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Annotation of Chromosome 7

Status	Past
Competition	Competition I
Sector	Health
Genome Centre	Ontario Genomics Institute
Project Leaders	Steve Scherer

Project Description

Scientists and the medical community have long taken a keen interest in chromosome 7, which contains many genes crucial to development. It also carries the cystic fibrosis gene and is often damaged in some types of leukemia and other cancers.

The overall goal of our project was to complete a gene map and apply it to disease study, as well as to annotate all pertinent biological features contained in the DNA sequence of human chromosome 7. The strategy throughout the effort was to generate and collate all genomic data and to integrate this with every piece of clinical and functional genetic information available.

Perhaps the highlight of the project was our publication of a seminal manuscript in *Science* in 2003, describing an accurate DNA sequence and annotation of the entire human chromosome 7.

This was the first such paper of its kind confirming our group's worldwide lead studying this portion of the human genome. In collaboration with 90 scientists from 10 countries worldwide and Celera Genomics, 158 million nucleotides of DNA sequence were assembled, 1,917 gene structures identified, and numerous structural features were anchored to the sequence map.

At that time we also formally launched the first website and database designed to facilitate community-based annotation of chromosome 7, which continues to be the most relevant site for information on chromosome 7. We also sent the unique molecular reagents from this project to over 240 scientists worldwide to assist their research.

The study of disease was also an important applied goal of this project. We collaborated with many scientists from around the world to further disease gene research and discovered two disease genes that have lead to patent filing. The international standing of this project continues to attract outside funds related to spin-off work as well as new trainees from around the world to Canada.

Fast Facts

Highlighted outcome: publication of a seminal manuscript in *Science* in 2003, describing an accurate DNA sequence and annotation of the entire human chromosome 7

Number of research personnel employed by the project: 23

Number of peer reviewed publications published: 38 peer-reviewed manuscripts and 9 book chapters

Resources generated: products of this project have been distributed to over 350 investigators worldwide, many of which were probes sent for patient studies or diagnosis

Number of patents in process or obtained: two disease gene discoveries leading to patent filing