Supplementary information

Methods of proteins corona isolation for magnetic nanoparticles

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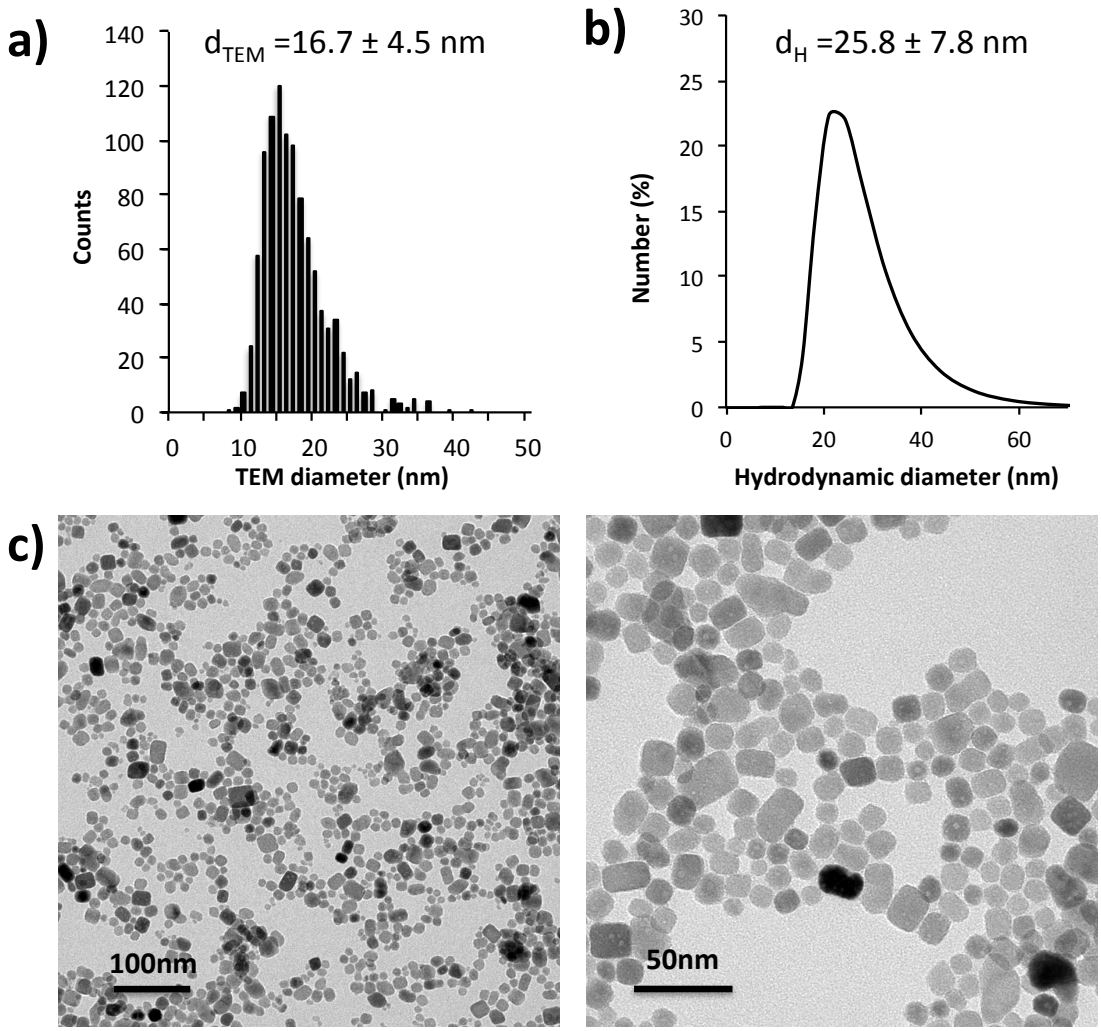


Fig. S1: TEM diameters (a), hydrodynamic diameters measured by dynamic light scattering (b) and TEM micrographs of uncoated IONPs used in the present study. The scale bars in TEM micrographs are given in the bottom left corners of each image.

