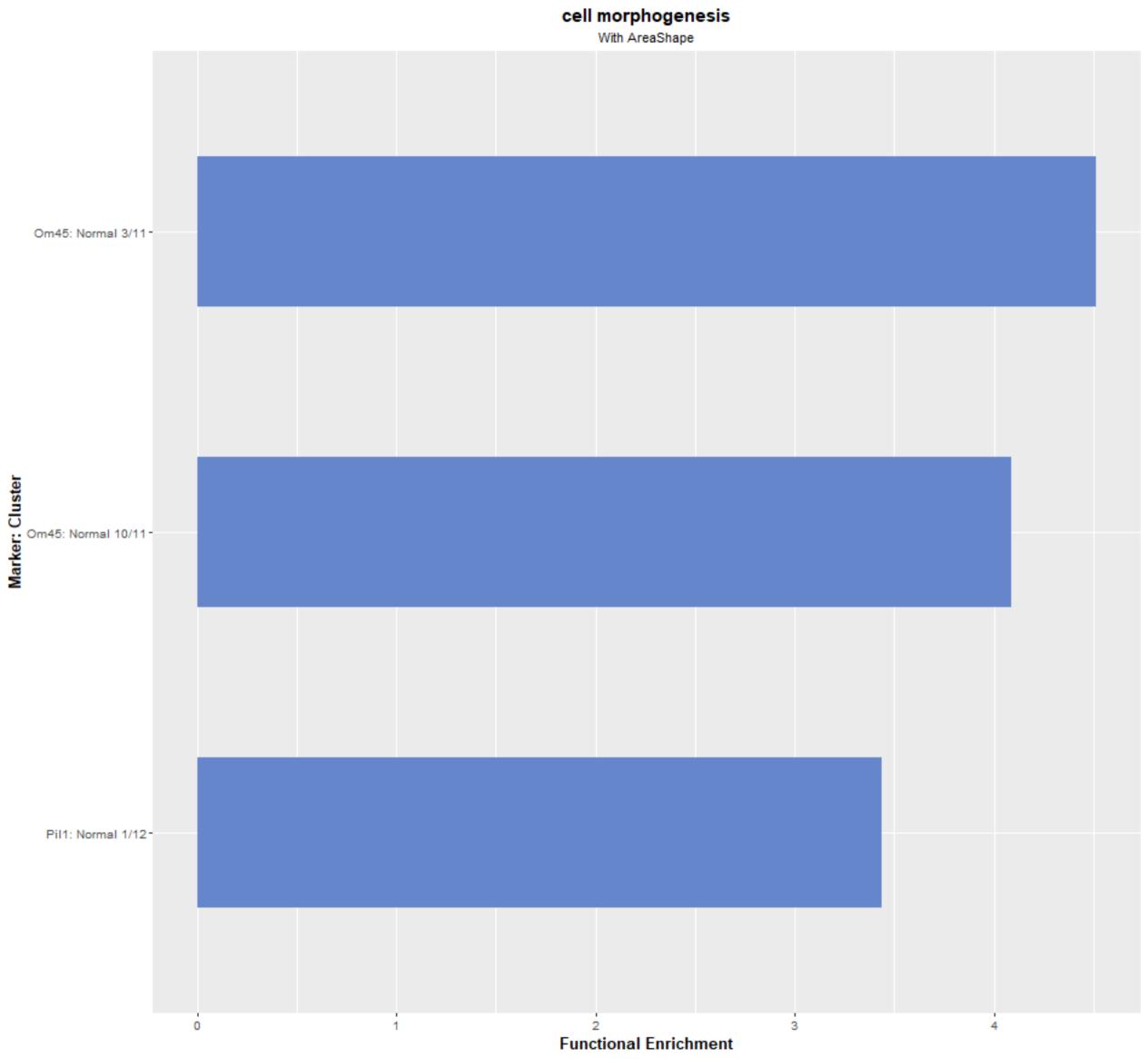
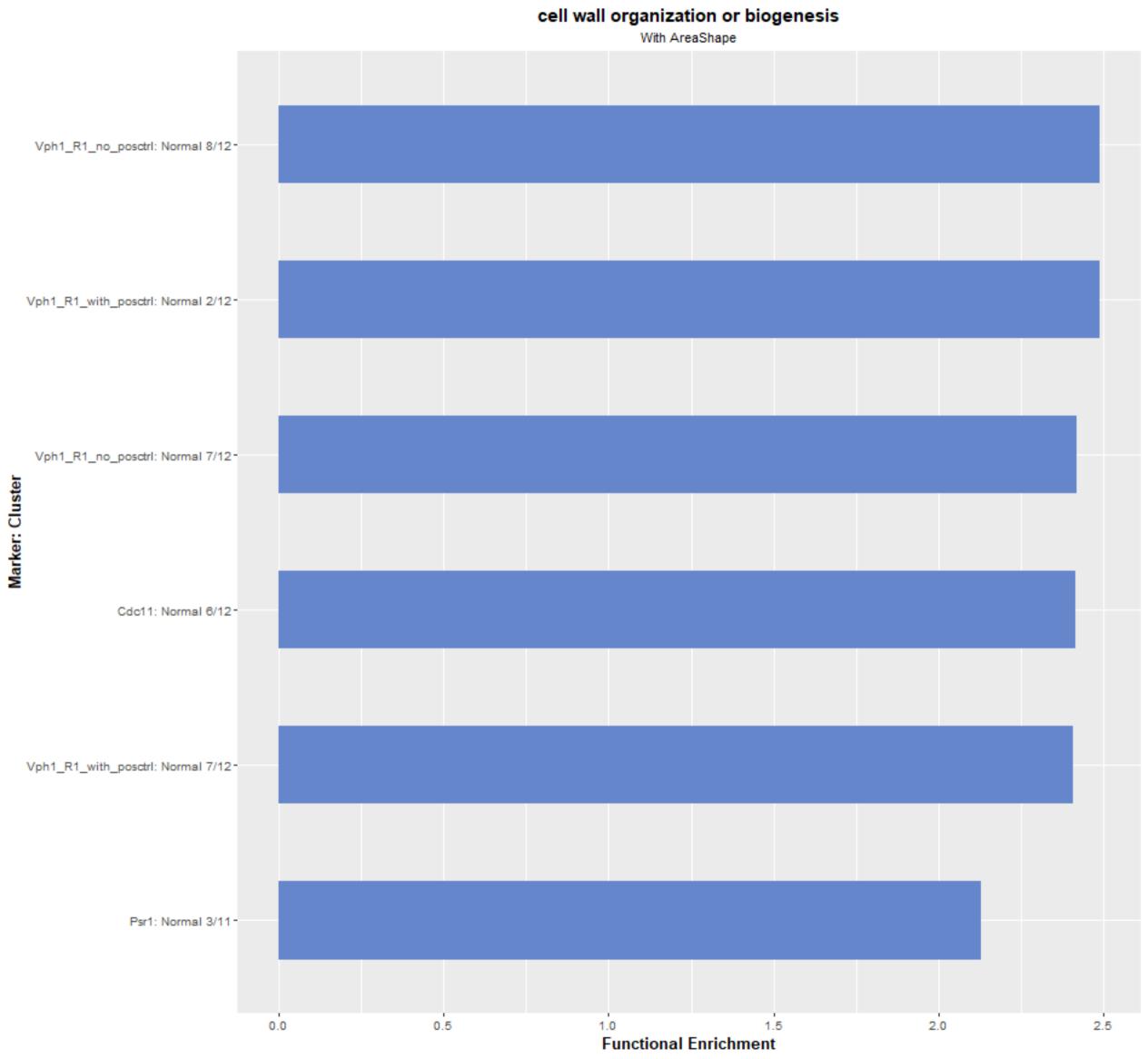
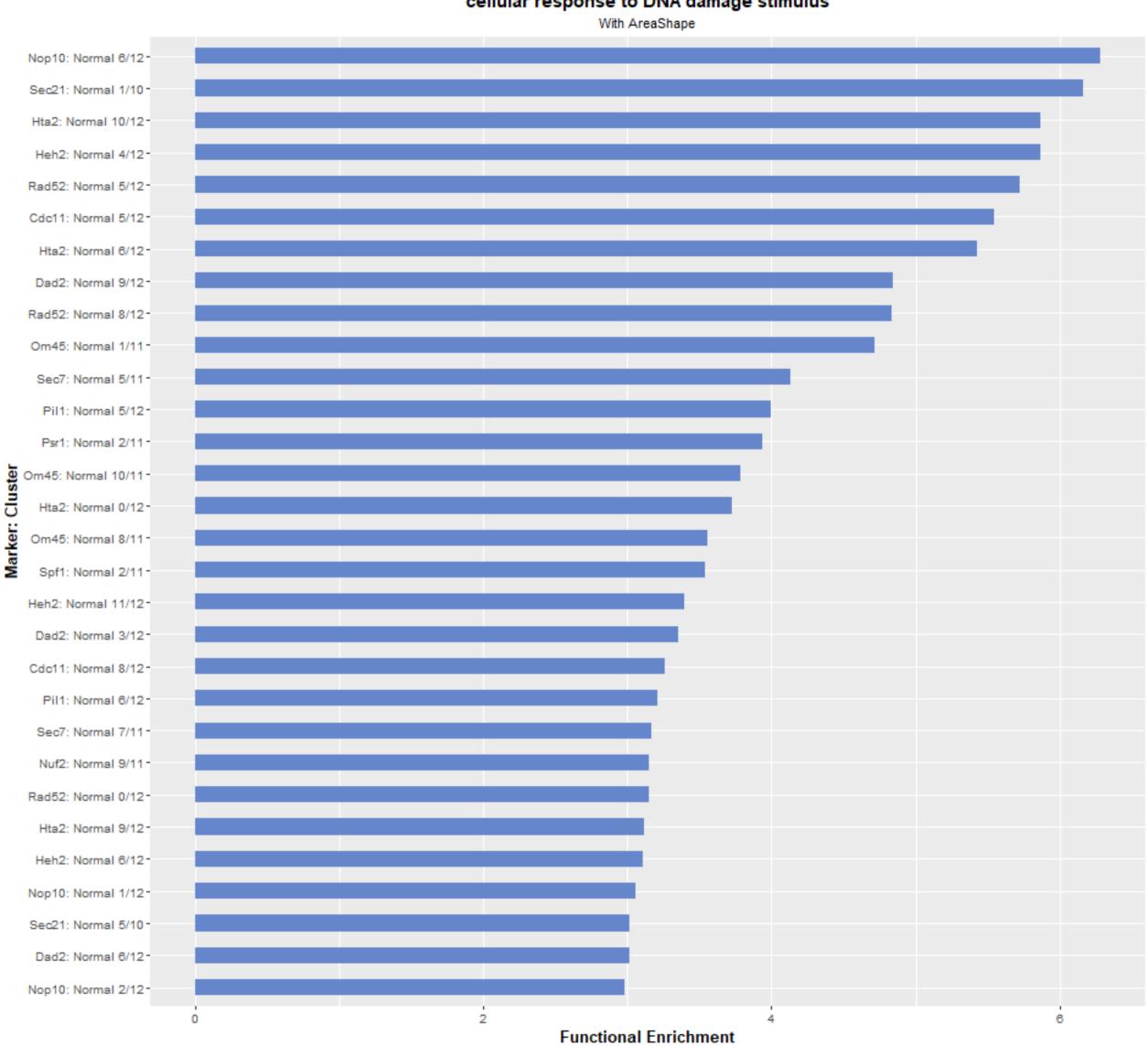
cell budding With AreaShape Pil1: Normal 7/12 Pil1: Normal 9/12-Vph1\_R1\_no\_posctrl: