Filter loci with the interactive filter

The list, *LCLs vs B cells,* includes differentially methylated loci for locations across the genome; however, in many cases we may want to focus on loci located in particular regions of the genome. To filter our list to include only regions of interest, we can use the annotations provided by Illumina and the interactive filter in Partek Genomics Suite.

- Select **LCLs_Vs_B_cells** from the spreadsheet tree
- Right-click on the *Gene Symbol* column
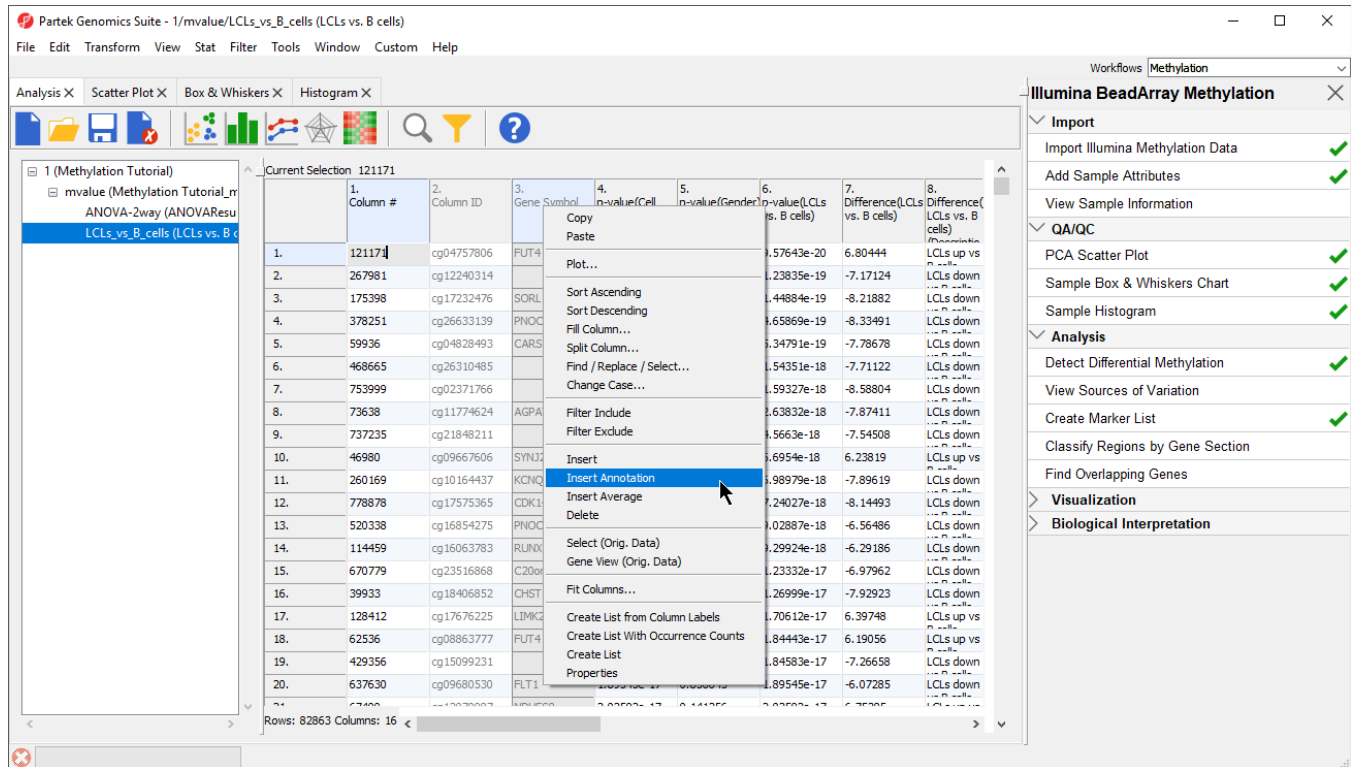- Select **Insert Annotation** (Figure 1)

Figure 1. Adding an annotation column to the ANOVA results

- Select the **Add as categorical** option
- Select **Relation_to_UCSC_CpG_Island** (Figure 2)

