

## **Theoretical Investigation of the Cooperation of Iminoguanidine with the Enzymes-Binding Domain of Covid-19 and Bacterial Lysozyme Inhibitors and their Pharmacokinetic Properties**

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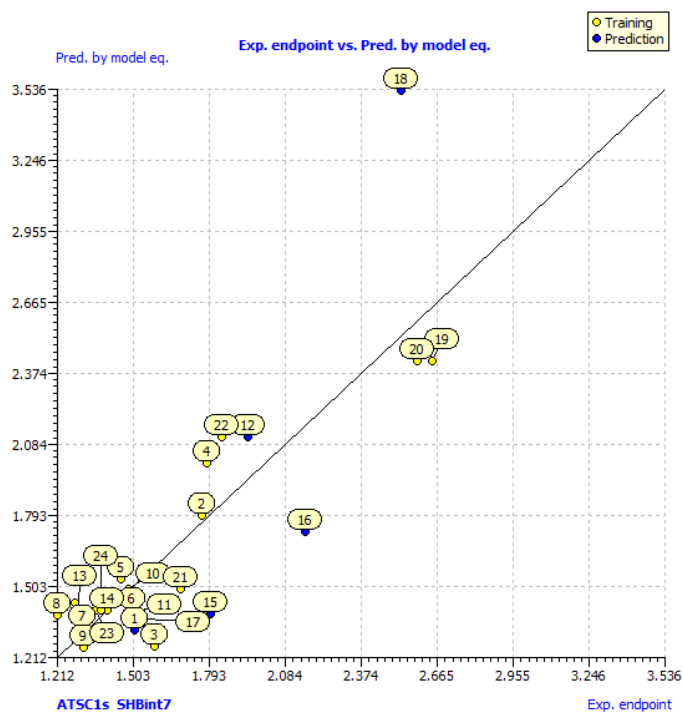
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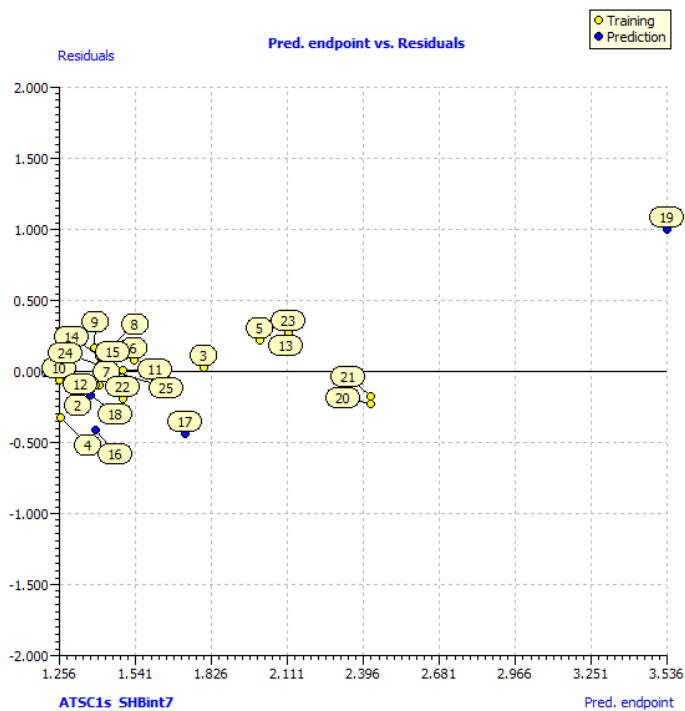
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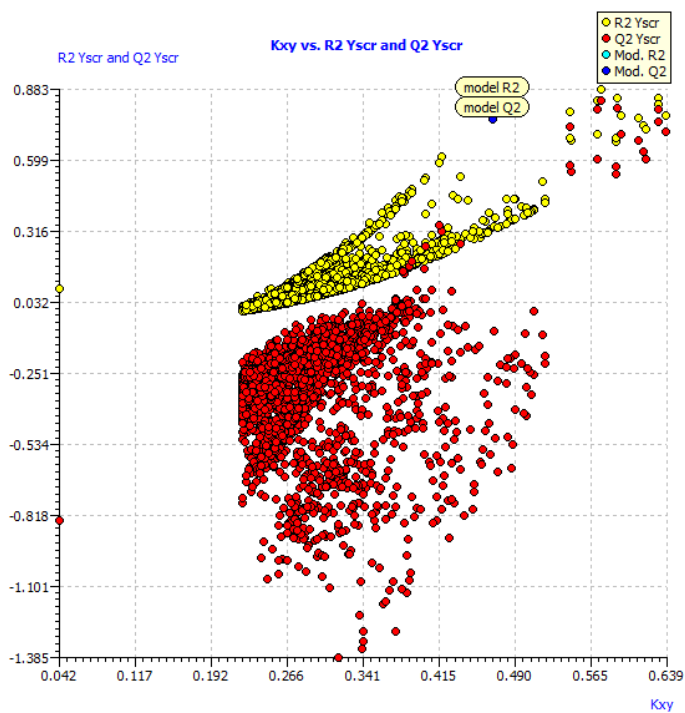
## **Supplementary Information**



