Electronic Supplementary Material (ESI) for Soft Matter

Supporting information

Mesoporous vesicles from supramolecular helical peptide as drug cargo

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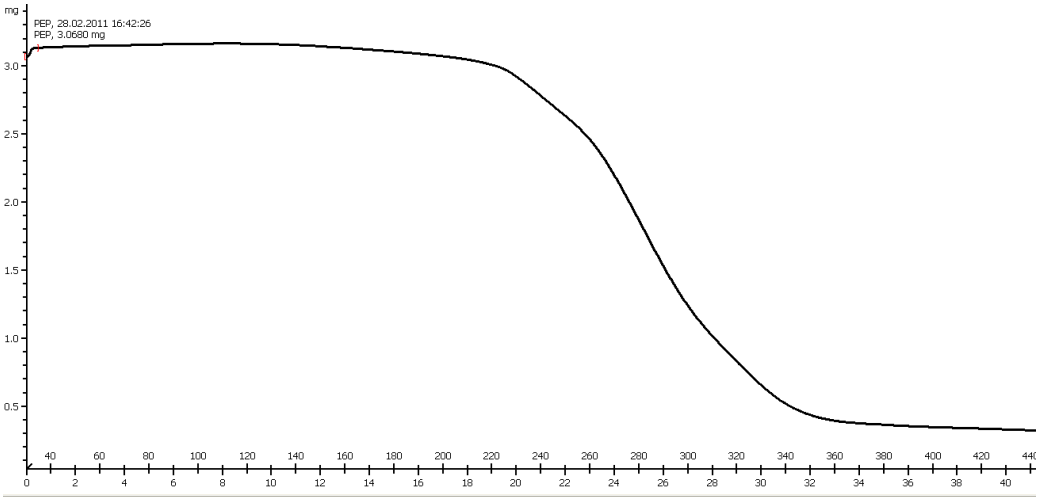
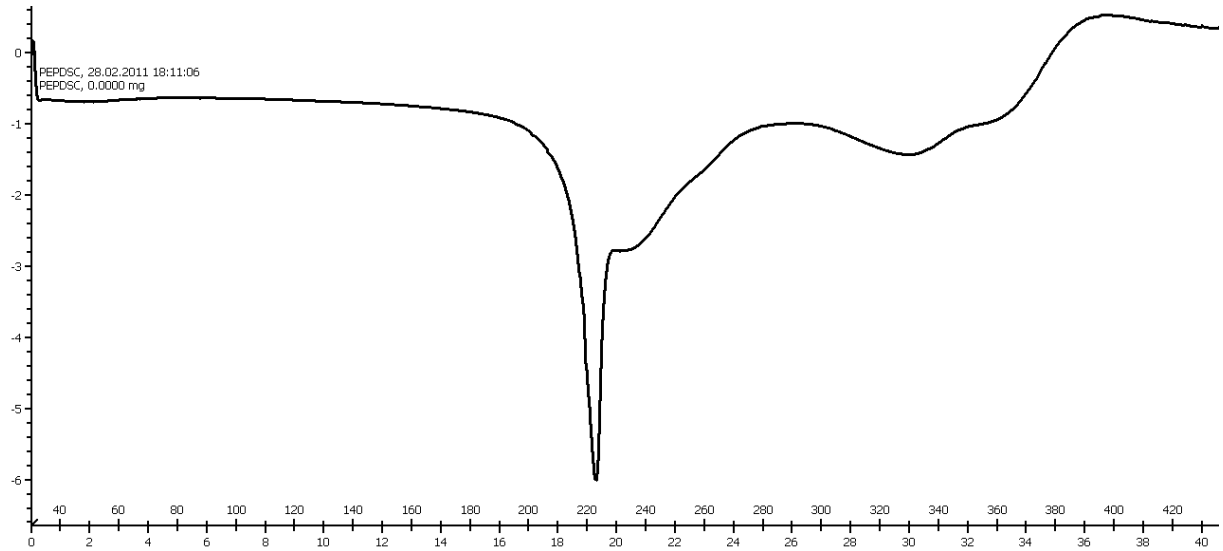
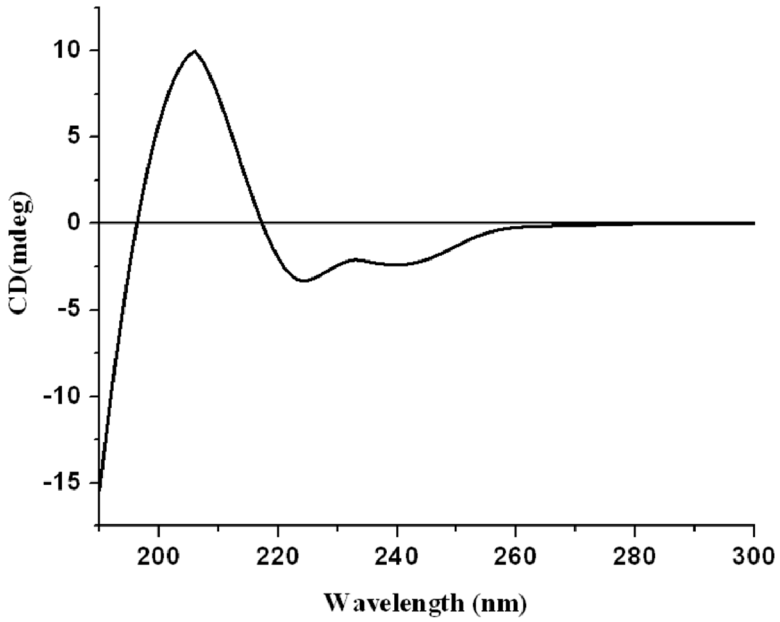


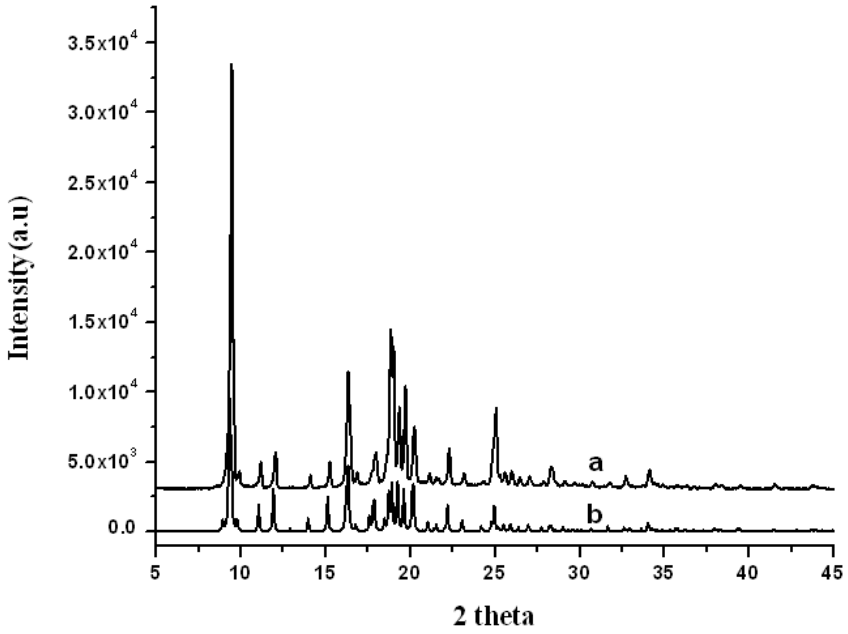
ESI Figure S1: TGA graph of peptide **1** microvesicles from MeOH.



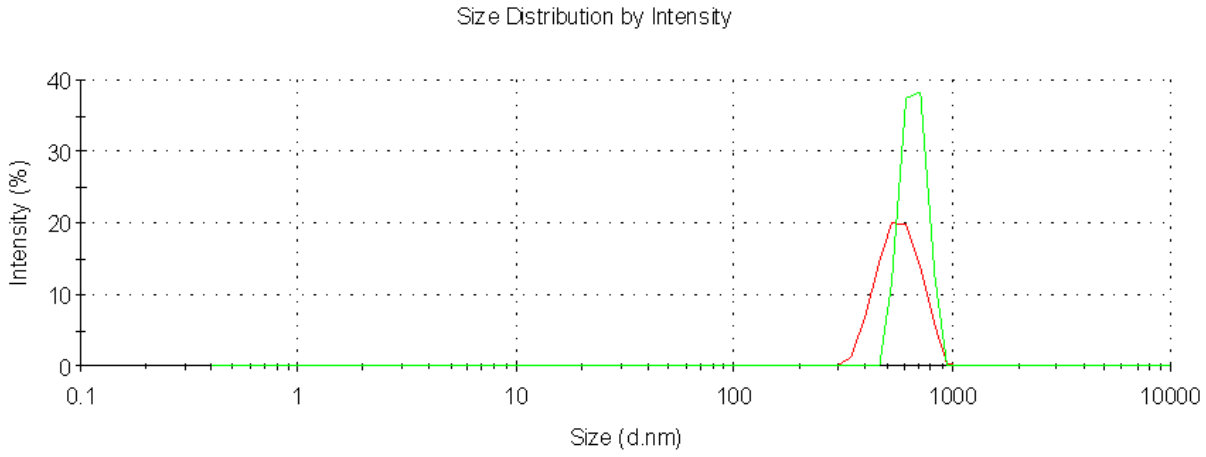
ESI Figure S2: DSC curve of peptide **1** microvesicles from MeOH.



