

## Supplementary Material

### **Ionic-liquid-based aqueous biphasic systems meet microfluidics: from antibodies to aptamers in prostate-specific antigen detection**

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## Table of contents

### *SI Tables*

**Table S1.** Fluorescence intensity measurements obtained using an antibody-antibody immunoassay for PSA concentrations ranging from 0 to 25 ng·mL<sup>-1</sup> in PBS, human serum, ABS top phase (without serum), and ABS top phase after serum pretreatment. Data were used for the construction of sensitivity curves and the determination of the LoD (N/D = Not determined).

**Table S2.** Fluorescence intensity data showing the effect of aptamer concentration and pre-incubation with PSA on signal generation in the microfluidic aptamer-based immunoassay.

**Table S3.** Fluorescence intensity measurements obtained using an aptamer-based immunoassay for PSA concentrations ranging from 0 to 25 ng·mL<sup>-1</sup> in PBS, human serum, ABS top phase (without serum), and ABS top phase after serum pretreatment. Data were used for the construction of sensitivity curves and the determination of the LoD.

## SI Tables

**Table S1.** Fluorescence intensity measurements obtained using an antibody-antibody immunoassay for PSA concentrations ranging from 0 to 25 ng·mL<sup>-1</sup> in PBS, human serum, ABS top phase (without serum), and ABS top phase after serum pretreatment. Data were used for the construction of sensitivity curves and the determination of the LoD (N/D = Not determined).

[PSA] (ng·mL <sup>-1</sup> )	Fluorescence Intensity (A.U.)			
	PBS	Human serum	ABS top phase	ABS top phase after serum pretreatment
0	12209 ± 1021	12549 ± 872	2551 ± 255	1962 ± 405
5	14140 ± 1480	N/D	3513 ± 664	2348 ± 391
10	14849 ± 654	N/D	4821 ± 783	2604 ± 566
15	17100 ± 550	N/D	5977 ± 452	3633 ± 215
20	20781 ± 1438	N/D	6876 ± 410	4215 ± 618
25	22393 ± 955	7115 ± 2192	7572 ± 782	4453 ± 547

**Table S2.** Fluorescence intensity data showing the effect of aptamer concentration and pre-incubation with PSA on signal generation in the microfluidic aptamer-based immunoassay.

[PSA] (ng·mL <sup>-1</sup> )	Fluorescence Intensity (A.U.)			
	5 uM + No incubation	5 uM + 30 min incubation	10 uM + No incubation	10 uM + 30 min incubation
0	1314 ± 224	618 ± 9	1030 ± 336	482 ± 106
25	3901 ± 216	4880 ± 634	2321 ± 460	9265 ± 467

**Table S3.** Fluorescence intensity measurements obtained using an aptamer-based immunoassay for PSA concentrations ranging from 0 to 25 ng·mL<sup>-1</sup> in PBS, human serum, ABS top phase (without serum), and ABS top phase after serum pretreatment. Data were used for the construction of sensitivity curves and the determination of the LoD.

[PSA] (ng·mL <sup>-1</sup> )	Fluorescence Intensity (A.U.)			
	PBS	Human serum	ABS top phase	ABS top phase after serum pretreatment
0	482 ± 106	3918 ± 186	714 ± 150	660 ± 153
5	1062 ± 390	4074 ± 94	1247 ± 119	1339 ± 124
10	1528 ± 246	4807 ± 379	1783 ± 202	2054 ± 293
15	3899 ± 303	6890 ± 385	3372 ± 383	2919 ± 97
20	5971 ± 576	8230 ± 478	4098 ± 345	3065 ± 153
25	9265 ± 467	9528 ± 142	5082 ± 104	3469 ± 225