

Compiled Expression

Compiled expression interface let users to perform microarray gene expression data analysis. It includes a number of data pre-treatment and analysis tools.

After open a compiled file, ExP pop-ups the following interface.

The screenshot shows a software window titled "compiled_norm_sm_tdc_cellLineAlignZero.txt". The window has a menu bar with "File", "Analysis", "Data", "Plot", and "Help". Below the menu bar are several input fields for configuring the data analysis:

- Sample Name Row (size): 0
- Bio Replicate Row(n above threshold): -1
- Cy3/Cy5 Label Row(r threshold): -1
- Tech Replicate Row: -1
- Data Start Column: -1
- Data Start Row: -1
- Cell Line Name Row: -1
- Cell Line Profile Row: -1

Below these fields is a section titled "Click on Column and Select Column Name" with a table of columns:

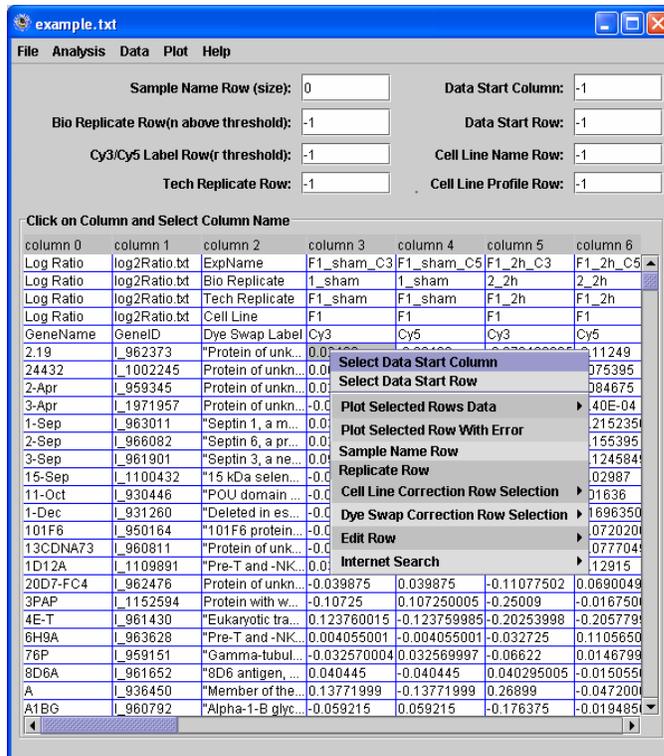
column 0	column 1	column 2	column 3	column 4	column 5	column 6
Log Ratio	log2Ratio.txt	ExpName	F1_sham_C3	F1_sham_C5	F1_2h_C3	F1_2h_C5
Log Ratio	log2Ratio.txt	Bio Replicate	1_sham	1_sham	2_2h	2_2h
Log Ratio	log2Ratio.txt	Tech Replic...	F1_sham	F1_sham	F1_2h	F1_2h
Log Ratio	log2Ratio.txt	Cell Line	F1	F1	F1	F1
GeneName	GeneID	Dye Swap L...	Cy3	Cy5	Cy3	Cy5

The main data table below has the following columns: GeneID, ExpName, and six columns of numerical values. The data rows include various gene names and their corresponding expression values across different conditions and replicates.

GeneID	ExpName	col3	col4	col5	col6	
2.19	I_962373	"Protein of u...	0.02426	-0.02426	-0.076469995	0.11249
24432	I_1002245	Protein of u...	0.007435001	-0.007435001	0.040935002	0.075395
2-Apr	I_959345	Protein of u...	0.022744998	-0.022745002	0.027234994	0.084675
3-Apr	I_1971957	Protein of u...	-0.020620018	0.020619988	-0.036720037	-1.40E-04
1-Sep	I_963011	"Septin 1, a ...	0.030945003	-0.030945003	0.17731498	-0.21523501
2-Sep	I_966082	"Septin 6, a ...	0.027295008	-0.027294993	-0.07187499	-0.155395
3-Sep	I_961901	"Septin 3, a ...	0.095705	-0.09570499	-1.176895	-0.12458499
15-Sep	I_1100432	"15 kDa sel...	-0.03634	0.03634	-0.00526	-0.02987
11-Oct	I_930446	"POU domai...	-0.020970002	0.020970002	-0.015979998	0.01636
1-Dec	I_931260	"Deleted in ...	-0.077075	0.077075005	-0.20276499	0.16963501
101F6	I_950164	"101F6 prot...	-0.029760003	0.029759973	-0.002160013	-0.07202002
13CDNA73	I_960811	"Protein of u...	-0.08111498	0.08111501	-0.207975	-0.07770499
1D12A	I_1109891	"Pre-T and -...	0.03395	-0.03395	-0.053990006	-0.12915
20D7-FC4	I_962476	Protein of u...	-0.039875	0.039875	-0.11077502	0.06900498
3PAP	I_1152594	Protein with ...	-0.10725	0.107250005	-0.25009	-0.01675000
4E-T	I_961430	"Eukaryotic L...	0.123760015	-0.123759985	-0.20253998	-0.20577998
6H9A	I_963628	"Pre-T and -...	0.004055001	-0.004055001	-0.032725	0.11056501
76P	I_959151	"Gamma-tu...	-0.032570004	0.032569997	-0.06622	0.014679998
8D6A	I_961652	"8D6 antige...	0.040445	-0.040445	0.040295005	-0.01505500
A	I_936450	"Member of t...	0.13771999	-0.13771999	0.26899	-0.04720002
A1BG	I_960792	"Alpha-1-B g...	-0.059215	0.059215	-0.176375	-0.01948500

