

The Human Immune Monitoring Center at Stanford

Immunology for the People!

Introduction

The examples below illustrate the use of Jasper OLAP, an open source web-based OLAP (on-line analytical processing) system, to explore data generated by the Human Immune Monitoring Center (HIMC) and integrated into the Stanford Data Miner.

While your data may not match these examples, the instructions should give you a sense of how to:

- 1) Expand (drill down) and collapse data views
- 2) Change the active values in a dimension
- 3) Change dimensions on rows and columns

Feel free to explore. Your actions will not modify the underlying data.

1. Expanding and collapsing a data view



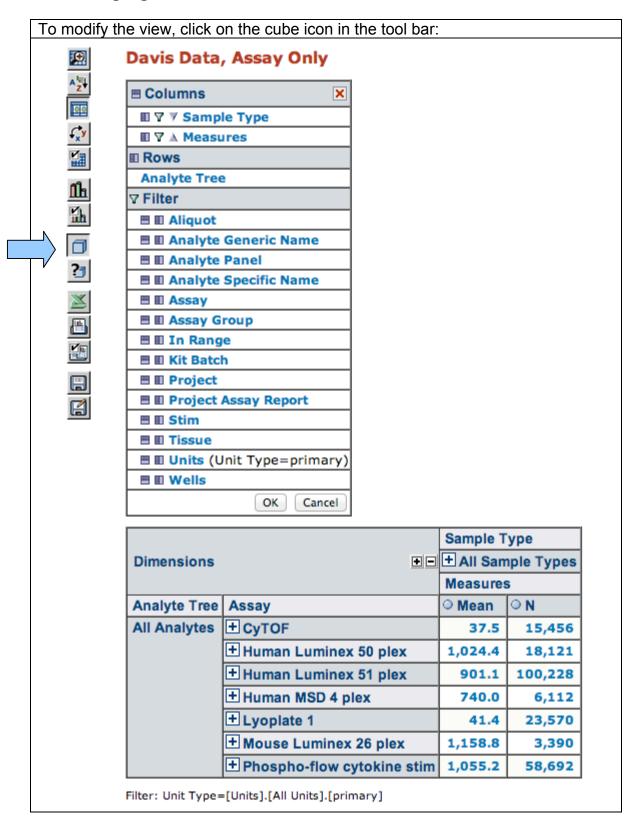
		Sample Type				
Dimensions	•=	+ All Sample Types				
		Measures				
Analyte Tree	Assay	Mean	○ N			
All Analytes	± сутоғ	37.5	15,456			
	± hai					
	+ Human Luminex 37 plex					
	+ Human Luminex 50 plex	1,024.4	18,121			
	+ Human Luminex 51 plex	901.1	100,228			
	Human Luminex MAG 39 plex					
	+ Human MSD 4 plex	740.0	6,112			
	+ Human MSD 9 plex					
	+ Human MSD CRP					
	± Lyoplate 1	41.4	23,570			
	+ Mouse Luminex 26 plex	1,158.8	3,390			
	+ Mouse Luminex IL-22					
	+ Phospho-flow cytokine stim	1,055.2	58,692			

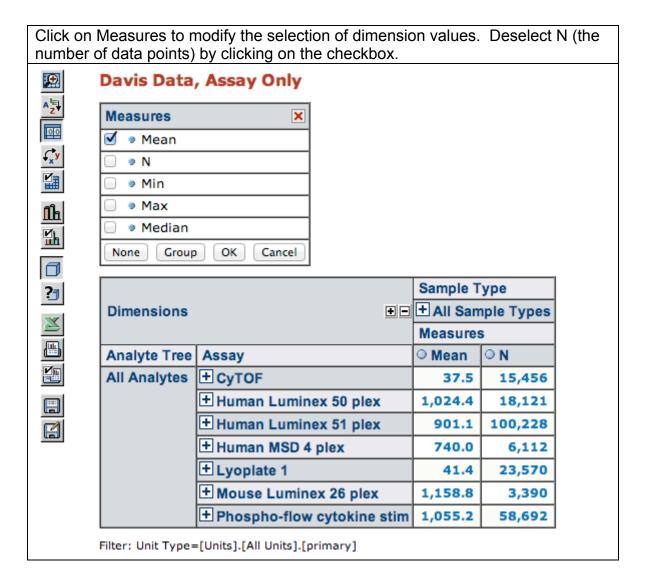
Expand the data by clicking on any of the + signs:

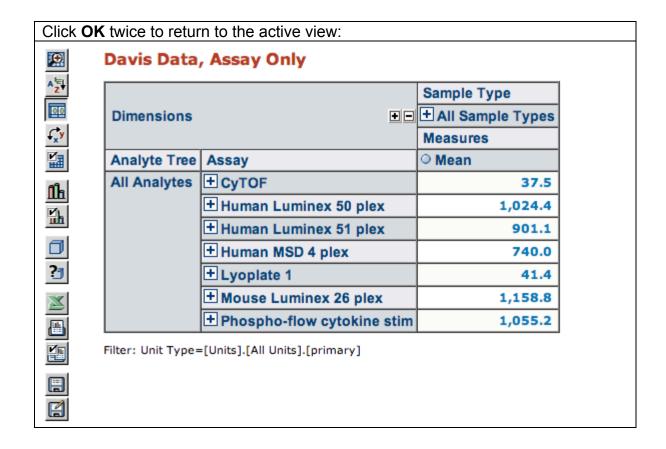
Stanford Data Miner and Jasper OLAP Overview

Davis data, assay only Sample Type **⊞ ⊞ H All Sample Types** Dimensions Measures Analyte Tree | Assay Group Panel Mean ○ N ☐ All Analytes 918.2 186,759 All Analytes Flow phenotype 41.4 23,570 Flow phenotype ± Activated T 40.2 3,451 + B cell 41.5 2,842 + CXCR3 49.0 3,248 + CXCR3 FMO 3,248 38.5 + NK-NKT 36.2 4,488 + T cell 44.4 3,654 + Treg 41.7 2,639 127,321 + Luminex/MSD 914.0 + Phospho flow 1,509.3 35,868 Filter: Unit Type=[Unit Type].[All Types].[primary] (Collapse data by clicking on a - sign.)

