sub>4</sub><sup>+</sup>, 2%), 308 (40%), 287 (100), 271 (20), 252 (6), 229 (15), 137 (5), 132 (20), 91 (30); HRMS  $m/z$  calcd for C<sub>28</sub>H<sub>64</sub>NO<sub>2</sub>SiSn, 594.3723, found 594.3727.



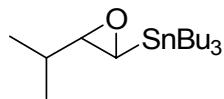
**Trans-1-(tributylstannyloxy)-10-chlorodecane 6 [R = Cl(CH<sub>2</sub>)<sub>8</sub>]**

IR (neat) 2955s, 2928s, 2855s, 2845s, 1464m, 1416m, 1376m, 1340w, 1291w, 1266w, 1073m, 1021w, 960w, 866m, 726w cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz)  $\delta$  3.54 (2 H, t,  $J$  6.8, CH<sub>2</sub>Cl), 2.83-2.79 (1 H, m, C(2)H), 2.46 (1 H, d,  $J$  3.7,  $J_{Sn-H}$  98, C(1)H), 1.82-1.71 (2 H, m, C(9)H<sub>2</sub>), 1.68-1.22 (24 H, m, 6  $\times$  CH<sub>2</sub>, 3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub> and 3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>) 1.02-0.82 (15 H, m, 3  $\times$  SnCH<sub>2</sub> and 3  $\times$  Me); <sup>13</sup>C NMR (100 MHz)  $\delta$  56.2 (C(2)), 52.8 (C(1)), 45.1 (C(10)), 34.8 (C(3)), 32.6 (C(9)), 29.5 (CH<sub>2</sub>), 29.4 (CH<sub>2</sub>), 29.0 (3  $\times$  SnCH<sub>2</sub>C), 28.8 (CH<sub>2</sub>), 27.3 (3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>C), 26.8 (CH<sub>2</sub>), 26.3 (CH<sub>2</sub>), 13.7 (3  $\times$  CH<sub>2</sub>Me), 8.7 ( $J_{Sn-C}$  330, 3  $\times$  SnCH<sub>2</sub>); <sup>119</sup>Sn NMR (186 MHz)  $\delta$  -33.2; MS ES  $m/z$  (rel. int.) 498 (M+NH<sub>4</sub><sup>+</sup>, 2), 308 (100), 291 (27), 271 (20), 252 (10), 208 (58), 190 (12), 155 (5), 138 (7), 95 (8); HRMS  $m/z$  calcd for C<sub>22</sub>H<sub>49</sub>ClNOSn, 498.2519, found 498.2519.



**Trans-1-(tributylstanny)-1,2-epoxy-5-(5,5-dimethyl-[1,3]dioxanyl)hexane 6 (R = C<sub>9</sub>H<sub>17</sub>O<sub>2</sub>)**

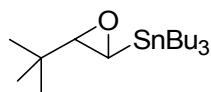
IR (neat) 2955s, 2922s, 2870s, 1464s, 1416m, 1395m, 1374s, 1273m, 1251m, 1212m, 1153m, 1103s, 1043m, 1022m, 872s cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 3.59-3.41 (4 H, m, 2 × OCH<sub>2</sub>), 2.91-2.82 (1 H, m, C(2)H), 2.49 (1 H, d, *J* 3.5, *J*<sub>Sn-H</sub> 98, C(1)H), 1.97-1.64 (4 H, m, 2 × CH<sub>2</sub>), 1.62-1.40 (6 H, m, 3 × SnCH<sub>2</sub>CH<sub>2</sub>), 1.37 (3 H, s, C(6)H<sub>3</sub>), 1.30 (6 H, tq, *J* 7.5, 3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>), 1.01 (3 H, s, CMeMe), 0.99-0.81 (18 H, m, 3 × SnCH<sub>2</sub>, 3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me and CMeMe); <sup>13</sup>C NMR (100 MHz) δ 98.6 (O<sub>2</sub>C), 70.3 (2 × OCH<sub>2</sub>), 56.1 (C(2)), 52.8 (C(1)), 34.3 (CH<sub>2</sub>), 29.9 (CMe<sub>2</sub>), 29.0 (3 × SnCH<sub>2</sub>C), 28.9 (CH<sub>2</sub>), 27.3 (3 × SnCH<sub>2</sub>CH<sub>2</sub>C), 22.7 (CMeMe), 22.5 (CMeMe), 20.4 (Me), 13.7 (3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me), 8.7 (*J*<sub>Sn-C</sub> 330, 3 × SnCH<sub>2</sub>); <sup>119</sup>Sn NMR (186 MHz) δ -33.2; MS ES *m/z* (rel. int.) 491 (M+H<sup>+</sup>, 4), 337 (8), 308 (56), 291 (16), 252 (6), 201 (100), 183 (90), 129 (37); HRMS *m/z* calcd for C<sub>23</sub>H<sub>47</sub>O<sub>3</sub>Sn, 491.2542, found 491.2543.



**Trans-1-(tributylstanny)-1,2-epoxy-3-methylbutane 6 (R = *i*-Pr)**

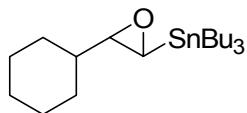
IR (neat) 2957s, 2928s, 2872m, 2854m, 1464m, 1416w, 1377w, 1288w, 1219w, 1072w, 937w, 879m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 2.62-2.55 (1 H, m, C(2)H), 2.53 (1 H, d, *J* 3.8, *J*<sub>Sn-H</sub> 98, C(1)H), 1.66-1.22 (13 H, m, 3 × SnCH<sub>2</sub>CH<sub>2</sub>, C(3)H and 3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>), 1.07 (3 H, d, *J* 6.6, CMeMe), 1.01-0.83 (18 H, m, CMeMe, 3

$\times$  SnCH<sub>2</sub>, and  $3 \times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me); <sup>13</sup>C NMR (100 MHz)  $\delta$  61.8 (C(2)), 51.8 (C(1)), 33.2 (C(3)), 29.0 ( $3 \times$  SnCH<sub>2</sub>C), 27.3 ( $3 \times$  SnCH<sub>2</sub>CH<sub>2</sub>C), 19.6 (CMeMe), 18.3 (CMeMe), 13.7 ( $3 \times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me), 8.7 ( $J_{Sn-C}$  328,  $3 \times$  SnCH<sub>2</sub>); <sup>119</sup>Sn NMR (186 MHz)  $\delta$  -32.6; MS ES *m/z* (rel. int.) 394 (M+NH<sub>4</sub><sup>+</sup>, 5), 308 (100), 291 (10), 268 (8), 252 (5); HRMS *m/z* calcd for C<sub>17</sub>H<sub>40</sub>NOSn, 394.2126, found 394.2127.



