Supplementary Information for:

Chondroitin-analogue decorated magnetic nanoparticle *via* click reaction for selective adsorption of low-density lipoprotein

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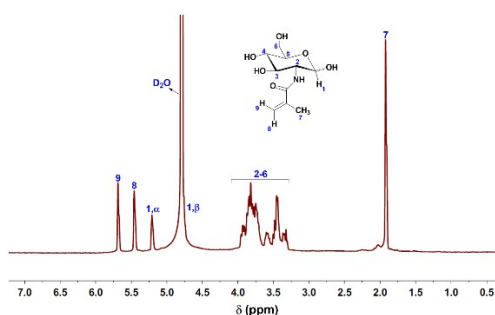*E-mail: jianshu_li@scu.edu.cn; Tel: +86 28 85466755*

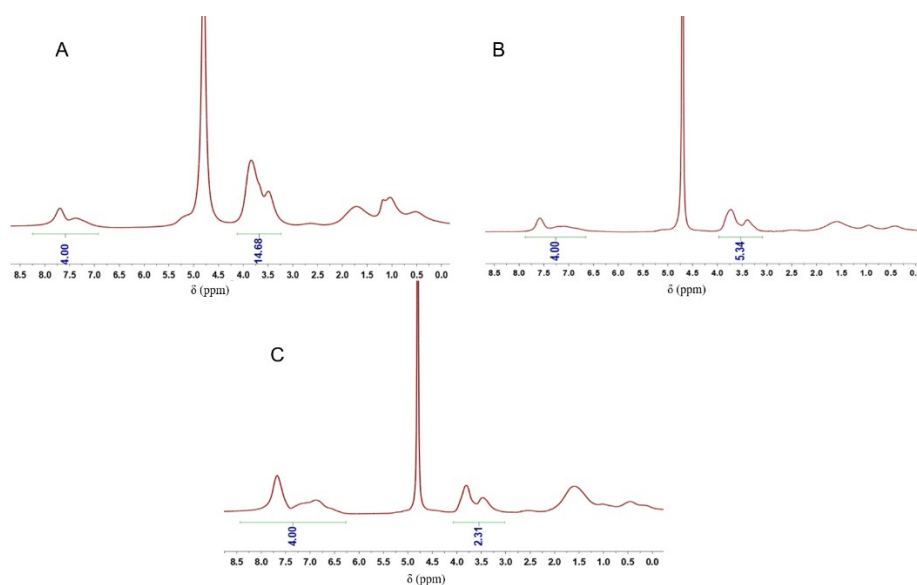**Figure S1.** ^{1}H NMR spectra of synthesized saccharide monomer MAG.

Figure S2. ^{1}H NMR spectra of CS-analogue polymers PM_2S_1 (A), PM_1S_1 (B) and PM_1S_2 (C).
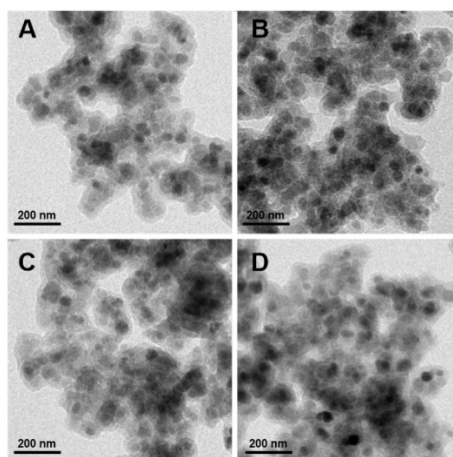
Figure S3. TEM images of Fe_3O_4-MAG (A), Fe_3O_4-PM_2S_1 (B), Fe_3O_4-PM_1S_2 (C) and Fe_3O_4-PSS (D).
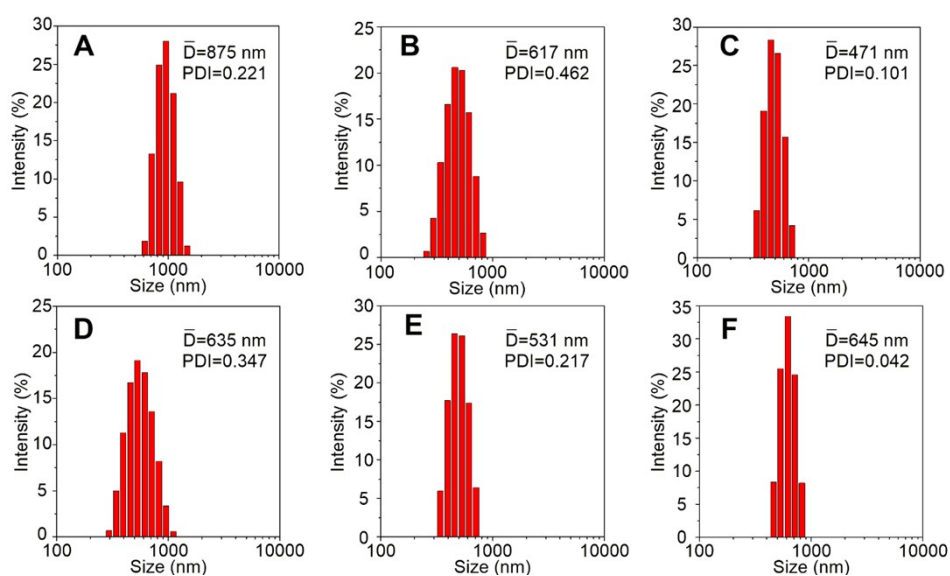