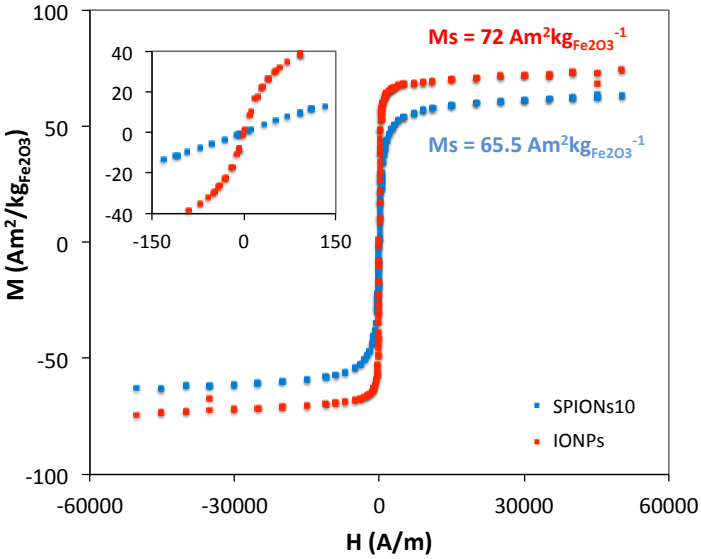


Fig. S2: Hysteresis curves at 300 K, as well as the magnified region around zero for SPIONs10 (H_c = 0.4 Oe and M_r = 0.0 $Am^2kg_{Fe2O3}^{-1}$) and IONPs (H_c = -0.1 Oe and M_r = 0.0 $Am^2kg_{Fe2O3}^{-1}$).

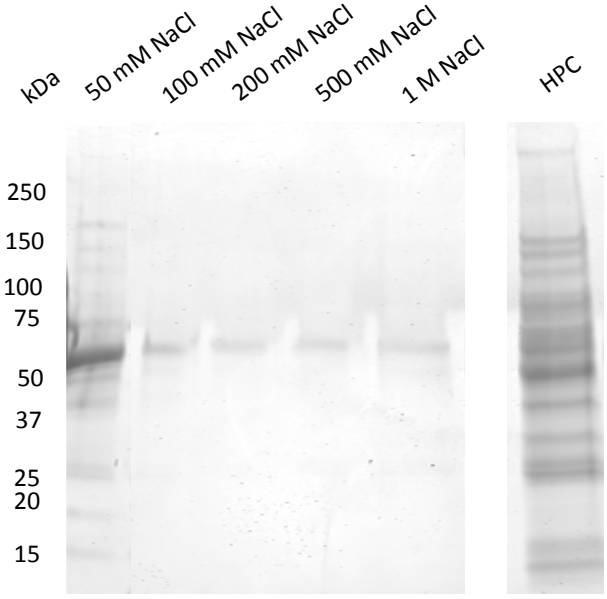


Fig. S3: SDS-Page of solutions collected after each washing step with increasing salt concentration (50 mM – 1 M NaCl) to isolate the HPC by MagSep, as well as the SDS-Page of the HPC collected after the final washing for L1400 after the incubation of IONPs with hLs.

