

Supplementary materials

Enhancement of iodinin solubility by encapsulation into cyclodextrin nanoparticles

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Dynamic light scattering measures were performed using a Zetasizer Nano ZSP instrument from Malvern Instruments, UK.

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 159,3	Peak 1: 171,2	100,0	46,43
Pdl: 0,069	Peak 2: 0,000	0,0	0,000
Intercept: 0,932	Peak 3: 0,000	0,0	0,000
Result quality : Good			

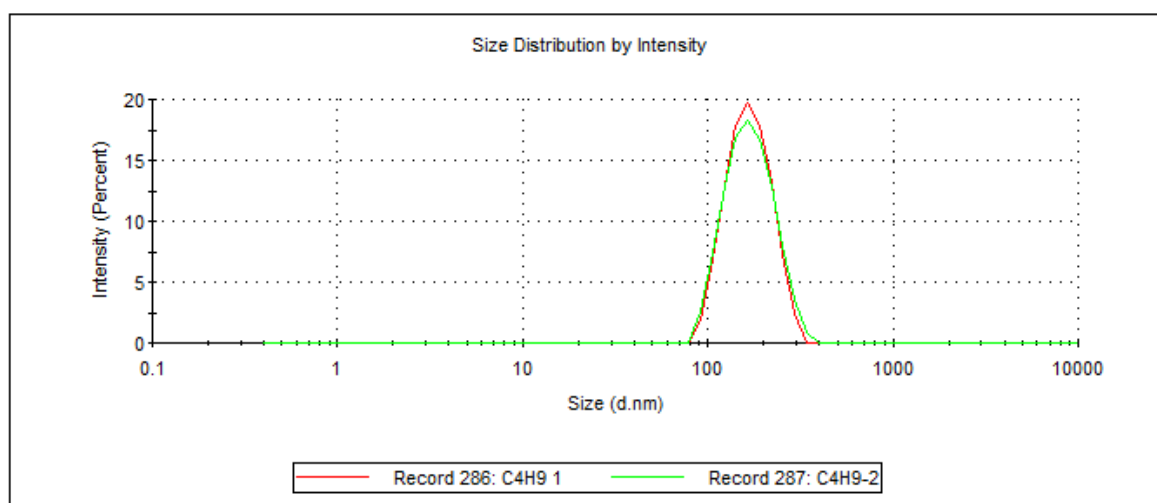


Figure S1. Dynamic light scattering experiments spectra and mean diameter of iodinin loaded C₄H₉ amphiphilic CDs.

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 117,0	Peak 1: 130,6	100,0	45,04
Pdl: 0,096	Peak 2: 0,000	0,0	0,000
Intercept: 0,963	Peak 3: 0,000	0,0	0,000
Result quality : Good			