(1) Data structure – experiment design

First thing to do is to tell ExP your data structure.



(A) Click right button on mouse over a cell, user can assign the data start column and start row.

(B) But prior to opening the compiled file, user may use excel to edit it and add a few rows to specify each of the columns, such as inter and intra groups (biological replicates), technical replicates, dye labels, cell line names, call line profiles, and then save the file into tab-delimited format. To specify the data columns, user may click right button on mouse over a selected row (any cell in the row) to assign their column specs.

(C) Also, user can perform row data plot and open a web page of a given gene either based on GenBank ID or unigene

(2) Data pre-treatment

The pretreatment includes profile-based dye-labeling bias correction and cell line alignment.

(A) Profile-based dye-labeling bias correction.

To perform profile-based dye-labeling bias correction, user needs assign technical replicate and dye-label rows.

compiled_norm_sm_tdc_cellLineAlignZero.txt

File Analysis Data Plot Help

Sample Name Row (size): 0 Data Start Column: 3

Bio Replicate Row(n above threshold): 1 Data Start Row: 5

Cy3/Cy5 Label Row(r threshold): 4 Cell Line Name Row: -1

Tech Replicate Row: 2 Cell Line Profile Row: -1

Click on Column and Select Column Name

column 0	column 1	column 2	column 3	column 4	column 5	column 6	column 7	column 8
Log Ratio	log2Ratio.bt	ExpName	F1_sham_C3	F1_sham_C5	F1_2h_C3	F1_2h_C5	F1_6h_C3	F1_6h_C5
Log Ratio	log2Ratio.bt	Bio Replicate	1_sham	1_sham	2_2h	2_2h	3_6h	3_6h
Log Ratio	log2Ratio.bt	Tech Replic...	F1_sham	F1_sham	F1_2h	F1_2h	F1_6h	F1_6h
Log Ratio	log2Ratio.bt	Cell Line	F1	F1	F1	F1	F1	F1
GeneName	GeneID	Dye Swap L...	Cy3			5	Cy3	Cy5
2.19	I_962373	"Protein of u...	0.02		11249	0.021360002	-0.19428	
24432	I_11002245	Protein of u...	0.02		175395	0.005755	0.0066749	
2-Apr	I_959345	Protein of u...	0.02		184675	0.143465	-0.0569250	
3-Apr	I_1971957	Protein of u...	-0.0		40E-04	-4.10E-04	0.0148899	
1-Sep	I_963011	"Septin 1, a ...	0.03		21523501	0.173095	-0.1746250	
2-Sep	I_966082	"Septin 6, a ...	0.02		155395	-0.261775	0.2371550	
3-Sep	I_961901	"Septin 3, a ...	0.09		12458499	0.806375	0.346345	
15-Sep	I_1100432	"15 kDa sel...	-0.0				0.02827	
11-Oct	I_930446	"POU domai...	-0.0				0.03391	
1-Dec	I_931260	"Deleted in ...	-0.0				0.0702750	
101F6	I_950164	"101F6 prot...	-0.0				0.07202024	-0.12751001
13CDNA73	I_960811	"Protein of u...	-0.08111498	0.08111501	-0.207975	-0.077704996	0.465975	0.0222949
1D12A	I_1109891	"Pre-T and ...	0.03395	-0.03395	-0.053990006	-0.12915	-0.13799	-0.1105
20D7-FC4	I_962476	Protein of u...	-0.039875	0.039875	-0.11077502	0.06900498	-0.373585	-0.0275750
3PAP	I_1152594	Protein with ...	-0.10725	0.107250005	-0.25009	-0.016750008	-0.31212	-0.0103700
4E-T	I_961430	"Eukaryotic t...	0.123760015	-0.123759985	-0.20253998	-0.20577998	-0.06387998	-0.1989199
6H9A	I_963628	"Pre-T and ...	0.004055001	-0.004055001	-0.032725	0.11056501	-0.236875	0.1264550
76P	I_959151	"Gamma-tu...	-0.032570004	0.032569997	-0.06622	0.014679998	0.84012	-0.0397
8D6A	I_961652	"8D6 antige...	0.040445	-0.040445	0.040295005	-0.015055001	0.012634993	-0.0685050
A	I_936450	"Member of L...	0.13771999	-0.13771999	0.26899	-0.047200024	-0.22536999	0.21204
A1BG	I_960792	"Alpha-1-B g...	-0.059215	0.059215	-0.176375	-0.019485004	-0.102195	-0.017095

