

The Significant and Profound Impacts of Chou's 5-Steps Rule

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ABSTRACT

In this short review paper, the significant and profound impacts of the 5-steps rule have been briefly recalled with crystal clear convincingness.

The “5-Steps Rule” or “5-Step Rules” was originally proposed by Kuo-Chen Chou in 2011 [1], named by many scientists as “Chou’s 5-steps rule” or “Chou’s 5-step rules”.

According to this rule, to develop a practically more useful statistical prediction method or predictor for genome or proteome analysis, one should observe the following five guidelines. 1) Construct or select a valid benchmark dataset to train and test the predictor. 2) Formulate the biological sequence samples with an effective mathematical expression that can truly reflect their intrinsic correlation with the target to be predicted. 3) Introduce or develop a powerful algorithm (or engine) to operate the prediction. 4) Properly perform cross-validation tests to objectively evaluate the anticipated accuracy of the predictor. 5) Establish a user-friendly webserver for the predictor that is accessible to the public. Ever since then, the 5-steps rule has been used by many scientists in developing various predictors for proteome or genome analyses.

Papers presented for developing a new sequence-analyzing method or statistical predictor by observing the guidelines of Chou’s 5-strp rules have the following notable merits: 1) crystal clear in logic development, 2) completely transparent in operation, 3) easily to repeat the reported results by other investigators, 4) with high potential in stimulating other sequence-analyzing methods, and 5) very convenient to be used by the majority of experimental scientists.

Therefore, the impacts of the 5-step rules are both significantly and profoundly (see, e.g., [2-49]).

Moreover, the Chou’s 5-steps rule has been further extended to materials science for developing powerful method of detecting perovskite materials with higher Curie temperature as well [50].

CONFLICTS OF INTEREST

The author declares no conflicts of interest regarding the publication of this paper.

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