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# Selective Single-Molecule Detection of clinically relevant biomarkers with an Organic Transistor

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The *US National Institute of Health* defines biomarkers as *molecules that can be objectively measured and evaluated as indicators of normal or disease processes and pharmacologic responses to therapeutic intervention*. Among the plethora of biomarkers, the sensitive detection of proteins is of paramount importance in a number of clinical fields.<sup>1</sup>

The clinical use of protein biomarkers as indicators of the onset of pathological states requires the measurement of low concentrations of proteins in complex samples. Attempts to develop ultra-sensitive assays for the detection of protein biomarkers have been done by several groups in the last few years. Although in the last decade many approaches to achieve ultra-sensitive detection have been developed, most of them require complicated assay set-ups, hindering their adoption in point-of-care applications. In this perspective, Electrolyte-Gated Field-Effect-Transistors (EG-FETs)<sup>2-6</sup> with a bio-functionalized gate electrode, appear as very promising biosensing platforms. The EG-FET device herein presented, able to operate in physiologically relevant fluids such as blood serum and saliva, will set the ground to a major revolution in biosensing applications for early clinical detection.

## References

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