Differential Projection Pursuit (DPP) is a proposed modified version of Projection Pursuit (PP) that helps to find regions with maximal differences between two or more distributions. Projection Pursuit is a multivariate data analysis technique that searches p-dimensional data for lower d-dimensional projections, revealing the key structure of the data such as clusters, outliers, and any other low-dimensional nonlinear structure (Friedman and Tukey 1974). To implement DPP for a very large dataset, the data is first compressed into a reduced set of nuggets using the Data Nuggets method. DPP then optimizes projections by maximizing the PP index, with higher indices representing more interesting structures. Finally, the densities of projected nugget centers are used to determine regions of maximal difference between datasets. This research introduces the DPP methodology and demonstrates its potential as an alternative approach for analyzing large, high-dimensional datasets. To highlight the utility of this method we have applied DPP to a multidimensional cell flow cytometry data set. DPP provides a platform to analyze this type of data in its original multi-dimensional space and identify cell subpopulations with significantly different densities using automated methods.