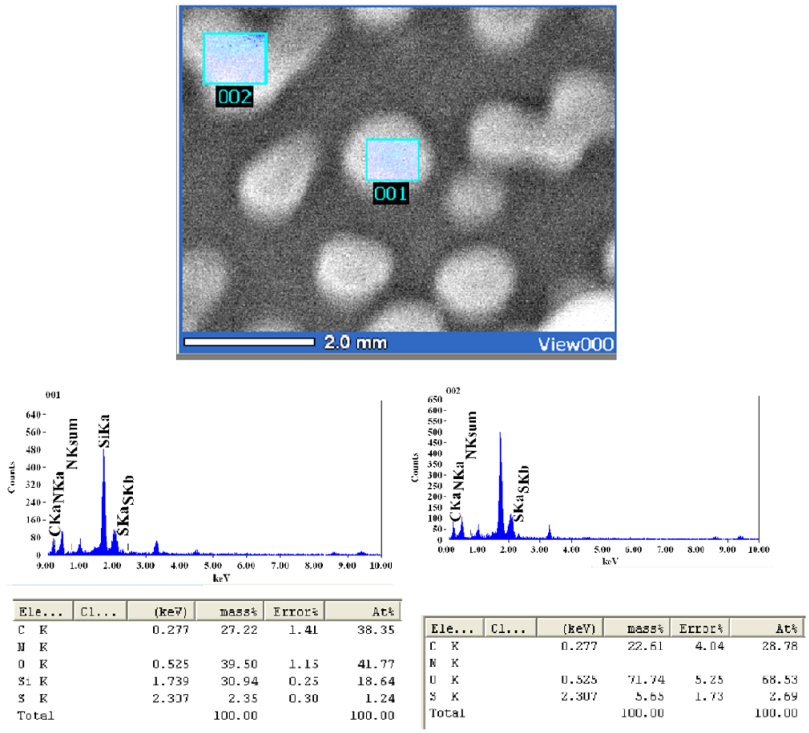
ESI Figure S3: Circular dichroism spectra of peptide **1** in methanol solution.



ESI Figure S4: (a) Wide angle PXRD pattern of peptide **1** vesicles from MeOH and (b) X-ray powder pattern from single crystal data of peptide **1**.



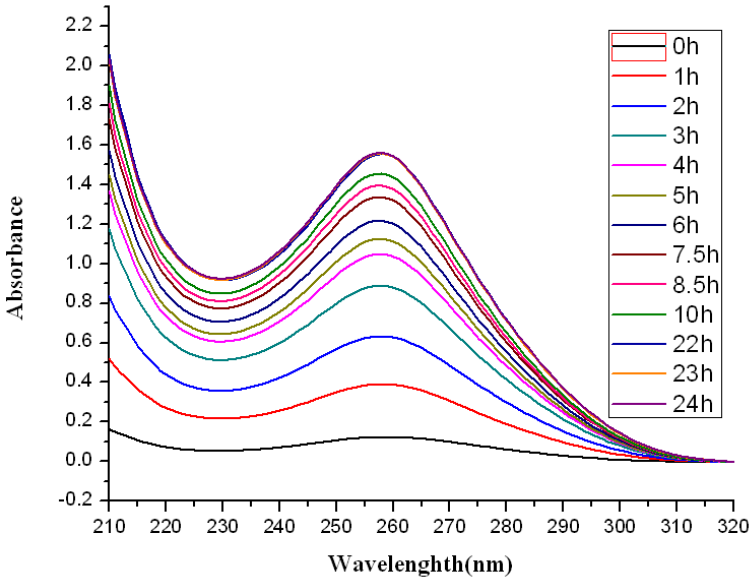
ESI Figure S5: DLS data of drug unloaded vesicle at concentration 1 mg/ml (green) and drug loaded vesicles at same concentration (red).



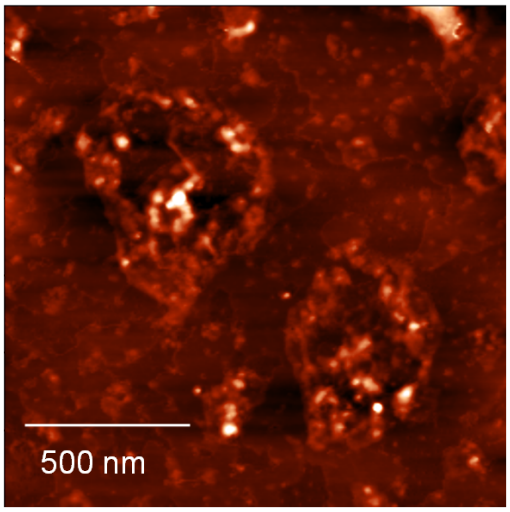
Ele...	Cl...	(keV)	mass%	Error%	At%
C K		0.277	27.22	1.41	38.35
N K					
O K		0.525	39.50	1.15	41.77
Si K		1.739	30.94	0.25	18.64
S K		2.307	2.35	0.30	1.24
Total			100.00		100.00

Ele...	Cl...	(keV)	mass%	Error%	At%
C K		0.277	22.61	4.04	28.78
N K					
O K		0.525	71.74	5.25	68.53
S K		2.307	5.65	1.73	2.69
Total			100.00		100.00

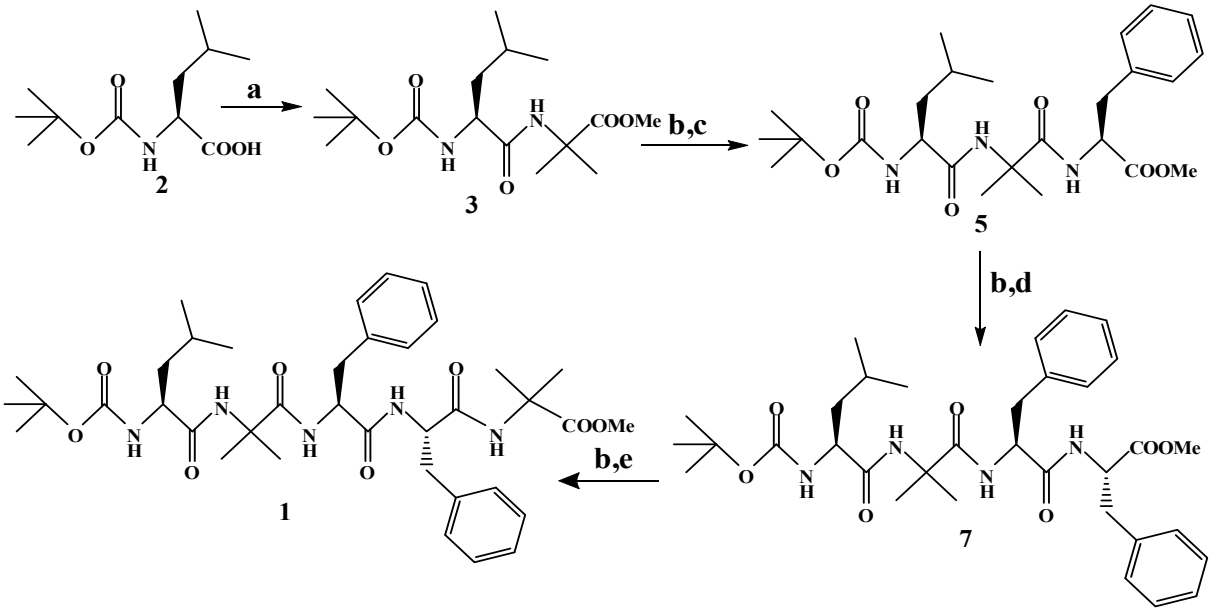
ESI Figure S6: EDS data of drug loaded peptide vesicles.



ESI Figure 7: UV-Visible spectra of sulfomethoxazole drug release from peptide vesicles at pH 6.2 (sodium phosphate buffer).



ESI Figure 8: AFM image showing ruptured vesicle after fast release of encapsulated drug in phosphate buffer at pH 5.



Scheme 1: Reactions and conditions: a) dry DCM, H-Aib-OMe, DCC, HOBT, 0^0C, 77.8% b) NaOH(2N), MeOH, HCl c) dry DCM, H-Phe-OMe, DCC, HOBT, 0^0C, 78.8% d) dry DCM, H-Phe-OMe, DCC, HOBT, 0^0C, 72.3% e) dry DCM, H-Aib-OMe, DCC, HOBT, 0^0C, 82.9%

Figure S1: Schematic presentation of synthesis of pentapeptide **1**.

