Garry Palmateer, MSc

VP and Chief Microbiologist
Guanine, Inc.

Over the course of 40 years Garry has worked extensively in microbiology laboratories providing analysis of coliforms, fecal coliforms, Escherichia coli, fecal streptococci, enterococci, Pseudomonas aeruginosa, Staphylococcus aureus, Clostridium perfringens, Salmonella spp., Campylobacter jejuni, Yersinia enterocolitica, coliphage, Cryptosporidia spp. and Giardia. During that time he provided analytical support, supervision, consulting and new study methods in cooperation with many Ontario Government laboratories in the Ministry of Environment and Ministry of Health. Garry was the Principal investigator in the Walkerton, Ontario, E. coli and Campylobacter outbreak (2000), and a consultant following the Cryptosporidium outbreak in North Battleford, Saskatchewan. He provided microbial source tracking investigations in order to prioritize microbial contamination of municipal water supplies as part of the requirements of the Ontario Clean Water Act, 2006 and was a consultant to hospitals, geriatric homes, and industries regarding Legionella growth in water distribution systems. Garry has also conducted contamination source identification using antigen-antibodies for precise identification of industrial food wastes represented by bacterial pathogens, such as Salmonella and Campylobactor species in food wastes impacting waste water treatment failures. He has also worked with major antibody producers to achieve the sensitivity and precision of antibodies. Garry subsequently directed lab operations during the accreditation processes for the GAP EnviroMicrobial Services Inc. laboratory for several agencies, including the US Environmental Protection Agency for the recovery and identification of Cryptosporidium oocysts in municipal drinking water, and the American Industrial Hygiene Association for accreditation in the recovery and identification of molds and yeasts. He was nominated for an award by the General Motors Corporation for my expertise in conducting a thorough investigation into the determination of the multiple sources of Legionella pneumophila that could potentially affect workers in their Atlanta, Georgia, assembly plant.

At Guanine's predecessor company Early Warning, Garry co-developed a fully-automated device that recovers and identifies low levels of pathogenic microorganisms from large volumes of potable water within a three-hour period using a carbon nanotube electrochemical biosensor invented by NASA for space applications in monitoring environmental systems and astronaut heath. As Chief Microbiologist, he developed a microbiological plan to select appropriate methodologies, and ensure that the biosensor and preparation protocols would be capable of fulfilling standard test protocols for detecting pathogenic and surrogate microorganisms, and ensure test results would be acceptable to government regulators. He worked with mechanical, electrical and chemical engineers to develop ultrafiltration, hydrodynamic cavitation, immuno-magnetic separation, and biodetection modules which were capable of being automated in a sequence of operation. He developed assay protocols for an amplified hybridization assay to detect KPC enzyme genes and E.coli RNA, and an amplified immunoassay for cryptosporidium surface proteins. Garry is currently leading all biological aspects in the development of an integrated Lyme disease diagnostic platform. The platform includes a rapid, simple, and inexpensive quantitative test for measuring multiple Borrelia strains and species, anti-Borrelia antibodies, and co-infections in a POC cartridge from a finger-prick whole blood sample that can be collected by a technician or a patient. He is also participating in the development of an AI algorithm to diagnose Lyme disease and recommend personalized post-antibiotic treatment. Garry is guiding assay differential diagnosis of persistent bacterial and viral infections.

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