Foreword

BAS as Darwin Might See Us

A chemist asked me the other day what we do at BAS. I said we were a drug development company that spent its time doing contract research on such things as diabetes, osteoporosis, AIDS medicines (and other antivirals) and of course, our 26-year history of working on central nervous system (CNS) problems such as depression, schizophrenia, stroke and other unpleasantries. I mentioned how we did drug safety testing and pharmacokinetic evaluations and supported all phases of clinical trials with a lot of liquid chromatography/mass spectrometry (LC/MS/MS) in which we have invested well over $5 million. My companion thought we had something to do with electrochemistry. "Electrochemistry? What's that?" I joked, of course, that mass spectrometry is electrochemistry by the definition that "charged things move."

How did this all happen? How did BAS (I call it BASpharm, as in "bass farm" if you like fishing) get involved in working with other companies on drugs that now sell over $15 billion each year, helping millions of people? It started with a kid who was amazed by electronics and rockets in the late 50s, and motivated by Sputnik in 1957. That led to an interest in amateur radio. (Building your own transmitter and sending Morse Code to Brazil was a miracle to a kid back then.) The interest in electronics led to an interest in electrochemistry (combining two interests). This led to a science fair project in electroanalytical chemistry in 1961, and on to an undergraduate research project in the same area in 1965.

An interest in electroanalytical chemistry in graduate school got connected to the fact that the brain and liver both seem "electrochemical" and that medicine is a key frontier of science. That led to doing electrochemistry and liquid chromatography on neurotransmitters and later to drugs being transformed in the liver and then to natural products, macrocyclic antibiotics, CNS drugs, etc. This put us deep into looking at redox reactions in biology (thiols and disulfides, hydroquinones and quinones), then pharmacokinetics, pharmacodynamics, toxicology and toxicokinetics. Once we got into macrocyclic antibiotics, due to the value of electrochemistry in that connection, we followed our nose into other anti-infectives, protease inhibitors, reverse transcriptase inhibitors, drugs for diabetes, the first real flu medicines and leading compounds for schizophrenia. Yes, we see electrochemistry as one tool. We see microdialysis and robotic blood sampling and behavioral monitoring and mass spectrometry and biosensors and clinical chemistry and histology as other useful tools — sometimes all used to attack the same problem at the same time.

Analytical chemistry is the only science which participates in every single step of the drug development process, from genomics to proteomics to high throughput screening to pre-clinical development, clinical development and marketed products. Pharmaceutical companies are chemical companies, a definition not known on Wall Street. They also are technology companies. This too is not an accepted concept in the jargon of the Street. Those of us who work with chemicals, whether they are in shampoo, the human brain or a drug formulation, must understand where they are and what they do. We have to take measurements. We need instruments. We need to correlate such things as blood pressure with concentration and with how we feel after swallowing a capsule. Einstein was correct when he said, "Not everything that can be counted counts, and not everything that counts can be counted." At BAS, everything we measure counts. Good numbers that help us understand disease are important.

What I like about our business is how we get connected to global teams. For some of the projects we work on, we join with 5,000 other professionals, most of whom we have never met but all contributing essentially to the same goals, healing the sick and enhancing shareholder value. Without one, you can't have the other. That's what community is all about.

pete@bioanalytical.com