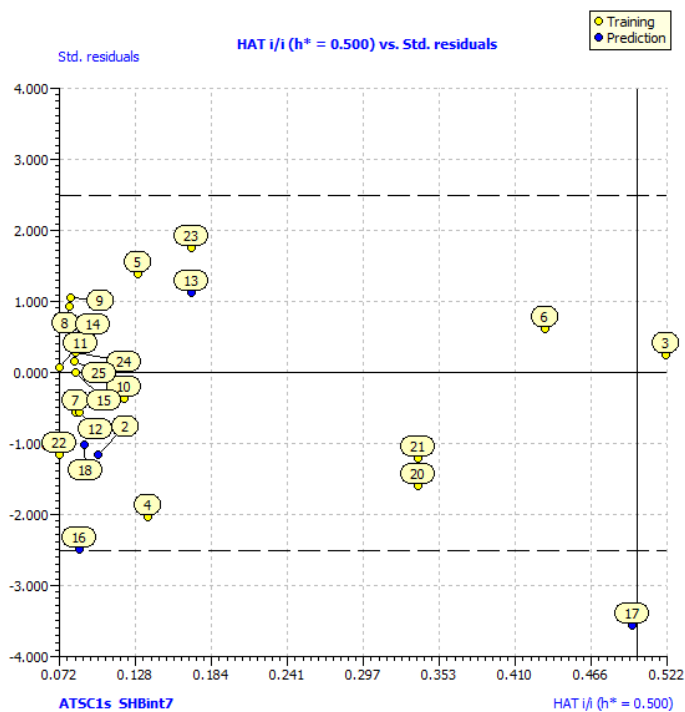
**Fig. S1.** The connection between the observed and predicted activities by GA-MLR.



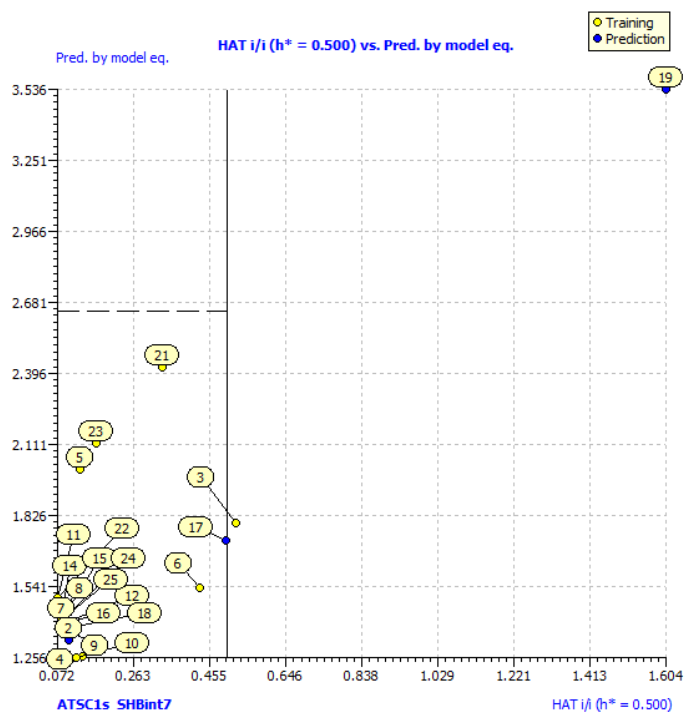
**Fig. S2.** Residuals of iminoguanidine derivatives against the experimental values of pIC<sub>50</sub> using GA-MLR model.



