

International Congress on  
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**To live and die by HLA: drug reactions and hypersensitivities**

**Statement of the Problem:** Adverse drug reactions (ADRs) remain a common and major problem in healthcare. Severe cutaneous adverse drug reactions (SCARs), such as Stevens–Johnson syndrome (SJS)/toxic epidermal necrolysis (TEN) with mortality rate ranges from 10% to more than 30%, can be life threatening. ADRs induced by several drugs have been shown to have significant associations with specific alleles of human leukocyte antigen (HLA) genes.

**Methodology & Theoretical Orientation:** Drugs or reactive metabolites are considered as foreign antigens that bind to T cell receptors (TCR) and further activate immune response. Several hypotheses have been proposed to explain how the immune system is activated in a HLA molecule-dependent manner.

**Findings:** Hypersensitivity to abacavir, a drug used for treating of human immunodeficiency virus (HIV) infection, has been proposed to be associated with allele 57:01 of HLA-B gene (terms HLA-B\*57:01). The incidences of abacavir hypersensitivity are much higher in Caucasians compared to other populations due to various allele frequencies in different ethnic populations. The antithyroid drug- (ATDs-) induced agranulocytosis are strongly associated with two alleles: HLA-B\*38:02 and HLA-DRB1-08:03. In addition, HLA-B\*15:02 allele was reported to be related to carbamazepine-induced SJS/TEN, and HLA-B\*57:01 in abacavir hypersensitivity and flucloxacillin induced drug-induced liver injury (DILI).

**Conclusion & Significance:** This talk will summarize the alleles of HLA genes which have been proposed to have association with ADRs caused by different drugs.

**Biography**

Tiffany K Roberts is an Assistant Professor of Pathology at the University of Louisville and Director of the Histocompatibility Laboratory at Jewish Hospital Trager Transplant Center. After completing her doctorate in Biochemistry at Emory University, she remained there to complete two fellowships; she is double boarded in Clinical Chemistry as well as Histocompatibility. Her subsequent experience includes serving as the Associate Histocompatibility Laboratory Director at the University Health Network in Toronto, ON, President of g6 GENOMICS+, where she was responsible for building molecular diagnostic laboratories in three states, and Laboratory Director of Immucor Dx, where she worked to develop and implement innovative molecular diagnostics to shape the future of transfusion and transplant medicine. Among her accomplishments she has been awarded the Paul E Strandjord Young Investigator award by the Academy of Clinical Laboratory Physicians and Scientists as well as the Junior Faculty Case Presentation Award by the International Society of Heart and Lung Transplantation. She serves as a Reviewer for a number of journals and has written multiple abstracts and peer-reviewed scientific publications. She is a Member of the American Society of Transplantation (AST), American Society of Histocompatibility and Immunogenetics (ASHI), and is actively involved with the American Association of Clinical Chemistry (AACC) as a member of the Education Core Committee. She brings a wide range of knowledge and skills to the practice of laboratory medicine. Her passion lies in directly impacting patient care and her interests focus on patient safety, multi-disciplinary care teams, and laboratory quality assurance.

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