

Using Partek's Report Plug-in for Illumina's GenomeStudio to Export Gene Expression Data

This tutorial describes how to export gene expression data using Partek's Report Plug-in for the Illumina® GenomeStudio Gene Expression Module for use in Partek® Genomic Suite™.

Using the GenomeStudio plug-in lets you export your data into a project that Partek can open directly. It is the fastest and most consistent way to get fully annotated Illumina gene expression data into Partek.

If you don't have access to GenomeStudio, you can import a Final Report from GenomeStudio, but it requires manual work and may not include annotations. See the document "Importing Final Report from BeadStudio's Gene Expression Module" for more information.

Installing the Plug-in

- Download the plug-in from the Illumina's GenomeStudio Portal
- Extract the **PartekReport.GeneExpression.dll** file from the distributed zip file
- Move the **DLL** file into *GenomeStudio's Gene Expression Module's report plug-in folder* (Create the folder if it does not exist)
C:/ProgramFiles/Illumina/GenomeStudio/Modules/BSGX/ReportPlugins/PartekReport (Figure 1)

Note: If you have old versions of the plug-in, please remove them from the GenomeStudio folder hierarchy

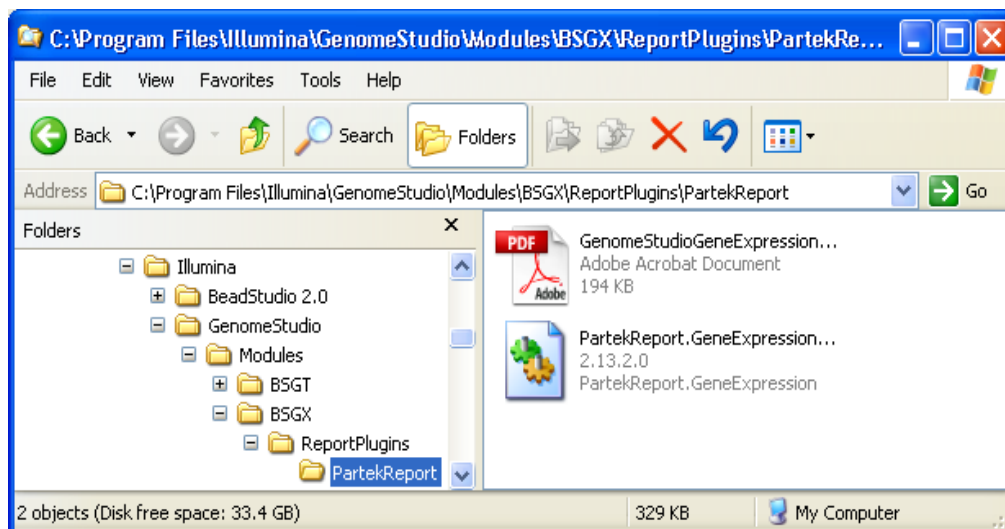


Figure 1: Placing the Partek Report DLL in the appropriate directory

Exporting from GenomeStudio

- Select **Analysis > Reports...** from the main menu
- Select **Custom Report**
- Choose **Partek Report Plug-in** from the list of custom plug-ins (Figure 2)
- Configure export options based on information below