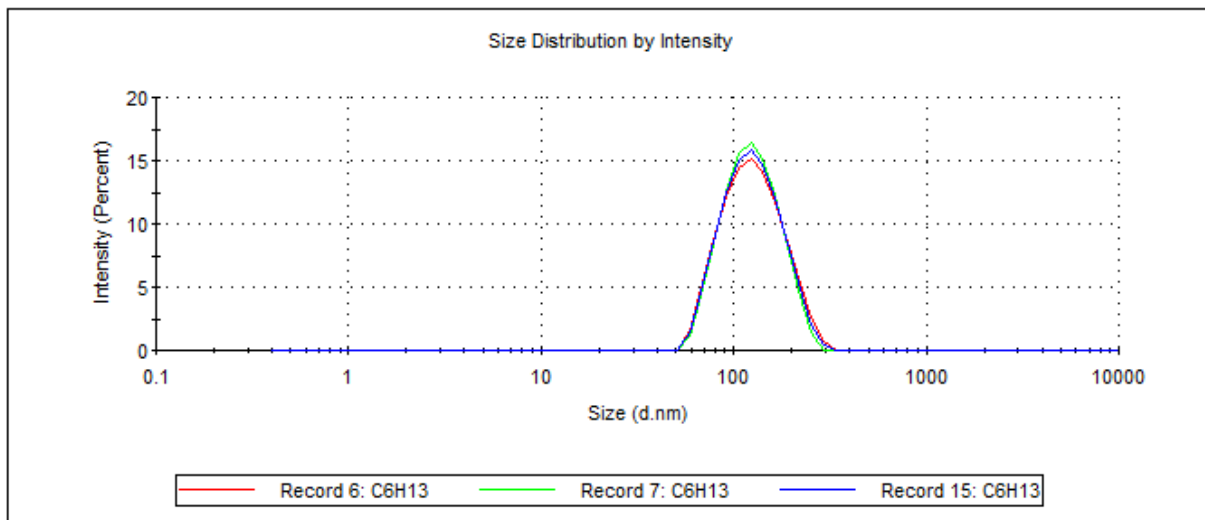


Figure S2. Dynamic light scattering experiments spectra and mean diameter of iodinin loaded C₆H₁₃ amphiphilic CDs.

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 104,1	Peak 1: 116,1	99,5	44,22
Pdl: 0,111	Peak 2: 4824	0,5	713,1
Intercept: 0,955	Peak 3: 0,000	0,0	0,000
Result quality : Good			

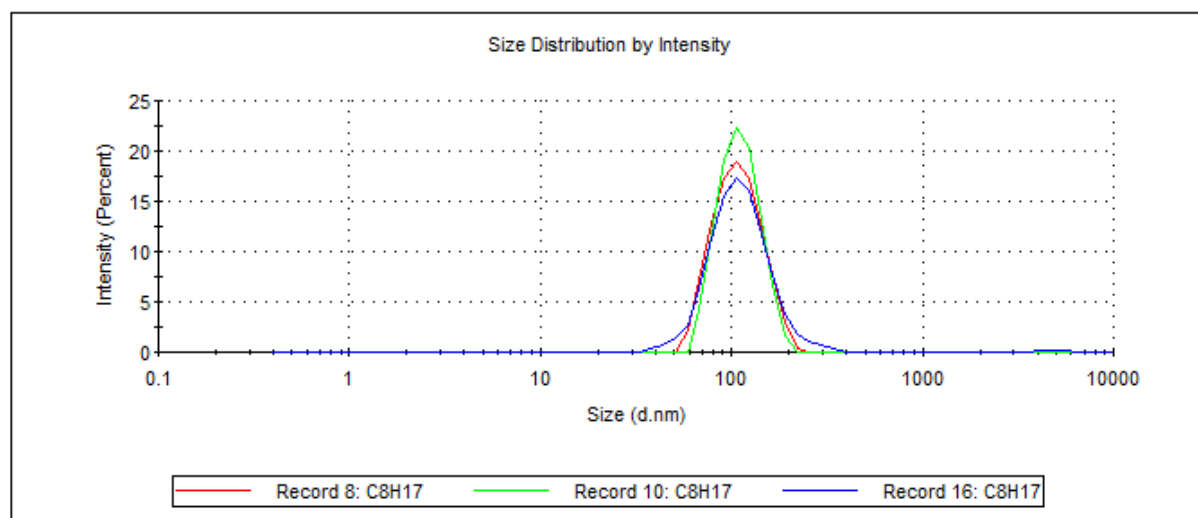


Figure S3. Dynamic light scattering experiments spectra and mean diameter of iodinin loaded C₈H₁₇ amphiphilic CDs.

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 109,7	Peak 1: 114,6	100,0	26,27
Pdl: 0,022	Peak 2: 0,000	0,0	0,000
Intercept: 0,952	Peak 3: 0,000	0,0	0,000
Result quality : Good			

