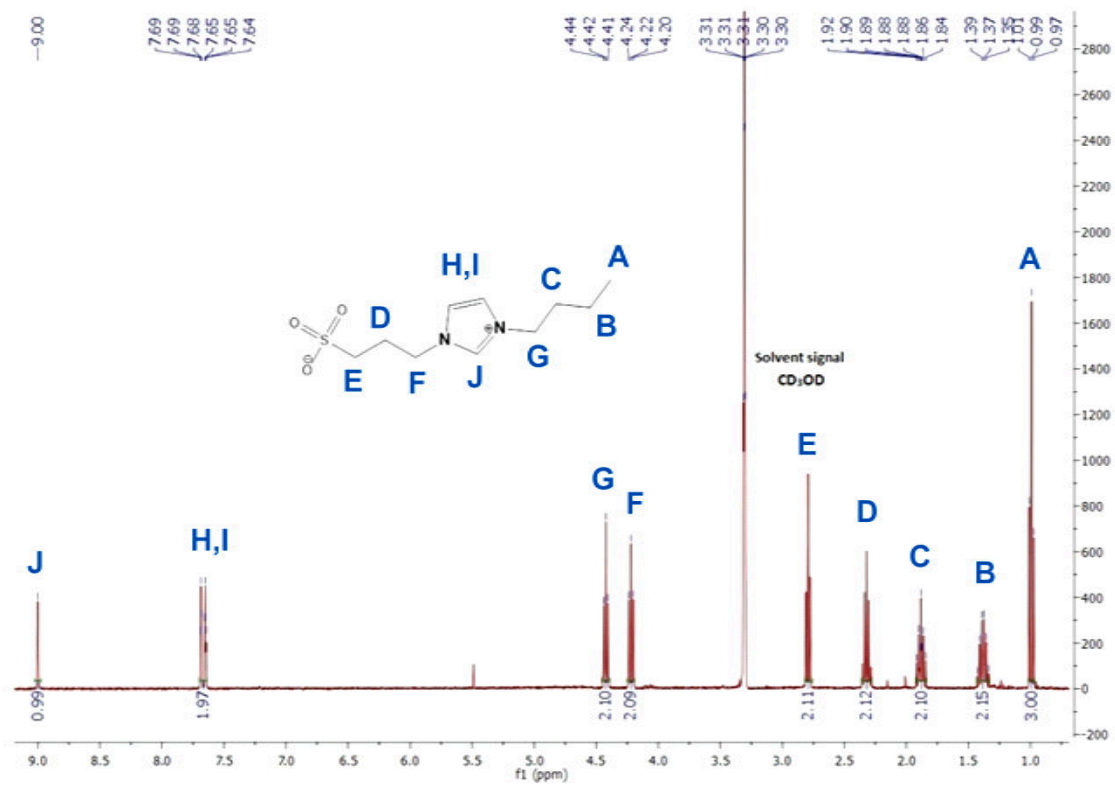


Influence of glutaraldehyde cross-linking modes on the recyclability of immobilized lipase B from *Candida antarctica* for the transesterification of soy bean oil

