Supporting Information

Title
Surfaces and Interfaces of Liquid Metal Core-Shell Nanoparticles under the Microscope

*Sabrina S. Hafiz, Daniela Labadini, Ryan Riddell, Erich Wolff, Marvin Xavierselvan, Paul Huttunen, Srivalleesha Mallidi and Michelle Foster**

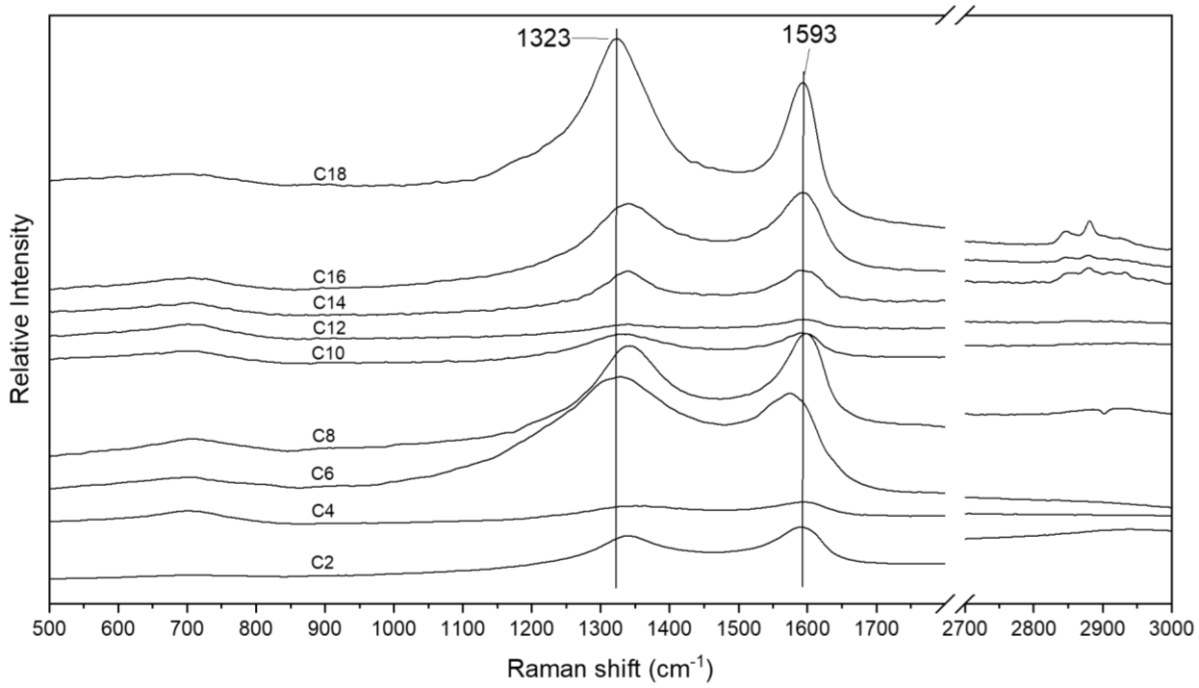

Figure S1 Raman spectra of EGaIn CSNs coated with carboxylic acids of different alkyl chain length (C2-C18)