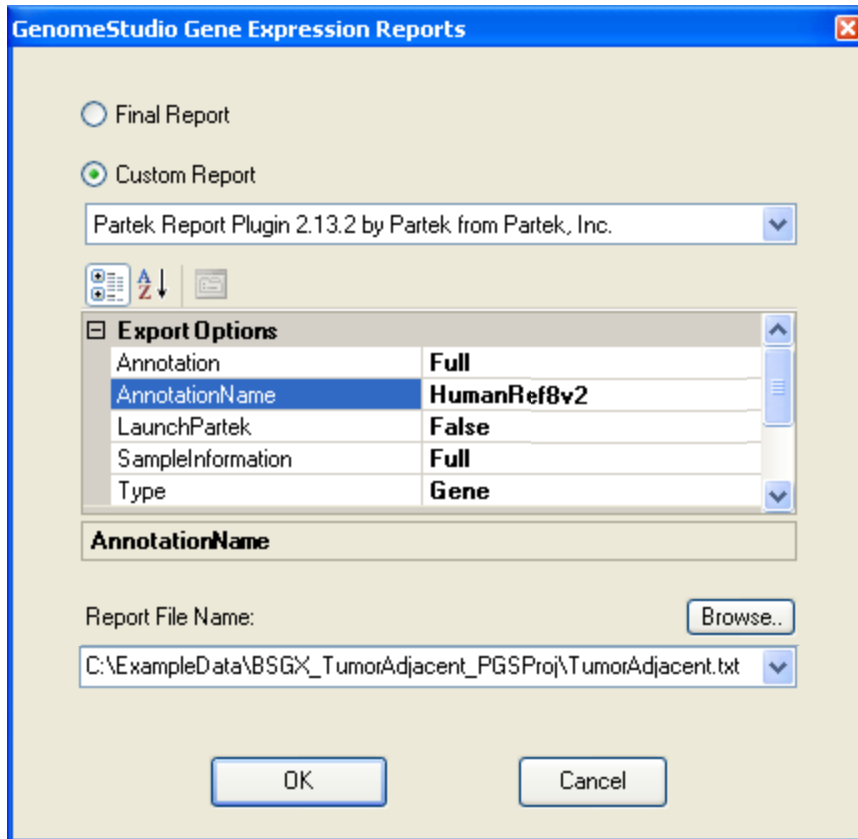


Figure 2: Configuring the GenomeStudio Gene Expression Report dialog

Export Options

Annotation	The level of detail you would like your exported annotation to have. Minimal will contain the required information to do data analysis, and Full will contain everything from GenomeStudio.
AnnotationName	This should be equivalent to the name of the bgx file you imported the data with. Common values are HumanRef8v2 or HumanWG-6v2. If you don't know this information, you should just use something unique to your data set.
LaunchPartek	After the plug-in has completed exporting, you can launch Partek GS afterwards. If Partek is not already running it will be started. The exported data is then loaded and the appropriate Gene Expression workflow items are checked off.
SampleInformation	The level of detail you would like your exported sample information to have. If you have entered data from your experiment into the samples table, you should select Full .
Type	Illumina's gene expression platforms output multiple probe intensities for each gene. The probe level output these intensities directly. Gene level output averages all the probe intensities for each gene.

Table 1: Export options

- It is ***strongly recommended*** to put the exported files in their own folder. This allows you to move the folder instead of all the files individually.
- Select **OK** to start the export process

The result of the export process is a project file (.ppj), which you can open directly in Partek. The project file will open the signal intensities data and associate the annotation information to the intensities file. All intensities are log transformed. Annotation information describes the probe or gene markers, which you have just created data for. The plug-in also creates a manifest file describing the files and date of creation.

