SUPPORTING INFORMATION

Identification of the best-suited leaving group for the
diastereoselective synthesis of glycidic amides from
stabilised ammonium ylides and aldehydes

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1. General Information: ........................................................................................................2
2. Syntheses of Ammonium Salts: ......................................................................................2
3. Syntheses of Glycidic Amides: .....................................................................................6
4. NMR Spectra of Ammonium Salts: ...............................................................................12
5. Representative NMR Spectra of trans-Glycidic Amides: .............................................20
1. General Information:

Melting points were measured on a Kofler melting point microscope (Reichert, Vienna). $^1$H- and $^{13}$C-NMR spectra were recorded on a Bruker Avance DRX 500 MHz spectrometer using a TXI cryoprobe with z-gradient coil and on a Bruker Avance DPX 200 MHz spectrometer. Typical resolutions and chemical shift precisions were +/- 0.5 Hz for $^1$H and +/- 0.8 Hz for $^{13}$C. All NMR spectra were referenced on the solvent peak. High resolution mass spectra were obtained using an Agilent 6520 Q-TOF mass spectrometer with an ESI source and an Agilent G1607A coaxial sprayer. All analyses were made in the positive ionisation mode. Purine (exact mass for $[M+H]^+$ = 121.050873) and 1,2,3,4,5,6-hexakis(2,2,3,3-tetrafluoropropoxy)-1,3,5,2,4,6-triazatriphosphinane (exact mass for $[M+H]^+$ = 922.009798) were used for internal mass calibration. IR spectra were recorded on a Shimadzu IR Affinity-1 fourier transform infrared spectrometer. All chemicals were purchased from commercial suppliers and used without further purification unless otherwise stated. All reactions were performed under an Ar-atmosphere.

2. Syntheses of Ammonium Salts:

![Chemical Reaction]

**General Procedure:** One equivalent of tertiary amine was added to a solution of one equivalent of the $\alpha$-bromo amide in THF (10 mL / g amide) and stirred for 24 h at room temperature. The resulting solid was filtered off, washed 3 times with EtOAc, and dried in vacuo to give the product in sufficient purity for the epoxide formation reaction.
Ammonium Salt 3. Prepared from DABCO and 2-bromo-N,N-diethylacetamide\(^1\) (4.06 g, 20.9 mmol) in 73% (4.65 g, 15.2 mmol). White solid. M.p.: 190-193 °C; \(^1\)H NMR (500 MHz, δ, CDCl\(_3\), 298 K): 1.13 (t, J = 7.5 Hz, 3H), 1.22 (t, J = 7.5 Hz, 3H), 3.22 (t, J = 7.3 Hz, 6H), 3.34 (q, J = 7.5 Hz, 2H), 3.48 (q, J = 7.5 Hz, 2H), 4.07 (t, J = 7.3 Hz, 6H), 4.73 (s, 2H) ppm; \(^13\)C NMR (125 MHz, δ, CDCl\(_3\), 298 K): 12.8 (CH\(_3\)-), 14.4 (CH\(_3\)-), 41.0 (-CH\(_2\)-), 42.1 (-CH\(_2\)-), 45.4 (-NCH\(_2\)-), 53.0 (-NCH\(_2\)-) 61.2 (-C\(_6\)H\(_2\)CO-), 162.2 (-CO-) ppm; IR (film): = 3532, 3406, 2972, 2941, 2893, 1632, 1489, 1479, 1470, 1431, 1397, 1368, 1310, 1265, 1215, 1109, 1072, 1053, 961, 893, 839 cm\(^{-1}\); HRMS (ESI): m/z calcd for C\(_{12}\)H\(_{24}\)N\(_3\)O+: 226.1919 [M+]; found: 226.1922.

Ammonium Salt 4. Prepared from quinuclidine (0.58 g, 5.2 mmol) and 2-bromo-N,N-diethylacetamide (1.01 g, 5.2 mmol) in 96% (1.13 g, 5 mmol) as a white to slightly yellow solid. M.p.: decomp > 230 °C; \(^1\)H NMR (500 MHz, δ, CDCl\(_3\), 298 K): 0.91 (t, J = 7.5 Hz, 3H), 1.06 (t, J = 7.5 Hz, 2H), 1.80 (m, 6H), 2.02 (m, 1H), 3.11 (q, J = 7.5 Hz, 2H), 3.23 (q, J = 7.5 Hz, 2H), 3.96 (m, 6H), 4.60 (s, 2H) ppm; \(^13\)C NMR (125 MHz, δ, CDCl\(_3\), 298 K): 12.8 (CH\(_3\)-), 14.4 (CH\(_3\)-), 19.5 (-CH-), 24.0 (-CH\(_2\)-), 40.9 (-CH\(_2\)-), 42.1 (-CH\(_2\)-), 55.2 (-CH\(_2\)-), 61.3 (-CH\(_2\)CO-), 162.5 (-CO-) ppm; IR (film): = 3404, 2938, 2880, 1643, 1458, 1431, 1406, 1383, 1356, 1267, 1215, 1153, 1107, 1045, 978, 939, 889, 837, 747 cm\(^{-1}\); HRMS (ESI): m/z calcd for C\(_{13}\)H\(_{25}\)N\(_2\)O+: 225.1967 [M+]; found: 225.1970.

