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Applied use of next gen sequencing for infectious disease

The advent of automated human genetic sequencing capability has allowed a crossover for sequencing infectious diseases. The same technologies that allow us to query the human genome for cancer mutations, SNP's, pharmacogenomics, and inborn genetic errors now allow more in-depth analysis of human samples for evidence of infectious disease. Next - Generation sequencing (NGS) for infectious disease has proven to be more accurate with greater sensitivity and specificity than culture, serologic and PCR methods. They also now allow better discrimination of species, detection of novel variants, new novel organisms, detection of an ever-growing array of uncultivable organisms, and the ability to detect eukaryotes that before were undetectable. NGS also may soon hold the ability to additionally provide drug resistance and sensitivity information. Here we describe the rapid infectious disease identification system, RIDI™, and its practical use. Application of the RIDI™ system is discussed in four case reports with patients suffering from chronic malaise, rheumatoid arthritis, osteoarthritis, and chronic fatigue syndrome with discussion providing new insight..

Speaker Biography

Stephen E Fry has completed a BS in Microbiology, MS in Molecular Biology and Medical Degree all earned at the University of Arizona. He completed his Post-graduate training at Banner Health and St. Joseph's Medical Center in the Phoenix metropolitan area. He has been in general practice in the Scottsdale, Arizona since 1992 and has had a special clinical interest in CFS, autoimmune and vascular disease. He has lectured nationally and has numerous publications, abstracts, and patents. His science interests are in the microbial causation of chronic disease, biofilms, and their treatment. Because of these interests he has worked on new methods for disease detection which have culminated in the development of a next-gen sequencing system for microbial identification. He is the Founder of Fry Laboratories LLC, a CLIA clinical diagnostic laboratory that participates in CAP and API validation systems. The laboratory specializes in the vector borne diseases, molecular methods of detection of prokaryotes, archaea, protozoans, and fungi.

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