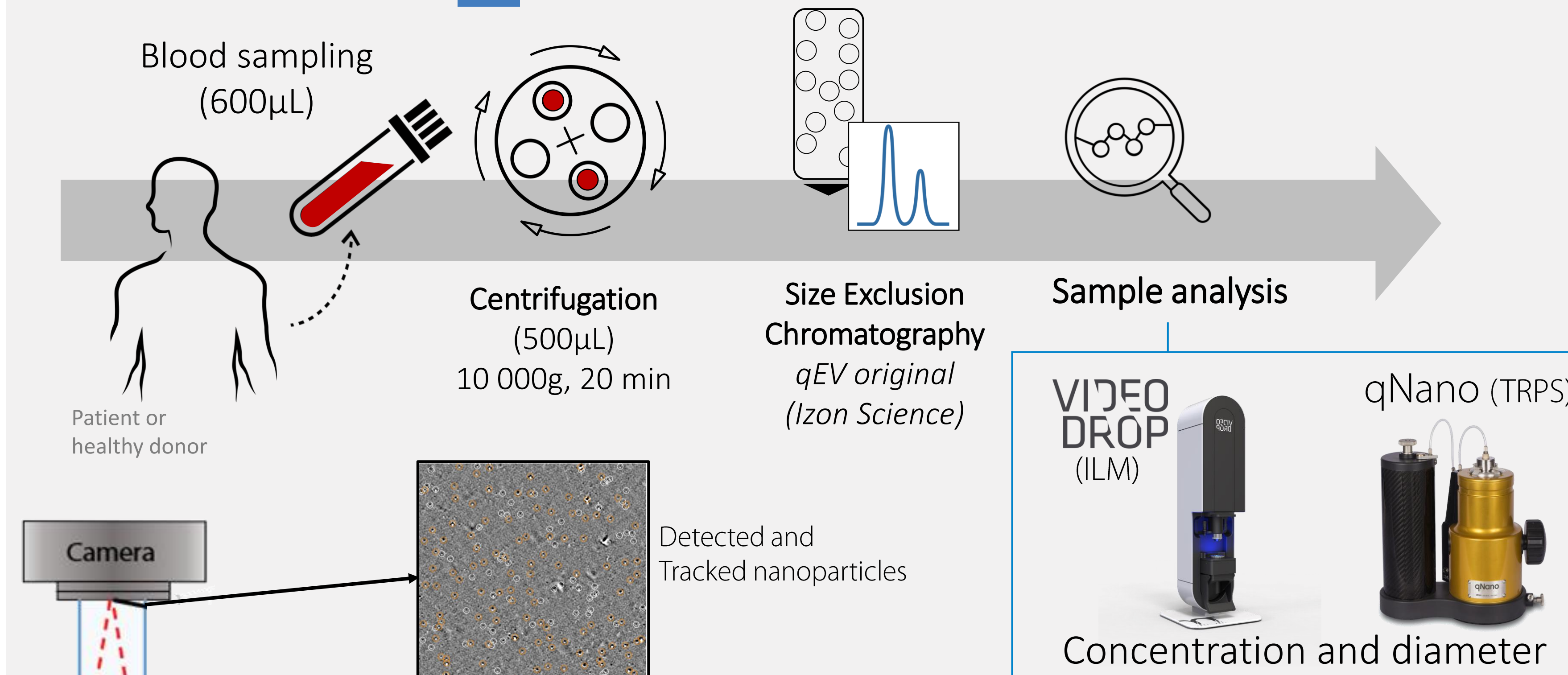


Material & Method

1 Plasma sample preparation



2 Focus on VIDEODROP technology : Interferometric Light Microscopy (ILM)

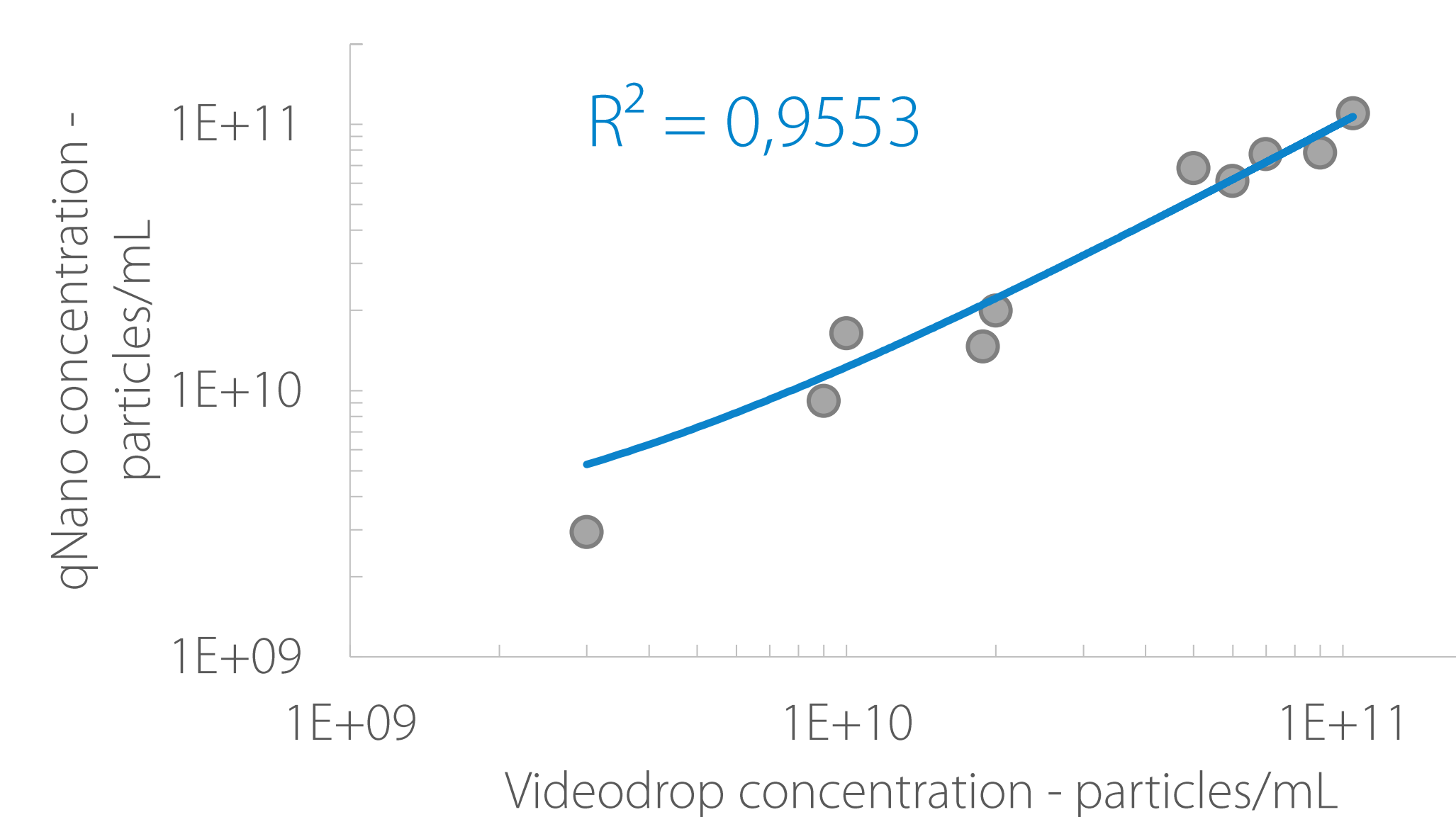
Videodrop is a custom microscope that uses interference phenomenon to detect the light scattered by individual nanoparticles in solution. Using this interferometric signal, nanoparticles are automatically detected and tracked to compute concentration and hydrodynamic diameter.

3 Standard protocol development

- 1 Systematic dilution of samples (dilutionx2; dilutionx4; dilution x8; etc)
- 2 Concentration measurement using same processing settings and 7µL droplets sample
- 3 Identification of the suitable and linear range of concentration by calculating experimental dilution factor
- 4 The raw concentration is the mean of the dilution-corrected linear values

