

A cost-effective synthesis of enantiopure ovothiol A from L-histidine, its natural precursor

Arash Mirzahosseini,^{a,b} Sándor Hosztafi,^{a,b} Gergő Tóth,^{a,b} and Béla Noszál^{a,b*}

^a Department of Pharmaceutical Chemistry, Semmelweis University, Hőgyes Endre utca 9.
Budapest, 1092, Hungary

^b Research Group of Drugs of Abuse and Doping Agents, Hungarian Academy of Sciences,
Széchenyi István tér 9., Budapest, 1051, Hungary

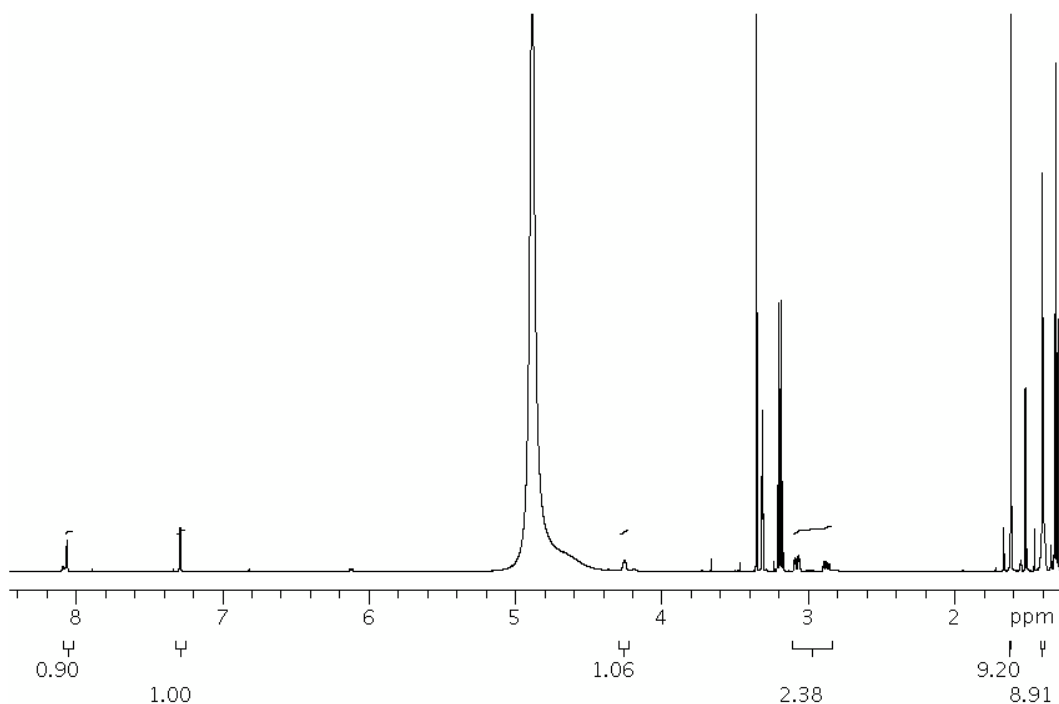
E-mail: noszal.bela@pharma.semmelweis-univ.hu

