Transformative new approach for viral titer determination using xCELLigence RTCA

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Using xCELLigence Real-Time Cell Analysis (RTCA), Sanofi Pasteur scientists have developed an assay for accurate viral titer determination that is 5-times less labor intensive and 3.5-times cheaper than conventional methods

Accurate determination of viral titers is critical to vaccine development. Historically, titers have been determined using endpoint assays which are labor-intensive, expensive, and time consuming. This is increasingly problematic in modern production facilities where bioprocess optimization is performed using high-throughput cell culture reactors that can produce batches of virus faster than they can be analyzed. Looking for a solution to this bottleneck, Sanofi scientist David Gaillac and his coworkers have just described a transformative new approach for viral titer determination using xCELLigence RTCA instruments.

Being able to accurately determine the concentration of infectious virus is essential not only for controlling vaccine dosing in patients, but also for optimizing the virus production process. As changes are made to the virus production protocol, changes in infectious titer are used as the readout. Whereas virus-infected cells within a cellular monolayer have traditionally been identified and counted using microscopy, which is both tedious and subjective, xCELLigence RTCA uses gold biosensors to dynamically monitor changes in host cell number, morphology, and cell-substrate attachment strength that occur as part of the virus cytopathic effect. When compared side-by-side with a traditional titer quantification assay, xCELLigence RTCA yielded results that were essentially identical. Beyond the accuracy and reproducibility of the automated and label-free xCELLigence RTCA assay, its streamlined workflow and reduced costs are game-changing. During extensive optimization of a chimeric yellow fever dengue vaccine, the authors found that when compared to a traditional titer determination assay the xCELLigence RTCA approach “was 5-times less labor-intensive (operator time) and cost 3.5-times less (including operator time, reagents, consumables).”

On the basis of the above findings the authors reported having made a major change in their workflow, stating that “The RTCA assay presented here is now being used for titration of viruses to support our bioprocess studies.”

Source:

- *Viral Vaccine Development Gets Major Boost From xCELLigence RTCA*

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