

Collagen P.I.N.® Exosome detection in Serum

INTRODUCTION

Collagen P.I.N.® have a range of aesthetic products in testing that contain plant and human exosomes. They are interested in quantifying intact exosomes in retail ready serum formulations.

Particles >45 nm were detected by side scatter using the NanoAnalyzer, a cutting-edge nano flow cytometer. Particles were stained with MemGlow 647 for fluorescence analysis of membranous nanoparticles that are likely to be exosomes.

Samples and reagents

- **Five serums**
 - Serum B (**Human Exosomes**)
 - Serum C (**Human Exosomes**)
 - Serum D (**Plant Exosomes – No Detectable Exosomes**)
 - Serum E (**Plant Exosomes – No Detectable Exosomes**)
 - Serum P (**Induction Therapies' PRX® Plant-Exo Stimulation Serum**)
- **MemGlow 647**

PROJECT SUMMARY

Two serums, **Serum D** and **Serum E**, did not contain any nanoparticles.

Three serums, Serums B, C, and P, contain membrane positive nanoparticles likely to be exosomes. **Serum P contained the highest concentration of membrane positive particles, almost fivefold higher** than Serum B.

EXOSOME DETECTION IN SERUM

Two serums, Serum D and E, did not contain any nanoparticles.

Serums B, C, and P contained detectable membrane positive nanoparticles. Optimisation of MemGlow 647 was carried out to determine the best concentration for staining.

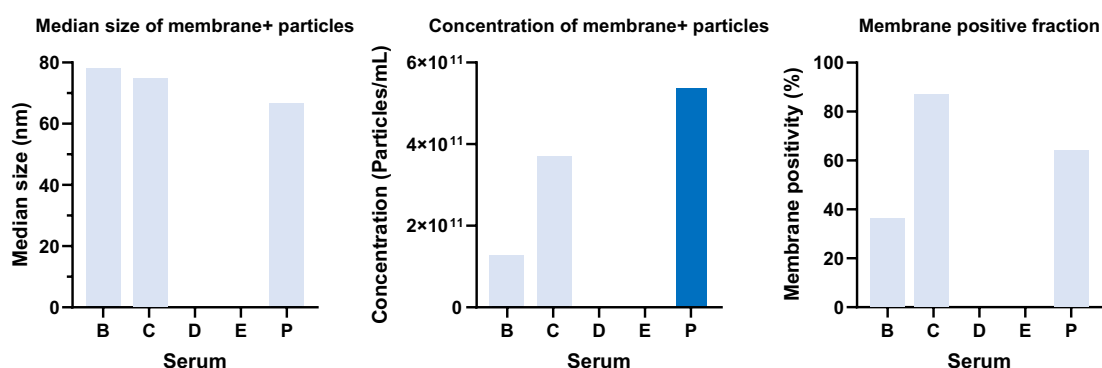
The staining protocol involved diluting the samples to 100X measurement concentration and incubating with MemGlow diluted 1/500 for 30 minutes. Stained samples were then diluted 1/100 for measurement.

MemGlow Results

Serum B had membrane positive particles (likely to be exosomes) with a median size of 75.8 nm and a concentration of 1.08×10^{11} particles/mL. Membrane positive particles formed 35% of total detected particles.

Serum C had membrane positive particles with a median size of 73.2 nm and a concentration of 3.67×10^{11} particles/mL. Membrane positive particles formed 85% of total detected particles, the highest fraction of membrane positivity of all serums measured.

Serum P had membrane positive particles with a median size of 66.2 nm and the highest concentration of all serums tested (5.36×10^{11}). Membrane positive particles formed 62% of total detected particles.



PDFs showing data for all samples can be accessed using the link provided upon handover.