Supporting Information

Total Synthesis and Stereochemistry of Pinnatoxins B and C

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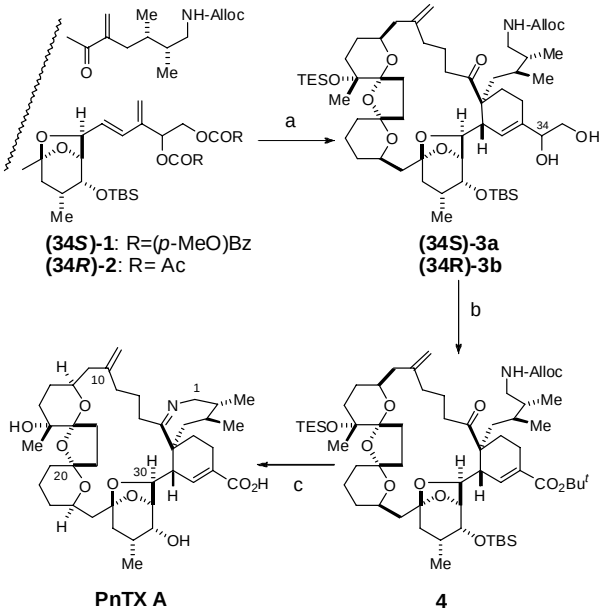
General methods. Unless otherwise noted, all reactions were carried out under positive argon pressure using oven-dried glassware and standard syringe, cannula and septa techniques. Tetrahydrofuran (THF), benzene, toluene and diethyl ether were distilled over Na / benzophenone ketyl under nitrogen immediately prior to use. Dichloromethane, acetonitrile, triethylamine, and diisopropylamine (DIPA) were distilled from CaH_2 under nitrogen prior to use. Dess-Martin periodinane was purchased from OmegaChem Inc. (Canada). Unless otherwise stated, all chemicals were used as received. Flash chromatography purifications were performed using Baker silica gel 60 (40 μm) and the solvents indicated. After chromatography, solvents were evaporated using a Büchi rotary evaporator, followed by further treatment under high vacuum, unless otherwise indicated. Analytical TLC was performed using 0.25 mm EM silica gel 60 F_{254} plates that were analyzed by fluorescence upon 254 nm irradiation or by staining with anisaldehyde reagent (900 mL of 95% EtOH, 50 mL of conc. H_2SO_4, 50 mL of acetic acid and 5 mL of anisaldehyde).

NMR spectra were recorded on Varian Inova-600 (600MHz) and Inova-500 (500 MHz) spectrometers. Chemical shifts are reported in parts per million (ppm). For ^1H NMR spectra the residual solvent peak was used as the internal reference (7.26 ppm, $CDCl_3$; 7.15 ppm, C_6D_6; 3.306 ppm, CD_3OD). For ^1H NMR multiplicity (singlet (s), broad singlet (bs), doublet (d), triplet (t), quartet (q), multiplet (m)) and coupling constant(s) were reported whenever possible. Low resolution EI mass spectra were obtained using an AX-505H mass spectrometer (JEOL USA, Inc., Peabody, MA).

The stereochemical correlation between **3a/b** and **4** was carried out as shown in Scheme 1. Note that **4** is a known compound in the original PnTX A synthesis (McCauley, J. A.; Nagasawa, K.; Lander, P. A.; Mischke, S. G.; Semones, M. A.; Kishi, Y. *J. Am. Chem. Soc.* **1998**, *120*, 7647).

Experimental for Scheme 1.



Scheme 1. Reagents. (a) See Ref 5. (b) 1. $NaIO_4$. 2. $NaClO_2$, NaH_2PO_4. 3. *t*-BuOH, EDC, DMAP. (c) See Ref 3.

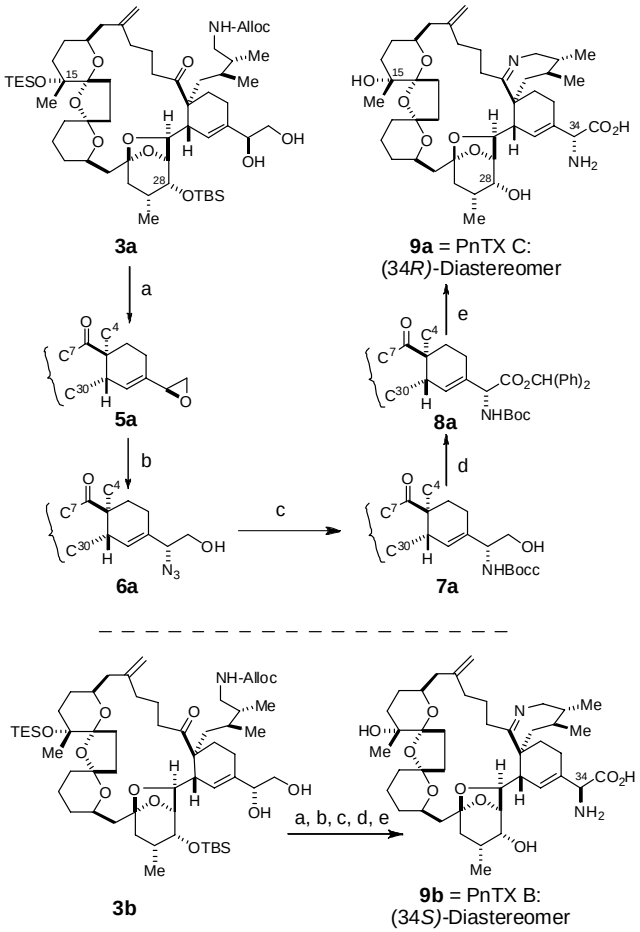
Ester 4. To a solution of diol **3a** (3.0 mg) in 10% aq. THF (0.3 mL) at 0 ^oC was added $NaIO_4$ (10 mg). After 30 min of stirring at 0 ^oC, the mixture was diluted with EtOAc, washed with sat. aq. $NaHCO_3/Na_2S_2O_3$ solution, water and brine. The organic layer was dried over anhydrous Na_2SO_4, filtered, and concentrated. The residue was filtered through a pad of silica gel (hexanes / EtOAc = 4:1) to give the corresponding crude aldehyde.

To a solution of the above aldehyde in ^{t}BuOH (0.5 mL) was added 2-methyl-2-butene (0.3 mL), a solution of NaH_2PO_4 (excess) and $NaClO_2$ (excess) in H_2O (0.6 mL) at 0 ^oC. After 30 min of stirring at 0 ^oC, the mixture was directly applied to silica gel column (EtOAc) to afford the corresponding crude carboxylic acid.