Table of contents

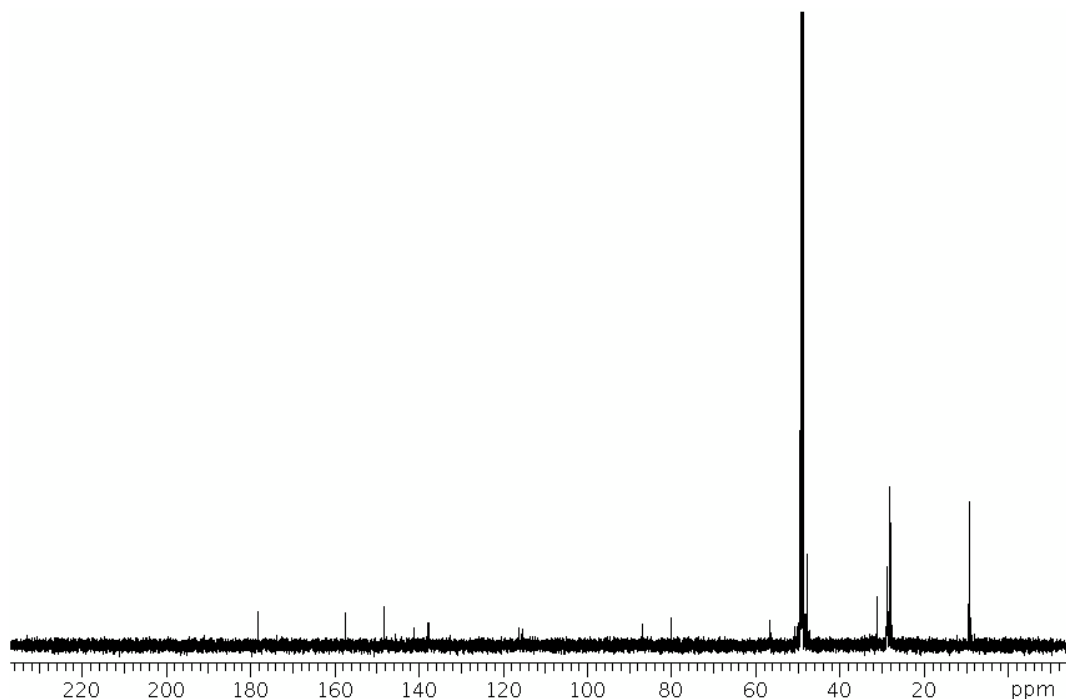
Figure S1	page S2
Figure S2	page S3
Figure S3	page S3
Figure S4	page S4
Figure S5	page S4
Figure S6	page S5
Figure S7	page S5
Figure S8	page S6
Figure S9	page S6
Figure S10	page S7
Figure S11	page S7
Figure S12	page S8
Figure S13	page S8
Figure S14	page S9

NMR spectra

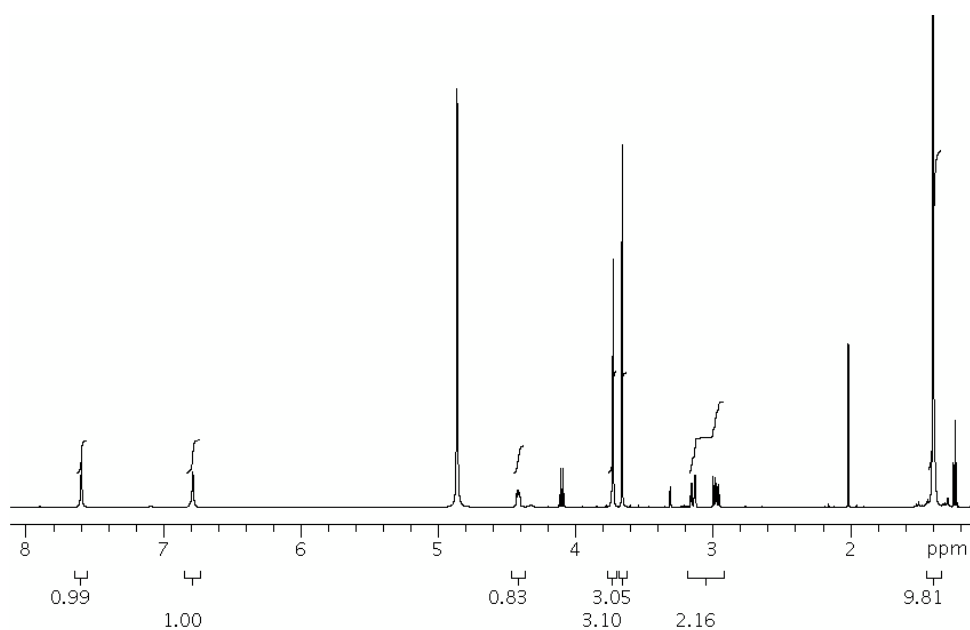
In all NMR spectra analyses the ^1H and ^{13}C peaks of the solvent (CD_3OD , D_2O) was adjusted to its ppm value downstream of tetramethylsilane (TMS) or sodium 3-trimethylsilylpropane-1-sulfonate (DSS)¹.



