

Title: Sorting Cytokines Using Regression Methods and Decision Trees in Immunology Studies

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Short Biography: Traymon has been a statistician at Johnson & Johnson Innovative Medicine supporting scientists working in Discovery and Translational Sciences within the Immunology therapeutic area for the past five years. Traymon received his PhD in Statistics and Quantitative Biomedicine at Rutgers University under the supervision of Javier Cabrera in 2019.

Short Summary of the Presentation:

Cytokines are an integral part of the immune system and are commonly used as biomarkers in preclinical and clinical studies conducted in discovery and translational science immunology. Efforts are focused on measuring cytokine activation following immune pathway stimulation to determine the selectivity or potency of molecular targets being developed for the treatment of autoimmune disease.

This presentation will show how results from robust four-parameter logistic regression, robust linear regression, and mixed-effects linear regression models were used in conjunction with simple decision trees to classify cytokines measured in three different datasets. The first dataset contains cytokine measurements from an *in vitro* experiment involving mouse macrophages challenged with LPS; the second dataset contains cytokine measurements collected from the serum of healthy adult participants that were challenged with LPS in a Phase 0 study; the third dataset contains cytokine measurements collected from the blood of participants stimulated *ex vivo* with LPS or TNF- α .