

Supplementary material

Inhibition of Cysteine Proteases by 6,6'-Dihydroxythiobinupharidine (DTBN) from *Nuphar lutea*

Kamran Waidha ^{1,†}, Udi Zurgil ^{2,†}, Efrat Ben-Zeev ³, Jacob Gopas ^{4,5}, Saravanakumar Rajendran ^{6,*} and Avi Golan-Goldhirsh ^{2,*}

¹ DRDO-Defence Institute of High Altitude Research (DIHAR), Leh, Ladakh UT-194101, India; kamranwaidha1@gmail.com

² The Jacob Blaustein Institutes for Desert Research (BIDR), French Associates Institute for Agriculture and Biotechnology of Drylands, Sede Boqer Campus, Ben-Gurion University of the Negev, Sede Boqer 8499000, Israel; udizur@gmail.com (U.Z); avigolan@bgu.ac.il (A.G.-G.)

³ Nancy and Stephen Grand Israel National Center for Personalized Medicine, The Department of Life Sciences Core Facilities, Weizmann Institute of Science, Rehovot 76100, Israel; efrat.benzeev@weizmann.ac.il

⁴ The Shraga Segal Department of Microbiology, Immunology and Genetics Faculty of Health Sciences, Ben-Gurion University of the Negev, Beer-Sheva 8410501, Israel; jacob@bgu.ac.il

⁵ Department of Oncology, Soroka University Medical Center, Beer Sheva 8410501, Israel

⁶ Chemistry Division, SAS, Vellore Institute of Technology Chennai Campus, Chennai 600127, India

* Correspondence: sar.org@gmail.com (S.R.); avigolan@bgu.ac.il (A.G.-G.)

† Equal contributors.

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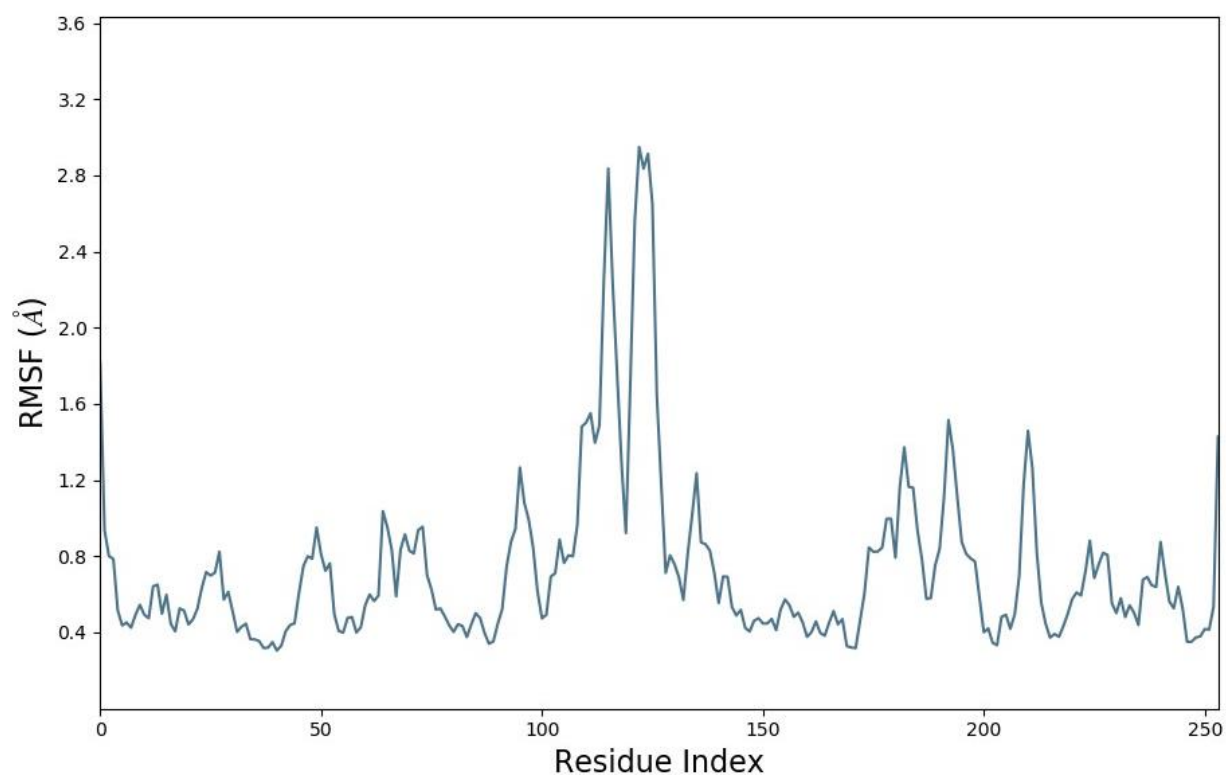


