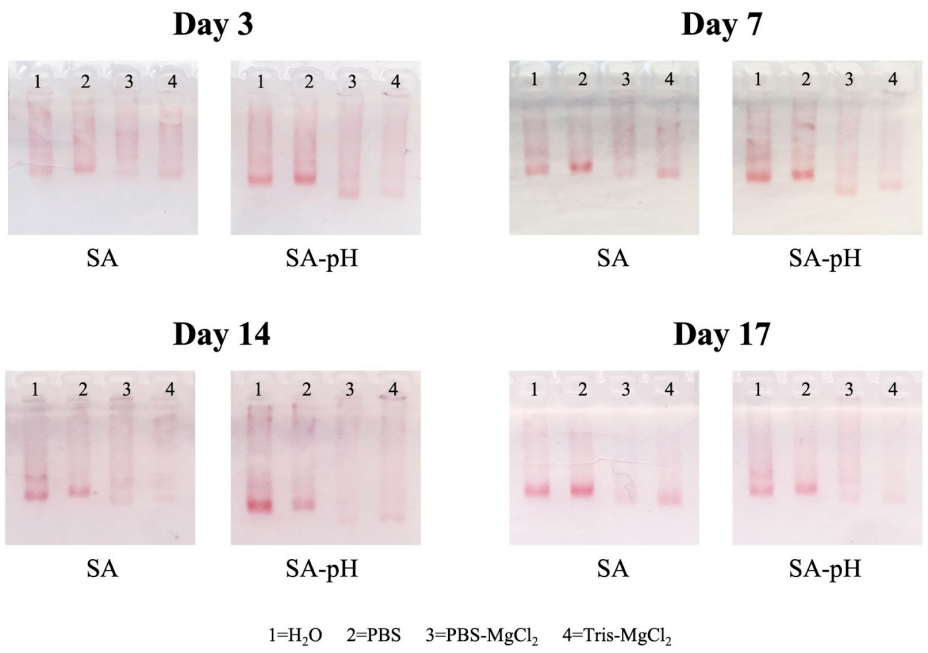
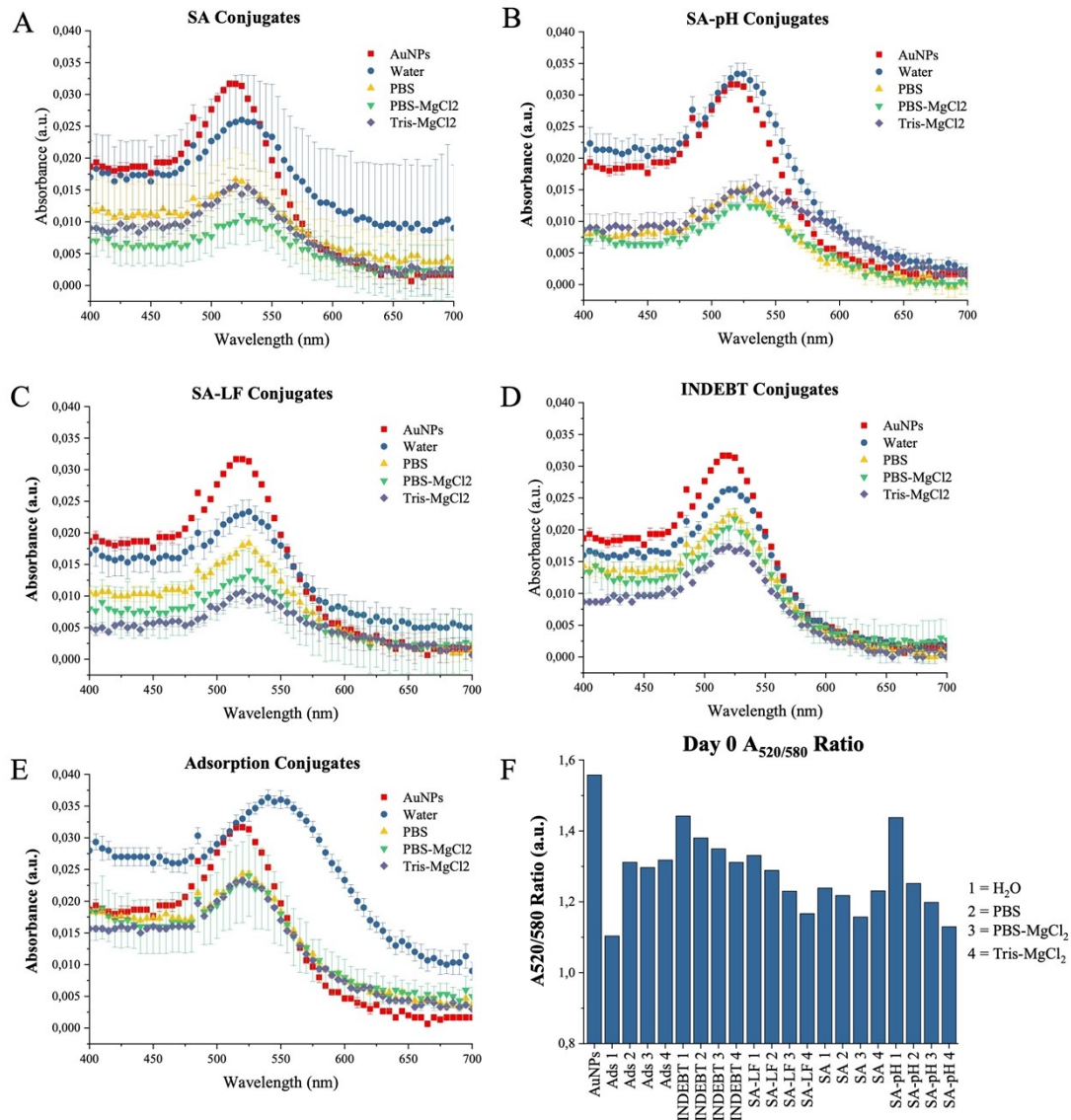