**Trans-1-(tributylstannyloxy)-1,2-epoxy-3,3-dimethylbutane 6 (R = *t*-Bu)**

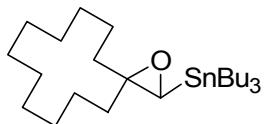
IR (neat) 2956s, 2929s, 2872m, 2855m, 1464m, 1418w, 1377w, 1362m, 1293w, 1072w, 937w, 881m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz)  $\delta$  2.64 (2 H, d, *J* 0.8,  $J_{Sn-H}$  99, C(1)H and C(2)H), 1.65-1.42 (6 H, m,  $3 \times$  SnCH<sub>2</sub>CH<sub>2</sub>), 1.38-1.26 (6 H, tq, *J* 7.3,  $3 \times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>), 1.02-0.83 (24 H, m, 'Bu,  $3 \times$  SnCH<sub>2</sub>, and  $3 \times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me); <sup>13</sup>C NMR (100 MHz)  $\delta$  64.2 (C(2)), 48.7 (C(1)), 31.5 (CMe<sub>3</sub>), 29.0 ( $3 \times$  SnCH<sub>2</sub>C), 27.3 ( $3 \times$  SnCH<sub>2</sub>CH<sub>2</sub>C), 25.6 (CMe<sub>3</sub>), 13.7 ( $3 \times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me), 8.6 ( $J_{Sn-C}$  328,  $3 \times$  SnCH<sub>2</sub>); <sup>119</sup>Sn NMR (186 MHz)  $\delta$  -31.4; MS ES *m/z* (rel. int.) 408 (M+NH<sub>4</sub><sup>+</sup>, 5), 332 (M-Bu<sup>+</sup>, 2), 308 (100), 291 (8), 252 (2); HRMS *m/z* calcd for C<sub>18</sub>H<sub>42</sub>NOSn, 408.2284, found 408.2283.



**Trans-1-(tributylstannyloxy)-2-cyclohexyl oxirane 6 (R = Cy)**

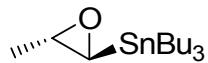
IR (neat) 2951s, 2925s, 2852s, 1465m, 1450m, 1418m, 1377m, 1340w, 1259m, 1073m, 1024m, 960m, 869m; <sup>1</sup>H NMR (400 MHz)  $\delta$  2.60 (1 H, dd, *J* 6.6 and 3.8, C(2)H), 2.53 (1 H, d, *J* 3.8,  $J_{Sn-H}$  99, C(1)H), 1.99-1.90 (1 H, m, C(3)H), 1.80-1.63 (4

H, m, 2 × ring CH<sub>2</sub>), 1.62-1.45 (6 H, m, 3 × SnCH<sub>2</sub>CH<sub>2</sub>), 1.38-1.06 (12 H, m, 3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub> and 3 × ring CH<sub>2</sub>), 0.94-0.87 (15 H, 3 × SnCH<sub>2</sub> and 3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me); <sup>13</sup>C NMR (100 MHz) δ 60.7 (C(2)), 51.6 (C(1)), 42.8 (C(3)), 30.3 (CH<sub>2</sub>), 29.0 (3 × SnCH<sub>2</sub>C and CH<sub>2</sub>), 27.3 (3 × SnCH<sub>2</sub>CH<sub>2</sub>C), 26.4 (CH<sub>2</sub>), 25.8 (CH<sub>2</sub>), 25.6 (CH<sub>2</sub>), 13.7 (3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me), 8.7 (*J*<sub>Sn-C</sub> 328, 3 × SnCH<sub>2</sub>); <sup>119</sup>Sn NMR (186 MHz) δ -32.7; MS EI *m/z* (rel. int.) 416 (M<sup>+</sup>, 3), 359 (M-Bu<sup>+</sup>, 19), 291 (35), 235 (64), 179 (100), 121 (14); HRMS *m/z* calcd for C<sub>20</sub>H<sub>40</sub>OSn, 416.2096, found 416.2097.



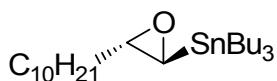
### 1-(Tributylstannyl)-2-cyclododecyl oxirane 6 [R = (CH<sub>2</sub>)<sub>11</sub>]

IR (neat) 2951s, 2929s, 2865s, 2851s, 1470m, 1446m, 1376w, 1346w, 1287w, 1073w, 1023w, 960w, 847m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 2.57 (1 H, s, *J*<sub>Sn-H</sub> 94, C(1)H), 1.84-1.25 (34 H, m, 11 × ring CH<sub>2</sub>, 3 × SnCH<sub>2</sub>CH<sub>2</sub>, 3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>), 1.05-0.84 (15 H, 3 × SnCH<sub>2</sub> and 3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me); <sup>13</sup>C NMR (100 MHz) δ 62.6 (C(2)), 61.2 (C(1)), 32.6 (CH<sub>2</sub>), 32.1 (CH<sub>2</sub>), 29.0 (3 × SnCH<sub>2</sub>C), 27.3 (3 × SnCH<sub>2</sub>CH<sub>2</sub>C), 26.2 (CH<sub>2</sub>), 26.1 (CH<sub>2</sub>), 25.7 (CH<sub>2</sub>), 22.7 (2 × CH<sub>2</sub>), 22.4 (CH<sub>2</sub>), 22.3 (CH<sub>2</sub>), 21.1(CH<sub>2</sub>), 21.0 (CH<sub>2</sub>), 13.7 (3 × SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me), 9.6 (*J*<sub>Sn-C</sub> 327, 3 × SnCH<sub>2</sub>); <sup>119</sup>Sn NMR (186 MHz) δ -40.7; MS EI *m/z* (rel. int.) 486 (M<sup>+</sup>, 2), 429 (M-Bu<sup>+</sup>, 4), 291 (12), 235 (37), 179 (65), 149 (9), 135 (25), 121 (50), 57 (Bu<sup>+</sup>, 100); HRMS *m/z* calcd for C<sub>25</sub>H<sub>50</sub>OSn, 486.2878, found 486.2868.