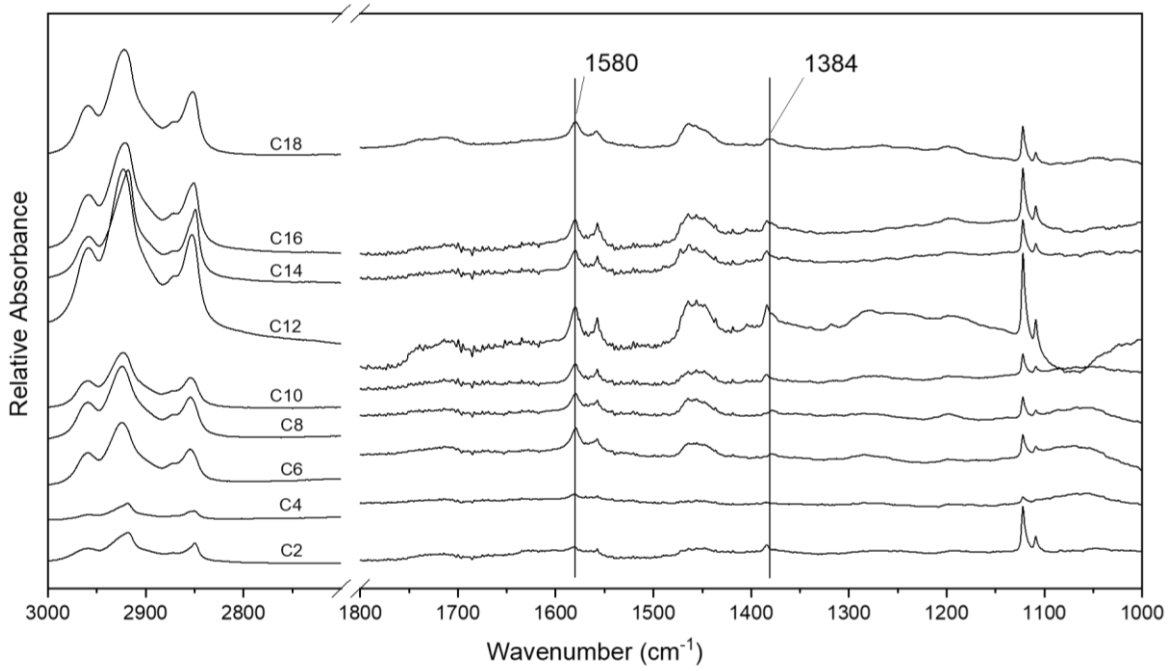

Figure S2 DRIFTS spectra of EGaIn CSNs coated with carboxylic acids of different alkyl chain length (C2-C18)

