The Stan Brown Lecture Series

Stan Brown was born in High River, Alberta, and attended the University of Alberta for his B.Sc. (1964-1968) where he graduated with first class standing. Following undergraduate studies, Stan headed south to the UC, San Diego where he obtained his M.Sc. and then Ph.D. in chemistry (1968-1972) with the late Teddy G. Traylor. It was here that Stan's fascination with reaction mechanisms took root as he made seminal discoveries in the 'vertical' stabilization of cations by s-bonds. Stan then moved on to the great Ronald Breslow's lab at Columbia University for postdoctoral work where he studied enzyme mimetic reactions. This would become a research theme throughout his academic career. In 1974 Stan returned to U of A to begin his independent research career where he rose to the position of full Professor in 1984. Over 21 years at U of A the Brown lab flourished, carving out major discoveries in photoelectron spectroscopy of bonding, substituent effects on ionization potentials, the hydrolysis of amides, acyl and phosphoryl transfer reactions, and enzyme model systems involving metal ions. His research also addressed the formation of the bromonium ion, and in 1994 his lab managed to obtain the X-ray crystal structure of a stable version of this iconic intermediate. In 1995 Stan was ready for a new challenge and moved his lab to Queen's University to become Head of the Department of Chemistry (1995-2001). During his time as Head, Stan further shaped the future of our department by orchestrating the hiring of Gang Wu, Hugh Horton, Hans-Peter Loock, Richard Oleschuk, Stephen Brown, Suning Wang, Natalie Cann, Victor Snieckus and Cathleen Crudden. At Queen's, Stan and his team developed a series of enzyme inspired, metal ion-based catalysts that accelerated the solvolysis of esters, amides, and phosphate esters. This discovery had immediate applications for the destruction of stockpiles of chemical warfare agents like VX and Soman, which quickly garnered the attention of the United States Army, and led to several patents. Over his research career, Stan has authored over 180 publications, 10 book chapters, and delivered more than 110 invited seminars. Stan holds a tremendous record of service in the Chemistry community, which has won him many awards over the years, including two Killam awards, the Syntex Award (CSC), the Alfred Bader Award (CSC), the Queen's Chemistry 'Prof of the Year', the Queen's University Prize, the Queen's University Award for Excellence in Graduate Student Supervision (2016), the R.U. Lemieux Award (CSC), the Montreal Medal (CIC), and the Catalysis Award (CIC). Stan is a fellow of the Chemical Institute of Canada, the Royal Society of Canada, and the International Union of Pure and Applied Chemistry.

SELECTED RECENT PUBLICATIONS

• E. W. J. Gates, N. D. Calvert, N. J. Cundy, F. Brugnoli, P. Navals, A. Kirby, N. Bianchi, G. Adhikary, A. J. Shuhendler, R. L. Eckert, J. W. Keillor* : "Cell Impermeable Inhibitors Confirm that Intracellular Human Transglutaminase 2 is Responsible for the Transglutaminase-Associated Cancer Phenotype", *Int. J. Mol. Sci.* **2023**, *24*, 12546-12563.

• S. K. I. Watt, J. G. Charlebois, C. N. Rowley, J. W. Keillor* : "A mechanistic study of thiol addition to *N*-acryloylpiperidine", *Org. Biomol. Chem.* **2023**, *21*, 2204-2212.

• N. J. Cundy, J. Arciszewski, E. W. J. Gates, S. L. Acton, K. D. Passley, E. Awoonor-Williams, E. K. Boyd, N. Xu, É. Pierson, C. Fernandez-Ansieta, M. R. Albert, N. M. R. McNeil, G.Adhikary, R. L. Eckert, J. W. Keillor* : "Novel Irreversible Peptidic Inhibitors of Transglutaminase 2", *RSC Med. Chem.* **2023**, *14*, 378-385.

• N. M. R. McNeil, N. Firoozi, E. W. J. Gates, N. J. Cundy, J. Leccese, S. Eisinga, J. D.A. Tyndall, G. Adhikary, R. L. Eckert, J. W. Keillor* : "Structure-Activity Relationships of *N* -Terminal Variants of Peptidomimetic Tissue Transglutaminase Inhibitors", *Eur. J. Med. Chem.* **2022**, *232*, 114172-114195.

• C. Kerr, H. Szmacinski, M. Fisher, B. Nance, J. R. Lakowicz, A. Akbar, J. W. Keillor, E. A. Toth, D. J. Weber, R. L. Eckert* : "Transamidase site-targeted compounds produce a conformation change that inhibits GTP binding to the transglutaminase cancer stem cell survival protein to reduce cancer stem cell survival" *Oncogene* **2017**, 36, 2981-2990.

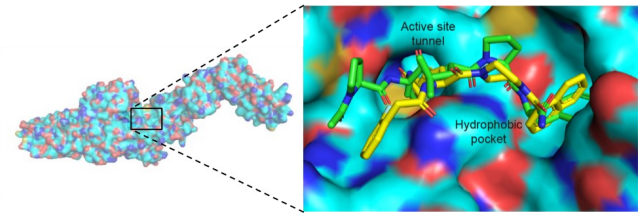
Queen's Chemistry

The Department of Chemistry, Queen's University

is honoured to host the
2023 Robert S. Brown Lecture:

Dr. Jeffrey W. Keillor
University of Ottawa

"Targeted Covalent Inhibition of Transglutaminase in Cancer Stem Cells"



Friday, October 20, 2023
11:30 AM
Room 117, Chernoff Hall

DR. JEFFREY W. KEILLOR

Jeffrey W. Keillor
Department of Chemistry and Biomolecular Sciences
University of Ottawa
jkeillor@uOttawa.ca

Dr. Jeffrey W. Keillor obtained his PhD in 1993 at the University of Alberta, studying enzyme model mechanisms under the supervision of Dr. R.S. Brown. He then carried out postdoctoral studies in enzymology, under the direction of Dr. W.P. Jencks at Brandeis University. In 1995 he took a position as assistant professor in the Chemistry Department at the Université de Montréal, where he was promoted to associate professor in 2000 and full professor in 2006. He was also appointed as an adjunct professor in the Biochemistry Department in 2001. In 2011 he moved to the Department of Chemistry and Biomolecular Sciences of the University of Ottawa, where he held a University Research Chair in Bioorganic Chemistry until 2021.

His research program is situated at the interface of chemistry and biochemistry, in the fields of chemical biology and medicinal chemistry. His recent contributions have focussed on the development of novel site-specific protein-labelling methods and of targeted covalent inhibitors of tissue transglutaminase, for the treatment of cancer stem cells.

For the Canadian Society for Chemistry (CSC), he served as Director of Awards from 2012-2015, as Chair of the Biological & Medicinal Division from 2015-2017, and as Director of Subject Divisions from 2019-2022.

SELECTED HONOURS & AWARDS

- Christian Detellier Award for Excellence in Teaching and Mentorship (2021)
- Fellowship of the Chemical Institute of Canada (2020)
- Bernard Belleau Award (2017)
- University Research Chair in Bioorganic Chemistry (2011-2021)
- Merck-Frost Centre for Therapeutic Research Award (2007)