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### **Biosensors as Analytical Tools for 21st Century**

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In recent decades, biosensors have shown great promise in many applications ranging from environmental testing and biowarfare agent detection to clinical testing and cell analysis. The importance of biosensors is driven by several factors including chronic diseases and environmental health-related dilemmas, such as: diabetes and obesity, heart disease, stroke, cancer, chronic respiratory diseases, tuberculosis, etc. Significant problems with environmental monitoring, serious challenges in security and military applications and agriculture/food safety are also common driving motivations for biosensor development. In fact, biosensors are highly sensitive and selective to target analytes and provided near-real time response data while being cost effective and capable of resolving multiple analytical problems. The expanding role of biosensing in society and a real-world environment has led to an exponential growth of the R&D efforts around the world. The world market for biosensor devices is expected to reach \$12 billion by 2015. Clearly, biosensors have become one of main analytical tools in 21st century and this presentation will discuss biosensing principles and applications in a variety of disciplines.