Then, user click mouse over “Dye Bias Correction” to perform the action. The dye-bias corrected result will replace the un-corrected data. User may save the result into a file.

The screenshot shows a software window titled "compiled_norm_sm_tdc_cellLineAlignZero.txt". The menu is open, showing options under "Bio Replic" and "Cy3". A red arrow points to the "Dye Bias Correction" option. Other options include "Cell Line", "Data Operations", "Row Data Operations", "Column Data Operations", "Data Sets Venn Diagrams", and "Data Set".

column 0	column 1	column 2	column 3	column 4	column 5	column 6
Log Ratio	log2Ratio.bt	ExpName	F1_sham_C3	F1_sham_C5	F1_2h_C3	F1_2h_C5
Log Ratio	log2Ratio.bt	Bio Replicate	1_sham	1_sham	2_2h	2_2h
Log Ratio	log2Ratio.bt	Tech Replic...	F1_sham	F1_sham	F1_2h	F1_2h
Log Ratio	log2Ratio.bt	Cell Line	F1	F1	F1	F1
GeneName	GeneID	Dye Swap L...	Cy3	Cy5	Cy3	Cy5
219	I_962373	*Protein of u...	0.02426	-0.02426	-0.076469995	-0.11249
24432	I_1002245	Protein of u...	0.007435001	-0.007435001	0.040935002	0.075395
2-Apr	I_959345	Protein of u...	0.022744998	-0.022745002	0.027234994	0.084675
3-Apr	I_1971957	Protein of u...	-0.020620018	0.020619988	-0.036720037	-1.40E-04
1-Sep	I_963011	*Septin 1, a ...	0.030945003	-0.030945003	0.17731498	-0.21523501
2-Sep	I_966082	*Septin 6, a ...	0.027295008	-0.027294993	-0.07187499	-0.155395
3-Sep	I_961901	*Septin 3, a ...	0.095705	-0.09570499	-1.176895	-0.12458499
15-Sep	I_1100432	*15 kDa sel...	-0.03634	0.03634	-0.00526	-0.02987
11-Oct	I_930446	*POU domai...	-0.020970002	0.020970002	-0.015979998	0.01636
1-Dec	I_931260	*Deleted in ...	-0.077075	0.077075005	-0.20276499	0.16963501
101F6	I_950164	*101F6 prot...	-0.029760003	0.029759973	-0.002160013	-0.07202002
13CDNA73	I_960811	*Protein of u...	-0.08111498	0.08111501	-0.207975	-0.07770499
1D12A	I_1109891	*Pre-T and ...	0.03395	-0.03395	-0.053990006	-0.12915
20D7-FC4	I_962476	Protein of u...	-0.039875	0.039875	-0.11077502	0.06900498
3PAP	I_1152594	Protein with ...	-0.10725	0.107250005	-0.25009	-0.01675000
4E-T	I_961430	*Eukaryotic t...	0.123760015	-0.123759985	-0.20253998	-0.20577998
6H9A	I_963628	*Pre-T and ...	0.004055001	-0.004055001	-0.032725	0.11056501
76P	I_959151	*Gamma-tu...	-0.032570004	0.032569997	-0.06622	0.014679998
8D6A	I_961652	*8D6 antige...	0.040445	-0.040445	0.040295005	-0.01505500
A	I_936450	*Member of t...	0.13771999	-0.13771999	0.26899	-0.04720002
A1BG	I_960792	*Alpha-1-B g...	-0.059215	0.059215	-0.176375	-0.01948500