Figure S1: Cathepsin B-DTBN RMSF graph

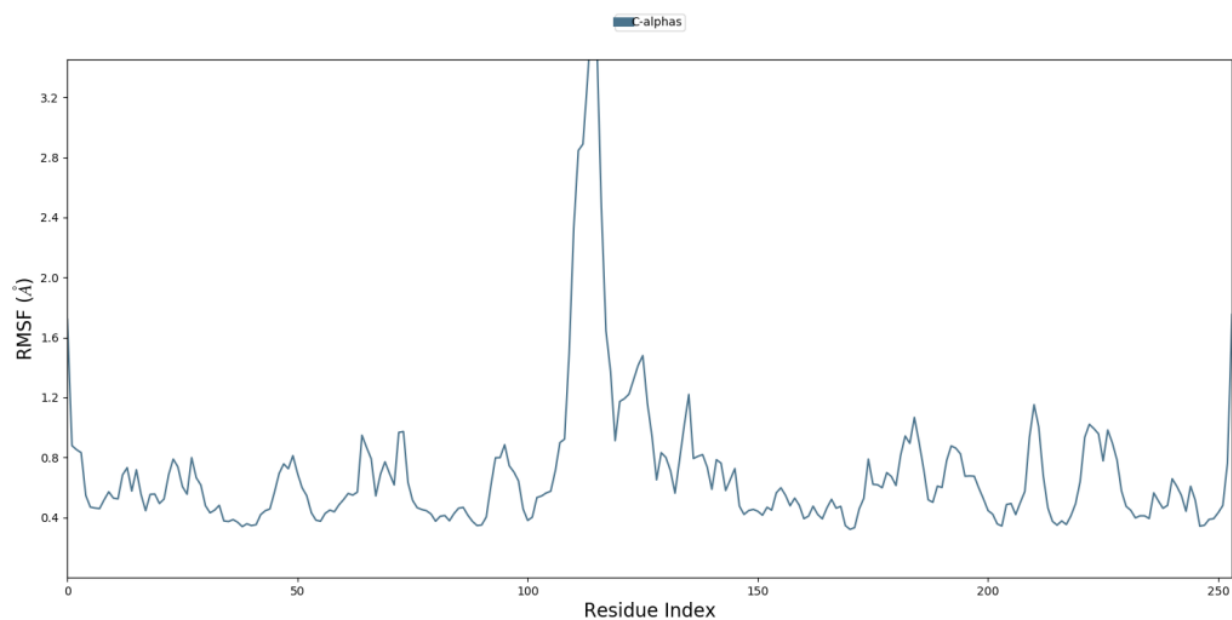


Figure S2: Cathepsin B-iDTBN covalent dock RMSF graph

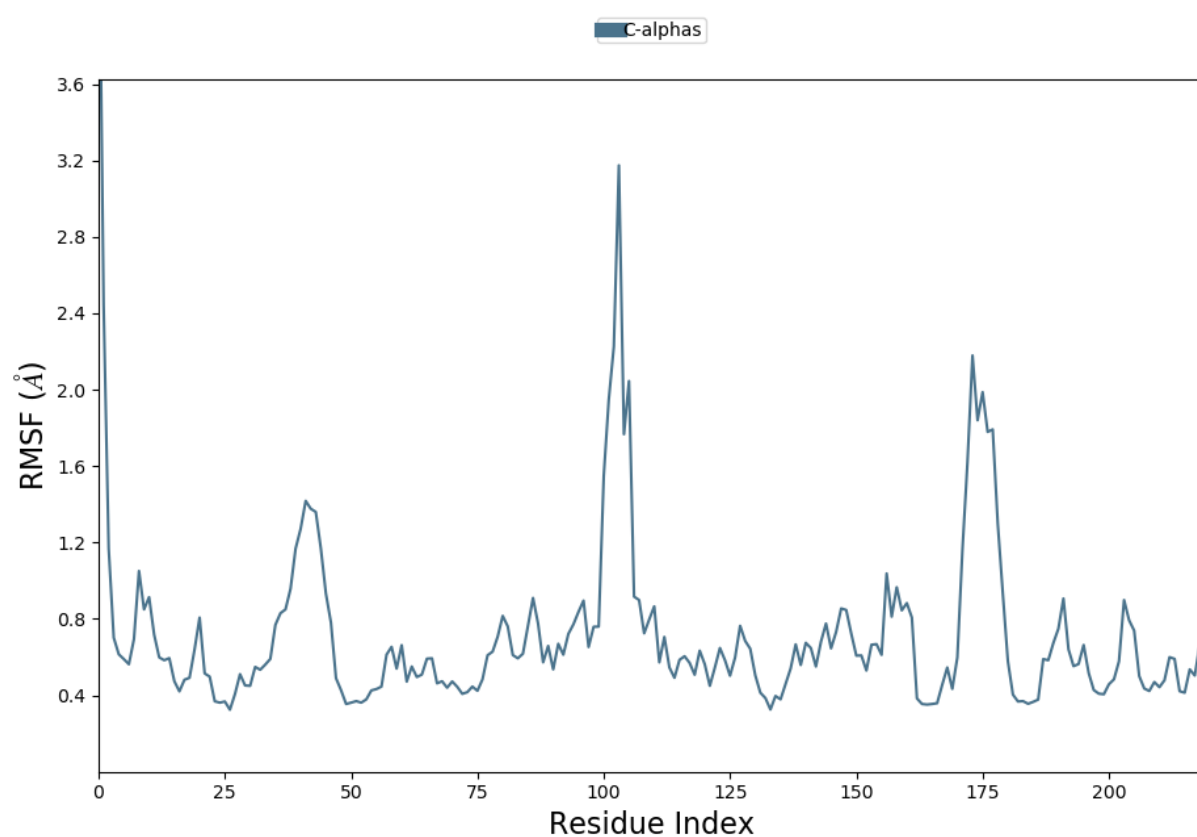


Figure S3: Cathepsin L-DTBN RMSF graph

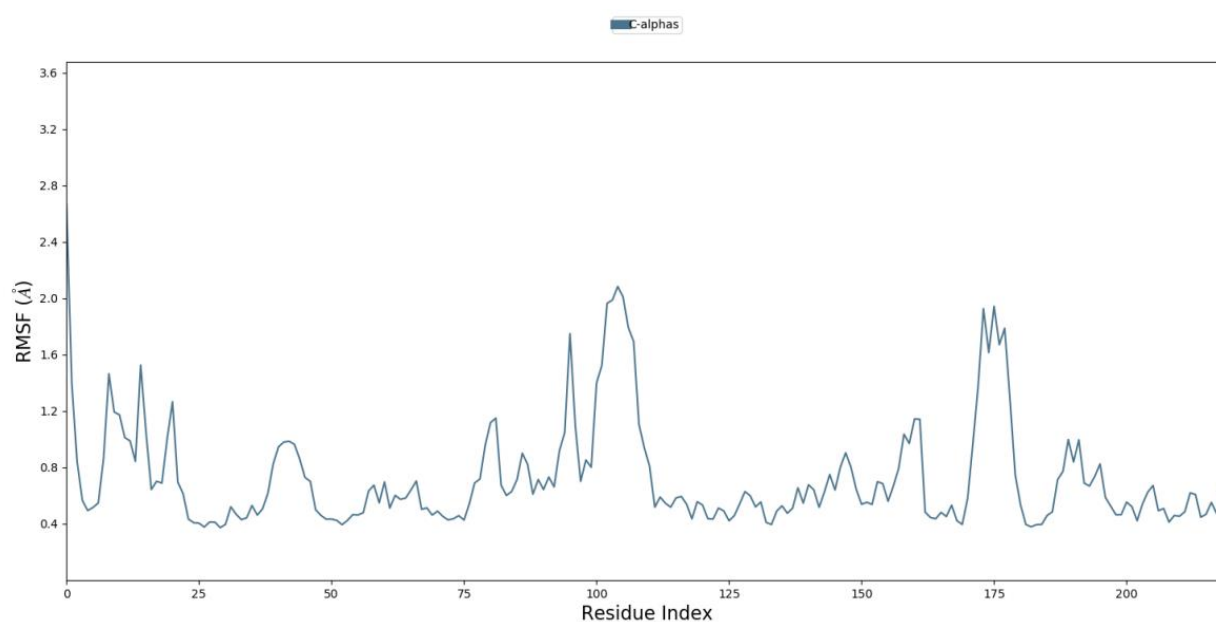


Figure S4: Cathepsin L-iDTBN covalent dock RMSF graph

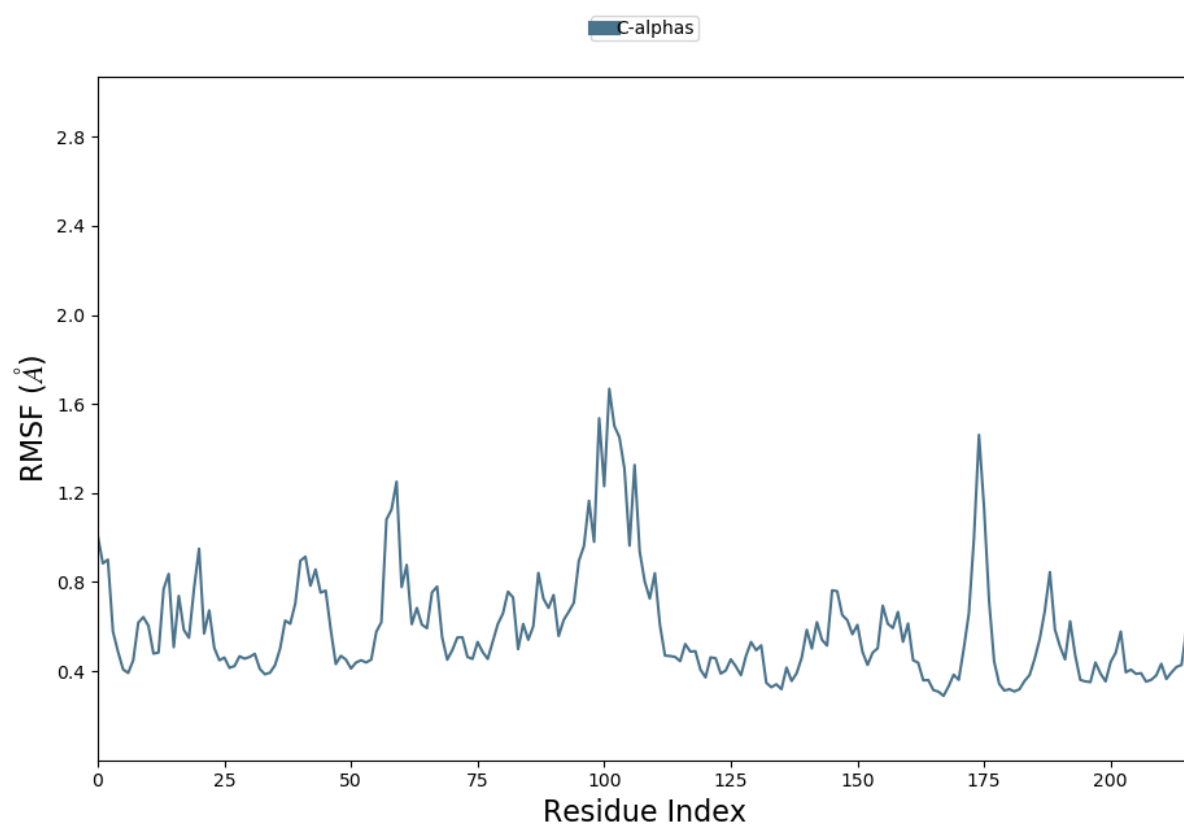