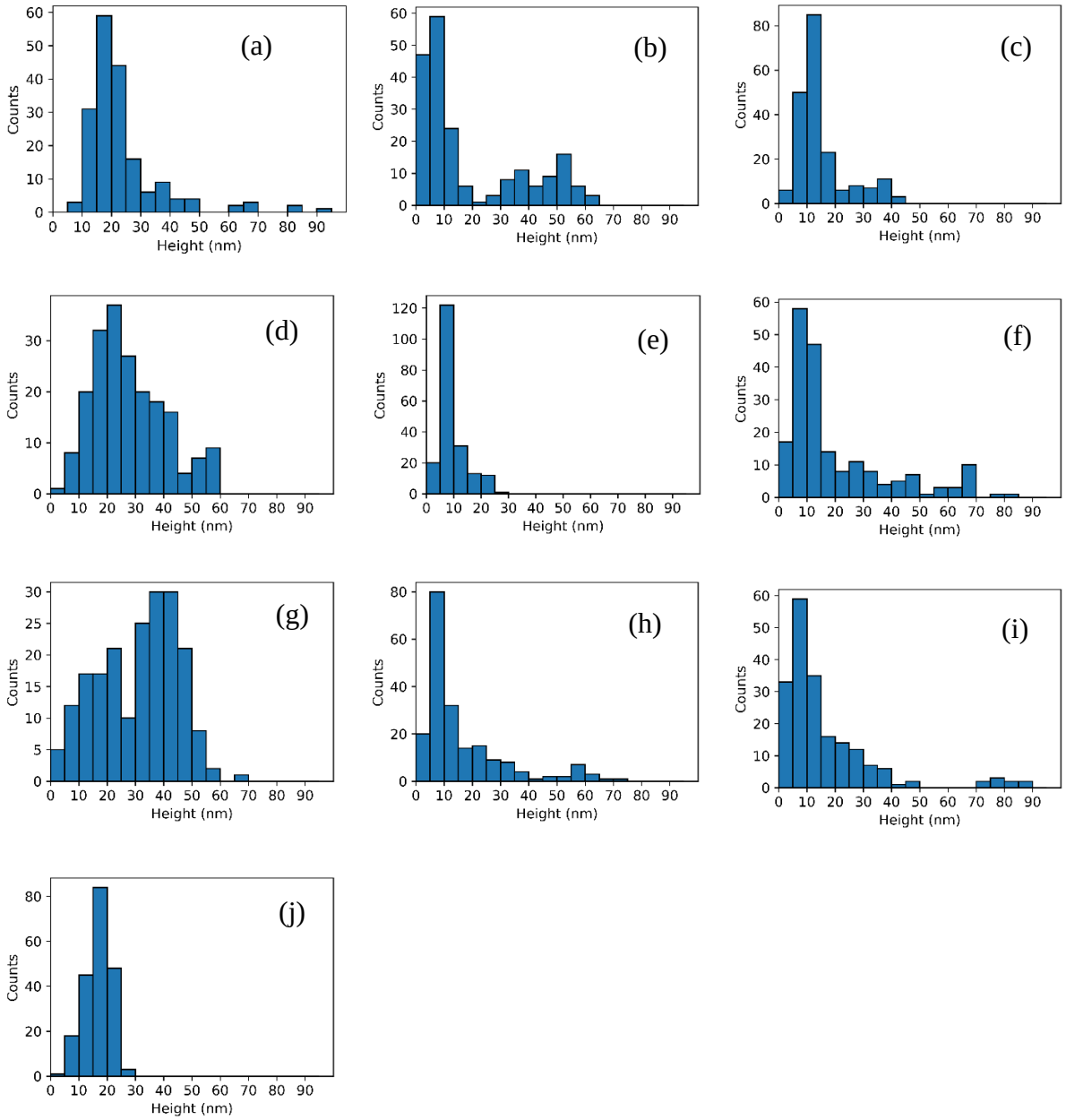

Figure S3 AFM size distribution of 200 EGaIn CSNs coated with different carboxylic acids (a) C0 (b) C2 (c) C4 (d) C6 (e) C8 (f) C10 (g) C12 (h) C14 (i) C16 (j) C18.

Ligand precursors	*Ligand Identifiers*	*Polydispersity index (PDI)*	*Standard deviation*
Stearic Acid	C18	0.953	0.075
Palmitic Acid	C16	0.706	0.205
Myristic Acid	C14	0.422	0.515
Lauric Acid	C12	0.807	0.197
Decanoic Acid	C10	0.818	0.033
Octanoic acid	C8	0.625	0.346
Hexanoic Acid	C6	0.673	0.219
Butanoic Acid	C4	0.94	0.103
Acetic Acid	C2	0.585	0.214
Ethanol	C0	0.843	0.082

Table S4 Polydispersity indices of EGaIn CSNs coated with all the carboxylate acids from DLS measurements

