

The product of matrix metalloproteinase cleavage of doxorubicin conjugate for anticancer drug delivery. Calorimetric, spectroscopic and molecular dynamics studies on peptide–doxorubicin binding to DNA

Kamila Butowska ^{1,2,*}, Krzysztof Żamojć ³, Mateusz Kogut ⁴, Witold Kozak ², Dariusz Wyrzykowski ³, Wiesław Wiczek ⁵, Jacek Czub ⁴, Jacek Piosik ¹ and Janusz Rak ²

¹ Laboratory of Biophysics, Intercollegiate Faculty of Biotechnology University of Gdańsk and Medical University of Gdańsk, Abrahama 58, 80-307 Gdańsk; kamila.butowska@phdstud.ug.edu.pl (K.B.); jacek.piosik@biotech.ug.edu.pl (J.P.)

² Department of Physical Chemistry, Faculty of Chemistry, University of Gdańsk, Wita Stwosza 63, 80-308 Gdańsk; davelombardo@wp.pl (W.K.); janusz.rak@ug.edu.pl (J.R.)

³ Department on General and Inorganic Chemistry, Faculty of Chemistry, University of Gdańsk, Wita Stwosza 63, 80-308 Gdańsk; krzysztof.zamojc@ug.edu.pl (K.Z.); dariusz.wyrzykowski@ug.edu.pl (D.W.)

⁴ Department of Physical Chemistry, Faculty of Chemistry, Gdańsk University of Technology, Narutowicza 11/12, 80-233 Gdańsk; giggsmk@op.pl (M.K.); jacek.czub@pg.edu.pl (J.C.)

⁵ Department of Biomedical Chemistry, Faculty of Chemistry, University of Gdańsk, Wita Stwosza 63, 80-308 Gdańsk; wieslaw.wiczek@ug.edu.pl (W.W.)

* Correspondence: kamila.butowska@phdstud.ug.edu.pl; Tel.: +48 58 523 6310

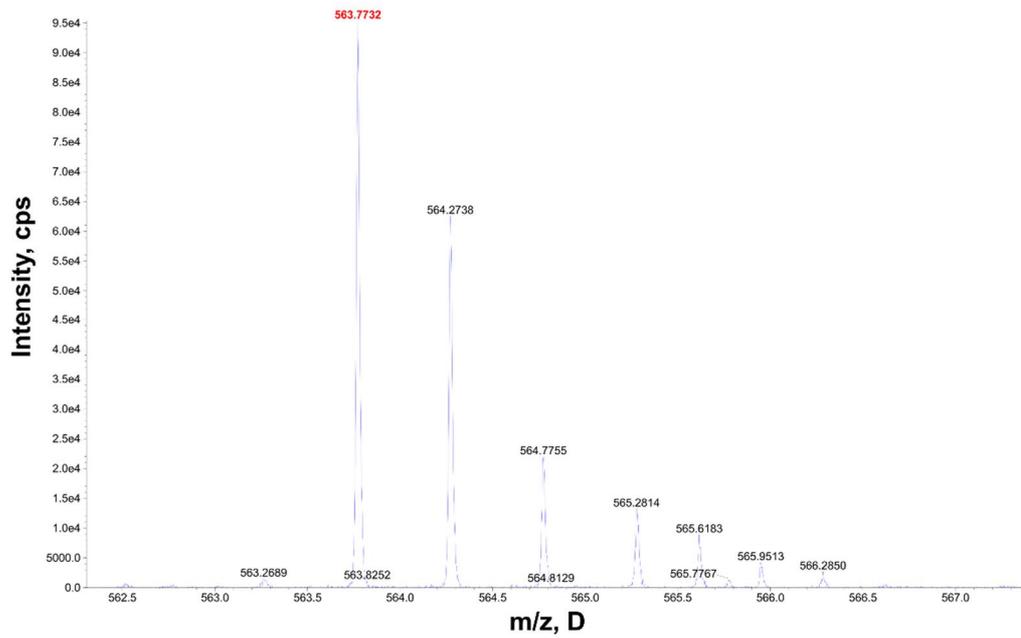


Figure S1. MALDI-TOF mass spectrum of Fmoc-Gly-Pro-Leu-Gly in a positive mode (m/z 563.7732).

