

Supplementary data 1. Figure S1: Size distribution and ζ potential (ZP) curves of formulation F2. (A) Empty-NISV. (B) Mel-loaded NISV. The number of particle size on each peak represent the average size of 3 batches measurement.

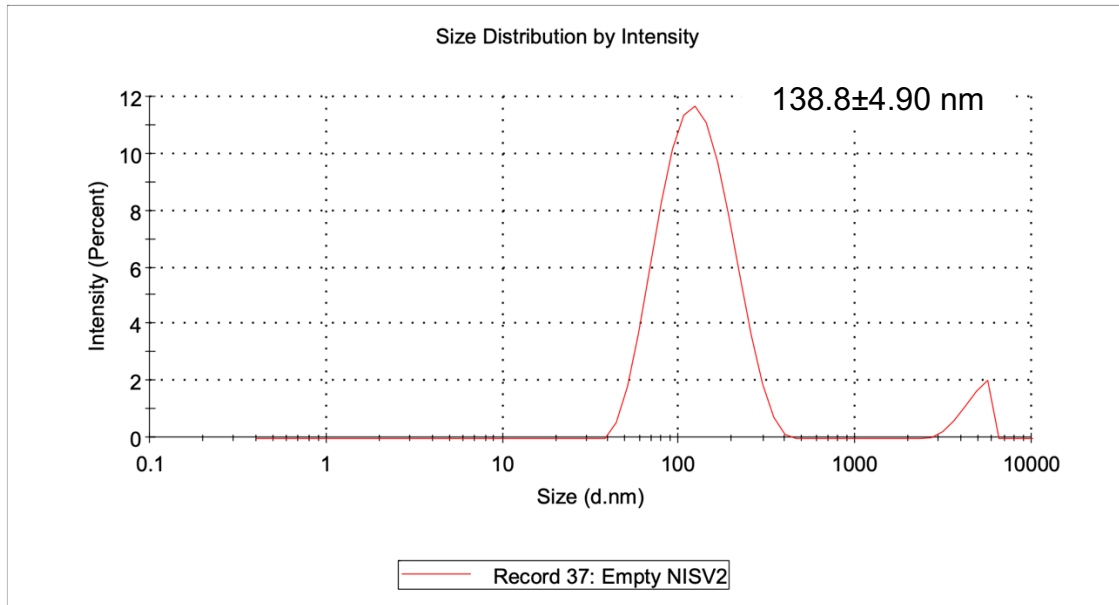
A

Formulation F2-Empty-NISV

Results

	Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm): 118.1	Peak 1: 134.3	94.3	60.11
Pdl: 0.313	Peak 2: 4724	5.7	772.1
Intercept: 0.906	Peak 3: 0.000	0.0	0.000