2. Changing the selected values in a dimension

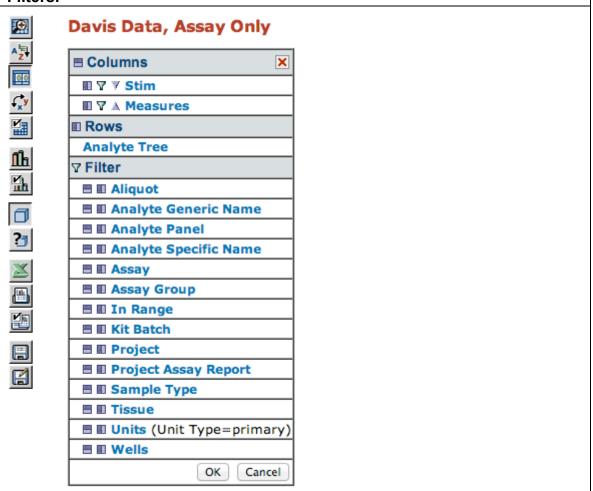


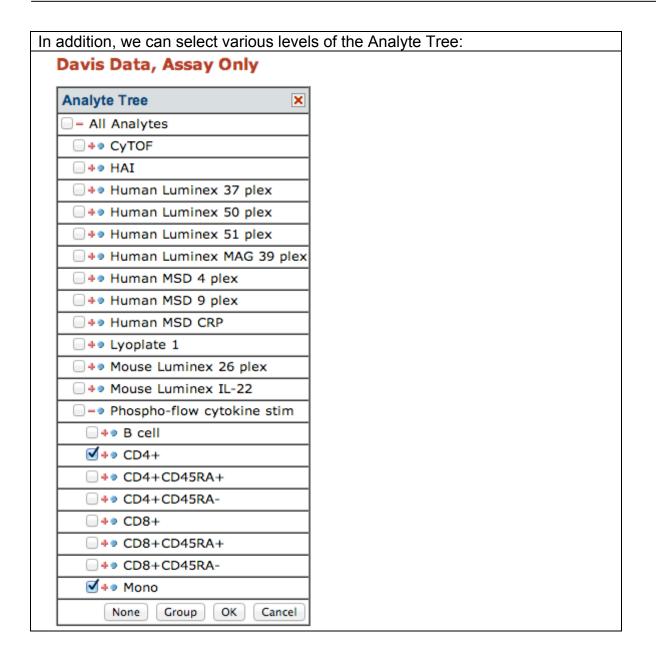




3. Changing the dimensions on rows and columns

When editing the view, dimensions can be moved to rows or columns by clicking on the little boxes next to them. When you hover over the icon, an explanation appears. To remove a dimension from the rows or columns, click on the filter icon. In this example, we've moved **Stim** to **Columns** and **Sample Type** to **Filters.**





Stanford Data Miner and Jasper OLAP Overview

After returning to the main view, and expanding the dimensions, we are able to compare the effects of various cytokine stimulations on CD4+ T cells and Monocytes:

				Stim													
Dimensions ∎⊟			All Sti	ms	All Stims												
			Measures		IFNa Measures		IFNg Measures		IL-10 Measures		IL-2 Measures		IL-21 Measures		IL-6 Measures		
																	Analyte Tree
flo	Phospho- flow cytokine	□ CD4+		1,131.4	7,716	863.3	1,083	348.3	1,083	1,948.8	1,083	1,624.5	612	2,656.7	1,083	765.0	1,07
		CD4+	± CD4+: pSTAT1	1,225.0	2,572	1,318.0	361	500.3	361	1,877.1	361	1,451.1	204	2,569.3	361	1,108.4	35
	stim		± CD4+: pSTAT3	1,065.7	2,572	471.8	361	199.9	361	2,165.0	361	1,539.6	204	2,834.4	361	655.6	35
			± CD4+: pSTAT5	1,103.4	2,572	800.1	361	344.7	361	1,804.2	361	1,882.8	204	2,566.4	361	530.9	35
		⊟Mono		1,554.0	7,698	1,226.8	1,080	1,285.0	1,080	4,679.2	1,080	2,384.8	612	735.0	1,080	801.3	1,07
			+ Mono: pSTAT1	1,763.1	2,566	1,950.2	360	2,183.9	360	4,493.6	360	1,902.0	204	767.8	360	887.8	35
			+ Mono: pSTAT3	1,411.1	2,566	852.0	360	623.2	360	5,244.3	360	1,825.7	204	811.6	360	729.9	35
			+ Mono: pSTAT5	1,487.7	2,566	878.2	360	1,048.1	360	4,299.6	360	3,426.8	204	625.6	360	786.1	35

4. Other notes and tips

There are 3 sample types defined in the data model. They are person, control, and standard. Use filters or the sample type dimension to inspect the appropriate data.

The various units (pg/ml, avg MFI, Freq of Parent) are classified by Unit Type as primary or standard. Use filters or the dimensions to pick the appropriate units.

Data in a view can be sorted by clicking on the small dot at the top of a column.