CpG islands are regions of the genome with an atypically high frequency of CpG sites. CpG islands and their surrounding regions (termed shelf and shore) include many gene promoters and altered methylation in these regions can have a disproportionate effect on gene expression. For example, hyper-methylation of promoter CpG islands is a common mechanism for down-regulating gene expression in cancer.
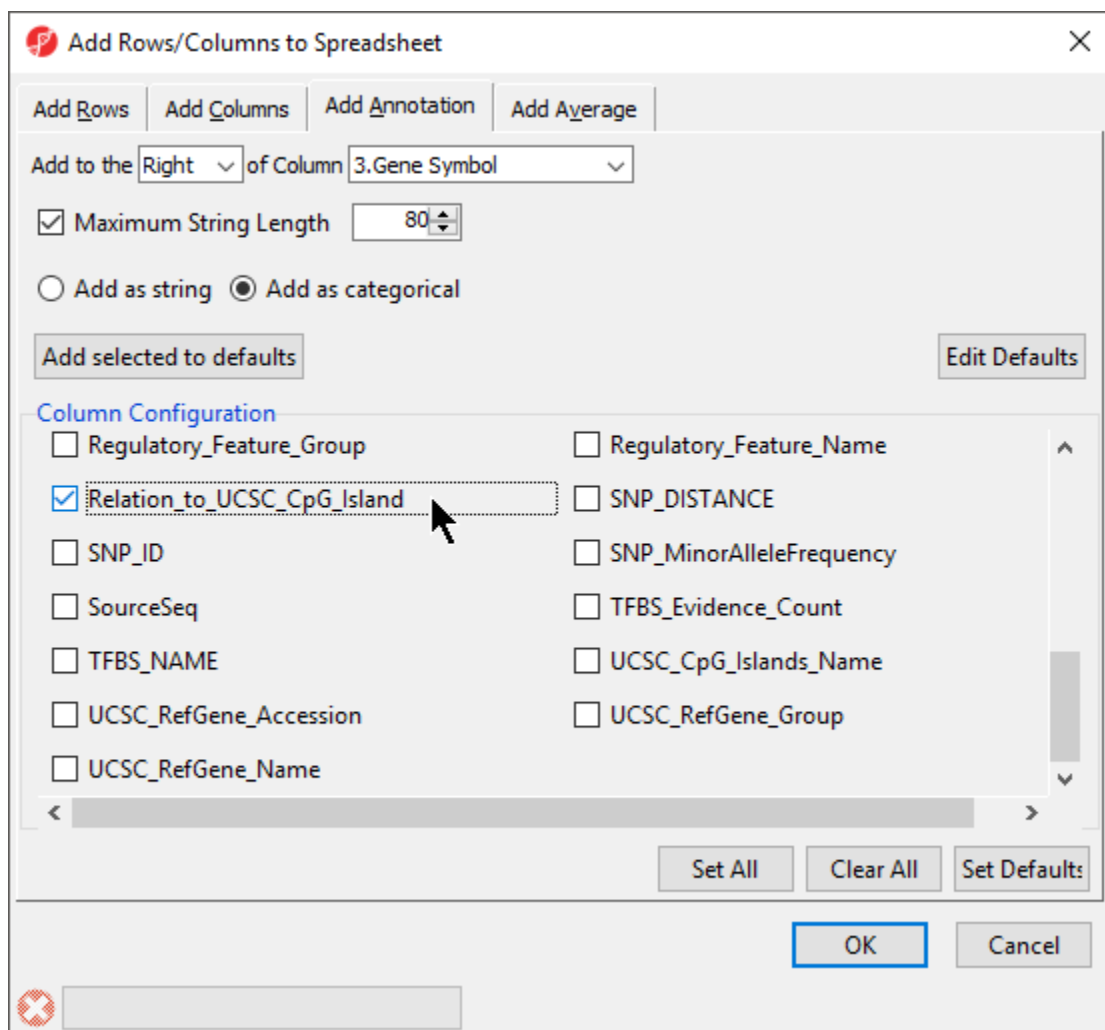
Figure 2. Adding chromosome location to ANOVA results

- Select **OK** to add *Relation_to_UCSC_CpG_Island* as a column in next to *3. Gene Symbol*
- Select (⊟) from the quick action bar to save the *ANOVA-2way (ANOVA Results)* spreadsheet with the added annotation

Now, we can filter probes by their relation to CpG islands.

- Select (▼) from the quick action bar to invoke the interactive filter
- Select **4. Relation_to_UCSC_CpG_Island** for *Column*

For categorical columns, the interactive filter displays each category of the selected column as a colored bar. For *4. Relation_to_UCSC_CpG_Island,* each bar represents one of the categories of the UCSC annotation . To filter out a category, left-click on its bar. Right clicking on a bar will include only the selected category. A pop up balloon will show the category label as you mouse over each bar.