Ammonium Salt 5. Prepared from O-methyl protected quinine\(^2\) (166 mg, 0.49 mmol) and 2-bromo-N,N-diethylacetamide (95 mg, 0.49 mmol) in 95% (210 mg, 0.46 mmol) after column chromatography (CHCl\(_3\) : MeOH = 9 : 1) as a slightly yellow highly viscous oil. [\(\alpha\)]\(_D\)\(^{20}\) (c = 1.21, CHCl\(_3\)) = -115.2°; \(^1\)H NMR (500 MHz, δ, CDCl\(_3\), 298 K): 1.08 (m, 1H), 1.23 (t, J = 7.1 Hz, 3H), 1.35 (t, J = 7.1 Hz, 3H), 1.82 (m, 1H), 2.05 - 2.19 (m, 3H), 2.82 (m, 1H), 3.40 (s, 3H), 3.41 - 3.47 (m, 2H), 3.52 - 3.55 (m, 1H), 3.91 (m, 1H), 4.09 (s, 3H), 4.22 (m, 1H), 4.37 - 4.48 (m, 3H), 4.83 (m, 1H), 5.01 (m, 2H), 5.25 (m, 2H), 5.54 (m, 1H), 6.16 (m, 1H), 7.43 (m, 3H), 8.05 (d, J = 4.5 Hz, 1H), 8.80 (d, J = 8.0 Hz, 1H) ppm; \(^13\)C NMR (125 MHz, δ, CDCl\(_3\), 298 K): 13.1, 14.6, 22.9, 25.6, 26.3, 37.4, 41.2, 42.5, 56.5, 57.3, 61.2 ppm; 


57.5, 58.5, 59.7, 62.4, 77.7, 100.6, 116.6, 119.0, 123.1, 126.7, 131.9, 137.0, 138.3, 144.8, 147.0, 159.1, 164.0 ppm; IR (film): $\tilde{\nu} =$ 3402, 2972, 2936, 1637, 1618, 1589, 1508, 1474, 1458, 1404, 1385, 1358, 1302, 1292, 1271, 1240, 1227, 1180, 1140, 1088, 1028, 982, 908, 891, 867, 835 cm$^{-1}$; HRMS (ESI): $m/z$ calcd for C$_{27}$H$_{38}$N$_3$O$_3^+$: 452.2913 [M$^+$]; found: 452.2905.

**Ammonium Salt 7.** Prepared from Me$_3$N (33% in EtOH) and 2-bromo-N,N-diethylacetamide (8.92 g, 45.9 mmol) in 88% (10.27 g, 40.5 mmol) as a white solid. M.p.: 186-188 °C; $^1$H NMR (500 MHz, $\delta$, CDCl$_3$, 298 K): 1.14 (t, $J = 7.3$ Hz, 3H), 1.27 (t, $J = 7.3$ Hz, 3H), 3.36 (q, $J = 7.3$ Hz, 2H), 3.47 (q, $J = 7.3$ Hz, 2H), 3.63 (s, 9H), 5.00 (s, 2H) ppm; $^{13}$C NMR (125 MHz, $\delta$, CDCl$_3$, 298 K): 12.9 (CH$_3$-), 14.5 (CH$_3$-), 41.0 (-CH$_2$-), 42.0 (-CH$_2$-), 54.7 (-N+(CH$_3$)$_3$), 63.2 (-CH$_2$CO-), 162.4 (-CO-) ppm; IR (film): $\tilde{\nu} =$ 3003, 2978, 2945, 1639, 1483, 1467, 1446, 1433, 1384, 1357, 1278, 1238, 1215, 1139, 1097, 1078, 1022, 975, 954, 927, 894 cm$^{-1}$; HRMS (ESI): $m/z$ calcd for C$_9$H$_{21}$N$_2$O$_2^+$: 173.1654 [M$^+$]; found: 173.1651.