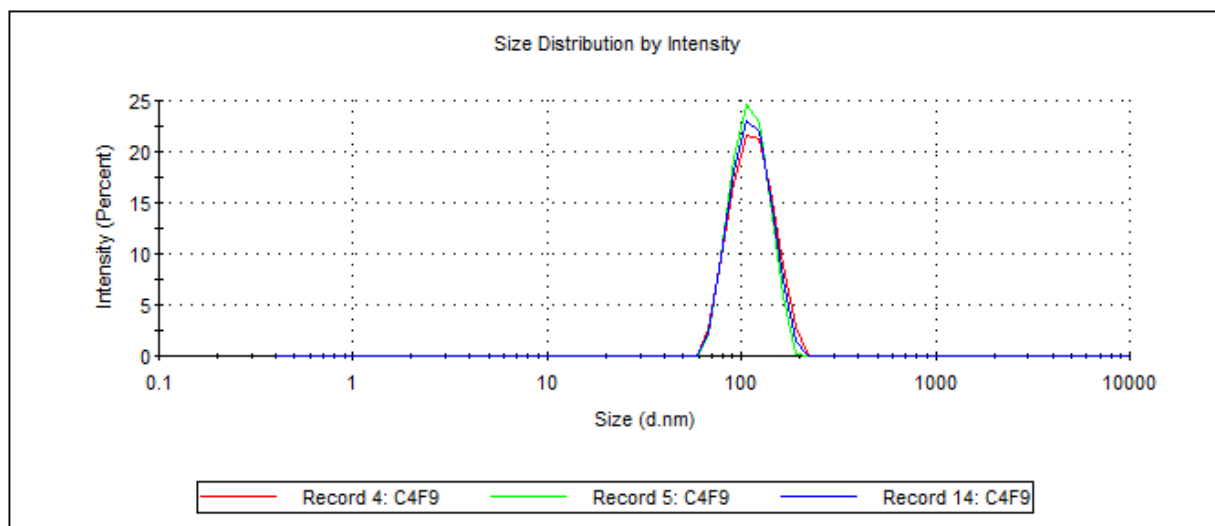


Figure S4. Dynamic light scattering experiments spectra and mean diameter of iodinin loaded C₄F₉ amphiphilic CDs.

	Size (d.nm):	% Intensity:	St Dev (d.nm):
Z-Average (d.nm): 97,89	Peak 1: 105,9	100,0	30,47
Pdl: 0,075	Peak 2: 0,000	0,0	0,000
Intercept: 0,957	Peak 3: 0,000	0,0	0,000
Result quality : Good			

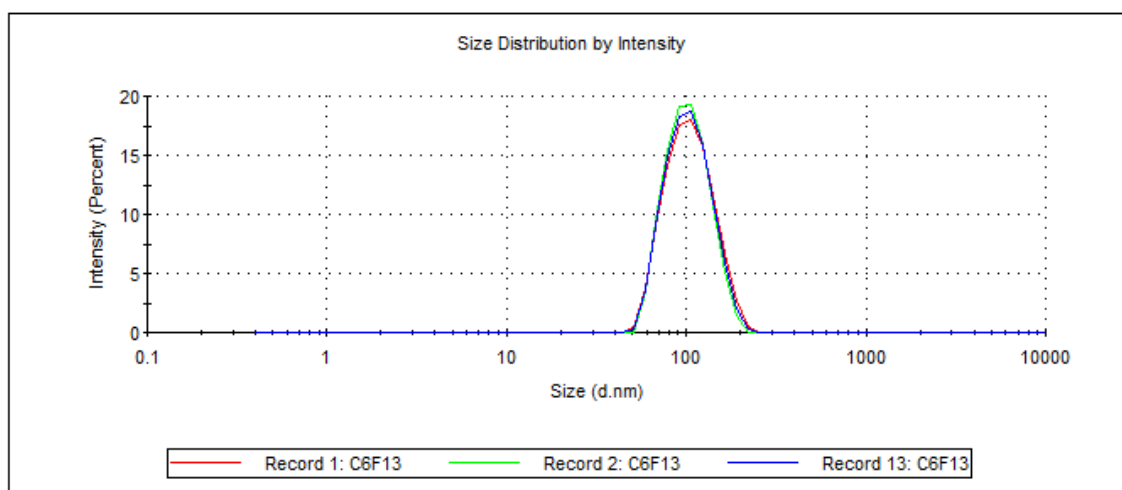


Figure S5. Dynamic light scattering experiments spectra and mean diameter of iodinin loaded C₆F₁₃ amphiphilic CDs.

Zeta Potential Analysis: Zeta potentials of empty and loaded nanoparticle dispersions were measured by Malvern Zetasizer Nano-ZS (Malvern Instruments, UK) at 25°C, in triplicate to assess the surface charge. Zeta potential of nanoparticles were directly measured on suspension of nanoparticles in water pH 7.4.