Results

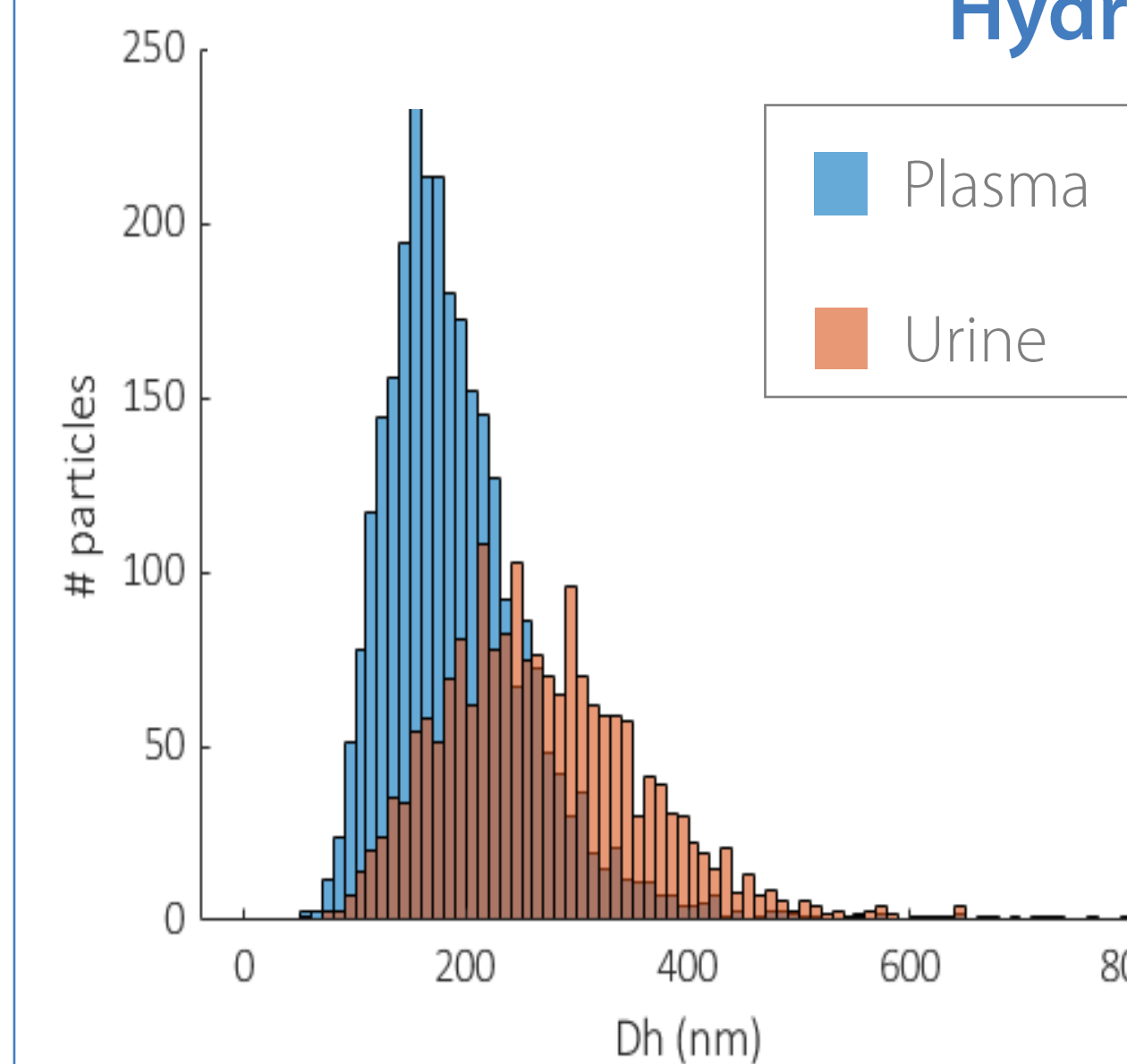
Concentration analysis : comparison ILM vs TRPS



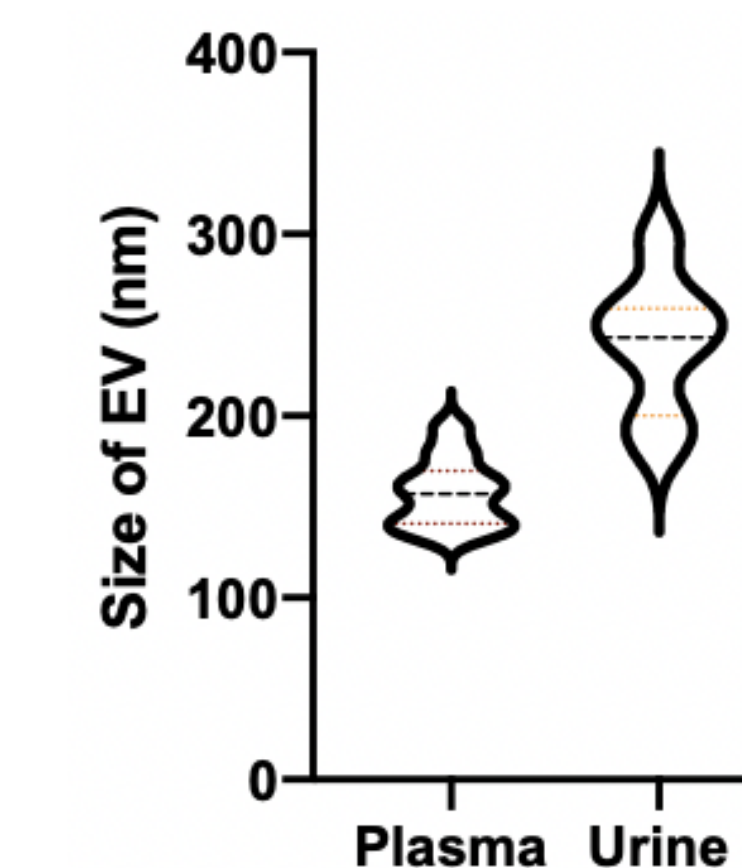
EVs from:
6 plasma samples
4 urine samples

Linear correlation with Videodrop (ILM) and qNano (TRPS) regarding EVs concentration