**(1S,2S)-1-(Tributylstannylyl)-1,2-epoxypropane 6 (R = Me)**

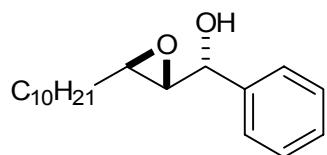
$[\alpha]^{25}_D -43.0$  ( $c = 1.0$ , CHCl<sub>3</sub>); IR (neat) 2957s, 2926s, 2872s, 1464m, 1403m, 1376m, 1267m, 1231m, 1072m, 1039m, 842m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz)  $\delta$  2.91 (1 H, m, C(2)H), 2.43 (1 H, d,  $J$  3.8,  $J_{Sn-H}$  98, C(1)H), 1.62-1.45 (6 H, m, 3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>), 1.39 (3 H, d,  $J$  5.1, Me), 1.37-1.21 (6 H, m, 3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>), 0.98-0.85 (15 H, m, 3  $\times$  SnCH<sub>2</sub>, and 3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me); <sup>13</sup>C NMR (100 MHz)  $\delta$  54.0 (C(1)), 52.0 (C(2)), 29.0 (3  $\times$  SnCH<sub>2</sub>C), 27.3 (3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>C), 20.3 (Me), 13.7 (3  $\times$  SnCH<sub>2</sub>CH<sub>2</sub>CH<sub>2</sub>Me), 8.7 ( $J_{Sn-C}$  329, 3  $\times$  SnCH<sub>2</sub>); <sup>119</sup>Sn NMR (186 MHz)  $\delta$  -33.6; MS ES *m/z* (rel. int.) 366 (M+NH<sub>4</sub><sup>+</sup>, 10), 349 (M+H<sup>+</sup>, 4), 308 (100), 291 (16), 268 (27), 250 (8), 196 (4); HRMS *m/z* calcd for C<sub>15</sub>H<sub>36</sub>NOSn, 366.1813, found 366.1818.



**(1S,2S)-1-(Tributylstannyl)-1,2-epoxydodecane 6 (R = C<sub>10</sub>H<sub>21</sub>)**

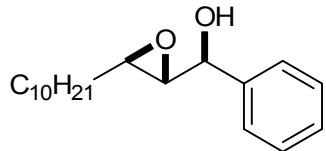
$[\alpha]^{25}_D -27.8$  ( $c = 1.0$ , CHCl<sub>3</sub>); other data as for racemate.

**(III) Characterization data for substituted epoxides 2**



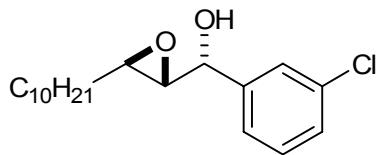
**(1R\*,2R\*,3R\*)-1-Phenyl-2,3-epoxytridecan-1-ol 2 [E = PhCH(OH)]**

IR (neat) 3436br m (OH), 2955m, 2926s, 2855s, 1494w, 1466m, 1455m, 1198w, 1065w, 1027w, 904w, 756w 700m  $\text{cm}^{-1}$ ;  $^1\text{H}$  NMR (400 MHz)  $\delta$  7.41-7.31 (5 H, m, Ph), 4.89 (1 H, d,  $J$  3.0, C(1)H) 3.19 (1 H, td,  $J$  5.9 and 2.5, C(3)H), 2.99 (1 H, t,  $J$  3.0, C(2)H), 2.36 (1 H, broad s, OH), 1.65-1.15 (18 H, m, 9  $\times$  CH<sub>2</sub>), 0.89 (3 H, t,  $J$  7.1, Me);  $^{13}\text{C}$  NMR (100 MHz)  $\delta$  140.1 (C<sub>Ar quat</sub>), 129.0 (2  $\times$  C<sub>Ar</sub>), 128.6 (C<sub>Ar</sub>), 126.8 (2  $\times$  C<sub>Ar</sub>), 71.4 (C(1)), 61.8 (C(2)), 55.6 (C(3)) 32.3 (CH<sub>2</sub>), 31.8 (CH<sub>2</sub>), 30.0 (CH<sub>2</sub>), 29.9 (2  $\times$  CH<sub>2</sub>), 29.7 (2  $\times$  CH<sub>2</sub>), 26.3 (CH<sub>2</sub>), 23.1 (CH<sub>2</sub>), 14.5 (Me); MS ES  $m/z$  (rel. int.) 308 (M+NH<sub>4</sub><sup>+</sup>, 100), 290 (M<sup>+</sup>, 7), 273 (13), 257 (7), 138 (13), 120 (5), 105 (5); HRMS  $m/z$  calcd for C<sub>19</sub>H<sub>34</sub>NO<sub>2</sub>, 308.2590, found 308.2587.



