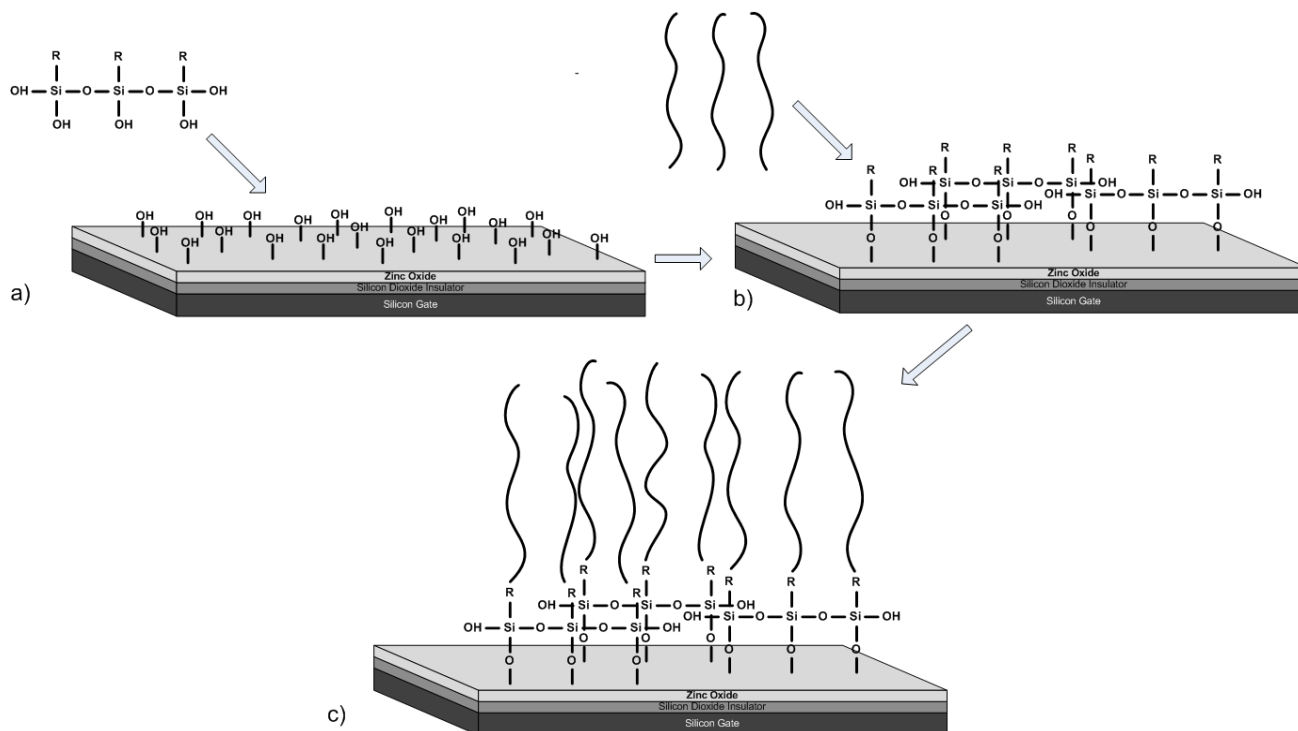


## Supplementary Information

**Figure S1.** Schematic of silane linker and aptamer attachment on a ZnO surface. (a) Surface condition and silane oligomer structure, (b) covalent attachment of silane oligomer to ZnO surface, (c) covalent attachment of aptamer to silane linker and complete functionalized structure.



**Figure S2.** X-ray photoelectron spectroscopy data confirming attachment of silane linkage and aptamers to the ZnO semiconductor. ZnO FET shows on Nitrogen, ZnO FET w/Silane shows an increase in Si 2s and 2p, and AptaFET shows the presence of 0.64% Nitrogen associated with the large amount of Nitrogen present in DNA.

Sample	Si 2s	Si 2p	N 1s	C 1s	O 1s
ZnO FET	17.15%	16.42%	-	7.55%	30.83%
ZnO FET w/Silane	17.44%	17.34%	-	7.81%	31.44%
AptaFET	17.48%	17.10%	0.64%	6.98%	31.33%

