The Walter A. Szarek Lecture Series

Walter A. Szarek was born on April 19, 1938 in St. Catharines, Ontario. He received his B.Sc. in Honours Chemistry in 1960, and his M.Sc. in 1962, from McMaster University. In 1962 he began studies towards the Ph.D. Degree with Professor J. K. N. Jones at Queen's University; he completed his studies in 1964 in the area of carbohydrate chemistry. He then went on to do postdoctoral work with Professor Melville L. Wolfrom who had developed the outstanding school of carbohydrate chemistry at The Ohio State University, Columbus, Ohio. Within a year he was offered the position of Assistant Professor of Biochemistry in the Department of Physiology and Biochemistry at Rutgers University in New Jersey. After launching his independent research program, but longing to be part of a Chemistry Department, in 1967 he returned to Queen's as Assistant Professor of Chemistry where he rose through the ranks to Full Professor in 1976. During the period 1976–1985 he was also Director of the Carbohydrate Research Institute at Queen's. In 2003 he became Professor Emeritus, and continued to be very active in research for several years. Professor Szarek's outstanding achievements in carbohydrate chemistry were recognized by the receipt of the American Chemical Society Claude S. Hudson Award in 1989 and the Melville L. Wolfrom Award in 1992.

Professor Szarek's research in carbohydrates was truly comprehensive, encompassing many diverse aspects, both chemical and biological. His knowledge was encyclopedic and he quickly became known as The Godfather of the carbohydrate family and The Prince of hospitality. In addition, he had a very active research program in the areas of Medicinal Chemistry and Drug Development. He is the author of over 300 peer-reviewed publications and has held numerous patents in the areas of Alzheimer's Disease, Cancer, Malaria, Anti-bacterial Agents, and therapeutic drugs for the treatment of chronic and acute pain. He was a co-founder of Neurochem, Inc. (now Bellus Health, Inc.) and was associated with PainCeptor Pharma Corp., and Osta Biotechnologies, Inc.

Professor Szarek was, at all times, a principled educator at both the undergraduate and graduate levels, having won four teaching awards including the Queen's University Arts and Science Undergraduate Teaching Excellence Award in 1989. His distinguished research career involved the direction of 23 M.Sc and 32 Ph.D. students, and ~85 postdoctoral fellows. His caring and insightful mentorship both in chemistry and in life evoked in his students, postdoctoral fellows, and colleagues, great respect and affection.

The Walter A. Szarek Lecture Series was established through an endowment initiated by a former student, B. Mario Pinto, and with generous contributions from past students, postdoctoral fellows, and colleagues. It is testament to his profound influence on the next-generations of scientists. A substantial donation was also made by the Szarek family in memory of Professor Szarek's brother, John.

RECENT PUBLICATIONS

Nguyen, L et al. **"Sialic Acid-Dependent Binding and Viral Entry of SARS-CoV-2"** *Nat. Chem. Biol.* **2022**, *18*, 81–90.

Kelly, S.D. et al. "**The biosynthetic origin of ribofuranose in bacterial polysaccharides**", *Nat. Chem. Biol.* **2022**, *18*, 530–537.

Angala, S.K. et al. "**Use of synthetic glycolipids to probe the number and position of arabinan chains on mycobacterial arabinogalactan**" *ACS Chem. Biol.* **2021**, *16*, 20–26.

Shen, K. et al. "**Synthesis of a Tridecasaccharide Lipooligosaccharide Antigen from the Opportunistic Pathogen *Mycobacterium kansasii*"** *Angew. Chem. Intl. Ed.* **2021**, *60*, 24859–24863.

Thota, V. N. et al. **"Synthesis of the Campylobacter jejuni 81-176 strain capsular polysaccharide repeating unit reveals the absolute configuration of its O-methyl phosphoramidate motif"** *Angew. Chem. Intl. Ed.* **2018**, *57*, 15592–15596.

PREVIOUS WALTER A. SZAREK LECTURERS

2019 • L. Kiessling

2018 • F. Stoddart

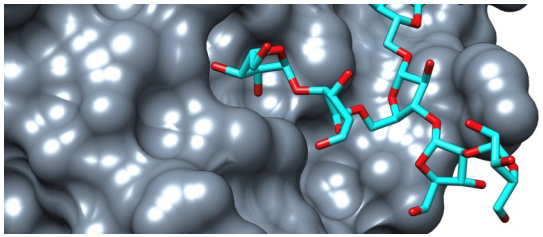
Queen's Chemistry

The Department of Chemistry, Queen's University

is honoured to host the 2022 Walter A. Szarek Lecture:

Dr. Todd Lowary
University of Alberta

"Feeding a passion for cool structures through the synthesis of complex microbial glycans."



Monday, August 29, 2022

11:30 AM

Room 117, Chernoff Hall

DR. TODD LOWARY

Todd Lowary
Department of Chemistry
Centennial Centre for Interdisciplinary Science 4-008
University of Alberta

Todd L. Lowary received his B.A. in Chemistry from the University of Montana in 1988 and obtained his Ph.D. in Organic Chemistry under the supervision of Professor Ole Hindsgaul at the University of Alberta in 1993. He carried out postdoctoral research with Professor David R. Bundle at the University of Alberta (1993-1995), and then with Dr. Morten P. Meldal at the Carlsberg Laboratory in Copenhagen, Denmark (1995-1996).

In 1996, he took up a position in the Department of Chemistry at The Ohio State University as an Assistant Professor and in 2002 was promoted to Associate Professor with tenure. He was the Dr. Raymond U. Lemieux Professor of Carbohydrate Chemistry in the Department of Chemistry from 2015–2021 and held a Tier 1 Canada Research Chair from 2014–2019. He was also the scientific director of GlycoNet from 2015-2020, a pan-Canadian research network specializing in carbohydrates. He retired from the University of Alberta in July 2021. Since July 2019 he has been a Distinguished Research Fellow at the Institute of Biological Chemistry at Academia Sinica in Taipei, Taiwan and he also serves as the Director of the Institute.

Dr. Lowary's research is focused on synthetic chemistry with a particular emphasis on carbohydrate chemistry, the conformational analysis of oligosaccharides, and the design of novel therapeutics that act by inhibiting carbohydrate-processing enzymes. His research group has a particular emphasis on the synthesis of microbial glycans, including those from bacteria, viruses, and fungi, and studying how these glycans interact with biological systems. His team has reported the synthesis of Campylobacter jejuni capsular polysaccharide repeating units, N-glycan cores of the Chlorella virus, and the polysaccharides that comprise the protective cell wall of Mycobacterium tuberculosis. One area of research focus is towards the identification of new drugs and methods for the treatment and diagnosis of tuberculosis. This includes the development of a test able to detect tuberculosis in HIV-positive people, the synthesis of novel vaccines for the prevention of tuberculosis, and the development of inhibitors of Mycobacterium tuberculosis cell-wall assembly enzymes.

SELECTED HONOURS & AWARDS

2020
- Arthur C. Cope Scholar Award of the American Chemical Society
- Fellow of the Royal Society of Canada

2019
- Alfred Bader Award of the Canadian Society for Chemistry

2017
- University Cup (University of Alberta)

2016
- J. Gordin Kaplan Award for Excellence in Research (University of Alberta)

2015
- Raymond U. Lemieux Chair in Carbohydrate Chemistry (2015–2020)

2014
- Tier 1 Canada Research Chair in Carbohydrate Chemistry (2014–2021)

2013
- Melville L. Wolfrom Award from the Carbohydrate Division of the American Chemical Society