

PROTEOMICS FOR DISCOVERY AND VALIDATION OF THERAPEUTIC TARGETS

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Proteomics has emerged as a new paradigm for discovering novel targets for drug development. Progress in proteomics research is driven mainly by commercial entities because many of proteomics results have immediate commercial values to the pharmaceutical industry. While the international consortium, HUPO (Human Proteome Organization), has difficulty in fund-raising, many of domestic projects on proteomics easily attracted adequate research funds. Examples of the latter are the brain proteome project in Germany, which is a consortium of 9 universities and 3 companies that plans to spend \$9.2M in 3 years and the NHLBI (The National Heart, Lung, and Blood Institute)-supported proteomics centers in the US. About \$22M has been earmarked to fund the 10 centers during the first year, and \$157M is to be spent over the next 7 years. Other related projects include the structural-proteomics projects in the US and Japan. Two years ago, the US NIGMS (National Institute of General Medical Sciences) selected seven centers for structural-proteomics, and allocated \$20M per center over 5 years. In 2001, RIKEN (the Japanese Institute of Physics and Chemical Research) Genomic Sciences Center (GSC) launched structural-proteomics initiatives consisting of two large projects - the structurome project and the protein-fold project - with annual budget of \$5M ~ \$7M for each project for several years. In addition, each institute has its own resources for equipment and facilities (e. g. Yale University plans to spend

more than \$200M on a new center for genetic research that will include new facilities for proteomics). The Korean Ministry of Science and Technology launched the 21C Frontier Program, establishing The Functional Proteomics Center, to support proteomics researches for the discovery of diagnostic markers and drugable target proteins. The budget for the project is about \$5M for the first year, of which \$0.8M is from the bio-industry. This is a relatively small budget. To compete with foreign research projects, we need to focus our limited resources on selective research areas.