	Zeta potential (mV) Loaded / Empty
C₄H₉	-20.2 mV ± 3.5 / -16.4 mV ± 4.0
C₆H₁₃	-29.6mV ± 5.1 / -25.1 mV ± 5.5
C₈H₁₇	-43.3 mV ± 6.2 / -38.0 mV ± 5.2
C₄F₉	-26.6 mV ± 4.2 / -21.9 mV ± 5.6
C₆F₁₃	-32.5 mV ± 5.0 / -28.0 mV ± 6.8

No significant changes were observed for zeta potential values. For both empty and iodinin-loaded nanoparticles, they were in the same range with a little increase with the chain length. No differences were observed between loaded and empty ones. It is worth noticing that even if the amphiphilic cyclodextrins are not charged, the zeta potentials are negative at this pH, meaning that these suspensions are stable, avoiding aggregations. Recent results in DLS showed indeed that these suspensions were stable after 6 months (same sizes...). We found that the iodinin-loaded nanospheres using C₄H₉ and C₆F₁₃ were the most potent formulations (highest cell death on AML cell line IPC-81), with zeta potentials of -20.2 mV and -32.5 mV, respectively. With the formulations using C₆H₁₃ and C₄F₉ (with similar zeta potentials), cytotoxicity results were lower (Figure 5). Cytotoxicity and zeta potential were not correlated in this study.

	Mean (mV)	Area (%)	St Dev (mV)
Zeta Potential (mV): -20,2	Peak 1: -20,2	100,0	3,47
Zeta Deviation (mV): 3,47	Peak 2: 0,00	0,0	0,00
Conductivity (mS/cm): 0,0287	Peak 3: 0,00	0,0	0,00

Result quality : Good

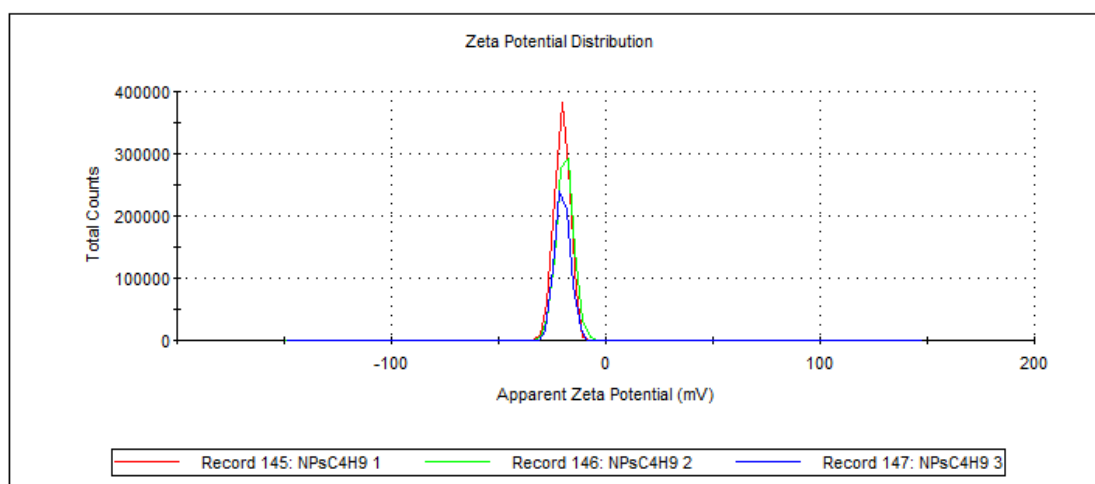


Figure S6. Zeta potential distribution of iodinin-loaded C₄H₉ amphiphilic CDs.