## **SUPPLEMENTARY INFORMATION**

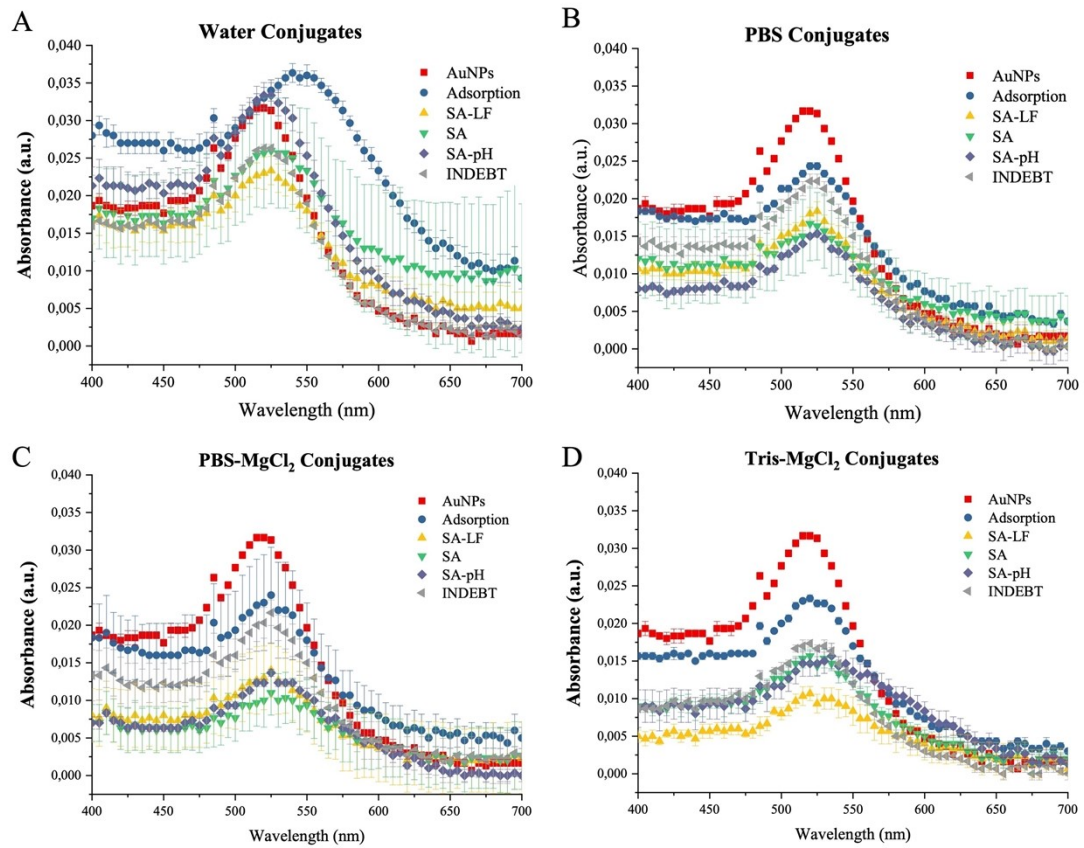
**FIGURE S1.** EMSA results of SA and SA-pH groups on days 3, 7, 14 and 17 with appearing and disappearing bands.