To a mixture of the above crude acid, ^{t}BuOH (0.1 mL) and DMAP (0.1 mg) in CH_2Cl_2 (0.3 mL) was added EDCI (excess). After stirring overnight at rt, the mixture was diluted with EtOAc, washed with sat. aq. $NaHCO_3$ and brine. The organic layer was dried over anhydrous Na_2SO_4, filtered, and concentrated. The residue was purified by SiO_2 flash chromatography (hexanes / EtOAc = 4:1) to afford *t*-butyl ester **4**. Comparison of the ^{1}H NMR spectrum of **4** with that of the authentic sample (McCauley, J. A.; Nagasawa, K.; Lander, P. A.; Mischke, S. G.; Semones, M. A.; Kishi, Y. *J. Am. Chem. Soc.* **1998**, *120*, 7647) established that **3a** has the desired stereochemistry.

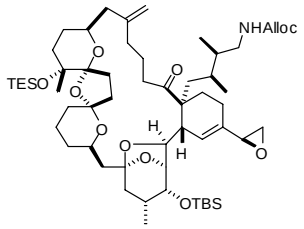
The stereochemistry of **3b** was established employing the same procedure.

Experimental for Scheme 2.



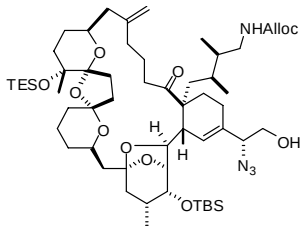
Scheme 2. Reagents. (a) 1. TsCl, DMAP, NEt_3, 83%. 2. K_2CO_3, MeOH, 96%. (b)

NaN_3, 96%. (c) PPh_3, then Boc_2O, 90%. (d) 1. Dess-Martin oxidation. 2. $NaClO_2$, NaH_2PO_4. 3. $Ph_2C{=}N_2$, 100% over 3 steps. (e). 1. HF·py, py. 2. $Pd(PPh_3)_4$, AcOH. 3. 2,4,6-(*i*-Pr)$_3C_6H_2CO_2H$-Et_3N, xylene, 80 ^oC. 4. TFA, CH_2Cl_2, 64% over 4 steps.



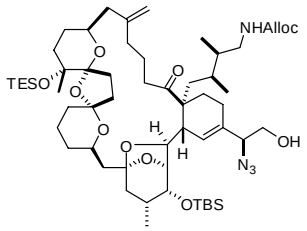
5a

Epoxide 3a. To a stirred solution of diol **3a** (4.2 mg, 4.0 μmol) in CH_2Cl_2 (0.25 mL) and Et_3N (0.3 mL) was added DMAP (0.14 mg, 1.1 μmol) and TsCl (1.4 mg, 7.1 μmol). After stirring at rt for 1.5 h, the mixture was added additional amount of TsCl (0.5 mg, 2.6 μmol) and stirred at rt for another 15 min. The mixture was filtered through a pad of SiO_2 and concentrated in vacuo. The residue was purified by SiO_2 column chromatography (hexanes /EtOAc = 5:1, 3:1, 1:1, 1:2, then 1:10) to afford the corresponding tosylate and recovered diol **3a**. This procedure was repeated twice using the recovered diol to afford more corresponding tosylate (4.0 mg, 83 %) and recovered diol **3a** (0.1 mg, 2.3 %). The above tosylate was dissolved in CH_2Cl_2/MeOH (1:1, 1.0 mL) and was added K_2CO_3 (5.0 mg). The mixture was stirred at rt for 30 min and filtered through a pad of SiO_2 and concentrated. The residue was purified by SiO_2 column chromatography (hexanes / EtOAc = 9:1, 5:1 then 1:1) to afford epoxide **5a** (2.4 mg, 58 % in 2 steps) as a colorless oil: ^1H NMR (500 MHz, $CDCl_3$): 5.87-5.96 (m, 1H), 5.37 (s, 1H), 5.30 (dd, *J* = 17.0, 1.5 Hz, 1H), 5.21 (d, *J* = 12.0, 1.5 Hz, 1H), 4.78 (s, 1H), 4.70-4.76 (m, 2H), 4.53 (d, *J* = 5.5 Hz, 2H), 4.10-4.18 (m, 2H), 3.98-4.03 (m, 1H), 3.82 (dd, *J* = 11.5, 4.0 Hz, 1H), 3.63 (broad s, 1H), 3.26 (broad, 1H), 3.03 (broad t, *J* = 5.5 Hz, 2H), 2.86 (broad t, *J* = 4.0 Hz, 2H), 2.76 (broad s, 1H), 2.51-2.59 (m, 1H), 2.25-2.36 (m, 3H), 1.22-2.19 (m, 34H), 0.94 (t, *J* = 8.0 Hz, 9H), 0.92 (s, 9H), 0.88 (d, *J* = 7.0 Hz, 3H), 0.83 (d, *J* = 7.0 Hz, 3H), 0.80 (d, *J* = 7.0 Hz, 3H), 0.56 (q, *J* = 7.5 Hz, 6H), 0.10 (s, 3H), 0.07 (s, 3H) ppm; IR (film) 2924, 1725, 1460, 1251, 1043 cm^{-1}; LRMS (ESI) calcd for $C_{58}H_{97}NO_{11}Si_2$ $[M+Na]^+$ 1062.7, found 1062.5; $[\alpha]_D^{20}$ +23.3 (*c* 0.12, PhH).