Figure S5: Cathepsin S-DTBN RMSF graph

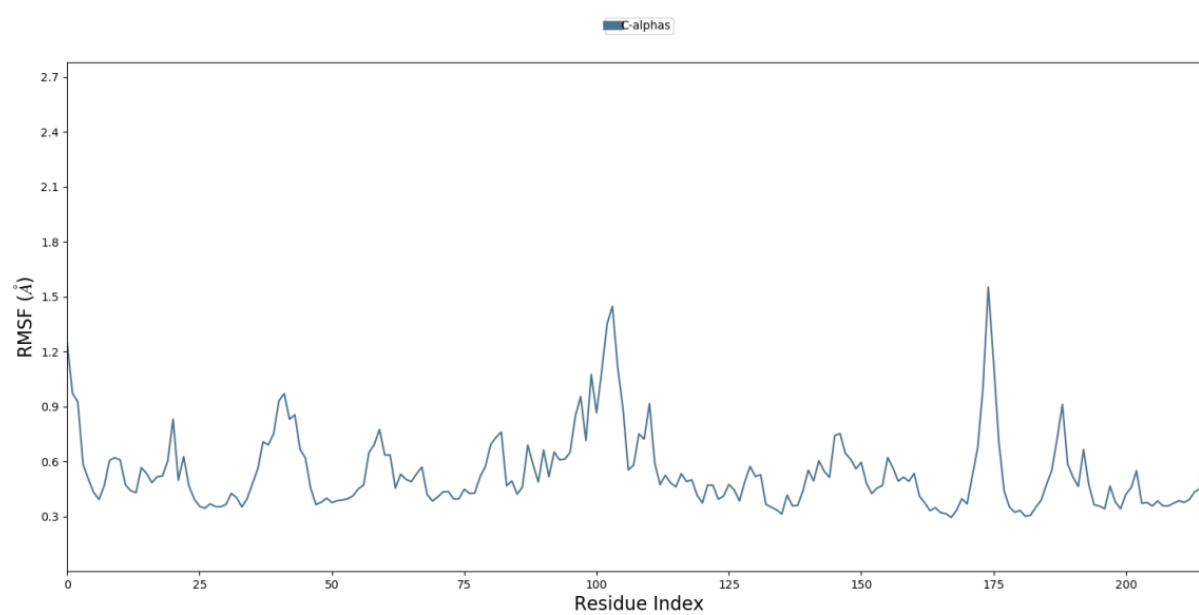


Figure S6: Cathepsin S-iDTBN covalent dock RMSF graph

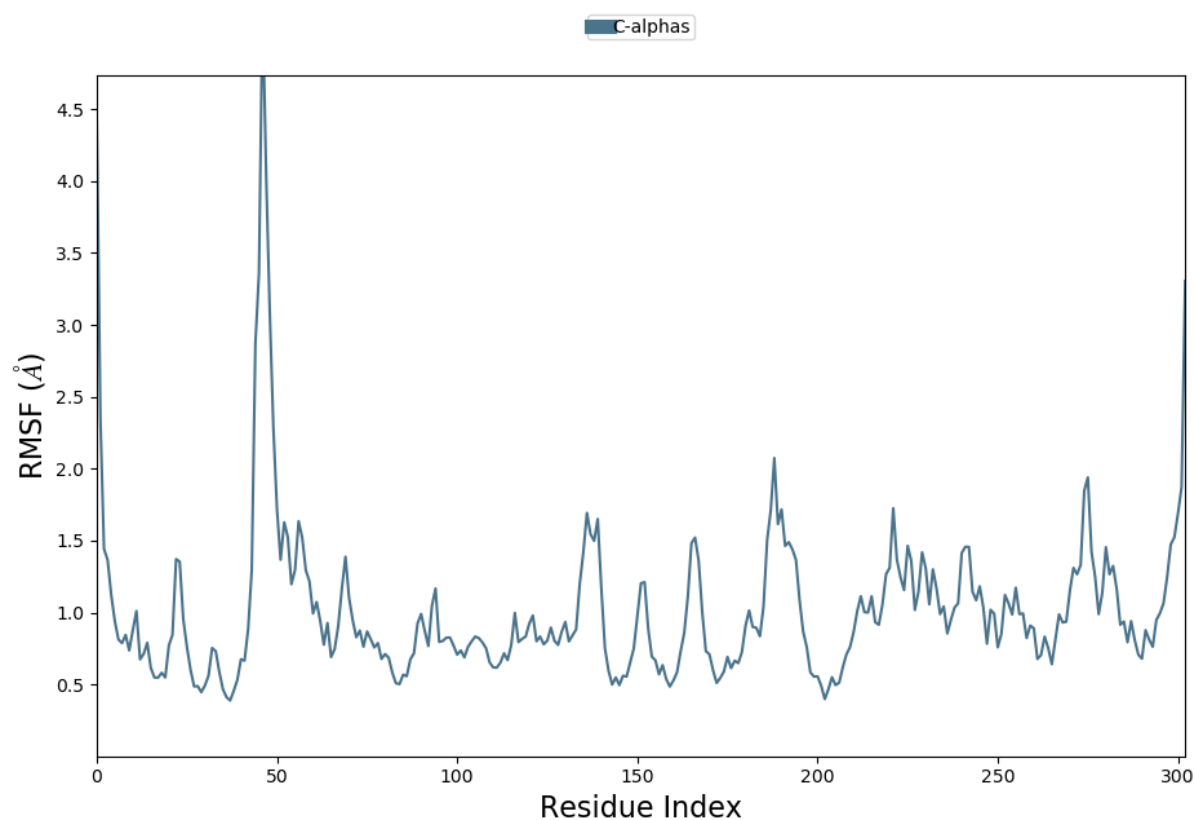


Figure S7: M^{pro}-iDTBN covalent dock RMSF graph

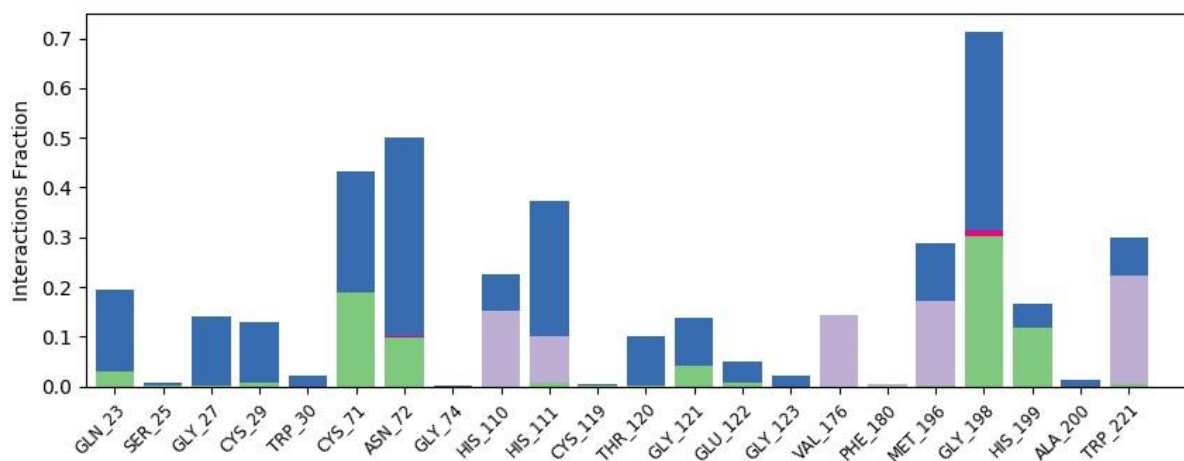