**Fig. S3.** Plot of Y-randomization test: All gotten values for  $R^2$  and  $Q^2$  test are approximately 0.11 and  $-0.31$ , respectively.

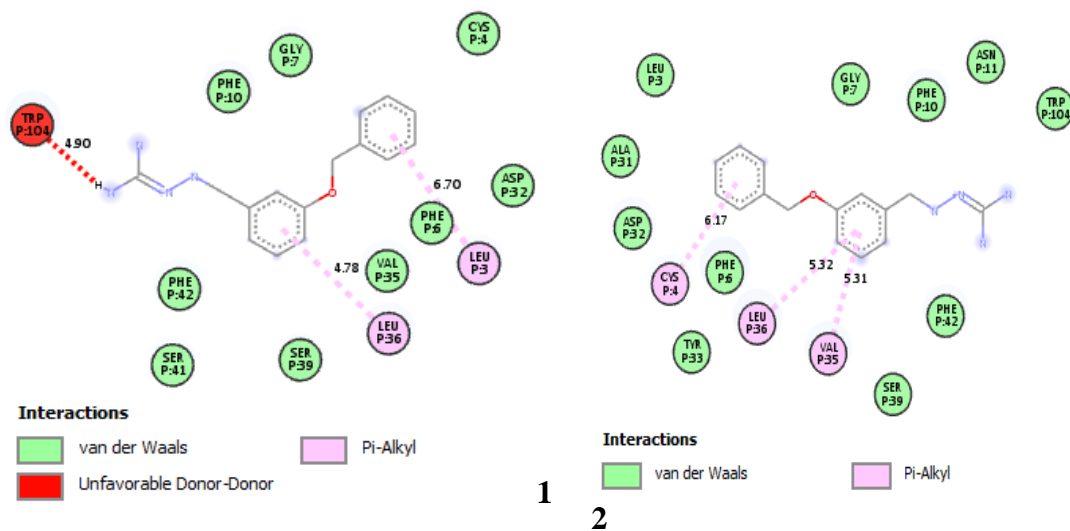


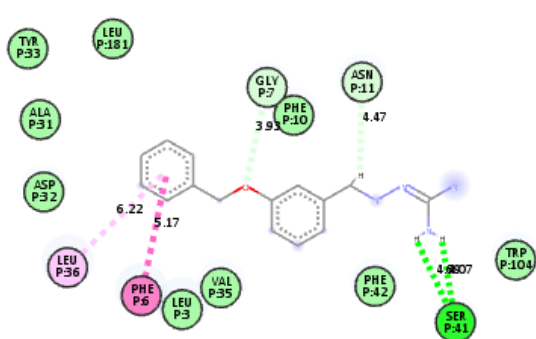
**Fig. S4.** William plot for the developed 2D-QSAR model.



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**Fig. S5.** Insubria plot for the 2D-QSAR model, using the two descriptors.