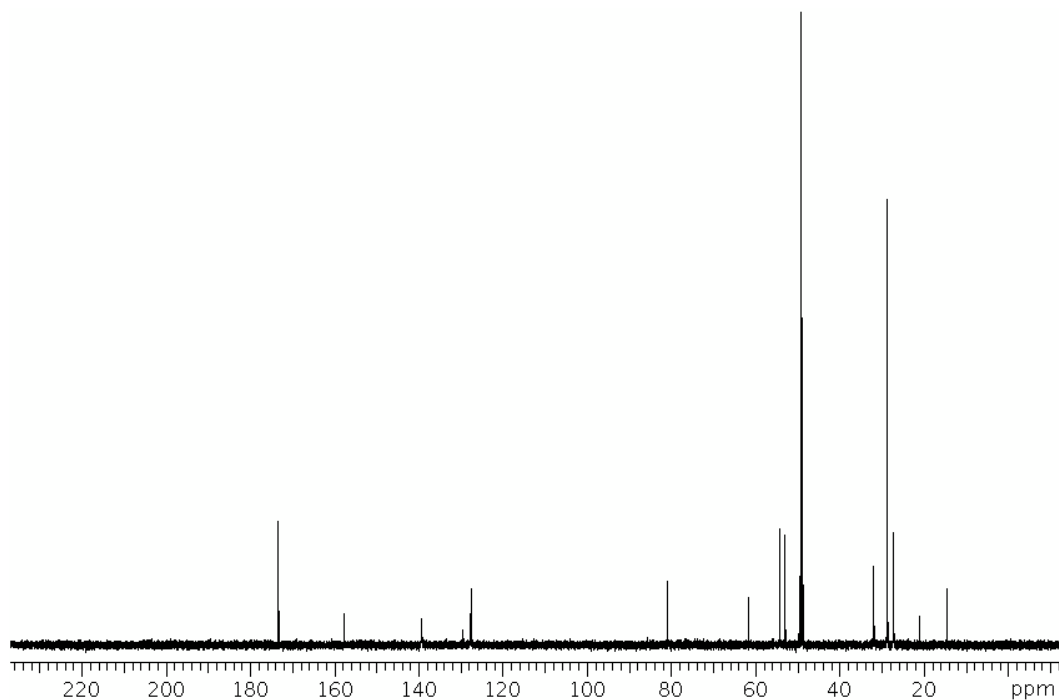
Supplementary Figure S1. The ^1H NMR spectrum of (2), with residual solvent peaks (triethylamine, water, methanol).



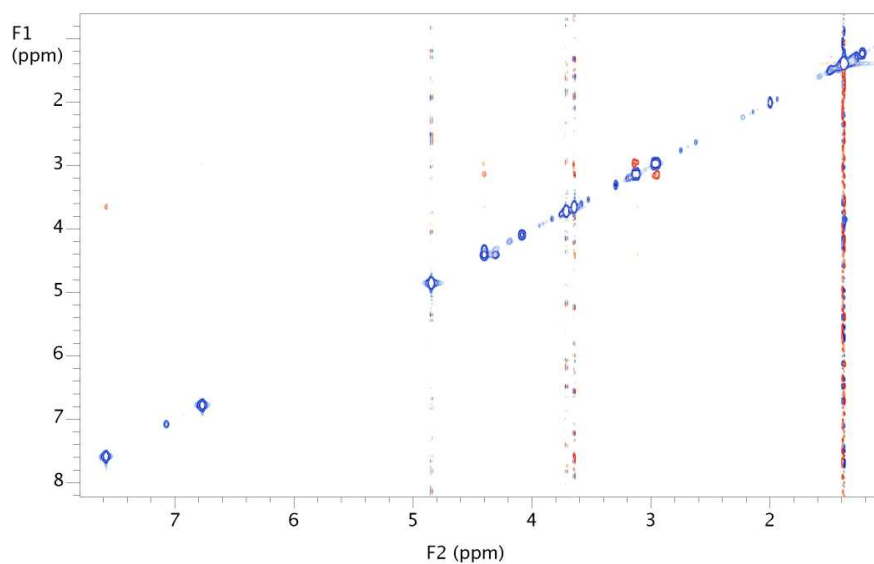
Supplementary Figure S2. The ^{13}C NMR spectrum of (2), with residual solvent peaks (triethylamine, methanol).