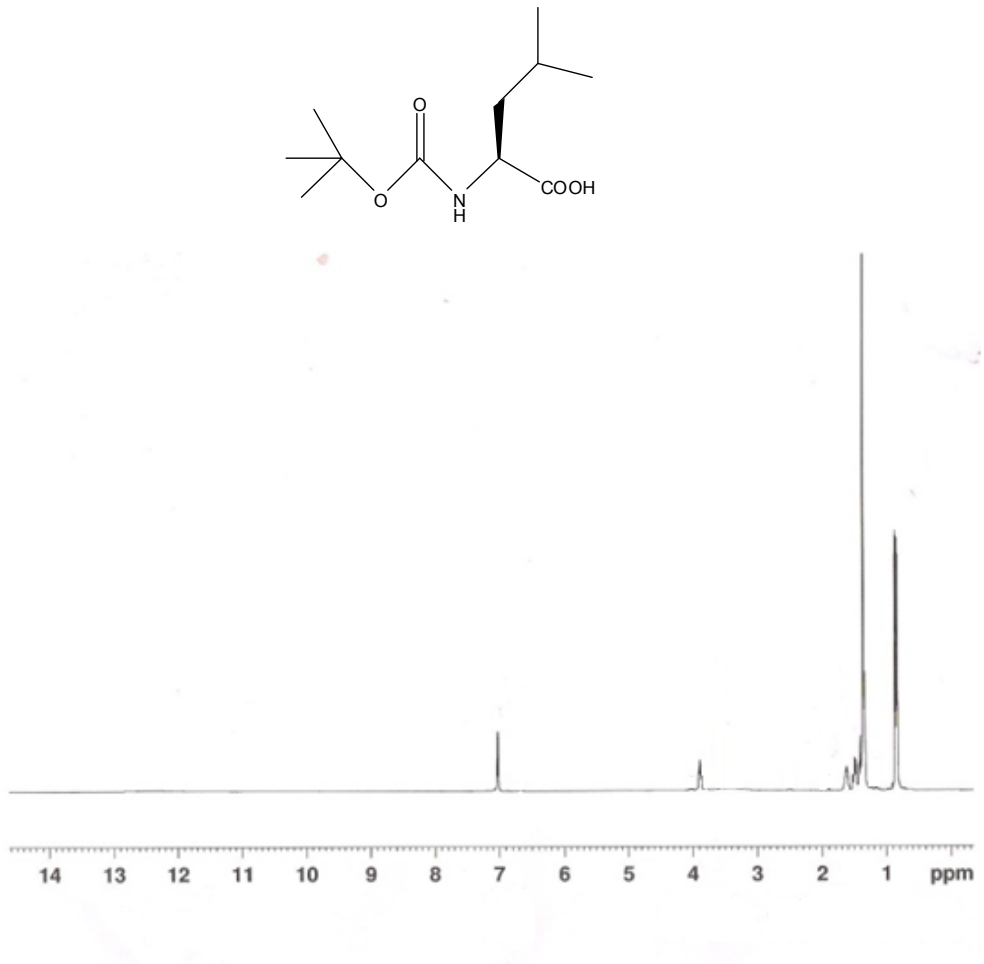


Figure S2: ^{1}H NMR (DMSO-d_6, 500 MHz, δ_{ppm}) spectra of Boc-Leu-OH

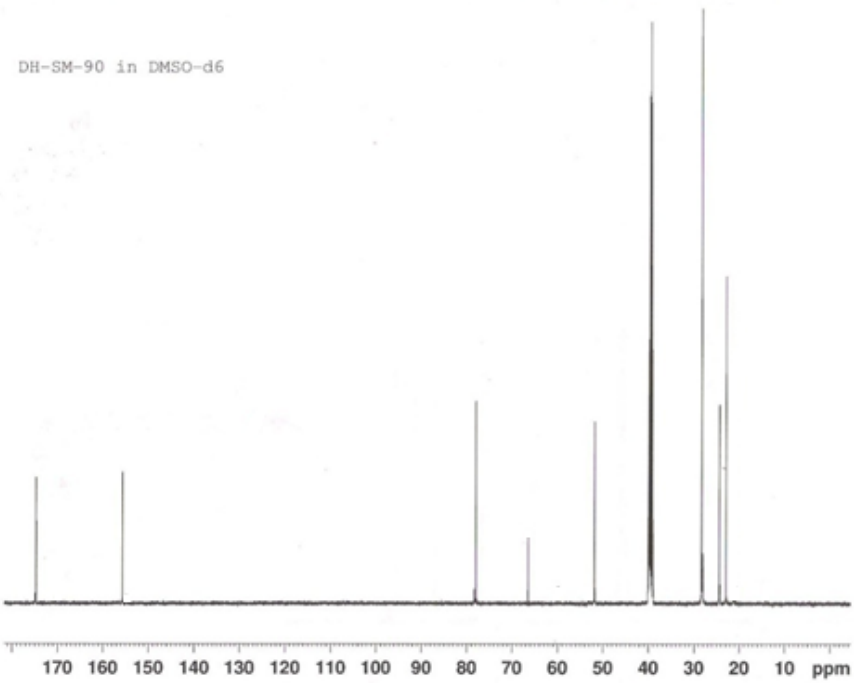


Figure S3: ^{13}C NMR (DMSO-d_6, 125 MHz, δ_{ppm}) spectra of Boc-Leu-OH

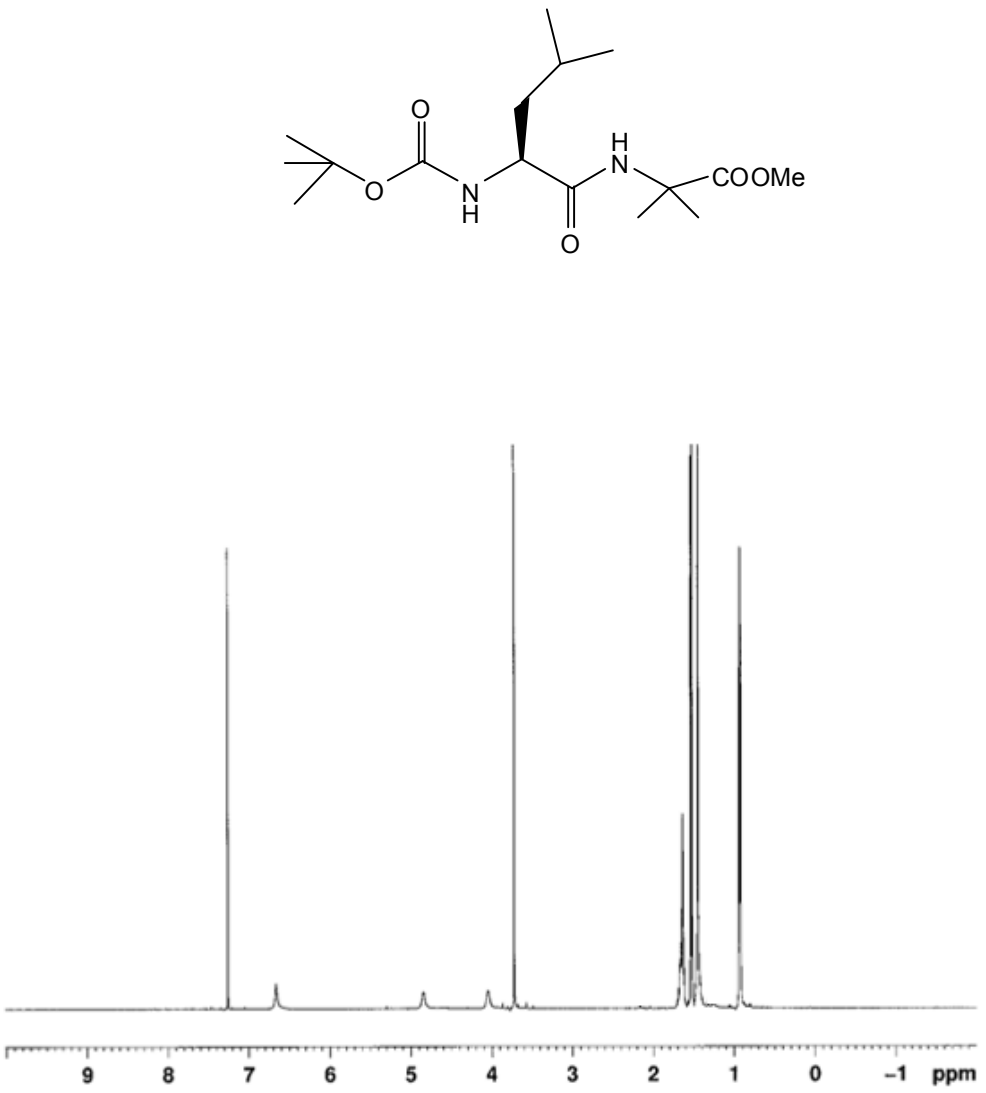


Figure S4: ^{1}H NMR ($CDCl_3$, 500 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-OMe

