AN INTEGRATIVE NATURAL PRODUCT RESEARCH PLATFORM- FLORA GENESIS

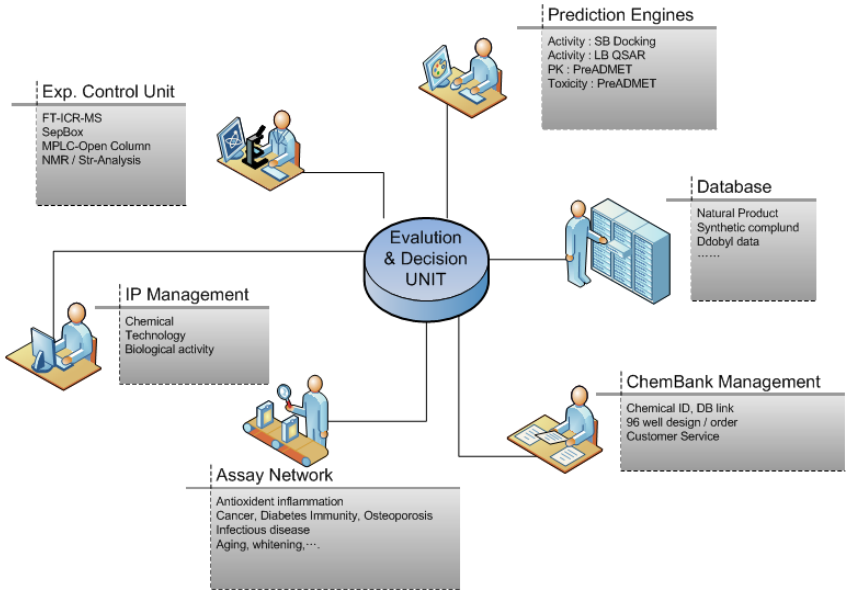
No Kyoung Tai

Department of Biotechnology, Yonsei University, Korea, ktno@yonsei.ac.kr
Bioinformatics & Molecular Design Research Center, Korea, www.bmdrc.org

The market of drugs from natural products, functional food, and cosmetics industry glow fast worldwide. From technological point of view, the identification and separation of plant metabolites in short time and with low cost is the most crucial for high competitiveness in natural product research and industry. Since present status of the related technologies lack of high performance of identification and separation, the natural product research at individual molecular level cost lot of money and time.

Since 1997, BMDRC have been working on prediction of biological activity and ADMET of chemicals for drug discovery and collaborated with several drug discovery groups in Korea. BMDRC also working on data base construction of both synthesizes and natural product molecules and developed S/W for the prediction of the toxicity and activity of the chemicals. During last decade for the purpose of fast identification, prediction, and separation of natural product., BMDRC have developing "Flora Genesis system (FG system)" by integrating i) the molecular design technologies that developed by BMDRC, ii) experimental data from collaborators, and iii) recent developed analytical instruments (for example, FT-ICR-Mass spectrometer, LC-SPE-NMR-Mass system)

The following figure shows the structure of the Flora Genesis System.



In the presentation I will briefly introduce the Flora Genesis System described some results of the Flora Genesis application to drug discovery, cosmetic research, systems biology approaches, and oriental medicine.

For the purpose of sharing resources and technologies (analysis and application), BMDRC started to construct international network with African countries, Australia, China, South-East Asian countries. At the same time BMDRC preparing grand national project with Flora Genesia which include 5 national institutes, local governments, companies from pharmaceutical, food, and cosmetic industries, and universities.