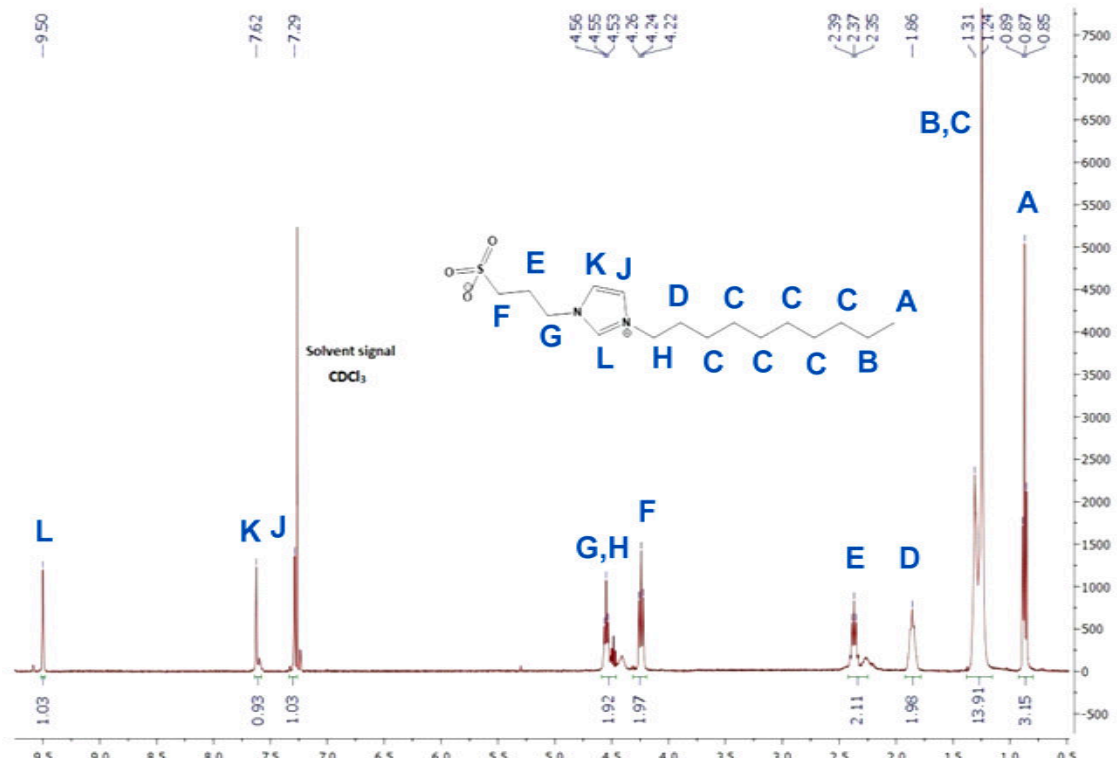
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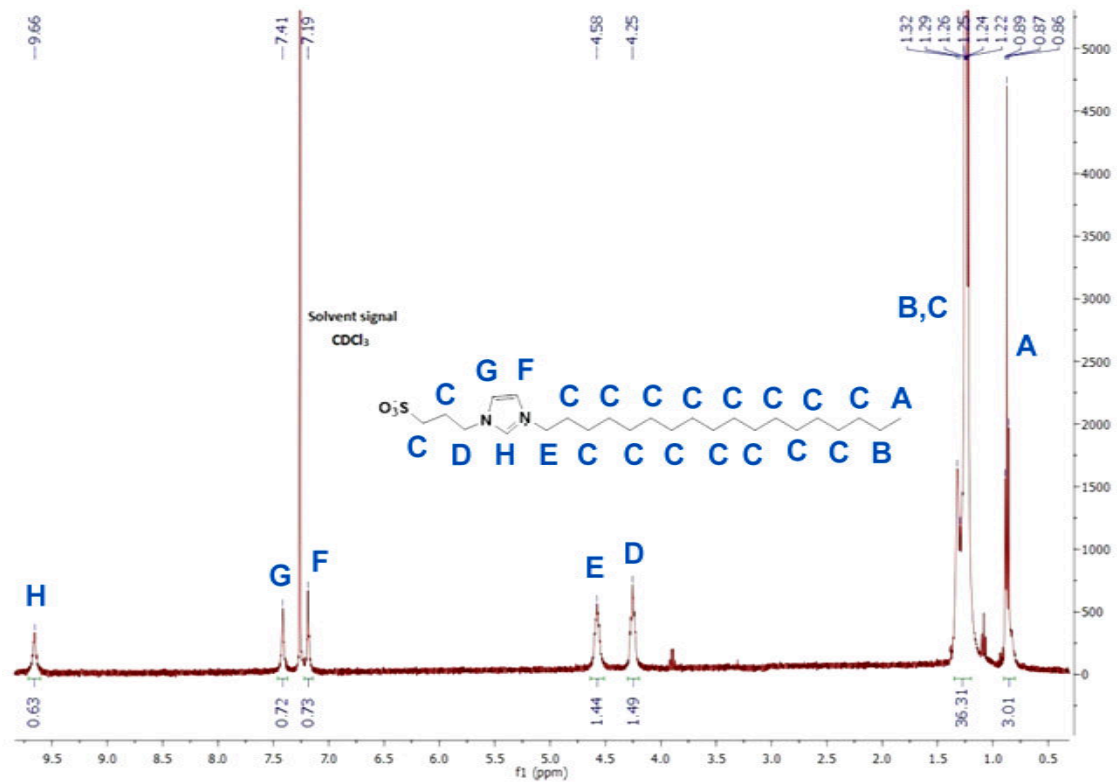
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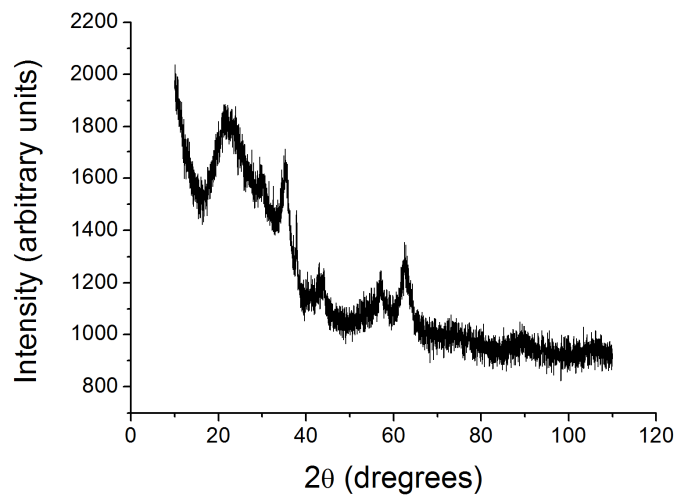
S1. ¹H NMR spectra of ImS4 zwitterionic surfactant.



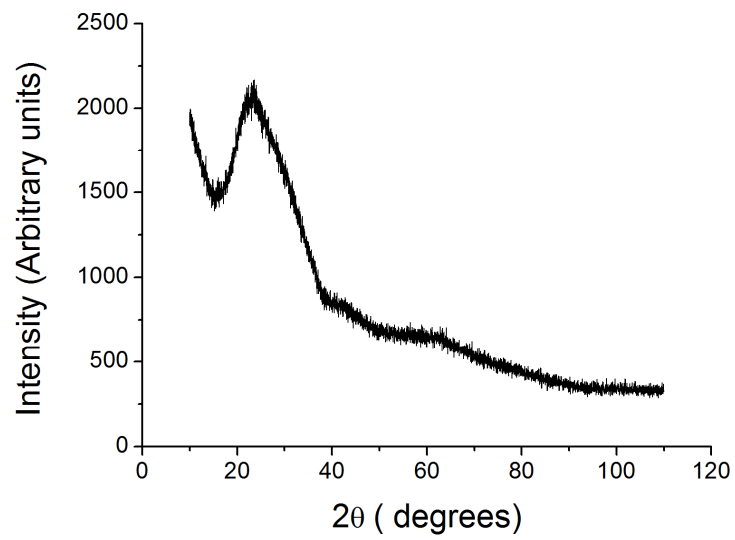
S2. ¹H NMR spectra of ImS10 zwitterionic surfactant.