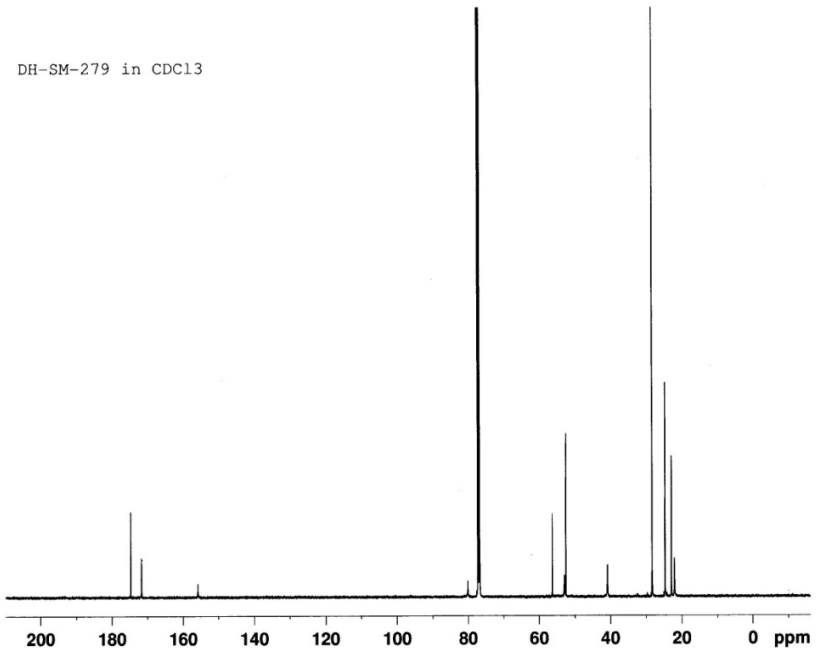
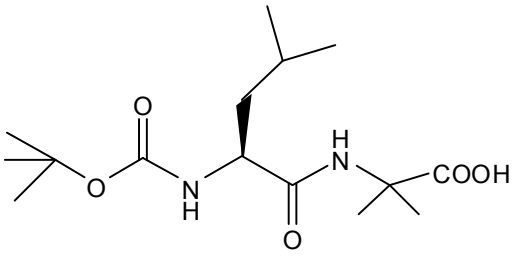


Figure S5: ^{13}C NMR ($CDCl_3$, 125 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-OMe



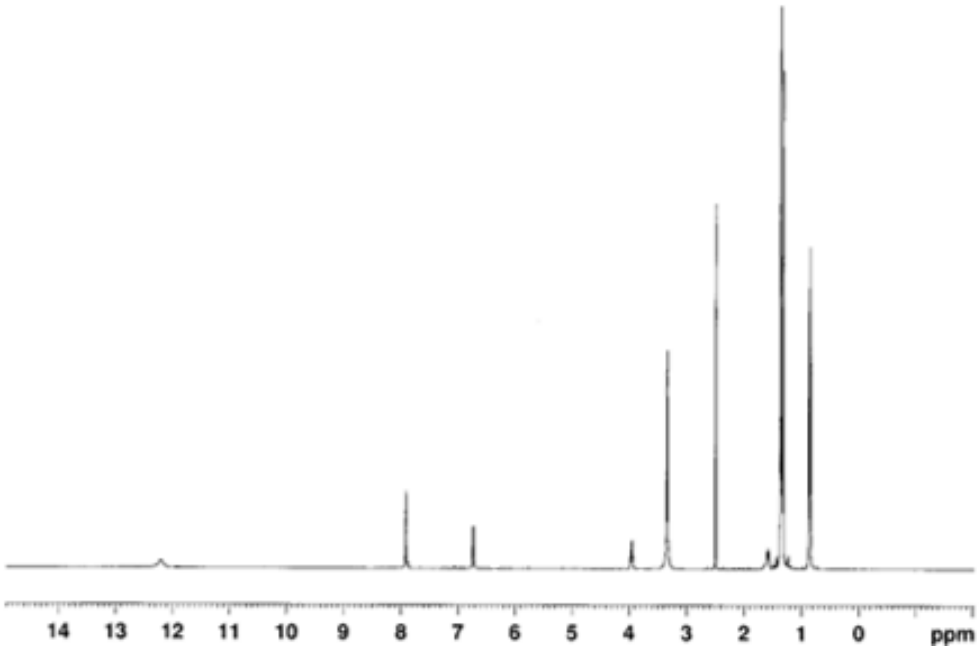


Figure S6: ^{1}H NMR (DMSO-d_6, 500 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-OH

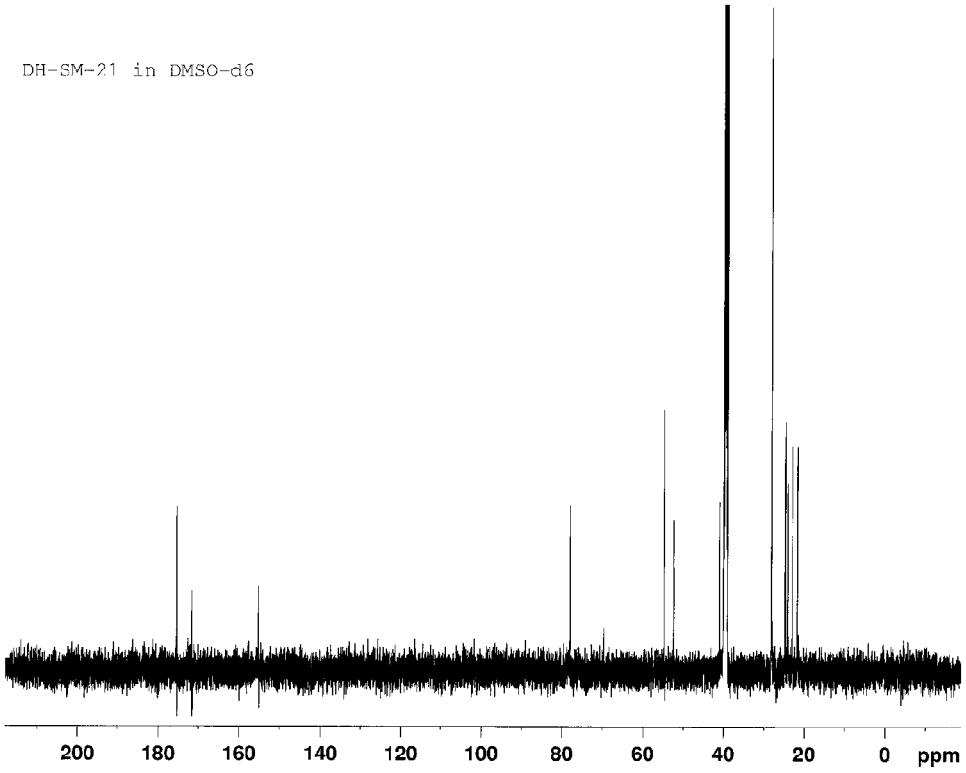


Figure S7: ^{13}C NMR (DMSO-*d*6, 125 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-OH

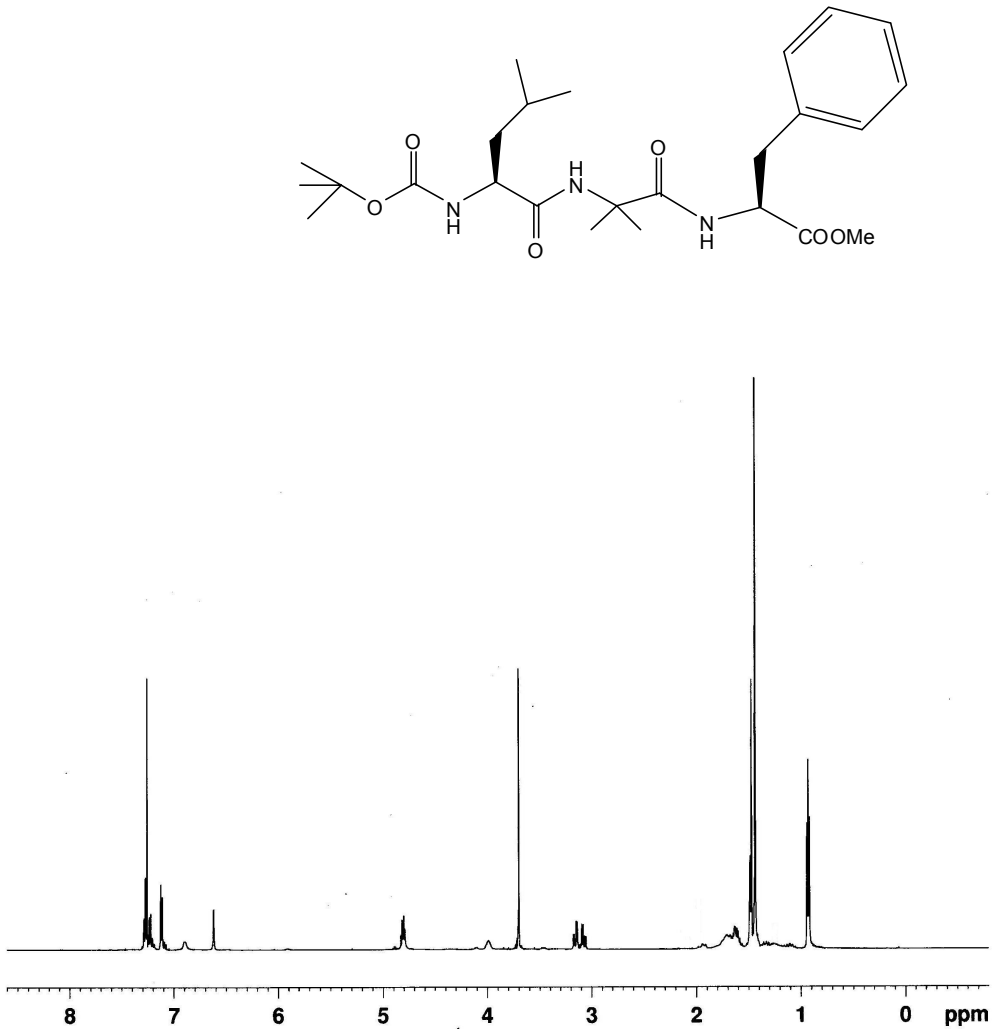


Figure S8: ^{1}H NMR ($CDCl_3$, 500 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-Phe-OMe