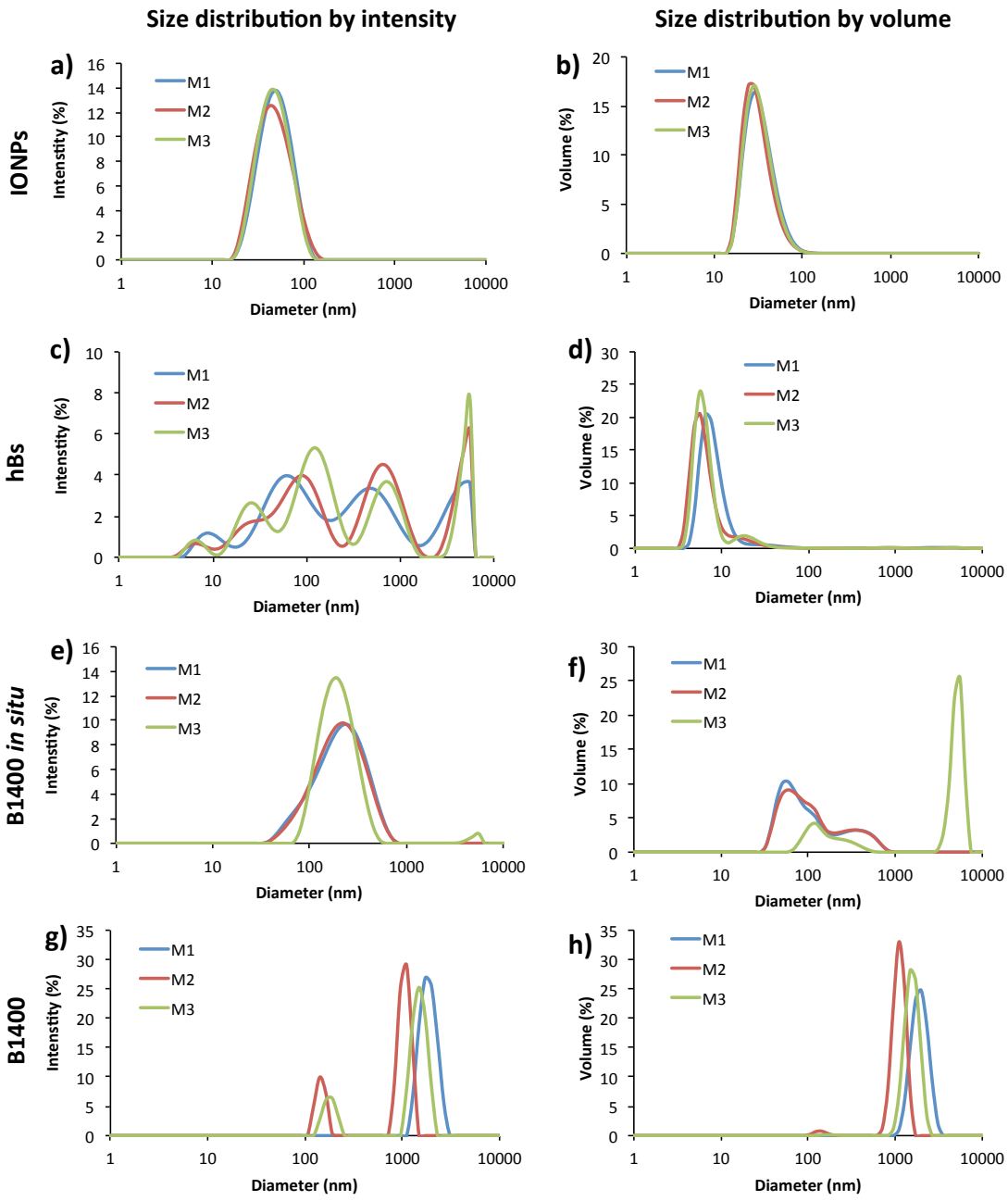


Fig. S4: Intensity (a, c, e and g) and volume (b, d, f and h) distribution of the hydrodynamic diameters for IONPs (a and b), hBs (c and d), B1400 *in situ* (before the HPC isolation; e and f) and B1400 (after the HPC isolation; g and h). Three measurements (M1, M2 and M3) are given for each condition.

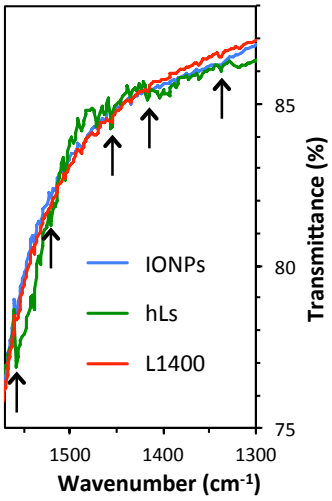
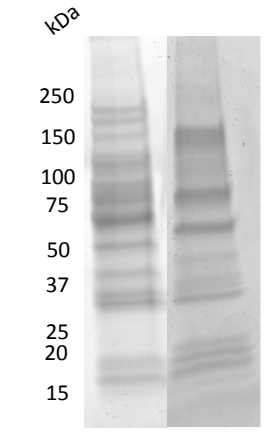


Fig. S5: FTIR spectra of L1400 isolated by the MSCM, as compared to hLs and IONPs.

