

Table S5. Comparison of datasets used and performances of models as reported in the literature.

| Models | Validation | Balanced accuracy % | Sensitivity % | Specificity % | MCC % | Number of inhibitors/non-inhibitors |
|---|------------------------------|---------------------|----------------|----------------|----------------|-------------------------------------|
| Cheng et al. [1] <i>Model CC-III</i> | Training CV External set | 74.25 76.10 | 63.90 56.20 | 84.60 96.00 | 49.60 59.20 | 4369/7761 609/1970 |
| Li et al. [2] <i>Multitask model</i> | Training set External set | 84.20 71.05 | 80.80 52.20 | 87.60 89.90 | 65.80 36.50 | 2552/6833 69/596 |
| Wu et al. [3] <i>XGBoost model</i> | Training set External set | 83.15 63.15 | 73.30 29.00 | 93.00 97.30 | 68.00 35.40 | 2552/6833 69/596 |
| Racz et al. [4] <i>Model 1</i> | Training CV External set | 80.50 79.00 | 82.00 82.00 | 79.00 76.00 | 0.61 0.48 | 6488/7617 2209/2593 |
| RF 36 MOE + 7 IE | Training CV External set | 82.45 84.33 | 89.13 89.97 | 75.76 78.69 | 65.96 69.45 | 3872/2641 968/660 |
| SVM 36 MOE + 7 IE | Training CV External set | 81.41 83.35 | 87.68 89.87 | 75.13 76.83 | 63.62 67.72 | 3872/2641 968/660 |

References

1. Cheng F, Yu Y, Shen J, Yang L, Li W, Liu G, et al. Classification of cytochrome P450 inhibitors and noninhibitors using combined classifiers. *J Chem Inf Model* 2011;51:996–1011.
2. Li X, Xu Y, Lai L, Pei J. Prediction of human cytochrome P450 inhibition using a multitask deep autoencoder neural network. *Mol Pharm* 2018;15:4336–45.
3. Wu Z, Lei T, Shen C, Wang Z, Cao D, Hou T. ADMET evaluation in drug discovery. 19. Reliable prediction of human cytochrome P450 inhibition using artificial intelligence approaches. *J Chem Inf Model*. 2019;59:4587–601.
4. Racz A, Keseru GM. Large-scale evaluation of cytochrome P450 2C9 mediated drug interaction potential with machine learning-based consensus modeling. *J Comput Aided Mol Des*. 2020;34:831-9.