Preparation of oxime ether (HO_2CC=NOBn).

To a solution of glyoxylic acid monohydrate (5.0 g, 54 mmol) in MeOH (250 mL) were added *O*-benzyloxyamine hydrochloride (13.0 g, 82 mmol) and AcONa (8.9 g, 109 mmol) under a nitrogen atmosphere at 20 °C. After the reaction mixture was stirred at the same temperature for 12 h, the solvent was evaporated at reduced pressure, and the resulting residue was added to water and CH_2Cl_2. The layers were separated, and the aqueous phase was extracted with CH_2Cl_2. The combined organic phase was dried over $MgSO_4$ and concentrated at reduced pressure. Purification of the residue by recrystallization (AcOEt/hexane) afforded oxime ether (6.88 g, 71%) as a 2:1 mixture of *E*/*Z*-oxime.

^{1}H NMR ($CDCl_3$) δ. 7.50 (2/3H, s), 7.29 (5H, s), 7.27 (1/3H, s), 5.18 (4/3, s), 4.89 (2/3, s) ^{13}C NMR ($CDCl_3$) δ 165.6, 142.5, 136.0, 135.5, 128.6, 128.43, 128.41, 128.29, 128.25, 77.6, 77.5. HRMS: Calcd for $C_9H_9NO_3$ (M^+) : 179.0582, Found : 179.0569.

Preparation of oxime ether (1).

To a suspension of Wang resin (0.83 mmol/g, 25 g) in CH_2Cl_2 (200 mL) were added oxime ether (HO_2CC=NOBn) (14.9 g, 83 mmol), DCC (21.4 g, 104 mmol) and DMAP (1.27 g, 10 mmol) under a nitrogen atmosphere at 20 °C. After the reaction mixture was stirred at the same temperature for 1 h and then staid for 11 h, the resin was filtered, washed well with CH_2Cl_2, AcOEt followed by MeOH and then dried in vacuo.

Preparation of oxime ether (2).

To a suspension of TentaGel OH resin (0.26 mmol/g, 0.50 g) in DMF (2.5 mL) were added oxime ether (HO_2CC=NOBn) (107 mg, 0.60 mmol), 2,6-dichlorobenzoyl chloride (0.086 mL, 0.60 mmol) and pyridine (0.08 mL, 0.99 mmol) under a nitrogen atmosphere at 20 °C. After the reaction mixture was stirred at the same temperature

for 1 h and then staid for 11 h, the resin was filtered, washed well with CH_2Cl_2, AcOEt followed by MeOH and then dried in vacuo.

Ethyl radical addition to oxime ether 1.

To a suspension of oxime ether **1** (0.83 mmol/g, 274 mg, 0.28 mmol) in CH_2Cl_2 (3.0 mL) was added Et_3B (1.0 M in hexane, 1.0 mL, 1.0 mmol) under a nitrogen atmosphere at 20 or -78 °C. After the reaction mixture was stirred at the same temperature for 1 h, the resin was filtered, washed well with CH_2Cl_2, AcOEt followed by MeOH and then dried in vacuo. To a flask with the resulting resin **3a** was added TFA/$CHCl_3$ (1:3, v/v, 4.0 mL) under a nitrogen atmosphere at 20 °C. After the reaction mixture was stirred at the same temperature for 30 min, the reaction mixture was filtered and washed with MeOH/$CHCl_3$ (1:11, v/v, 60 mL), and the filtrate was concentrated at reduced pressure. Purification of the residue by Amberlite IR-120B (eluting with MeOH) followed by preparative TLC (MeOH/$CHCl_3$ 1:10, v/v) afforded the α-amino acid derivative **4a**.

^{1}H NMR (CD_3OD) δ 7.34-7.26 (5H, m), 4.68 (2H, s), 3.50 (1H, br t, *J*=10.2 Hz), 1.58 (2H, m), 0.95 (3H, t, *J*=11.1 Hz). ^{13}C NMR (CD_3OD) δ 177.2, 138.9, 129.4, 129.1, 128.7, 76.9, 66.1, 23.6, 10.7. HRMS: Calcd for $C_{11}H_{15}NO_3$ (M^+) : 209.1051, Found : 209.1064.

General procedure for the alkyl radical addition to oxime ether 1.