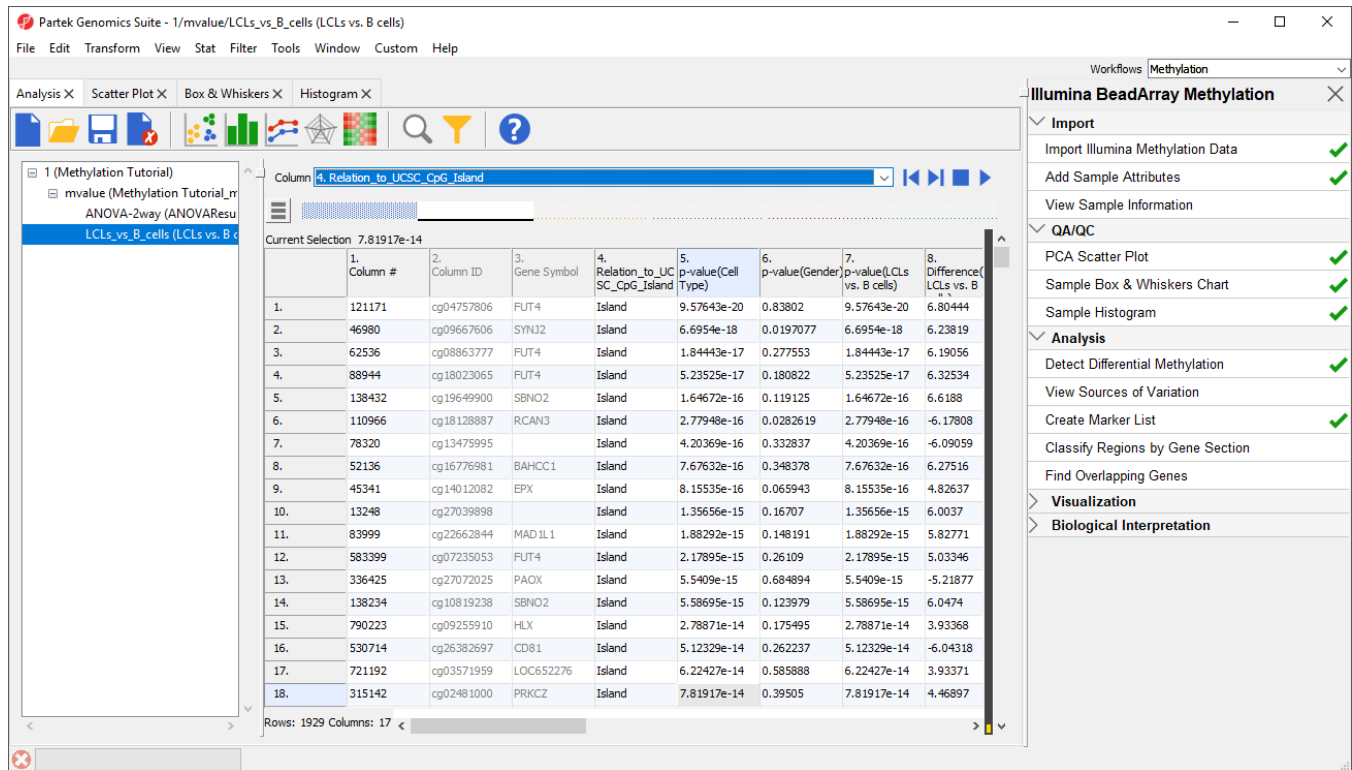- Right-click the Island column to filter out other columns (Figure 3)

Figure 3. Using Interactive Filter tool to filter out probes by annotation. When pointed to a categorical column, the Interactive Filter tool summarises the content of the column by a column chart. Left-click to exclude a category (two columns were excluded, so they are grayed out), right-click to include only

The yellow and black bar on the right-hand side of the spreadsheet panel shows the fraction of excluded cells in black and included cells in yellow. Right-clicking this bar brings up an option to clear the filter.

Now that we have filtered out probes that are not in CpG islands, we will create a spreadsheet containing only these probes.