**(1S\*,2R\*,3R\*)-1-Phenyl-2,3-epoxytridecan-1-ol 2 [E = PhCH(OH)]**

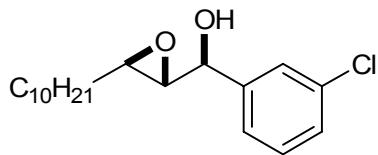
IR (neat) 3432br m (OH), 2948m, 2926s, 2854m, 1720m, 1466m, 1453m, 1273m, 1113w, 1026w, 908m, 841w, 735m, 700m  $\text{cm}^{-1}$ ;  $^1\text{H}$  NMR (400 MHz)  $\delta$  7.44-7.30 (5 H, m, Ph), 4.51 (1 H, t,  $J$  4.9, C(1)H) 3.05 (1 H, td,  $J$  5.6 and 2.3, C(3)H), 2.98 (1 H, dd,  $J$  5.6 and 2.3, C(2)H), 2.49 (1 H, d,  $J$  4.4, OH), 1.65-1.16 (18 H, m, 9  $\times$  CH<sub>2</sub>), 0.89 (3 H, t,  $J$  6.9, Me);  $^{13}\text{C}$  NMR (100 MHz)  $\delta$  140.8 (C<sub>Ar quat</sub>), 129.0 (2  $\times$  C<sub>Ar</sub>), 128.5 (C<sub>Ar</sub>), 126.6 (2  $\times$  C<sub>Ar ortho</sub>), 74.5 (C(1)), 62.7 (C(2)), 57.8 (C(3)) 32.3 (CH<sub>2</sub>), 31.8 (CH<sub>2</sub>), 30.0 (CH<sub>2</sub>), 29.9 (2  $\times$  CH<sub>2</sub>), 29.7 (2  $\times$  CH<sub>2</sub>), 26.3 (CH<sub>2</sub>), 23.1 (CH<sub>2</sub>), 14.5 (Me); MS ES  $m/z$  (rel. int.) 308 (M+NH<sub>4</sub><sup>+</sup>, 96), 290 (M<sup>+</sup>, 13), 273 (14), 257 (100), 202 (8), 170 (7), 138 (33), 124 (8), 105 (12); HRMS  $m/z$  calcd for C<sub>19</sub>H<sub>34</sub>NO<sub>2</sub>, 308.2590, found 308.2593.



**(1*R*\*,2*R*\*,3*R*\*)-1-(3-Chlorophenyl)-2,3-epoxytridecan-1-ol 2 [E = 3-Cl-**

**PhCH(OH)]**

IR (neat) 3429br m (OH), 2925s, 2855s, 1599m, 1576m, 1467m, 1432m, 1197m, 1100m, 1077m, 884m, 786m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 7.40 (1 H, s, C<sub>Ar</sub>H), 7.32-7.24 (3 H, m, 3 × C<sub>Ar</sub>H), 4.85 (1 H, d, *J* 2.7, C(1)H), 3.14 (1 H, td, *J* 5.8 and 2.4, C(3)H), 2.96 (1 H, t, *J* 2.9, C(2)H), 2.45 (1 H, br s, OH), 1.65-1.14 (18 H, m, 9 × CH<sub>2</sub>), 0.89 (3 H, t, *J* 6.8, Me); <sup>13</sup>C NMR (100 MHz) δ 141.7 (C<sub>Ar</sub> quat), 134.5 (C<sub>Ar</sub>Cl), 129.8 (C<sub>Ar</sub>), 128.3 (C<sub>Ar</sub>), 126.4 (C<sub>Ar</sub>), 124.4 (C<sub>Ar</sub>), 70.3 (C(1)), 61.1 (C(2)), 55.2 (C(3)), 31.9 (CH<sub>2</sub>), 31.3 (CH<sub>2</sub>), 29.5 (3 × CH<sub>2</sub>), 29.3 (CH<sub>2</sub>), 29.2 (CH<sub>2</sub>), 25.9 (CH<sub>2</sub>), 22.7 (CH<sub>2</sub>), 14.1 (Me); MS EI *m/z* (rel. int.), 326 [M<sup>+</sup> (<sup>37</sup>Cl)], 6], 324 [M<sup>+</sup> (<sup>35</sup>Cl)], 14], 306 (26), 289 (7), 208 (18), 185 (33), 183 (100), 169 (35), 167 (74); HRMS *m/z* calcd for C<sub>19</sub>H<sub>29</sub>ClO<sub>2</sub>, 324.1851, found 324.1850.

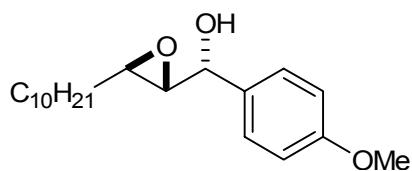


**(1*S*\*,2*R*\*,3*R*\*)-1-(3-Chlorophenyl)-2,3-epoxytridecan-1-ol 2 [E = 3-Cl-**

**PhCH(OH)]**

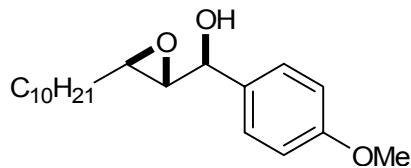
IR (neat) 3415br m (OH), 2925s, 2855s, 1599m, 1575m, 1467m, 1431m, 1195m, 1100m, 1078m, 901m, 785m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 7.43 (1 H, s, C<sub>Ar</sub>H), 7.32-7.27 (3 H, m, 3 × C<sub>Ar</sub>H), 4.49 (1 H, t, *J* 5.1, C(1)H), 3.05 (1 H, td, *J* 5.7 and 2.3, C(3)H), 2.95 (1 H, dd, *J* 5.3 and 2.3, C(2)H), 2.60 (1 H, br s, OH), 1.67-1.17 (18 H, m, 9 × CH<sub>2</sub>), 0.89 (3 H, t, *J* 6.8, Me); <sup>13</sup>C NMR (100 MHz) δ 142.3 (C<sub>Ar</sub> quat), 134.6

(C<sub>Ar</sub>Cl), 129.9 (C<sub>Ar</sub>), 128.2 (C<sub>Ar</sub>), 126.4 (C<sub>Ar</sub>), 124.2 (C<sub>Ar</sub>), 73.3 (C(1)), 62.0 (C(2)), 57.4 (C(3)), 31.9 (CH<sub>2</sub>), 31.4 (CH<sub>2</sub>), 29.5 (3 × CH<sub>2</sub>), 29.3 (2 × CH<sub>2</sub>), 25.8 (CH<sub>2</sub>), 22.7 (CH<sub>2</sub>), 14.1 (Me); MS ES *m/z* (rel. int.) 344 [M+NH<sub>4</sub><sup>+</sup> (<sup>37</sup>Cl), 35], 342 [M<sup>+</sup> (<sup>35</sup>Cl), 100], 326 (9), 308 (10), 291 (28), 200 (5), 139 (5); HRMS *m/z* calcd for C<sub>19</sub>H<sub>33</sub>ClNO<sub>2</sub>, 342.2194, found 342.2196.



