

The Pharmaceutical Experiment Station is Reborn

Open again after 70 years to serve drug discovery and development at and beyond the UW Campus

by Lynn Van Campen, PhD

One year ago I had the privilege of returning to the UW School of Pharmacy after 20-some years, and officially re-opening the doors to the Pharmaceutical Experiment Station. Thanks to the foresight and perseverance of Professor Ken Connors, and the substantial help of Professors George Zograf and Mel Weinswig over the past ten years, the legacy of this unique venture was unearthed, dusted off and given critical consideration as to what worthy mission it could serve today. Thanks then to the generous start-up endowment funding provided by the Rennebohm Foundation, the Station re-opened in late 2003 as the “Zeeh Pharmaceutical Experiment Station” in honor of Lenor Zeeh, longtime friend, pharmacist and corporate executive of Oscar Rennebohm himself. (See related article on page 43.)

Zeeh has been a dedicated friend to pharmacy over the years—here at his alma mater (class of '36), across Wisconsin and across the profession. As he celebrated his 90th birthday this November, I note that he was born one year after the Station first opened its doors in 1913. Unaware then of the connection their futures would bring, the young Zeeh found his way into the pharmacy profession during the same 20 years the Station flourished as the research branch of the School. Under the direction of Edward Kremers, PhD, the Station was both a laboratory for cultivating, processing and testing plants of medicinal interest, as well as a pharmacy for compounding and distributing its reputedly high-quality products to pharmacists and physicians across Wisconsin. During the Depression, the Station fell dormant for lack of continued support.

What now is the Station's contemporary mission? It is twofold: first, to

develop and sponsor an educational program around the process and science of drug development; and second, to provide related laboratory services to other University research labs as well as to the off-campus corporate community. Industry scientist and manager that I've been all these years, I can attest to the importance of these initiatives!

EDUCATION IN DRUG DEVELOPMENT

The School of Pharmacy Division of Pharmaceutical Sciences has a strong commitment to fundamental research relevant to drug development, including drug discovery, drug action, and drug delivery. The science of drug selection and drug product formulation is well represented across the Division's coursework and research. The process of drug product development that relies so heavily on this science, however, is more often learned haphazardly “on the job” by scientists and engineers untrained in formulation chemistry and manufacturing technology.

By 2006, the Station will offer a two-year curriculum of education and lab training that will bring key development science and technology together in the context of regulatory science and business, and will lead to a master's degree in drug development. We expect to collaborate with the Business School and the MS Bio-

technology programs by cross-listing appropriate graduate courses. A shorter program potentially offered in short-course and/or weekend format in conjunction with Extension Services in Pharmacy will lead to certification on satisfactory completion. If you were a graduate of either

of these programs, whether entering the program as a practicing pharmacist, chemist, or engineer, your understanding of the pharmaceutical industry would compete handily with the experienced industry scientist, program manager or clinical manager.

At a time when the industry must weather major business and economic challenges, companies will want to staff their development laboratories with scientists and technical managers more skilled and knowledgeable in the ways of drug product develop-

ment, thus chipping away at the cost of new pharmaceuticals. For the PharmD who is enamored by the potential of invention and new drug development in industry and chooses to pursue either of these programs, his or her rich clinical experience will be heartily welcomed to the development bench, table or boardroom. Together we can slow the extinction of

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the “industrial pharmacist” in the United States.

LABORATORY SERVICES

In our Station laboratory, approximately 1,600 sq ft in size and located on the 4th floor of Rennebohm Hall, we specialize in the characterization and early formulation of potential new drug candidates. Specifically, we assess a drug candidate’s “developability” by determining solubility and chemical stability in water at different pH’s, and estimating its capacity to permeate across membranes. We then use that knowledge of the compound’s behavior to guide us into development studies of interest to our client, including the performance of the compound in vivo in animals. For a potent compound to find its way to your pharmacy shelf, these physicochemical and biopharmaceutical properties must cooperate in the effective and reliable delivery to the therapeutic target.