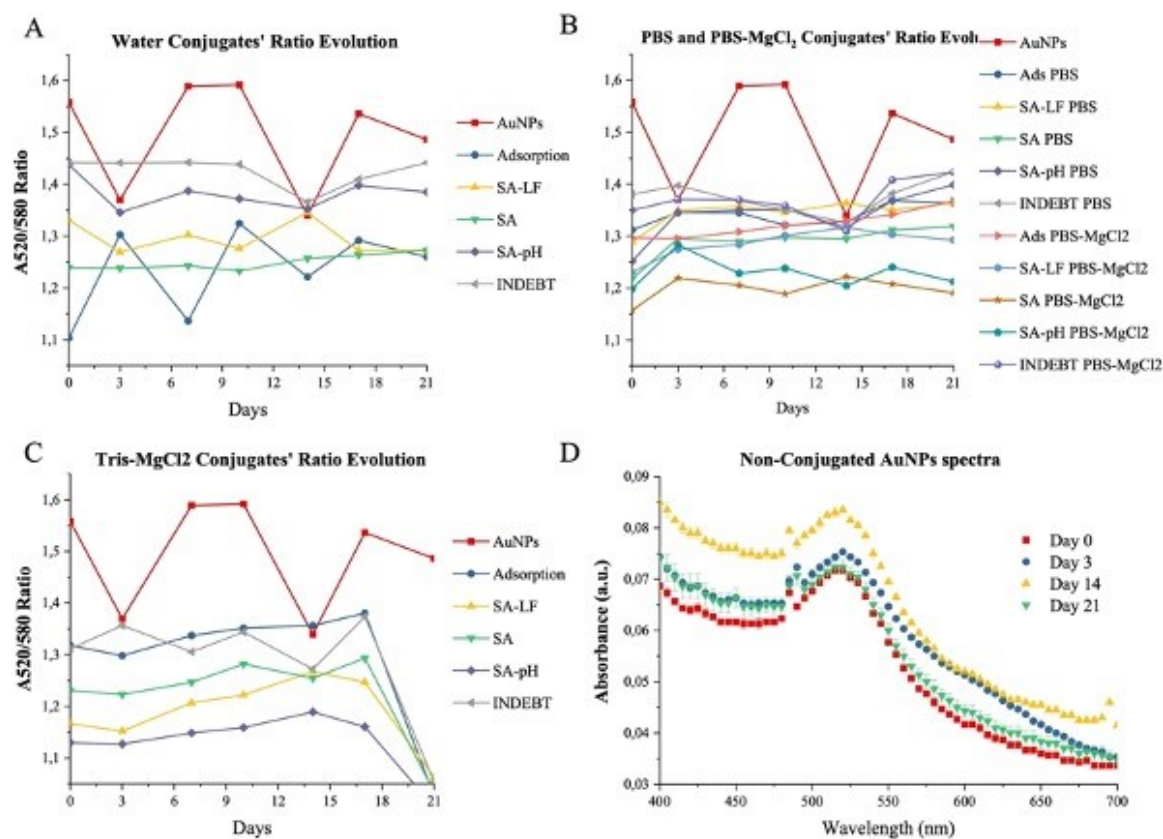
**FIGURE S2.** A-E) UV-Vis spectra of the 5 conjugation protocol groups on day 0. Non-conjugated AuNPs (AuNPs, red dotted lines) were plotted to reference typical AuNPs spectra. F) A520/580 Ratio of all conjugates and non-conjugated AuNPs on day 0.



