

Next Generation Graphene Transistors for Biological Threat

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The rapid transmission and severe clinical outcomes associated with SARS-CoV-2 has highlighted the importance of digital diagnostic platforms in pandemic control. Biology-gated graphene field effect transistors (gFETs) leverage the high sensitivity and biocompatibility of graphene, enabling a digital connection to biology. The multiomics and multiplexing capability of gFETs allows for the detection of multiple biomarkers and SAR-Cov-2 antibodies utilizing different epitopes of pathogens leading to higher specificity and lower limits of detection. The versatility of gFETs allows them to be incorporated into different hardware platforms from a point-of-care handheld reader to high throughput automated liquid handlers and combined with cloud-based computational power (such as ML and AI) to meet the needs of pandemics.

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FIGURES

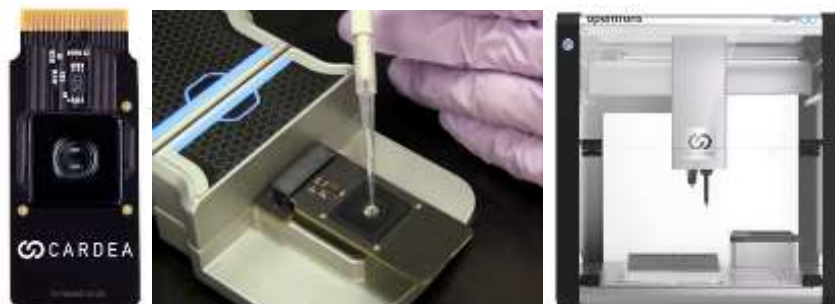


Figure 1: Biology-gated Transistor, handheld reader and automated multi-chip system