Hydrodynamic diameter : Plasma vs urine



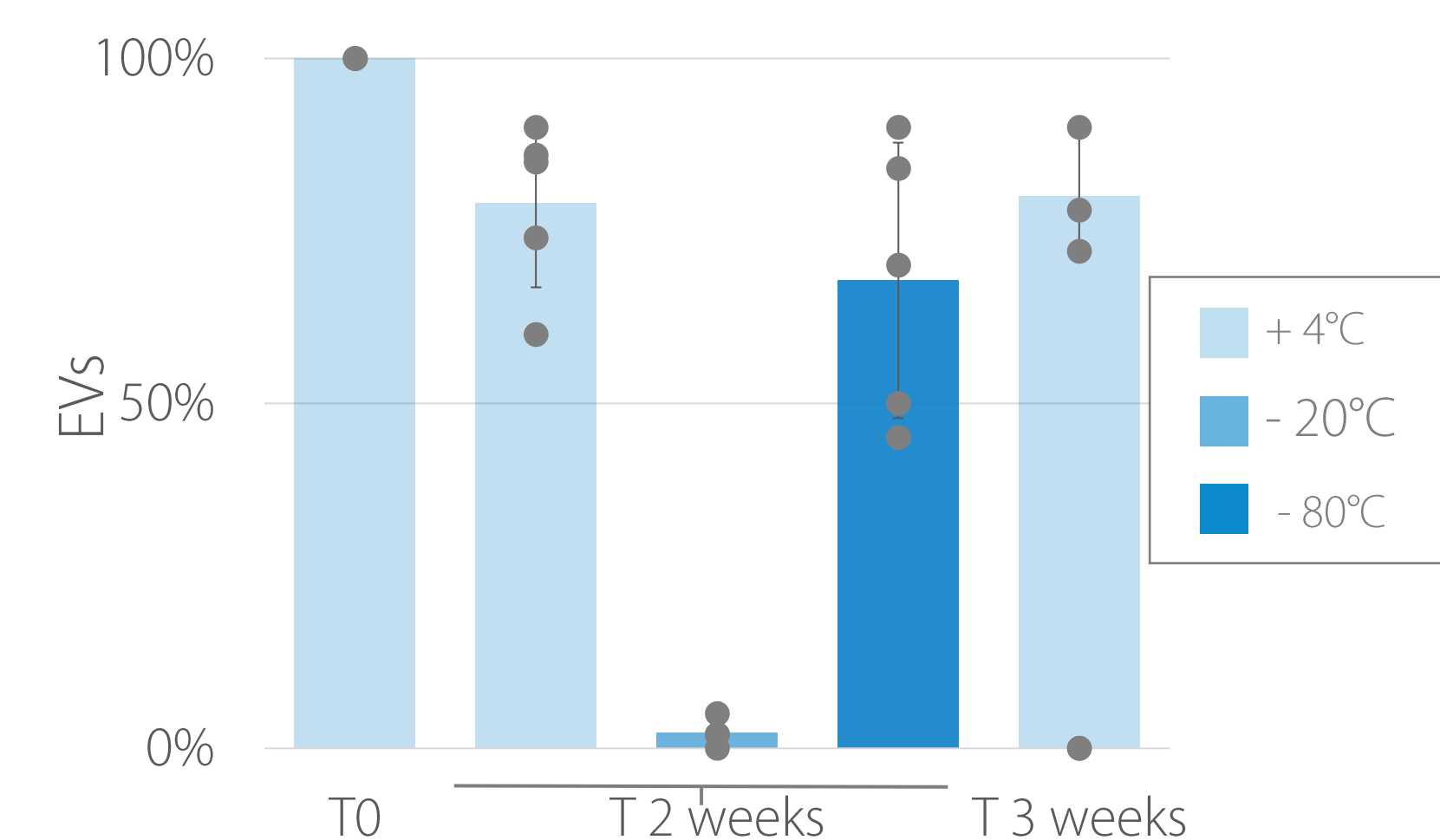
Size distribution of representative samples of plasma or urine, measured by Videodrop



Mean values of several samples, indicating a difference in the size and distribution of EVs isolated from plasma and urine samples

EVs isolated from urine seems to show higher hydrodynamic diameter than EVs isolated from plasma.

Concentration follow-up : stability study



EV fraction shows a loss of less than 20% after storage at +4°C for 3 weeks and at -80°C for 2 weeks. However, after storage at -20°C EVs are no longer measurable by Videodrop

Conclusion

The development of a rigorous and reproducible measurement protocol for Videodrop allows to obtain reliable size and concentration values. The results obtained with Videodrop regarding EV concentration correlate well with the ones from TRPS (qNano), with a correlation coefficient of $R^2 = 0.955$. Videodrop can further distinguish a size difference in between two types of EVs population (plasma and urine).



Videodrop can be used as a tool for quick characterization of EVs samples.

