The human genome sequence has been called by some the Book of Life. But this book is actually yet to be written. Rather, the human genome sequence may be better described as a new alphabet, comprised of the As, Cs, Ts and Gs that form the basic structure of DNA, and which provide the foundation for an entirely new biological language. The more than 30,000 genes contained within the sequence are beginning to form the ‘words’ that make up this new language, and the elucidation of the roles of these genes and their corresponding proteins are helping to develop the ‘sentences’ that will enable scientists to actually read this Book of Life and apply its information to meaningful discoveries.

Applied Biosystems is developing solutions to enable scientists to take advantage of this enormously rich vocabulary and to begin to ask and answer crucial questions that will provide a better understanding of the role of genes and proteins in human disease and drug response. To address this next phase of discovery, we are applying our expertise to integrate the platforms, technologies, reagents and biological information required to bring the genome into any molecular biology laboratory and make it practical for researchers to use.

Our mission is to integrate our products and services with the growing number of disparate sources of biological data across research disciplines, to automate workflows for higher levels of efficiency and production, and to link information with experiments so that data accessed and generated can be intelligently applied to the discovery process.

Integration of Proteomics and Genomics Products, Data and Services
Our offering is extending beyond instrumentation, reagents and single applications to integrated genomic and proteomic products, services and data - from DNA sequence, expression and genotyping information, to protein structure, function and pathway information. This includes manually curated content (e.g., the Celera Discovery System), validated assays (e.g., Assays-on-Demand™ Products) and applications that link instruments, software and services to improve efficiencies for customers and enable an integrated approach to scientific discovery.

Celera Discovery System™
A key component of this expanded offering includes the Celera Discovery System (CDS). In April 2002, Celera and Applied Biosystems entered into a marketing and distribution agreement that has made Applied Biosystems the sole distributor of CDS. This subscription-based, integrated research platform provides online access to the most comprehensive and current set of curated biological data available (visit www.celeradiscoverysystem.com for additional information). More than 200 pharmaceutical, biotechnology and academic institutions internationally access CDS on a daily basis. Since the publication of the human and mouse genomes, Celera has used their immense analytical resources to glean tremendous insight from the combined human and mouse genome data, and applied their data resources to provide an expanded level of value to pharmaceutical and research institutions. Celera has also linked their human and mouse genome data to other available data sources to provide valuable gene- and mutation-focused connections to almost every area of life science research, including cross-species comparisons, SNP data and analytical tools.
Assays-on-Demand™ Gene Expression and SNP Genotyping Products

With the introduction of the Assays-on-Demand Gene Expression and SNP Genotyping Products, scientists now have a powerful resource of ready-to-use assays for nearly every human gene and over 130,000 SNP assays validated in 95 individuals. The Assays-on-Demand products allow scientists to intelligently apply genomic information available from the human genome sequencing and annotation efforts for immediate use in gene expression and SNP genotyping experiments.

The process of designing and validating assays is a time-consuming and laborious process. The Assays-on-Demand products, developed using both the public and Celera genomic information, eliminate the time and costs associated with designing and validating assays so scientists can focus on testing hypotheses and interpreting results, rather than developing and optimising assays. These assays are available online at https://store.appliedbiosystems.com/ where a powerful and intelligent search engine enables researchers to quickly identify any assay that is available for their area of research interest. The Assays-on-Demand Products are optimised to run on the Applied Biosystems Sequence Detection Systems and have also been integrated into CDS. This integration provides researchers a rich resource of information and tools to immediately apply genomic information to laboratory experiments.

Enabling 21st Century Biology

Applied Biosystems will continue to integrate disparate sources of information, such as data from CDS and public databases, into its products and services. This will enable all researchers to forge a direct connection from a scientific hypothesis to bibliographies of supporting data, research methodologies, specific assays, instruments and software, and finally to a conclusion that supports or refutes the initial hypothesis.

As a result, researchers will be able to immediately ask more complex questions, perform higher throughput experiments and reduce project costs through the integration of information, tools and assays.

With new knowledge-based tools, the scientific community will be able to translate the complicated biological lexicon into meaningful discoveries and to begin to ask more intelligent questions of the available data. This represents an incredible step forward in the possibility to design comprehensive studies to solve enigmas regarding the molecular basis of complex diseases such as cancer, and genetic factors involved in drug response. With the new and expanded suite of integrated Applied Biosystems products, the number of experimental possibilities has increased considerably and will support a new era of biological discovery.

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