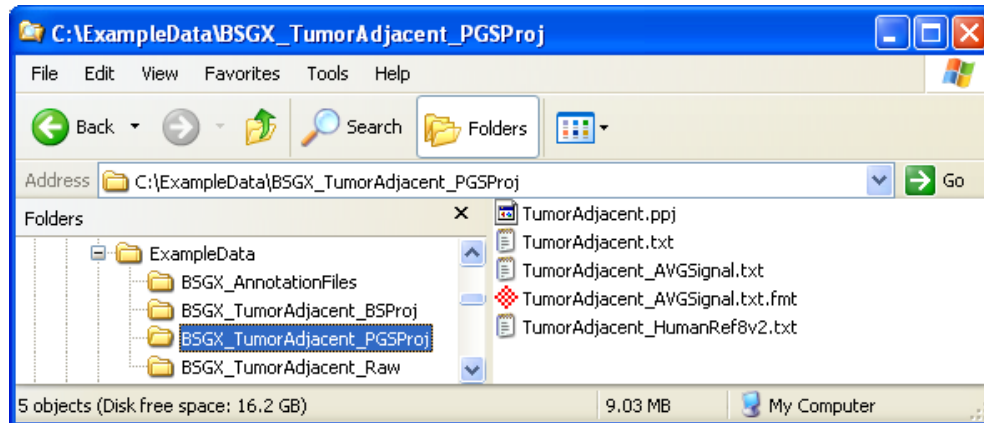


Figure 3: Exported files from the GenomeStudio project

Opening the Project in Partek® Genomic Suite™

If you selected the **LaunchPartek** option on the report dialog (Figure 2), this step has already been completed.

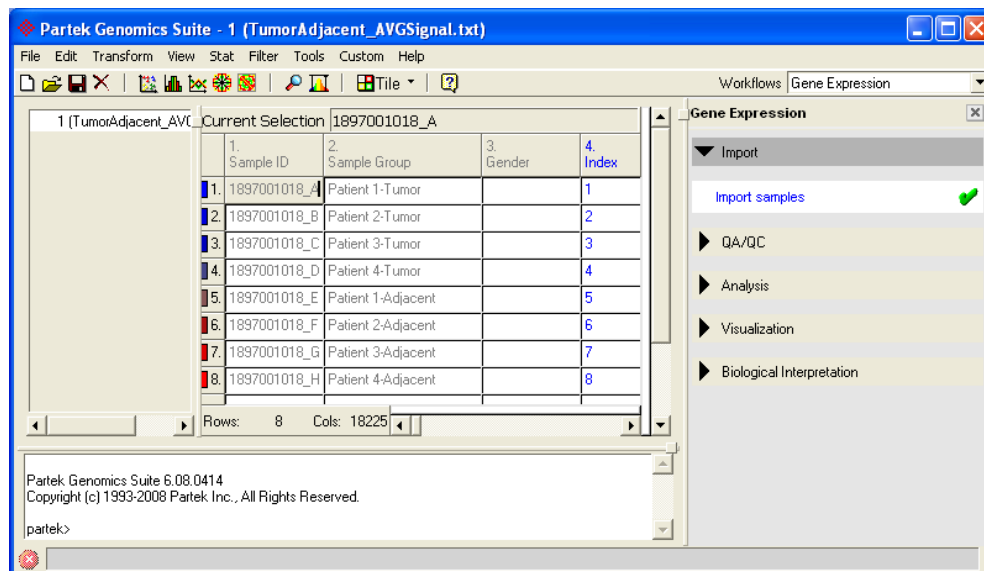


Figure 4: Open the new project in Partek

- Open the *Gene Expression* workflow in the upper right hand corner of Partek (Figure 4).
- In the *Import* section, select **Import Samples**
- Select **Load Project** as the source of the data.
- You should see a spreadsheet and an AVGSIGNAL data file

After loading the project, you can proceed with the **QA/QC** section.

Frequently Asked Questions

Q: Why doesn't the Partek plug-in appear in my list of custom plug-ins?

A: You have placed the DLL file in the incorrect location. GenomeStudio opens pop-up dialogs if a plug-in is faulty, so if you receive no errors then it just did not find the file.

Q: After I open my project in Partek my annotations are missing or the annotations are incorrect. Is the annotation corrupted?

A: If you use the same name as a previously created annotation, Partek will not overwrite existing annotation references. You will need to manually change the annotation links in your file, or update the File Manager so all files use your new annotation. For more information, please see the **Associating a Spreadsheet with an Annotation File** document on our tutorials website.

Q: Why does my data look different than in GenomeStudio?

A: Your data is automatically normalized for analysis in Partek. The data will be shifted such that the lowest value is 1 and the \log_2 taken. To avoid shifting the data you should not use background correction when creating your project in GenomeStudio. This results in negative intensities in your data and creates problems for various normalization procedures.

End of Tutorial

This is the end of Illumina data import tutorial. If you need additional assistance with this data set, you can call our technical support staff at +1-314-878-2329 or email support@partek.com.