	Mean (mV)	Area (%)	St Dev (mV)
Zeta Potential (mV): -29,6	Peak 1: -29,6	100,0	5,09
Zeta Deviation (mV): 5,09	Peak 2: 0,00	0,0	0,00
Conductivity (mS/cm): 0,0346	Peak 3: 0,00	0,0	0,00

Result quality : Good

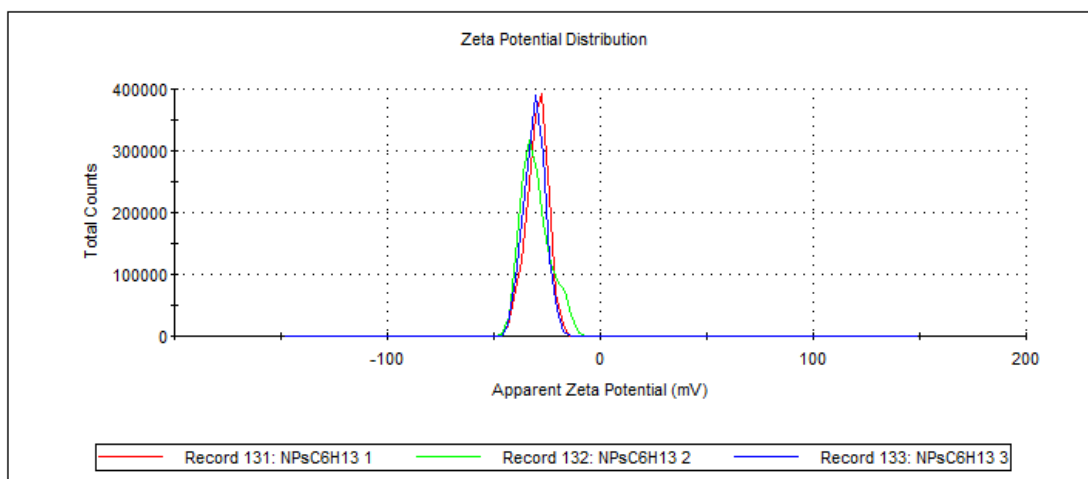


Figure S7. Zeta potential distribution of iodinin-loaded C₆H₁₃ amphiphilic CDs.

	Mean (mV)	Area (%)	St Dev (mV)
Zeta Potential (mV): -43,3	Peak 1: -43,3	100,0	6,17
Zeta Deviation (mV): 6,17	Peak 2: 0,00	0,0	0,00
Conductivity (mS/cm): 0,0862	Peak 3: 0,00	0,0	0,00

Result quality : Good

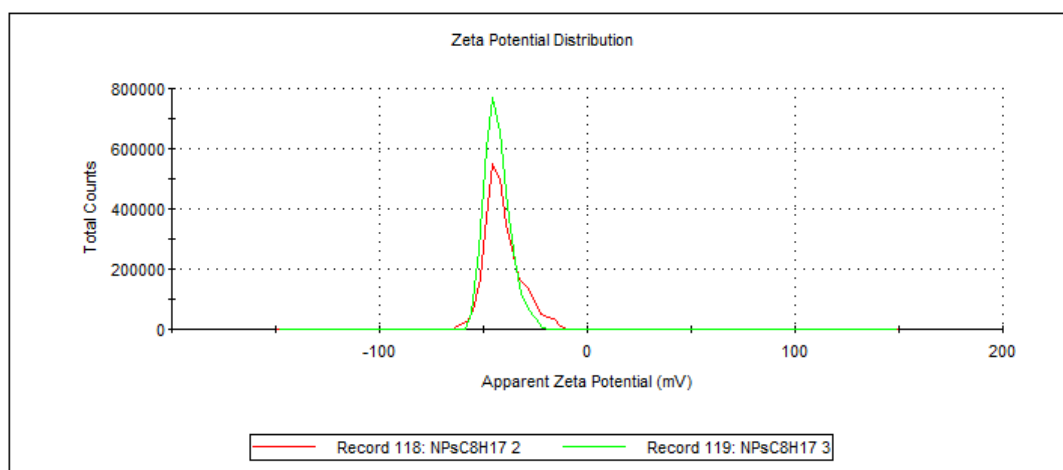


Figure S8. Zeta potential distribution of iodinin-loaded C₈H₁₇ amphiphilic CDs.

