

## INTRODUCTION OF THE NATHAN B. EDDY MEMORIAL AWARD RECIPIENT

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Kenner C. Rice is the recipient of the Nathan B. Eddy Award in 2001. Dr. Rice has had a distinguished career as a medicinal chemist. He has many outstanding contributions as a researcher, teacher, and strong professional supporter of his discipline. We would like to emphasize each of these aspects of his career.

Kenner's first and very important contribution to narcotics research was a workable, total synthesis of morphine. Chemists had tried for over a half-century to accomplish this task without success. As you know, morphine is most easily derived from the opium poppy, but Kenner's synthesis allowed the possibility that the medical supply of morphine could be made without poppy growth. In addition, his scheme allowed for the synthesis of a variety of important isomers of narcotics, which has in turn allowed the investigation of the pharmacology of asymmetry of a large number of ligands at different opioid and non-opioid receptor sites. His method continues to be used, remains state-of-the-art, and a firm is utilizing it in the process of the development of opioid products. This work alone makes him a chemist recognized internationally as truly outstanding.

Lately, Kenner has directed his efforts toward opioid ligands that can be used for neuroimaging. He has developed some of the most interesting and widely used opioid agents in the field. In addition, he is currently working toward agents that can be used for corticotropin-releasing-hormone receptor imaging; there are none! He has been instrumental in developing irreversible inhibitors at receptors, since ligand covalency of these inhibitors provides that these receptors can be bound tightly and, in principle, could be depleted. This is a technique in pharmacology that affords comparison to short-term use of antisense oligonucleotides and conditional gene knockouts for receptor depletion and, of course, long-term gene knockouts, as well.

He has conceived new templates for opioid receptor types and has been a chemical leader in the synthesis of highly selective opioids. For example, in delta-opioid-receptor pharmacology, a field where non-peptide ligands are very useful, Kenner has designed and directed the synthesis of a large number of ligands, including SNC80, a highly-selective, non-peptide, delta-opioid-receptor agonist that has become a prototype in the field.

He works extensively in other areas of CNS function in addition to opioids. Kenner has made important contributions to the PCP-NMDA-type glutamate receptor field, to novel anticonvulsants, potential pharmacotherapies for cocaine, and ligands for the cannabinoid-receptor system.

Kenner heads the laboratory that was established by Nathan B. Eddy at NIH. It contains a large and very active set of medicinal chemists. He teaches by supervising the research of

postdoctoral trainees, and probably very importantly, by having the superb bench skills that others can access directly who work with him. He has high standards of professionalism and ethics, and he imparts these standards well to his trainees. He has had over 50 postdoctoral fellows from 14 countries during his NIH tenure, many of whom have become successful in academia, government, or pharmaceutical industry. To name but a few with whom we're familiar, Amy Newman (NIDA), Mike Rafferty (Warner-Lambert), Brian DeCosta (U. Toronto), Andy Thurkauf (Neurogen), Jim Monn (Lilly), Sylvia Calderon (FDA), and Andy Coop (U. Maryland).

He has a strong interest in professional affairs, and he has taken a strong role in the College on Problems of Drug Dependence, the American Chemical Society, and the American College of Neuropsychopharmacology. He has served and continues to serve on editorial boards of a number of important journals. He has received a large number of awards in recognition of this outstanding contribution to science, e.g., the award of Medicinal Chemistry Division of American Chemical Society in 1996, and a Research Achievement Award in Medicinal and Natural Products in 1998 from the American Association of Pharmaceutical Scientists.

In the distinguished set of chemists that have received the Nathan B. Eddy Award, Kenner Rice can stand proud as an outstanding contributor to the chemical aspects of neuroscience directly relevant to drug abuse. Indeed, he is probably the most important chemist in the field of the neuroscience of drug abuse.