RNA Seq Differential Gene Expression Analysis

Analysis for Francis lab

- **Prepared for**:

    ◦ Mike Francis (michael.francis@umassmed.edu)
    ◦ Kasturi Biswas (kasturi.biswas@umassmed.edu)

- **Prepared by** : Dan Higgins (daniel.higgins@umassmed.edu)

- **Process Executed on** : Dec-13-2023

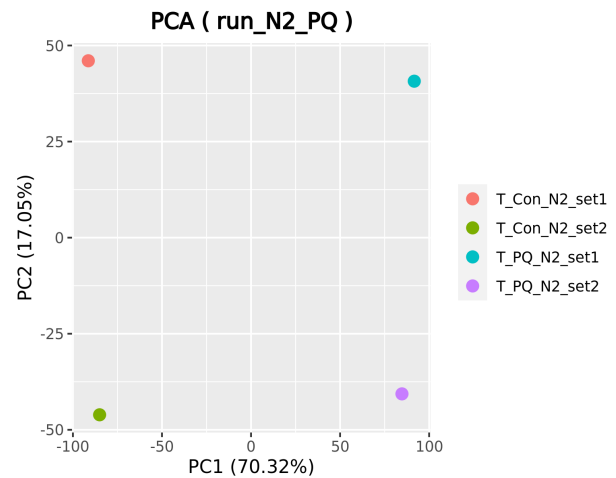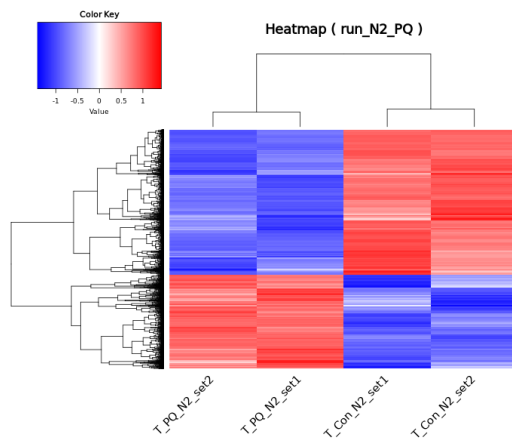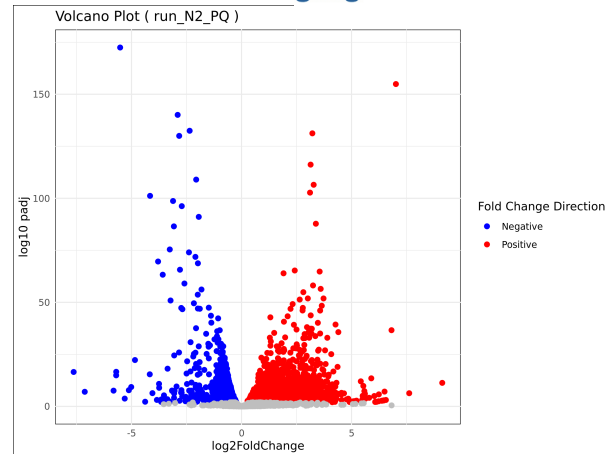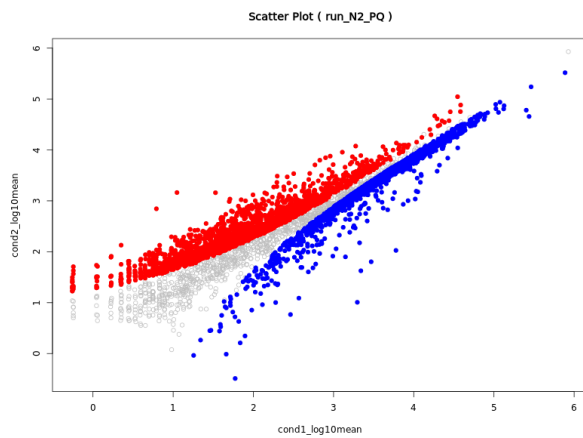- **Input Data**: genes_expression_expected_count.tsv