**(1*R*<sup>\*</sup>,2*R*<sup>\*</sup>,3*R*<sup>\*</sup>)-1-(4-Methoxyphenyl)-2,3-epoxytridecan-1-ol 2 [E = 4-MeO-  
PhCH(OH)]**

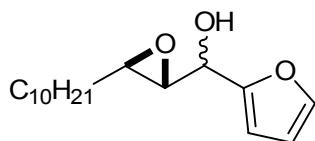
IR (neat) 3435br m (OH), 2925s, 2854s, 1613m, 1586w, 1514s, 1465m, 1249s, 1174m, 1037m, 907w, 832m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 7.31 (2 H, d, *J* 8.9, C<sub>Ar</sub>H<sub>ortho</sub>), 6.91 (2 H, d, *J* 8.9, C<sub>Ar</sub>H<sub>meta</sub>), 4.84 (1 H, br s, C(1)H), 3.82 (3 H, s, OMe), 3.18 (1 H, td, *J* 5.6 and 2.4, C(3)H), 2.95 (1 H, t, *J* .2.7, C(2)H), 2.26 (1 H, d, *J* 1.7, OH), 1.64-1.16 (18 H, m, 9 × CH<sub>2</sub>), 0.89 (3 H, t, *J* 6.8, Me); <sup>13</sup>C NMR (100 MHz) δ 159.5 (C<sub>Ar</sub>OMe), 131.7 (C<sub>Ar</sub> quat), 127.8 (C<sub>Ar</sub> ortho), 114.0 (C<sub>Ar</sub> meta), 70.6 (C(1)), 61.3 (C(2)), 55.3 (C(3)), 55.2 (OMe), 31.9 (CH<sub>2</sub>), 31.5 (CH<sub>2</sub>), 29.6 (CH<sub>2</sub>), 29.5 (2 × CH<sub>2</sub>), 29.3 (2 × CH<sub>2</sub>), 25.9 (CH<sub>2</sub>), 22.7 (CH<sub>2</sub>), 14.1 (Me); MS ES *m/z* (rel. int.) 338 (M+NH<sub>4</sub><sup>+</sup>, 14), 320 (M<sup>+</sup>, 7), 303 (35), 287 (20), 168 (100), 154 (50), 137 (23), 121 (12); HRMS *m/z* calcd for C<sub>20</sub>H<sub>36</sub>NO<sub>3</sub>, 338.2690, found 338.2687.



**(1*S*\*,2*R*\*,3*R*\*)-1-(4-Methoxyphenyl)-2,3-epoxytridecan-1-ol 2 [E = 4-MeO-**

**PhCH(OH)]**

IR (neat) 3381br m (OH), 2955m, 2918s, 2849s, 1613m, 1587w, 1515s, 1469s, 1378m, 1251s, 1177m, 1034m, 906m, 892m  $\text{cm}^{-1}$ ;  $^1\text{H}$  NMR (400 MHz)  $\delta$  7.34 (2 H, d, *J* 8.5, C<sub>Ar</sub>H<sub>ortho</sub>), 6.91 (2 H, d, *J* 8.5, C<sub>Ar</sub>H<sub>meta</sub>), 4.45 (1 H, t, *J* 5.1, C(1)H), 3.82 (3 H, s, OMe), 3.02 (1 H, td, *J* 5.7 and 2.3, C(3)H), 2.96 (1 H, dd, *J* 5.3 and 2.3, C(2)H), 2.44-2.39 (1 H, m, OH), 1.65-1.16 (18 H, m, 9  $\times$  CH<sub>2</sub>), 0.89 (3 H, t, *J* 6.8, Me);  $^{13}\text{C}$  NMR (100 MHz)  $\delta$  159.4 (C<sub>Ar</sub>OMe), 132.6 (C<sub>Ar</sub> quat), 127.5 (C<sub>Ar</sub> ortho), 114.0 (C<sub>Ar</sub> meta), 73.7 (C(1)), 62.3 (C(2)), 57.3 (C(3)), 55.3 (OMe), 31.9 (CH<sub>2</sub>), 31.4 (CH<sub>2</sub>), 29.6 (CH<sub>2</sub>), 29.5 (2  $\times$  CH<sub>2</sub>), 29.3 (2  $\times$  CH<sub>2</sub>), 25.9 (CH<sub>2</sub>), 22.7 (CH<sub>2</sub>), 14.1 (Me); MS ES *m/z* (rel. int.) 338 (M $+\text{NH}_4^+$ , 8), 320 (M $^+$ , 7), 303 (53), 287 (25), 168 (60), 154 (100), 137 (47); HRMS *m/z* calcd for C<sub>20</sub>H<sub>36</sub>NO<sub>3</sub>, 338.2690, found 338.2686.

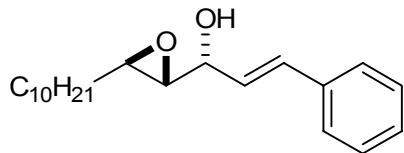


**(1*R*\*,2*R*\*,3*R*\*)-1-(2-Furyl)-2,3-epoxytridecan-1-ol and (1*S*\*,2*R*\*,3*R*\*)-1-(2-furyl)-**

**2,3-epoxytridecan-1-ol 2 (E = 2-furyl, diastereoisomers not separated)**

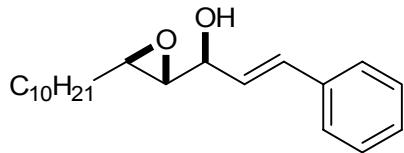
IR (neat) 3414br m (OH), 2925s, 2855s, 1598w, 1504w, 1467m, 1378w, 1226w, 1149m, 1010m, 910m, 735m  $\text{cm}^{-1}$ ;  $^1\text{H}$  NMR (400 MHz)  $\delta$  7.44-7.41 (1 H, m, C<sub>Ar</sub>H), 6.38-6.36 (2 H, m, 2  $\times$  C<sub>Ar</sub>H), 4.90 (0.5 H, d, *J* 3.3, C(1)H), 4.63 (0.5 H, d, *J* 4.3, C(1)H), 3.19 (0.5 H, td, *J* 5.6 and 2.3, C(3)H), 3.13 (0.5 H, dd, *J* 4.3 and 2.3, C(2)H), 3.09-3.03 (1 H, m, C(3)H and C(2)H), 2.39 (1 H, broad s, OH), 1.69-1.19 (18 H, m, 9

