Synthesis of anti and syn Hydroxy-iso-Evoninic Acids
Sarah A. Warren, Stephen Stokes, Christopher S. Frampton, Andrew J. P. White and Alan C. Spivey*  
Department of Chemistry, Imperial College, London, SW7 2AY, UK, AstraZeneca, Alderley Park, Macclesfield, Cheshire, SK10 4TG, Pharmorphix® Solid State Services, Sigma-Aldrich Group, 250 Cambridge Science Park, Milton Road, Cambridge, CB4 0WE, UK.  
a.c.spivey@imperial.ac.uk

Supporting Information — X-Ray Crystallography

The X-ray crystal structure of (–)-(2R,3S)-6a
Crystal data for (–)-(2R,3S)-6a: C_{12}H_{17}NO_{3}, M = 223.27, orthorhombic, P2_12_12_1 (no. 19), a = 7.5034(2), b = 12.2919(4), c = 13.0178(4) Å, V = 1200.65(6) Å^3, Z = 4, D_c = 1.235 g cm^{-3}, μ(Cu-Kα) = 0.725 mm^{-1}, T = 100 K, colourless laths, Agilent Technologies SuperNova diffractometer; 2448 independent measured reflections (R_{int} = 0.0413), F^2 refinement, R_1(obs) = 0.0302, wR_2(all) = 0.0760, 2287 independent observed absorption-corrected reflections [|F_o| > 4σ(|F_o|), 2θ_{max} = 149°], 153 parameters. The absolute structure of (–)-(2R,3S)-2a was determined by a combination of R-factor tests [R_1^+ = 0.0302, R_1^- = 0.0305], use of the Flack parameter [x^+ = 0.00(17), x^- = 1.02(17)] and determination using Bayesian statistics on Bijvoet differences (Hooft et al., 2008), as implemented in the program PLATON (Spek, 2003). This gave probability values p_3(ok), p_3(twin) and p_3(wrong) of 1.0, 0.4 x 10^{-6} and 0.6 x 10^{-25} respectively (1.0, 0.0, 0.0). The calculation was based on 5999 Bijvoet pairs. CCDC 869566.

The O(1) hydrogen atom was located from a ΔF map and refined freely.

The X-ray crystal structure of (+)-(2S,3S)-6b
Crystal data for (+)-(2S,3S)-6b: C_{12}H_{17}NO_{3}, M = 223.27, orthorhombic, P2_12_12_1 (no. 19), a = 5.97836(4), b = 12.67070(7), c = 15.76352(9) Å, V = 1194.087(12) Å^3, Z = 4, D_c = 1.242 g cm^{-3}, μ(Cu-Kα) = 0.729 mm^{-1}, T = 173 K, colourless shards, Oxford Diffraction Xcalibur PX Ultra diffractometer; 2366 independent measured reflections (R_{int} = 0.0283), F^2 refinement, R_1(obs) = 0.0262, wR_2(all) = 0.0726, 2337 independent observed absorption-corrected reflections [|F_o| > 4σ(|F_o|), 2θ_{max} = 145°], 152 parameters. The absolute structure of
(+)-(2S,3S)-6b was determined by a combination of $R$-factor tests $[R_1^+ = 0.0262, R_1^- = 0.0264]$ and by use of the Flack parameter $[x^+ = 0.00(16), x^- = 1.05(16)]$. CCDC 869567.

The O(14) hydrogen atom was located from a $\Delta F$ map and refined freely subject to an O–H distance constraint of 0.90 Å.
**Figure S1.** The molecular structure of (-)-6a showing the numbering scheme employed. Anisotropic atomic displacement ellipsoids for the non-hydrogen atoms are shown at the 50% probability level and hydrogen atoms are displayed as spheres of arbitrary radius.
**Figure S2.** Single hydrogen bonded chain. View down the $b$-axis of (-)-6a.

**Figure S3.** Crystal packing diagram. View down the $c$-axis of (-)-6a.
Figure S4. The crystal structure of (+)-(2S,3S)-6b (50% probability ellipsoids).

References