6a

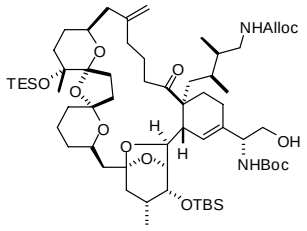
Azide 6a. To a stirred solution of epoxide **5a** (2.4 mg, 2.3 μmol) in MeOH/H_2O (9:1, 1.0 mL) at rt was added NaN_3 (20 mg) and stirred at rt 16h. The reaction mixture was diluted with EtOAc and filtered through a pad of SiO_2 and concentrated in vacuo. The residue was purified by SiO_2 column chromatography (hexanes / EtOAc = 5:1, then 2:1) to afford azido alcohol **6a** (2.4 mg, 96%) as a colorless oil: ^{1}H NMR (500 MHz, $CDCl_3$) 5.87-5.95 (m, 1H), 5.32 (s, 1H), 5.30 (d, *J* = 17.5 Hz, 1H), 5.21 (d, *J* = 10.5 Hz, 1H), 4.86 (broad, 1H), 4.78 (s, 1H), 4.74 (s, 1H), 4.54 (d, *J* = 5.5 Hz, 2H), 4.18 (d, *J* = 3.5 Hz, 1H), 4.09-4.17 (m, 1H), 3.95-4.05 (m, 2H), 3.82 (dd, *J* = 12.0, 4.5 Hz, 1H), 3.68-3.78 (m, 2H), 3.61 (dd, *J* = 2.5 Hz, 1H), 3.05-3.14 (m, 1H) 2.86-2.96 (m, 2H), 2.50-2.60 (m, 1H), 2.23-2.40 (m, 3H), 1.24-2.20 (m, 34H), 0.94 (t, *J* = 8.5 Hz, 9H), 0.92 (s, 9H), 0.89 (d, *J* = 7.0 Hz, 3H), 0.83 (d, *J* = 7.0 Hz, 3H), 0.77 (d, *J* = 6.5 Hz, 3H), 0.56 (q, *J* = 7.5 Hz, 6H), 0.11 (s, 3H), 0.07 (s, 3H) ppm; LRMS (ESI) calcd for $C_{58}H_{98}N_5O_{11}Si_2$ $[M+NH_4]^+$ 1100.7, found 1100.4; $[\alpha]_D^{20}$ -10.7 (*c* 0.14, PhH).



6b

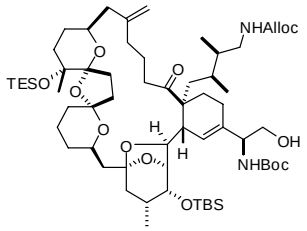
Azide **6b** was prepared according to the above procedure form diol **3b**: ^{1}H NMR (500 MHz, C_6D_6): 5.69-5.76 (m, 1H), 5.27 (s, 1H), 5.12 (dd, *J* = 17.0, 1.5 Hz, 1H), 4.99 (dd, *J* = 10.0, 1.5 Hz, 1H), 4.96 (s, 1H), 4.90 (s, 1H), 4.48-4.53 (m, 1H), 4.43 (d, *J* = 5.5 Hz, 1H), 4.25-4.29 (m, 2H), 4.17 (d, *J* = 3.0 Hz, 1H), 3.96 (dd, *J* = 11.5, 4.0 Hz, 1H), 3.92 (t, *J* = 7.5 Hz, 1H), 3.75 (d, *J* = 2.5 Hz, 1H), 3.64-3.67 (m, 2H), 2.98-3.00 (m, 2H), 2.75 -2.81 (m, 1H), 2.66-2.70 (m, 1H), 2.49-2.58 (m, 2H), 2.38-2.46 (m, 2H), 2.33 (dd, *J* = 12.5, 10.0 Hz, 1H), 1.20-2.24 (m, 32H), 1.03 (t, *J* = 7.5 Hz, 9H), 0.99 (s, 9H), 0.81 (d, *J*

= 6.5 Hz, 3H), 0.69 (d, *J* = 6.5 Hz, 3H), 0.65 (d, *J* = 7.5 Hz, 3H), 0.62 (q, *J* = 7.5 Hz, 6H), 0.14 (s, 3H), 0.11 (s, 3H) ppm.



7a

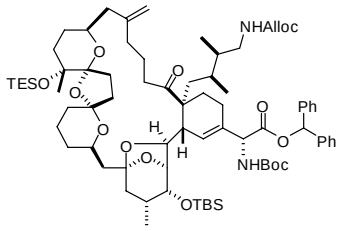
Alcohol 7a. To a solution of the azido alcohol **6a** (2.6 mg, 2.4 μmol) in THF / H_2O (9:1, v/v, 1 mL) was added PPh_3 (10.0 mg) and stirred at rt 12h. After adding Boc_2O (10.0 mg), the mixture was stirred at rt for another 36 h. The mixture was concentrated in vacuo and the residue was purified by SiO_2 column chromatography (hexanes / EtOAc = 5:1, then 2:1) to afford alcohol **7a** (2.5 mg, 90%) as a colorless oil: ^{1}H NMR (600 MHz, $CDCl_3$) 5.86-5.96 (m, 1H), 5.30 (d, *J* = 17.4 Hz, 1H), 5.22 (d, *J* = 10.2 Hz, 1H), 5.13 (s, 1H), 5.09 (broad d, *J* = 6.0 Hz, 1H), 4.98 (broad s, 1H), 4.78 (s, 1H), 4.74 (s, 1H), 4.54 (broad s, 2H), 4.08-4.18 (m, 3H), 3.98-4.06 (m, 1H), 3.76-3.82 (m, 2H), 3.63-3.70 (m, 1H), 3.58 (broad s, 1H), 3.07-3.14 (m, 1H) 2.81-2.92 (m, 2H), 2.50-2.58 (m, 1H), 2.32-2.41 (m, 1H), 2.24-2.28 (m, 1H), 1.52-2.19 (m, 34H), 1.39-1.48 (m, 11H), 0.94 (t, *J* = 7.8 Hz, 9H), 0.92 (s, 9H), 0.87 (broad d, *J* = 6.6 Hz, 3H), 0.82 (broad d, *J* = 6.6 Hz, 3H), 0.76 (broad d, *J* = 4.8 Hz, 3H), 0.56 (q, *J* = 7.8 Hz, 6H), 0.10 (s, 3H), 0.06 (s, 3H) ppm; LRMS (ESI) calcd for $C_{63}H_{108}N_2O_{13}Si_2$ $[M+NH_4]^+$ 1174.8, found 1174.4; $[\alpha]_D^{20}$ +4.8 (*c* 0.14, PhH).