(B) Cell line alignment

If the compiled data contains multiple cell line and each cell line has a sham-treated set of data, user may apply cell line alignment. To perform cell line alignment, user needs assign cell line and cell line profile rows.

compiled_norm_sm_tdc_cellLineAlignZero.txt

File Analysis Data Plot Help

Sample Name Row (size): 0 Data Start Column: 3

Bio Replicate Row(n above threshold): 1 Data Start Row: 5

Cy3/Cy5 Label Row(r threshold): 4 Cell Line Name Row: -1

Tech Replicate Row: 2 Cell Line Profile Row: -1

Click on Column and Select Column Name

column 0	column 1	column 2	column 3	column 4	column 5	column 6	column 7	column 8
Log Ratio	log2Ratio.bt	ExpName	F1_sham_C3	F1_sham_C5	F1_2h_C3	F1_2h_C5	F1_6h_C3	F1_6h_C5
Log Ratio	log2Ratio.bt	Bio Replicate	1_sham	1_sham	2_2h	2_2h	3_6h	3_6h
Log Ratio	log2Ratio.bt	Tech Replic...	F1_sham	F1_sham	F1_2h	F1_2h	F1_6h	F1_6h
Log Ratio	log2Ratio.bt	Cell Line	F1	F1	F1	F1	F1	F1
GeneName	GeneID	Dye Swap L...	Cy3			5	Cy3	Cy5
2-19	I_962373	*Protein of u...	0.02		11249	0.021360002	-0.19928	
24432	I_1002245	Protein of u...	0.00		175395	0.005755	0.0066749	
2-Apr	I_959345	Protein of u...	0.02		184675	0.143465	-0.0569250	
3-Apr	I_1971957	Protein of u...	-0.0		40E-04	-4.10E-04	0.0148899	
1-Sep	I_963011	*Septin 1, a ...	0.03		21523501	0.173095	-0.1746250	
2-Sep	I_966082	*Septin 6, a ...	0.02		165395	-0.261715	0.2371550	
3-Sep	I_961901	*Septin 3, a ...	0.09				0.346345	
15-Sep	I_1100432	*15 kDa sel...	-0.0				0.02827	
11-Oct	I_930446	*POU domai...	-0.0				0.03391	
1-Dec	I_931260	*Deleted in ...	-0.0		6963501	-0.207335	0.0702750	
101F6	I_950164	*101F6 prot...	-0.0		072020024	-0.12751001	-0.0462400	
13CDNA73	I_960811	*Protein of u...	-0.08111498	0.08111501	-0.207975	-0.077704996	0.465975	0.0222949
1D12A	I_1109891	*Pre-T and ...	0.03395	-0.03395	-0.053990006	-0.12915	-0.13799	-0.1105
20D7-FC4	I_962476	Protein of u...	-0.039875	0.039875	-0.11077502	0.06900498	-0.373585	-0.0275750
3PAP	I_1152594	Protein with ...	-0.10725	0.107250005	-0.25009	-0.016750008	-0.31212	-0.0103700
4E-T	I_961430	*Eukaryotic t...	0.123760015	-0.123759985	-0.20253998	-0.20577998	-0.06387998	-0.1989199
6H9A	I_963628	*Pre-T and ...	0.004055001	-0.004055001	-0.032725	0.11056501	-0.236875	0.1264550
76P	I_959151	*Gamma-tu...	-0.032570004	0.032569997	-0.06622	0.014679998	-0.84012	-0.0397
8D6A	I_961652	*8D6 antige...	0.040445	-0.040445	0.040295005	-0.015055001	0.012634993	-0.0685050
A	I_936450	*Member of t...	0.13771999	-0.13771999	0.26899	-0.047200024	-0.22536999	0.21204
A1BG	I_960792	*Alpha-1-B g...	-0.059215	0.059215	-0.176375	-0.019485004	-0.102195	-0.017095

Then, user may click mouse over “Cell Line Alignment to zero” to align the averaged sham-treated state to zero. Also, user may click “Cell Line Alignment to average” to align the averaged sham-treated state to their grand average. The alignment result will replace the previous un-alignment data. User may save the result into a file.