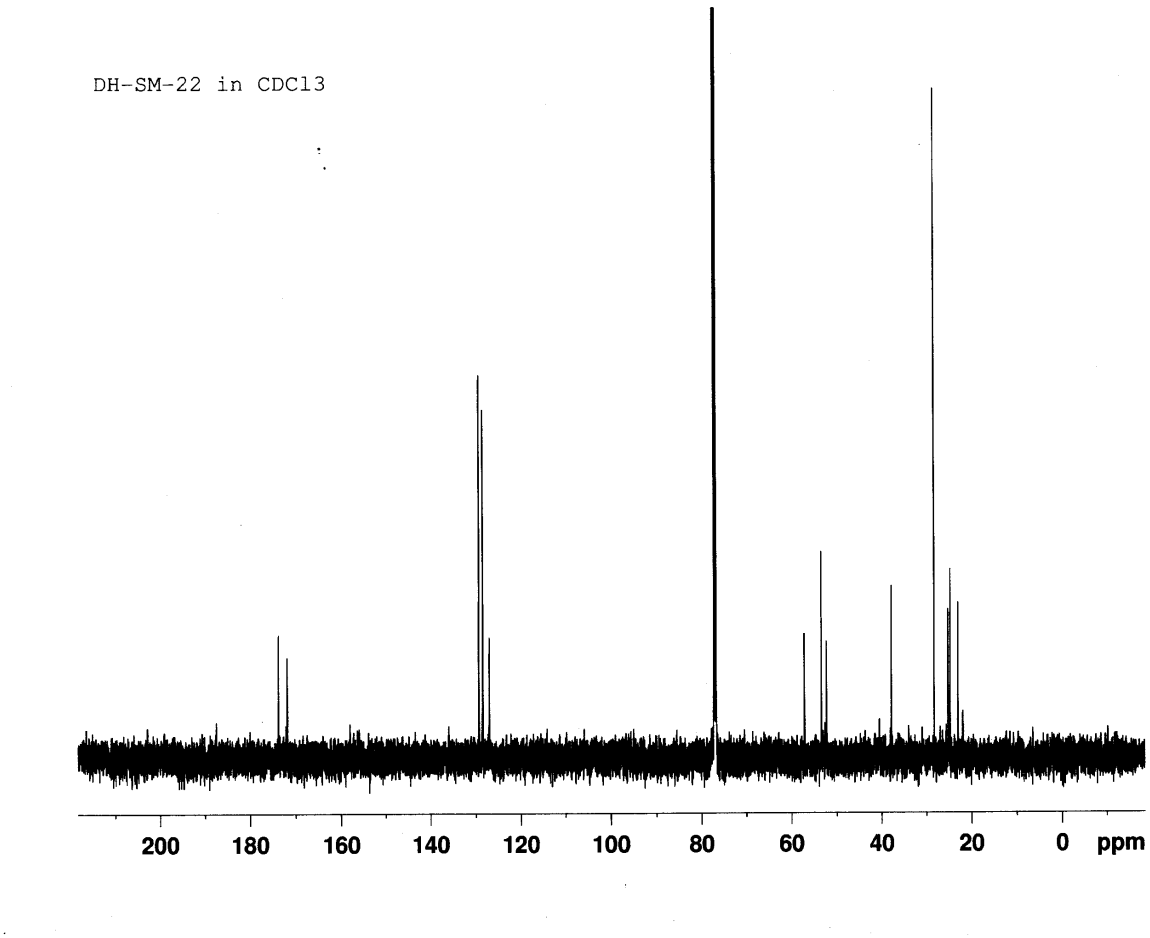
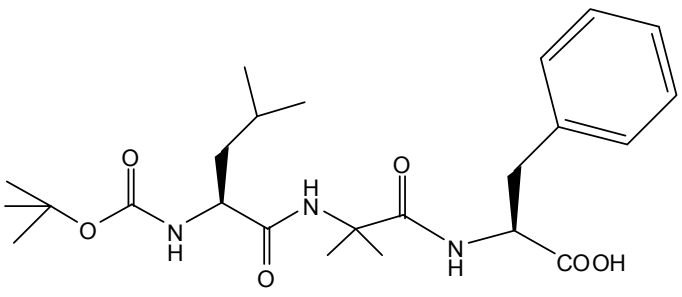


Figure S9: ^{13}C NMR ($CDCl_3$, 125 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-Phe-OMe



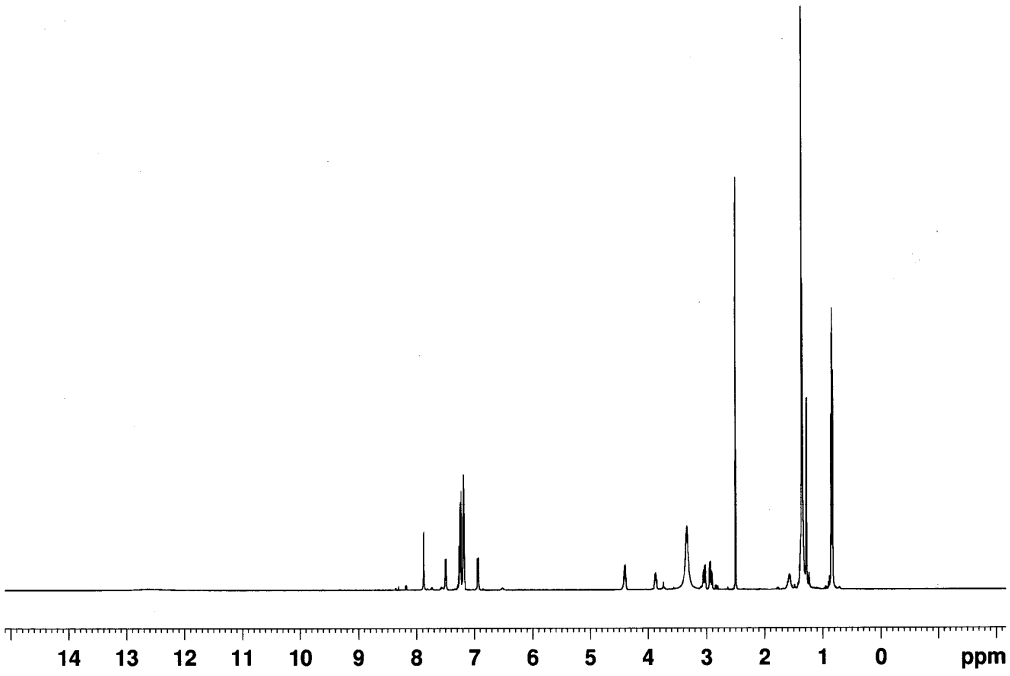


Figure S10: ^{1}H NMR (DMSO-*d*6, 500 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-Phe-OH

