Creating a gene list using the Venn Diagram

The *List Manager* can be used to generate lists of genes by applying criteria such as fold change and false discovery rate (FDR) adjusted p-value thresholds.

- Select the **Analysis** tab
- Select **ANOVAResults** in the spreadsheet tree
- Select **Create Gene List** from the *Analysis* section of the *Gene Expression* workflow (Figure 1)

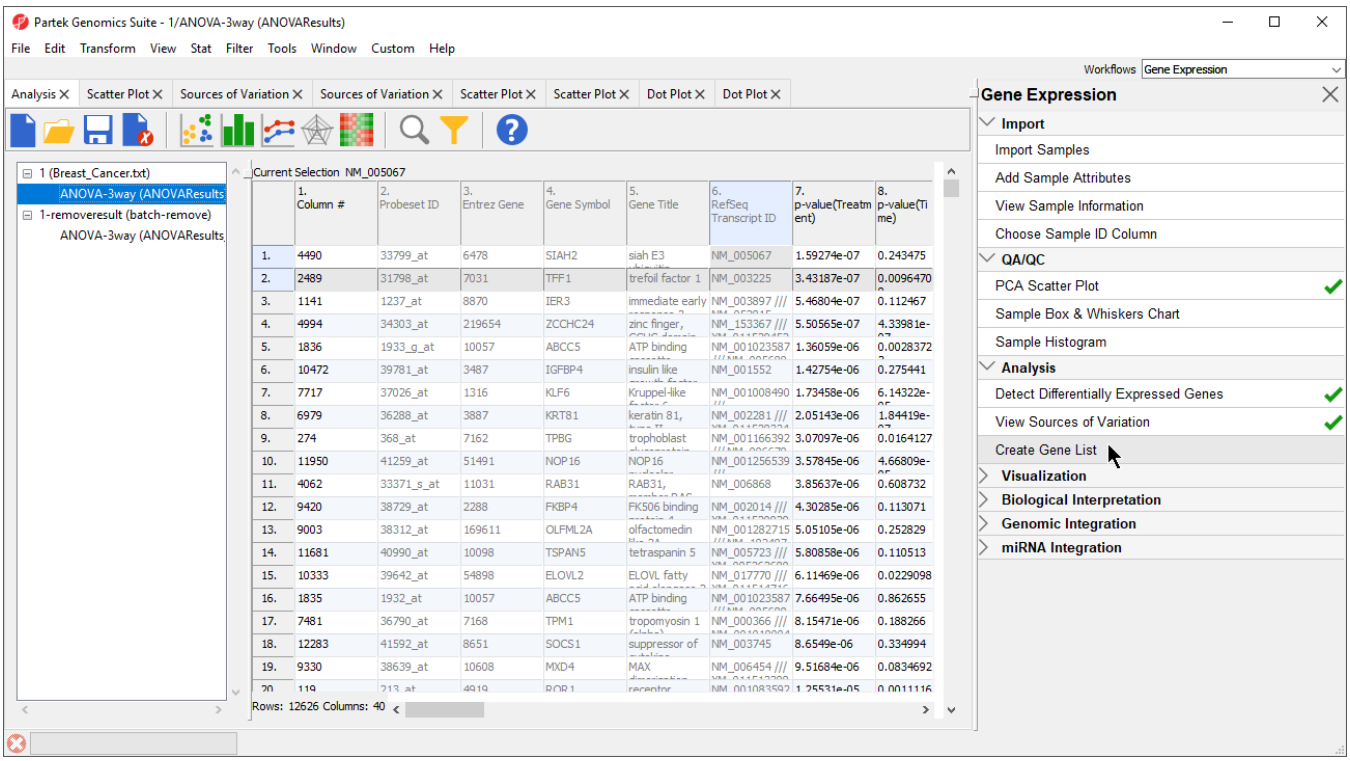

Figure 4. Selecting Create Gene List from the Gene Expression workflow

- Select **E2 vs. Control** from the *Contrast* panel of the *ANOVA Streamlined* tab in the *List Manager* dialog
- Deselect the *Include size of the change* option
- Set *p-value with FDR* < to **0.1** (Figure 2)

