

Stephen Hanessian

Stephen Hanessian obtained his Ph.D. degree in organic chemistry with the late Professor M.L. Wolfrom at The Ohio State University in 1960. He then joined the Parke-Davis Research Laboratories in Ann Arbor, Michigan, where he was involved in various aspects of natural product chemistry. There he developed the well-known NBS reaction of benzyldiene acetals that bears his name. In the fall of 1968, he moved to Canada and joined the faculty at the University of Montréal as Associate Professor. A year later, he was promoted to full professor. He has been McConnell Professor since 1979. In 1990 he was awarded an NSERCC Chair in Medicinal Chemistry. Professor Hanessian is the author of more than 250 scientific publications and 20 patents. His recent book, "Total Synthesis of Natural Products: The Chiron Approach," has received excellent reviews and is widely used in research and in teaching.

For close to two decades, Professor Hanessian and his coworkers have pursued a number of projects that have had a particularly important impact on organic, bio-organic, and medicinal chemistry. Some years ago, he championed the concept of the chiron approach in natural product synthesis, and devised ingenious pathways to complex molecules such as thromboxane B₂, spectinomycin, several macrolide antibiotics, carbapenems such as thienamycin, penems, the octosyl acids, palytantin, meroquinene, heteroyohimbine alkaloids, ionophores such as ionomycin and the avermectins, to mention a few. All of these syntheses have combined innovation and creativity with practicality. He has also added another dimension to synthesis planning by developing a unique computer program for perceiving and analyzing stereochemical features in target molecules and for choosing appropriate precursors. The CHIRON program is now widely used in industrial research laboratories as well as in many universities around the world.

His contributions to synthetic methodology are numerous, and include the development of novel protective groups, reactive functionalities, innovative bond-forming processes and stereocontrolled free-radical reactions. Professor Hanessian has devised tactically and conceptually novel approaches to the asymmetric synthesis of molecules with multiple stereogenic centers. Over the years, Professor Hanessian has made important contributions in the area of synthetic carbohydrate chemistry, particularly with regard to stereocontrolled methods of glycoside synthesis and in the chemistry of antibiotics containing sugars. One of his major achievements has been to bring this important subdiscipline into the mainstream of modern organic chemistry.

His ability to combine innovation with utility has led to the development of a number of practical processes for the synthesis of antibiotics, antitumor and antiviral agents, and other medicinally important compounds. His novel approach to the penems is the basis of an industrial process presently in use. His recent research interests in the context of the NSERCC Chair in Medicinal Chemistry include targeted projects in immunochemistry, β -lactam chemistry, and antiviral peptides.

Professor Hanessian's pioneering contributions during the past 25 years have earned him an outstanding international reputation. He is a sought-after plenary speaker at major scientific events, as well as an invited lecturer in several industrial laboratories, institutes and universities year after

year. He is the recipient of numerous prestigious awards and distinctions throughout the world. The most recent includes the 1991 Bell Canada-Forum Award for outstanding scientific achievement and collaborative research with industry. In 1988 he was the recipient of a remarkable pair of prizes: the Palladium Medal of the Chemical Institute of Canada, which is the highest chemistry award in the country, and the first Alfred Bader Award in Organic Chemistry in Canada. He is also a Fellow of the Royal Society of Canada and a Killam Fellow. Other prizes and distinctions include the Merck Sharpe and Dohme Award in 1974 (CIC); the Hudson Award in 1982 (ACS); the Urgel Archambault Award in 1987 (ACFAS), the Killam Fellowship in 1989, the Bell Canada-Forum Award in 1991, as well as several honorary lectureships. Professor Hanessian is a consultant to several pharmaceutical and biotech companies world-wide, and a member of the advisory board of major corporations and several scientific journals. He enjoys music, art and tennis.

Professor Hanessian's creative flair and unique approach to organic chemistry have produced a school of thought that has inspired an impressive number of students, associates, and colleagues over the years. Since joining the faculty at Montréal, he has had more than 90 postdoctoral collaborators and 58 graduate students and co-workers, many of whom are pursuing highly successful careers in industry and academia around the world.