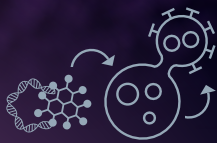
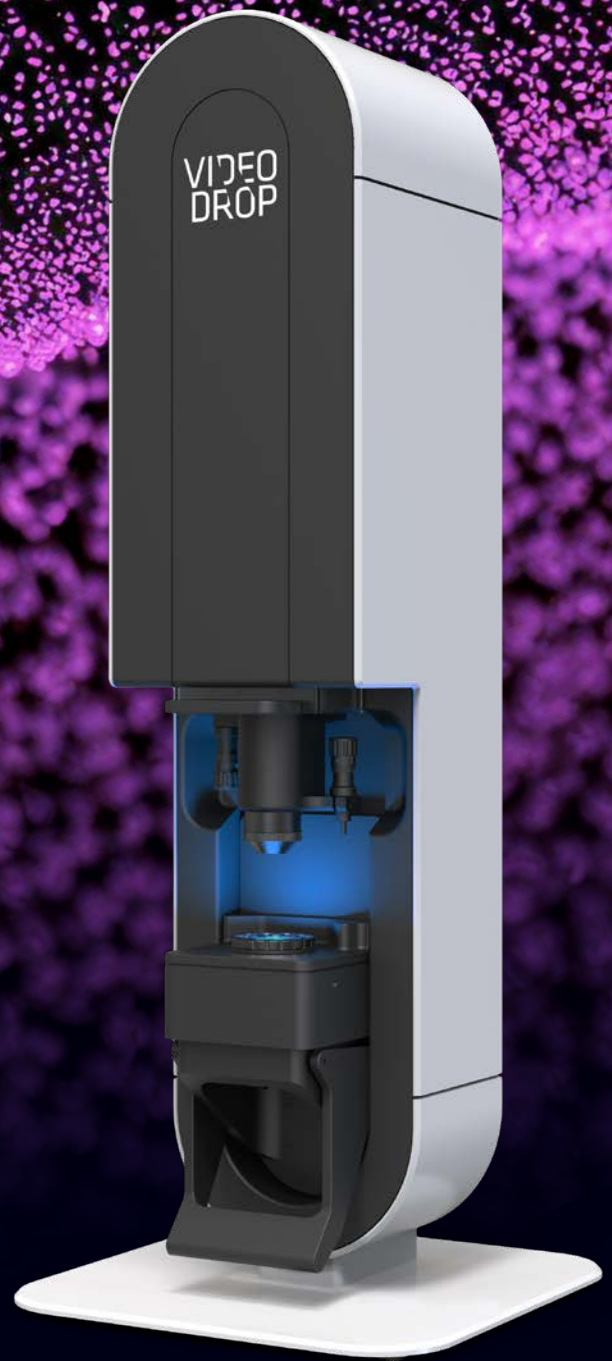


# VIDEO DROP SK



Size Kinetics  
and Aggregation  
of Nanoparticles



myriade

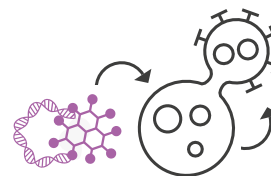
# VIDEO DROP

SK

Designed by physicists,  
for biologists

**Videodrop is an advanced combination of optical innovation from the Langevin Institute and high-performance software algorithms.** Videodrop SK is a new feature developed to measure a temporal evolution of size like nanoparticle aggregation or complexation. It offers a revolutionary approach to transfection workflow optimization for Lentivirus (LV) and Adeno-Associated Virus (AAV) bioproduction.