$\times \text{CH}_2$ ), 0.89 (3 H, t,  $J$  6.9, Me);  $^{13}\text{C}$  NMR (100 MHz)  $\delta$  153.5 ( $\text{C}_{\text{Ar quat}}$ ), 152.4 ( $\text{C}_{\text{Ar}}$  quat), 142.8 ( $\text{C}_{\text{Ar-5}}$ ), 142.5 ( $\text{C}_{\text{Ar-5}}$ ), 110.3 ( $2 \times \text{C}_{\text{Ar-4}}$ ), 108.0 ( $\text{C}_{\text{Ar-3}}$ ), 107.0 ( $\text{C}_{\text{Ar-3}}$ ), 67.1 (C(1)), 65.1 (C(1)), 59.8 (C(2)), 58.8 (C(2)), 56.3 (C(3)H), 55.5 (C(3)H), 31.9 ( $\text{CH}_2$ ), 31.4 ( $\text{CH}_2$ ), 29.6 ( $\text{CH}_2$ ), 29.5 ( $2 \times \text{CH}_2$ ), 29.3 ( $2 \times \text{CH}_2$ ), 25.9 ( $2 \times \text{CH}_2$ ), 22.7 ( $\text{CH}_2$ ), 14.1 (Me); MS ES  $m/z$  (rel. int.) 298 ( $\text{M}+\text{NH}_4^+$ , 85), 280 ( $\text{M}^+$ , 30), 263 (53), 249 (91), 247 (100), 214 (18), 202 (20), 128 (34), 114 (95), 111 (42); HRMS  $m/z$  calcd for  $\text{C}_{17}\text{H}_{32}\text{NO}_3$ , 298.2377, found 298.2376.



**(1*R*\*,2*R*\*,3*R*\*)-1-(3-Decyl-oxiranyl)-3-phenyl-prop-2-en-1-ol 2 [E = PhCH=CHCH(OH)]**

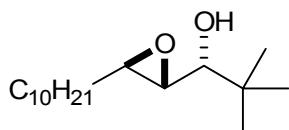
IR (neat) 3412br m (OH), 2956m, 2925s, 2854s, 1601w, 1579w, 1495w, 1467m, 1452m, 968m, 749m  $\text{cm}^{-1}$ ;  $^1\text{H}$  NMR (400 MHz)  $\delta$  7.45-7.23 (5 H, m, Ph), 6.72 (1 H, d,  $J$  15.9, C(5)H), 6.19 (1 H, dd,  $J$  15.9 and 6.7, C(4)H), 4.53-4.47 (1 H, m, C(3)H), 3.07 (1 H, td,  $J$  5.8 and 2.3, C(1)H), 2.94 (1 H, t,  $J$  2.3, C(2)H), 2.11 (1 H, d  $J$  2.3, OH), 1.67-1.17 (18 H, m,  $9 \times \text{CH}_2$ ), 0.89 (3 H, t,  $J$  6.8, Me);  $^{13}\text{C}$  NMR (100 MHz)  $\delta$  136.3 ( $\text{C}_{\text{Ar quat}}$ ), 132.7 (C(5)), 128.6 ( $2 \times \text{C}_{\text{Ar}}$ ), 128.0 ( $\text{C}_{\text{Ar}}$ ), 126.7 (C(4)), 126.6 ( $2 \times \text{C}_{\text{Ar}}$ ), 70.0 (C(3)), 60.2 (C(2)), 55.2 (C(1)), 31.9 ( $\text{CH}_2$ ), 31.5 ( $\text{CH}_2$ ), 29.6 ( $\text{CH}_2$ ), 29.5 ( $2 \times \text{CH}_2$ ), 29.4 ( $\text{CH}_2$ ), 29.3 ( $\text{CH}_2$ ), 26.0 ( $\text{CH}_2$ ), 22.7 ( $\text{CH}_2$ ), 14.1 (Me); MS ES  $m/z$  (rel. int.) 334 ( $\text{M}+\text{NH}_4^+$ , 35), 316 ( $\text{M}^+$ , 15), 299 ( $\text{M}-\text{OH}^+$ , 100), 283 (18), 208 (13), 164 (69), 150 (73), 133 (22), 104 (12); HRMS  $m/z$  calcd for  $\text{C}_{21}\text{H}_{36}\text{NO}_2$ , 334.2741, found 334.2737.



**(1*S*\*,2*R*\*,3*R*\*)-1-(3-Decyl-oxiranyl)-3-phenyl-prop-2-en-1-ol 2 (E =**

**PhCH=CHCH(OH)]**

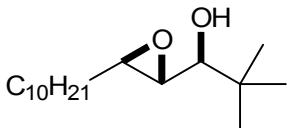
IR (neat) 3410br m (OH), 2956m, 2925s, 2854s, 1601w, 1495w, 1465m, 1453m, 968m, 749m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 7.44-7.24 (5 H, m, Ph), 6.72 (1 H, d, *J* 16.2, C(5)H), 6.28 (1 H, dd, *J* 16.2 and 6.2, C(4)H), 4.23-4.17 (1 H, m, C(3)H), 3.02 (1 H, td, *J* 5.6 and 2.3, C(1)H), 2.92 (1 H, dd, *J* 5.3 and 2.3, C(2)H), 2.15-2.09 (1 H, m, OH), 1.64-1.17 (18 H, m, 9 × CH<sub>2</sub>), 0.89 (3 H, t, *J* 6.9, Me); <sup>13</sup>C NMR (100 MHz) δ 136.3 (C<sub>Ar</sub> quat), 131.9 (C(5)), 128.6 (2 × C<sub>Ar</sub>), 128.0 (C<sub>Ar</sub>), 127.4 (C(4)), 126.6 (2 × C<sub>Ar</sub>), 72.2 (C(3)), 61.1 (C(2)), 56.8 (C(1)), 31.9 (CH<sub>2</sub>), 31.5 (CH<sub>2</sub>), 29.6 (CH<sub>2</sub>), 29.5 (2 × CH<sub>2</sub>), 29.4 (CH<sub>2</sub>), 29.3 (CH<sub>2</sub>), 25.9 (CH<sub>2</sub>), 22.7 (CH<sub>2</sub>), 14.1 (Me); MS ES *m/z* (rel. int.) 334 (M+NH<sub>4</sub><sup>+</sup>, 23), 316 (M<sup>+</sup>, 13), 299 (M-OH<sup>+</sup>, 100), 283 (14), 208 (11), 164 (43), 150 (100), 133 (32), 104 (13); HRMS *m/z* calcd for C<sub>21</sub>H<sub>36</sub>NO<sub>2</sub>, 334.2741, found 334.2742.



