

Carsten Krieg, Ph.D. is an Assistant Professor of Immunology in the Department of Pathology and Laboratory Medicine & Dermatology and Co-Director of the Immune Monitoring Core at the Medical University of South Carolina. Large parts of the Krieg laboratory use proteomics for the high dimensional resolution and tissue location of single cells in different diseases. The Krieg lab is combining high dimensional techniques with bioinformatic analysis pipelines and in these terms was instrumental in developing computer-assisted workflows. The reflections on the developed approach to high dimensional sample analysis are accessible in a well-received review article, and the field is using their bioinformatics workflow. Since his faculty appointment, Dr. Krieg used his unique wet lab and computer science analysis pipeline to co-correspond to an article in Nature Medicine (2018). In this work, the Krieg lab defined a biomarker signature to predict the response of melanoma patients to anti-PD-1 immunotherapy. Also in 2018, the Krieg lab expanded their approach to identifying new therapeutic targets during clinical trials by showing that NK cells are targets of a novel combination therapy consisting of anti-PD-1 with ALT803, an IL-15 agonist, in patients with lung cancer who are refractory to anti-PD-1 immunotherapy (Lancet Oncology 2018). The Krieg lab stays innovative and, after the acquisition of a Hyperion imaging mass cytometer, in 2021 started to develop a multi-omics approach to link single cells in liver cancer. The goal is to translate knowledge derived from these mechanisms into clinical treatment. Dr. Krieg is a member of the Big Data and Data Sharing Committee of SITC. He recently co-launched an NCI-sponsored educational seminar series.