Figure S8: Represents the types of interactions in Cathepsin B-DTBN complex. Blue - water bridge; Green - H-bond; Pink - ionic interaction; Gray - hydrophobic interaction.

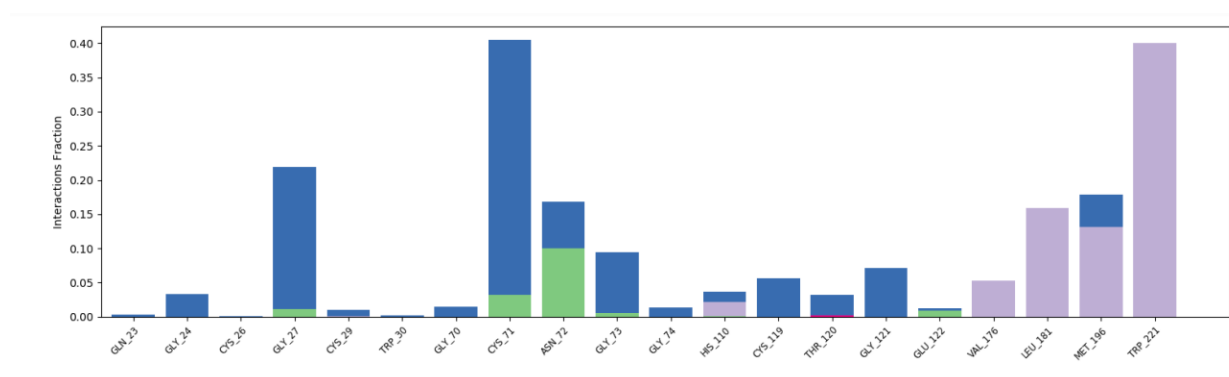


Figure S9: Represent the types of interactions in Cathepsin B – iDTBN complex. Blue - water bridge; Green – H-bond; Pink – ionic interaction; Gray – hydrophobic interaction.