**Ammonium Salt 34.** Prepared from Me$_3$N (33% in EtOH) and 2-bromo-N,N-dibenzylacetamide$^3$ (1.37 g, 4.31 mmol) in 75% (1.22 g, 3.23 mmol) as a white solid. M.p.: 212-216 °C; $^1$H NMR (500 MHz, $\delta$, CDCl$_3$, 298 K): 3.47 (s, 9H), 4.64 (s, 2H), 4.79 (s, 2H), 5.03 (s, 2H), 7.17-7.35 (m, 10H) ppm; $^{13}$C NMR (125 MHz, $\delta$, CDCl$_3$, 298 K): 49.7 (-CH$_2$-Ar), 50.4 (-CH$_2$-Ar), 54.7 (-N+(CH$_3$)$_3$), 63.5 (-CH$_2$CO-), 127.0 (Ar-C), 128.0 (Ar-C), 128.1 (Ar-C), 128.2 (Ar-C), 129.0 (Ar-C), 129.3 (Ar-C), 135.4 (Ar-C$_{quat}$), 135.7 (Ar-C$_{quat}$), 164.2 (-CO-) ppm; IR (film): $\tilde{\nu} =$ 3410, 3030, 2937, 1645, 1492, 1448, 1431, 1408, 1359, 1215, 1083, 972, 921, 759, 707, 696, 624 cm$^{-1}$; HRMS (ESI): $m/z$ calcd for C$_{19}$H$_{25}$N$_2$O$_2^+$: 297.1961 [M$^+$]; found: 297.1960.

**Ammonium Salt 36.** Prepared from N-benzyl-2-bromoacetamide$^4$ (3.07 g, 13.44 mmol) in 91% (3.52 g, 12.26 mmol) as a white solid. M.p.: 177-179 °C; $^1$H NMR (500 MHz, $\delta$, CDCl$_3$, 298 K): 3.39 (s, 9H), 4.43 (d, $J = 6.4$ Hz, 2H), 4.73 (s, 2H), 7.24 (m, 1H), 7.31 (m, 2H), 7.36 (m, 2H) ppm, 9.23 (t, $J = 6.4$ Hz, 1H); $^{13}$C NMR (125 MHz, $\delta$, CDCl$_3$, 298 K): 43.6 (-CH$_2$-Ar), 54.9 (-N+(CH$_3$)$_3$), 65.2 (-CH$_2$CO-),

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127.7 (Ar-C), 128.1 (Ar-C), 128.8 (Ar-C), 137.5 (Ar-C$_{quat}$), 162.8 (-CO-) ppm; IR (film): $\tilde{\nu}$ = 3380, 3190, 3043, 3012, 2914, 1680, 1550, 1473, 1454, 1414, 1396, 1263, 1230, 1066, 1029, 996, 906, 736, 696 cm$^{-1}$; HRMS (ESI): $m/z$ calcd for C$_{12}$H$_{19}$N$_2$O$: 207.1492 [M$^+$]; found: 350.1492.

**Ammonium Salt 38.** Prepared from Me$_3$N (33% in EtOH) and 2-bromo-1-(piperidin-1-yl)ethanone$^5$ (1.11 g, 5.4 mmol) in 71% (1.02 g, 3.84 mmol). Hygroscopic white to off-white solid. M.p.: 223-226 °C; $^1$H NMR (500 MHz, $\delta$, CDCl$_3$, 298 K): 1.56-1.68 (m, 6H), 3.46 (m, 4H), 3.60 (s, 9H), 5.11 (s, 2H) ppm; $^{13}$C NMR (125 MHz, $\delta$, CDCl$_3$, 298 K): 24.1 (-CH$_2$-), 25.4 (-CH$_2$-), 26.4 (-CH$_2$-), 43.0 (-CON-CH$_2$-), 46.4 (-CON-CH$_2$-), 54.7 (-N$^+$CH$_3$)$_3$, 63.6 (-CH$_2$CO-), 161.3 (-CO-) ppm; IR (film): $\tilde{\nu}$ = 2935, 2987, 2897, 1637, 1469, 1448, 1381, 1251, 1143, 1018, 979, 950, 931, 914 cm$^{-1}$; HRMS (ESI): $m/z$ calcd for C$_{10}$H$_{21}$N$_2$O$: 185.1648 [M$^+$]; found: 185.1644.

**Ammonium Salt 40.** Prepared from Me$_3$N (33% in EtOH) and 2-bromo-1-(morpholin-4-yl)ethanone$^6$ (0.87 g, 4.2 mmol) in 75% (0.84 g, 3.16 mmol). Hygroscopic white to grey solid. M.p.: 171-175 °C; $^1$H NMR (500 MHz, $\delta$, CDCl$_3$, 298 K): 3.57 (m, 2H), 3.60 (s, 9H), 3.63 (m, 2H), 3.69 (m, 2H), 3.77 (m, 2H), 5.26 (s, 2H) ppm; $^{13}$C NMR (125 MHz, $\delta$, CDCl$_3$, 298 K): 42.0 (-CH$_2$-), 45.7 (-CH$_2$-), 54.8 (-N$^+$CH$_3$)$_3$, 63.5 (-CH$_2$-), 66.4 (-CH$_2$-), 66.6 (-CH$_2$-), 162.0 (-CO-) ppm; IR (film): $\tilde{\nu}$ = 3388, 2970, 2920, 2868, 1649, 1490, 1465, 1446, 1273, 1255, 1232, 1112, 987, 929, 611, 599 cm$^{-1}$; HRMS (ESI): $m/z$ calcd for C$_{9}$H$_{19}$N$_2$O$_2$: 187.1441 [M$^+$]; found: 187.1444.