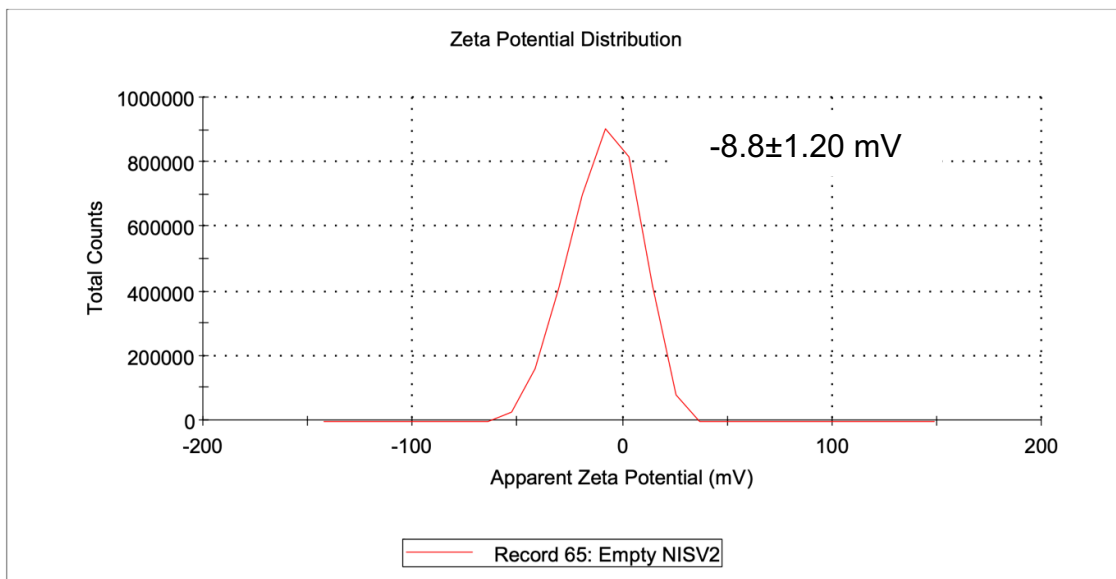
Result quality Good



Results

	Mean (mV)	Area (%)	St Dev (mV)
Zeta Potential (mV): -8.91	Peak 1: -8.91	100.0	16.3
Zeta Deviation (mV): 16.3	Peak 2: 0.00	0.0	0.00
Conductivity (mS/cm): 21.6	Peak 3: 0.00	0.0	0.00

Result quality Good



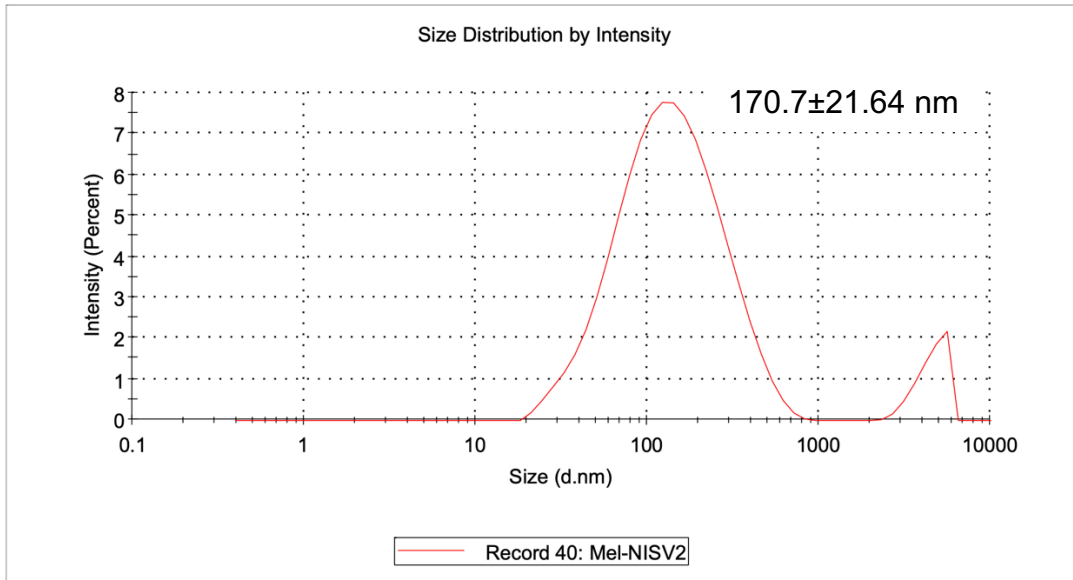
B

Formulation F2-Mel-Loaded-NISV

Results

	Size (d.n...	% Intensity:	St Dev (d.n...
Z-Average (d.nm): 127.0	Peak 1: 162.7	93.0	112.3
Pdl: 0.385	Peak 2: 4579	7.0	851.1
Intercept: 0.943	Peak 3: 0.000	0.0	0.000