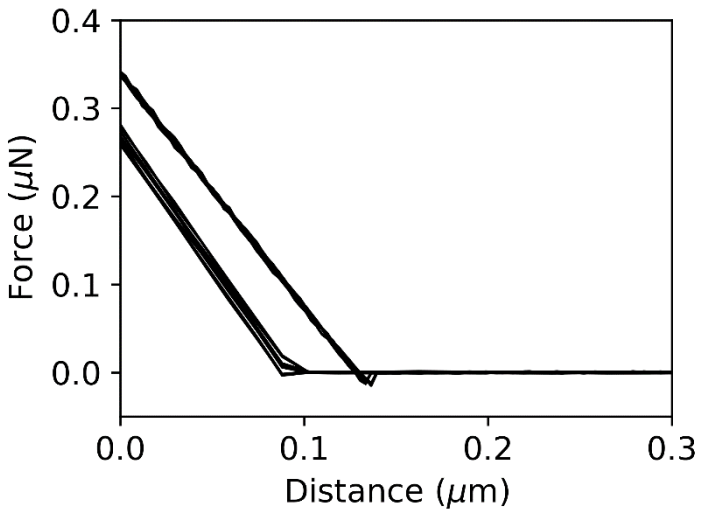

Figure S5 15 approach curves for C8 used to calculate average shell stiffness

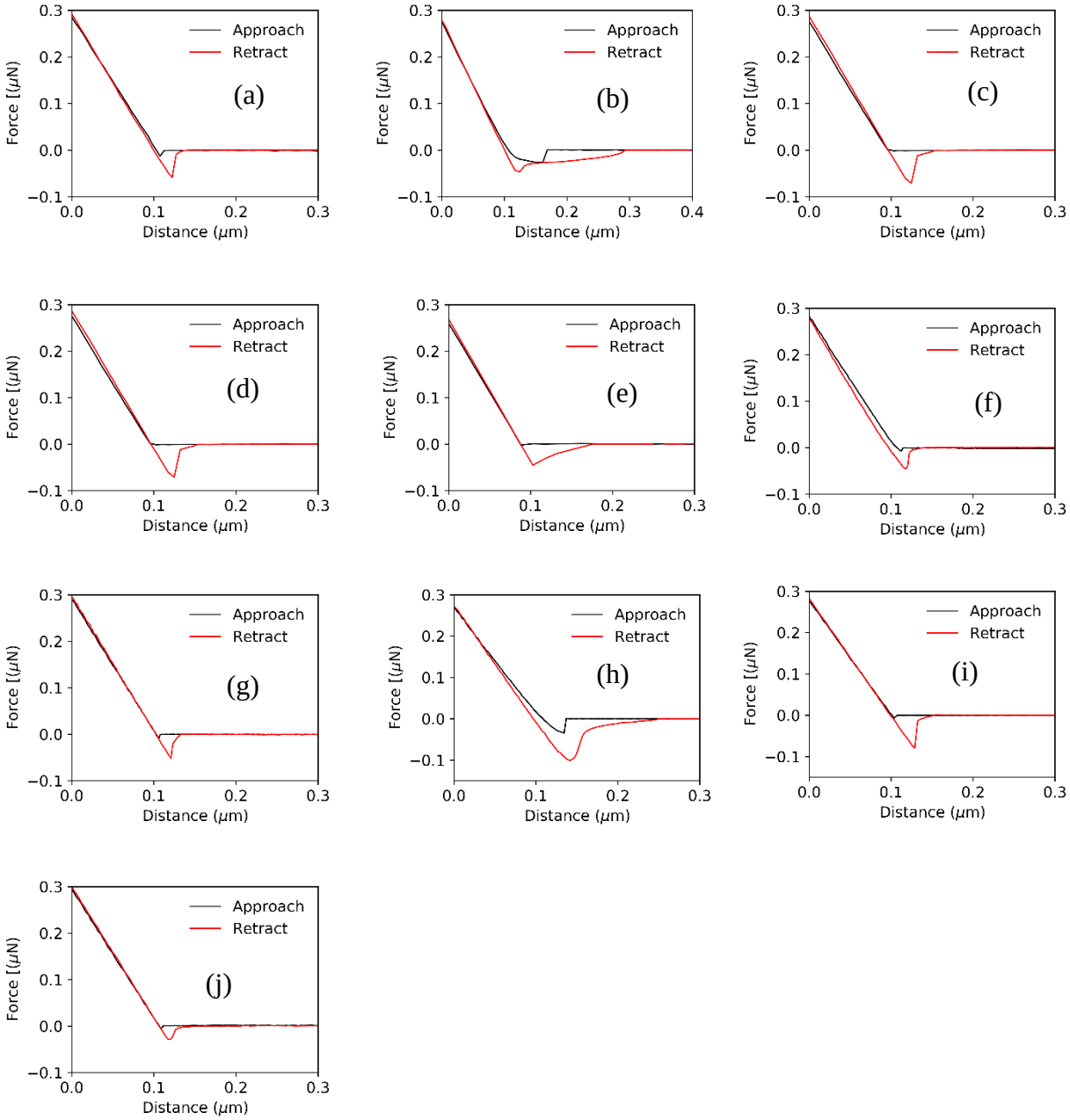

Figure S6 Force distance curves of EGaIn CSNs coated with different carboxylic acids (a) C0 (b) C2 (c) C4 (d) C6 (e) C8 (f) C10 (g) C12 (h) C14 (i) C16 (j) C18.