특강3

식물게놈연구와 분자육종
Plant Genomics and Molecular Breeding

Jang R. Liu

Korea Research Institute of Bioscience & Biotechnology (KRIBB), Plant Cell Biotechnology Laboratory

Biotechnology in the 21st century will be driven by three emerging technologies: genomics, high throughput screening, and bioinformatics. These technologies are complementary to one another. A large number of economically important crops are currently subjected to genomics. Structural genomics has been being carried out in an enormous manner by adopting BAC libraries, high-throughput automatic sequencers, and high performance software and hardwares in many crops. By using DNA chip and LC/MS which provide gene expression profiling and metabolic profiling data in a given individual plant under given conditions, respectively, functional genomics on a large scale may be feasible. The aims of plant molecular breeding will shift from introducing agronomic traits such as herbicide and insect resistance to introducing quality traits, which will lead to improved and specialized nutritional food and feed products. In addition, plant molecular breeding will be used for producing therapeutic proteins in crops.

Keywords: bioinformatics, functional genomics, high-throughput screening, molecular breeding, plant genomics