Supplementary Material

In situ detection of hydrogen sulfide in 3D-cultured, live prostate cancer cells using a paper-integrated analytical device

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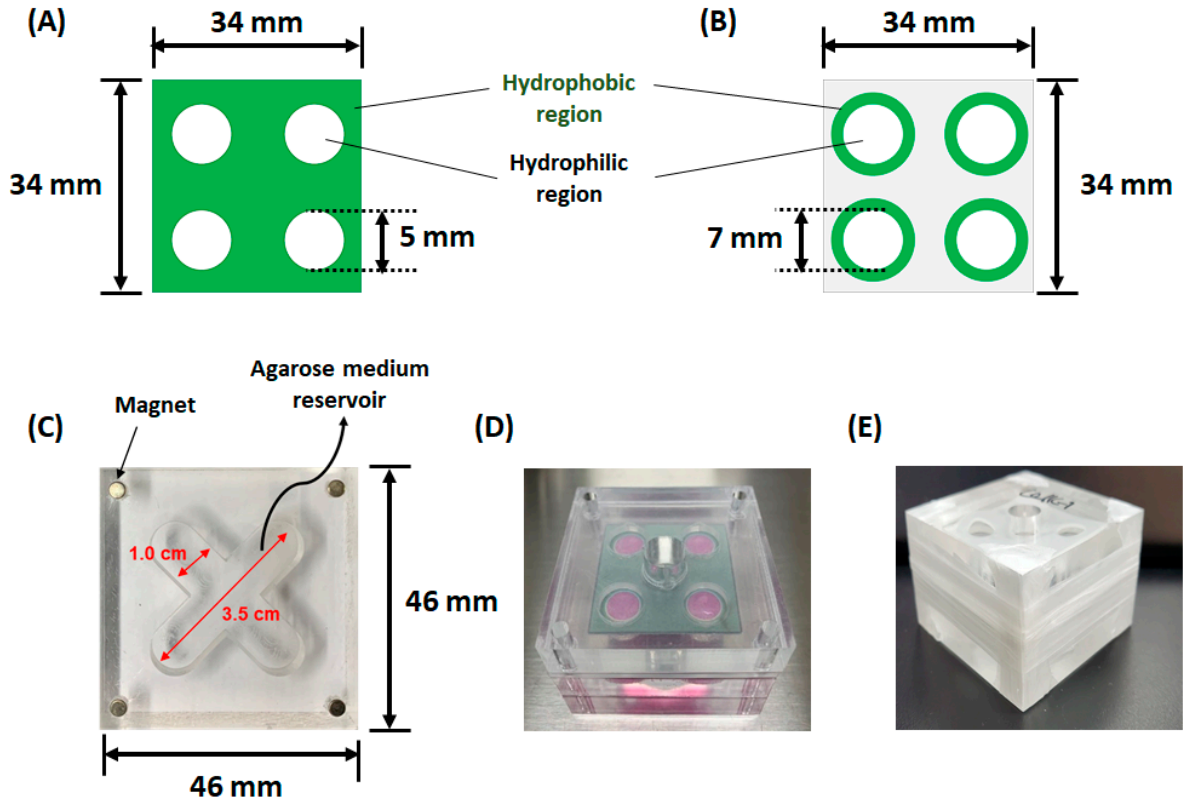

Figure S1. Design illustrating the four-zone patterned paper substrates for (A) 3D cell culture and (B) H_2S sensing. Photographic images of (C) the agarose-medium reservoir, (D) the 3D cell culture paper placed on the agarose-medium, and (E) the paper-integrated analytical device after wrapping in parafilm.