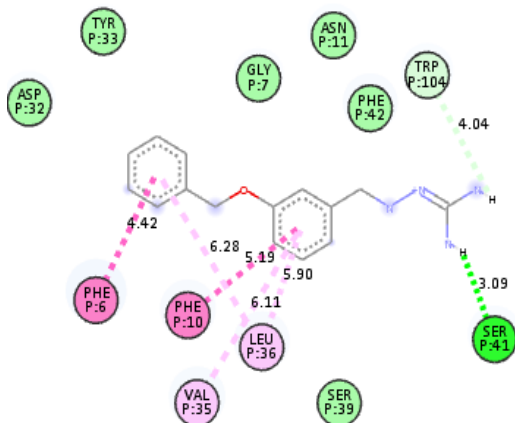




**Interactions**

- van der Waals
- Pi-Pi Stacked
- Conventional Hydrogen Bond
- Pi-Alkyl
- Carbon Hydrogen Bond

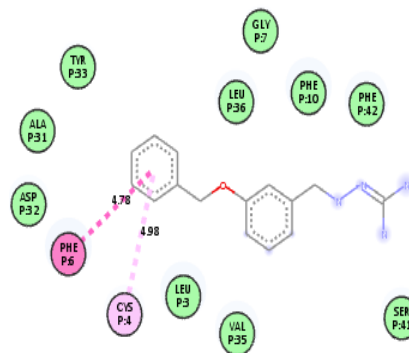
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**Interactions**

- van der Waals
- Pi-Pi Stacked
- Conventional Hydrogen Bond
- Pi-Pi T-shaped
- Pi-Donor Hydrogen Bond
- Pi-Alkyl

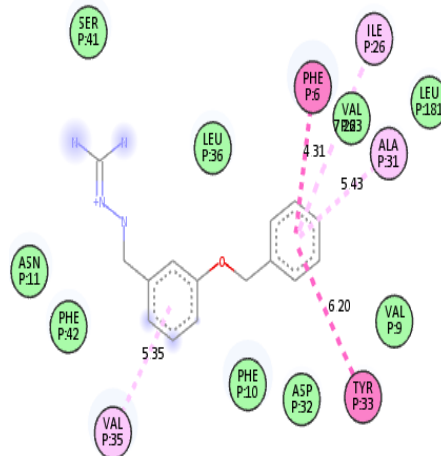
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**Interactions**