7b

Alcohol **7b** was prepared according to the above procedure form azide **6b**: ^{1}H NMR (500 MHz, C_6D_6) 5.71-5.79 (m, 1H), 5.23-5.29 (m, 3H), 5.13 (dd, *J* = 17.0, 1.5 Hz,

1H), 4.98 (d, *J* = 10.0 Hz, 1H), 4.96 (s, 1H), 4.89 (s, 1H), 4.45-4.52 (m, 3H), 4.33 (d, *J* = 3.0 Hz, 1H), 4.25 (m, 2H), 4.02 (dd, *J* = 11.5, 4.0 Hz, 1H), 3.81-3.85 (m, 2H), 3.55-3.60 (m, 2H), 3.46-3.49 (m, 1H), 2.98-3.02 (m, 1H), 2.91 (d, *J* = 10.5 Hz, 1H), 2.67-2.72 (m, 2H), 2.51-2.60 (m, 3H), 2.37-2.47 (m, 3H), 2.32 (dd, *J* = 12.0, 11.5 Hz, 2H), 1.29-2.22 (m, 37 H), 1.06 (d, *J* = 6.5 Hz, 3H), 1.04 (s, 9H), 1.02 (d, *J* = 8.5 Hz, 9H), 0.86 (d, *J* = 6.0 Hz, 3H), 0.74 (d, *J* = 6.5 Hz, 3H), 0.61 (d, *J* = 8.0 Hz, 6H), 0.29 (s, 3H), 0.21 (s, 3H) ppm.



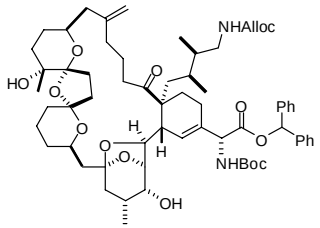
8a

Ester 8a. To a stirred solution of alcohol **7a** (2.5 mg, 2.159 μmol) and $NaHCO_3$ (15 mg) in CH_2Cl_2 (0.4 mL) was added Dess-Martin periodinane (3.0 mg) and stirred at rt for 15 min. After addition of additional Dess-Martin reagent (3.0 mg and 7.0 mg) every 30 min, the reaction mixture was quenched by addition of sat. aq. $NaHCO_3$ and sat. aq. $Na_2S_2O_3$. The mixture was stirring at rt for 30 min, extracted with Et_2O (x 3), dried over anhydrous Na_2SO_4, and evaporated in vacuo to obtain the corresponding crude aldehyde.

To a solution of the above crude aldehyde in ^{t}BuOH (0.25 mL) were added a solution of 2-methyl-2-butene in THF (2 *M* solution, 25 μL) and a solution of the $NaClO_2$ and NaH_2PO_4 (250 μL, made by dissolving $NaClO_2$ (50 mg) and NaH_2PO_4 (150 mg) in H_2O (20 mL)). After stirring at rt for 15 min, the mixture was diluted with H_2O, extracted with Et_2O (x 5), dried over anhydrous Na_2SO_4, filtered, and concentrated to afford the corresponding crude carboxylic acid.

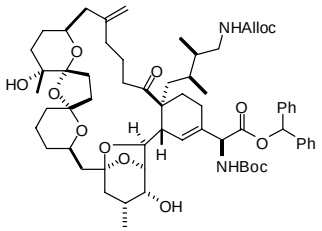
To a solution of the above crude carboxylic acid in CH_2Cl_2 (1.0 mL) and added the diphenylmethyl diazomethane (10.0 mg). The mixture was stirred at rt for 20 min, evaporated. The residue was purified by SiO_2 column chromatography (hexanes / EtOAc = 10:1, 6:1, then 5:1) to afford ester **8a** (3.2 mg, 100%): ^{1}H NMR (600 MHz, C_6D_6) 7.01-7.32 (m, 11H), 5.87 (broad, 1H), 5.79 (broad d, *J* = 7.2 Hz, 1H), 5.42 (s, 1H), 5.23 (d, *J* = 17.4 Hz, 1H), 5.18 (d, *J* = 7.2 Hz, 1H), 5.06 (d, *J* = 10.2 Hz, 1H), 4.99 (s, 1H), 4.91 (s,

1H), 4.57-4.68 (m, 2H), 4.45-4.52 (m, 1H), 4.40 (broad, 1H), 4.22-4.39 (m, 1H), 4.07 (broad s, 1H), 3.86-3.92 (m, 1H), 3.72 (broad s, 1H), 2.82-2.88 (m, 2H), 2.74-2.84 (m, 1H), 2.66-2.72 (m, 1H), 2.56-2.64 (m, 1H), 1.22-2.42 (m, 50H), 1.03 (t, *J* = 7.2 Hz, 9H), 1.01 (s, 9H), 0.88-0.93 (m, 6H), 0.74 (broad d, *J* = 6.0 Hz, 3H), 0.61 (q, *J* = 7.2 Hz, 6H), 0.17 (s, 3H), 0.08 (s, 3H) ppm; LRMS (ESI) calcd for $C_{76}H_{116}N_2O_{14}Si_2$ $[M+H]^+$ 1337.9, found 1337.8; $[\alpha]_D^{20}$ -14.9 (*c* 0.07, PhH).



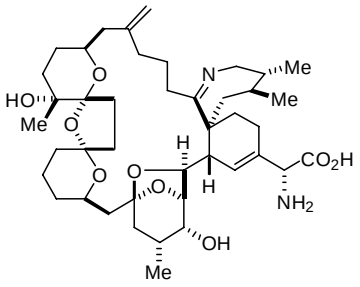
i-a

Diol i-a. To a stirred solution of bis-silyl ether **8a** (1.0 mg, 0.75 μmol) in CH_3CN (0.4 mL) and Et_2O (2 drops) at rt was added 30% HF·Py in pyridine (4 drops) and neat HF·Py (4 drops). After 12 h of stirring at rt, neat HF·Py (2 drops) was added and stirring was continued for another 24h. The reaction mixture was filtered through a plug of SiO_2, eluted by EtOAc, and concentrated. The residue was purified by SiO_2 column chromatography (hexanes / EtOAc = 3:1, 1:1 then 0:100) to afford diol **i-a** (0.9 mg, 100%) as a colorless oil: ^{1}H NMR (500 MHz, C_6D_6) 6.99-7.31 (m, 11H), 5.81-5.91 (m, 1H), 5.75 (broad d, *J* = 7.5 Hz, 1H), 5.36 (s, 1H), 5.21 (broad d, *J* = 16.5 Hz, 1H), 5.12 (broad d, *J* = 7.5 Hz, 1H), 5.03 (broad d, *J* = 9.5 Hz, 1H), 4.94 (s, 1H), 4.87 (s, 1H), 4.46-4.68 (m, 3H), 4.25-4.36 (m, 2H), 4.02 (s, 1H), 3.84 (broad d, *J* = 9.0 Hz, 1H), 3.70 (broad, 1H), 3.51-3.58 (m, 1H), 2.91 (broad d, *J* = 7.0 Hz, 2H), 2.74-2.85 (m, 1H), 2.60 (dd, *J* = 3.5, 13.0 Hz, 1H), 2.35-2.44 (m, 1H), 1.16-2.21 (m, 44H), 0.91 (d, *J* = 6.0 Hz, 3H), 0.84 (d, *J* = 7.0 Hz, 3H), 0.74 (d, *J* = 6.5 Hz, 3H) ppm; LRMS (ESI) calcd for $C_{64}H_{88}N_2O_{14}$ $[M+H]^+$ 1109.6, found 1109.4; $[\alpha]_D^{20}$ -21.4 (*c* 0.14, PhH).