To a suspension of oxime ether **1** (0.83 mmol/g, 274 mg, 0.28 mmol) in CH_2Cl_2 or toluene (3.0 mL) were added RI (2.0 mmol), Bu_3SnH (0.16 mL, 0.6 mmol) and Et_3B (1.0 M in hexane, 0.30 mL, 0.30 mmol) under a nitrogen atmosphere at 20 °C. After the reaction mixture was stirred at the same temperature for 1 h, the resin was filtered, washed well with CH_2Cl_2, AcOEt followed by MeOH and then dried in vacuo. To a flask with the resulting resin **3** was added TFA/$CHCl_3$ (1:3, v/v, 4.0 mL) under a

nitrogen atmosphere at 20 °C. After the reaction mixture was stirred at the same temperature for 30 min, the reaction mixture was filtered and washed with MeOH/$CHCl_3$ (1:11, v/v, 60 mL), and the filtrate was concentrated at reduced pressure. Purification of the residue by Amberlite IR-120B (eluting with MeOH) afforded the alkylated α-amino acids. Ethylated α-amino acid derivative **4a** was removed by preparative TLC (MeOH/$CHCl_3$ 1:10, v/v) to afforded the desired α-amino acid derivative **4b-g**.

4b : ^{1}H NMR (CD_3OD) δ 7.38-7.26 (5H, m), 4.67 (2H, s), 3.30 (1H, br m), 1.90-1.70 (1H, m), 0.94 (6H, d, *J*=10.1 Hz). ^{13}C NMR (CD_3OD) δ 177.2, 139.0, 129.5, 129.1, 128.6, 76.7, 70.6, 29.9, 19.7. HRMS: Calcd for $C_{12}H_{17}NO_3$ (M^+) : 223.1207, Found : 223.1221.

4c : ^{1}H NMR (CD_3OD) δ 7.34-7.26 (5H, m), 4.65 (2H, s), 3.31 (1H, m), 1.35-0.78 (11H, m). ^{13}C NMR (CD_3OD) δ 177.2, 139.0, 129.5, 129.1, 128.6, 76.7, 70.1, 39.5, 30.72, 30.66, 27.1, 27.0. HRMS: Calcd for $C_{15}H_{21}NO_3$ (M^+) : 263.1520, Found : 263.1505.