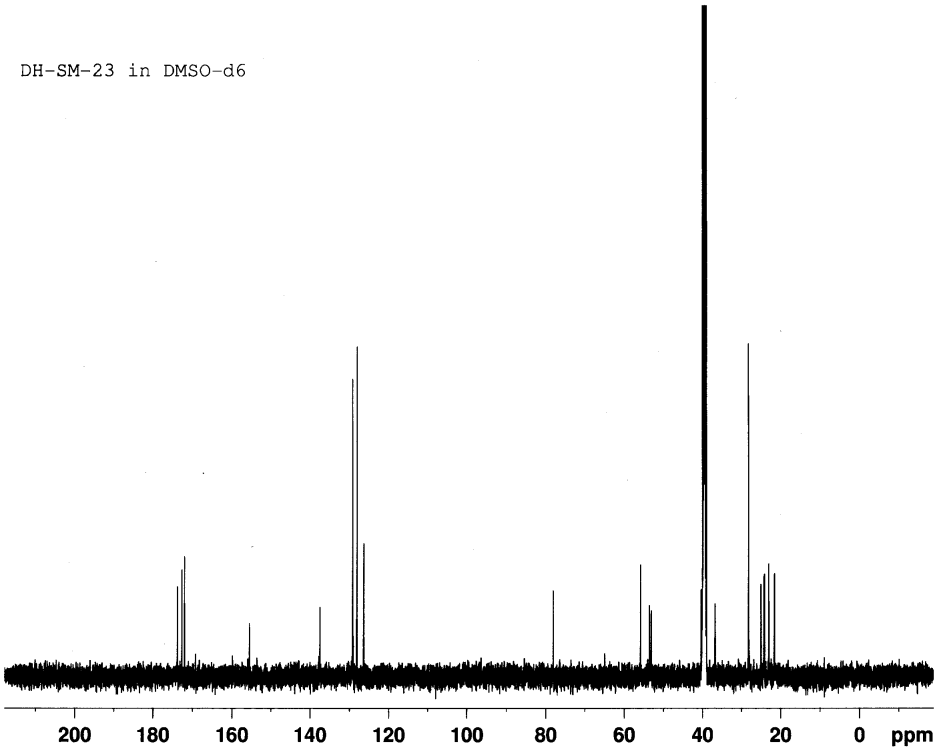


Figure S11: 13H NMR (DMSO-*d*6, 125 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-Phe-OH

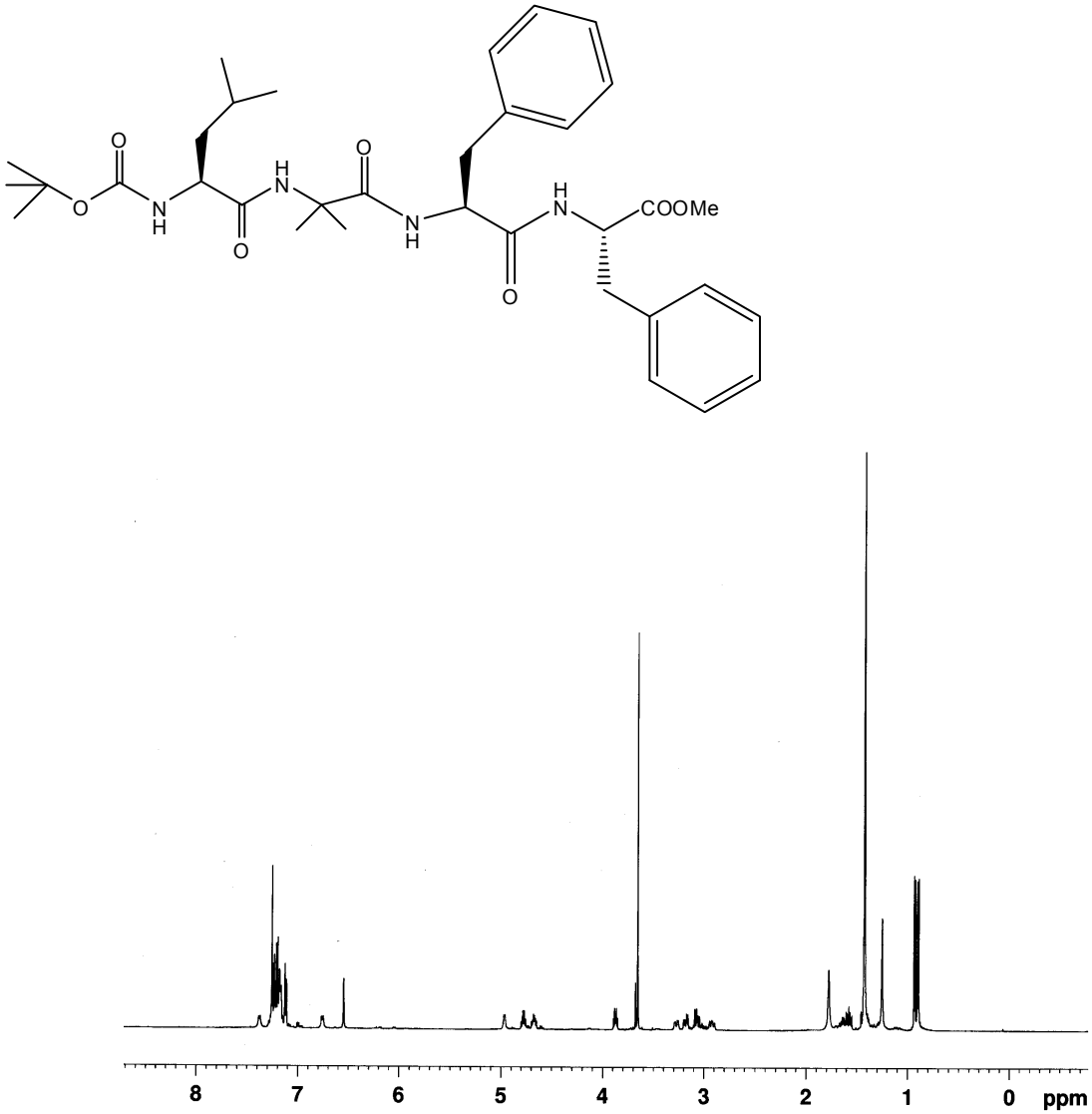


Figure S12: ^{1}H NMR ($CDCl_3$, 500 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-Phe-Phe-OMe

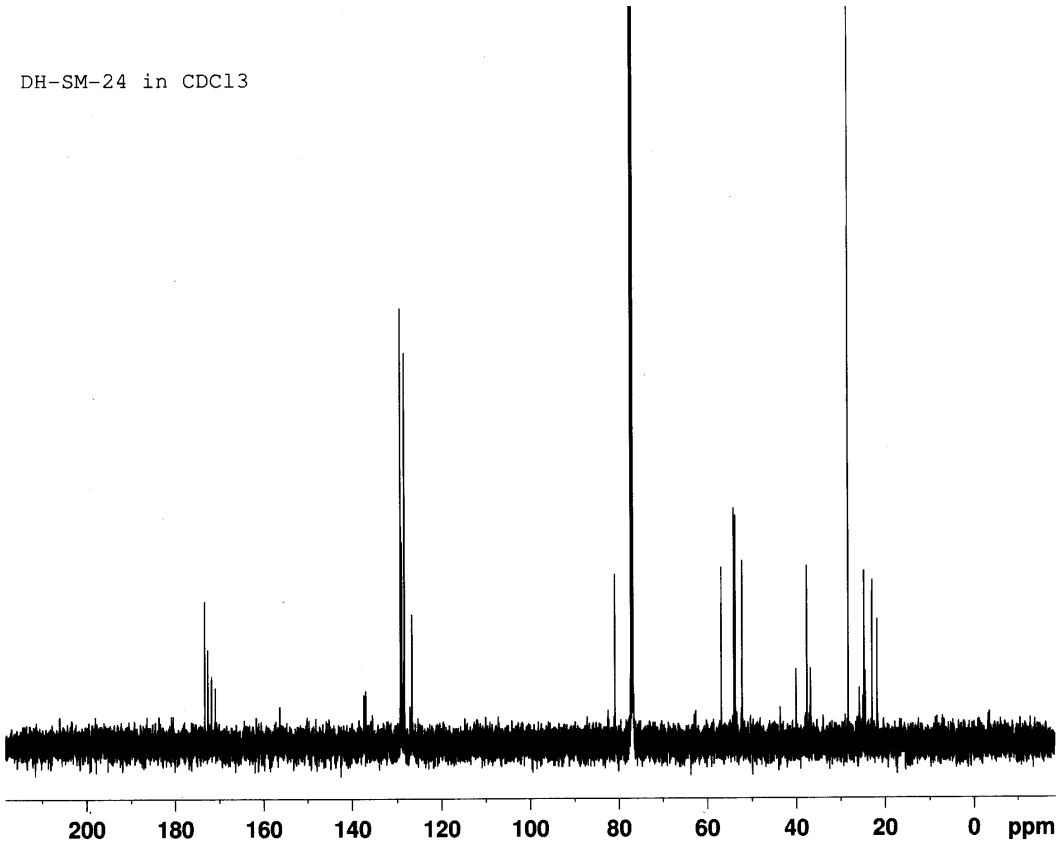
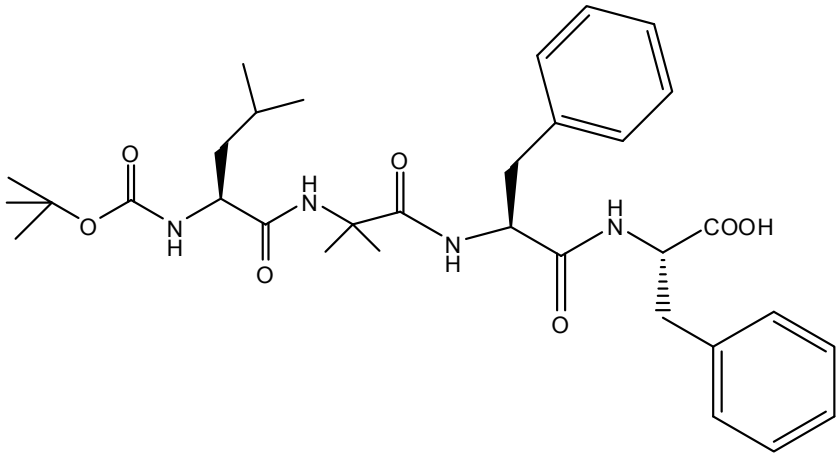