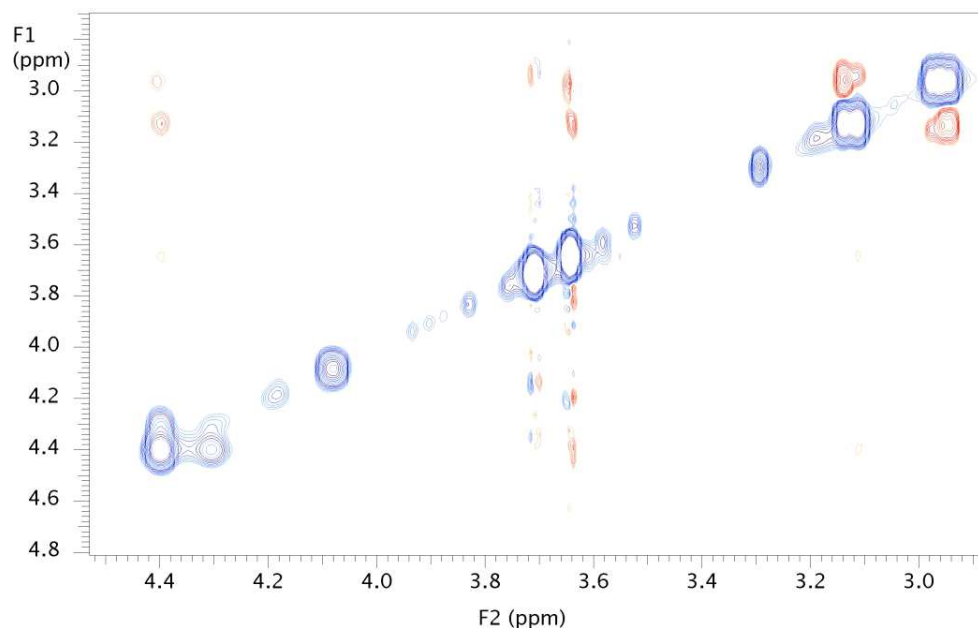
Supplementary Figure S3. The ^1H NMR spectrum of (3), with residual solvent peaks (ethyl acetate, water).



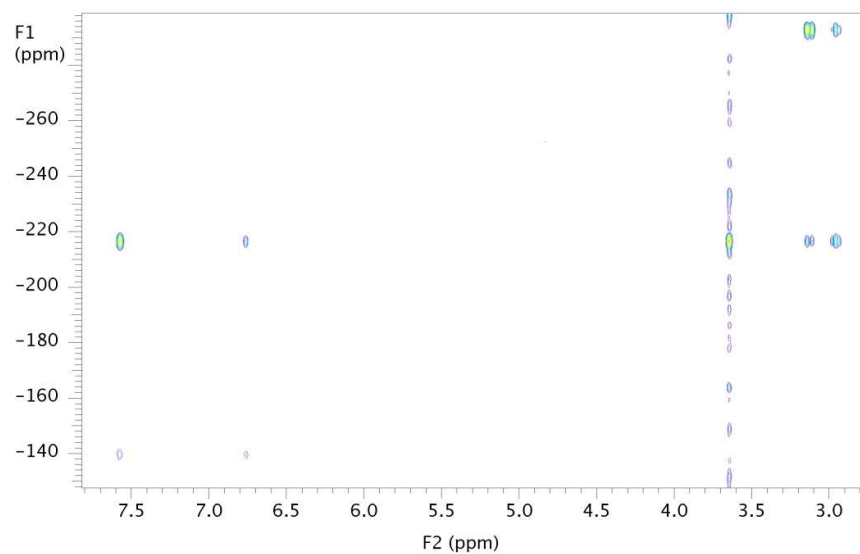
Supplementary Figure S4. The ^{13}C NMR spectrum of (3), with residual solvent peaks (ethyl acetate).



