



The Dane O. Kildsig Center for Pharmaceutical Processing Research seeks to foster an interdisciplinary approach to pharmaceutical process related research, to catalyze interaction between industrial and academic scientists, and to make the application of a basic science approach to formulation and manufacture of drug products an integral part of graduate pharmaceutical education.

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# Center Management

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Shionogi & Co., Ltd. · Upsher-Smith Laboratories

## The Dane O. Kildsig Center for Pharmaceutical Processing Research



# About the **Dane O. Kildsig Center for Pharmaceutical Processing Research**

In the early 1980s, the National Science Foundation established the Industry/University Cooperative Research Centers (I/UCRC) program to encourage cooperative research between academia and industry. The goal of the program was to establish research centers of excellence in critical areas of technology. These centers would be located at universities and staffed principally by faculty and student researchers, who would cooperate closely with scientists and engineers at partner companies and government agencies.

The idea behind the Center is simple. Industrial researchers provide guidance and feedback, funding, some cooperative research, and "real world" experience to help academic researchers. The university researchers contribute their time, resources, and the research facilities of their university to conduct investigations into topics for which internal company or agency resources are not available. This provides university researchers the opportunity to explore and develop ideas that they otherwise might not be able to investigate.

The Center for Pharmaceutical Processing Research, founded in 1995, is one of over 50 such I/UCRCs established by the NSF, and the only one devoted to pharmaceutical processing research. The center involves four universities - Purdue University, the University of Connecticut, the University of Puerto Rico, and the University of Minnesota. Participating faculty from Purdue University include members of the departments of industrial and physical pharmacy, chemical engineering, agricultural and biological engineering, and the schools of health sciences and civil engineering. Participating faculty from the University of Connecticut and the University of Minnesota are associated with the schools of pharmacy, and faculty participants from the University of Puerto Rico, School of Pharmacy at the Medical Sciences Campus, and departments of chemistry and chemical engineering at the Mayaguez Campus.

After a ten-year successful term of operating with financial support from the National Science Foundation (I/UCRC), the Kildsig Center has "graduated" and is now an independent research organization with support from over 15 companies. Center membership consists primarily of pharmaceutical companies, but also includes companies from related industries like

In May, 2005, NSF officially renamed the Center to honor Dane O. Kildsig. The name change is a well-deserved honor to Dr. Kildsig, "for his 10 years of exemplary dedication, leadership and commitment to this NSF Center."

equipment and excipient manufacturers. The guiding principle is the common goal among member companies to improve the quality of pharmaceutical products and processes, through the fundamental understanding that only high quality research can achieve. Through its history, Kildsig Center research has produced over 25 Ph.D. graduates, who have joined the ranks of member companies. The nature and focus of the center's research, as well as the continuous interaction with and mentoring from industrial scientists, provide an excellent preparation for our graduates to enter industrial R&D laboratories.



## **Research Objectives** of the Center

- To explore and develop new technology for pharmaceutical processing, to foster collaborative research projects between industrial and academic scientists, and to promote an interdisciplinary approach to training students in pharmaceutical processing research and development.
- To study the interaction between physical and mechanical properties of pharmaceutical materials and processing conditions, and how this interaction influences critical quality attributes of the final product. The long-term goal of this research is to reduce trial-and-error empiricism in formulation and process development, with an accompanying reduced time to market for new pharmaceutical products.
- Application of Quality by Design, such as PAT, principles in drug product design, that will result in improved product quality, reduced cost, ease of process validation, better safety assurance, and improved regulatory compliance.

