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Corrigendum

# Corrigendum to "Enantioselective protonation of prochiral enolates in the asymmetric synthesis of (*S*)-naproxen" [Tetrahedron Lett. 44 (2003) 2023]

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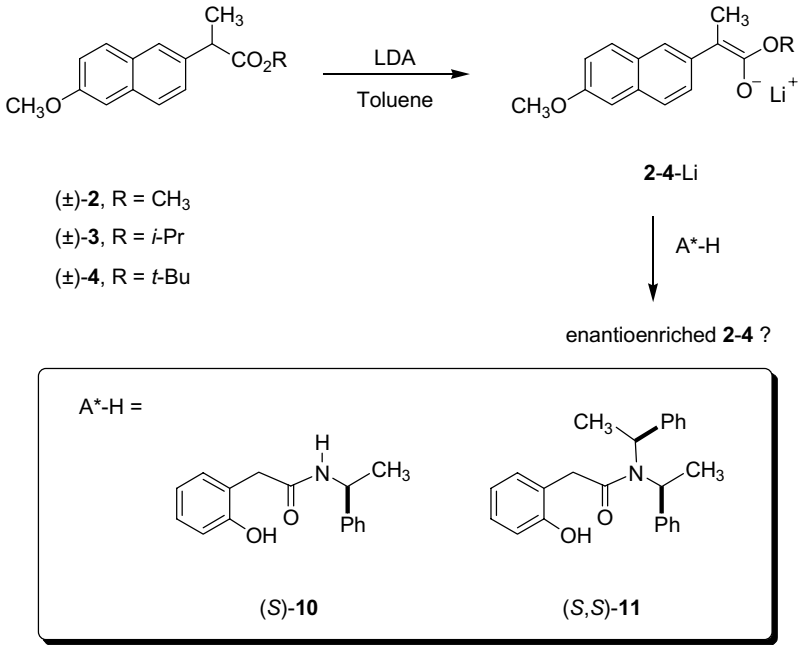
A central section in the above manuscript describes the treatment of racemic naproxen ester derivatives (±)-**2**, (±)-**3** and (±)-**4** with achiral base LDA to give the corresponding prochiral enolates **2**-Li, **3**-Li and **4**-Li, which were then reprotonated with the novel chiral Brønsted acids (*S*)-**10** and (*S*,*S*)-**11** (Scheme 1).

Recently, we were unable to reproduce the described procedure[1,2] for the preparation of 2-(2-hydroxyphenyl)-*N*,*N*-bis(1*S*-α-phenylethyl)acetamide (*S*,*S*)-**11**, by refluxing 3*H*-benzofuran-2-one and (*S*,*S*)-bis-α-phenylethylamine in toluene. By contrast, α-phenylethylamine does react with 3*H*-benzofuran-2-one to give (*S*)-**10** in 95% yield under mild conditions (Scheme 2).[1,2]

We have now developed a successful route for the synthesis of chiral phenol (*S*,*S*)-**11**,[3] whose correct




**Scheme 1.**

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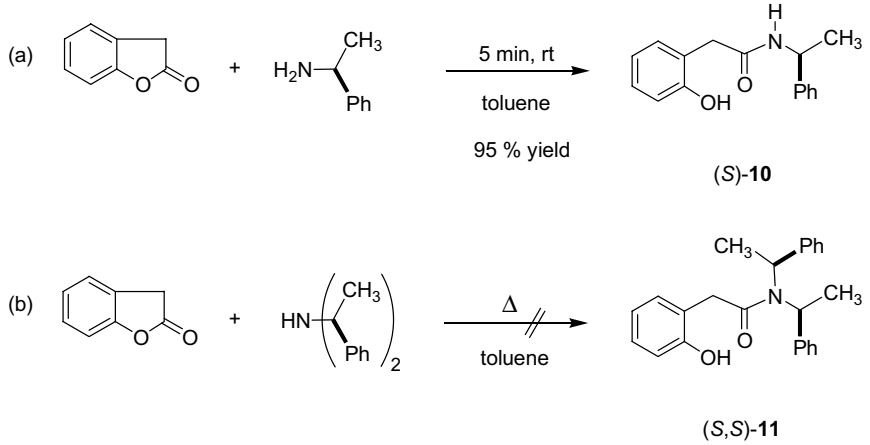


**Scheme 2.**

analytical data are presented in Ref. 4 below. These data must replace those reported in Ref. 12 of the title article.

