



2021 CSCC Award for Research Excellence
Sponsored by Ortho Clinical Diagnostics

Dr. Manuela Neuman



The CSCC is pleased to award the 2021 award for Research Excellence to Dr. Manuela Neuman. Dr. Neuman is a long-standing member of the CSCC and the CACB. As a translational researcher, she had been at the forefront of liver and gastroenterology innovation for nearly forty years.

Dr. Neuman received her Master's degree from the University of Bucharest, and her Ph.D. from Tel-Aviv University. She is an Adjunct Professor of Pharmacology, Toxicology and Associated International Health in the Department of Pharmacology and Toxicology at the University of Toronto.

Dr. Neuman has conducted ground-breaking research and written extensively about non-invasive biomarkers in liver disease. She has published more than 80 original papers, 12 book chapters and 230 abstracts, and has presented more than 315 invited lectures.

Dr. Neuman began her research on alcoholic liver disease (ALD) using sera and liver biopsies from alcoholic patients, focusing on the specific mitochondrial enzymes succinic and NADH dehydrogenase. She demonstrated that alcohol-induced mitochondria fragility and permeability were due to changes in fatty acid composition of the mitochondrial outer and inner membranes and in the microsomes. Her studies on markers for hypersensitivity syndrome began in 1990 when she isolated and purified the microsomes from livers of mice induced to several cytochromes P450 and used these to introduce a lymphocyte toxicity assay. This work contributed to the understanding on the mechanism by which ethanol and therapeutics induce liver and skin injury.

Dr. Neuman showed, for the first time, that viral hepatitis C produces a pro-inflammatory cytokine storm. Her studies with clinicians from Canada, France, Germany, Israel, Italy, Romania, the UK and the USA, demonstrated the need to decrease the levels of pro-inflammatory cytokines in order to reduce viral invasion and increase antiviral activity of the therapeutic intervention in HCV. She discovered that, in HCV patients, the interferon (IFN) γ response element down-regulates nuclear factor kappa B (NF κ B), p38 and JNK, which are essential to viral replication. She showed that chronic alcohol consumption alters the proteasome interacting proteins, which is determined by proteomic measurements of isolated proteasomes. This caused proteasomal activity reduction and increased viral activity in patients living with hepatitis C or human immunodeficiency virus.

Dr. Neuman is currently the Chair of the Clinical Toxicology and Drug of Misuse Committee of the International Association of Therapeutic Drug Monitoring and Clinical Toxicology (IATDMCT) as well as the co-editor of the IATDMCT e-news. In this role she promotes Canadian clinical biochemistry and toxicology internationally, and presents her Canadian colleagues with opportunities to participate in the IATDMCT activities in various roles.

Dr. Neuman's contributions to science and education in the field of liver disease and toxicology have made a significant difference in the health care of patients in Canada and the world. For these, and her many

other contributions, the Canadian Society of Clinical Chemists is pleased to award Dr. Manuela Neuman with the CSCC Research Award, sponsored by Ortho Clinical Diagnostics. Congratulations!