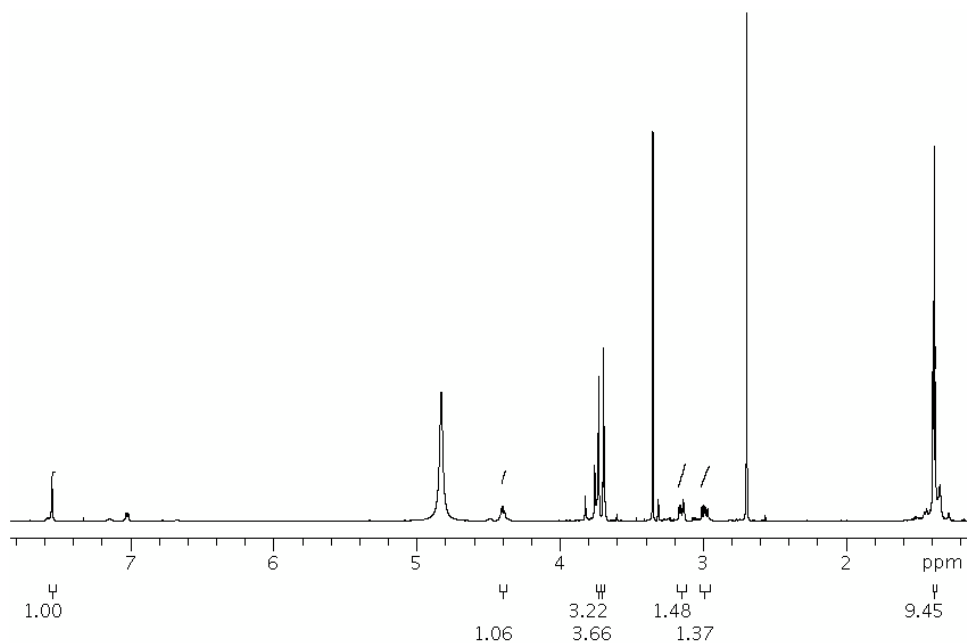
Supplementary Figure S5. The NOESY NMR spectrum of (3). Mixing time was set to 500 ms.



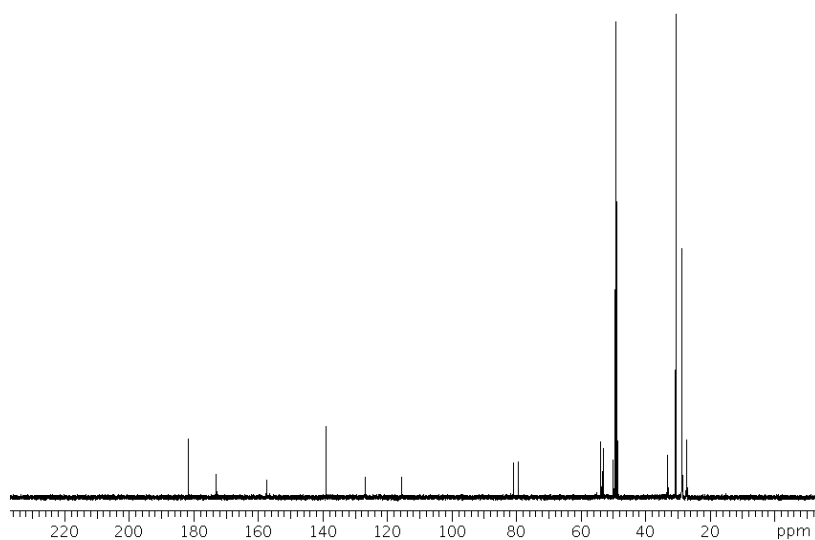
Supplementary Figure S6. The expanded region of $N^{\pi}CH$ of the NOESY NMR spectrum of (3).



