Identifying discovery pathways opens new doors for Fiocruz

Fiocruz is Brazil’s foremost public health research institution. In addition to treating patients, Fiocruz develops vaccines, drugs, reagents and diagnostic kits. The organization also has a big interest in the development of new compounds and collaborates extensively in the genomics of species of agricultural interest. Current biology systems and disease understanding projects include:

- Research on different human cancer types to understand how genomes, polymorphisms and transcriptome data reflect metabolic pathways
- Sequencing human parasitic organisms in order to combat their lifestyle
- Understanding muscle development in pigs
- Mapping interactive pathways from bovine tissues

The Centro des Pesquisas Rene Rachou is focused on research in Chagas disease, schistosomiasis, leishmaniasis and different aspects of malaria. In addition, the organization recently began studying aging and risk behavior epidemiology.
"We still have a long way to go before we are able to go from a library of compounds to a new drug. But ... platforms like this will help us get on our way."

Guilherme Corrêa de Oliveira
Senior Researcher, Fiocruz

The challenge: Forging a path through data
These projects generate a huge amount of data to be analyzed alongside existing knowledge. Further, researchers want to open doors to drug development and global markets. To do this, they need to compare third-party information effectively with their own research to ensure they are in line with international standards.

The solution: Information in context for an easier route to understanding
Guilherme Corrêa de Oliveira is a senior researcher at Fiocruz. He is head of the Cellular and Molecular Parasitology Laboratory and serves as coordinator of the Center for Bioinformatics. Oliveira immediately recognized the benefit that MetaCore, a Cortellis solution, could have at Fiocruz. “We tested MetaCore and we saw the value, especially because of the heavy curation that it uses: It gives us better results than publicly available software,” he said. Oliveira added that MetaCore gives the team a better option for

- Analyzing experimental high-throughput data in the context of pathways, networks and maps
- Identifying and ranking important pathways, networks and disease terms for their lists of transcriptomes and genomes
- Applying disease, tissue, functional processes and sub-cellular localization filters to focus networks on information relevant to the study
- Visualizing and cross-validating different types of data

The impact: Paving the way for new ventures in drug development
From the start, Fiocruz team members found MetaCore intuitive to use. The results they now get are more consistent than with other software they had used before. “It’s very clear that the human curation behind [MetaCore] makes the information considerably more valuable,” Oliveira said. “We found that with MetaCore, we made our lives a lot easier.”

MetaCore is now embedded at Fiocruz. Biologists in the lab are using it on an almost daily basis to run their analysis, freeing up the bioinformaticians to focus on other projects. Researchers can identify pathways that may be involved in processes under study and come up with hypotheses as well as ways of testing them.

Fiocruz officials said they hope use of MetaCore and a growing partnership with Clarivate Analytics will help them reach their goal of becoming a major drug developer in Latin America. “We still have a long way to go before we are able to go from a library of compounds to a new drug. But MetaCore is definitely something that we need. Platforms like this will help us get on our way.”

For more information on how MetaCore, a Cortellis solution, can help your drug discovery efforts, visit our website at:

clarivate.com/cortellis

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