

SciTech Lecture Series 2011-12

Ideas in ACTION

October 2011



“From Mount Pharmacology to the Shores of Biotechnology: A ‘Wellcome’ Experience”

Morris J. Clarke, PhD, was the featured speaker for the October SciTech Lecture Series event at Forsyth Technical Community College. His lecture entitled “From Mount Pharmacology to the Shores of Biotechnology: A ‘Wellcome’ Experience” was very well received by the audience. Dr. Clarke is an Associate Professor in the Life Sciences Department at Winston-Salem State University. As the first African-American senior scientist at Burroughs Wellcome, he shared his professional experience and his observation of the paradigm shift from the physiological-based pharmacology models of the 19th and 20th Century to the days of Glaxo Wellcome (now GlaxoSmithKline) and biotechnology. He also described the philosophical shift from a needs-based research focus to a commercially motivated process of drug discovery.

Russ Read, Executive Director of the National Center for the Biotechnology Workforce, introduced Dr. Clarke. Interestingly, the two men share a connection through Burroughs Wellcome; while Read was stationed in Canada, Clarke was here in North Carolina. Both Read and Clarke spoke fondly of their time at Wellcome. Dr. Clarke reminded his audience that we should use our experiences and learn what we can from every opportunity when he said, “Wellcome enriched my life and working with high level people was a great learning experience.”

Dr. Clarke described the process of drug development from identifying a target to FDA approval. The work of his team centered on Absorption, Distribution, Metabolism, and Excretion (ADME). They were examining environmental, medicinal and dietary inducers and inhibitors of drug biotransformation in living systems. He advised us that researchers should remain aware that luck often plays a significant role in science when he said, “We will include serendipity into drug discovery – luck was a good part of the process.” When the focus of drug discovery is shaped only by biotechnology, the experimental findings only target a specific question. Biotechnology is good science, but it minimizes serendipity.

He also proposed that maintaining a bigger picture prospective is helpful. He provided an example in which thinking outside the box improved the quality of research. While his team was quantifying the efficacy and toxicity of a drug for reducing serum cholesterol, they found that the drug was effective but it could not be identified in the systemic circulation. Dr. Clarke considered the bigger picture and suggested that blood be drawn from the portal vein leading into the liver instead of the inferior vena cava after the liver had removed or metabolized the drug. This may seem obvious, looking back, but Dr. Clarke shared this example from his experience to show how it is possible to become so focused on a single detail that we fail to see the dynamics of the whole system. The simple experiment led to the identification of a new target for lowering cholesterol via the bile acid re-uptake mechanism in the small intestine.

In addition to conveying the need for a bigger picture prospective and common sense, he warned that “Money is not the reason to develop a drug.” Following the Burroughs Wellcome (BW) merger with GlaxoSmithKline, he noticed a modification in philosophy that has become the industry norm. The process of drug discovery was altered from identifying a need and targeting a solution with the addition of another variable, market size for that solution. This philosophy is a drastic departure from the BW motto “Research is our major stockholder”. Unfortunately, today the decision about which drug to develop all too often depends on the profitability of the product. The line between research and business can become blurred, but common sense still needs to prevail.

Dr. Clarke engaged his audience by speaking intimately about science and eliciting several questions following the lecture. Listeners could sense his interest in promoting the next generation of researchers. He concluded by sharing details of a new articulation agreement between Forsyth Tech and Winston-Salem State University. This agreement allows a graduate of Forsyth Tech to earn a Bachelor’s degree in Interdisciplinary Studies with an emphasis on Discovery Sciences in 12 months and one summer. He spoke enthusiastically about the hope that the future of the Triad may be found in the biotechnology arena. “The synergy that is in RTP is here in the Piedmont Triad, and that will reshape this region.” Audience members clamored around Dr. Clarke for more of his time and insight. Not only was this lecture enlightening and exciting, but listeners were left with optimism and perhaps renewed vigor to pursue higher goals.