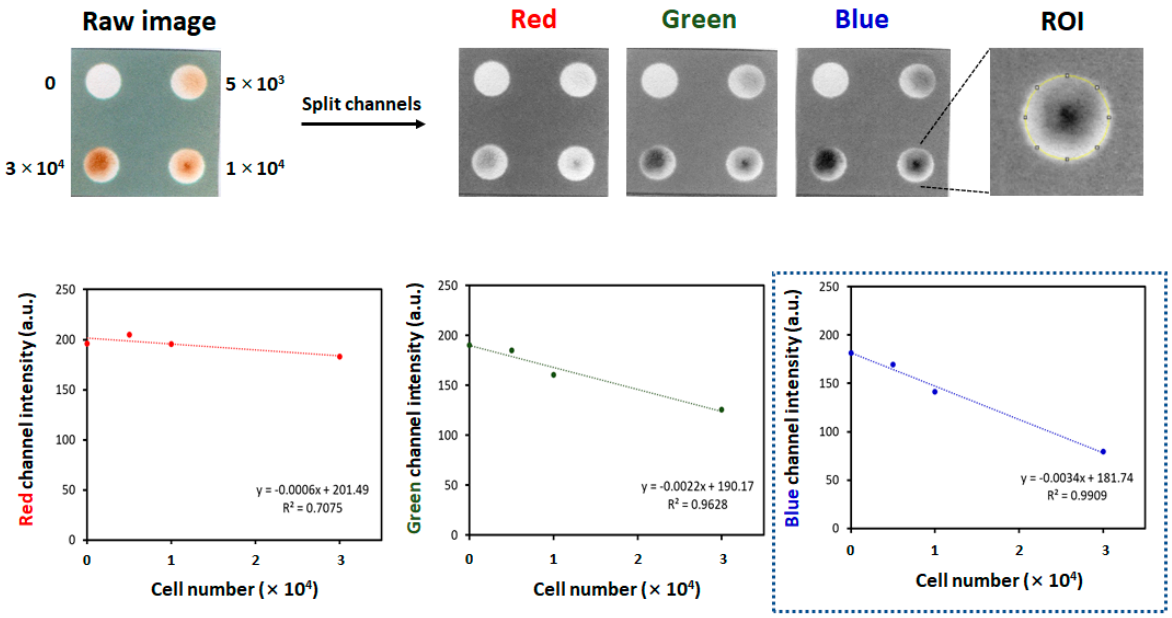

Figure S2. Image analysis of the WST assay of LNCaP cells in 3D-cultured cell paper, using ImageJ software. The original images from the scanner were split into red, green, and blue channels. Each channel was assessed to analyze the extent of scattered intensity. Among them, the blue channel showed the maximum changes and linearity under scanner conditions (slope -0.0034, $R^2 = 0.9909$), compared with the red channel (slope -0.0006, $R^2 = 0.7075$) and green channel (slope -0.0022, $R^2 = 0.9628$). The region of interest (ROI) was the whole area of each detection zone.

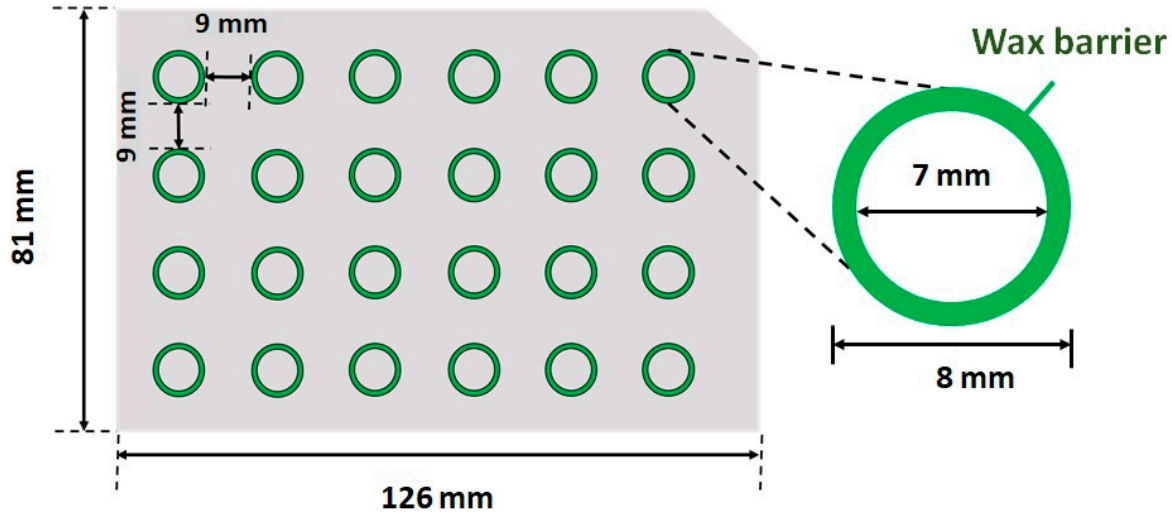

Figure S3. Design illustrating the multi-zone patterned paper with 24 circular zones for detection of H_2S in the 96-well microplate format (2D cell culture).