Regarding the protonation reaction of enolates **2**–**4**-Li with chiral Brønsted acids (*S*)-**10** and (*S*,*S*)-**11** (Scheme 1),[5] contrary to the information provided in Table 3 of the article being reexamined, we found no enantiomeric excess in the recovered esters **2**–**4**.[5–7]

## Acknowledgements

We are grateful to Dr. Charles Vandenbossche, Sepracor Inc., for the exchange of relevant information.

## References and notes

1. Muñoz-Muñiz, O.; Juaristi, E. *J. Org. Chem.* **2003**, *68*, 3781.
2. Muñoz-Muñiz, O.; Juaristi, E. *Tetrahedron* **2003**, *59*, 4223.
3. Melgar-Fernández, R.; Juaristi, E., submitted for publication.
4. 2-(2-Hydroxyphenyl)-*N*-(1*S*-α-phenylethyl)acetamide, (*S*)-**10**. Mp 118–119 °C. $[\alpha]_D^{20}$ −72.2 (*c* 1.0, $CHCl_3$). $^1H$ NMR ($CDCl_3$, 400 MHz): δ 1.45 (d, $J$ = 6.9 Hz, 3H), 3.55 (dd, $J^1$ = 14.3 Hz, $J^2$ = 4.1 Hz, 2H), 5.06 (dq, $J^1 \cong J^2$ = 7.3 Hz, 1H), 6.56 (d, $J$ = 6.9 Hz, 1H), 6.80–7.32 (m, 9H), 9.87 (s, 1H). $^{13}C$ NMR ($CDCl_3$, 100.5 MHz): δ 21.7, 41.1, 49.7, 118.0, 120.5, 121.7, 126.2, 127.7, 128.9, 129.3, 130.7, 142.4, 156.1, 172.7. IR (KBr) $\nu$ ($cm^{-1}$): 3317, 1620, 1546, 1456, 1265, 1234. MS *m*/*z* (%): 255 ($M^+$, 59), 151 (42), 134 (40), 105 (100), 79 (8). Anal. Calcd for $C_{16}H_{17}NO_2$ (255.32): C, 75.27; H, 6.71; N, 5.49. Found: C, 75.05; H, 6.74; N, 5.85.
2-(2-Hydroxyphenyl)-*N*,*N*-bis(1*S*-α-phenylethyl)acetamide, (*S*,*S*)-**11**. Mp 119–120 °C. $[\alpha]_D^{20}$ −184.1 (*c* 1.0, $CHCl_3$). $^1H$ NMR ($CDCl_3$, 400 MHz): δ 1.73 (d, $J$ = 7.3 Hz, 3H), 1.92 (d, $J$ = 7.0 Hz, 3H), 3.39 (d, $J$ = 14.5 Hz, 1H), 3.55 (d, $J$ = 14.5 Hz, 1H), 4.97 (q, $J$ = 6.9 Hz, 1H), 5.94 (br s, 1H), 6.10 (br s, 1H), 6.60 (t, $J$ = 7.3 Hz, 1H), 6.85–6.97 (m, 13H), 7.12 (dt, $J^1$ = 8.1 Hz, $J^2$ = 1.4 Hz, 1H), 7.18–7.40 (m, 9H), 10.8 (s, 1H). $^{13}C$ NMR ($CDCl_3$, 100.5 MHz): δ 17.9, 20.9, 39.9, 52.5, 53.5, 118.5, 119.8, 121.9, 126.6, 127.9, 128.5, 128.8, 129.0, 129.2, 129.3, 131.0, 140.1, 141.5, 157.6, 175.3. IR (KBr) $\nu$ ($cm^{-1}$): 3086, 1616, 1589, 1455, 1336, 1168. MS *m*/*z* (%): 359 ($M^+$, 5), 255 (100), 210 (19), 105 (97), 91 (13). Anal. Calcd for $C_{24}H_{25}NO_2$ (359.47): C, 80.19; H, 7.01; N, 3.90. Found: C, 79.84; H, 7.35; N, 3.98.
5. The general protocol developed by Fehr et al. was followed: Fehr, C.; Galindo, J.; Farris, I.; Cuenca, A. *Helv. Chim. Acta* **2004**, *87*, 1737.
6. HPLC analysis using a Chiralcel OD column, 254 nm UV detector, 1.0 mL/min. Hexane–*i*-PrOH, 99:1.
7. In the title article, enantiopure (*S*)-**4** (R = *t*-Bu in Table 1) is reported as a wax with $[\alpha]_D^{28}$ +27.1 (*c* 1.0, $CHC1_3$). The correct physical properties of (S)-**4** (this work) are: mp 90–92 °C, $[\alpha]_D^{20}$ +22.6 (*c* 1.0, $CHCl_3$).