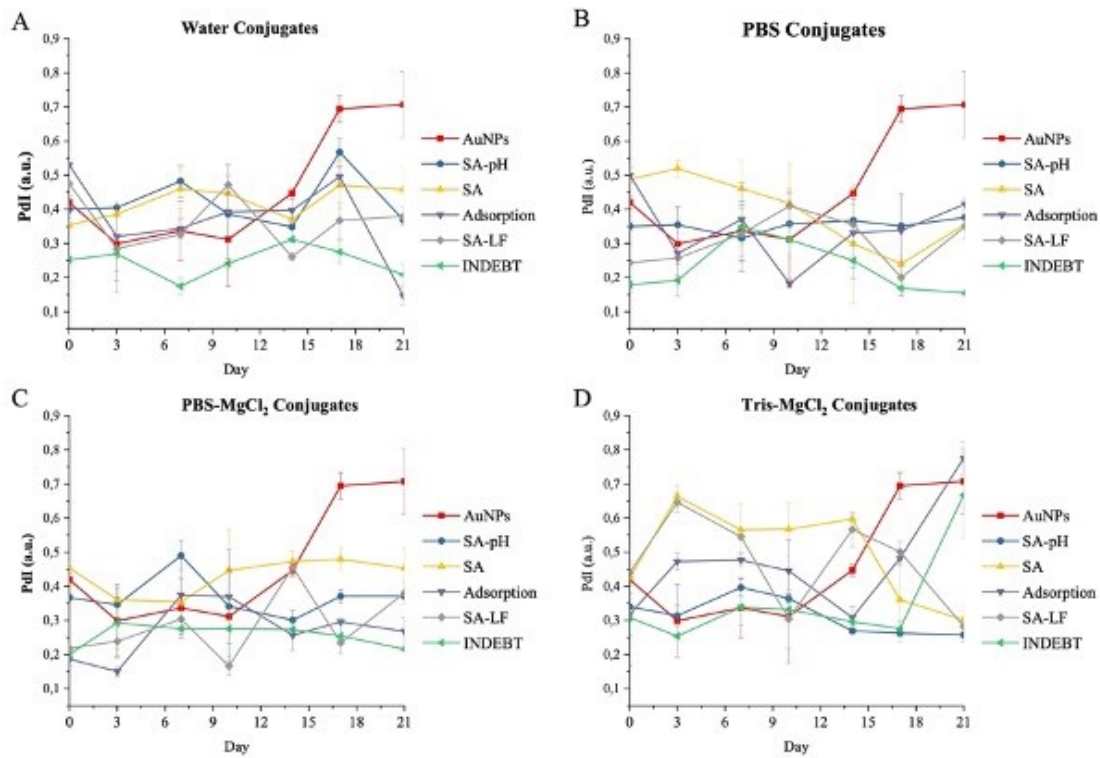
**FIGURE S3.** UV-Vis spectra of the 4 Storage Buffer groups on day 0. Non-conjugated AuNPs (AuNPs, red dotted lines) were plotted for reference of a typical AuNPs spectra.



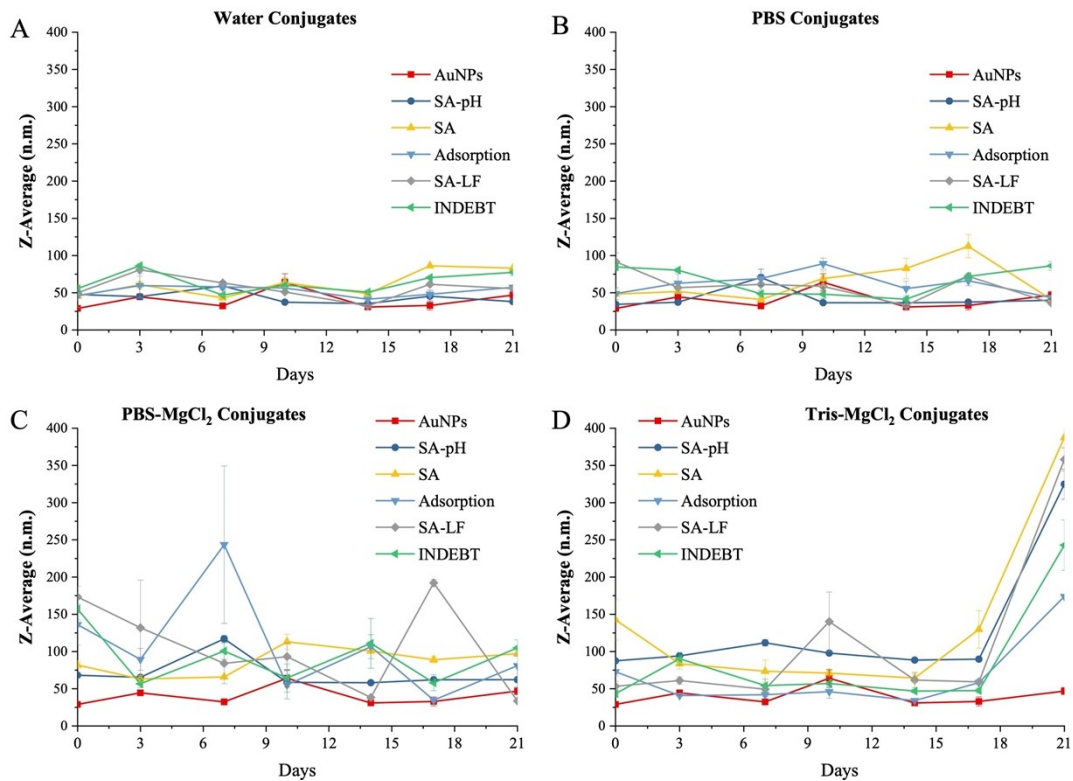
**FIGURE S4.** Figure 6: A520/580 Ratio evolution during 21 days. A) Water conjugates Ratio evolution. B) PBS and PBS-MgCl<sub>2</sub> conjugates Ratio evolution. C) Tris-MgCl<sub>2</sub> Ratio evolution. Non-conjugated AuNPs (AuNPs, red dotted lines) were plotted for reference of a typical AuNPs ratio. D) UV-Vis spectra of non-conjugated AuNPs on days 0, 3, 14 and 21.