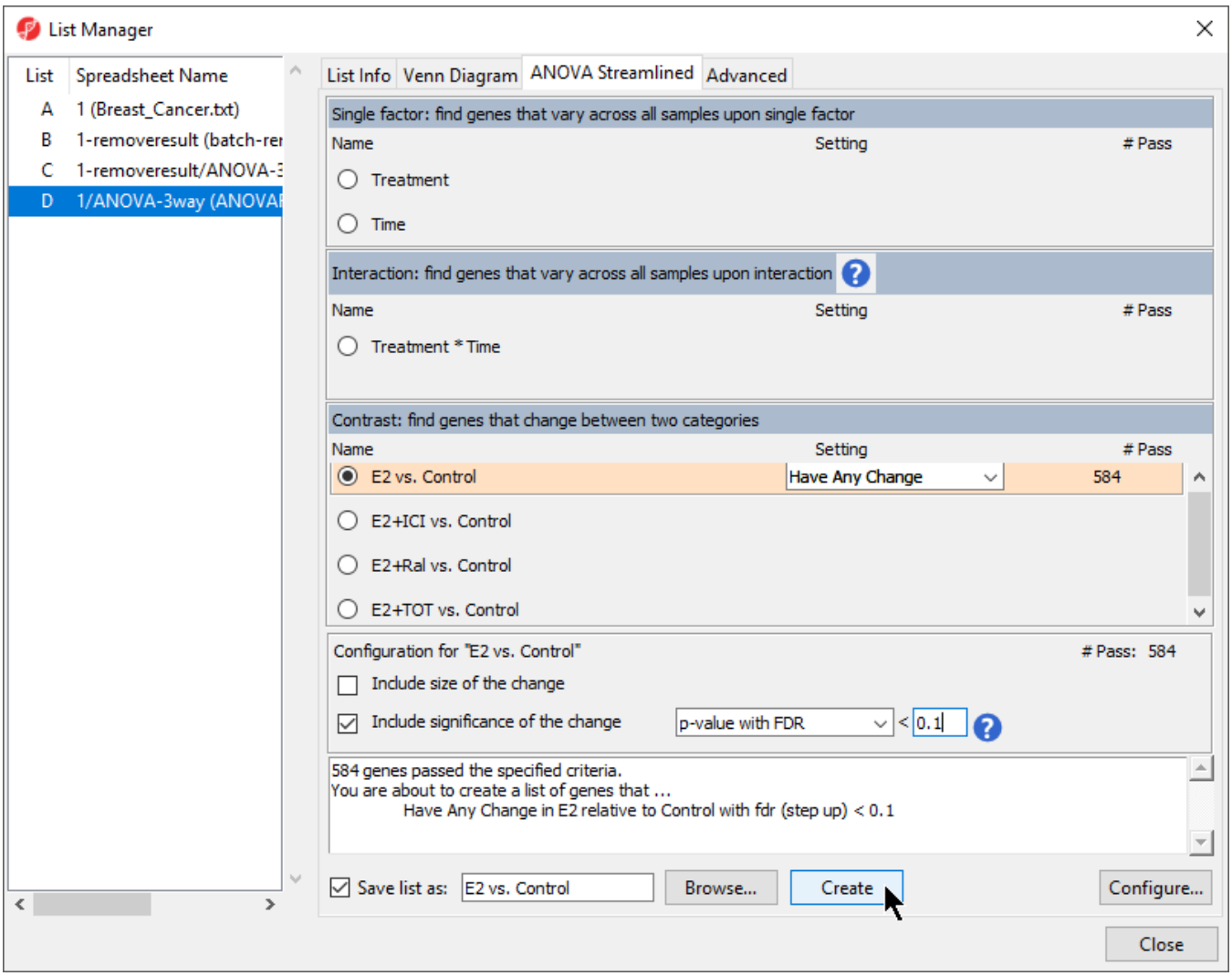

Figure 5. Configuring the List Manager using the ANOVA Streamlined filtering options

There should be ~545 probe(sets)/genes that meet this threshold.

- Select **Create**

A new spreadsheet, *E2 vs. Control,* will be added as a child spreadsheet of *Breast_Cancer.txt*.

- Repeat the steps listed above to create lists for *E2+ICI vs. Control* (~24 genes), *E2+Ral vs. Control* (~22 genes), and *E2+TOT vs. Control* (~177 genes) with the same threashold

Now we can use the *Venn Diagram* to create a list of genes that are differentially regulated in all treatment groups.

- Select the **Venn Diagram** tab in the *List Manager* dialog

The *Venn Diagram* shows overlap between selected gene lists.

- Select the four created lists (E-H) in the spreadsheet list in the *List Manager* dialog by selecting each while holding the **Ctrl** key on your keyboard

The *Venn Diagram* will display the number of overlapping and distinct genes from the four lists (Figure 3).