i-b

Diol **i-b** was prepared according to the above procedure form alcohol **7a**: ^{1}H NMR (500 MHz, C_6D_6) 6.98-7.32 (m, 11H), 5.83-5.90 (m, 1H), 5.58 (broad d, *J* = 7.0 Hz, 1H), 5.30 (s, 1H), 5.20 (d, *J* = 16.5 Hz, 1H), 5.02 (d, *J* = 11.0 Hz, 1H), 4.92-4.94 (m, 1H), 4.92 (s, 1H), 4.86 (s, 1H), 4.64 (d, *J* = 5.5 Hz, 2H), 4.24-4.36 (m, 2H), 4.16 (broad, 1H), 3.80 (dd, *J* = 11.5, 4.0 Hz, 1H), 3.40 (broad d, *J* = 10.0 Hz, 3H), 3.04-3.12 (m, 1H), 2.71-2.79 (m, 2H), 2.60 (dd, *J* = 12.5, 4.0 Hz, 1H), 2.23-2.35 (m, 4H), 1.20-2.34 (m, 45H), 0.91 (d, *J* = 7.5 Hz, 3H), 0.79 (d, *J* = 7.0 Hz, 3H), 0.63 (d, *J* = 6.5 Hz, 3H) ppm.



PnTX C

PnTX C: To a stirred solution of Alloc carbamate **i-a** (0.9 mg, 0.85 μmol) in toluene/AcOH (100:1, v/v, 0.2 mL) at rt was added $Pd(PPh_3)_4$ (0.2 mg). After stirring for 20 min, the mixture was charged directly to a SiO_2 column (EtOAc, EtOAc / MeOH =10:1, $CHCl_3$ / MeOH = 10:1, then $CHCl_3$ / MeOH / H_2O = 16:8:1) to afford the corresponding amine (0.6 mg, 72%) as a colorless oil: ^{1}H NMR (500 MHz, CD_3OD) 7.28-7.37 (m, 10H), 6.97 (s, 1H), 5.22 (s, 1H), 4.83 (s, 1H), 4.80 (s, 1H), 4.69 (s, 1H), 4.21-4.28 (m, 1H), 4.04-4.11 (m, 1H), 3.90 (s, 1H), 3.58-3.66 (m, 1H), 3.53 (s, 1H), 2.93 (broad d, *J* = 10.5 Hz, 1H), 2.90 (dd, *J* = 5.5, 10.5 Hz, 2H), 2.70 (dd, *J* = 9.0, 13.0 Hz, 1H), 2.59-2.67 (m, 1H), 2.29-2.38 (m, 2H), 1.15-2.22 (m, 46H), 0.91 (d, *J* = 7.0 Hz, 6H), 0.82 (d, *J* = 7.0 Hz, 3H) ppm; HRMS (ESI) calcd for $C_{60}H_{84}N_2O_{12}$ $[M+H]^+$ 1025.6102, found 1025.6097; $[\alpha]_D^{20}$ -19.3 (*c* 0.14, PhH).

This reaction was divided two batches. The above ketoamine (0.85 mg x 2, 1.7 μmol) was dissolved in 1% w/v 1,3,5-triisopropylbenzoic acid - triethylamine salt in xylene (0.8 mL x 2, prepared by dissolving 100 mg of 1,3,5-triisopropylbenzoic acid in 10 mL of xylene, followed by addition of 1 eq. of NEt_3 relative to the acid) and stirred at 80°C for 36 h. The reaction mixture was charged directly to a SiO_2 column (hexanes / EtOAc = 5:1, 2:1, 1:1, then 0:100) to afford a mixture of the cyclized imine and 1,3,5-triisopropylbenzoic acid as an inseparable mixture (1.4 mg): HRMS (ESI) calcd for $C_{60}H_{82}N_2O_{11}$ $[M+H]^+$ 1007.5997, found 1007.5997.

This reaction was divided two batches. The above imine (0.7 mg x 2) was dissolved in TFA / CH_2Cl_2 (1:1, v/v, 1.0 mL) and stirred at rt for 10 min. The reaction mixture was poured into toluene (10 mL x 2) and concentrated. The residue was purified by reversed phase HPLC (YMC-Pack ODS-A, 250 x 10 mm, H_2O / CH_3CN = 3:1, v/v, containing 0.1% TFA, detection at 216 nm) to afford PnTX C (1.1 mg, 89% in 2 steps): LRMS (ESI) calcd for $C_{42}H_{64}N_2O_9$ $[M+H]^+$ 741.5, found 741.5.