- van der Waals
- Pi-Alkyl
- Pi-Pi T-shaped

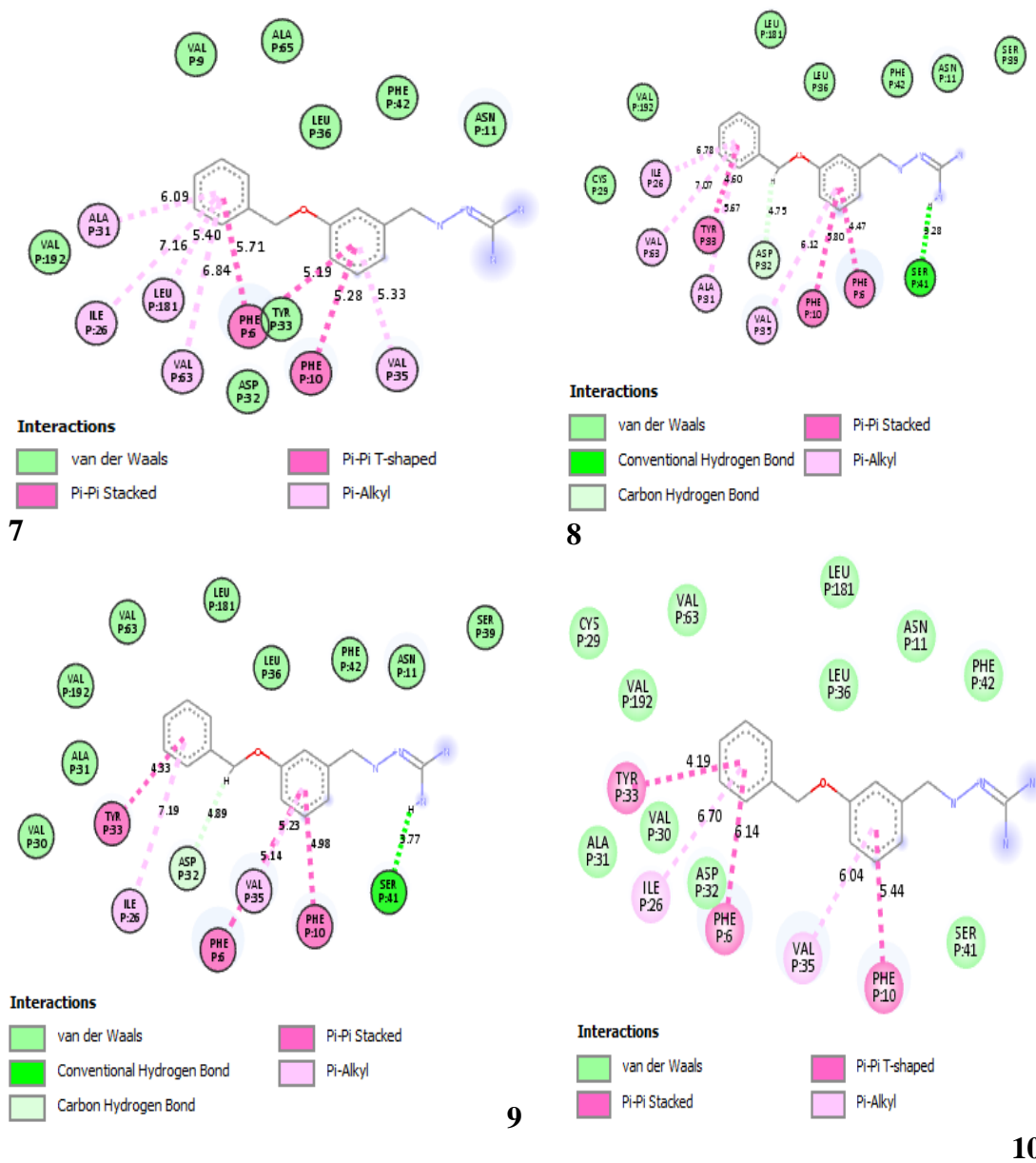
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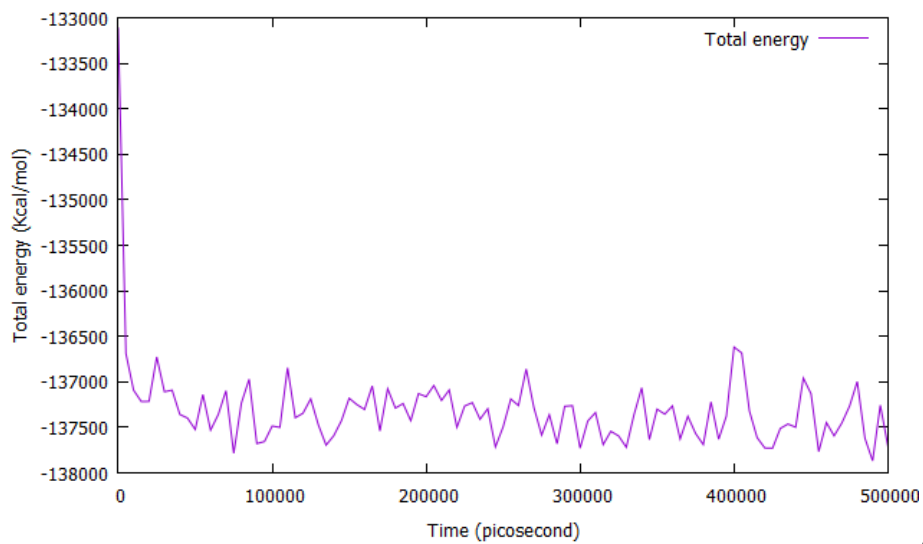
**Interactions**

