Electronic Supplementary Material (ESI) for Nanoscale.

Point of care testing of phospholipase A2 group IIA for serological diagnosis of rheumatoid arthritis

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SUPPLEMENTARY INFORMATION

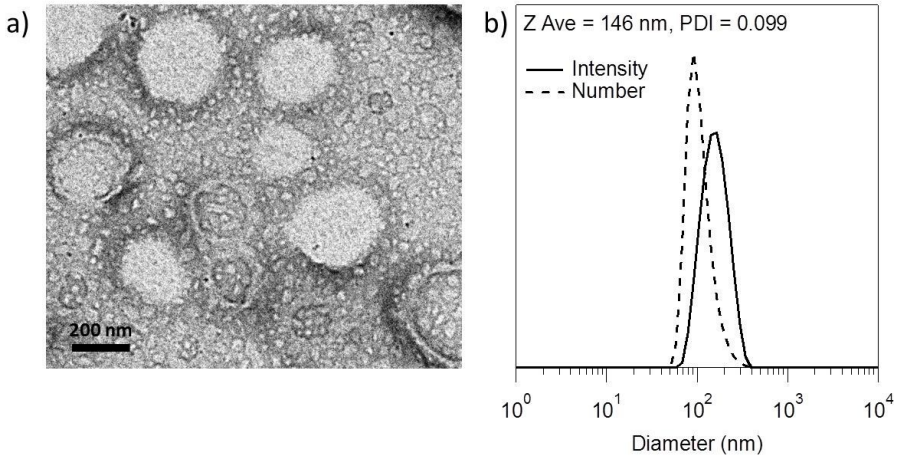

Figure S1. Characterisation of POPG liposomes containing 4 arm PEG-Biotin linker (2kDa, 0.1 mM) in HEPES (50 mM, pH 7.0) after extrusion through the 200 nm membrane and purification over sephadex. a) Transmission electron micrograph (Cu grid, stained with uranyl acetate), b) Dynamic light scattering (DLS) intensity and number distribution.

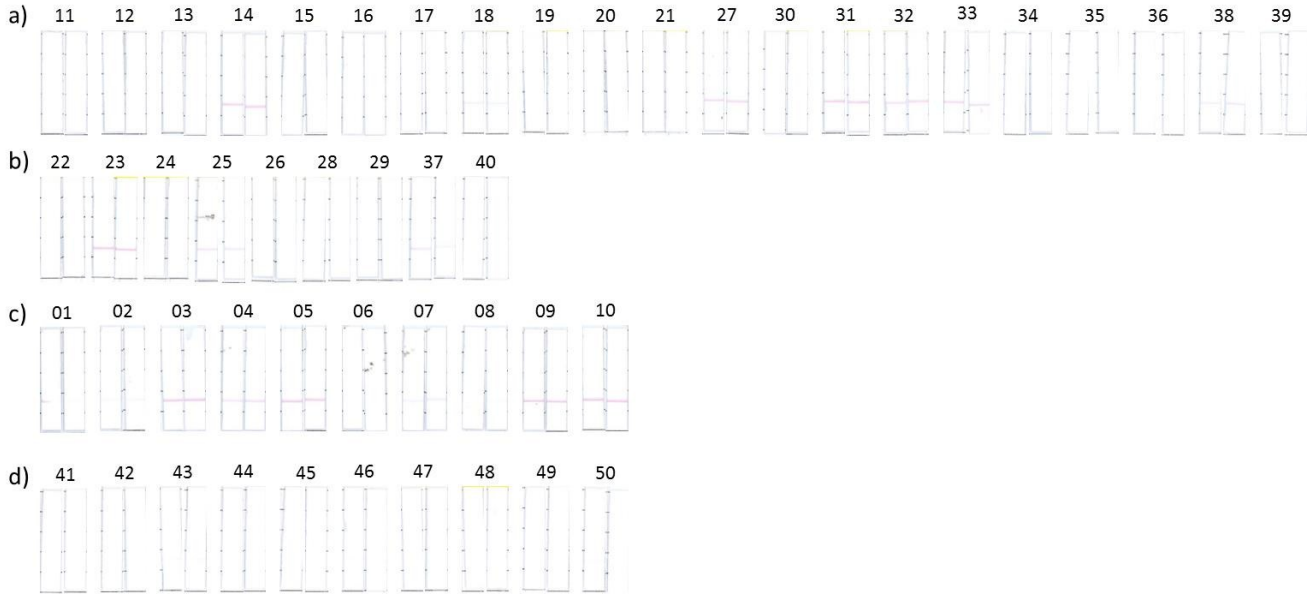

Figure S2. Scanned images of lateral flow device strips (in duplicate) run in duplicate with serum samples from patients with active (a) and inactive (b) forms of psoriatic arthritis and with active (c) and inactive (d) forms of rheumatoid arthritis. The signal on each strip was measured using a Forsite LFD reader to produce the graphs in Figure 1 and 2 of the main manuscript.