**Ammonium Salt 42.** Prepared from Me$_3$N (33% in EtOH) and 2-bromo-N-methoxy-N-methylacetamide$^7$ (481 mg, 2.64 mmol) in 79% (505 mg, 2.10 mmol) as a very hygroscopic residue; $^1$H NMR (500 MHz, $\delta$, CDCl$_3$, 298 K): 3.22 (s, 3H), 3.71 (s, 9H), 3.94 (s, 3H), 5.14 (s, 2H) ppm; $^{13}$C NMR (125 MHz, $\delta$, CDCl$_3$, 298 K): 31.8 (-CH$_3$), 54.0 (-N$^+$CH$_3$)$_3$, 62.4 (-OCH$_3$), 62.6 (-CH$_2$-), 164.1 (-CO-) ppm; IR (film): $\tilde{\nu}$ = 3383, 2972, 2947, 1670, 1489, 1473, 1458, 1398, 1201, 1182, 1008, 964, 925, 910, 636 cm$^{-1}$; HRMS (ESI): $m/z$ calcd for C$_{7}$H$_{17}$N$_2$O$_2$: 161.1285 [M$^+$]; found: 161.1285.

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3. Syntheses of Glycidic Amides:

General procedure for the preparation of epoxides under biphasic conditions (using 2 equiv. of aldehyde): A vigorously stirred solution of ammonium salt (1 mmol) in CH₂Cl₂ (10 mL) was cooled to 0 °C, followed by addition of 50% NaOH (5 mL). After 5 min the aldehyde (2 mmol) was added in one portion. The biphasic mixture was warmed to 25 °C over 1 h and vigorously stirred for 23 h. After extraction with EtOAc the organic layer was washed with brine, dried over Na₂SO₄ and evaporated to dryness. Column chromatography (silica gel, heptanes/EtOAc = 7:3) gave the glycidic amides in the reported yields.

**trans-N,N-diethyl-3-phenyloxirane-2-carboxamide (2).** Obtained in 92% as a white to yellow solid. Analytical data are in full accordance with those reported in literature.⁸ M.p.: 85-88 °C; ¹H NMR (500 MHz, δ, CDCl₃, 298 K): 1.16 (t, J = 7.3 Hz, 3H), 1.20 (t, J = 7.3 Hz, 3H), 3.40-3.51 (m, 4H), 3.58 (d, J = 1.4 Hz, 1H), 4.09 (d, J = 1.4 Hz, 1H), 7.32-7.39 (m, 5H) ppm; ¹³C NMR (125 MHz, δ, CDCl₃, 298 K): 13.1, 15.0, 41.0, 41.6, 57.3, 57.7, 125.8, 128.6, 128.7, 135.9, 165.8 ppm; IR (film): ν = 2972, 2933, 2873, 1643, 1487, 1450, 1409, 1365, 1271, 1217, 1145, 1095, 1076, 893, 754, 698, 617 cm⁻¹; HRMS (ESI): m/z calcd for C₁₃H₁₇NO₂: 220.1332 [M+H⁺]; found: 220.1329.

**trans-N,N-diethyl-3-(p-tolyl)oxirane-2-carboxamide (9).** Obtained in 95% as a white to yellow solid. Analytical data are in full accordance with those reported in literature.⁸ M.p.: 72-75 °C; ¹H NMR (500 MHz, δ, CDCl₃, 298 K): 1.15 (t, J = 7.1 Hz, 3H), 1.19 (t, J = 7.1 Hz, 3H), 3.24 (s, 3H), 2.34 (s, 3H), 3.38-3.49 (m, 4H), 3.57 (d, J = 1.7 Hz, 1H), 4.03 (d, J = 1.7 Hz, 1H), 7.16 (d, J = 8.2 Hz, 2H), 7.20 (d, J = 8.2 Hz, 2H) ppm; ¹³C NMR (125 MHz, δ, CDCl₃, 298 K): 13.0, 15.0, 21.3, 40.9, 41.5, 57.2, 57.7, 125.7, 129.4, 132.8, 138.7, 165.9 ppm; IR (film): ν = 2970, 2933, 2870, 1643, 1469, 1421, 1375, 1271, 1217, 1145, 1099, 1070, 891, 806, 765 cm⁻¹; HRMS (ESI): m/z calcd for C₁₄H₁₉NO₂: 234.1489 [M+H⁺]; found: 234.1492.

