

Abstract

Precision medicine – A driving force force for biosensor technologies developments and economics

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Precision medicine initiative is to overcome the “averaged” medical paradigm that has been practiced for decades. To illuminate meaningful translational information out of the intrinsically complicated of a biological system created an unprecedented demand for an ultrahigh throughput biosensor with capability of providing big data information. The developments of microarray and NGS, with the help of systems biology and bioinformatics, steps closer to a more precise translational approach for diseases, including cancers. Further development of a next generation biosensor is indeed needed.

With the help from semiconductor's dimension (compatible with target bio-molecules makes it possible to measure what could not be easily measured in the past), we could mitigate the gap we have to realize precision medicine and companion diagnosis.

In this talk, I will try to explain what's the ecosystem and infrastructure available out there from consumer electronics companies and pharmaceutical companies, who are also working on the mobile health care and bench-to-bedside diagnostics to achieve precision medicine - as well as what's the bottlenecks limitations of the current technologies, i.e. sensitivity and resolution of conventional CMOS process.

Given the above information, I wish to draw the attention from semiconductor and pharmaceutical companies and elucidate how they can work together and the economics that they can generate.

Keywords: precision medicine; biosensor; field effect transistors

Reference:

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