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## **Abstract**

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### **“Proteomics as a tool to detect gene doping: An introduction to protein expression profiling”**

Emerging proteomics technology may provide regulatory agencies, such as WADA, with a means to accurately, rapidly, and reproducibly test for illegal substance use in athletes. The underlying hypothesis is that doping activates signal transduction pathways that ultimately result in quantifiable changes in protein expression that can be monitored. Once defined, panels of these proteins, or biomarkers, can be used as a diagnostic tool to monitor doping. This presentation will introduce the methodology and technology used to measure protein expression profiling. Specifically, the topics of sample preparation, two-dimensional electrophoresis, and matrix assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) will be addressed. Additionally, data will be presented demonstrating proof-of-principle for these methods as a viable option to monitor changes in protein expression.