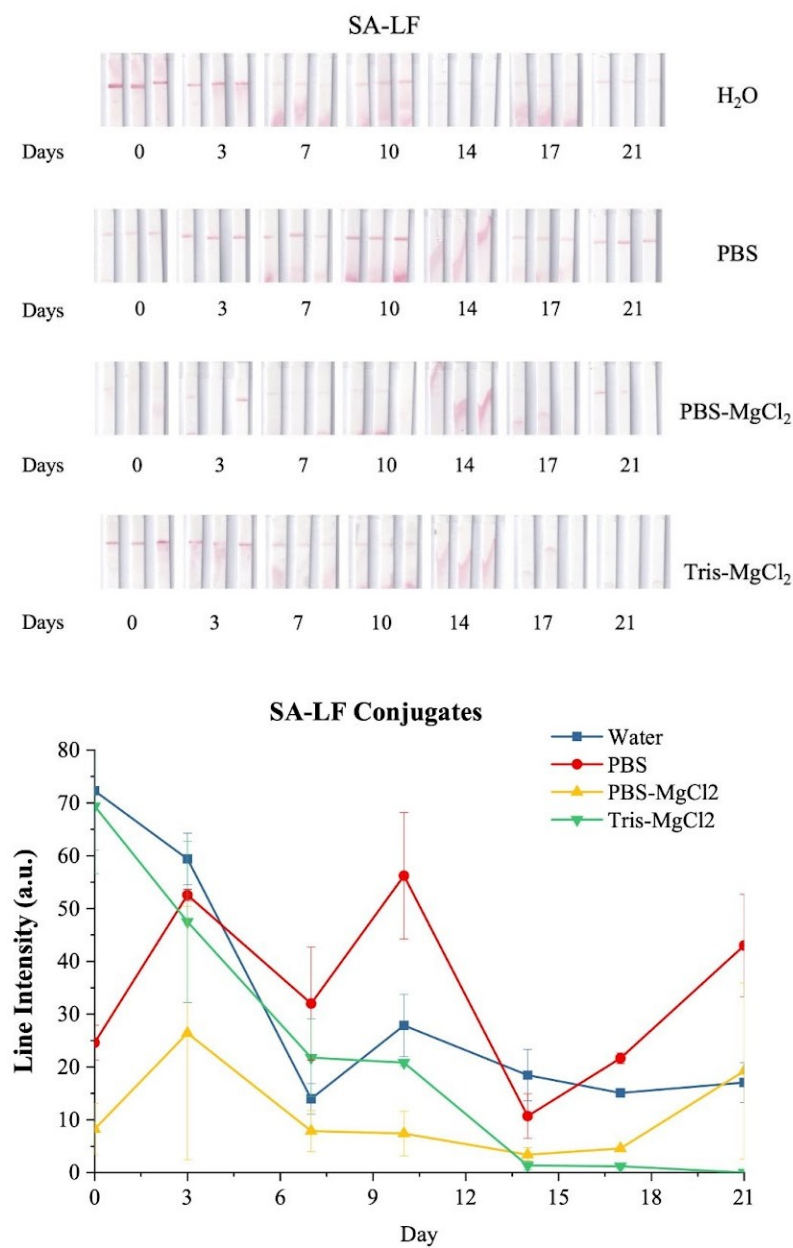
**FIGURE S5.** Pdl values of every conjugate during the 21 days of assay.