The screenshot shows a software window titled "compiled_norm_sm_tdc_cellLineAlignZero.txt". The menu is open, showing options for "Cell Line Alignment to Average" and "Cell Line Alignment to Zero". The data table below has the following structure:

column 0	column 1	column 2	column 3	column 4	column 5	column 6	column 7	column 8
Log Ratio	log2Ratio.txt	ExpName	F1_sham_C3	F1_sham_C5	F1_2h_C3	F1_2h_C5	F1_6h_C3	F1_6h_C5
Log Ratio	log2Ratio.txt	Bio Replicate	1_sham	1_sham	2_2h	2_2h	3_6h	3_6h
Log Ratio	log2Ratio.txt	Tech Replic...	F1_sham	F1_sham	F1_2h	F1_2h	F1_6h	F1_6h
Log Ratio	log2Ratio.txt	Cell Line	F1	F1	F1	F1	F1	F1
GeneName	GeneID	Dye Swap L...	Cy3	Cy5	Cy3	Cy5	Cy3	Cy5
2.19	I_962373	"Protein of u...	0.02426	-0.02426	-0.076469995	-0.11249	0.021360002	-0.19428
24432	I_1002245	Protein of u...	0.007435001	-0.007435001	0.040935002	0.075395	0.005755	0.00667499
2-Apr	I_959345	Protein of u...	0.022744998	-0.022745002	0.027234994	0.084675	0.143465	-0.0569250
3-Apr	I_1971957	Protein of u...	-0.020620018	0.020619988	-0.036720037	-1.40E-04	-4.10E-04	0.0148899
1-Sep	I_963011	"Septin 1, a ...	0.030945003	-0.030945003	0.17731498	-0.21523501	0.173095	-0.1746250
2-Sep	I_966082	"Septin 6, a ...	0.027295008	-0.027294993	-0.07187499	-0.155395	-0.261715	0.2371550
3-Sep	I_961901	"Septin 3, a ...	0.095705	-0.09570499	-1.176895	-0.12458499	0.806375	0.346345
15-Sep	I_1100432	"15 kDa sel...	-0.03634	0.03634	-0.00526	-0.02987	0.061860003	0.02827
11-Oct	I_930446	"POU domai...	-0.020970002	0.020970002	-0.015979998	0.01636	0.23155001	0.03391
1-Dec	I_931260	"Deleted in ...	-0.077075	0.077075005	-0.20276499	0.16963501	-0.207335	0.0702750
101F6	I_950164	"101F6 prot...	-0.029760003	0.029759973	-0.002160013	-0.072020024	-0.12751001	-0.0462400
13CDNA73	I_960811	"Protein of u...	-0.08111498	0.08111501	-0.207975	-0.077704996	0.465975	0.0222949
1D12A	I_1109891	"Pre-T and ...	0.03395	-0.03395	-0.053990006	-0.12915	-0.13799	-0.1105
20D7-FC4	I_962476	Protein of u...	-0.039875	0.039875	-0.11077502	0.06900498	-0.373585	-0.0275750
3PAP	I_1152594	Protein with ...	-0.10725	0.107250005	-0.25009	-0.016750008	-0.31212	-0.0103700
4E-T	I_961430	"Eukaryotic t...	0.123760015	-0.123759985	-0.20253998	-0.20577998	-0.06387998	-0.1989199
6H9A	I_963628	"Pre-T and ...	0.004055001	-0.004055001	-0.032725	0.11056501	-0.236875	0.1264550
76P	I_959151	"Gamma-tu...	-0.032570004	0.032569997	-0.06622	0.014679998	-0.84012	-0.0397
8D6A	I_961652	"8D6 antige...	0.040445	-0.040445	0.040295005	-0.015055001	0.012634993	-0.0685050
A	I_936450	"Member of t...	0.13771999	-0.13771999	0.26899	-0.047200024	-0.22536999	0.21204
A1BG	I_960792	"Alpha-1-B g...	-0.059215	0.059215	-0.176375	-0.019485004	-0.102195	-0.017095