Figure S4. DLS histogram of Fe_3O_4-C≡CH (A), Fe_3O_4-MAG (B), Fe_3O_4-PM_2S_1 (C), Fe_3O_4-PM_1S_1 (D), Fe_3O_4-PM_1S_2 (E) and Fe_3O_4-PSS (F).

Table S1. Elemental analysis (EA) data of CS-analogue polymers synthesized via ATRP.

sample	N_{test} (%)[a]	N_{theo} (%)[b]	C (%)	H (%)	S_{test} (%)[a]	S_{theo} (%)[b]
PMAG	4.925	5.668	38.712	5.620	0.075	——
PM_2S_1	3.960	3.999	38.211	6.571	4.012	4.571
PM_1S_1	3.144	3.091	39.614	7.221	6.896	7.061
PM_1S_2	2.126	2.123	39.378	5.253	9.216	9.706
PSS	0.039	——	37.389	4.923	14.869	15.520

[a] measured by EA. [b] N_{theo} and S_{theo} meant theoretical values of N and S content, calculated as follows:

$$N_{theo}(\%) = \frac{14x}{247x + 206y} \times 100\% \quad , \quad S_{theo}(\%) = \frac{32y}{247x + 206y} \times 100\%$$

, 14, 32, 247 and 206 represented the molecular weight of N, S, MAG and SS, respectively.

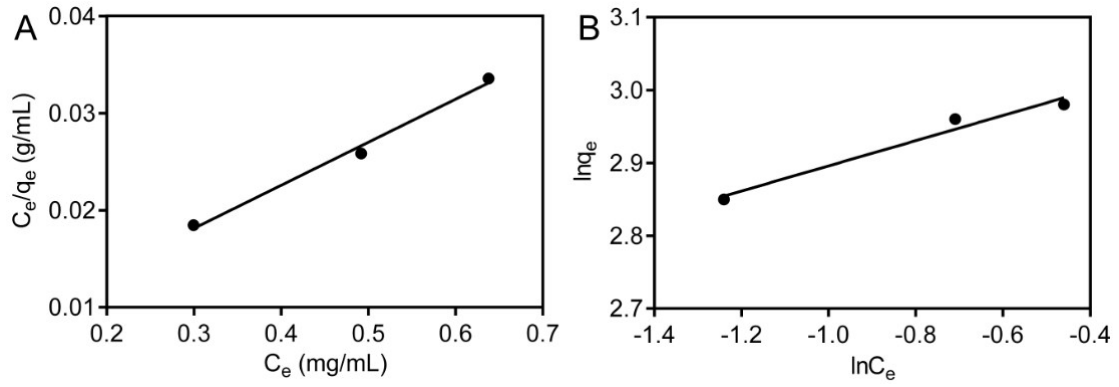**Figure S5.** Langmuir adsorption isotherm and Freundlich adsorption isotherm of BSA for MNPs decorated with PM_1S_1. The initial BSA concentration in solution was set as 500, 750 and 1000 μg/mL.
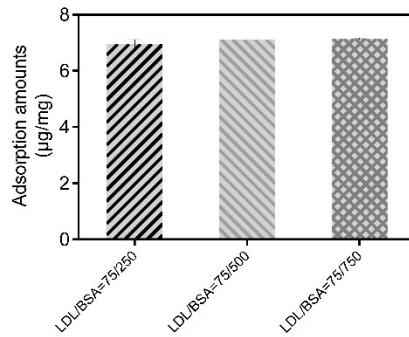

Figure S6. LDL adsorption amounts of Fe_3O_4-PM_1S_1 in different BSA concentration.

Table S2. The parameters of Langmuir isotherms and Freundlich isotherm for BSA adsorption by Fe_3O_4-PM_1S_1.

Langmuir isotherms	q_{max} (mg/g)	K_L	r_L^2	Freundlich isotherm	n	K_F	r_F^2
	19.598	1.09	0.992		5.780	3.096	0.969