Current clients come from as close as down the hallway at the School, and as far away as the East coast. Exemplary of the service we can provide on campus, the Station is serving as one of several core labs supporting an anti-cancer drug research program comprised of three additional collaborating labs across the School of Pharmacy, the School of Veterinary Medicine, and the Comprehensive Cancer Center. Specifically we will contribute directly to the characterization, selection, and formulation of the drug candidates most likely to succeed in the clinic. We will also help provide project continuity by coordinating animal studies in which measures of in vivo drug absorption, distribution, metabolism, excretion, preliminary toxicology and efficacy will be made. In this setting, the Station is well equipped to drive and assemble a preliminary IND-type package of information that could attract investment and support the full-fledged, off-site development of a strong drug candidate.

Our East coast client, a good-sized international pharmaceutical company, represents a different type of customer. They have asked us to assist in developing and executing a technical protocol needed for studying a unique property of one of their drug products. As for any of our cli-

ents, our excellent pharmaceutical science faculty whom we tap when confronted with a particularly challenging technical problem, is always close at hand.

Even at this early stage of operation the Station is equipped with state-of-the-art instrumentation needed for the characterization of liquid and solid compounds or preparations, including high performance liquid chromatography (HPLC), UV-visible spectrophotometry, thermal analysis, powder surface area measurement, water vapor sorption, pycnometry and tablet dissolution testing. In collaboration with Professor Lian Yu’s lab next door, we have ready access to x-ray powder diffractometry; to Raman-equipped, polarizing and hot-stage microscopy; and, well, to Prof Yu himself — a highly reputed solid state physical chemist. We’re pleased that the Analytical Instrumentation Center (see their write-up in the September/October issue of *JPSW*) is also poised to collaborate with the Station should we need to draw on their mass spectroscopy (MS), LC-MS, nuclear magnetic resonance (NMR) capabilities and expertise.

In the long term, we expect that our customers will come from near and far, and will look to us for services that will range from the scientifically unique to the more routine in nature; from specific analytical evaluation to early formulation support; for small molecule compounds and for biopharmaceuticals; and from problem solving in the lab to product development consultation. By basing our operations on a fee-for-service business, we expect to support the Station’s mission while building and maintaining appropriate staffing and facilities.

STATION STAFF AND ADVISORY BOARD

The Station is fortunate to have gathered a superb Advisory Board chaired by Professor Emeritus George Zografi. The Board is comprised of a great combination of School faculty as well as successful industry alums, including Professors Connors, Weinswig, Ben Shen and John Kao, and Drs. Gene Fiese, Richard Pyter, Tom Rosanske and Jim Wright. I formally solicit the Board for strategic guidance every three to four months, and happily consider them a short trot or phone call away

for specific help at any time. The Station is in good hands!

At the time of this writing, associate researcher Karen J. Jones and I comprise the full-time Station staff. I’m really pleased to have Karen on board, as she brings her own wealth of experience. After obtaining her MS degree in analytical chemistry, she spent 12 years collecting valuable lab bench and lab management experience at Lilly. Both Karen and I are actively interviewing candidates for the newly opened positions of associate director and research specialist, and are therefore expecting to enter the new year with doubled capacity and capability!

AND IN CLOSING . . .

I trust that you can detect my strong enthusiasm for what the Station can do now and in the future for pharmaceutical development in Wisconsin. Your School of Pharmacy faculty and dean have provided superb vision and support for bringing the Station back to life. With careful management of our start-up monies and work commitments, we will continue to build a center that serves a worthy mission and our customers, for the long term. We aim to attain self-sustaining operations by 2007. As a nonprofit institution, we would be pleased for any additional support.

In fact, if you personally identify with our educational and/or lab program in any way—a little or a lot, now or later—and have questions or suggestions for us, please don’t hesitate to call or write me at the School. Wisconsin pharmacists are high on our list of potential friends and clientele! ●

Lynn Van Campen brings to the Station nearly 30 years of industry experience in drug product development. Inspired through her initial work as a formulation chemist at Pfizer to attend graduate school, she came to the UW School of Pharmacy, obtaining her MS (’79) and PhD (’81) under the primary guidance of Professor George Zografi. Most recently she served as VP of pharmaceutical development at Inhale Therapeutic Systems (now Nektar Therapeutics). Having worked at both large and small drug companies, traditional and biotech, she is excited to return to campus and to lead the Station in fulfilling its exemplary mission.