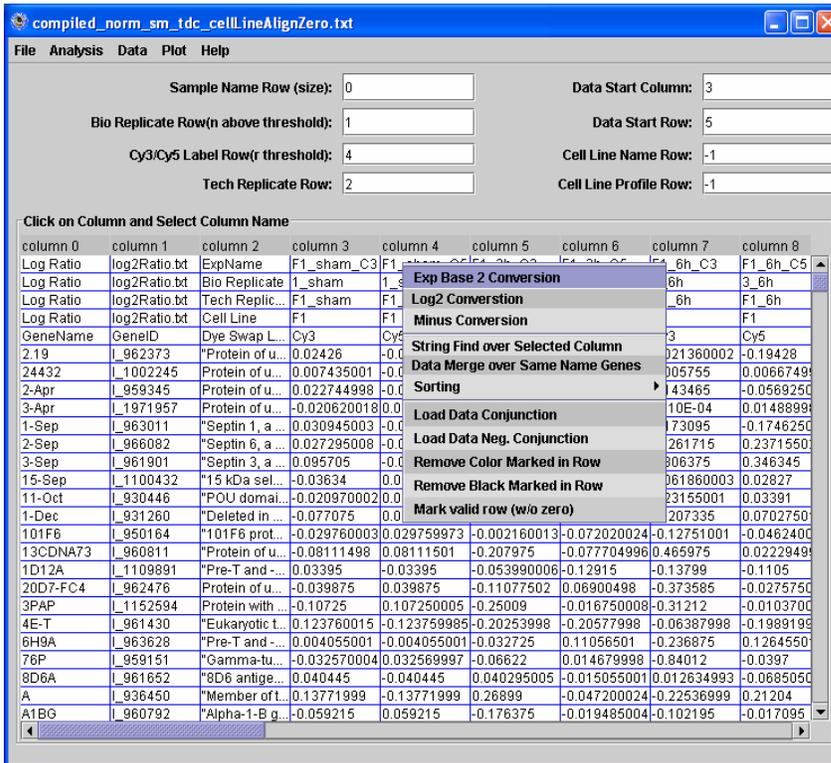
(C) Other data treatment

Mouse right click over a column name, user may perform a number of conversions to the data over selected column. It includes

- (i) Exp Base 2 conversion – d to 2^d ;
- (ii) Log₂ conversion – d to $\log_2 d$;
- (iii) Minus operation – d to $-d$.

Also included

- (iv) String Find;
- (v) Data merge over same genes;
- (vi) Sorting
- (vii) Load Data Conjunction;
- (viii) Load Data Neg. Conjunction;
- (ix) Remove Color Marked Rows;
- (x) Remove Black Marked Rows;
- (xi) Mark valid rows (the row data does not contain zero);



These operations may apply to all the columns, which includes

- (i) Exp Base 2 conversion – d to 2^d ;
- (ii) Log2 conversion – d to $\log_2 d$;
- (iii) Minus operation – d to $-d$.

The screenshot shows a software window titled "compiled_norm_sm_tdc_cellLineAllenZero.txt". The "Data" menu is open, and the "Data Operations" sub-menu is selected. The sub-menu options are:

- Log2 Conversion
- Exponential Base 2 conversion
- Negation
- Correlation Probability Test
- Get Normal Distribution

Below the menu, a table of data is displayed with columns labeled "column 0" through "column 8". The table contains gene names and numerical values for each column.

GeneName	GeneID	Dye Swap L...	Cy3	Cy5	Cy3	Cy5	Cy3	Cy5
2.19	I_962373	"Protein of u...	0.02426	-0.02426	-0.076469995	-0.11249	0.021360002	-0.19428
24432	I_1002245	Protein of u...	0.007435001	-0.007435001	0.040935002	0.075395	0.005755	0.00667499
2-Apr	I_959345	Protein of u...	0.022744998	-0.022745002	0.027234994	0.084675	0.143465	-0.0569250
3-Apr	I_1971957	Protein of u...	-0.020620018	0.020619988	-0.036720037	-1.40E-04	-4.10E-04	0.0148899
1-Sep	I_963011	"Septin 1, a ...	0.030945003	-0.030945003	0.17731498	-0.21523501	0.173095	-0.1746250
2-Sep	I_966082	"Septin 6, a ...	0.027295008	-0.027294993	-0.07187499	-0.155395	-0.261715	0.2371550
3-Sep	I_961901	"Septin 3, a ...	0.095705	-0.09570499	-1.176895	-0.12458499	0.806375	0.346345
15-Sep	I_1100432	"15 kDa sel...	-0.03634	0.03634	-0.00526	-0.02987	0.061860003	0.02827
11-Oct	I_930446	"POU domai...	-0.020970002	0.020970002	-0.015979998	0.01636	0.23155001	0.03391
1-Dec	I_931260	"Deleted in ...	-0.077075	0.077075005	-0.20276499	0.16963501	-0.207335	0.0702750
101F6	I_950164	"101F6 prot...	-0.029760003	0.029759973	-0.002160013	-0.072020024	-0.12751001	-0.0462400
13CDNA73	I_960811	"Protein of u...	-0.08111498	0.08111501	-0.207975	-0.077704996	0.465975	0.0222949
1D12A	I_1109891	"Pre-T and ...	0.03395	-0.03395	-0.053990006	-0.12915	-0.13799	-0.1105
20D7-FC4	I_962476	Protein of u...	-0.039875	0.039875	-0.11077502	0.06900498	-0.373585	-0.0275750
3PAP	I_1152594	Protein with ...	-0.10725	0.107250005	-0.25009	-0.016750008	-0.31212	-0.0103700
4E-T	I_961430	"Eukaryotic t...	0.123760015	-0.123759985	-0.20253998	-0.20577998	-0.06387998	-0.1989199
6H9A	I_963628	"Pre-T and ...	0.004055001	-0.004055001	-0.032725	0.11056501	-0.236875	0.1264550
76P	I_959151	"Gamma-tu...	-0.032570004	0.032569997	-0.06622	0.014679998	-0.84012	-0.0397
8D6A	I_961652	"8D6 antige...	0.040445	-0.040445	0.040295005	-0.015055001	0.012634993	-0.0685050
A	I_936450	"Member of t...	0.13771999	-0.13771999	0.26899	-0.047200024	-0.22536999	0.21204
A1BG	I_960792	"Alpha-1-B g...	-0.059215	0.059215	-0.176375	-0.019485004	-0.102195	-0.017095