Figure S13: ^{13}C NMR ($CDCl_3$, 125 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-Phe-Phe-OMe



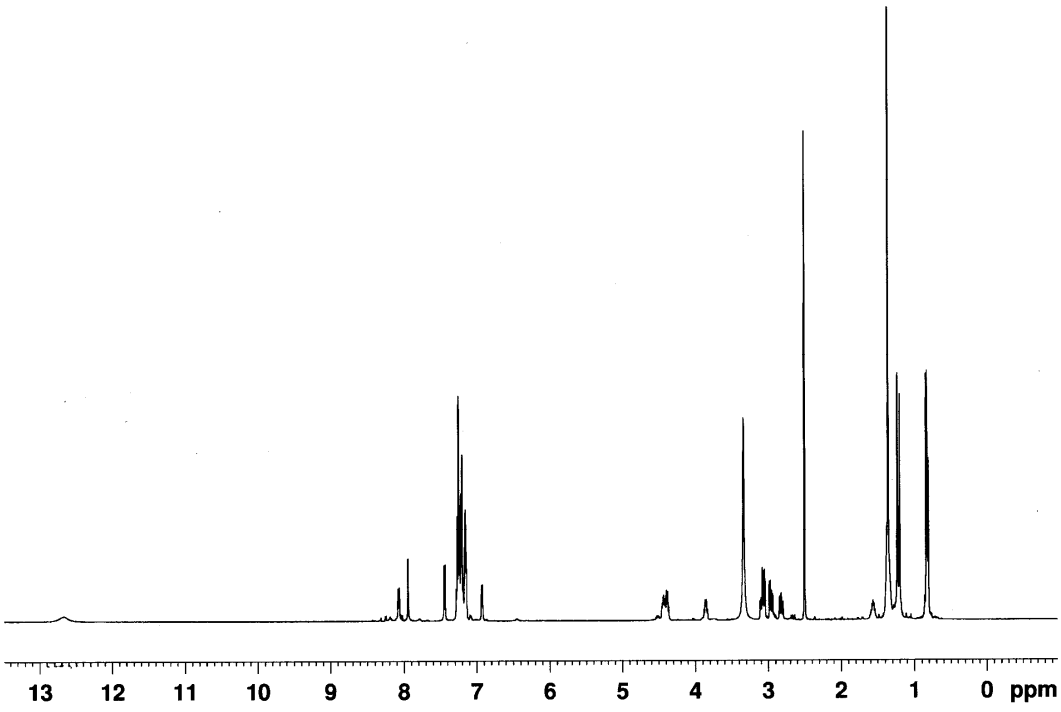


Figure S14: ^{1}H NMR (DMSO-*d*6, 500 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-Phe-Phe-OH

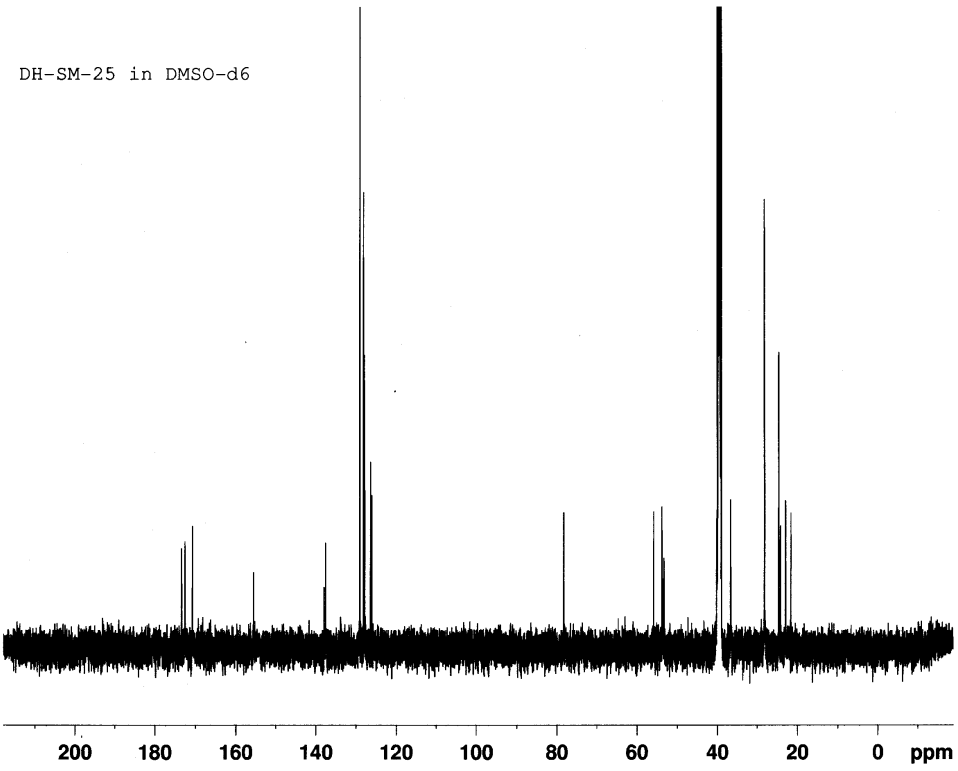


Figure S15: ^{13}C NMR (DMSO-*d*6, 125 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-Phe-Phe-OH

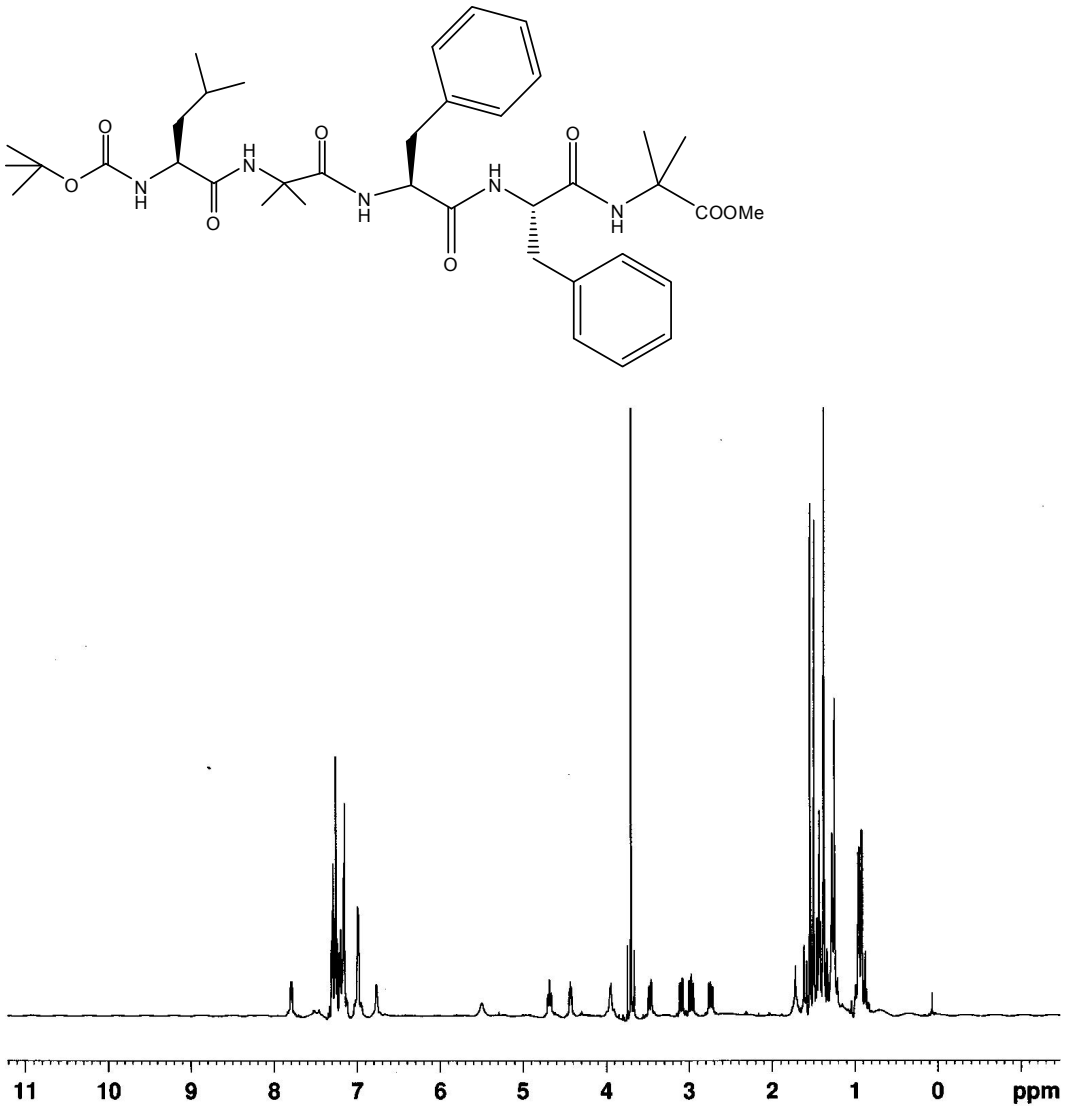


Figure S16: ^{1}H NMR ($CDCl_3$, 500 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-Phe-Phe-Aib-OMe

