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MICROGEL-BASED INKS FOR PAPER-SUPPORTED BIOSENSING APPLICATIONS

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As a first step for the development of biosensing inks for inexpensive paper-based biodetection, we prepared paper stripes printed with carboxylic poly(N-isopropylacrylamide) microgels that were modified either with an antibody or with a DNA aptamer. We found that the antibody and the DNA aptamer retained their recognition capabilities when coupled to microgel. The printed MICROGEL remains stationary during chromatographic elution while the microgel-supported molecular recognition elements are accessible to their intended targets present in the elution solution. Our work indicates that microgels, large enough to isolate the biosensors from the paper surface, are sufficiently hydrophilic to be wetted during chromatographic elution, exposing the gel-supported affinity probes to their targets.