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**trans-N,N-diethyl-3-(o-tolyl)oxirane-2-carboxamide (11).** Obtained in 90% as an off-white solid matching the reported data.\(^9\) M.p.: 79-83 °C; \(^1\)H NMR (500 MHz, \(\delta\), CDCl\(_3\), 298 K): 1.15 (t, \(J = 7.1\) Hz, 3H), 1.20 (t, \(J = 7.3\) Hz, 3H), 2.39 (s, 3H), 3.35-3.49 (m, 4H), 3.47 (d, \(J = 2.2\) Hz, 1H), 4.21 (d, \(J = 2.2\) Hz, 1H), 7.12-7.24 (m, 4H) ppm; \(^1^3\)C NMR (125 MHz, \(\delta\), CDCl\(_3\), 298 K): 13.1, 15.1, 19.0, 41.0, 41.6, 56.0, 56.4, 124.3, 126.3, 128.3, 130.2, 134.3, 136.4, 166.0 ppm; IR (film): \(\nu = 2974, 2933, 1653, 1483, 1463, 1381, 1363, 1263, 1219, 1143, 1097, 902, 754, 609\) cm\(^{-1}\); HRMS (ESI): \(m/z\) calcd for C\(_{14}\)H\(_{19}\)NO\(_2\): 234.1489 [M+H]+; found: 234.1484.

**trans-3-(4-chlorophenyl)-N,N-diethyloxirane-2-carboxamide (13).** Obtained in 90% as a colourless oil. Analytical data are in full accordance with those reported in literature.\(^8\) \(^1\)H NMR (500 MHz, \(\delta\), CDCl\(_3\), 298 K): 1.16 (t, \(J = 7.2\) Hz, 3H), 1.20 (t, \(J = 7.2\) Hz, 3H), 3.38-3.48 (m, 4H), 3.53 (d, \(J = 1.3\) Hz, 1H), 4.07 (d, \(J = 1.3\) Hz, 1H), 7.25 (d, \(J = 8.4\) Hz, 2H), 7.33 (d, \(J = 8.4\) Hz, 2H) ppm; \(^1^3\)C NMR (125 MHz, \(\delta\), CDCl\(_3\), 298 K): 12.5, 14.5, 40.5, 41.1, 56.5, 56.7, 126.5, 128.4, 133.9, 134.1, 164.9 ppm; IR (film): \(\nu = 2970, 2933, 1645, 1483, 1465, 1417, 1271, 1217, 1085, 1012, 894, 808\) cm\(^{-1}\); HRMS (ESI): \(m/z\) calcd for C\(_{13}\)H\(_{16}\)ClNO\(_2\): 276.0762 [M+Na]+; found: 276.0762.

**trans-3-(4-bromophenyl)-N,N-diethyloxirane-2-carboxamide (15).** Obtained in 97% as a colourless oil. Analytical data are in full accordance with those reported in literature.\(^10\) M.p.: 101-104 °C; \(^1\)H NMR (500 MHz, \(\delta\), CDCl\(_3\), 298 K): 1.11 (t, \(J = 7.3\) Hz, 3H), 1.16 (t, \(J = 7.3\) Hz, 3H), 3.31-3.45 (m, 4H), 3.51 (s, 1H), 4.00 (s, 1H), 7.15 (d, \(J = 8.5\) Hz, 2H), 7.44 (d, \(J = 8.5\) Hz, 2H) ppm; \(^1^3\)C NMR (125 MHz, \(\delta\), CDCl\(_3\), 298 K): 13.1, 15.1, 41.1, 41.7, 57.1, 57.3, 122.7, 127.5, 131.9, 135.0, 165.4 ppm; IR (film): \(\nu = 2968, 2931, 1645, 1481, 1465, 1446, 1417, 1305, 1271, 1145, 1097, 1066, 1008, 947, 894, 873, 829, 806, 729\) cm\(^{-1}\); HRMS (ESI): \(m/z\) calcd for C\(_{13}\)H\(_{16}\)BrNO\(_2\): 298.0437 [M+H]+; found: 298.0439.

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trans-3-([1,1′-biphenyl]-4-yl)-N,N-diethyloxirane-2-carboxamide (17). Obtained in 93% as a colourless oil which solidifies in the freezer. Analytical data are in accordance with those reported in literature.  

\[ \text{trans-3-([1,1′-biphenyl]-4-yl)-N,N-diethyloxirane-2-carboxamide (17)} \]

