

# Supplementary Materials: Optimisation of a Microfluidic Method for the Delivery of a Small Peptide

Felicity Y. Han, Weizhi Xu, Vinod Kumar, Cedric S. Cui, Xaria Li, Xingyu Jiang, Trent M. Woodruff, Andrew K. Whittaker, and Maree T. Smith

**Table S1.** Formulations of peptide-loaded lipid shell-PLGA core nanoparticles.

No.	Organic solvent	Polymer (conc.% w/v)	Drug loading (% w/w)	Flow rate (mL/h, water/polymer)	Size (mean $\pm$ SEM)	PDI (mean $\pm$ SEM)
M1	DCM	1% PLGA	0	60/4.5	412.1 $\pm$ 43.5	0.78 $\pm$ 0.14
M2	DCM	1% PLGA	0	120/3	247.0 $\pm$ 26.9	0.63 $\pm$ 0.09
M3	DCM	1% PLGA	0	120/1	151.9 $\pm$ 4.8	0.34 $\pm$ 0.08
M4	ACN	1% PLGA	0	60/4.5	181.9 $\pm$ 8.6	0.25 $\pm$ 0.02
M5	ACN	1% PLGA	0	120/3	127.0 $\pm$ 8.1	0.20 $\pm$ 0.03
M6	ACN	1% PLGA	0	120/1	89.9 $\pm$ 4.3	0.22 $\pm$ 0.01
M7	THF+DMF (3:7)	1% PLGA	0	60/4.5	235.4 $\pm$ 7.8	0.48 $\pm$ 0.01
M8	THF+DMF (3:7)	1% PLGA	0	120/3	152.7 $\pm$ 4.1	0.31 $\pm$ 0.01
M9	THF+DMF (3:7)	1% PLGA	0	120/1	34.4 $\pm$ 1.8	0.30 $\pm$ 0.04
M10	EA	1% PLGA	0	60/4.5	321.2 $\pm$ 45.1	0.50 $\pm$ 0.14
M11	EA	1% PLGA	0	120/3	241.8 $\pm$ 16.7	0.35 $\pm$ 0.24
M12	Acetone	1% PLGA	0	60/4.5	207.9 $\pm$ 7.5	0.32 $\pm$ 0.04
M13	DCM	1% PLGA	5	60/4.5	435.3 $\pm$ 20.3	0.37 $\pm$ 0.02
M14	EA	1% PLGA	5	60/4.5	356.0 $\pm$ 40.7	0.34 $\pm$ 0.02
M15	ACN	1% PLGA	5	60/4.5	154.0 $\pm$ 1.52	0.24 $\pm$ 0.01
M16	DCM	1% PLGA	10	60/4.5	453.6 $\pm$ 18.9	0.37 $\pm$ 0.10
M17	DCM	1% PLGA	20	60/4.5	583.6 $\pm$ 32.7	0.47 $\pm$ 0.06
M18	DCM	1% PLGA + 1% PEG-PLGA	5	60/4.5	463.0 $\pm$ 17.6	0.30 $\pm$ 0.16

DCM, dichloromethane; EA, ethyl acetate; TFE, trifluoroethanol; DMF, dimethylformamide.

**Table S2.** Parameters of flow rate applied in the study.

Flow rate	60/4.5	120/3	120/1
Total Flow rate (mL/h)	129	246	242
Flow rate ratio	27:1	80:1	240:1

$$\text{Total Flow rate (mL/h)} = 2 \times (\text{Flow rate}_{\text{water}} + \text{Flow rate}_{\text{polymer}})$$

$$\text{Total Flow rate (mL/h)} = 2 \times (\text{Flow rate}_{\text{water}} + \text{Flow rate}_{\text{polymer}})$$