- van der Waals
- Pi-Pi T-shaped
- Pi-Pi Stacked
- Pi-Alkyl

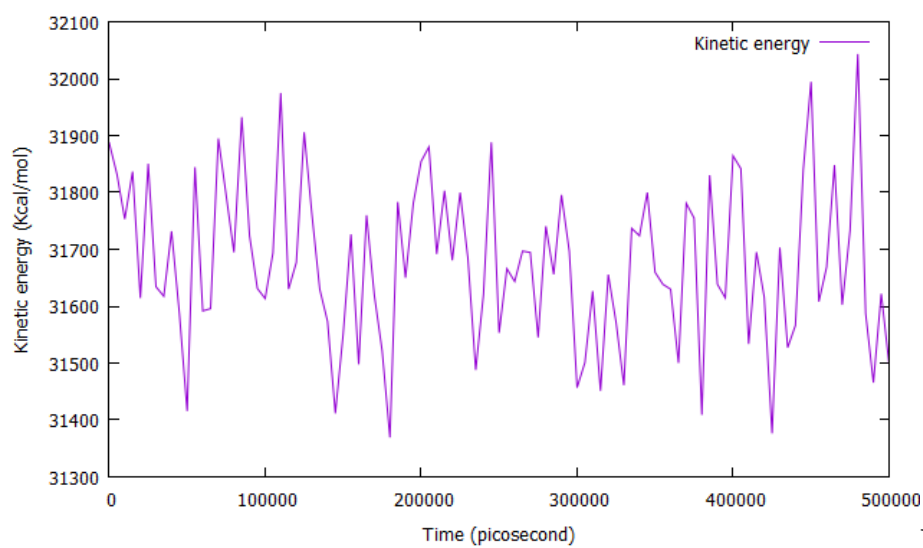
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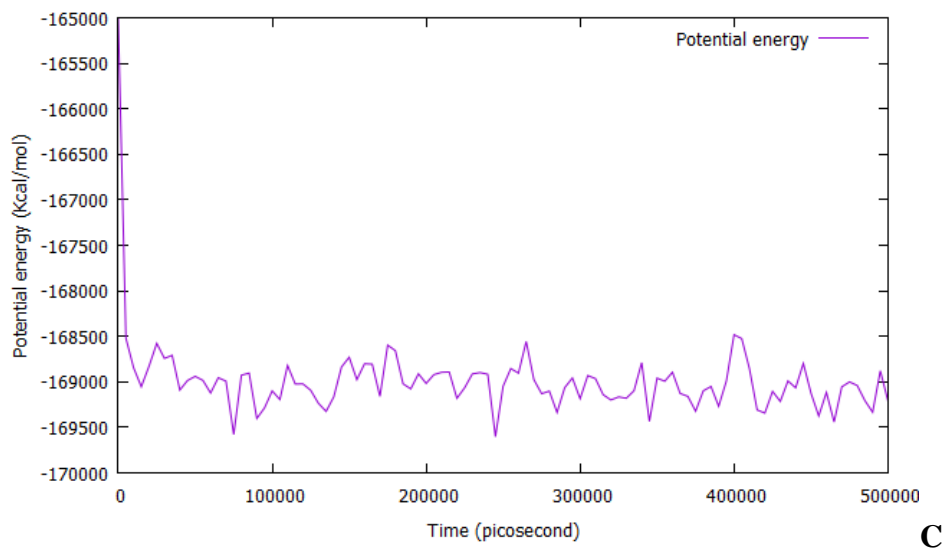
**Fig. S6.** 2D interaction contour map with the key protein residues after MD simulation.



**A**



**B**



**Fig. S7.** MDs simulations study of modeled SARS-CoV-2 and compound 15 (A) Total energy, (B) Kinetic energy, and (C) Potential energy.