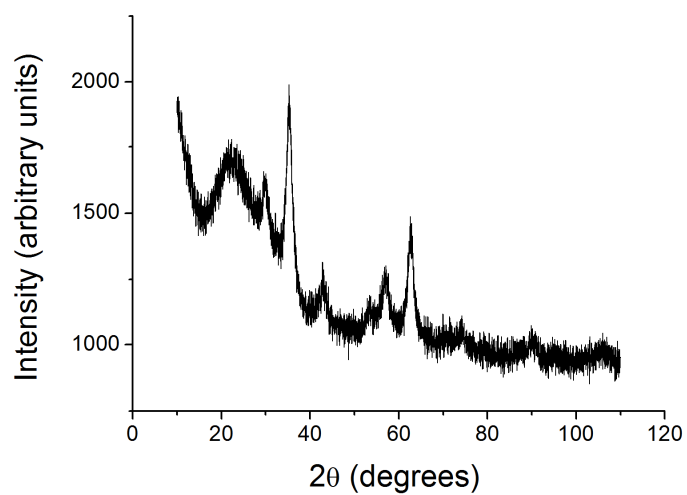
S3. ¹H NMR spectra of ImS18 zwitterionic surfactant.



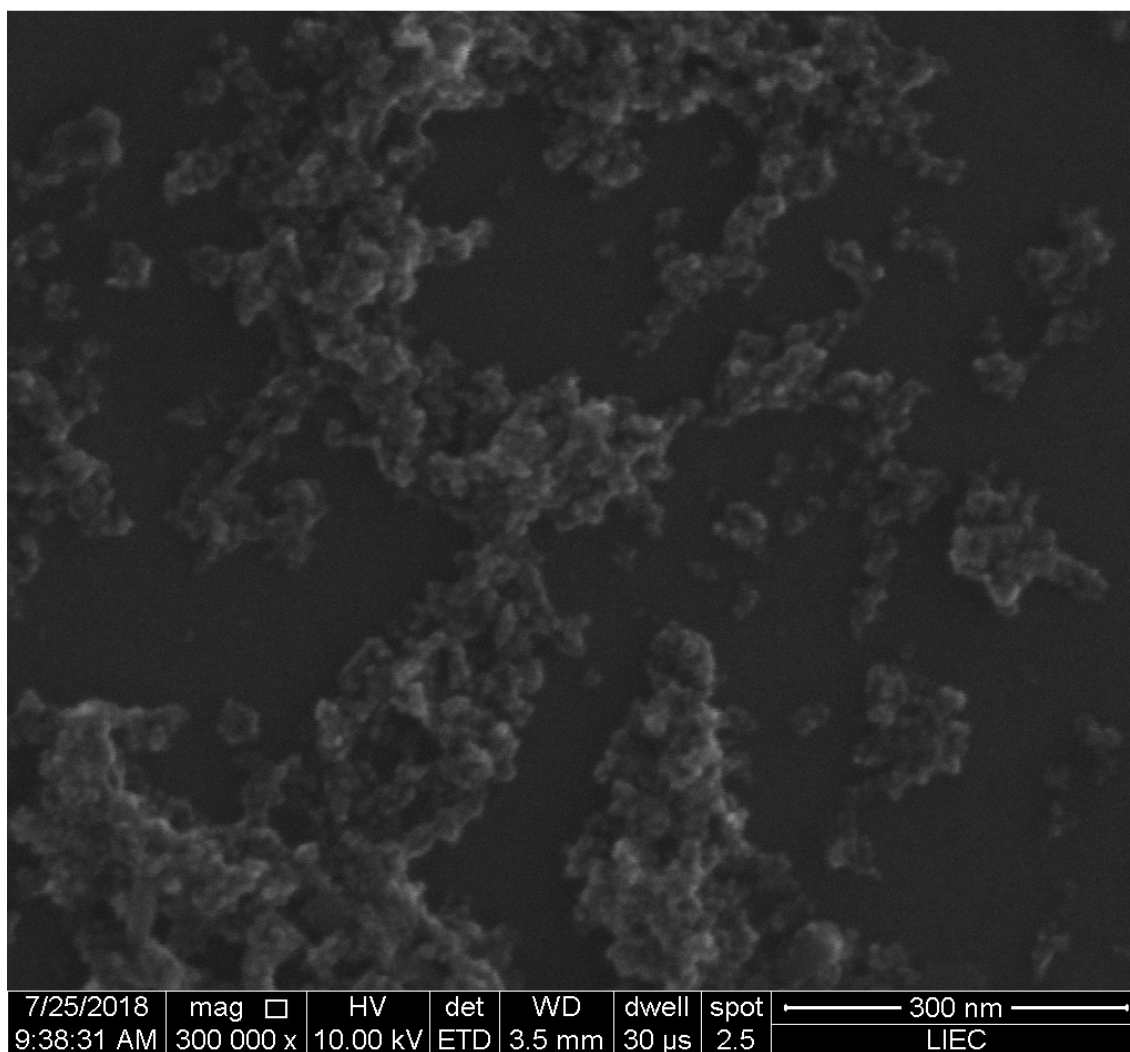
S4. DRX of NP-ImS4.



