Supplementary information

Study on the relationship between crystallization characteristics of

quenched droplets and the effect of cell cryopreservation with

Raman spectroscopy

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Fig.S1 Schematic diagram of the surface after quenching of different concentrations and volumes of microdroplets, Scale bar: 100µm.

Original substance	Position / cm ⁻¹	Assignment structure
DMSO	~675	C-S-C asymmetric stretching
	~712	C-S-C symmetric stretching
	~947	CH ₃ rocking
	~1014	S=O stretching
	~1417	CH ₃ asymmetric bending
	~2925	CH ₃ symmetric stretching
	~3007	CH ₃ asymmetric stretching
H ₂ O	3100~3800	Intramolecular hydrogen bond(O-H)

Table S1. The peak assignment in Raman Spectra

 $* \sim$ Indicating approximate position



Fig.S2 Temperature derivation of quenching process of microdroplets of different concentrations and volumes (a) ~ (f).



Fig.S3 Fluorescence staining of cells after quenching and rapid warming, Scale

bar: 200 µm