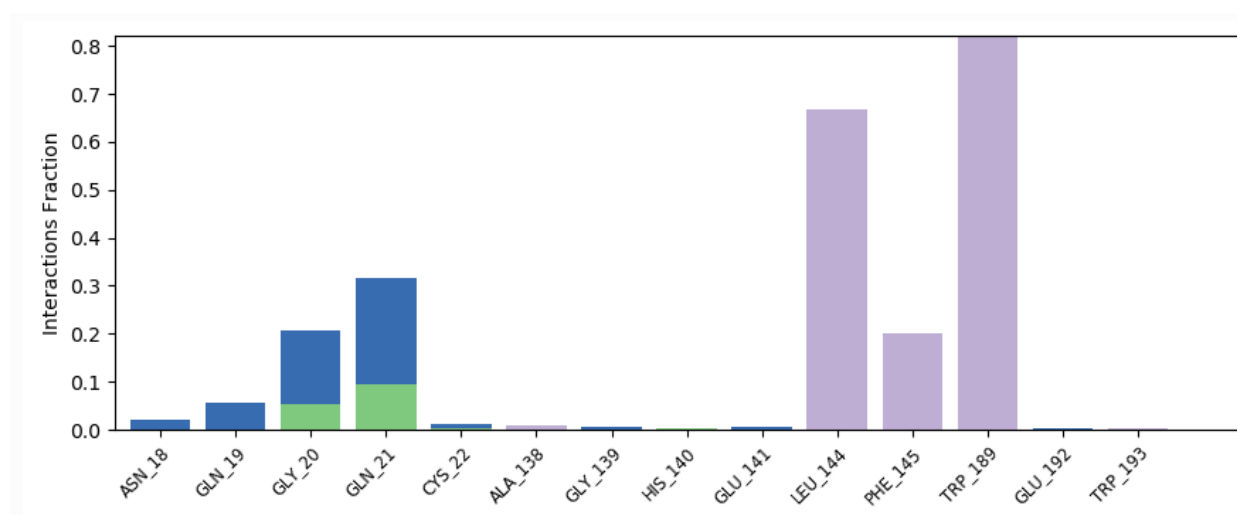


Figure S10: Represent the types of interactions in Cathepsin L – DTBN complex. Blue - water bridge; Green – H-bond; Pink – ionic interaction; Gray – hydrophobic interaction.

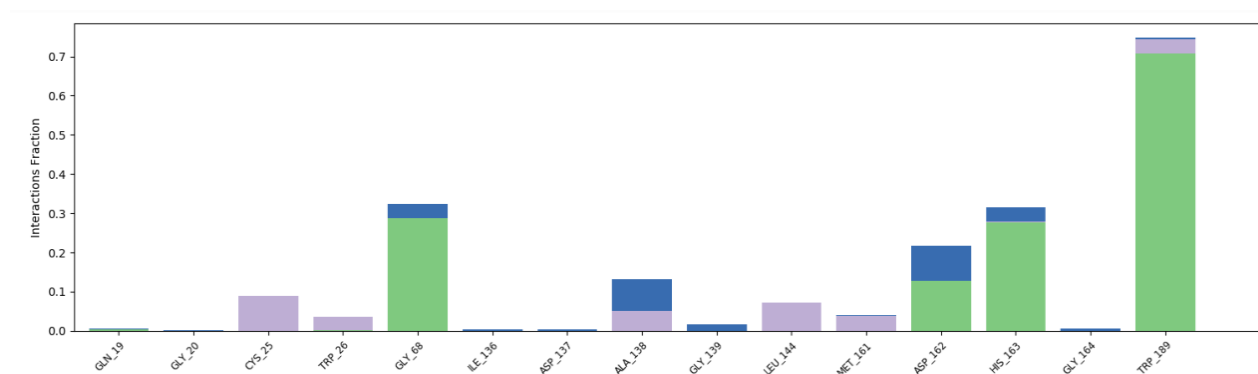


Figure S11: Represent the types of interactions in Cathepsin L – iDTBN complex. Blue - water bridge; Green – H-bond; Pink – ionic interaction; Gray – hydrophobic interaction.

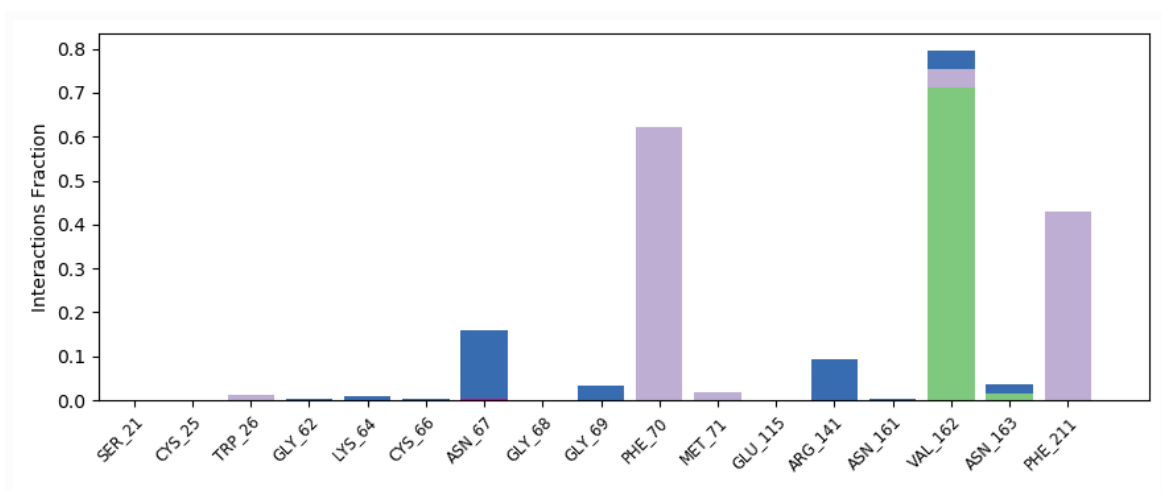


Figure S12: Represent the types of interactions in Cathepsin S – DTBN complex. Blue - water bridge; Green – H-bond; Pink – ionic interaction; Gray – hydrophobic interaction.