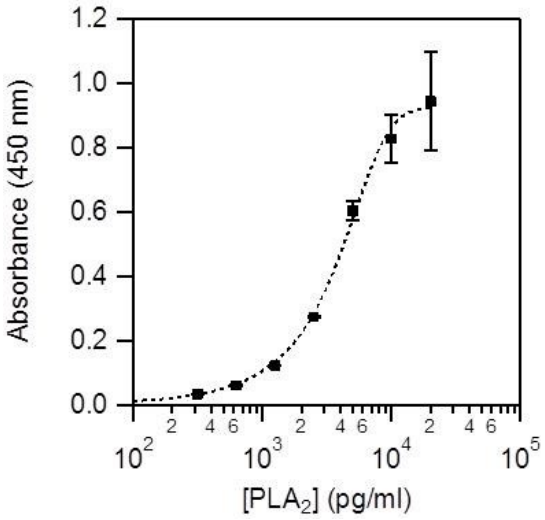

Figure S3. ELISA standard curve of recombinant PLA2-IIA (R&D) using in-house antibody pairs.

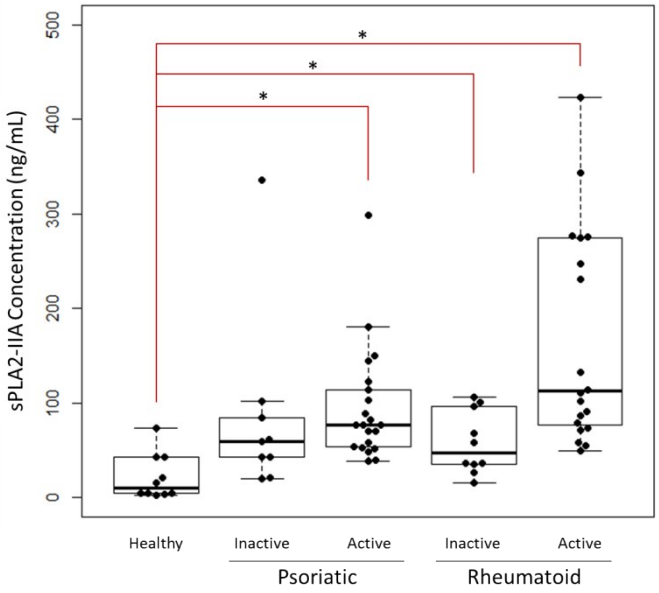

Figure S4. sPLA2-IIA concentration in 10 healthy sera controls relative to the diseased psoriatic and rheumatoid arthritis samples. * $p < 0.05$ (one way ANOVA)