**(1*R*\*,2*R*\*,3*R*\*)-1-tert-Butyl-2,3-epoxytridecan-1-ol 2 [E = *t*-BuCH(OH)]**

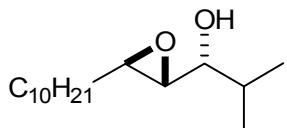
IR (neat) 3469br m (OH), 2951s, 2926s, 2855s, 1480m, 1467s, 1364m, 1287w, 1246w, 1216w, 1184w, 1117w, 1052w, 1016m, 904m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 3.50 (1 H, t, *J* 2.3, C(1)H), 3.03 (1 H, td, *J* 5.5 and 2.4, C(3)H), 2.87 (1 H, t, *J* .2.8, C(2)H), 1.86 (1 H, d, *J* 1.8, OH), 1.64-1.21 (18 H, m, 9 × CH<sub>2</sub>), 0.99 (9 H, s, <sup>3</sup>Bu), 0.89 (3 H, t, *J* 6.9, Me); <sup>13</sup>C NMR (100 MHz) δ 75.5 (C(1)), 58.3 (C(2)), 55.0 (C(3)),

34.2 (CMe<sub>3</sub>), 31.9 (CH<sub>2</sub>), 31.7 (CH<sub>2</sub>), 29.6 (CH<sub>2</sub>), 29.5 (3 × CH<sub>2</sub>), 29.3 (CH<sub>2</sub>), 26.0 (CMe<sub>3</sub> + CH<sub>2</sub>), 22.7 (CH<sub>2</sub>), 14.1 (Me); MS ES *m/z* (rel. int.) 288 (M+NH<sub>4</sub><sup>+</sup>, 1), 271 (M+H<sup>+</sup>, 5), 253 (22), 183 (11), 129 (4); HRMS *m/z* calcd for C<sub>17</sub>H<sub>38</sub>NO<sub>2</sub>, 288.2897, found 288.2909.



**(1*S*\*,2*R*\*,3*R*\*)-1-*tert*-Butyl-2,3-epoxytridecan-1-ol 2 [E = *t*-BuCH(OH)]**

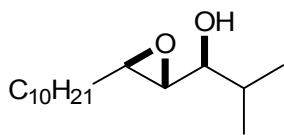
IR (neat) 3397br m (OH), 2959m, 2918s, 2852m, 1470s, 1362m, 1318w, 1256w, 1192w, 1100m, 1021m, 1007m, 906m, 895s cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 3.08 (1 H, dd, *J* 6.1 and 4.8, C(1)H), 2.91-2.84 (2 H, m, C(3)H and C(2)H), 2.02-1.98 (1 H, m, OH), 1.65-1.19 (18 H, m, 9 × CH<sub>2</sub>), 0.99 (9 H, s, <sup>t</sup>Bu), 0.89 (3 H, t, *J* 6.9, Me); <sup>13</sup>C NMR (100 MHz) δ 78.1 (C(1)), 58.5 (C(2)), 57.2 (C(3)), 34.7 (CMe<sub>3</sub>), 31.9 (CH<sub>2</sub>), 31.6 (CH<sub>2</sub>), 29.6 (CH<sub>2</sub>), 29.5 (3 × CH<sub>2</sub>), 29.3 (CH<sub>2</sub>), 25.9 (CH<sub>2</sub>), 25.8 (CMe<sub>3</sub>), 22.7 (CH<sub>2</sub>), 14.1 (Me); MS ES *m/z* (rel. int.) 288 (M+NH<sub>4</sub><sup>+</sup>, 100), 270 (M<sup>+</sup>, 5), 253 (15), 183 (10), 117 (3); HRMS *m/z* calcd for C<sub>17</sub>H<sub>38</sub>NO<sub>2</sub>, 288.2897, found 288.2892.



**(1*R*\*,2*R*\*,3*R*\*)-1-*iso*-Propyl-2,3-epoxytridecan-1-ol 2 [E = *i*-PrCH(OH)]**

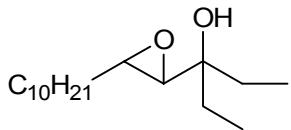
IR (neat) 3446br m (OH), 2958s, 2926s, 2855s, 1467m, 1379w, 1367w, 1256w, 1177w, 1153w, 1078w, 1025m, 906m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 3.62-3.57 (1 H, m, C(1)H), 3.02 (1 H, td, *J* 5.6 and 2.4, C(3)H), 2.82 (1 H, t, *J* 2.8, C(2)H), 1.89-1.78 (2 H, m, CHMe<sub>2</sub>, and OH), 1.61-1.20 (18 H, m, 9 × CH<sub>2</sub>), 1.02 (3 H, d, *J* 4.0, CHMe<sub>a</sub>),

1.00 (3 H, d, *J* 4.0, CH*Me<sub>b</sub>*), 0.89 (3 H, t, *J* 6.9, Me); <sup>13</sup>C NMR (100 MHz) δ 72.9 (C(1)), 59.6 (C(2)), 54.9 (C(3)), 31.9 (CH<sub>2</sub>), 31.7 (C*Me<sub>2</sub>*), 31.6 (CH<sub>2</sub>), 29.6 (CH<sub>2</sub>), 29.5 (2 × CH<sub>2</sub>), 29.4 (CH<sub>2</sub>), 29.3 (CH<sub>2</sub>), 26.0 (CH<sub>2</sub>), 22.7 (CH<sub>2</sub>), 18.5 and 17.8 (C*Me<sub>2</sub>*), 14.1 (Me); MS ES *m/z* (rel. int.) 274 (M+NH<sub>4</sub><sup>+</sup>, 100), 256 (M<sup>+</sup>, 35), 240 (70), 223 (20), 202 (30), 158 (12), 104 (18); HRMS *m/z* calcd for C<sub>16</sub>H<sub>36</sub>NO<sub>2</sub>, 274.2741, found 274.2743.



