Millennium Pharmaceuticals IP Group Gets Timely "Big Picture"

GenomeQuest™ speeds, simplifies genome patent application processing

Millennium Pharmaceuticals, Inc., seeks to develop breakthrough products by applying its understanding of disease mechanisms, its industrialized drug discovery platform, and its knowledge of the human genome. Specializing in the therapeutic areas of oncology and inflammation, the Cambridge, Mass.-based company markets VELCADE® (bortezomib), a novel cancer therapeutic, and also has a robust clinical development pipeline of product candidates.

Millennium patent agent Mario Cloutier prosecutes genome patent applications both in-house and in the U.S. and in foreign jurisdictions. His Intellectual Property (IP) group's objective is to obtain issued patents, which are immensely valuable to the corporation when they cover a potential product or one already on the market, or when third parties want to license them from Millennium.

When Millennium scientists identify a gene they are interested in pursuing, they ask the IP group to perform a freedom-to-operate analysis. The group used to rely on an in-house database that performed Blast searches for freedom-to-operate and novelty analyses—and had undeniable limitations. "The interface, which enabled us to get the sequences, wasn't very friendly; a lot of mouse-clicking was required," Cloutier says. "When it returned a large number of hits, we would have to spend a great deal of time on the analysis. And generating the necessary reports was very time-consuming."

GenomeQuest a better alternative

Millennium sought a better alternative—and found it in GenomeQuest from Gene-IT. Using GenomeQuest, researchers can simultaneously compare almost any number of sequences against millions of records from multiple databases. A unique sequence-centric approach to sequence comparison lets users obtain, in minutes, best-fit answers

on IP landscape and functional annotation. By presenting a unified view of information drawn from multiple biological and IP databases, GenomeQuest makes it unnecessary for users to be knowledgeable about these databases and the tools required to access them.

Since adopting GenomeQuest, Cloutier and his colleagues have been pleased with the product's superior output, removal of duplicates, and filtering out of irrelevant hits. They like being able to data by date, revealing at a glance what was filed before the filing date when doing a novelty analysis. They also like the ability to store search results in project folders, allowing them to quickly find the results of previous searches instead of having to go through the tedious process of re-running them. In addition, they can easily share folder contents with co-workers and scientists.

GenomeQuest provides a tool that lets the group find sequences within patents or patent applications. "We use the sequential lookup tool when, for example, a patent examiner states that Sequence X in Document Y is 93 percent identical to your gene," Cloutier explains. "Rather than run the Blast to see if we can identify the hit that corresponds to this sequence, we enter the document number into GenomeQuest, pull up the sequence number we want, copy and paste the sequence into an alignment program, and align the sequences to find out if the examiner was correct."

A day in the life

Describing a typical day's workflow involving GenomeQuest, Cloutier says:

"Just the other day, I was working on an application that has multiple genes. We had received a restriction requirement from the patent office, which means we have to pick one gene. So we submitted the sequences as a list into GenomeQuest's query screen and got all the results in about 2-1/2 hours. We went through each of the results and sorted by date, percent identity, and so forth. This enabled us to come to a consensus as to whether any given molecule was worth pursuing.

"And that was all there was to it. Now we know where the hits are, and we can respond to the restriction requirement. We can also retrieve the documents that are hits and submit them in an Information Disclosure Statement."

Cloutier adds that using the in-house tool would have made for a different, and much longer, story. "We would have had to submit each sequence individually and get the tabular results for each sequence," he says. "Then we'd have to go into each hit and determine whether it's a true hit based on percent identity and date. Each analysis probably would have taken an hour or two.

"With GenomeQuest, all three results took only about a half-hour. And that's very important to us, because time is a luxury we often don't have."

In summing up his group's experience with GenomeQuest, Cloutier says:

"We've found that it's very easy to use, and it create great reports. The global alignment gives us a clear, accurate 'big picture' of our search results, so we can confidently decide which sequence targets to reject and which ones to pursue. GenomeQuest gives us the results to rapidly derive an informed answer."

About Gene-IT

Gene-IT was formed in 1998 to commercialize the core technology of GenomeQuest, developed by a team of scientists from the French National Research Institute for Computer Science and Control (INRIA). A worldwide market expansion was initiated in 2002, and the product was launched in 2004 with adoption by the European Patent Office.

Gene-IT operates from U.S. headquarters near Boston and European headquarters near Paris. Customers include Chiron, Millennium Pharmaceuticals, Monsanto, Organon, Pfizer, and many others.

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