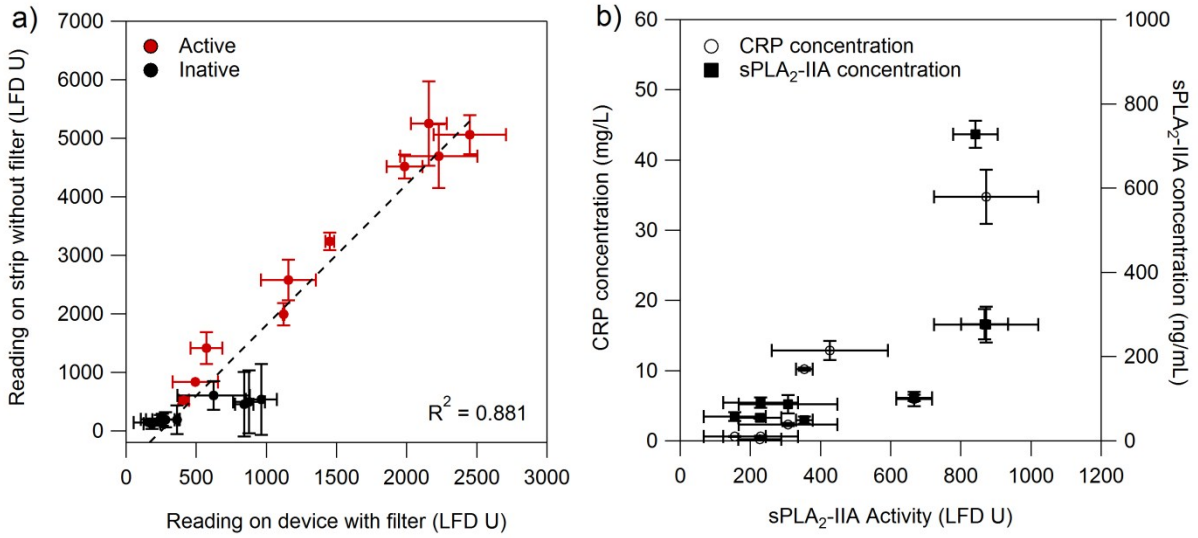

Figure S5. Use of blood cell filters on lateral flow devices to test whole blood samples. a) Correlation between serum samples from rheumatoid arthritis patients with active (red) and inactive (black) forms of the disease as measured with and without the red blood cell filter. b) Correlation between $sPLA_2$-IIA activity and both CRP (o) and $sPLA_2$-IIA (🕘) concentrations in whole blood samples from 10 patients with rheumatoid arthritis.

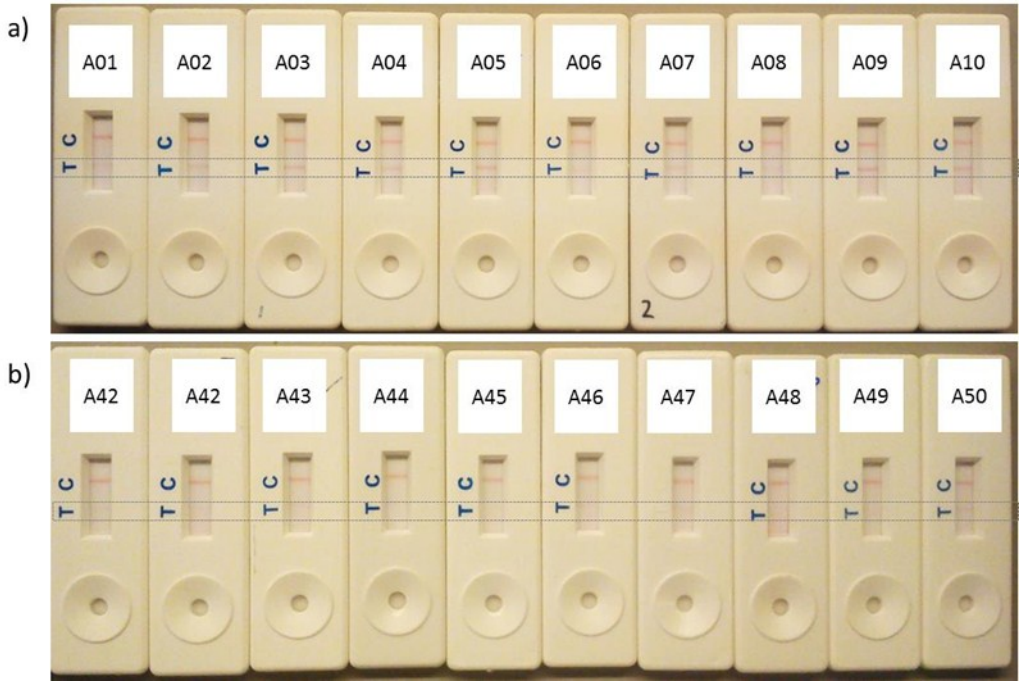

Figure S6. Photographs of example lateral flow devices (with the red blood cell filter), used to measure serum samples from patients with active (a) and inactive (b) forms of rheumatoid arthritis. The blue 'C' marks the control line and the 'T' (highlighted by the grey box) marks the test line read by the lateral flow device reader.

Table S1. Correlations between markers

	[sPLA$_2$-IIA] *vs* sPLA$_2$-IIA activity	**[sPLA$_2$-IIA] *vs* [CRP]**	**sPLA$_2$-IIA activity *vs* [CRP]**
ρ (Spearman)	0.932	0.651	0.521
p-value	8.77E-23	1.75E-08	1.04E-05
r (Pearson)	0.836	0.659	0.453
p-value	4.46E-14	1.05E-08	9.43E-04