

Flexible, Trusted & User-Friendly Omics Data Analysis

Revolutionizing Novel Cancer Drug Discovery



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GOAL

Valerio Therapeutics is a clinical-stage biotechnology company developing novel oncology drugs targeting DNA repair mechanisms. The company's focus is on the development of anticancer drugs for various types of cancer. The approach is based upon unique mechanisms of action on DNA damage response and focuses on bringing first-in-class and disruptive compounds from preclinical research to proof-of-concept in man in cancer indications with high unmet needs. Valerio Therapeutics seeks to transform breakthrough scientific opportunities into treatments through translational and clinical expertise, developing products to the stage where they are compelling opportunities for partners. The company is convinced of the significant therapeutic potential of its decoy oligonucleotide technology and the disruptive innovation it represents, which could pave the way for a new paradigm in cancer treatment.

CHALLENGES

- The lack of standardization for transcriptome and proteome analysis in the literature made it difficult to obtain consistent and reliable results.
- Reliance on external bioinformaticians and analysis services often resulted in time constraints, delays, and additional costs as specialists had to be re-engaged to make changes or perform new analyses.
- Working with various bioinformatics tools was time-consuming and challenging, especially for biologists without programming skills. Without access to analysis results and a flexible, easy-to-use analysis solution, the team could not efficiently explore and interpret data.

RESULTS

- Increased flexibility, time savings, and trust in data analysis.
- The team was no longer dependent on the availability of a bioinformatician because the analysis tools are intuitive to use.
- Significant time savings in the analysis of omics data while improving quality.



« We tried different solutions and found the BigOmics platform provided the best and most trustworthy results. »



DR. VLADA ZAKHAROVA
SENIOR SCIENTIST, VALERIO THERAPEUTICS

CASE STUDY

FLEXIBLE, TRUSTED & USER-FRIENDLY OMICS DATA ANALYSIS
Revolutionizing Novel Cancer Drug Discovery

Field: Designing and developing novel oncology drugs
Headquarters: Paris, France

Dr. Vlada Zakharova, Senior Scientist and Target Identification Team Leader at Valerio Therapeutics, has been part of the evaluation team to introduce BigOmics to her company and has tested the analysis platform extensively.

Vlada realized the lack of standardized procedures and the high variability in RNA-Seq data analysis. For difficult analyses, she always had to get the help of bioinformaticians. This dependence came with time constraints and additional costs for re-analysis. Thus, a flexible way of working was not possible.

Her team is developing cancer drugs and have conducted RNA-Seq studies to understand the mechanisms of action of their molecules. “We started from scratch in developing the molecules and will be doing the clinical trials, so it's extremely important for us to understand how the molecules react. RNA-Seq analysis alone takes about a week, and coding skills were required to use existing analytical services. The lack of flexibility and accessibility of the analysis results proved to be a major challenge. And when you outsource the analysis, it's a black box. Companies use their own code, and you never know what kind of code they are using,” says Vlada.

Flexibility was very important to the team:

« You pursue one question, and later you may need to pursue a different vision. So, flexibility and the ability to interpret data are essential. »

The scientists wanted to have access to the analyses so they could review or re-do them flexibly, without having to ask a different person to do it each time and thus being dependent on their availability.

After testing several providers, Vlada and her team chose BigOmics Playground. The mix of attractive cost, predictability of analysis, ease of use, and flexibility convinced them. “Some big platforms are expensive. You pay a high price for the subscription, and if you do an analysis, you pay extra. With this tool, we can understand the mechanism of action.

“We were convinced straight away, we received excellent support and the BigOmics team was always available. When I started working with the platform, I found it very user-friendly and flexible. You don't need extensive bioinformatics knowledge to understand why you are doing an analysis, you can use different types of parameters, not just do a standard analysis, but you can change the settings and go in different ways. Also, it's very easy to download the data you create.”

Vlada also liked that Bigomics puts a lot of effort into constantly improving the platform.

« When I see a problem and bring it to the attention of the BigOmics team, they are always looking to improve. They really listen to me as a customer. And that's very important for us. »

“At Valerio Therapeutics, we work with a completely new technology. Therefore, it is important for us to be able to compare the different types of databases that are available for our data to look for similarities to better understand the unique mechanisms of action of our molecule. I haven't found many solutions that can do that. BigOmics Playground is pretty unique in that regard,” explains Vlada. “In addition, we can predict biomarkers of molecule action and interesting combinations with existing therapies.”

« The way I see it, there is a big problem in communication between biologists and bioinformaticians. If the biologists have access to the analyses without having to write the code, that gives us a lot of flexibility. »

BIGOMICS SOLUTIONS

CENTRALIZED, COST-EFFECTIVE DATA ANALYSIS STREAMLINES SCALING AND IMPROVES PRODUCTIVITY

- ✓ RNA-Seq data are analyzed through peer reviewed algorithms, so scientists can quickly identify the most promising therapeutic targets without requiring any coding knowledge.
- ✓ As more experiments are performed, the newly added data sets can be compared to previous results and more than 6,000 public data sets, providing the necessary context for scientific breakthroughs.
- ✓ Moreover, more than 50,000 public gene sets and pathways such as GO, REactome, Hallmark, and Msigs can be accessed, as well as drug connectivity and drug sensitivity databases with more than 30,000 drug expression profiles.
- ✓ Since all omics data is in one place, scientists spend 62% less time on rerunning.

INTERACTIVE VISUALIZATIONS GIVE LEADERS A 360-DEGREE VIEW OF R&D PROGRESS

- ✓ BigOmics helps managers and executives have an eye on day-to-day progress while also providing a cohesive overview of all different research projects.
- ✓ Across the numerous projects, many decisions have to be made rapidly yet confidently. With the full history of their experiments at their fingertips, executives can make prompt, data-driven decisions.
- ✓ Since BigOmics has improved the reproducibility of data, it's much easier for leaders to forecast and set informed timelines.

A UNIFIED DATA ANALYTICS SYSTEM ALLOWS FOR INTERDISCIPLINARY COLLABORATION

- ✓ Repetitive and time-consuming data analysis iterations can be avoided since biologists are enabled to gain insights from their data directly from the platform.
- ✓ Everyone can easily access the same version of data and results shared in team meetings since scientists present directly from Omics Playground.
- ✓ Bioinformatics resources are conserved, allowing them to process requests faster.



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