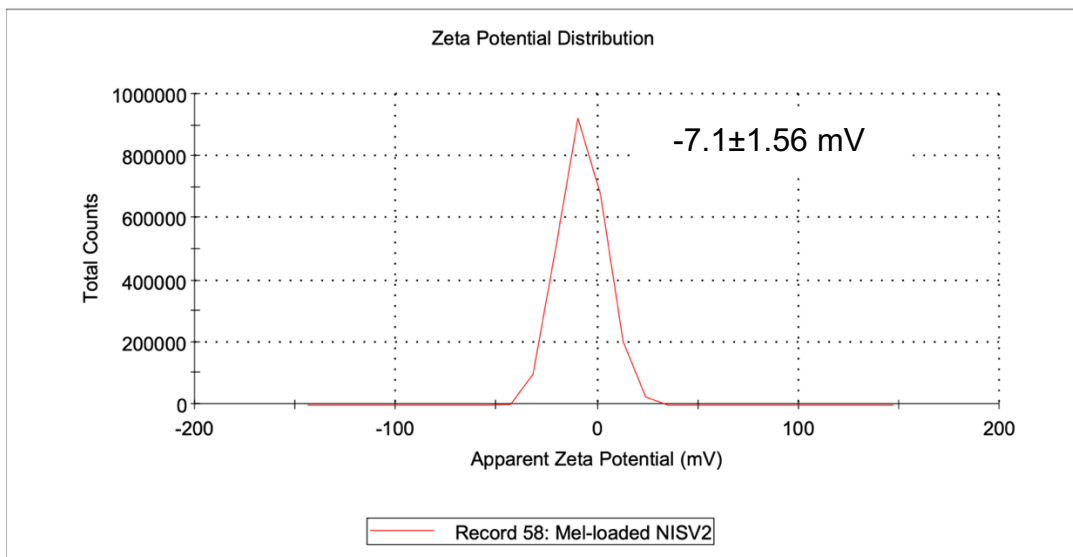
Result quality **Good**



Results

	Mean (mV)	Area (%)	St Dev (mV)
Zeta Potential (mV): -7.55	Peak 1: -7.55	100.0	11.5
Zeta Deviation (mV): 11.5	Peak 2: 0.00	0.0	0.00
Conductivity (mS/cm): 21.8	Peak 3: 0.00	0.0	0.00

Result quality **Good**



ProtParam

User-provided sequence:

 10 20
GIGAVLKVLT TGLPALISWI KRKRQQG

[References](#) and [documentation](#) are available.

Number of amino acids: 27

Molecular weight: 2904.54

Theoretical pI: 12.02

Amino acid composition: [CSV format](#)

Ala (A)	2	7.4%
Arg (R)	2	7.4%
Asn (N)	0	0.0%
Asp (D)	0	0.0%
Cys (C)	0	0.0%
Gln (Q)	2	7.4%
Glu (E)	0	0.0%
Gly (G)	4	14.8%
His (H)	0	0.0%
Ile (I)	3	11.1%
Leu (L)	4	14.8%
Lys (K)	3	11.1%
Met (M)	0	0.0%
Phe (F)	0	0.0%
Pro (P)	1	3.7%
Ser (S)	1	3.7%
Thr (T)	2	7.4%
Trp (W)	1	3.7%
Tyr (Y)	0	0.0%
Val (V)	2	7.4%
Pyl (O)	0	0.0%
Sec (U)	0	0.0%

(B)	0	0.0%
(Z)	0	0.0%
(X)	0	0.0%

Total number of negatively charged residues (Asp + Glu): 0

Total number of positively charged residues (Arg + Lys): 5

Atomic composition:

Carbon	C	133
Hydrogen	H	231
Nitrogen	N	39
Oxygen	O	33
Sulfur	S	0

Formula: C₁₃₃H₂₃₁N₃₉O₃₃

Total number of atoms: 436

Extinction coefficients:

Extinction coefficients are in units of M⁻¹ cm⁻¹, at 280 nm measured in water.

Ext. coefficient	5500
Abs 0.1% (=1 g/l)	1.894

Estimated half-life:

The N-terminal of the sequence considered is G (Gly).

The estimated half-life is: 30 hours (mammalian reticulocytes, in vitro).
>20 hours (yeast, in vivo).
>10 hours (Escherichia coli, in vivo).

Instability index:

The instability index (II) is computed to be 43.44
This classifies the protein as unstable.

Aliphatic index: 130.00

Grand average of hydropathicity (GRAVY): 0.248