



## Akonni Biosystems Management Team

### **Charles Daitch Ph.D. – CEO, President and Founder**

Dr. Daitch has 20 years experience encompassing a broad range of disciplines including chemistry, biology, biosensors and chemical/biological defense. He directs multidisciplinary teams of scientists focused on the development of infectious disease diagnostic tools that implement novel sample preparation, molecular recognition and optical based detection technologies. Dr. Daitch has significant experience in sensor system product development employing: 1) automated miniaturized biomolecule purification and signal amplification in complex samples, and 2) integration of microfabricated components such as: microarrays, thermal electric control, microfluidic fluid flow, and electro-optical detection. He brings strong product development and R&D experience from the NIH/FDA, the USDA, and Sandia National Labs. Dr. Daitch was recruited by HandyLab Inc., a microfluidics diagnostics company, to serve on the executive management team as Vice President of R&D. In this role, he assisted in strategic planning, business alliances and agreements, and R&D collaborations. Prior, Dr. Daitch launched a biodefense R&D business unit for Veridian Corporation, a premier defense contractor, and led the growth of the operation to 24 employees and \$5M in annual revenue. He has 4 U.S. patents, 17 peer reviewed publications and served as principle investigator on over \$12 million in government grants and contracts.

### **Darrell Chandler Ph.D. –Chief Science Officer**

Dr. Darrell Chandler joined Akonni Biosystems after 15 years of service at Pacific Northwest and Argonne National Laboratories, where he led and managed multidisciplinary teams of biologists, analytical chemists, engineers, statisticians and computer scientists in the development of integrated nucleic acid-based biodetection systems for environmental and clinical applications. Since receiving his PhD in microbiology, he has authored 46 peer reviewed publications, holds 4 issued U.S. patents with several patents pending, and given 34 invited presentations in national and international forums based on investigator-initiated, peer-reviewed research grants from the NIH, DOE, EPA, and DHS. Areas of scientific and technical emphasis include methods and devices for automated sample preparation from large-volume, complex sample matrices and array-based detection technologies. He currently serves on the editorial board for Applied and Environmental Microbiology, is a peer reviewer for the Proceedings of the National Academy of Sciences, Nature Biotechnology, Nucleic Acids Research and 12 other journals, and is a regular contributor to NIH study section IDM-M.

### **George Rudy M.D. Ph.D. – Chief Medical Officer**

Dr. Rudy joined Akonni Biosystems in June, 2007, after two years as the Director of Medical and Scientific Affairs at Prosetta Corporation. Before that, he served as the Scientific Director of GeneType, Pty. Ltd., an Australian biotechnology company. Prior to entering the commercial sector, Dr. Rudy was a Senior Research Scientist at the Walter and Eliza Hall Institute of Medical Research, where he helped establish the Bioinformatics Group. Dr. Rudy holds a B.A. from Yale University, an M.D. from Stanford University School of Medicine, and a Ph.D. from the Walter and Eliza Hall Institute of Medical Research (Melbourne, Australia). His research interests have included the immunopathogenesis of diabetes, computational approaches to the modeling of MHC-peptide interactions, and high-throughput screening for compounds with antiviral activity. Dr. Rudy has practiced as a generalist physician (internal medicine), and has experience in the fields of tuberculosis control, tropical/infectious diseases, and clinical diabetes care.

### **Phil Belgrader Ph.D. – Vice President, Research and Development**

Dr. Phil Belgrader is well known for his major contributions to the fields of biodefense and microfluidic-based biological detection platforms. His broad understanding of analytical platforms and unique skills to bridge biology and engineering have yielded successful commercial products. Most recently he was the Chief Scientist in the Chem Bio Explosive Defensive Systems at Northrop Grumman Corp. He received his Ph.D. in Cell and Molecular

