



Dr Ehrlich is Professor of Microbiology and Immunology, and Otolaryngology-Head and Neck Surgery at Drexel University College of Medicine (DUCOM) in Philadelphia, PA, USA. He also directs both the Center for Genomic Sciences (CGS) and the Center for Advanced Microbial Processing (CAMP) within the Institute for Molecular Medicine and Infectious Disease, and the Core Genomics Facility within the Clinical and Translational Research Institute. CGS scientists utilize a broad array of comparative genomic techniques and bioinformatic tools, many developed in-house, to identify and characterize both virulence genes within pathogens, and susceptibility genes to pathogens within their hosts. Dr Ehrlich is also one of the founders of the field of Clinical Molecular Diagnostics (MDx), having been involved in the original application of PCR for the detection of human retroviruses in 1985. He founded the MDx Division at UPMC and used these experiences to author the first text book/lab manual for infectious disease (ID) MDx. Together with a team of like-minded pioneers he was one of the founders of the Association for Molecular Pathology and served as the first co-chair of the ID section. Dr Ehrlich counts among his major contributions to science the re-writing of much of our understanding of chronic bacterial pathogenesis. This began with his promulgation of the biofilm paradigm to explain many facets of chronic mucosal microbial infections. This work began with his explorations into chronic middle-ear disease in children which he has since repeatedly generalized such that it is now widely accepted that the vast majority of all chronic microbial infections are biofilm-associated. He also advanced the Distributed Genome Hypothesis to explain the enormous clinical variability among strains of a bacterial species, which together with the biofilm paradigm form the bases for his rubric of Bacterial Plurality. More recently he has developed the concept of bacterial population-level virulence factors and has used statistical genetics for the first time within the field of bacterial genomics to identify distributed genes that are associated with virulence. This computational methodology provides a non-biased, top-down approach to prioritize the annotation of hypothetical genes. Coincident with the recent relocation of his research enterprise to DUCOM he founded CAMP which functions as a collaborative multi-discipline facility for exploitation of a suite of technological advances, many developed within the CGS, which permit the identification, cloning, heterologous expression, and biochemical verification of commercially important biosynthetic and biodegradative pathways from what he refers to as the “Genomic Dark Matter”. Dr Ehrlich’s latest paradigm-changing hypothesis is that Alzheimer’s disease results from a combination of chronic bacterial infections of the brain (primarily originating from the periodontium) and the brain’s anti-microbial and inflammatory responses to these infections.