To apply all these analysis, the data must consist of a set of biological replicates, i.e. inter- and intra-group assignment.

compiled_norm_sm_tdc_cellLineAlignZero.txt

File Analysis Data Plot Help

Sample Name Row (size): 0 Data Start Column: 3

Bio Replicate Row(n above threshold): 1 Data Start Row: 5

Cy3/Cy5 Label Row(r threshold): 4 Cell Line Name Row: -1

Tech Replicate Row: 2 Cell Line Profile Row: -1

Click on Column and Select Column Name

column 0	column 1	column 2	column 3	column 4	column 5	column 6	column 7	column 8
Log Ratio	log2Ratio.bt	ExpName	F1_sham_C3	F1_sham_C5	F1_2h_C3	F1_2h_C5	F1_6h_C3	F1_6h_C5
Log Ratio	log2Ratio.bt	Bio Replicate	F1_sham_C3	F1_sham_C5	F1_2h_C3	F1_2h_C5	F1_6h_C3	F1_6h_C5
Log Ratio	log2Ratio.bt	Tech Replic...	F1_sham_C3	F1_sham_C5	F1_2h_C3	F1_2h_C5	F1_6h_C3	F1_6h_C5
Log Ratio	log2Ratio.bt	Cell Line	F1	F1	F1	F1	F1	F1
GeneName	GeneID	Dye Swap L...	Cy3	Cy3	Cy3	Cy3	Cy3	Cy3
2.19	I_962373	"Protein of u...	0.0242	0.0242	0.0242	0.0242	0.0242	0.0242
24432	I_1002245	Protein of u...	0.0074	0.0074	0.0074	0.0074	0.0074	0.0074
2-Apr	I_959345	Protein of u...	0.0227	0.0227	0.0227	0.0227	0.0227	0.0227
3-Apr	I_1971957	Protein of u...	-0.020	-0.020	-0.020	-0.020	-0.020	-0.020
1-Sep	I_963011	"Septin 1, a ...	0.0309	0.0309	0.0309	0.0309	0.0309	0.0309
2-Sep	I_966082	"Septin 6, a ...	0.0272	0.0272	0.0272	0.0272	0.0272	0.0272
3-Sep	I_961901	"Septin 3, a ...	0.0957	0.0957	0.0957	0.0957	0.0957	0.0957
15-Sep	I_1100432	"15 kDa sel...	-0.036	-0.036	-0.036	-0.036	-0.036	-0.036
11-Oct	I_930446	"POU domai...	-0.020	-0.020	-0.020	-0.020	-0.020	-0.020
1-Dec	I_931260	"Deleted in ...	-0.077075	0.077075005	-0.20276499	0.16963501	-0.207335	0.0702750
101F6	I_950164	"101F6 prot...	-0.029760003	0.029759973	-0.002160013	-0.072020024	-0.12751001	-0.0462400
13CDNA73	I_960811	"Protein of u...	-0.08111498	0.08111501	-0.207975	-0.077704996	0.465975	0.0222949
1D12A	I_1109891	"Pre-T and -...	0.03395	-0.03395	-0.053990006	-0.12915	-0.13799	-0.1105
20D7-FC4	I_962476	Protein of u...	-0.039875	0.039875	-0.11077502	0.06900498	-0.373585	-0.0275750
3PAP	I_1152594	Protein with ...	-0.10725	0.107250005	-0.25009	-0.016750008	-0.31212	-0.0103700
4E-T	I_961430	"Eukaryotic t...	0.123760015	-0.123759985	-0.20253998	-0.20577998	-0.06387998	-0.1989199
6H9A	I_963628	"Pre-T and -...	0.004055001	-0.004055001	-0.032725	0.11056501	-0.236875	0.1264550
76P	I_959151	"Gamma-tu...	-0.032570004	0.032569997	-0.06622	0.014679998	-0.84012	-0.0397
8D6A	I_961652	"8D6 antige...	0.040445	-0.040445	0.040295005	-0.015055001	0.012634993	-0.0685050
A	I_936450	"Member of t...	0.13771999	-0.13771999	0.26899	-0.047200024	-0.22536999	0.21204
A1BG	I_960792	"Alpha-1-B g...	-0.059215	0.059215	-0.176375	-0.019485004	-0.102195	-0.017095