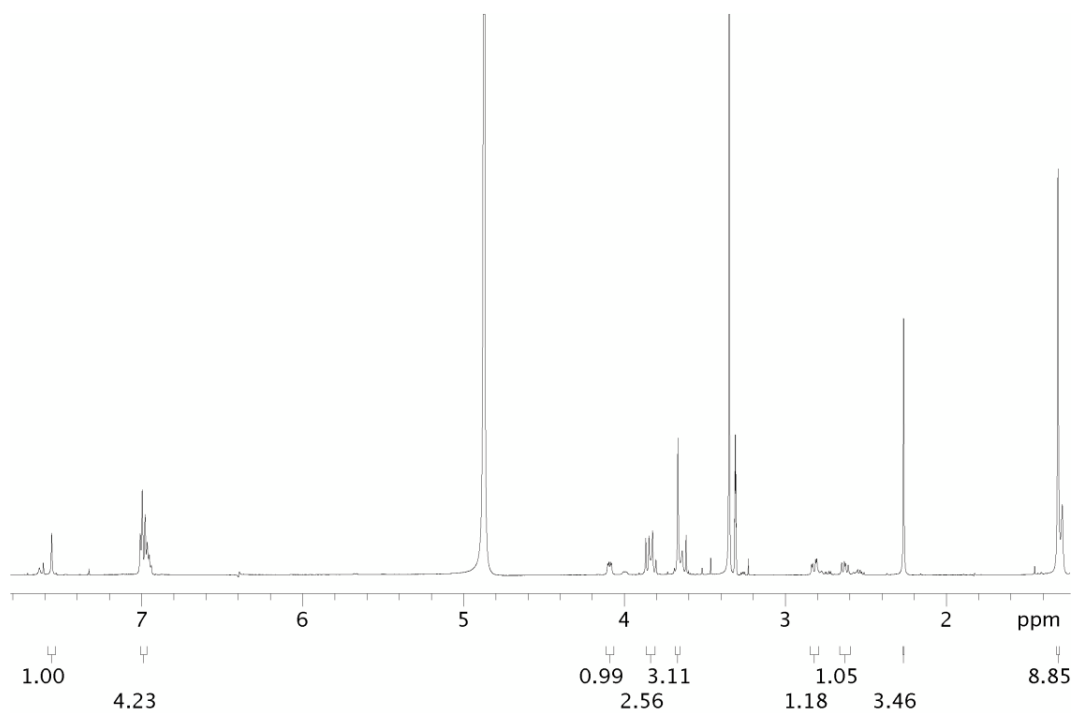
Supplementary Figure S7. The 1H - ^{15}N HMBC NMR spectrum of (3). Coupling constant parameter was set to 8 Hz.



