Our group is interested in "Pharmacometrics" including pharmacoinformatics, clinical pharmacometrics, environmental pharmacometrics, and social pharmacoinformatics. "Pharmacometrics" is considered to be a new term in the field of pharmaceutical sciences. What kind of researches are going on in the field of "Pharmacometrics"?

In this century, advanced information society has been already realized. High-speed Internet connections at home enable us to access any kind of information immediately and digital music as well as video files are able to be accessed by cellular phones. Moreover, researchers have been utilizing powerful computing systems such as mobile computers. Thus, we are already in the "Post Info-Age". Pharmacometrics is considered as one of the most important fields which will be able to play an important role in the "Post Info-Age".

Social, Clinical, and Environmental Pharmacometrics

In the case of pharmacopeidemiological studies, the linear method which called generalized linear model is usually adopted. However, the relationships between risk factors and link functions of clinical data are not always linear. Recently, nonparametric regression analysis attracts considerable interest as a solution methodology in such cases. It is unnecessary to specify the function which represents the relationship between predictor and response variables. Our group has been trying to develop new methods of nonparametric regression and discriminant analyses. In addition, regression discriminant analysis was revised and applied to pharmaceutical datasets. 5,8,10

Self-Organizing Map (SOM) is often applied to the pharmacopeidemiological datasets for prognostic prediction. Our group developed fingerprint verification type SOM in accordance with the aim of improvement of generalizing capability (Fig 1). This procedure was applied to the profiling of seized Methamphetamines.9

Studies on Infectious Diseases by Computational Chemistry

Some of our laboratory members join Thailand-Japan Research Collaboration Center on Emerging and Re-emerging Infections (RCC-ERI). We study some infectious diseases, such as HIV, influenza, and dengue virus which are spreading in Thailand, by computational chemistry such as molecular dynamics and docking study. We also analyze mechanisms of organic reactions by molecular orbital calculation.

Recent publications