1 Lewis structures of compounds used in this study

1.1 4-cyano-4’-pentylbiphenyl (5CB)

\[
\begin{array}{c}
\text{CAS Number: 40817-08-1} \\
\text{Molar mass: } M = 249.36 \text{ g/mol}
\end{array}
\]

1.2 Dodecanethiol capped gold particles (NP1)

Gold core diameter: 3 - 5 nm.
Purchased from Sigma-Aldrich as dispersion in toluene.

1.3 11-(4’-cyanobiphenyl-4-yloxy)undecylthiol capped gold particles (NP2)

Gold core diameter: 2.40 nm$^1$
Synthesized by M. Draper (University of York, UK) following the Hutchinson ligand exchange method$^2$. 

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$^1$ Electronic Supplementary Material (ESI) for Journal of Materials Chemistry C. This journal is © The Royal Society of Chemistry 2017.
1.4 Tetrabutylammonium tetraphenylborate (S1)

![Chemical structure of Tetrabutylammonium tetraphenylborate (S1)]

CAS Number: 15522-59-5
Molar mass: $M = 561.69 \text{ g/mol}$

1.5 Tetrabutylammonium tetrafluoroborate (S2)

![Chemical structure of Tetrabutylammonium tetrafluoroborate (S2)]

CAS Number: 429-42-5
Molar mass: $M = 329.27 \text{ g/mol}$

References
