

Supplemental Information: Determination of Lentiviral Titer by Surface Enhanced Raman Scattering

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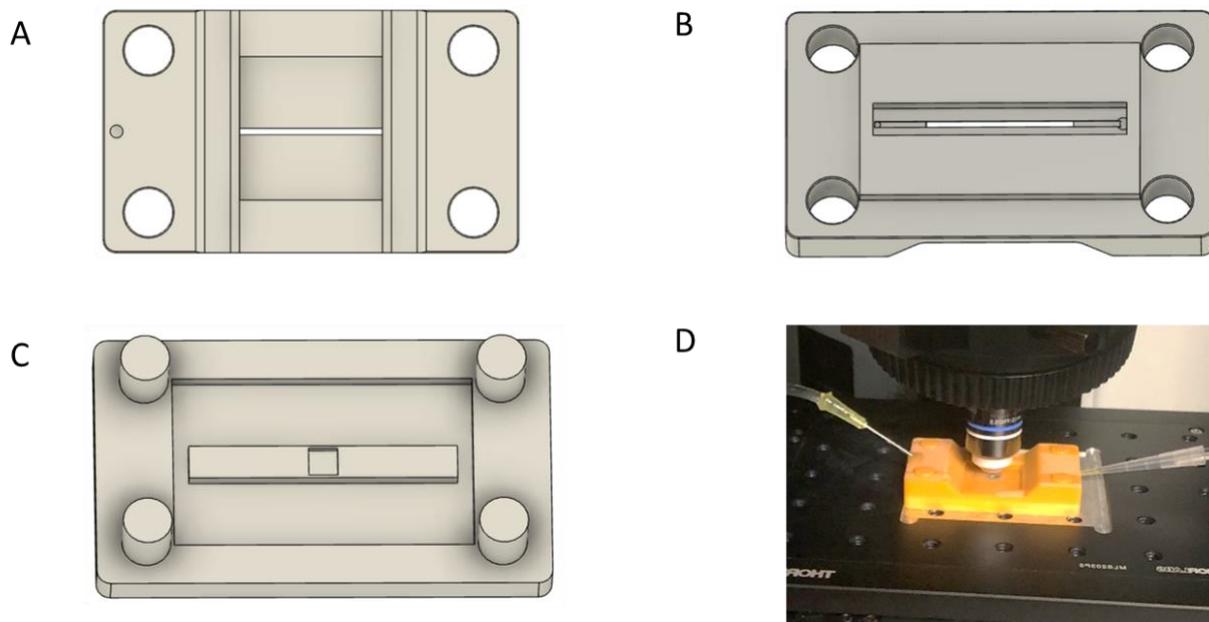


Figure S1. Diagram of the 3D printed flow cell set up used for experiments with silver substrates. CAD diagrams of the top piece (A) top view and (B) bottom view show the inlet for the sample and the flow channel. The bottom piece (C) has a slot cut out to hold a commercial SERS substrate. (D) An image of the actual setup after the two pieces are glued together.

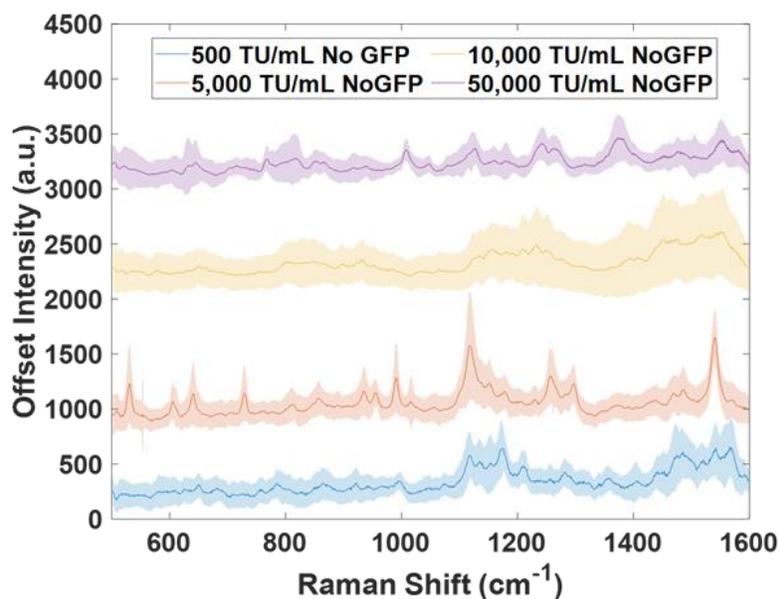


Figure S2. SERS spectra of LentiArray CRISPR negative control lentivirus without GFP at various concentrations. The shaded region shows the standard deviation across all spectra acquired on gold substrates.