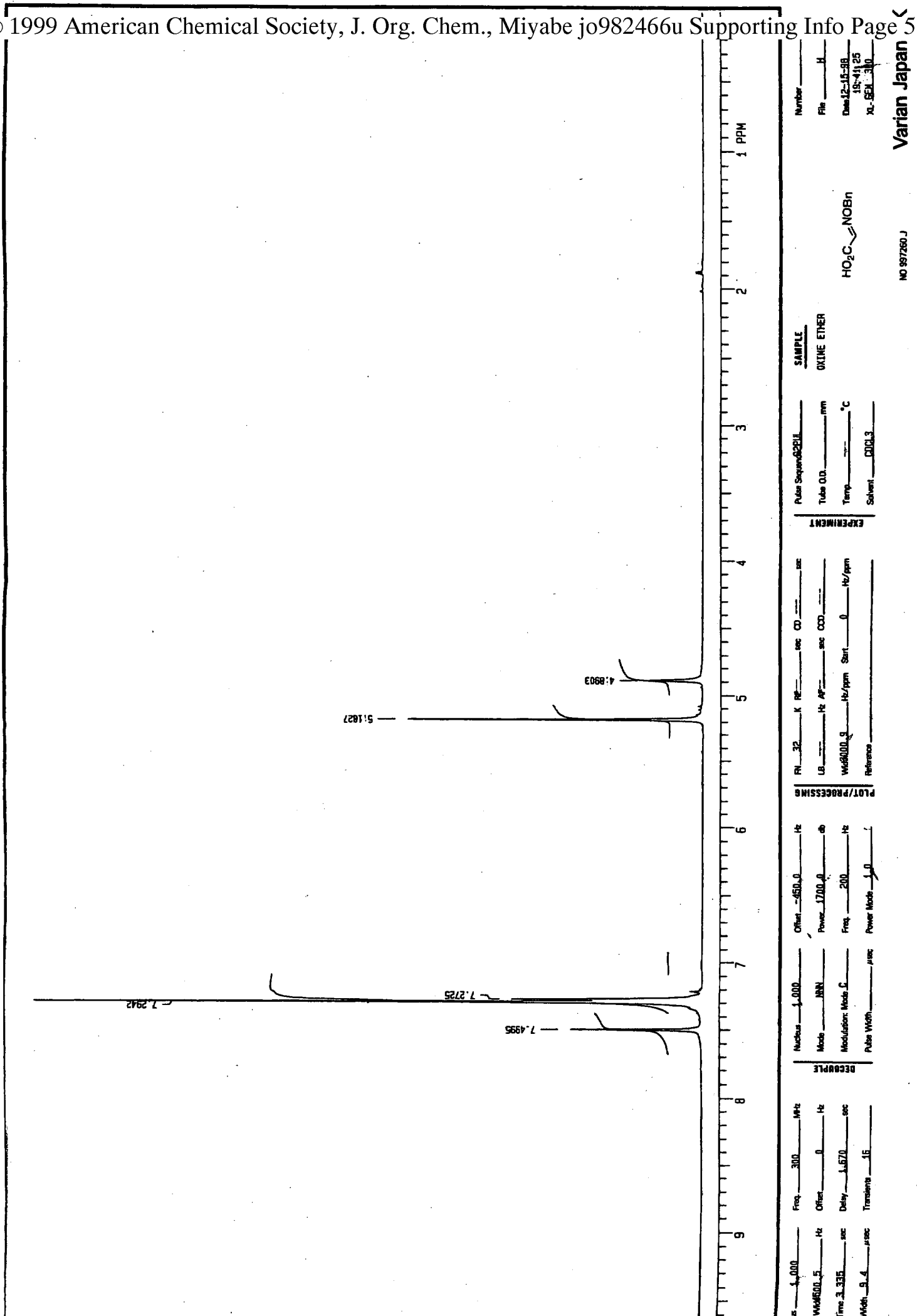
4d : ^{1}H NMR (CD_3OD) δ 7.36-7.28 (5H, m), 4.65 (2H, s), 3.31 (1H, br m), 0.94 (9H, s). ^{13}C NMR (CD_3OD) δ 177.2, 139.1, 129.7, 129.1, 128.6, 76.5, 73.2, 33.3, 27.5. HRMS: Calcd for $C_{13}H_{19}NO_3$ (M^+) : 237.1364, Found : 237.1344.

4e : ^{1}H NMR (CD_3OD) δ 7.36-7.29 (5H, m), 4.68 (2H, s), 3.59 (1H, t, *J*=10.7 Hz), 1.69 (1H, m), 1.34 (2H, m), 0.90 (3H, d, *J*=11.0 Hz), 0.81 (3H, d, *J*=11.0 Hz). ^{13}C NMR (CD_3OD) δ 177.8, 138.9, 129.4, 129.1, 128.6, 76.8, 63.2, 39.5, 26.0, 23.0, 22.7. HRMS: Calcd for $C_{13}H_{19}NO_3$ (M^+) : 237.1364, Found : 237.1348.

4f (diastereomeric mixture) : ^{1}H NMR (CD_3OD) δ 7.38-7.26 (5H, m), 4.65 (2H, s) , 3.42 (1H, br m), 1.68-1.38 (2H, m), 1.26-1.11 (1H, m), 0.87 (6H, m). ^{13}C NMR (CD_3OD) δ 177.4, 177.1, 139.0, 129.5, 129.1, 128.6, 76.1, 69.1, 68.6, 36.8, 36.2,

27.3, 26.9, 16.0, 15.7, 11.8, 11.5. HRMS: Calcd for $C_{13}H_{19}NO_3$ (M^+) : 237.1364, Found : 237.1354.

4g : ^{1}H NMR (CD_3OD) δ 7.38-7.24 (5H, m), 4.62 (2H, s), 3.13 (1H, br s), 2.00-1.26 (15H, m). ^{13}C NMR (CD_3OD) δ 176.6, 139.1, 129.6, 129.1, 128.6, 76.5, 74.2, 40.3, 37.8, 35.6, 29.6. HRMS: Calcd for $C_{19}H_{25}NO_3$ (M^+) : 315.1833, Found : 315.1825.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7.2725
7.4995
5.1827
4.8903
1 PPM
HO2C
NOBn
SAMPLE
OXIME ETHER
EXPERIMENT
PLOT/PROCESSING
DECOUPLE
Varian Japan