

Precise and optimal parameter estimation in enzyme inhibition

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ABSTRACT

Enzyme inhibitors slow down substrate metabolism by binding free enzymes (competitive type), enzyme-substrate complexes (uncompetitive type), or both (mixed type). The potency and dynamics of enzyme inhibitors, specific to each type, are determined by enzyme inhibition parameters. The inhibition parameters and type have been estimated and identified from in vitro experimental data by applying the Michaelis-Menten (MM) rate law. However, we revealed that the limited experimental data can lead to inaccuracy in estimating the enzyme inhibition parameters and even cause incorrect identification of the inhibition type. To address these challenges, we suggest an experimental guideline that enables the accurate and precise estimation of enzyme inhibition parameters and the identification of the inhibition type based on the MM rate law.

REFERENCES

References are to be listed at the end of the paper in the order of the reference, and are referred to in the paper by the numbers in brackets such as [1, 2]. Style the reference list according to the following examples.

(1) Book

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