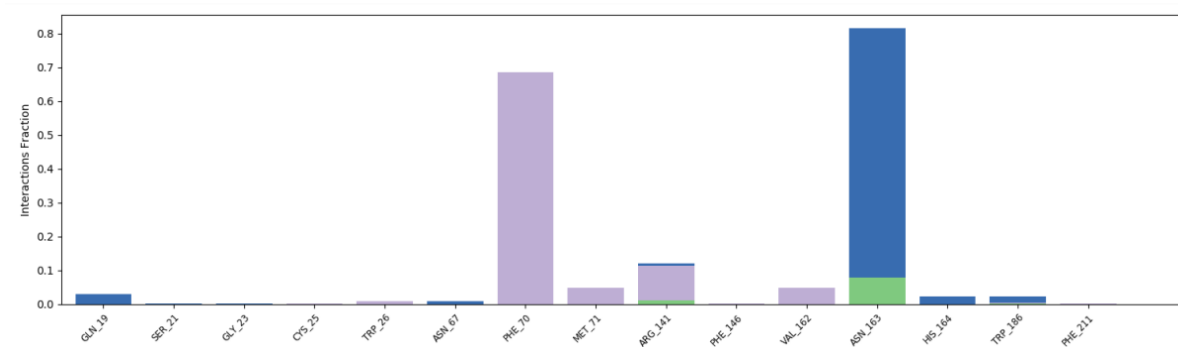


Figure S13: Represent the types of interactions in Cathepsin S–iDTBN complex. Blue - water bridge; Green – H-bond; Pink – ionic interaction; Gray – hydrophobic interaction.

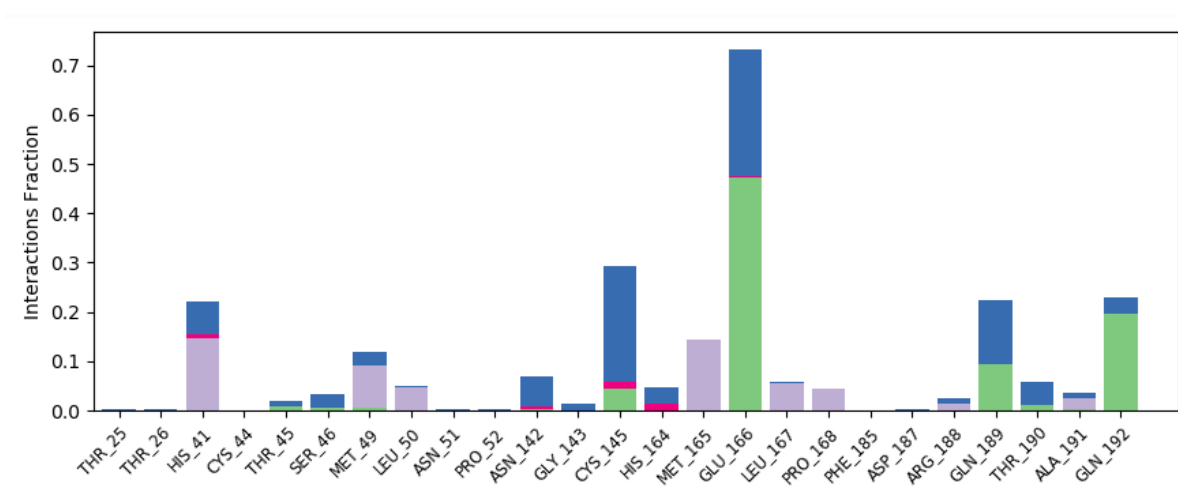
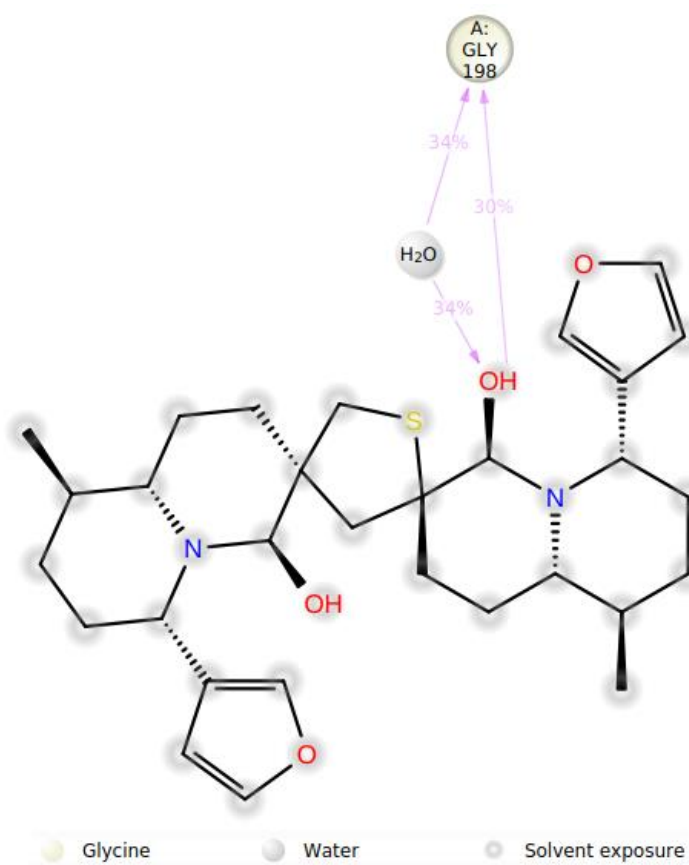
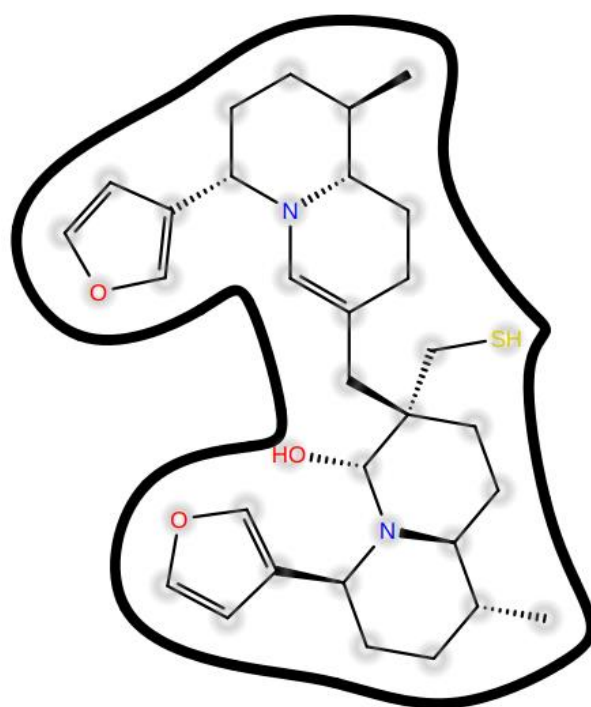