M.p.: 104-107 °C; \(^1\)H NMR (500 MHz, \(\delta\), CDCl₃, 298 K): 1.18 (t, \(J = 6.9\) Hz, 3H), 1.22 (t, \(J = 7.0\) Hz, 3H), 3.39-3.51 (m, 4H), 3.65 (d, \(J = 2.3\) Hz, 1H), 4.14 (d, \(J = 2.3\) Hz, 1H), 7.35 (t, \(J = 7.3\) Hz, 1H), 7.40 (d, \(J = 8.5\) Hz, 2H), 7.43 (t, \(J = 7.5\) Hz, 2H), 7.59 (m, 4H) ppm; \(^{13}\)C NMR (125 MHz, \(\delta\), CDCl₃, 298 K): 13.2, 15.1, 41.1, 41.7, 57.4, 57.6, 126.4, 127.2, 127.5, 127.7, 129.0, 134.9, 140.6, 141.8, 165.8 ppm; IR (film): \(\tilde{\nu} = 3032, 2976, 2933, 2361, 1653, 1485, 1463, 1263, 1219, 1144, 1076, 898, 842, 814, 763, 729, 698\) cm\(^{-1}\); HRMS (ESI): \(m/z\) calcd for C₁₉H₂₁NO₂: 296.1645 [M+H]+; found: 296.1643.

trans-N,N-diethyl-3-(4-methoxyphenyl)oxirane-2-carboxamide (19). Obtained in 83% as a colourless oil. Analytical data are in full accordance with those reported in literature.  

\[ \text{trans-N,N-diethyl-3-(4-methoxyphenyl)oxirane-2-carboxamide (19)} \]

\(^1\)H NMR (200 MHz, \(\delta\), CDCl₃, 298 K): 1.11-1.23 (m, 6H), 3.37-3.52 (m, 4H), 3.58 (d, \(J = 1.8\) Hz, 1H), 3.80 (s, 3H), 4.02 (d, \(J = 1.8\) Hz, 1H), 6.88 (d, \(J = 8.8\) Hz, 2H), 7.23 (d, \(J = 8.8\) Hz, 2H) ppm; \(^{13}\)C NMR (50 MHz, \(\delta\), CDCl₃, 298 K): 12.6, 14.8, 40.8, 41.4, 55.2, 57.0, 57.5, 114.1, 127.0, 127.7, 160.0, 165.8 ppm; IR (film): \(\tilde{\nu} = 2972, 2931, 1641, 1612, 1510, 1483, 1467, 1276, 1244, 1220, 1166, 1029, 900, 835, 813\) cm\(^{-1}\); HRMS (ESI): \(m/z\) calcd for C₁₄H₁₉NO₃: 272.1257 [M+Na]+; found: 272.1251.

trans-N,N-diethyl-3-(2-methoxyphenyl)oxirane-2-carboxamide (21). Obtained in 98% as a bright yellow solid. M.p.: 79-83 °C; \(^1\)H NMR (500 MHz, \(\delta\), CDCl₃, 298 K): 1.13 (t, \(J = 7.2\) Hz, 3H), 1.17 (t, \(J = 7.2\) Hz, 3H), 3.29-3.53 (m, 4H), 3.46 (d, \(J = 1.1\) Hz, 1H), 3.80 (s, 3H), 4.31 (d, \(J = 1.1\) Hz, 1H), 6.85 (d, \(J = 7.9\) Hz, 1H), 6.92 (t, \(J = 7.5\) Hz, 1H), 7.19 (d, \(J = 7.6\) Hz, 1H), 7.26 (t, \(J = 7.9\) Hz, 1H) ppm; \(^{13}\)C NMR (125 MHz, \(\delta\), CDCl₃, 298 K): 13.1, 14.7, 40.8, 41.4, 53.9, 55.4, 56.7, 110.3, 120.8, 124.5, 125.5, 129.5, 158.1, 166.1 ppm; IR (film): \(\tilde{\nu} = 2978, 1649, 1602, 1494, 1481, 1465, 1440, 1382, 1288, 1253, 1234, 1219, 1141, 1099, 1018, 894, 877, 815, 754\) cm\(^{-1}\); HRMS (ESI): \(m/z\) calcd for C₁₄H₁₉NO₃: 272.1257 [M+Na]+; found: 272.1260.