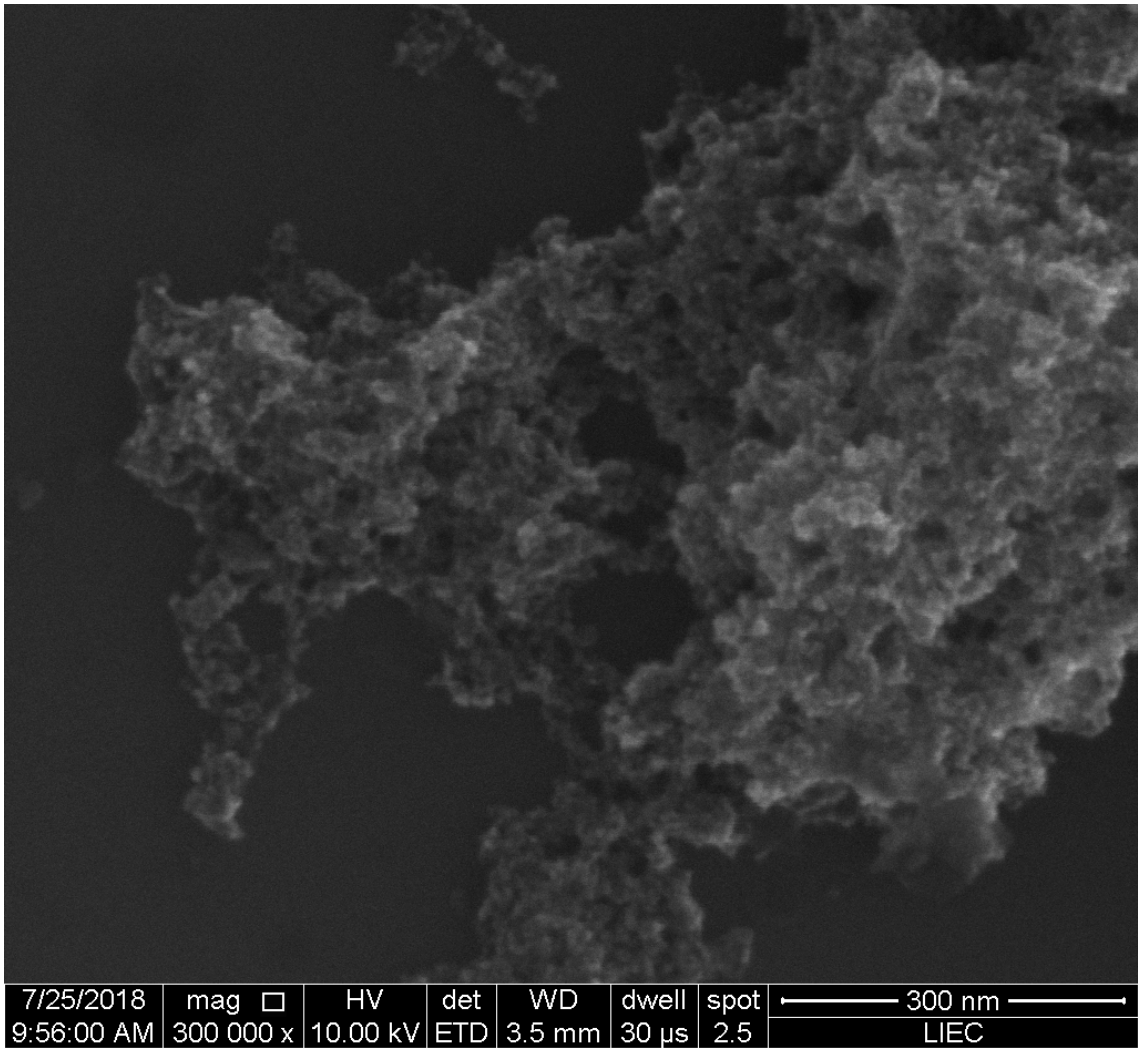
S5. DRX of NP-ImS10.