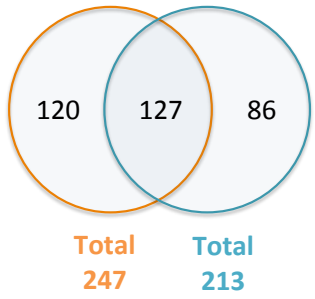
	Undiluted	Diluted 5 times
1	Apolipoprotein B-100	Apolipoprotein B-100
2	Complement C3	Complement C3
3	Serum albumin	Serum albumin
4	Complement C4-A	Complement C4-A
5	Complement C4-B	Complement C4-B
6	Complement factor H	Complement factor H
7	Plasminogen	Plasminogen
8	Alpha-2-macroglobulin	Prothrombin
9	Prothrombin	Alpha-2-macroglobulin
10	Antithrombin-III	C4b-binding protein alpha chain
11	C4b-binding protein alpha chain	Apolipoprotein A-I
12	Apolipoprotein A-I	Antithrombin-III
13	Histidine-rich glycoprotein	Apolipoprotein E
14	Coagulation factor V	Histidine-rich glycoprotein
15	Kininogen-1	Hornerin
16	Isoform LMW of Kininogen-1	Isoform LMW of Kininogen-1
17	Coagulation factor XII	Kininogen-1
18	Vitronectin	Plasma kallikrein (Fragment)
19	Apolipoprotein E	Vitronectin
20	Plasma kallikrein (Fragment)	Coagulation factor V

Fig. S6: 20 most-abundant proteins classified according to the protein abundance (%) in the HPCs of B1400 undiluted and diluted 5 times isolated by MSCM. The proteins highlighted in grey represent the proteins, which are different between the two dilutions.

a)



b)



c)

	MagSep	MSCM
1	Serum albumin	Apolipoprotein B-100
2	Fibrinogen beta chain	Complement C3
3	Complement C3	Serum albumin
4	Fibrinogen gamma chain	Complement C4-A
5	Complement factor H	Alpha-2-macroglobulin
6	Apolipoprotein B-100	Apolipoprotein A-I
7	Complement C4-A	Apolipoprotein E
8	Complement C4-B	Antithrombin-III
9	Fibrinogen alpha chain	Histidine-rich glycoprotein
10	Ig gamma-1 chain C region	Plasminogen
11	Fibronectin	Complement factor H
12	Ceruloplasmin	Isoform 3 of Plasma protease C1 inhibitor
13	Ig kappa chain C	Plasma kallikrein(Fragment)
14	Complement component C9	Coagulation factor V
15	C4b-binding protein alpha chain	Alpha-1-antitrypsin
16	Ig gamma-3 chain C	Kininogen-1
17	Complement factor H	Inter-alpha-trypsin inhibitor heavy chain H2
18	Complement C1r subcomponent	C4b-binding protein alpha chain
19	Complement C1s subcomponent	Isoform LMW of Kininogen-1
20	Beta-2-glycoprotein 1	Gelsolin

Fig. S7: SDS-Page (a), Venn diagram showing the number of detected proteins (b) and the 20 most-abundant proteins classified according to the protein abundance (%) (c) in the HPCs of L1400 isolated by MagSep or by the MSCM. The proteins highlighted in grey represent the proteins, which are different between the two isolation methods.

Supplementary Table S1: List of corona proteins identified by LC-MS^2 of three repetitions (repetitions 1, 2 and 3) of B1400 isolated by MSCM. For each sample, the complete data sets including the identified proteins, their corresponding total spectrum counts and peptide counts, their relative abundance (%), their accession numbers and molecular weights are given in supporting information file: Bonvin_Suppl_TableS1.xlsx.

Supplementary Table S2: List of corona proteins identified by LC-MS^2 of B1400 isolated by MSCM obtained from undiluted samples and from samples diluted 5 times. For each sample, the complete data sets including the identified proteins, their corresponding total spectrum counts and peptide counts, their relative abundance (%), their accession numbers and molecular weights are given in supporting information file: Bonvin_Suppl_TableS2.xlsx.

Supplementary Table S3: List of corona proteins identified by LC-MS^2 in B1400 and L1400 isolated by MagSep and MSCM. For each sample, the complete data sets including the identified proteins, their corresponding total spectrum counts and peptide counts, their relative

abundance (%), their accession numbers and molecular weights are given in supporting information file: Bonvin_Suppl_TableS3.xlsx.

Supplementary Table S4: List of corona proteins identified by LC-MS^2 in B1400 and L1400 isolated by MagSep and MSCM. The HPC detected in B1400 or L1400 isolated only by one of the two isolation methods (highlighted as *soft PC*), as well as the HPC detected in B1400 or L1400 isolated by both MagSep and MSCM (highlighted as *real HPC*) are given in supporting information file: Bonvin_Suppl_TableS4.xlsx.