## APPLICATION



Transfection mix

## SPECIFICITIES

5-10 $\mu$ L

In a single drop

80nm-2 $\mu$ m

Size range

15 sec

Between measures

UP TO 4 hours

Kinetic duration



EASY TO USE

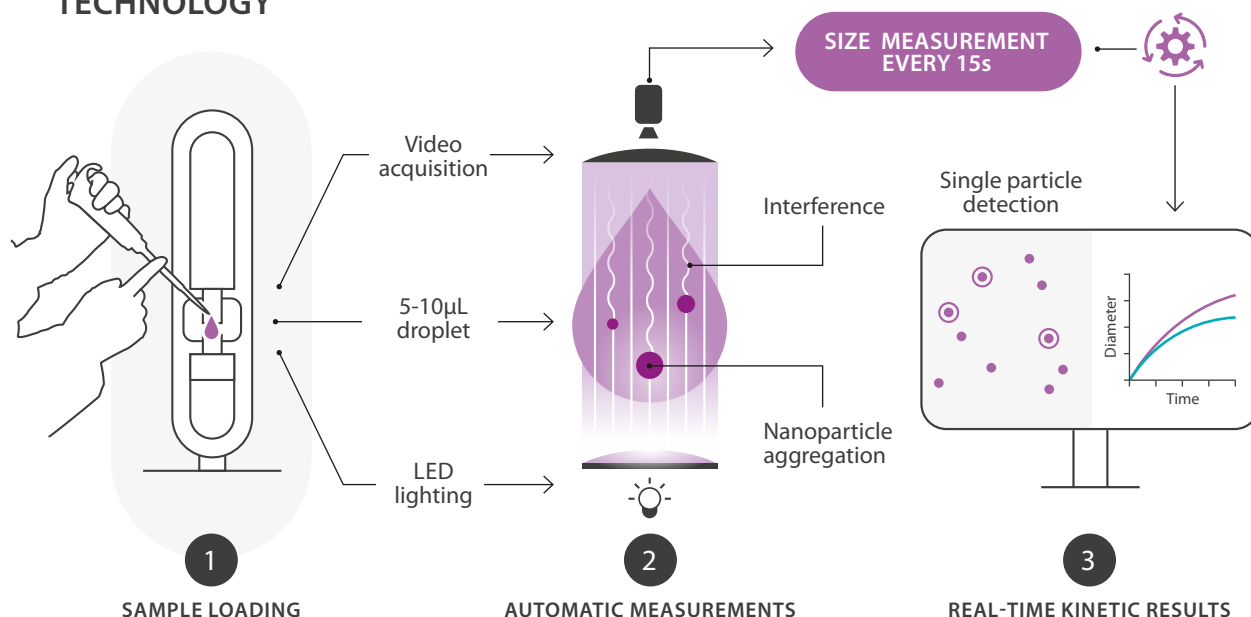


MICROSCOPIC IMAGING



REAL-TIME KINETIC CURVE CONSTRUCTION

## TECHNOLOGY



## Interferometric Light Microscopy (ILM) every 15 seconds

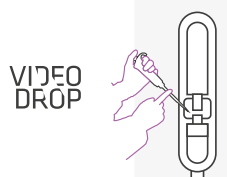
The innovative idea of the scientific team is to have **transformed a standard microscope into an interferometer**. The nanoparticle solution is illuminated by a simple LED. A high dynamic range camera & images processing algorithms make it possible **to detect and track the interferences patterns** between the light scattered by the nanoparticles and the incident light signal. **The single particle detection** allows for accurate measurement of heterogeneous samples. One measure every 15 seconds enables a fine and precise monitoring of size evolution giving information on nanoparticle aggregation and complexation.

# Viral vector transfection

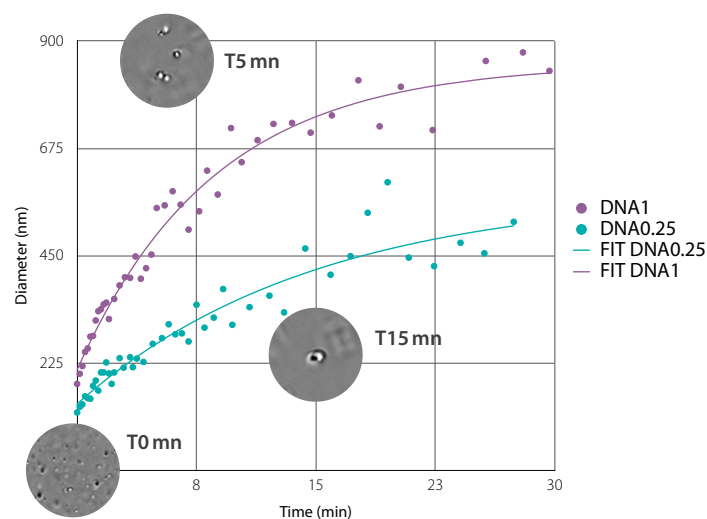
## Context

**Reagent-based transfection is the primary method for producing viral vectors (Lentivirus (LV) or Adeno-Associated Virus (AAV)).** However, despite its significance, this critical step often lacks real-time monitoring and quality controls.

## Workflow



- **Real-time** follow-up of [polymer+DNA] complexation
- **Optimization** of transfection conditions
- **Better understanding** of the AAV and LV upstream process



We tested 2 concentrations of DNA (3 plasmids: 1 and 0.25  $\mu\text{g}/10^6$  cells) mixed with the same proportion of PEIPro® (Polyplus). Videodrop allows to follow in real-time the DNA/PEIPro® complexation and highlight the kinetics difference between two conditions.

## ADVANTAGES

- **Videodrop enables in-depth real-time kinetic studies** to monitor the impact of various conditions (DNA concentration, ratios, media type, pH levels) on the size evolution of transfection complexes over time. Studies<sup>1</sup> show a clear correlation between size of the formed transfection reagent/DNA complex and the transfection efficiency.
- By incorporating Videodrop into their workflows, scientists can **achieve a new level of control and optimize transfection efficiency**, ultimately leading to faster and more cost-effective upstream processes.



1. Hu, Y. et al. Size-Controlled and Shelf-Stable DNA Particles for Production of Lentiviral Vectors. Nano Lett. 21, 5697–5705 (2021).





# VIDEO DROP

SK

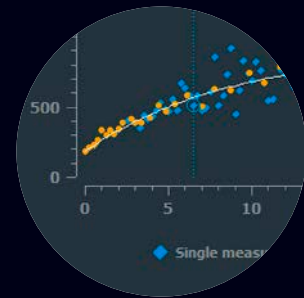
Size Kinetics  
and Aggregation  
of Nanoparticles



IN A SINGLE DROP



IN REAL TIME



SIZE KINETICS