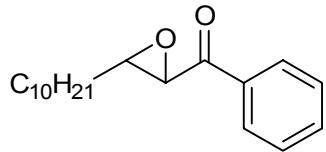
**(1*S*<sup>\*,</sup>2*R*<sup>\*,</sup>3*R*<sup>\*</sup>)-1-*iso*-Propyl-2,3-epoxytridecan-1-ol 2 [E = *i*-PrCH(OH)]**

IR (neat) 3437br m (OH), 2958s, 2926s, 2855s, 1467m, 1380w, 1364w, 1246w, 1148w, 1080w, 1025m, 902m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 3.17 (1 H, q, *J* 5.8, C(1)H), 2.90 (1 H, td, *J* 5.8 and 2.3, C(3)H), 2.78 (1 H, dd, *J* .5.2 and 2.3, C(2)H), 1.97-1.93 (1 H, m, OH), 1.83 (1 H, tq, *J* 6.8, CH*Me<sub>2</sub>*), 1.61-1.21 (18 H, m, 9 × CH<sub>2</sub>), 1.02 (3 H, d, *J* 6.8, CH*Me<sub>a</sub>*), 0.98 (3 H, d, *J* 6.8, CH*Me<sub>b</sub>*), 0.89 (3 H, t, *J* 7.1, Me); <sup>13</sup>C NMR (100 MHz) δ 76.0 (C(1)), 60.3 (C(2)), 57.1 (C(3)), 32.5 (C*Me<sub>2</sub>*), 31.9 (CH<sub>2</sub>), 31.6 (CH<sub>2</sub>), 29.6 (CH<sub>2</sub>), 29.5 (2 × CH<sub>2</sub>), 29.4 (CH<sub>2</sub>), 29.3 (CH<sub>2</sub>), 25.9 (CH<sub>2</sub>), 22.7 (CH<sub>2</sub>), 18.4 and 18.1 (C*Me<sub>2</sub>*), 14.0 (Me); MS ES *m/z* (rel. int.) 274 ((M+NH<sub>4</sub><sup>+</sup>, 94), 256 (M<sup>+</sup>, 27), 240 (35), 202 (22), 158 (34), 104 (37); HRMS *m/z* calcd for C<sub>16</sub>H<sub>36</sub>NO<sub>2</sub>, 274.2741, found 274.2739.



**(2*R*\*,3*R*\*)-1,1-Diethyl-2,3-epoxytridecan-1-ol 2 [E = Et<sub>2</sub>C(OH)]**

IR (neat) 3481br m (OH), 2963s, 2925s, 2855s, 1464s, 1378m, 1304w, 1262w, 898m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 2.99 (1 H, td, *J* 5.8 and 2.3, C(3)H), 2.69 (1 H, t, *J* .2.3, C(2)H), 1.73 (1 H, s, OH), 1.64-1.20 (22 H, m, 11 × CH<sub>2</sub>), 0.98-0.84 (9 H, m, 3 × Me); <sup>13</sup>C NMR (100 MHz) δ 71.0 (C(1)), 62.9 (C(2)), 54.8 (C(3)), 31.9 (2 × CH<sub>2</sub>), 31.7 (CH<sub>2</sub>), 29.6 (CH<sub>2</sub>), 29.5 (3 × CH<sub>2</sub>), 29.3 (CH<sub>2</sub>), 28.8 (CH<sub>2</sub>), 26.1 (CH<sub>2</sub>), 22.7 (CH<sub>2</sub>), 14.1 (Me), 7.6 (2 × Me); MS ES *m/z* (rel. int.) 288 (M+NH<sub>4</sub><sup>+</sup>, 100), 270 (M<sup>+</sup>, 8), 254 (M-OH<sup>+</sup>, 31), 237 (53), 170 (11), 104 (7); HRMS *m/z* calcd for C<sub>17</sub>H<sub>38</sub>NO<sub>2</sub>, 288.2897, found 288.2898.



**(2*R*\*,3*S*\*)-1-Phenyl-2,3-epoxytridecan-1-one 2 (E = PhCO)**

IR (neat) 2954m, 2918s, 2850s, 1690s (C=O), 1598w, 1580w, 1469m, 1450m, 1232m, 1077w, 877m cm<sup>-1</sup>; <sup>1</sup>H NMR (400 MHz) δ 8.02 (2 H, d, *J* 7.3, 2 × C<sub>Ar</sub>H), 7.63 (1 H, d, *J* 7.3, C<sub>Ar</sub>H), 7.51 (2 H, d, *J* 7.7, 2 × C<sub>Ar</sub>H), 4.03 (1 H, d, *J* 2.0, C(2)H), 3.15 (1 H, td, *J* 5.6 and 2.0, C(3)H), 1.84-1.66 (2 H, m, C(4)H<sub>2</sub>), 1.59-1.20 (16 H, m, 8 × CH<sub>2</sub>), 0.89 (3 H, t, *J* 6.8, Me); <sup>13</sup>C NMR (100 MHz) δ 194.7 (C=O), 135.6 (C<sub>Ar</sub> quat), 133.8 (C<sub>Ar</sub> para), 128.8 (C<sub>Ar</sub> ortho), 128.3 (C<sub>Ar</sub> meta), 60.1 (C(3)), 57.4 (C(2)), 32.0 (CH<sub>2</sub>), 31.9 (CH<sub>2</sub>), 29.5 (2 × CH<sub>2</sub>), 29.4 (CH<sub>2</sub>), 29.3 (2 × CH<sub>2</sub>), 25.8 (CH<sub>2</sub>), 22.7 (CH<sub>2</sub>), 14.1 (Me); MS CI *m/z* (rel. int.) 289 (M+H<sup>+</sup>, 50), 273 (100), 159 (8), 133 (5), 120 (12), 105 (58); HRMS *m/z* calcd for C<sub>19</sub>H<sub>29</sub>O<sub>2</sub>, 289.2168, found 289.2168.