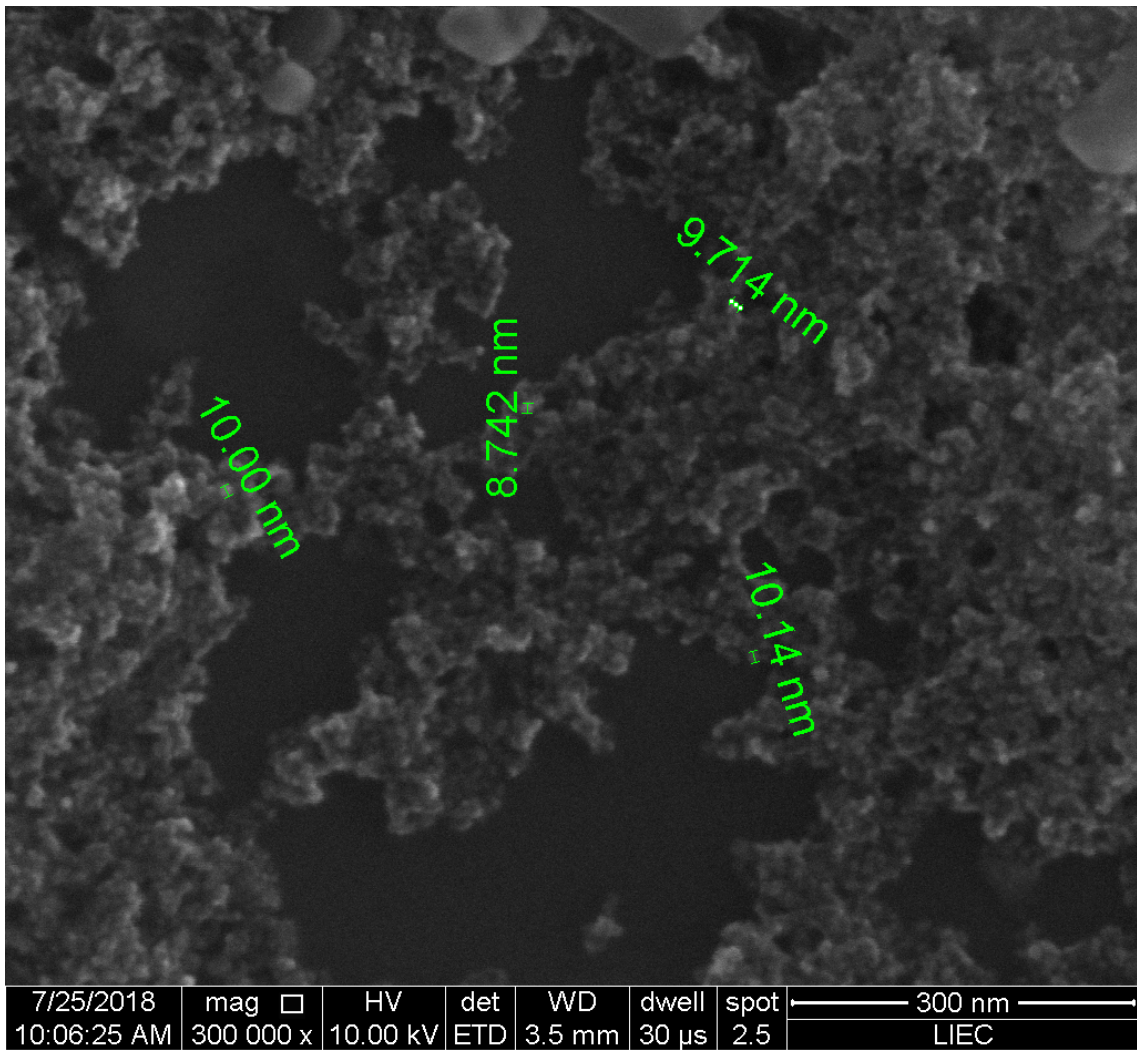
S6. DRX of NP-ImS18.



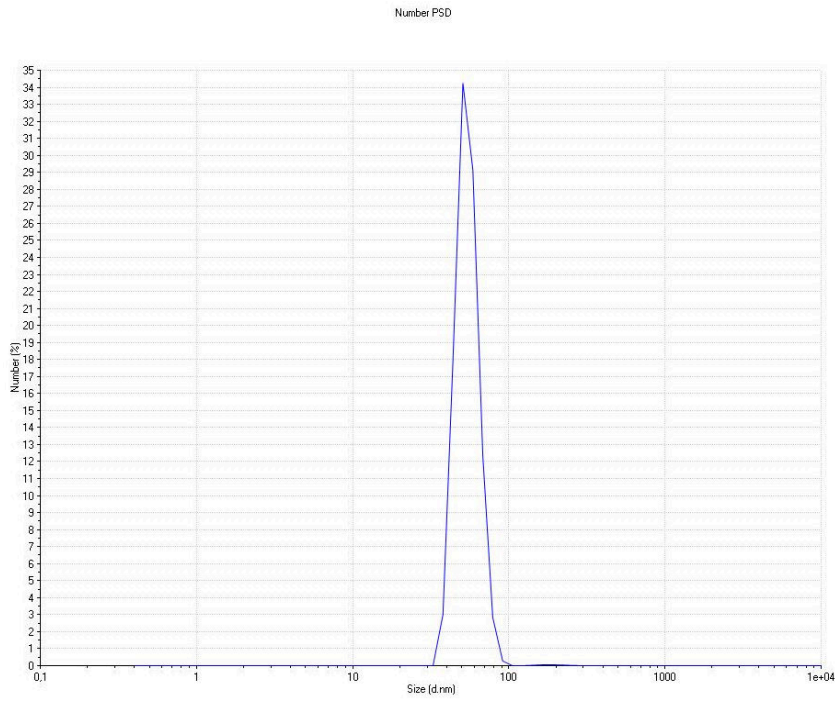
S7. SEM of NP-ImS4.



S8. SEM of NP-ImS10.



S9. SEM of NP-ImS18.