DESeq2 Results

Experiment run_N2_PQ

Top 10 UP for run_N2_PQ			
Wormbase_Id	**Sequence_id**	**Gene_name**	**log2FoldChange**
WBGene00009038	F22B3.7	nan	9.1226
WBGene00008477	E03H4.10	clec-17	7.6214
WBGene00015788	C15B12.8	nan	7.0166
WBGene00021805	Y53G8AM.5	nspg-7.2	6.8170
WBGene00001751	K08F4.11	gst-3	6.5610
WBGene00000689	Y42H9B.1	col-115	6.5005
WBGene00010760	K10H10.4	nan	6.4722
WBGene00021084	W08E12.3	idpp-12	6.4587
WBGene00011786	T15D6.12	nan	6.4126
WBGene00011136	R08A2.5	nan	6.3708

Top 10 DOWN for run_N2_PQ			
Wormbase_Id	**Sequence_id**	**Gene_name**	**log2FoldChange**
WBGene00000989	ZK816.5	dhs-26	-7.6290
WBGene00016786	C49G7.8	cyp-35A4	-7.1246
WBGene00020674	T22B7.7	nan	-5.8153
WBGene00016274	C30G12.2	nan	-5.6972
WBGene00019565	K09D9.2	cyp-35A3	-5.6949
WBGene00000656	C09G5.5	col-80	-5.5161
WBGene00007358	C06A12.5	lact-6	-5.3085
WBGene00013972	ZK384.2	scl-20	-5.1212
WBGene00003664	C27C7.3	nhr-74	-5.0127
WBGene00044471	F56D6.9	nan	-4.8425

Scatter Plot (run_N2_PQ)

Volcano Plot (run_N2_PQ)

Heatmap (run_N2_PQ)

PCA (run_N2_PQ)
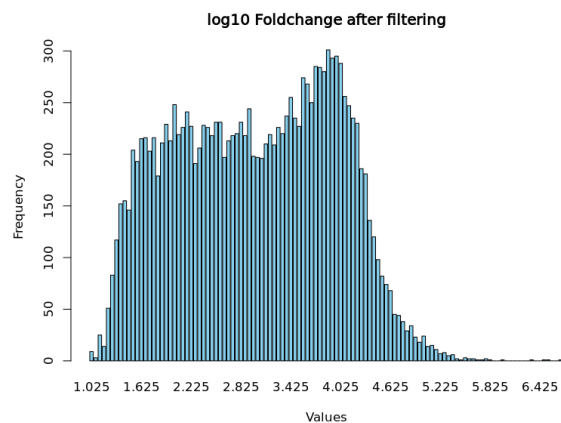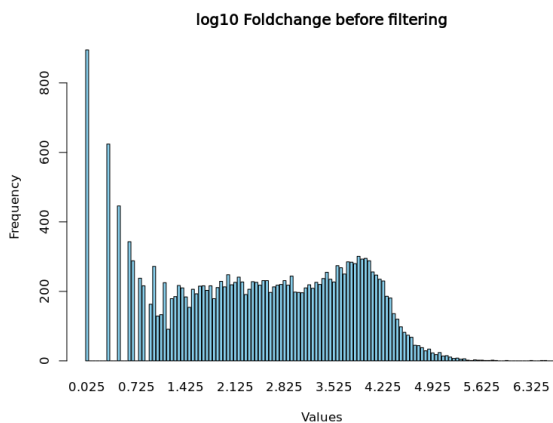
DESeq2 Data Preparation

Low Count Filtering

- **Criteria**: Filter features where MAX Value < 10

log10 Foldchange before filtering

log10 Foldchange after filtering

Low Count Filter		
lib-name	**Before**	**After**
T_Con_N2_set1	26,785,265	26,780,246
T_Con_N2_set2	29,723,513	29,718,350
T_PQ_N2_set1	20,495,198	20,487,972
T_PQ_N2_set2	35,783,334	35,772,347