**FIGURE S6.** Z-Average (nm) of every conjugate during the 21 days.

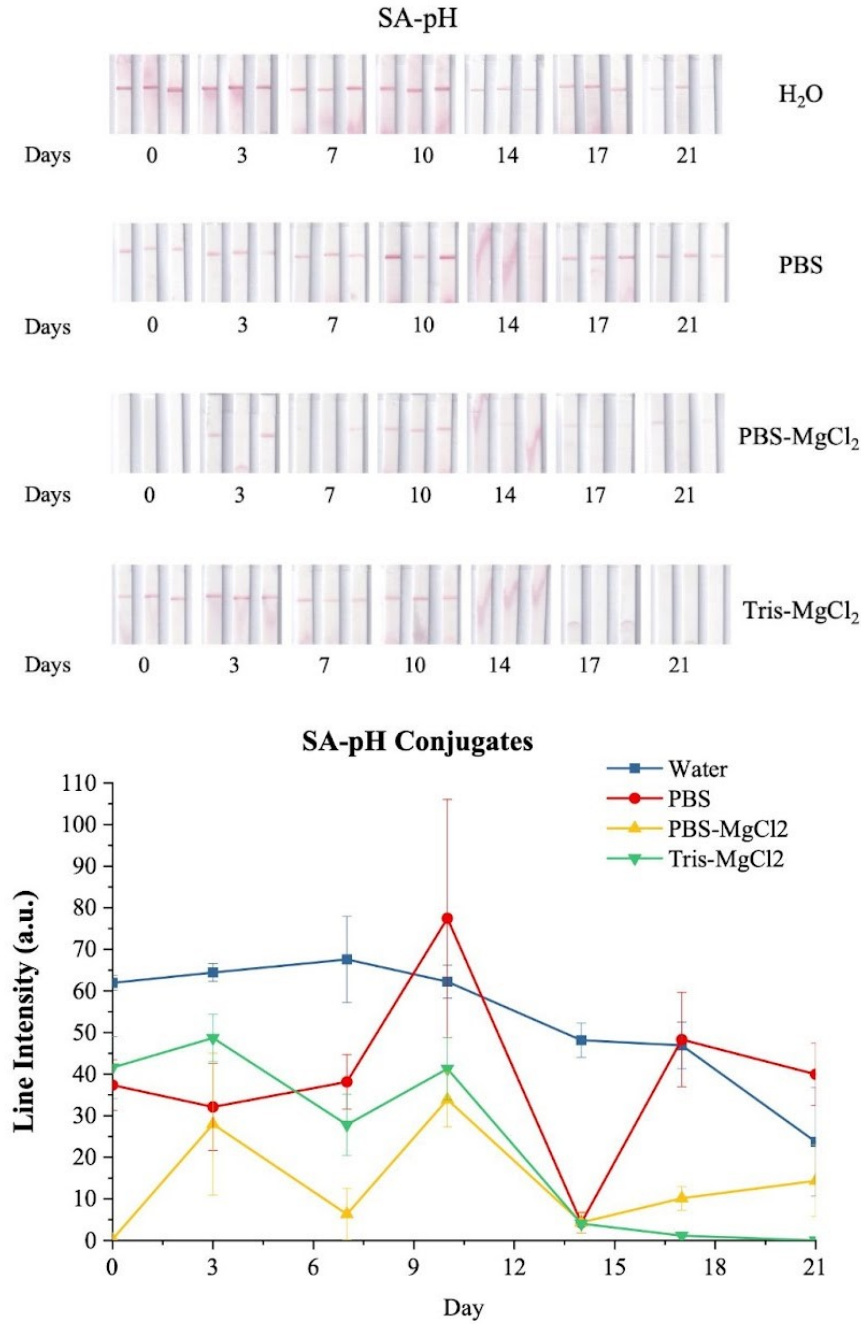


**FIGURE S7.** Lateral Flow results of the SA-LF conjugates over the 21 days of assay.



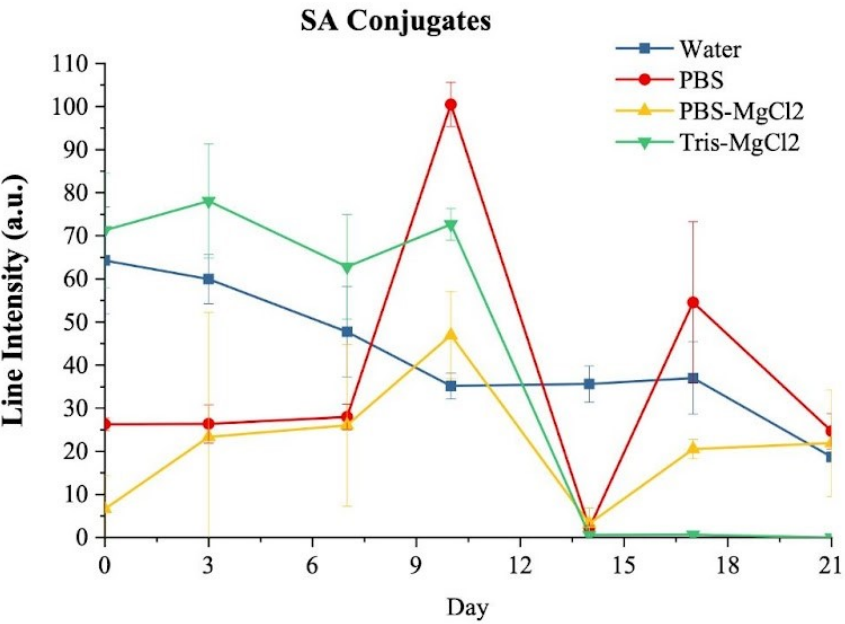
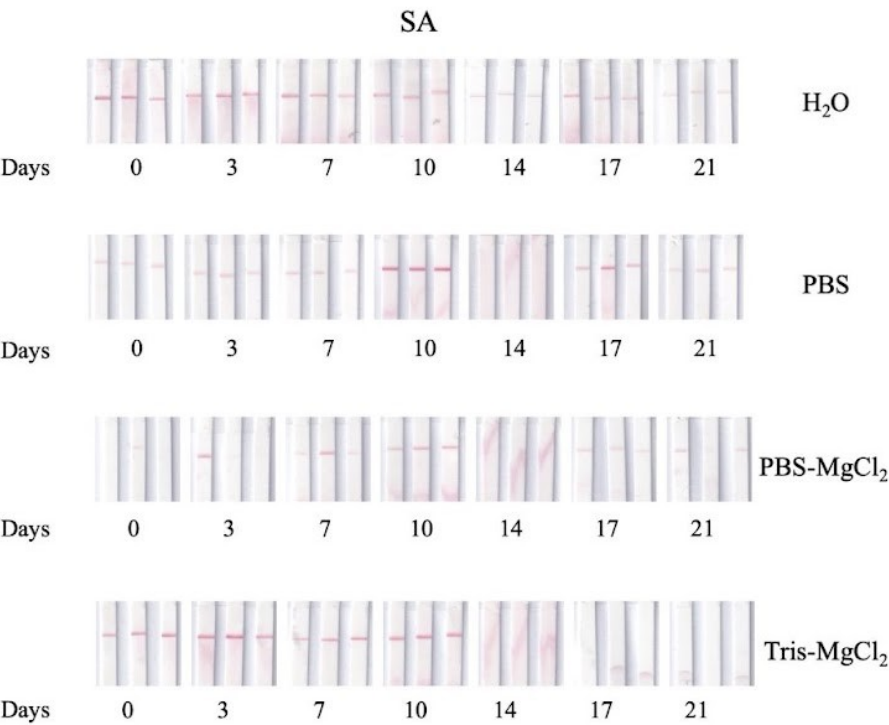


**FIGURE S8.** Lateral Flow strips of SA-pH conjugates of the 21 days of assay.





**FIGURE S9.** Lateral Flow strips of SA conjugates of the 21 days of assay.



**FIGURE S10.** Lateral Flow strips of INDEBT conjugates of the 21 days of assay. A) Lateral Flow strips. B) Image J measurements.

