

## An Integrated and Intranet-based Collaborative Environment for Atherosclerotic Clinical Research

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**Introduction.** Coronary Heart Disease (CHD) is one of the main killers worldwide. Lipoprotein(a) and apolipoprotein(a) play an important role in developing CHDs. Cardiovascular and atherosclerotic clinical research involves bio-chemistry, cell biology of atherosclerosis, molecular and lipoprotein biology, fluorescent imaging, quantitative analysis and knowledge discovery, 3D modelling, etc. Such research is multi-disciplinary and data-crunching in nature. Intensive data sharing and information exchange are therefore highly desired. The project aims to create an integrated solution for clinicians, biologists, researchers to manage and share data, and enable them to work in a seamless and collaborative environment. Quantitative analysis and knowledge discovery from the large data set can developed specifically for the CHD study.

**Methods.** The system was mainly implemented in a PC Window platform currently running on the intranet. An Apache HTTP server, a MySQL SQL server, Perl, and R Language are used for the development of the system with a platform independent feature. The system integration is carefully implemented taking the advantages of Information Technology, Confocal Imaging, 3D Graphics, etc. Figure 1 illustrates the overall structure of the integrated and Intranet based system.

**Results and Summary.** . The system offers easy information management and data sharing by different parties across Internet. Dataset include various iso-forms of lipoproteins and apolipoprotein from Protein Data Bank (PDB), lipoprotein(a) plasma, phenotype, concentration of ApoB and LDL (low density lipoprotein), and other associate information (Figure 1). Data types include clinical and biochemical parameters, confocal TIFF images, proteins PDB and 3D VRML models. A user friendly interface is designed allowing people to deposit, retrieve and analyze the lipoprotein and apolipoprotein information from different sites. This work is part of our efforts towards an integrated atherosclerotic study from clinical, bio-informatics and structure point of views.

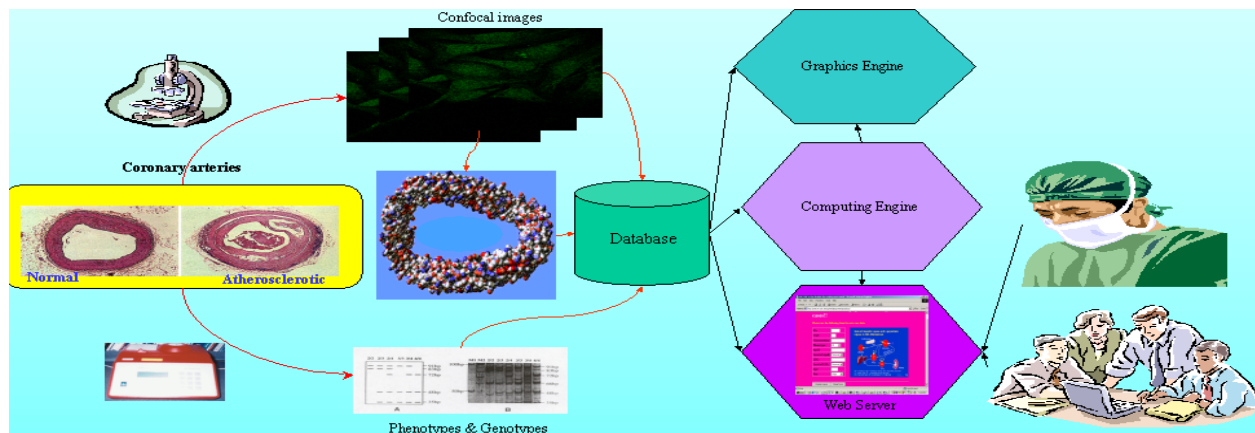


Figure 1. An integrated and Intranet-based environment for atherosclerotic research