Figure S14: Represent the types of interactions in M^{pro}-iDTBN complex. Blue - water bridge; Green – H-bond; Pink – ionic interaction; Gray – hydrophobic interaction.

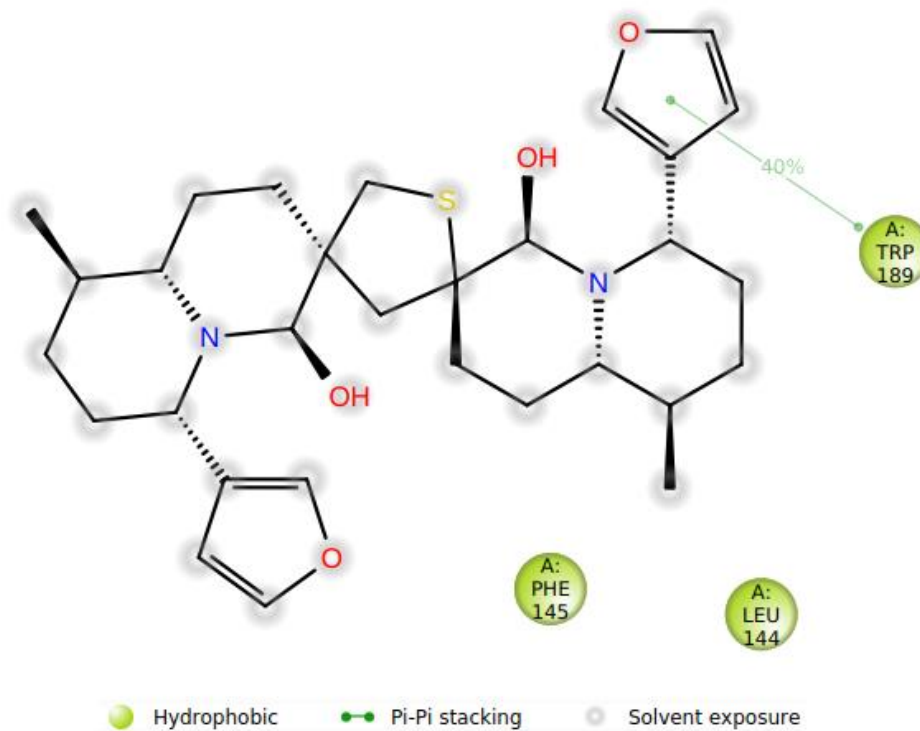


a



b

Figure S15: 2-D representation of various interactions between a) Cathepsin B and DTBN; b) Cathepsin B and iDTBN; which were persistent $\geq 30\%$ minimum contact strength during 100 ns MD simulation.

**a**

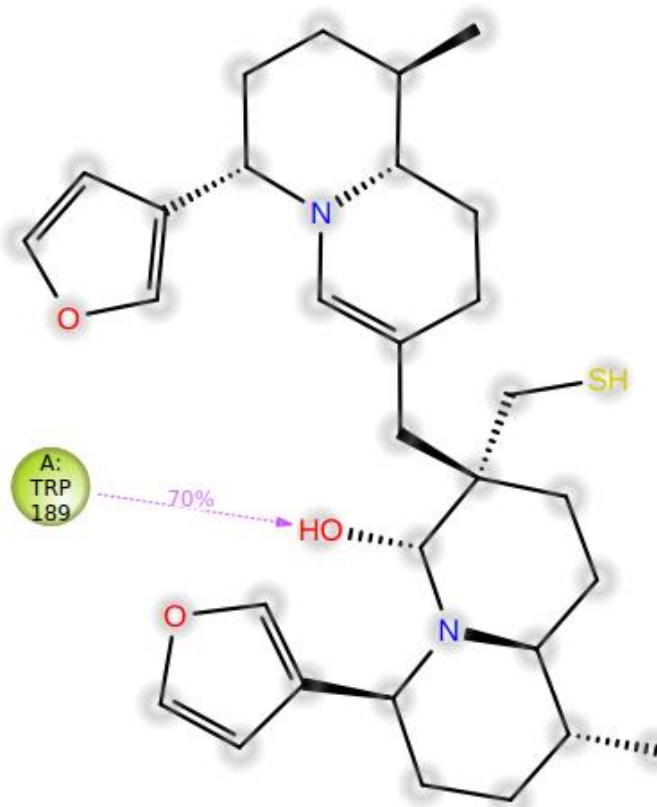
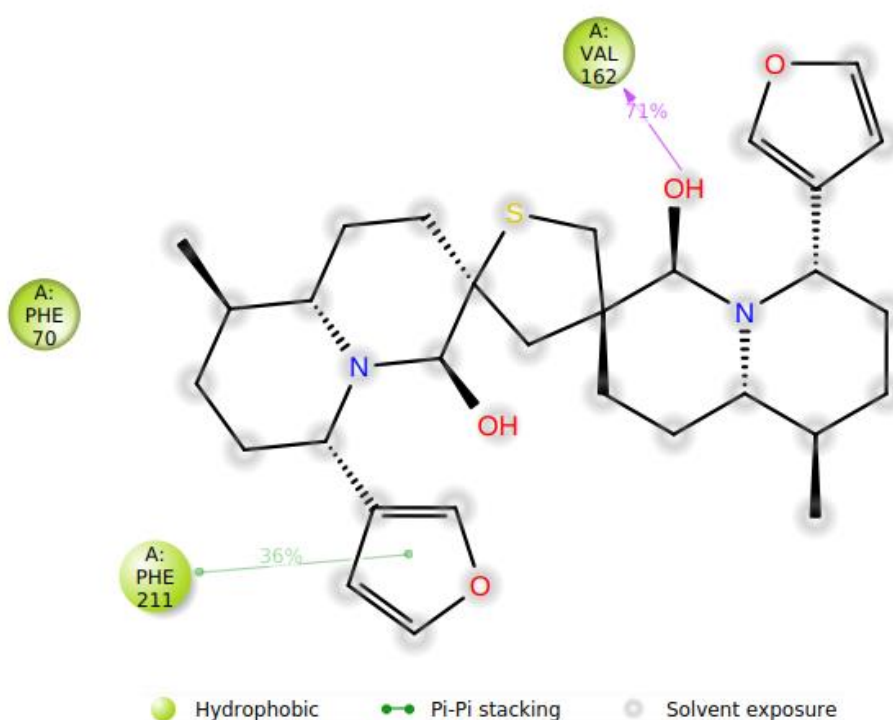
**b**