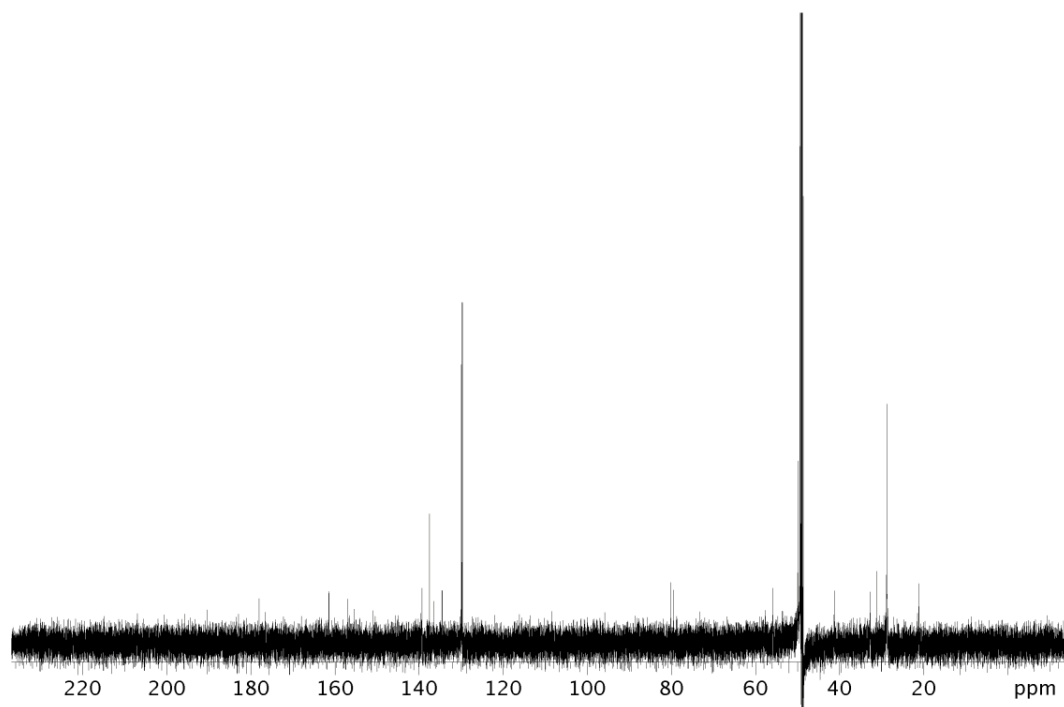
Supplementary Figure S8. The ^1H NMR spectrum of (4), with residual solvent peaks (methanol, water) and residual succinimide.



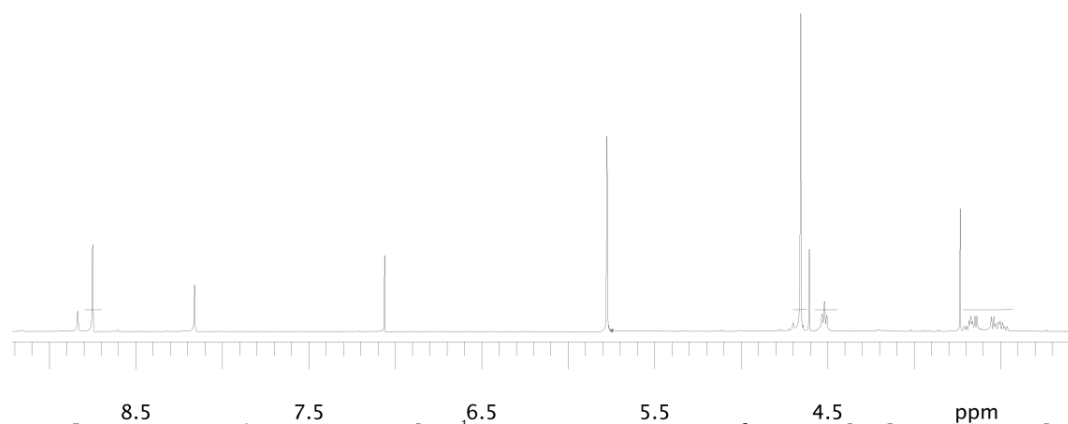
Supplementary Figure S9. The ^{13}C NMR spectrum of (4), with residual solvent peaks (methanol, water) and residual succinimide.