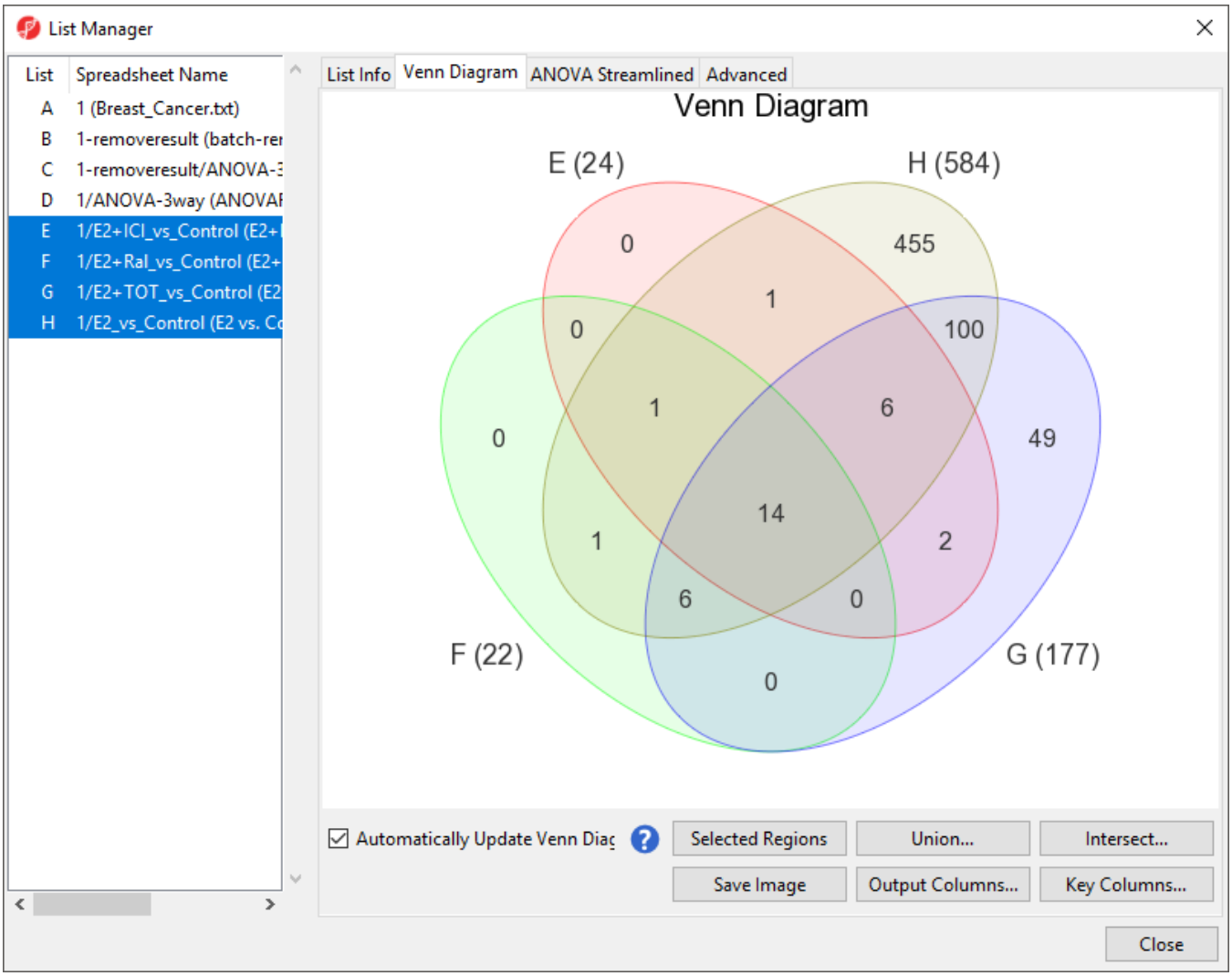

Figure 6. Viewing the Venn Diagram with intersections of four lists of significant genes

The intersection of the four ellipses shows that 14 differentially regulated genes are in common between the four threatment schemes.

- Select the region intersecting all four ellipses
- Right-click the intersected region
- Select **Create List From Highlighted Regions**
- Select **Close** to exit the *List Manager* dialog

The new list will appear in the spreadsheet tree with a temporary file name (ptpm).

- Select the temporary list in the spreadsheet tree
- Select ( ) from the command bar
- Save the list as *fourtreatments*

« Removing batch effects Hierarchical clustering using a gene list »

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