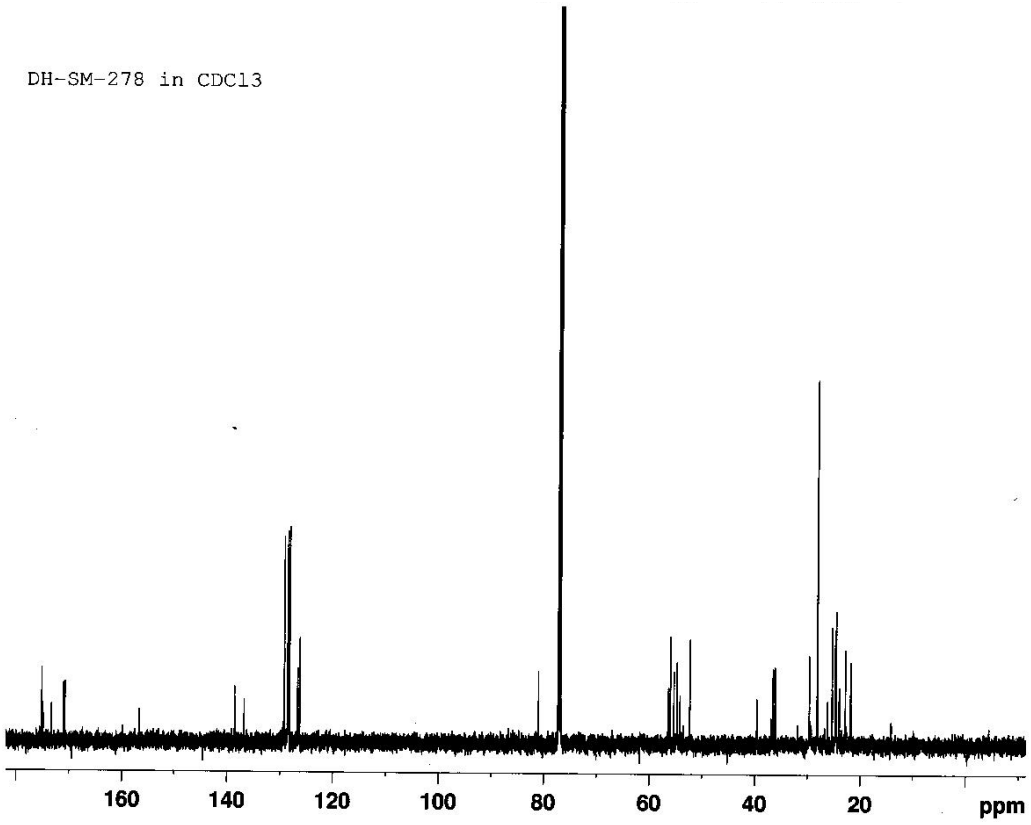


Figure S17: ^{13}C NMR ($CDCl_3$, 125 MHz, δ_{ppm}) spectra of Boc-Leu-Aib-Phe-Phe-Aib-OMe

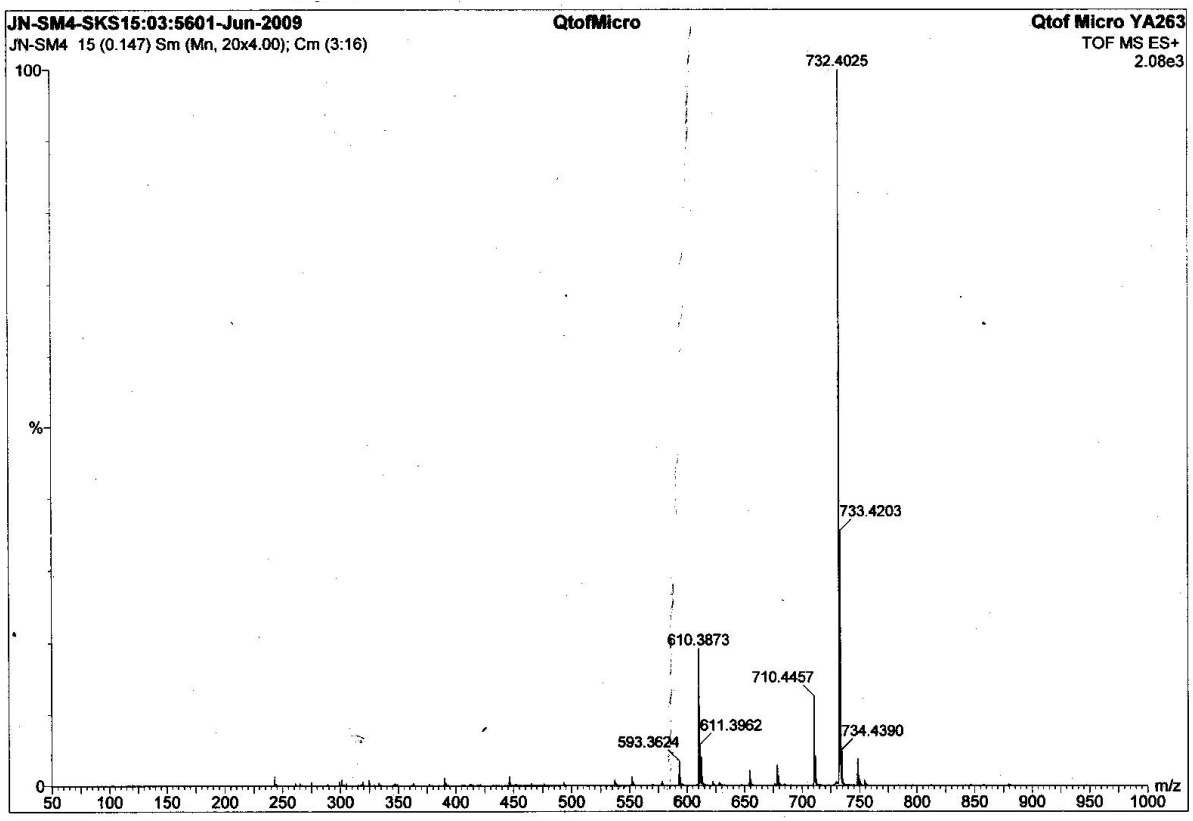


Figure S18: Mass spectra of pentapeptide **1**

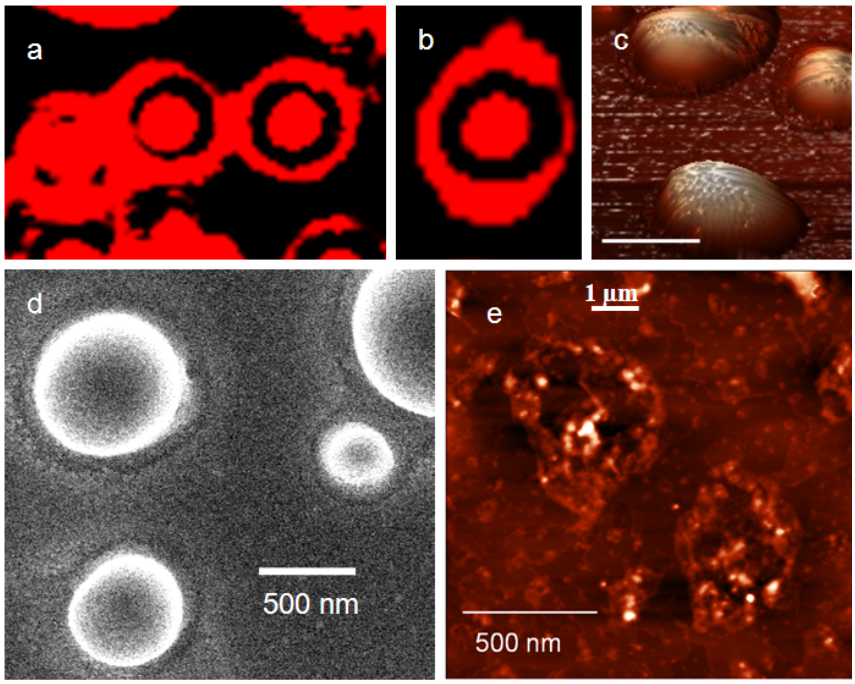


Figure S19: (a) and (b) Confocal microscopic images of Rhodamine 6G encapsulated peptide **1** microvesicles. (c) 3D image of peptide **1** vesicles from AFM, (d) Microvesicles of peptide **1** by FE-SEM; and (e) AFM image of ruptured microvesicles of peptide 1 after release of encapsulated drug in phosphate buffer at pH 5.