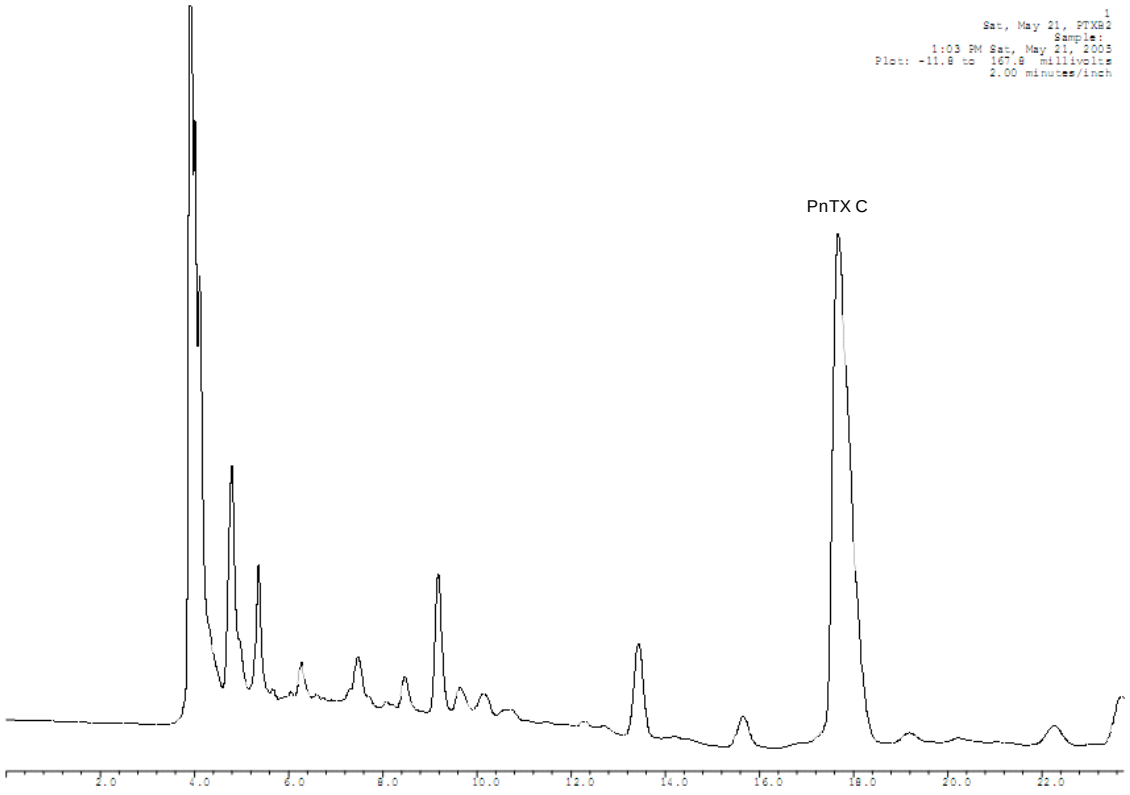
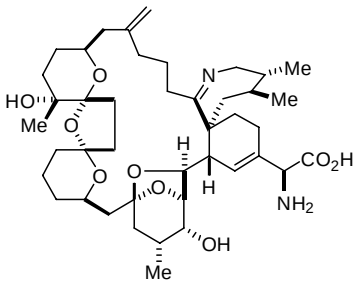


Figure I. HPLC Trace for Purification of PnTX C.



PnTX B

PnTX B was prepared according to the above procedure from ester **i-b**.

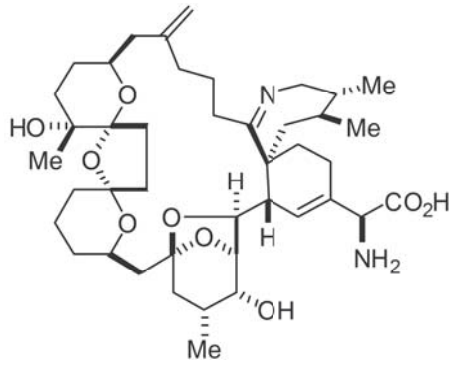
Table 1. PnTX B (reference CD_3OD 3.306 ppm, 500 MHz, CD_3OD)

proton number	δ (ppm)	*J* (Hz)	natural PtTX B
32	5.546 (s, 1H)		5.46
39a	4.942 (s, 1H)		4.94
39b	hidden (1H)		4.86
29	4.590 (d, 1H)	3.2	4.61
34	4.333 (s, 1H)		4.07
1b	4.288 (broad d, 1H)	13.9	4.27
12	4.087 (broad t, 1H)	?	4.10
23	4.046 (m, 1H)		4.05
30	3.892 (dd, 1H)	11.7, 4.7	3.91
28	3.701 (d, 1H)	2.7	3.74
1a/7(CH2)/31	3.625-3.539 (m, 4H)		3.67/3.57/3.52
11b/36 (CH2)	2.471-2.365 (m, 3H)		2.39/2.43/2.36
9b/11a/17b/27	2.234-2.155 (m, 4H)		
4b/4a/8b/8a/9a/14b/ 18b/18a/20b/21b/ 24b/24a/40b/40a/ 2/13b/17a/21a/22b/ 26b/26a	2.089-1.609 (m, 21H)		
14a/20a	1.554-1.511 (m, 2H)		1.53/1.53
3/13a/22a	1.401-1.261 (m, 3H)		1.42/1.34/1.28
38 (methyl)	1.231 (s, 3H)		1.24
42 (methyl)	1.223 (d, 3H)	hidden ?	1.23
41 (methyl)	1.087 (d, 3H)	6.5	1.10
37 (methyl)	1.034 (d, 3H)	6.6	1.05

Table 2. PnTX C (reference CD_3OD 3.306 ppm, 500 MHz, CD_3OD)

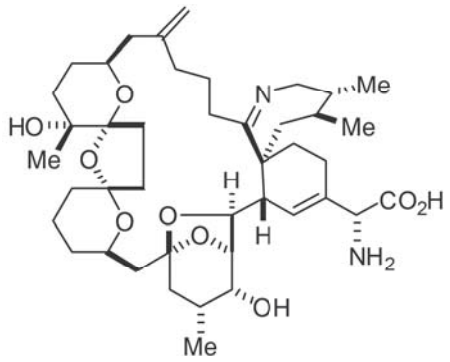
proton number	δ (ppm)	*J* (Hz)	natural PtTX C
32	5.540 (s, 1H)		5.44
39a	4.936 (s, 1H)		4.94
39b	hidden (1H)		4.86
29	4.533 (d, 1H)	3.6	4.54
34	4.403 (s, 1H)		4.11
1b	4.270 (dd, 1H)	16.9, 4.3	4.27
12	4.085 (broad t, 1H)	?	4.10
23	4.042 (m, 1H)		4.05
30	3.858 (dd, 1H)	11.7, 4.6	3.87
28	3.793 (d, 1H)	2.5	3.86
1a/7(CH2)/31	3.638-3.553 (m, 4H)		3.67/3.57/3.59
11b/36 (CH2)	2.530-2.363 (m, 3H)		2.39/2.30/1.08
9b/11a/17b/27	2.216-2.170 (m, 4H)		
4b/4a/8b/8a/9a/14b/ 18b/18a/20b/21b/ 24b/24a/40b/40a/ 2/13b/17a/21a/22b/ 26b/26a	2.086-1.602 (m, 21H)		
14a/20a	1.549-1.504 (m, 2H)		1.53/1.53
3/13a/22a	1.439-1.257 (m, 3H)		1.38/1.34/1.28
38 (methyl)	1.230 (s, 3H)		1.24
42 (methyl)	1.226 (d, 3H)	hidden ?	1.23
41 (methyl)	1.084 (d, 3H)	6.6	1.09
37 (methyl)	1.043 (d, 3H)	6.6	1.04