Count Rate: 470,9kcps

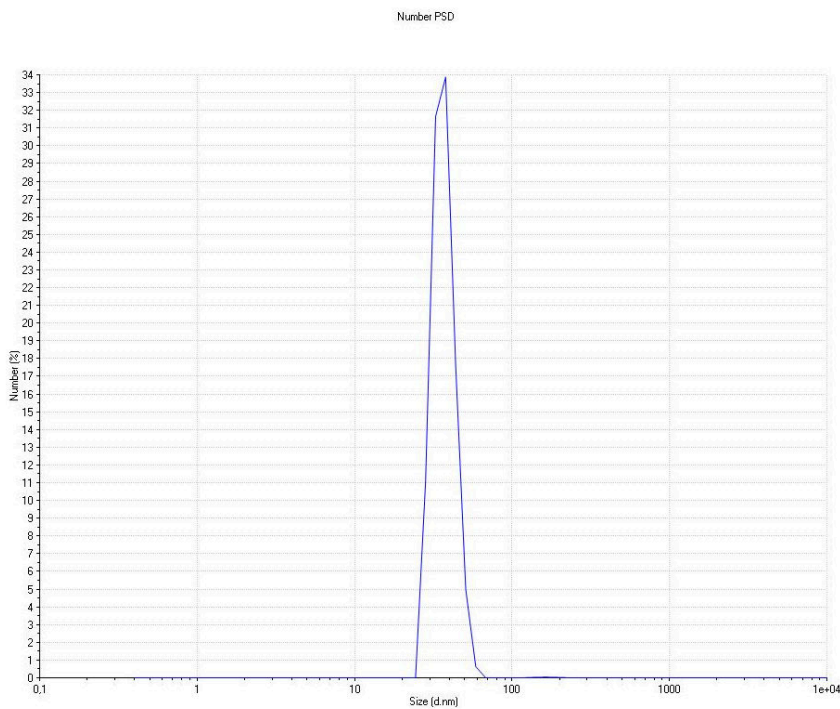
Cumulants result
 Z-Average size: 133,8 d.nm

PDI: 0,612
 PDI width: 104,7 d.nm

Distribution result

	Mean / Area
Peak 1:	131,1 d.nm / 0,2%
Peak 2:	54,52 d.nm / 99,8%

S10. Number of particle size distribution of NP-ImS4 at 1gL^{-1} concentration.



Count Rate: 547,9kcps

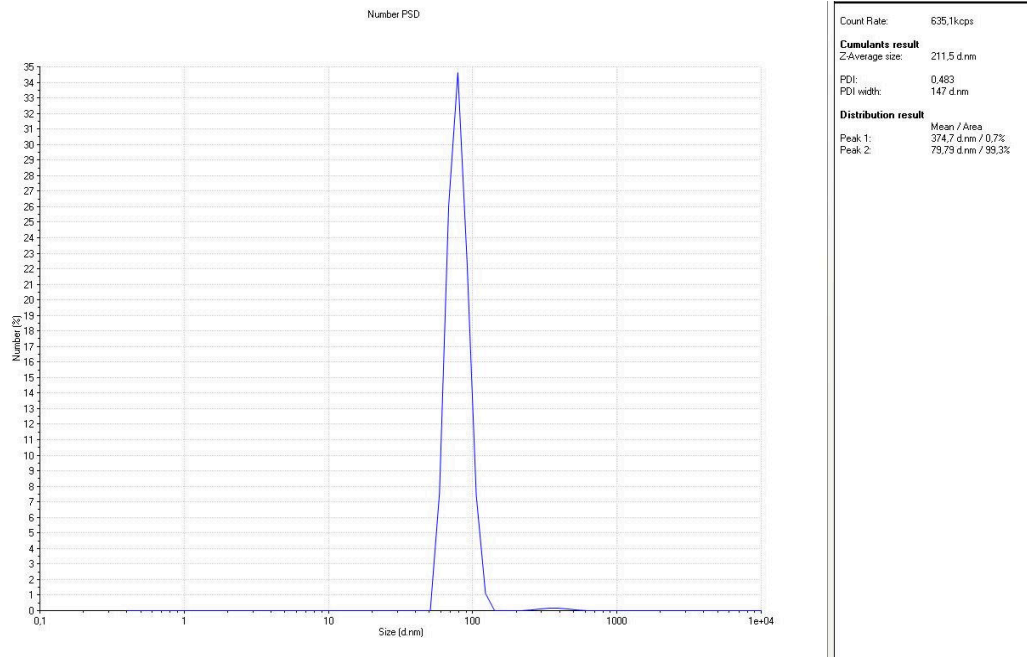
Cumulants result
 Z-Average size: 218,1 d.nm

PDI: 0,674
 PDI width: 179 d.nm

Distribution result

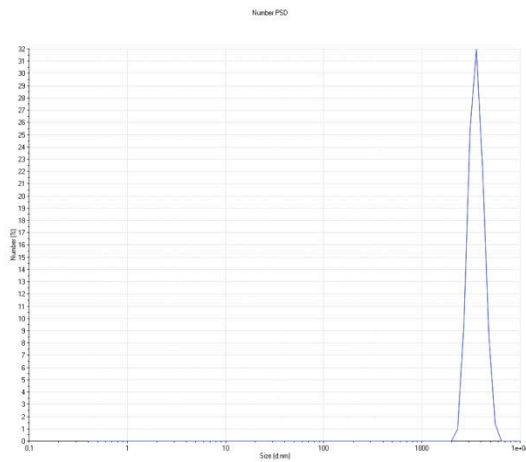
	Mean / Area
Peak 1:	36,37 d.nm / 99,9%
Peak 2:	163,7 d.nm / 0,1%