Normal 8/12-Vph1\_R1\_with\_posctrl: Normal 2/12-Cdc11: Normal 6/12-Pil1: Normal 10/12-Cdc11: Normal 1/12-Vph1\_R1\_with\_posctrl: Normal 10/12-Pil1: Normal 3/12-Heh2: Normal 1/12-Dad2: Normal 4/12-Pil1: Normal 1/12-Sec21: Normal 5/10 -Marker: Cluster Cdc11: Normal 10/12 -Psr1: Normal 3/11 Heh2: Normal 6/12-Dad2: Normal 6/12-Cdc11: Normal 3/12-Om45: Normal 8/11 -Vph1\_R1\_no\_posctrl: Normal 0/12 -Rad52: Normal 2/12-Vph1\_R1\_no\_posctrl: Normal 5/12-Vph1\_R1\_with\_posctrl: Normal 5/12-Rad52: Normal 4/12-Sec21: Normal 9/10 -Vph1\_R1\_no\_posctrl: Normal 7/12 -Rad52: Normal 7/12-Vph1\_R1\_with\_posctrl: Normal 7/12 Om45: Normal 4/11 -Cdc11: Normal 11/12-0 5 10 15 **Functional Enrichment** 



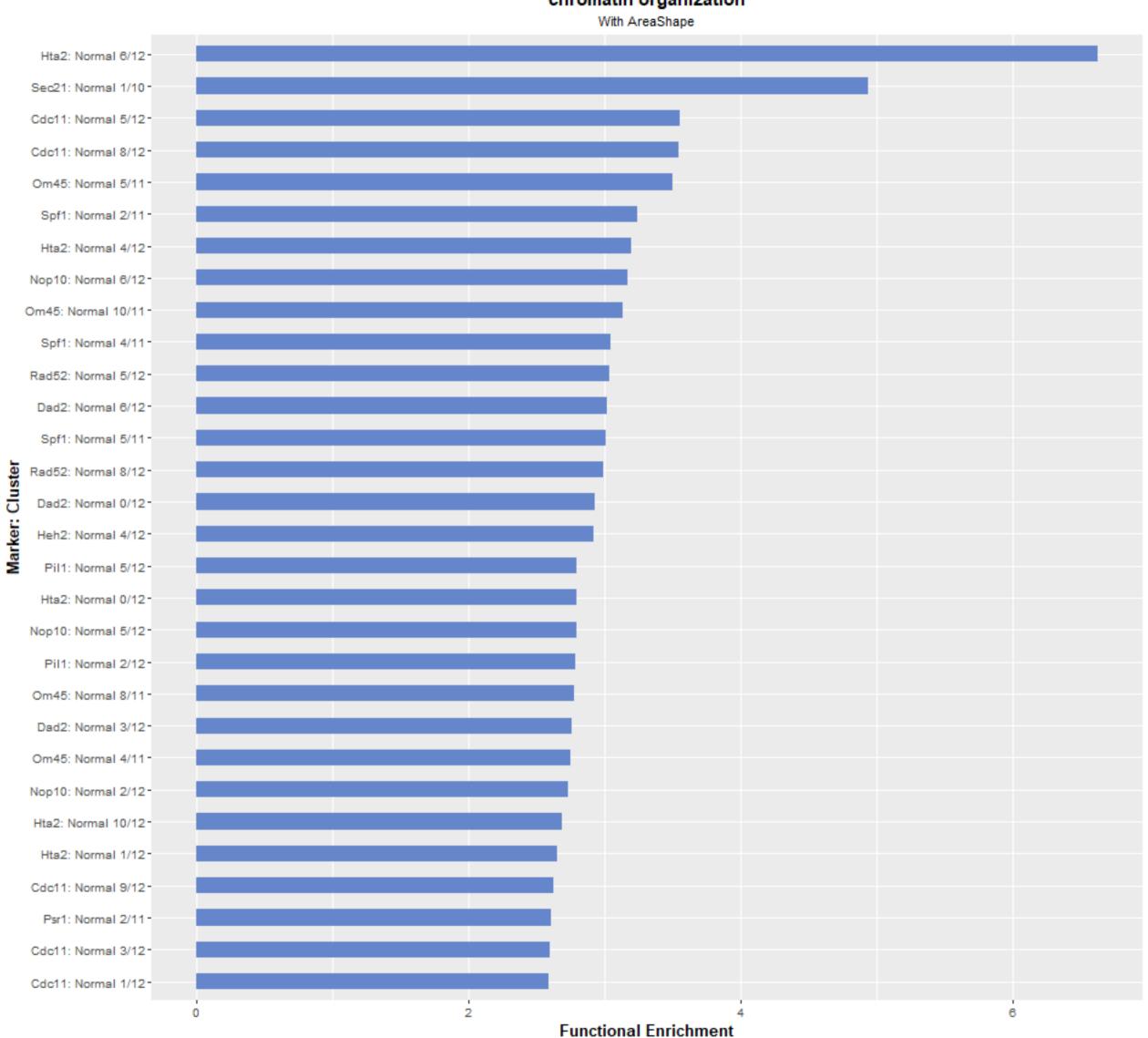


cellular amino acid metabolic process With AreaShape Marker: Cluster: Cdc11: Normal 