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Quantum Dot Diagnostics: Simultaneous Genomic and Proteomic Profiling of Multiple Pathogens at Point-of-Care

Integrated GE³LS Research Regulation and monitoring of convergent technologies

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Summary

The team will systematically address the potential GE³LS issues stemming from the development and commercialization of the quantum dot (Qdot) diagnostic system, a high-throughput diagnostic system capable of detecting multiple global infectious disease threats at point-of-care; in 3 parts:

1. *Public Engagement:* The project team will develop and evaluate a public engagement tool for high school students and the general public that encompasses various emergent technologies and their application to infectious disease research.
2. *Regulation of the Convergence of Genomics, Proteomics and Nanotechnology:* The project team will identify regulatory issues related to convergent technologies and work with Canadian regulatory authorities to develop regimes and guidelines on implementation of any standards that may be developed. As such, they will a) survey Canadian and international regulatory regimes for each of the major technologies involved in the project; b) develop a database of cognate regulatory regimes; c) identify potential bottlenecks that are likely to slow down the development of convergent technologies; d) develop recommendations for the federal government on how to streamline the different regimes to develop “smart regulation” for convergent technologies; and e) work with Canadian regulatory authorities to develop regulatory regimes and guidelines on implementation of any future Canadian standards.
3. *Monitoring of Risks and Benefits of Quantum Dots:* The project team will monitor research on toxicity of Qdots and develop an annotated database of research publications and data on the potential risks of Qdots after exposure, and participate in policy discussions with the Canadian federal government on these issues.