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trans-N,N-diethyl-3-(4-dimethylaminophenyl)oxirane-2-carboxamide (23). $^1$H NMR of the crude product showed less than 5% of 23 besides unreacted starting material 22. $^1$H NMR and HRMS of the crude product were consistent with formation of the trans-epoxide: $^1$H NMR (200 MHz, $\delta$, CDCl$_3$, 298 K): 1.18 (m, 6H), 2.89 (s, 6 H), 3.37 (m, 4H), 3.58 (d, $J$ = 1.7 Hz, 1H), 3.92 (d, $J$ = 1.7 Hz, 1H), 6.61 (d, $J$ = 8.5 Hz, 2H), 7.13 (d, $J$ = 8.5 Hz, 2H) ppm; HRMS (ESI): $m/z$ calcd for C$_{15}$H$_{22}$N$_2$O$_2$: 263.1754 [M+Na]$^+$; found: 263.1756.
	rans-N,N-diethyl-3-(4-nitrophenyl)oxirane-2-carboxamide (25). Obtained in 17% besides the corresponding Cannizzaro disproportionation products which were removed by column chromatography. Analytical data are in accordance with those reported in literature. $^8$ 1H NMR (500 MHz, $\delta$, CDCl$_3$, 298 K): 1.16 (t, $J$ = 7.2 Hz, 3H), 1.20 (t, $J$ = 7.2 Hz, 3H), 3.38-3.52 (m, 4H), 3.58 (s, 1H), 4.23 (s, 1H), 7.50 (d, $J$ = 8.8 Hz, 2H), 8.23 (d, $J$ = 8.8 Hz, 2H) ppm; 13C NMR (125 MHz, $\delta$, CDCl$_3$, 298 K): 13.0, 15.2, 41.3, 41.8, 56.7, 57.6, 124.1, 126.6, 143.3, 148.2, 164.9 ppm; IR (film): $\nu$ = 2978, 2935, 1647, 1602, 1517, 1342, 1263, 1217, 1143, 1107, 856, 842, 615 cm$^{-1}$; HRMS (ESI): $m/z$ calcd for C$_{13}$H$_{16}$N$_2$O$_4$: 287.1002 [M+Na]$^+$; found: 287.1002.
	rans-N,N-diethyl-3-(3-nitrophenyl)oxirane-2-carboxamide (27). Obtained in 12% besides the corresponding Cannizzaro disproportionation products which were removed by column chromatography. Analytical data are in accordance with those reported in literature. $^9$ M.p.: 105-108 °C; $^1$H NMR (500 MHz, $\delta$, CDCl$_3$, 298 K): 1.18 (t, $J$ = 7.1 Hz, 3H), 1.24 (t, $J$ = 7.1 Hz, 3H), 3.40-3.52 (m, 4H), 3.60 (s, 1H), 4.24 (d, $J$ = 1.3 Hz, 1H), 7.56 (t, $J$ = 8.0 Hz, 1H), 7.69 (d, $J$ = 7.1 Hz, 1H), 8.19 (m, 2H) ppm; 13C NMR (125 MHz, $\delta$, CDCl$_3$, 298 K): 13.1, 15.2, 41.2, 41.8, 56.6, 57.4, 120.7, 123.7, 129.9, 132.0, 138.4, 148.7, 164.9 ppm; IR (film): $\nu$ = 2976, 2933, 2872, 1631, 1529, 1473, 1458, 1384, 1298, 1265, 1215, 1115, 1095, 1078, 954, 877, 846, 812, 729, 684 cm$^{-1}$; HRMS (ESI): $m/z$ calcd for C$_{13}$H$_{16}$N$_2$O$_4$: 287.1002 [M+Na]$^+$; found: 287.1002.
	rans-N,N-diethyl-3-(pyridin-3-yl)oxirane-2-carboxamide (29). $^1$H NMR of the crude product showed less than 10% of 29 and the corresponding Cannizzaro disproportionation products. $^1$H NMR signals of the trans-fused oxirane ring are in accordance with literature. $^8$
trans-\(N,N\)-diethyl-3-(cyclohexyl)oxirane-2-carboxamide (33). Obtained in 54% as a colourless oil. Analytical data are in accordance with those reported in literature.\(^8\) \(^1\)H NMR (500 MHz, \(\delta\), CDCl\(_3\), 298 K): 1.10 (t, \(J = 7.3\) Hz, 3H), 1.22 (t, \(J = 7.2\) Hz, 3H), 1.12-1.35 (m, 6H), 1.59-1.87 (m, 5H), 2.92 (dd, \(J_1 = 1.9\) Hz, \(J_2 = 6.2\) Hz, 1H) 3.28-3.48 (m, 5H) ppm; \(^13\)C NMR (125 MHz, \(\delta\), CDCl\(_3\), 298 K): 13.1, 15.0, 25.5, 25.7, 26.2, 29.1, 29.6, 39.8, 40.8, 41.5, 52.5, 62.3, 166.9 ppm; IR (film): \(\nu = 2970, 2924, 2852, 1649, 1462, 1450, 1423, 1381, 1263, 1220, 1145, 1097, 1074, 904, 592, 551\) cm\(^{-1}\); HRMS (ESI): \(m/z\) calcd for C\(_{13}\)H\(_{23}\)NO\(_2\): 226.1802 [M+H]\(^+\); found: 226.1802.