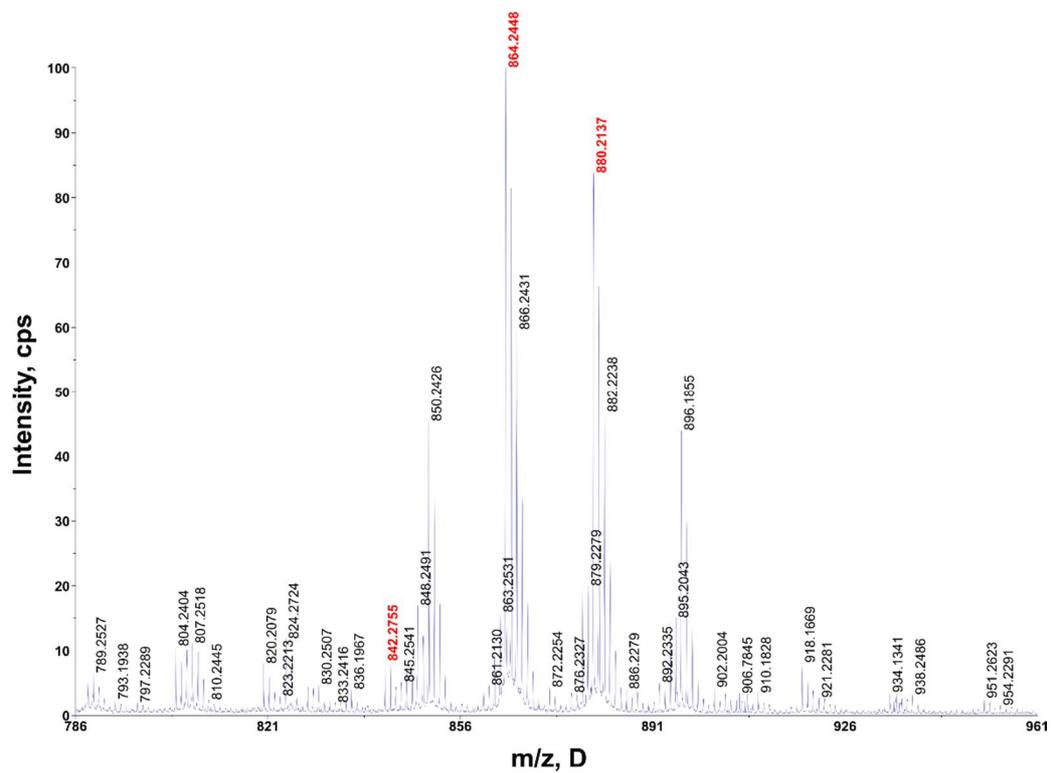


Figure S2. MALDI-TOF spectrum of Leu-Ala-Gly-Gly-DOX in a positive mode [(Leu-Ala-Gly-Gly-DOX + H⁺) m/z 842.2755; (Leu-Ala-Gly-Gly-DOX + Na⁺) m/z 864.2448; (Leu-Ala-Gly-Gly-DOX + K⁺) m/z 880.2137].

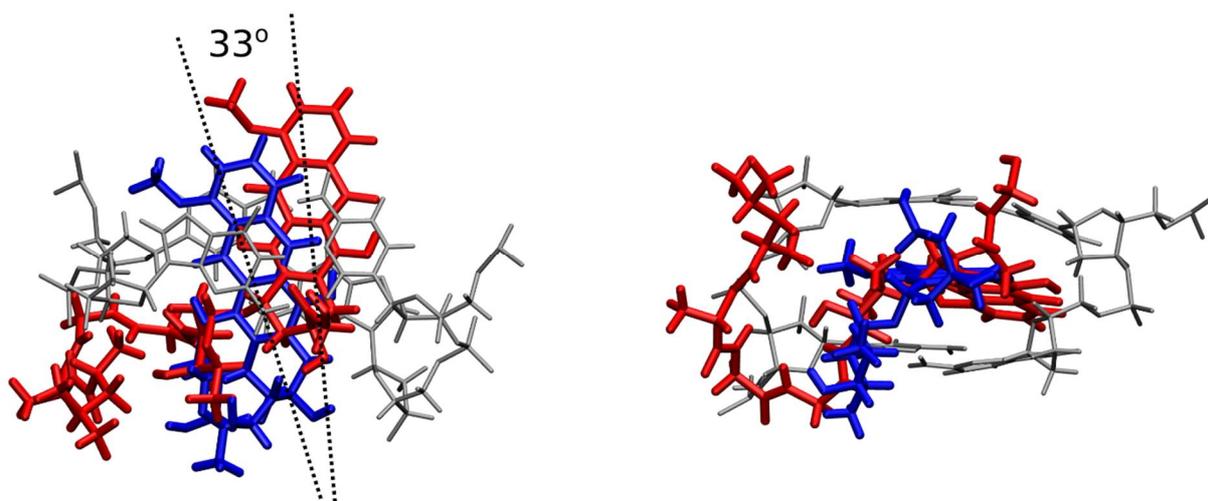


Figure S3. Comparison of the minor groove intercalation modes of DOX (blue) and 4-pep-DOX (red) -- top view (left), side view (right). When intercalated from the minor groove, 4-pep-DOX is rotated by ca. 33deg with respect to the flanking base pairs, compared to DOX.