



The Trend of the Efficient Econo-Green Bioresearch

Ting-Chao Chou*

Molecular Pharmacology & Chemistry Program, Memorial Sloan-Kettering Cancer Center, New York, 10065, USA

*Corresponding author: Ting-Chao Chou, PD Science LLC (USA) 599 Mill Run, Paramus, NJ-07652-1754, USA, Tel: 201-251-8812; E-mail: ChouTC@PDSscience.Org

Rec date: March 11, 2017; Acc date: March 13, 2017; Pub date: March 22, 2017

Copyright: © 2017 Chou TC. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Citation: Chou TC (2017) The Trend of the Efficient Econo-Green Bioresearch. J Biores Commun 1: e102

Editorial

Biomedical research advancements are propelled by both technology and the fundamental basic principle. In this information technology era, there has been a great leap forward in massive quick and accurate data acquitting. However, even though we have acquired lot of knowledge on genome DNA and protein peptide sequences, for instance, with great speed, accuracy and low cost, the most important "functional aspects" are largely lacking. Even though we can diagnose cancer or AIDS with relative ease, we have little know-how to treat them effectively.

Bioresearch, including biomedical research, has expanded the contents to fill thousands of journals for publications. The complexity and diversity of life phenomena and processes are extremely difficult to comprehend or to deal with. But they still need to follow the fundamental Nature's law. The predominant bioresearch approach during the past centuries has been the "Divergent Logics". Disiective investigations have led to tremendous amount of informatics that yield charts or pathway diagrams with lots of branches and arrows. The fancy and colourful pathways of "Apoptosis" alone, for example, can easily fill this entire page. After billions of dollar of expenditure, the questions are: What to do with them? How to integrate them? And are there any efficacious and safe new drug been developed?

The author has been promoting the "Convergent Logics" for the biomedical research during past decades [1]. This approach is to develop a unified theory based on the fundamental physico-chemical and mathematical principle of the mass-action law. The author has developed the Median-Effect Equation (MEE) which is proven to be the "Unified Theory" encompassing the Michaelis-Menten equation of enzyme kinetics; the Handerson-Hasselbalch equation of pH ionization; the Hill equation of higher-order ligand occupancy; and the Scatchard equation of receptor binding. The single entity MEE can be used to derive the multiple entity Combination Index Equation (CIE), and to extend the equation from the 1st-order to tenth-order [2,3]. The MEE has been shown that "dose and effect" or "mass and function" are interchangeable, where the "median" serves as the universal reference point and the common link. The fact that all dose-effect curves can be

linearized into straight lines, lead to the two-data-point theoretical minimum theory [3-5]. This theory and its computer-simulation algorithm allows conducting small size experiments using small number of data points, thus fewer animals, or less number of patients in clinical trials. As a result, it saves time, efforts and costs [4-6]. For decades, the author's lab has an average of only five people, and yet published 326 papers with h-index of 67, and the author has been the co-inventor of 40 U.S. patents.

Based on Web of Science and Google Scholar Citations, three articles [2-4] on the CI method for drug combination alone, have been cited 6,279 and 8,208 times, respectively, in over 800 biomedical journals. These records suggest the broad applicability of the mass-action law principle and the trend of using the unified theory as the Largest Common Divider. Thus, the complicated and diversified biological systems can be deduced to a very simple system via an automated computerized simulation for functional dynamics analysis [5,6]. This new paradigm shift leads to the "Efficient Econo-Green Biomedical Research and Development" [5,6].

References:

1. Chou TC (2008) The mass-action-law based GPS concept for bio-informatics. *Nature Precedings* 3:548-559.
2. Chou TC, Talalay P (1984) Quantitative analysis of dose-effect relationships: the combined effects of multiple drugs or enzyme inhibitors. *Advances in enzyme regulation* 22:27-55.
3. Chou TC (2006) Theoretical basis, experimental design, and computerized simulation of synergism and antagonism in drug-combination studies. *Pharmacological Reviews* 58: 621-681.
4. Chou TC (2010) Drug combination studies and their synergy quantification using the Chou-Talalay method. *Cancer research* 70: 440-446.
5. Chou TC (2011) The mass-action law based algorithms for quantitative Econo-green bio-research. *Integrative Biology* 3: 548-559.
6. Chou TC (2011) The mass-action law based algorithm for cost-effective approach for cancer drug discovery and development. *American journal of cancer research* 1: 925-954.