Synthetic PnTX B contaminated with ca. 5-10% PnTX C (see arrow) (500 MHz, CD_3OD)

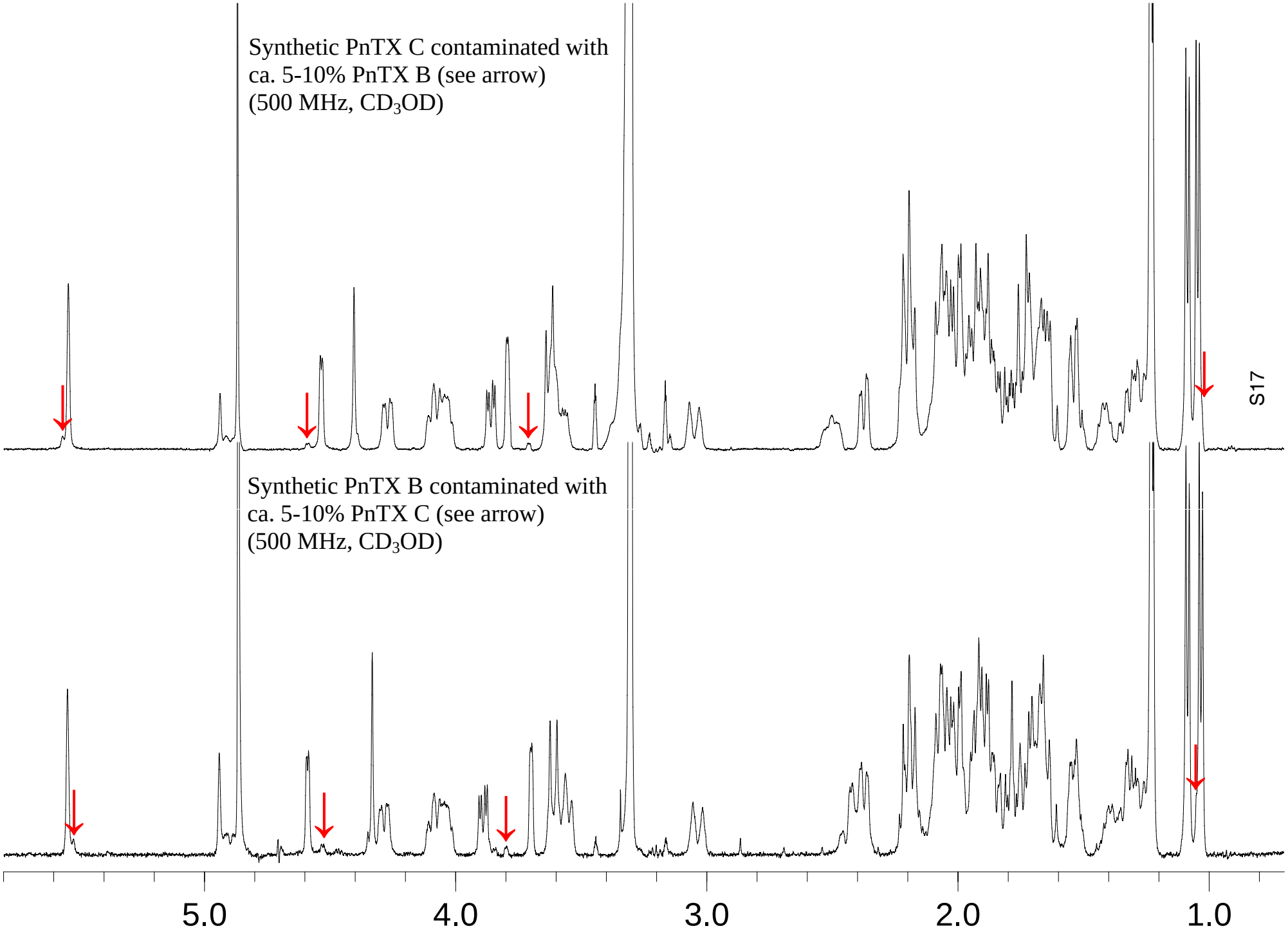


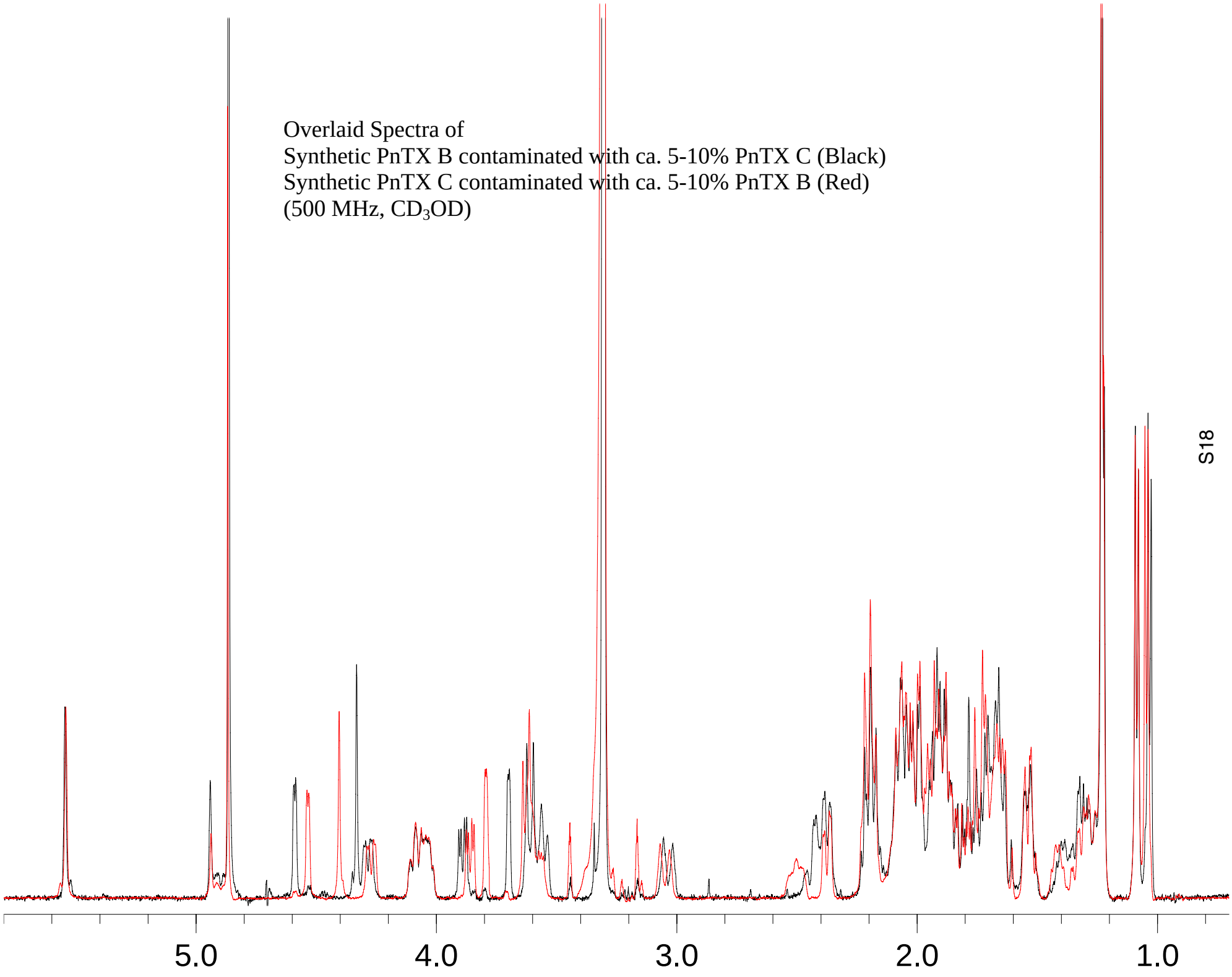
5.0 4.0 3.0 2.0 1.0

Synthetic PnTX C contaminated with ca. 5-10% PnTX B (see arrow) (500 MHz, CD_3OD)

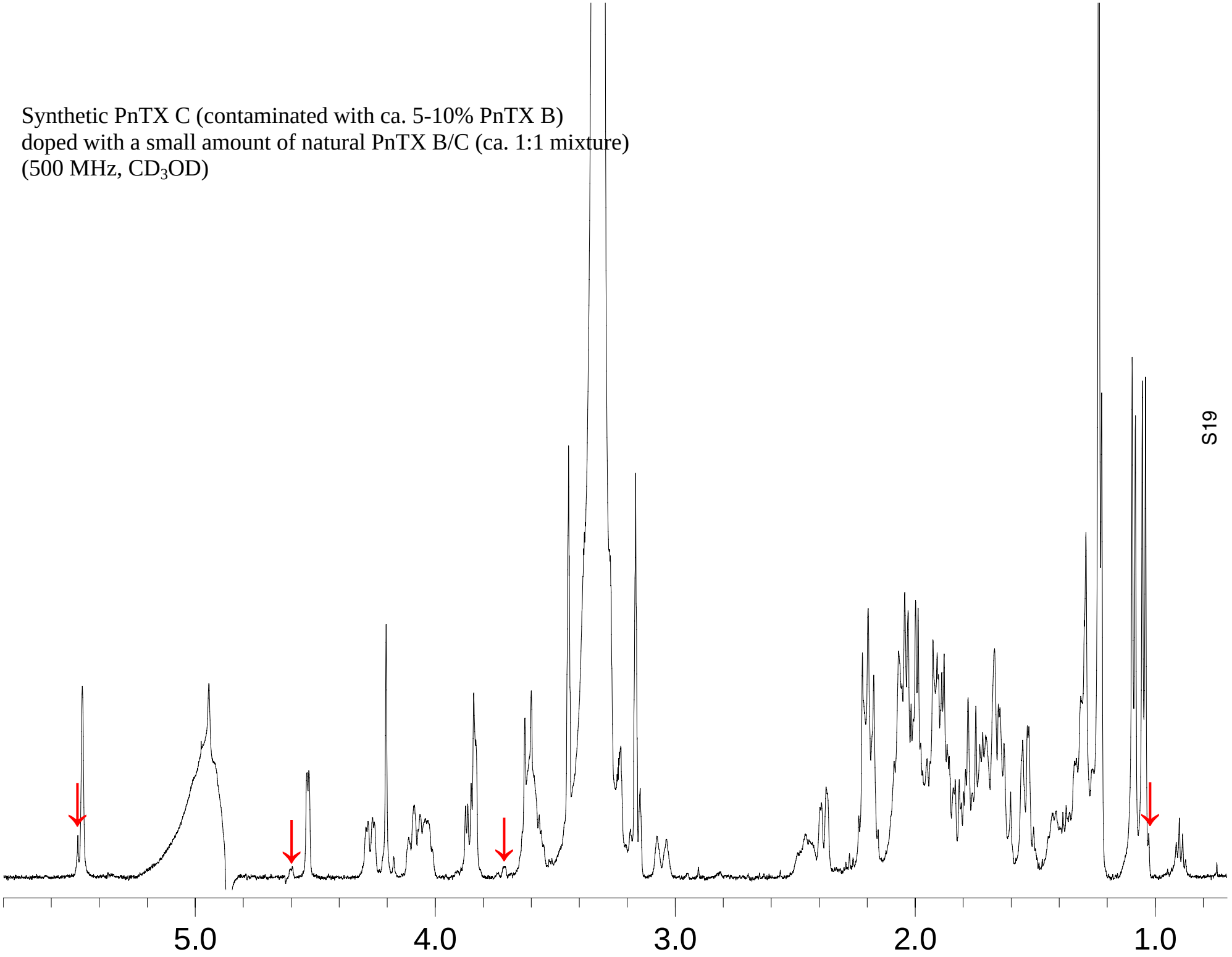


5.0 4.0 3.0 2.0 1.0


Synthetic PnTX C contaminated with
ca. 5-10% PnTX B (see arrow)
(500 MHz, CD3OD)
Synthetic PnTX B contaminated with
ca. 5-10% PnTX C (see arrow)
(500 MHz, CD3OD)
S17
5.0
4.0
3.0
2.0
1.0


Overlaid Spectra of
Synthetic PnTX B contaminated with ca. 5-10% PnTX C (Black)
Synthetic PnTX C contaminated with ca. 5-10% PnTX B (Red)
(500 MHz, CD3OD)
S18
5.0
4.0
3.0
2.0
1.0

Synthetic PnTX C (contaminated with ca. 5-10% PnTX B)
doped with a small amount of natural PnTX B/C (ca. 1:1 mixture)
(500 MHz, CD_3OD)



Concentration Effects on
Synthetic PnTX B (contaminated with ca. 5-10% PnTX C)
(500 MHz, CD_3OD)
concentration = 1 x (black)
concentration = 1/2 x (blue)
concentration = 1/4 x (red)