

Genomic and proteomic approaches for studying human cancer: Prospects for true patient-tailored therapy

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Global gene expression analysis is beginning to move from the laboratories of basic investigators to large-scale clinical trials. The potential of this technology to improve diagnosis and tailored treatment of human disease may soon be realised, now that several comprehensive studies have demonstrated the utility of gene expression profiles for the classification of tumours into distinct, clinically relevant subtypes and the prediction of clinical outcomes. In addition, new data from the emerging proteomics platforms add another layer of molecular information to the study of human disease, as scientists attempt to catalogue a complete inventory of the proteins encoded by the genome and to establish a 'biosignature' profile of human health and disease. As a result, it is anticipated that, together, these technologies will facilitate the comprehensive study of genes, gene products and signalling pathways so that the objective of personalized molecular medicine can be achieved. This paper will review the studies that best demonstrate how genomics and proteomics technologies can be used to improve cancer diagnosis and treatment it will specifically highlight the important work being incorporated into clinical trials.

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