RAnGER. Rank, Analyze, Graph and Evaluate Results

RAnGER is a tool used to assist an investigator in statistical analysis of experimental results. RAnGER operates in an Excel spreadsheet environment. An investigator familiar with spreadsheets should have little difficulty working with RAnGER. The investigator will provide the experimental data used by RAnGER. That data comes in two categories:

- Source Data (Required)
- Cluster Data (Optional)

Source data consists of the experimental results, in the form of Unit values that are to be analyzed.

Cluster data consists of lists of Unit IDs that are of specific interest to the investigator. Cluster lists are used to limit the scope of analysis.

Use of RAnGER begins with a data Source. RAnGER expects a worksheet containing a matrix of Sample or Subject IDs cross-referenced against a set of Unit IDs. Each row contains data for a specific Sample or Subject. Each column contains data for a specific Unit. The intersection points identify Unit values for a specific Sample or Subject.

In this small example, Subj-1 has an LEMD3 value of 2421. Subj-4 has a SCAF8 value of 2977.

UnitID	LEMD3	SMAD4	SCAF8	INTS8	MKLN1
Subj-1	2421	2376	3381	2096	10640
Subj-2	2524	2485	3476	1867	8684
Subj-3	2619	2534	3396	2205	10638
Subj-4	2418	2407	2977	2489	11851
Subj-5	2631	2639	3739	2555	13462

The number of subject rows may typically be fairly small. The Unit columns may number in the thousands.

Source data must be organized in the format shown above. The Unit IDs must appear in the first row. The first column of data must have a header of “UnitID”. The Subject IDs appear in that column.

There may be situations in which experimental data is organized in the above format but with rows and columns transposed, as in this example. The data is identical to that shown above, but transposed.

UnitID	Subj-1	Subj-2	Subj-3	Subj-4	Subj-5
LEMD3	2421	2524	2619	2418	2631
SMAD4	2376	2485	2534	2407	2639
SCAF8	3381	3476	3396	2977	3739
INTS8	2096	1867	2205	2489	2555
MKLN1	10640	8684	10638	11851	13462

In this situation, the investigator must use Excel to transpose the column/row format into the expected row/column format.

If the investigator wishes to make use of Clusters, the cluster data must be stored in a worksheet in the following format. A Cluster worksheet may have one or more cluster lists. For each cluster list, the title must appear in row 1. A Short Name must appear in row 2. In this example, the second list has a title of “ClusterTitle02” and a Short Name of “CT02”. The list consists of five Unit IDs.

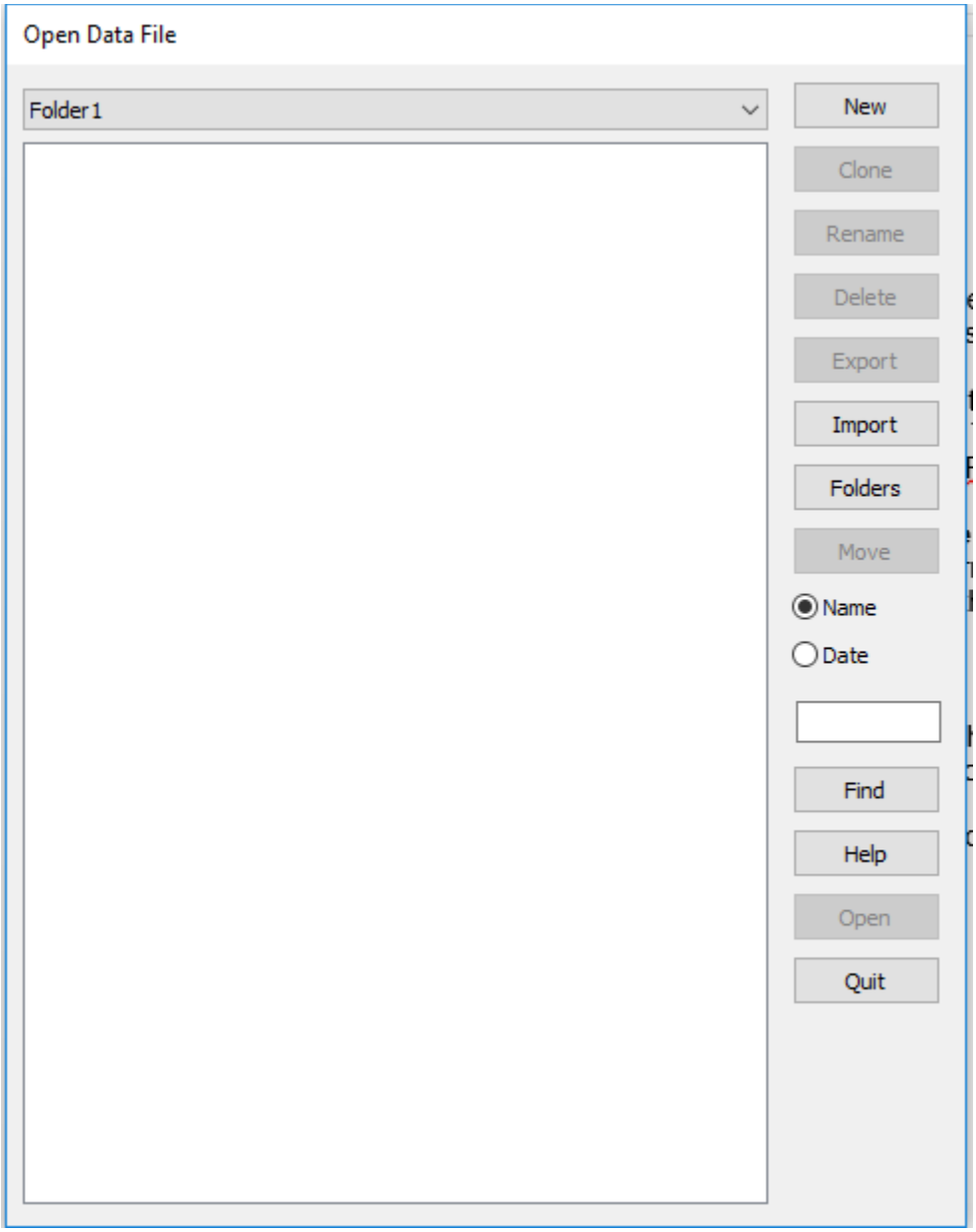
ClusterTitle01	ClusterTitle02
CT01	CT02
NEK7	LEMD3
CPNE3	SMAD4
PNRC2	SCAF8
SLC9A6	INTS8
CPSF2	MKLN1
MTM1	
ZDHHC17	
HMBOX1	

The analysis performed by RAnGER is based on the data stored in these Source and Cluster worksheets. Source and Cluster worksheets may be stored in the same original workbook.

IMPORTANT NOTE: The Source data must be stored in Excel workbook format, either .xls or .xlsx. The cells containing the UnitIDs must be in Text format. If they are not, Excel may interpret a UnitID such as MARCH1 as a date and change it to "3/1/2017" or "1-Mar" or "43160".

When working with **RAnGER**, click the **Overview** button to see a concise review of its features. RAnGER generates worksheets as it performs its various actions. After a RAnGER action has been completed, view the **WS** worksheet to see the names of worksheets that have been added or deleted by that action. Roll your mouse over cell B1 on any worksheet to see documentation specific to that worksheet.

When you start **RAnGER** you do not see the Excel spreadsheet presentation immediately. You are presented with the **Open Data File** dialog**.** This feature is used to organize and manage your data as you work with **RAnGER.**



For a detailed explanation of the features of **Open Data File** see the document called **OpenDataFile_ReadMe.pdf.**