Biology from the University at Buffalo and was a Neuromuscular Disease Research Fellow at Roswell Park Cancer Institute. From 1994-1997, Dr. Belgrader was an officer in the US Air Force and served as Chief of the Advanced Technologies Development Branch of the Armed Forces DNA Identification Laboratory. He developed new pioneering approaches to sample processing and human identification. This work included microchip PCR, mass spectrometry, capillary electrophoresis, robotic processing of FTA paper (bloodstain DNA reference cards), and multiplex ligation-based assays for SNPs. He also demonstrated the first detection of anthrax and orthopoxviruses on a portable microchip PCR instrument. From 1997-1999, Dr. Belgrader was a Principal Investigator at Lawrence Livermore National Laboratory. Major accomplishments included rapid anthrax spore lysis by sonication through a plastic interface, ultra-fast PCR, a flow-through PCR module (became incorporated into the Autonomous Pathogen Detection System and BioBriefcase), and the production of the first handheld real-time PCR instrument called the Handheld Advanced Nucleic Acid Analyzer. His ultra-fast PCR work, published in Science, was honored by the Secretary of Energy. From 1999-2001 he was a Senior Scientist at Cepheid, where he developed the core sample preparation technologies for the GeneXpert and other microfluidic devices. The GeneXpert is currently used in the Northrop Grumman Biohazard Detection System installed at US Postal Service mailing sorting facilities. From 2001-2004, he was a founder and CSO of Microfluidic Systems, Inc., receiving funding from DHS and the FBI to develop microfluidic-based instruments for air monitoring and processing of complex forensic samples, respectively. Dr. Belgrader has over 40 publications, 9 issued patents, and several patents pending. He has also served on a number of Government study sessions.

#### **Jennifer Reynolds Ph.D. – Vice President, Applied Technology & Operations**

Dr. Reynolds brings her extensive technical, managerial, and operational expertise in the fields of Forensic DNA Testing and Molecular Genetics to Akonni Biosystems. Prior to joining Akonni, she served many years as a Laboratory Director and Senior Manager at one of the nation's premier forensic DNA testing laboratories, Orchid Cellmark, formerly Cellmark Diagnostics. There, Dr. Reynolds led multi-million dollar Government contracts, supervised teams of forensic scientists processing thousands of case samples annually, and provided extensive technical review of scientific data. As a sought-after expert witness, she delivered high quality testimony in courts of law across the country. Previously at Molecular Tool, an emerging genetics technology company, Dr. Reynolds actively contributed to the company's R&D and Business Development efforts, moving the SNP-based technology successfully towards multiple application areas such as human identification testing, clinical diagnostics, plant genomics, microbial testing, and pharmacogenomics. Dr. Reynolds received her doctorate in Human Genetics from the Medical College of Virginia in the study of genetic disorders using molecular gene mapping and statistical strategies.

#### **Eric Black Ph.D. – Vice President, Manufacturing**

As the Vice President of Manufacturing, Dr. Black directs production, quality control, and testing of Akonni's bio-chip manufacturing facilities for customers in the military, homeland defense and private sectors. Prior to joining Akonni, Dr. Black accumulated expertise in the chemistry of main group elements, with an emphasis on process, structure, and property relationships for polymers containing these elements. His background includes reactive intermediate chemistry of Group IV/Group VI organometallics, which was done during his thesis work at North Dakota State University. This work provided the background to extend into polymer research at Sandia National Laboratories (SNL), where he was an investigator involved in a Cooperative Research and Development Agreement (CRADA) between SNL, Dow Corning, and University of Cincinnati. During this experience, Dr. Black investigated novel approaches to enhancing properties of silicone materials. Following this work, he spent several years working in industry for Georgia Pacific Resins, Inc. as a Senior Development Chemist where he contributed to their adhesives research division and oversaw the manufacture of commercial thermosetting resins. Most recently, he was employed by General Dynamics where he accumulated program management and technical expertise pertaining to novel biological sample collection and sample preparation technologies employing specialty polymers and coatings for military and homeland defense customers. Dr. Black has published numerous refereed papers including chapters in several books and holds several patents.