S11. Number of particle size distribution of NP-ImS10 at 1gL^{-1} concentration



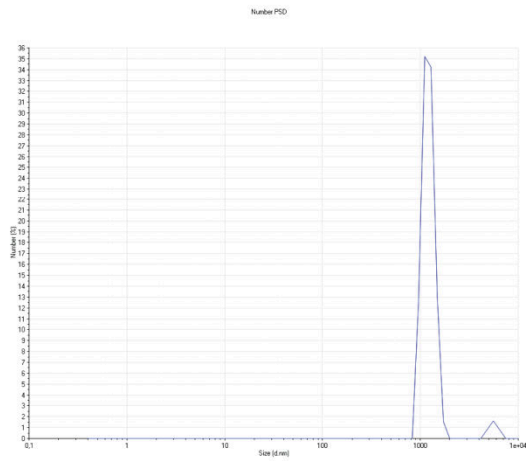
S12. Number of particle size distribution of NP-ImS18 at 1gL⁻¹ concentration

NP-ImS4



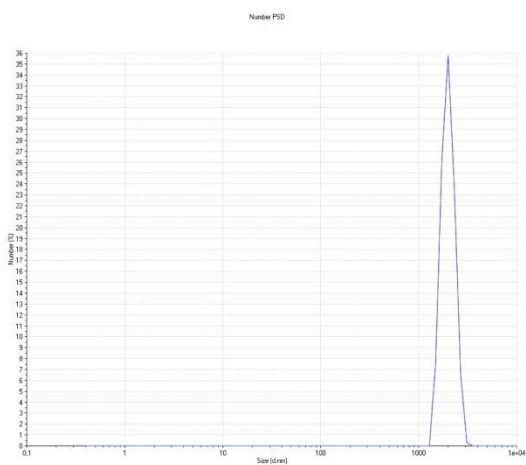
Count Rate: 395.8kpps
Cumulative result
Z-average size: 4592 d.nm
PDI: 0.195
PDI width: 1806 d.nm
Distribution result
Peak 1: Mean / Area
3613 d.nm / 100.0%

NP-ImS10



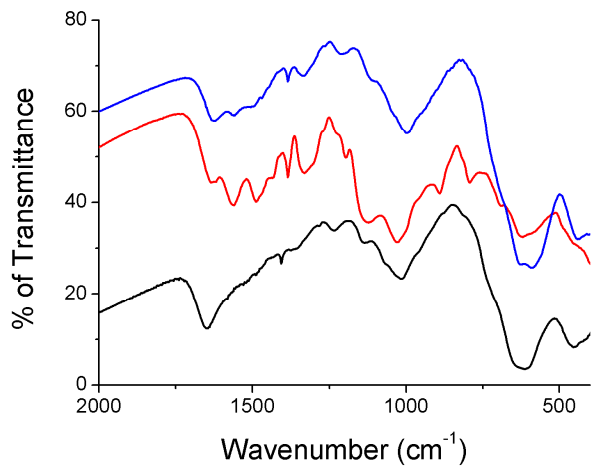
Count Rate: 427.3kpps
Cumulative result
Z-average size: 9554 d.nm
PDI: 0.303
PDI width: 3336 d.nm
Distribution result
Peak 1: Mean / Area
1210 d.nm / 98.95%
Peak 2: 9206 d.nm / 1.05%

NP-ImS18

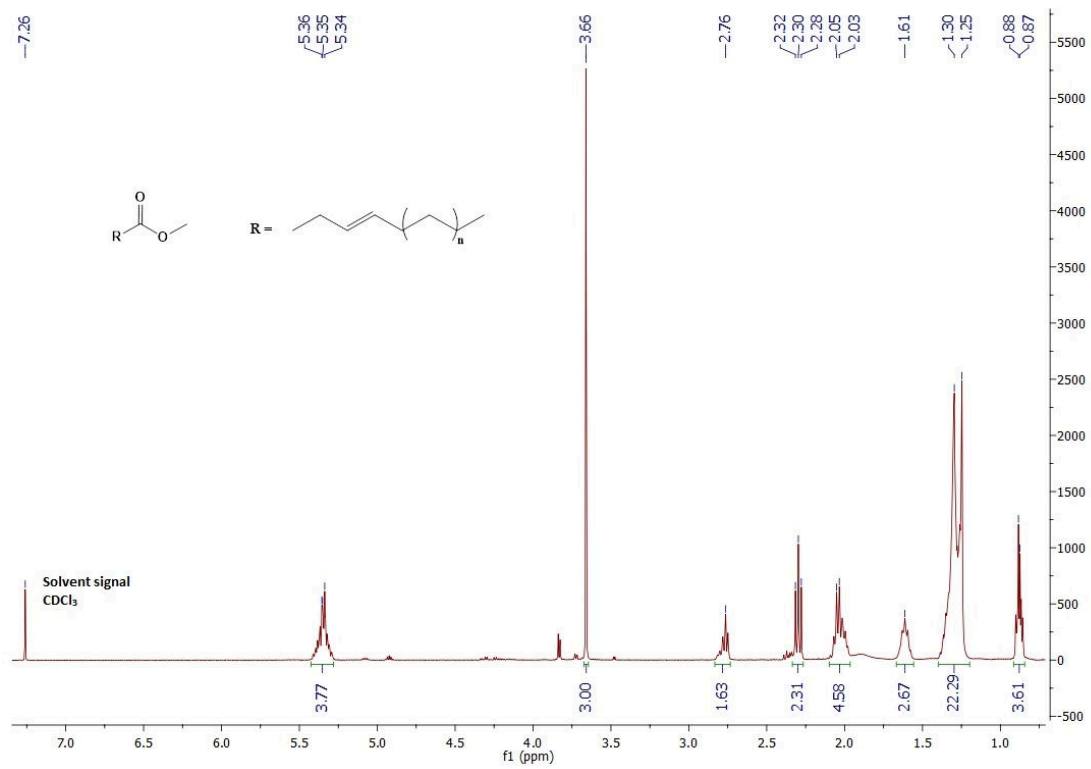


Count Rate: 130.9kpps
Cumulative result
Z-average size: 2719 d.nm
PDI: 0.271
PDI width: 1675 d.nm
Distribution result
Peak 1: Mean / Area
2083 d.nm / 100.0%