trans-\(N,N\)-dibenzyl-3-phenyloxirane-2-carboxamide (35). Obtained in 74% as a white to yellow solid. Analytical data are in full accordance with those reported in literature.\(^12\) M.p.: 118-121 °C; \(^1\)H NMR (500 MHz, \(\delta\), CDCl\(_3\), 298 K): 3.70 (d, \(J = 1.2\) Hz, 1H), 4.14 (d, \(J = 1.2\) Hz, 1H), 4.55 (s, 2H), 4.69 (d, \(J = 4.8\) Hz, 2H), 7.15-7.41 (m, 15H) ppm; \(^13\)C NMR (125 MHz, \(\delta\), CDCl\(_3\), 298 K): 48.8, 49.4, 57.5, 58.2, 125.8, 126.7, 127.8, 128.0, 128.4, 128.6, 128.7, 128.8, 129.2, 135.4, 135.9, 136.5, 167.3 ppm; IR (film): \(\nu = 3030, 2918, 1645, 1469, 1448, 1255, 1217, 1192, 1078, 1028, 862, 752, 696\) cm\(^{-1}\); HRMS (ESI): \(m/z\) calcd for C\(_{23}\)H\(_{21}\)NO\(_2\): 344.1645 [M+H]\(^+\); found: 344.1644.

trans-\(N\)-benzyl-3-phenyloxirane-2-carboxamide (37). Obtained in 49% as a white solid. Analytical data are in full accordance with those reported in literature.\(^13\) M.p.: 121-125 °C; \(^1\)H NMR (500 MHz, \(\delta\), CDCl\(_3\), 298 K): 3.58 (d, \(J = 1.2\) Hz, 1H), 3.90 (d, \(J = 1.2\) Hz, 1H), 4.49 (m, 2H), 6.57 (bs, 1H), 7.26-7.36 (m, 10H) ppm; \(^13\)C NMR (125 MHz, \(\delta\), CDCl\(_3\), 298 K): 43.0, 59.1, 59.2, 125.9, 127.8, 127.9, 128.8, 128.9, 129.2, 134.9, 137.6, 167.4 ppm; IR (film): \(\nu = 3233, 3062, 3030, 2926, 1654, 1543, 1492, 1454, 1425, 1352, 1251, 1232, 1080, 1026, 885, 756, 740, 692\) cm\(^{-1}\); HRMS (ESI): \(m/z\) calcd for C\(_{16}\)H\(_{15}\)NO\(_2\): 276.0995 [M+Na]\(^+\); found: 276.0997.

**trans-(3-phenyloxiran-2-y)(piperidin-1-yl)methanone (39).** Obtained in 93% as a yellowish oil. Analytical data are in full accordance with those reported in literature.\textsuperscript{14} \( ^1 \text{H NMR} \) (500 MHz, \( \delta \), CDCl\textsubscript{3}, 298 K): 1.57-1.67 (m, 6H), 3.46-3.65 (m, 4H), 3.61 (d, \( J = 1.9 \) Hz, 1H), 4.05 (d, \( J = 1.9 \) Hz, 1H), 7.26-7.38 (m, 5H) ppm; \( ^{13} \text{C NMR} \) (125 MHz, \( \delta \), CDCl\textsubscript{3}, 298 K): 24.5, 25.5, 26.6, 43.4, 46.1, 57.6, 57.7, 125.7, 128.7, 128.8, 135.9, 164.9 ppm; IR (film): \( \nu = 2941, 2902, 2852, 1643, 1473, 1440, 1413, 1259, 1251, 1228, 1130, 1016, 902, 841, 804, 744, 690 \) cm\textsuperscript{-1}; HRMS (ESI): \( m/z \) calcd for C\textsubscript{14}H\textsubscript{17}NO\textsubscript{2}: 232.1332 [M+H]\textsuperscript{+}; found: 232.1330.

**trans-morpholino-3-phenyloxiran-2-yl)methanone (41).** Obtained in 86% as a colourless oil. \( ^1 \text{H NMR} \) (500 MHz, \( \delta \), CDCl\textsubscript{3}, 298 K): 3.56 (m, 1H), 3.62 (d, \( J = 2.0 \) Hz, 1H), 3.62-3.70 (m, 7H), 4.06 (d, \( J = 2.0 \) Hz, 1H), 7.27-7.37 (m, 5H) ppm; \( ^{13} \text{C NMR} \) (125 MHz, \( \delta \), CDCl\textsubscript{3}, 298 K): 42.5, 45.5, 57.4, 57.8, 66.7, 66.8, 125.8, 128.8, 129.0, 135.5, 165.3 ppm; IR (film): \( \nu = 2964, 2914, 2900, 2858, 1654, 1467, 1445, 1273, 1240, 1192, 1114, 1068, 1041, 970, 912, 856, 754, 731, 700, 600 \) cm\textsuperscript{-1}; HRMS (ESI): \( m/z \) calcd for C\textsubscript{13}H\textsubscript{15}NO\textsubscript{3}: 234.1125 [M+H]\textsuperscript{+}; found: 234.1126.

4. NMR Spectra of Ammonium Salts:
5. Representative NMR Spectra of *trans*-Glycidic Amides: