A Reassignment of (-) Mycothiazole and the Isolation of a Related Diol

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Document = myco-2005_SI_R3_01.doc (11/28/05)

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[Supporting Information]

Experimental Procedure.

Figure S1. Original ¹H-NMR of compound **3** in benzene- d_6 at 300 MHz.

Figure S2. Simulated versus experimental ¹H-NMR of H-15 for compound 3 in benzene- d_6 .

Figure S3. ¹H NMR spectrum of 3 in benzene- d_6 at 600 MHz.

Figure S4. NOE enhancement of H-13 of 3 in benzene- d_6 at 600 MHz.

Figure S5. NOE enhancement of H-16 of **3** in benzene- d_6 at 600 MHz.

Figure S6. ¹H NMR spectrum of 3 in CDCl₃ at 500 MHz.

Figure S7. ¹H NMR spectrum of 6 in DMSO- d_6 at 500 MHz.

Figure S8. ¹³C NMR spectrum of 6 in DMSO- d_6 at 125 MHz.

Figure S9. Isolation scheme.

Figure S10. NCI 60 cell line GI₅₀ mean graph for 3.

Figure S11. gHMQC spectrum of 6 in DMSO- d_6 at 500 MHz.

Figure S12. gHMBC spectrum of 6 in DMSO- d_6 at 500 MHz.

Figure S13 Expansion of gHMBC spectrum of 6 in DMSO-*d*₆ at 500 MHz.

Table S1. Comparison of ¹³C-NMR of Synthetic Mycothiazole with Natural Mycothiazole (**3**) and Mycothiazole-4,19-diol (**6**).

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Figure S1. Original ¹H-NMR of compound **3** in benzene- d_6 at 300 MHz.







Figure S3. ¹H NMR spectrum of **3** in benzene- d_6 at 600 MHz.



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Figure S10. NCI 60 cell line GI_{50} mean graph for 3.

| GI _{FO} Mean Graph for Compound 647640 | |
|---|--|
| NCI Cancer Screen Current Data, August 2004 | |
| Average GI _{co} over all cell lines is 2.84E-5 | |

| Cell Panel | Cell Line | Log GI ₅₀ | GI ₅₀ |
|------------------------|-----------------|----------------------|--------------------|
| Leukemia | CCRF-CEM | -4.5 | |
| | HL-60(TB) | -5.0 | |
| | K-562 | -6.1 | |
| | MOLT-4 | -4.4 | |
| | RPMI-8226 | -4.5 | |
| | SR | -6.3 | |
| Non-Small Cell Lung | A549/ATCC | -4.4 | |
| | EKVX | -4.6 | |
| | HOP-62 | -4.0 | |
| | HOP-92 | -4.7 | |
| | NCI-H226 | -4.0 | |
| | NCI-H23 | -6.6 | |
| | NCI-H322M | -4.8 | |
| | NCI-H460 | -4.5 | |
| | NCI-H522 | -4.7 | |
| | LXFL 529 | -4.7 | |
| Small Cell Lung | DMS 114 | -7.9 | |
| | DMS 273 | -5.5 | |
| Colon | COLO 205 | -4.2 | |
| | DLD-1 | -4.1 | |
| | HCC-2998 | -4.0 | |
| | HCT-116 | -6.2 | |
| | HCT-15 | -4.4 | |
| | HT29 | -4.3 | |
| | KM12 | -4.2 | |
| | KM20L2 | -4.3 | |
| | SW-620 | -4.6 | |
| Central Nervous System | SF-268 | -4.1 | |
| | SF-295 | -5.9 | |
| | SF-039 | -4.0 | |
| | CND 75 | -4.0 | |
| | U1251 | -4.4 | |
| | YE 408 | -4.1 | |
| Melanoma | | -4.4 | |
| in ordinomia | MALME-3M | -4.0 | |
| | M14 | -4.4 | |
| | M19-MEL | -4.6 | |
| | SK-MEL-2 | -4.0 | |
| | SK-MEL-28 | -4.1 | |
| | SK-MEL-5 | -5.9 | |
| | UACC-257 | -5.8 | |
| | UACC-62 | -4.4 | |
| Ovarian | IGROV1 | -4.5 | |
| | OVCAR-3 | -4.6 | |
| | OVCAR-4 | -4.2 | |
| | OVCAR-5 | -4.0 | |
| | OVCAR-8 | -4.1 | |
| Dentel | SK-OV-3 | -4.1 | |
| Renal | /80-0 | -4.0 | |
| | A490 | -4.2 | |
| | CAKL1 | -4.3 | |
| | RXE 303 | -4.2 | |
| | RXE-631 | -4.0 | |
| | SN12C | -4.0 | |
| | TK-10 | -4.0 | |
| | UO-31 | -4.1 | |
| Prostate | PC-3 | -4.0 | |
| | DU-145 | -4.0 | |
| Breast | MCF7 | -4.0 | |
| | NCI/ADR-RES | -4.1 | |
| | HS 578T | -4.0 | |
| | MDA-MB-435 | -4.3 | |
| | MDA-N | -4,3 | |
| | B1-549 T-47D | -5,5 | |
| | 1-470 | -4.0 -4 | -3 -2 -1 0 1 2 3 4 |
| | | | |



Figure S11. gHMQC spectrum of **6** in DMSO- d_6 at 500 MHz.



Figure S12. gHMBC spectrum of **6** in DMSO- d_6 at 500 MHz.



Figure S13 Expansion of gHMBC spectrum of 6 in DMSO- d_6 at 500 MHz.

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| | synthetic (-)-mycothiazole ^{<i>a</i>} | synthetic (-)-mycothiazole ^b | natural mycothiazole $(3)^c$ | mycothiazole-4,19- diol (6) |
|----------|---|---|--|--|
| Position | õc | $\delta_{\rm C}$ | δ _c | $\delta_{\rm C}$ |
| 1 | 157.2 | 157.1 | 157.1 | 156.6 |
| 7 | 39.4 | 39.4 | 39.4 | 36.1 |
| С | 37.1 | 37.1 | 37.1 | 36.7 |
| 4 | * | 142.5 | 142.4 | 73.7 |
| 5 | 130.9 | 130.9 | 130.8 | 135.0 |
| 9 | 130.6 | 130.6 | 130.8 | 129.8 |
| 7 | 30.6 | 30.6 | 30.6 | 35.2 |
| 8 | 78.1 | 78.1 | 78.1 | 77.3 |
| 6 | 44.6 | 44.5 | 44.5 | 45.3 |
| 10 | * | 179.4 | 179.4 | 177.7 |
| 11 | 112.0 | 112 | 111.8 | 112.8 |
| 12 | 155.4 | 155.4 | 154.9 | 154.0 |
| 13 | 34.7 | 34.7 | 29.4 | 29.2 |
| 14 | 127.6 | 127.6 | 126.7 | 127.6 |
| 15 | 130.5 | 130.4 | 128.8 | 127.9 |
| 16 | 36.6 | 36.6 | 31.5 | 31.3 |
| 17 | 136.8 | 136.8 | 136.4 | 136.7 |
| 18 | 115.2 | 115.2 | 115 | 115.1 |
| 19 | 115.9 | 115.8 | 115.8 | 68.8 |
| 20 | 26.7 | 26.7 | 26.6 | 25.9 |
| 21 | 23.9 | 23.9 | 23.9 | 23.6 |
| 0-Me | 51.8 | 51.8 | 51.8 | 51.1 |
| | ^a Data from Le Flohic et. al Org. Lett. 2005, 7, 339- | ^b Data from Sugiyama <i>et. al</i> <i>Tetrahedron</i> 2003 , 59, | ^c Data from Crews et. al J.A.C.S. 1988 , 110, | |
| | 342. | 6579-6593 | 4365-4368. | |
| | Obtained in CDCl ₃ | Obtained in CDCl ₃ | Obtained in CDCl ₃ | ^d Obtained in DMSO-d ₂ |