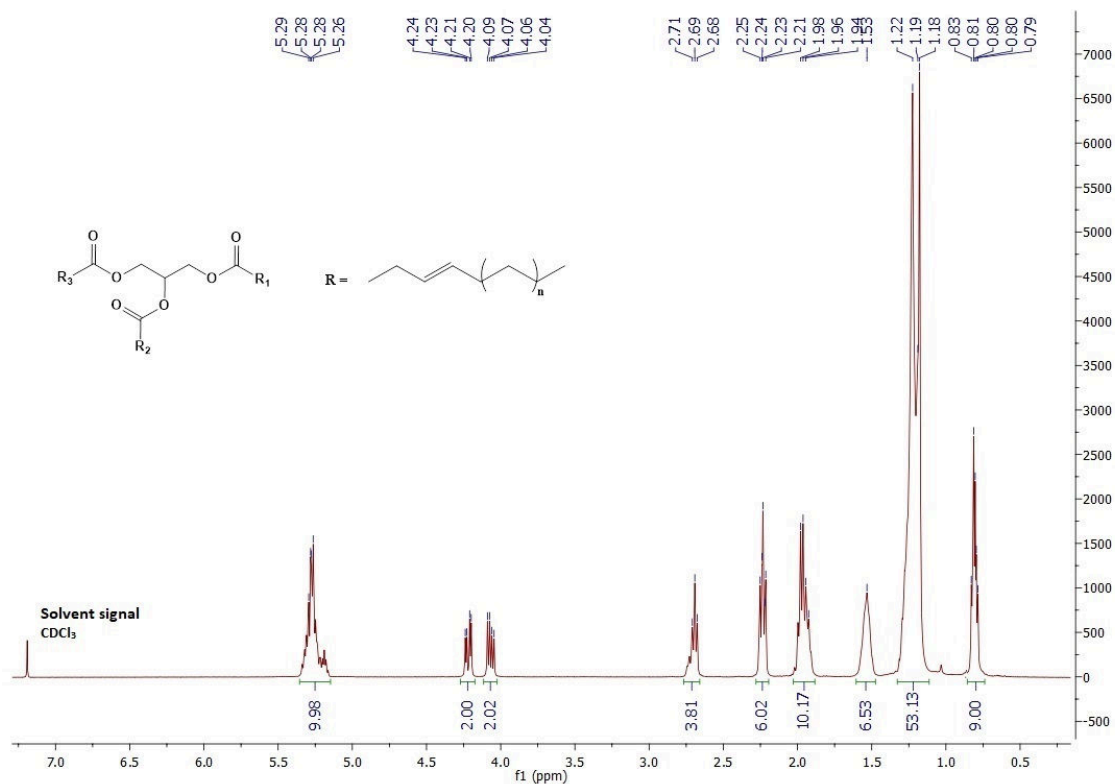
S13. Number of particle size distribution of NP-ImSn (n=4, 10 and 18) at 10gL⁻¹ concentration.



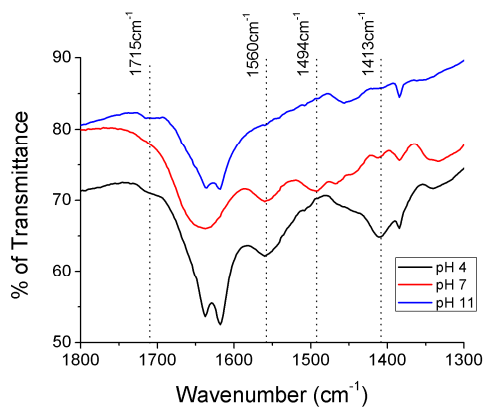
S14. Infrared of silanized magnetic nanoparticles. NP-ImS4 (black line); NP-ImS10 (red line) and NP-ImS18 (blue line).



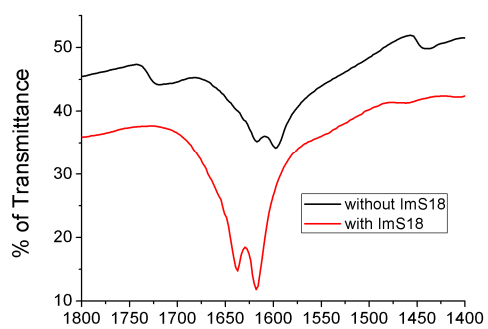
S15. ¹H NMR spectra of methylated fatty acids.



S16. ^1H NMR spectra of oleyltriacylglyceride.



S17. FTIR spectra of immobilized CAL-B on NP-ImS18 at pHs 4 (black line), 7 (red line) and 11 (blue line).



S18. FTIR spectra of immobilized CAL-B on NP-ImS4 in a system without ImS18 as a contaminant (black line) and with ImS18 as a contaminant (red line) .