- Right click on the *LCLs vs. B cells* spreadsheet in the spreadsheet tree panel (Figure 4)
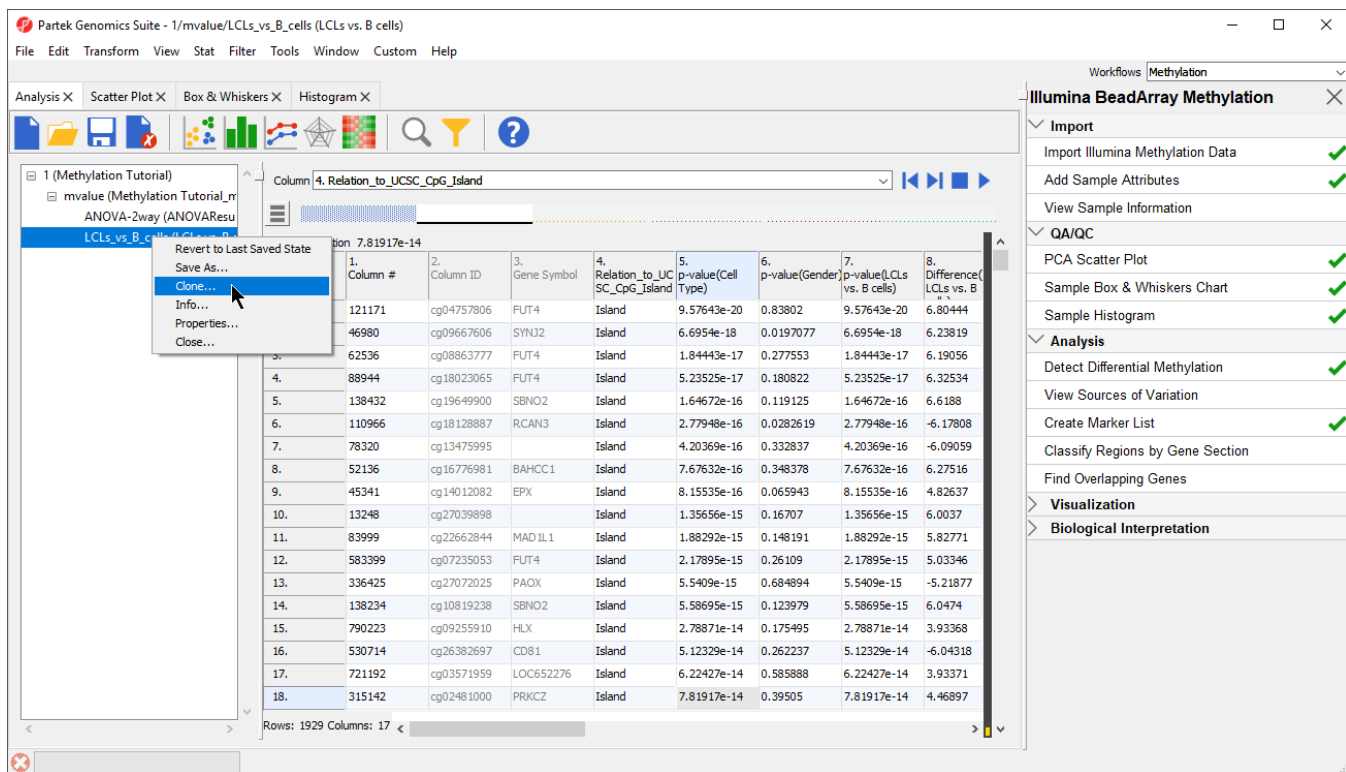
Figure 4. Cloning a filtered spreadsheet creates a new spreadsheet with only the included cells

- Select **Clone**
- Rename the new spreadsheet *LCLs_vs_B_cells_CpG_Islands* using the *Clone Spreadsheet* dialog
- Select **mvalues** from the *Create new spreadsheet as a child spreadsheet:* drop-down menu (Figure 5)
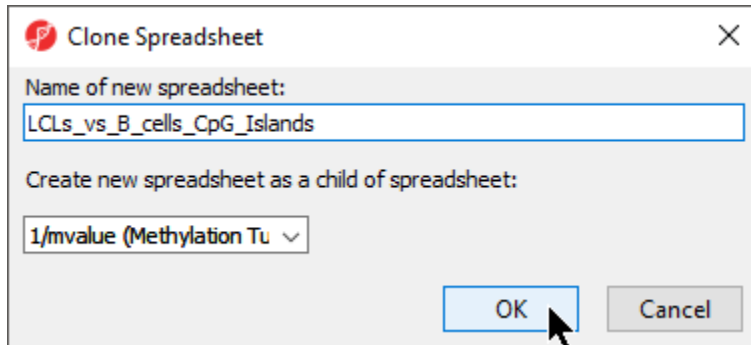- Select **OK**

Figure 5. Renaming and configuring filtered spreadsheet

- Select (💾) from the quick action bar to save the filtered spreadsheet
- Specify a name for the spreadsheet, we chose *LCLs_vs_B_cells_CpG_Islands,* using the *Save File* dialog
- Select **Save** to save the spreadsheet

You may want to save the project before proceeding to the next section of the tutorial.

Additional Assistance

If you need additional assistance, please visit our support page to submit a help ticket or find phone numbers for regional support.

Your Rating: ☆☆☆☆☆   Results: ★★★★★ 34 rates