	Mean (mV)	Area (%)	St Dev (mV)
Zeta Potential (mV): -26,6	Peak 1: -26,6	100,0	4,18
Zeta Deviation (mV): 4,18	Peak 2: 0,00	0,0	0,00
Conductivity (mS/cm): 0,0370	Peak 3: 0,00	0,0	0,00

Result quality : Good

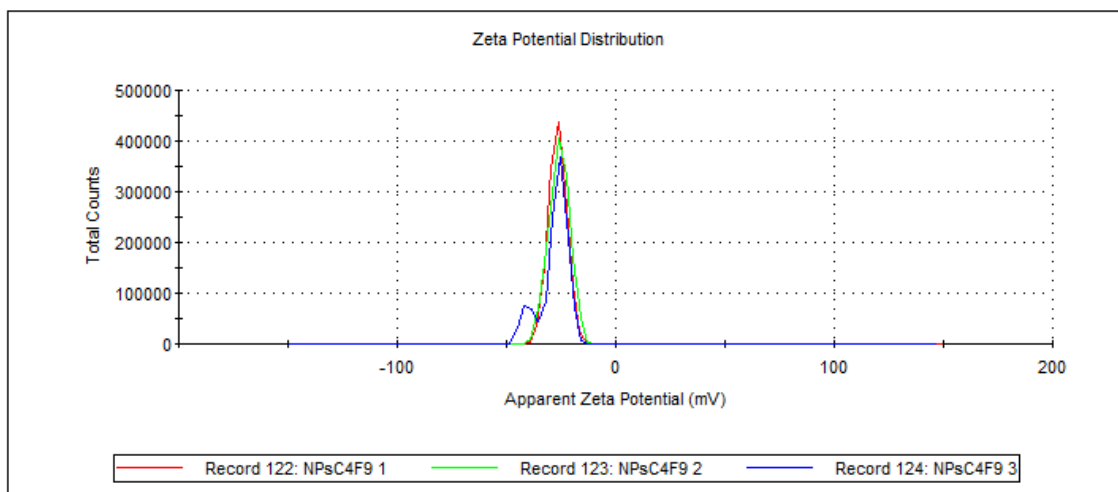


Figure S9. Zeta potential distribution of iodinin-loaded C₄F₉ amphiphilic CDs.

	Mean (mV)	Area (%)	St Dev (mV)
Zeta Potential (mV): -32,5	Peak 1: -32,5	100,0	5,00
Zeta Deviation (mV): 5,00	Peak 2: 0,00	0,0	0,00
Conductivity (mS/cm): 0,0506	Peak 3: 0,00	0,0	0,00

Result quality : Good

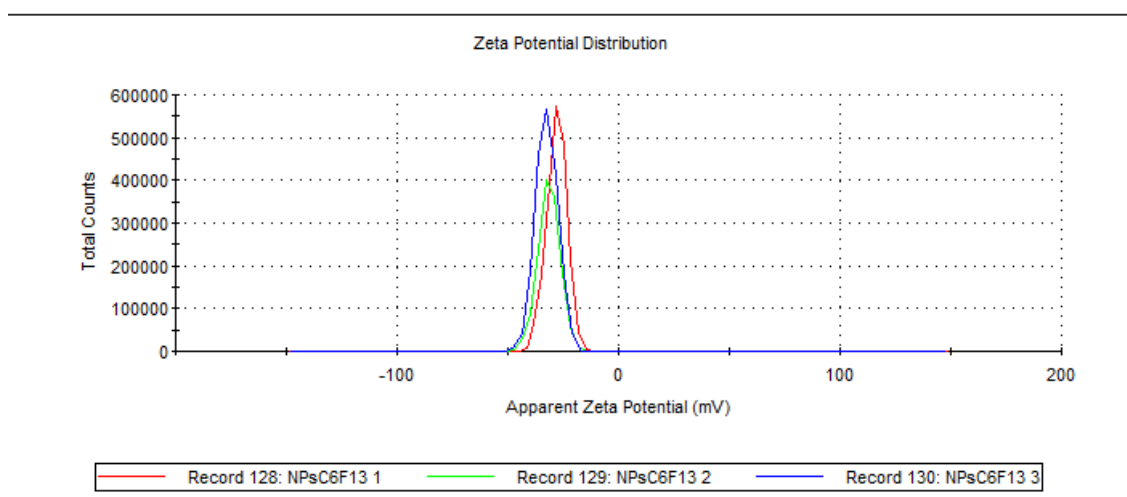


Figure S10. Zeta potential distribution of iodinin-loaded C₆F₁₃ amphiphilic CDs.