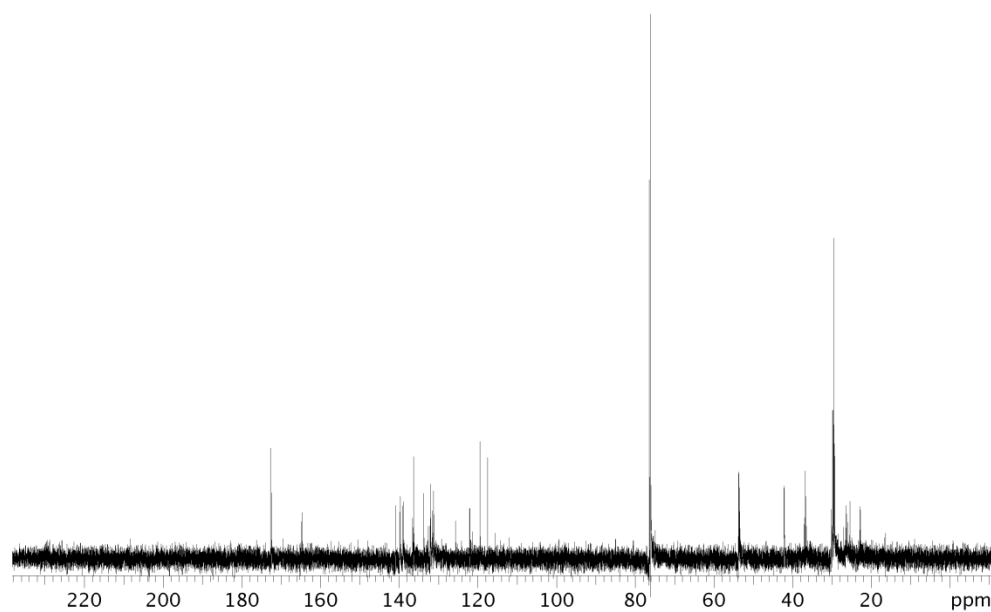
Supplementary Figure S10. The ^1H NMR spectrum of (5), with residual solvent peaks (water, methanol).



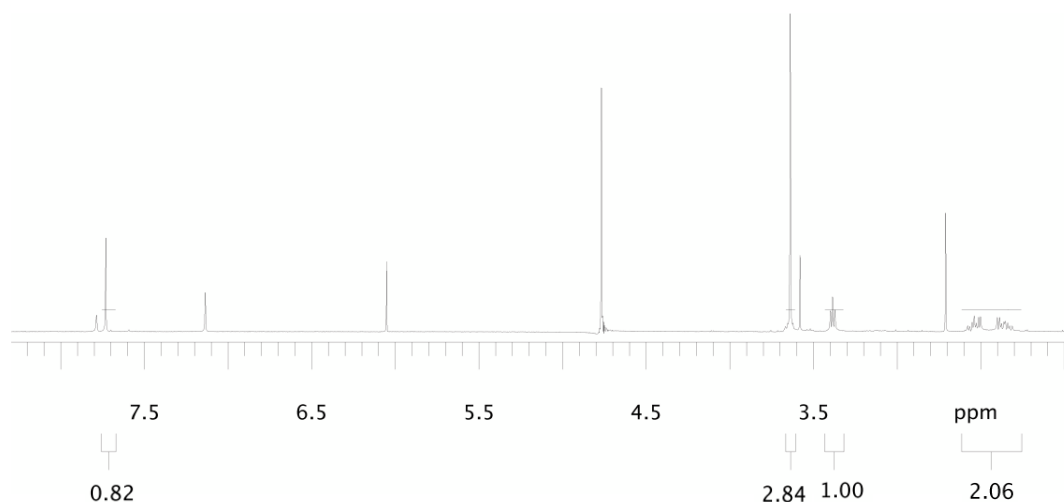
Supplementary Figure S11. The ^{13}C NMR spectrum of (5).



Supplementary Figure S12. The ^1H NMR spectrum of L-ovothiol A (**6**), with residual solvent peaks (water) and supplementary *in situ* NMR pH indicators: imidazole, dichloroacetic acid, sarcosine.



Supplementary Figure S13. The ^{13}C NMR spectrum of L-ovothiol A (**6**).



Supplementary Figure S14. The ^1H NMR spectrum of L-ovoithiol A disulfide (**7**), with residual solvent peaks (water) and supplementary *in situ* NMR pH indicators^[2]: imidazole, dichloroacetic acid, sarcosine.

References

1. Fulmer, G. R.; Miller, A. J. M.; Sherden, N. H.; Gottlieb, H. E.; Nudelman, A.; Stoltz, B. M.;
2. Bercaw, J.E.;Goldberg, K.I *Organometallics*. **2010**, 29, 2176-2179.
3. Orgován, G.;Noszál, B. *J. Pharm. Biomed. Anal.* **2011**, 54, 958-964.