Each of these statistical analysis methods will have an output to save resulting data and their FDR estimate.

(4) High-dimensional data analysis

ExP provides a number of high-dimensional data analysis, which includes

- (A) Principal Component Analysis (PCA)
- (B) Heat Map
- (C) Hierarchical Clustering
- (D) Fuzzy ARTMAP
- (E) Relevance Analysis
- (F) Linear Discrimination Analysis
- (G) Bayesian Classification Analysis
- (H) Projection Classification
- (I) Extraction of pattern and identification of genes - EPIG

GeneName	GeneID	Dye Swap	Cy3	Cy5	Cy3	Cy5	Cy3	Cy5
2-19	I_962373	*Protein of u...	0.02426	-0.02426	-0.076469995	-0.11249	0.021360002	-0.19428
24432	I_1002245	Protein of u...	0.007435001	-0.007435001	0.040935002	0.075395	0.005755	0.0066749
2-Apr	I_959345	Protein of u...	0.022744998	-0.022744998	0.027234994	0.084675	0.143465	-0.0569250
3-Apr	I_1971957	Protein of u...	-0.020620018	0.020619988	-0.036720037	-1.40E-04	-4.10E-04	0.0148999
1-Sep	I_963011	*Septin 1, a...	0.030945003	-0.030945003	0.17731498	-0.21523501	0.173095	-0.1746250
2-Sep	I_966082	*Septin 6, a...	0.027295008	-0.027294993	-0.07187499	-0.155395	-0.261715	0.2371550
3-Sep	I_961901	*Septin 3, a...	0.095705	-0.09570499	-1.176895	-0.12458499	0.806375	0.346345
15-Sep	I_1100432	*15 kDa sel...	-0.03634	0.03634	-0.00526	-0.02987	0.061860003	0.02827
11-Oct	I_930446	*POU domai...	-0.020970002	0.020970002	-0.015979998	0.01636	0.23155001	0.03391
1-Dec	I_931260	*Deleted in ...	-0.077075	0.077075005	-0.20276499	0.16963501	-0.207335	0.0702750
101F6	I_950164	*101F6 prot...	-0.029760003	0.029759973	-0.002160013	-0.072020024	-0.12751001	-0.0462400
13CDNA73	I_960811	*Protein of u...	-0.08111498	0.08111501	-0.207975	-0.077704996	0.465975	0.0222949
1D12A	I_1109891	*Pre-T and ...	0.03395	-0.03395	-0.053990006	-0.12915	-0.13799	-0.1105
20D7-FC4	I_962476	Protein of u...	-0.039875	0.039875	-0.11077502	0.06900498	-0.373585	-0.0275750
3PAP	I_1152594	Protein with ...	-0.10725	0.107250005	-0.25009	-0.016750008	-0.31212	-0.0103700
4E-T	I_961430	*Eukaryotic t...	0.123760015	-0.123759985	-0.20253998	-0.20577998	-0.06387998	-0.1989199
6H9A	I_963628	*Pre-T and ...	0.004055001	-0.004055001	-0.032725	0.11056501	-0.236875	0.1264550
76P	I_959151	*Gamma-tu...	-0.032570004	0.032569997	-0.06622	0.014679998	-0.84012	-0.0397
8D6A	I_981652	*8D6 antige...	0.040445	-0.040445	0.040295005	-0.015055001	0.012634993	-0.0685050
A	I_936450	*Member of t...	0.13771999	-0.13771999	0.26899	-0.047200024	-0.22536999	0.21204
A1B6	I_960792	*Alpha-1-B g...	-0.059215	0.059215	-0.176375	-0.019485004	-0.102195	-0.017095