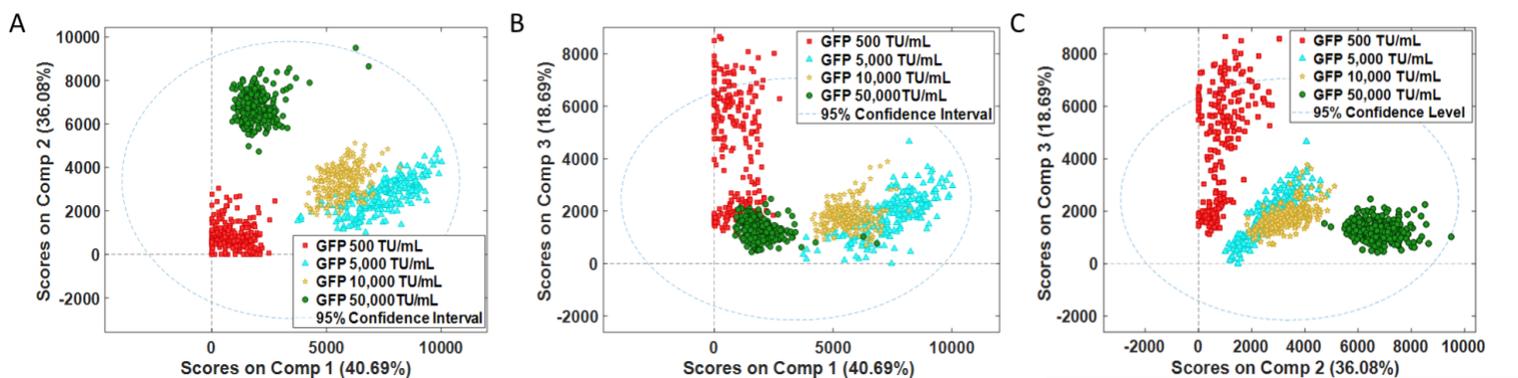


Figure S3. 2D projections of the scores on each component of MCR model used to quantify lentivirus particles containing the GFP gene.

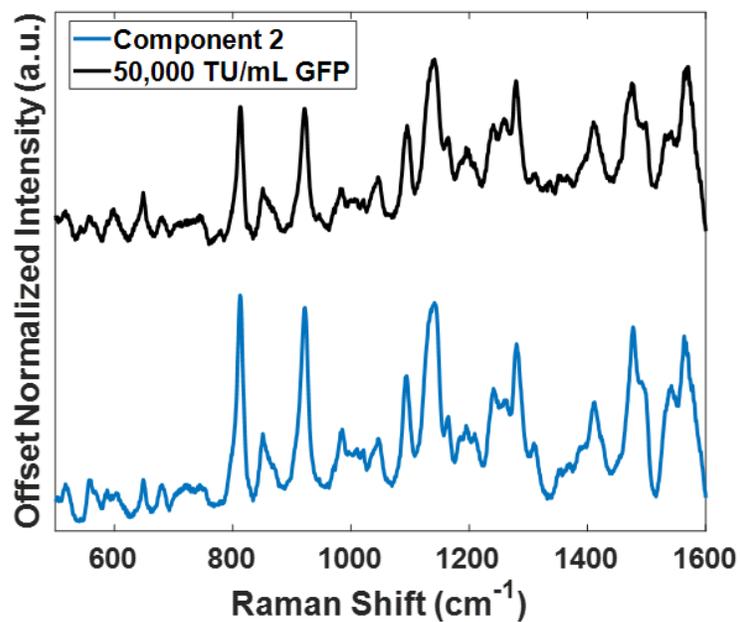


Figure S4. Average SERS spectra of highest concentration of lentivirus particles with the GFP gene (black) and the component spectrum of the MCR model used to quantify the particles with the GFP gene (blue).

SERS Band (cm ⁻¹)	Peak Assignments
649	Guanine ¹
681	Adenine ²
812	Phosphate Backbone ¹
851	Tyrosine ¹
921	Adenine ²
985	Alanine ³
1006	Phenylalanine ⁴
1046	Cytosine ^{1,5}
1095	Phosphate backbone ^{5,6}
1141	Phenylalanine ³
1195	Cytosine ²
1241	Amide III ⁴
1259	Amide III ⁴
1280	Arginine ³
1338	Adenine ²
1354	Tryptophan ⁴
1410	Histidine ³
1476	Glutamate/Aspartate ³
1540	Adenine ²
1567	Phenylalanine/Tyrosine ³

Table S1. Peak assignments for component 2 loading spectrum of the MCR model developed using SERS spectra acquired on gold substrates.

SERS Band (cm ⁻¹)	Peak Assignments
623	Guanine ⁵
632	Tyrosine ¹
687	Adenine ²
709	Cytosine ²
777	Cytosine/Uracil ⁷
794	Cytosine ²
830	Tyrosine ⁷
862	Tyrosine ⁷
907	Uracil ²
1012	Tryptophan ^{7,8}
1077	Threonine ⁷
1128	Adenine ⁹
1155	Guanine ⁹
1178	Ribose Phosphate ⁷
1217	Uracil ²
1260	Amide III ⁴
1281	Arginine ³
1298	Uracil ²
1354	Tryptophan ⁴
1427	Cytosine ²
1447	CH2 deformation of proteins ¹

Table S2. Peak assignments for component 3 loading spectrum of the MCR model created using SERS spectra acquired on silver substrates.

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