Figure S16: 2-D representation of various interactions between a) Cathepsin L and DTBN; b) Cathepsin L and iDTBN; which were persistent $\geq 30\%$ minimum contact strength during 100 ns MD simulation.

**a**

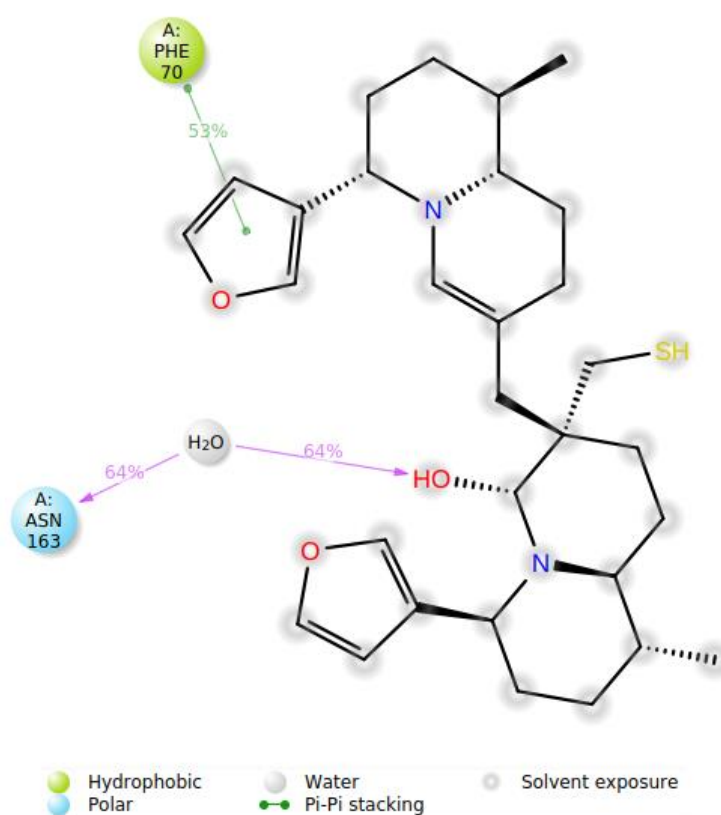
**b**

Figure 17: 2-D representation of various interactions between a) Cathepsin S and DTBN; b) Cathepsin S and iDTBN; which were persistent $\geq 30\%$ minimum contact strength during 100 ns MD simulation.

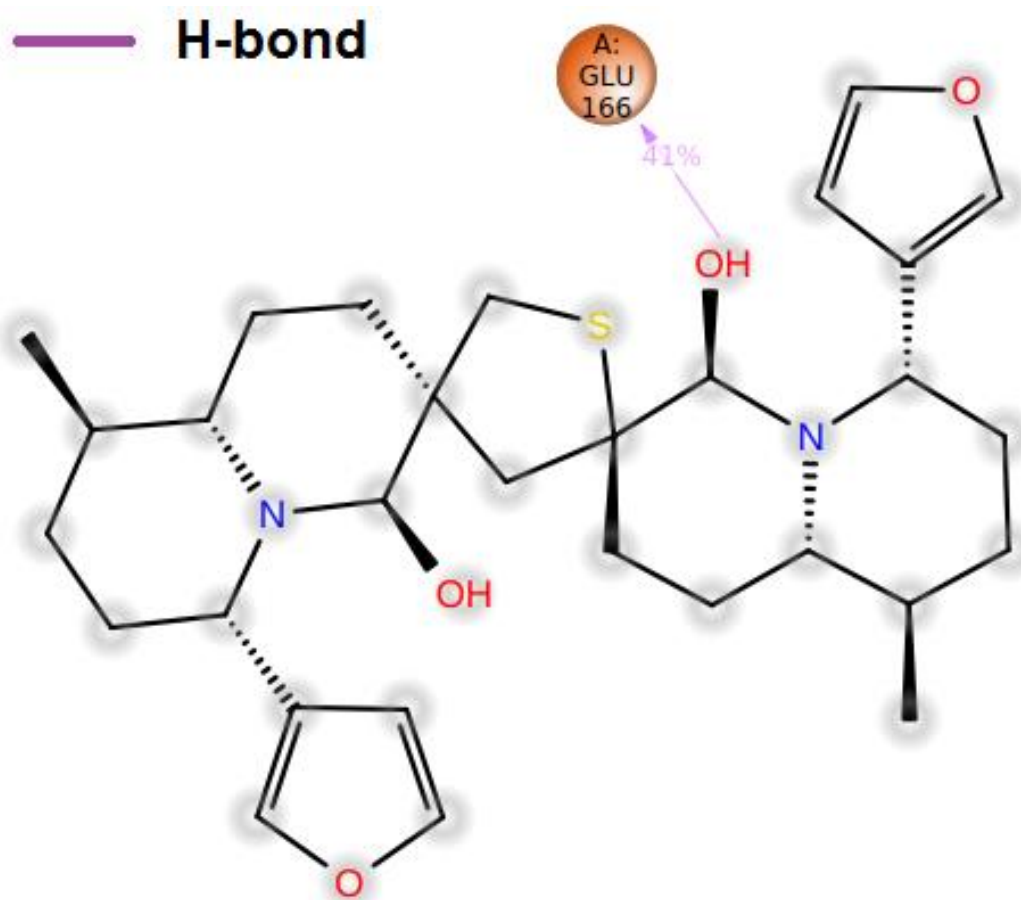


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