3/12-1.5 0.5 1.0 2.0 0.0 **Functional Enrichment** 

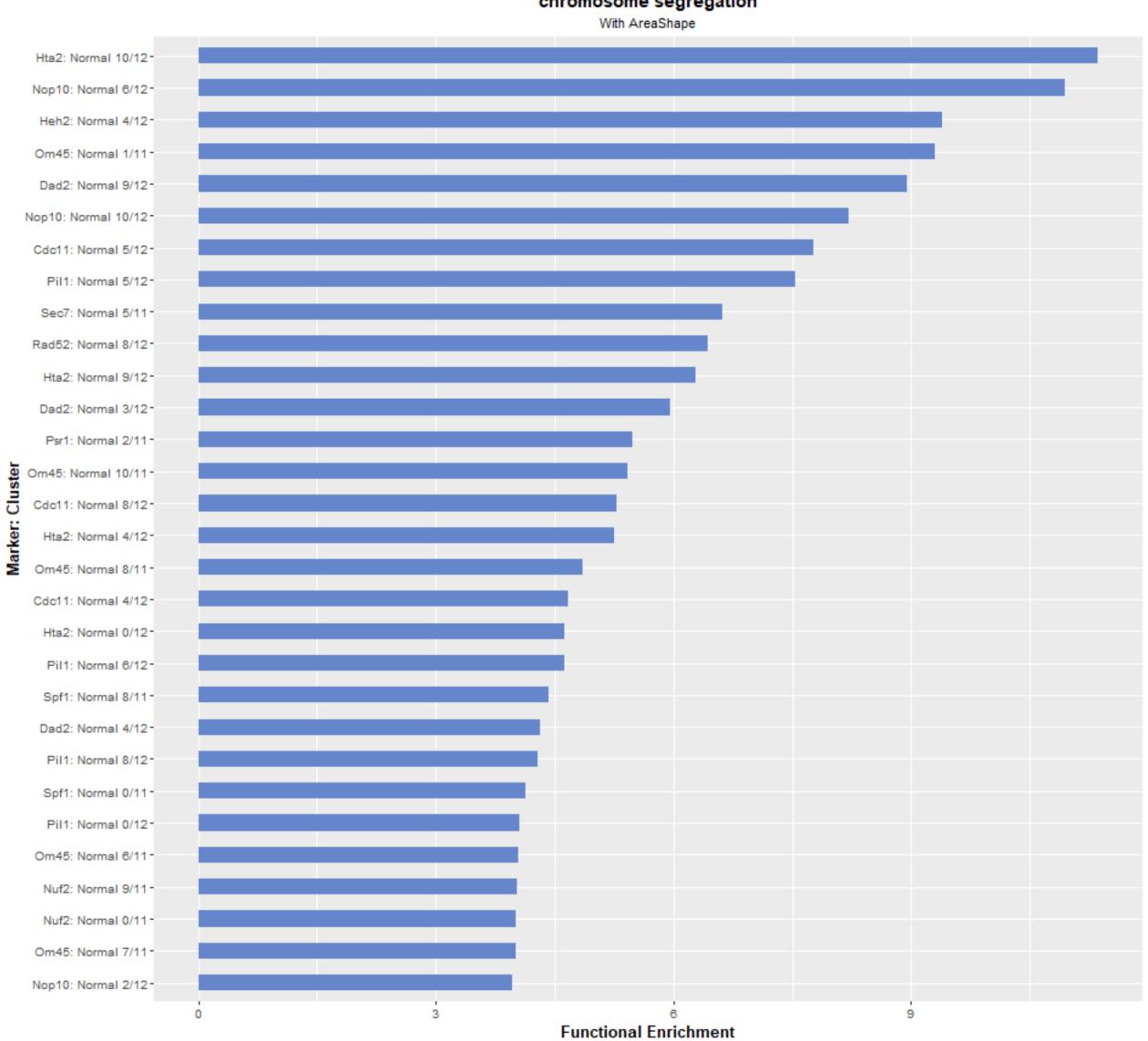
## cellular response to DNA damage stimulus



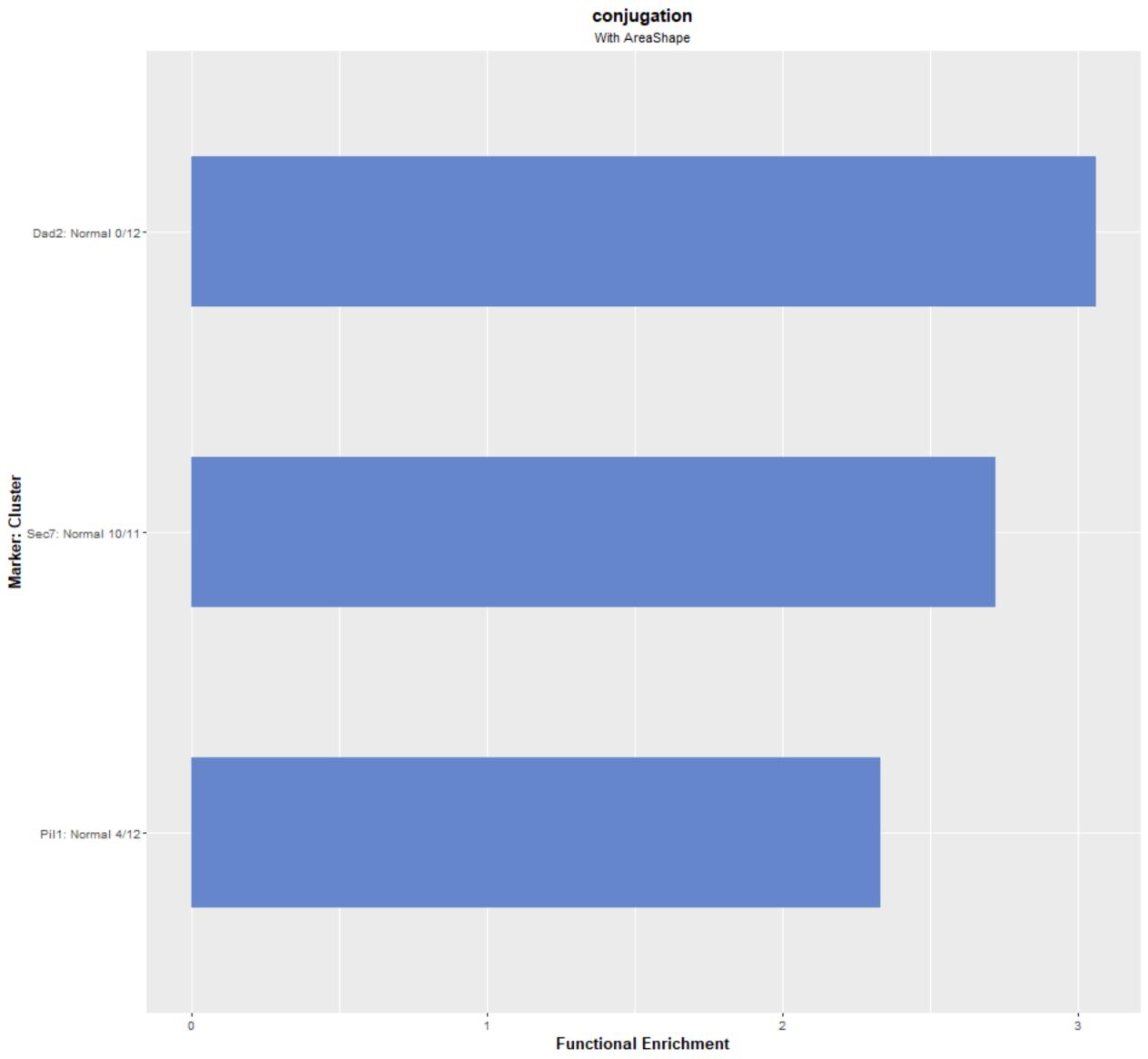
## chromatin organization



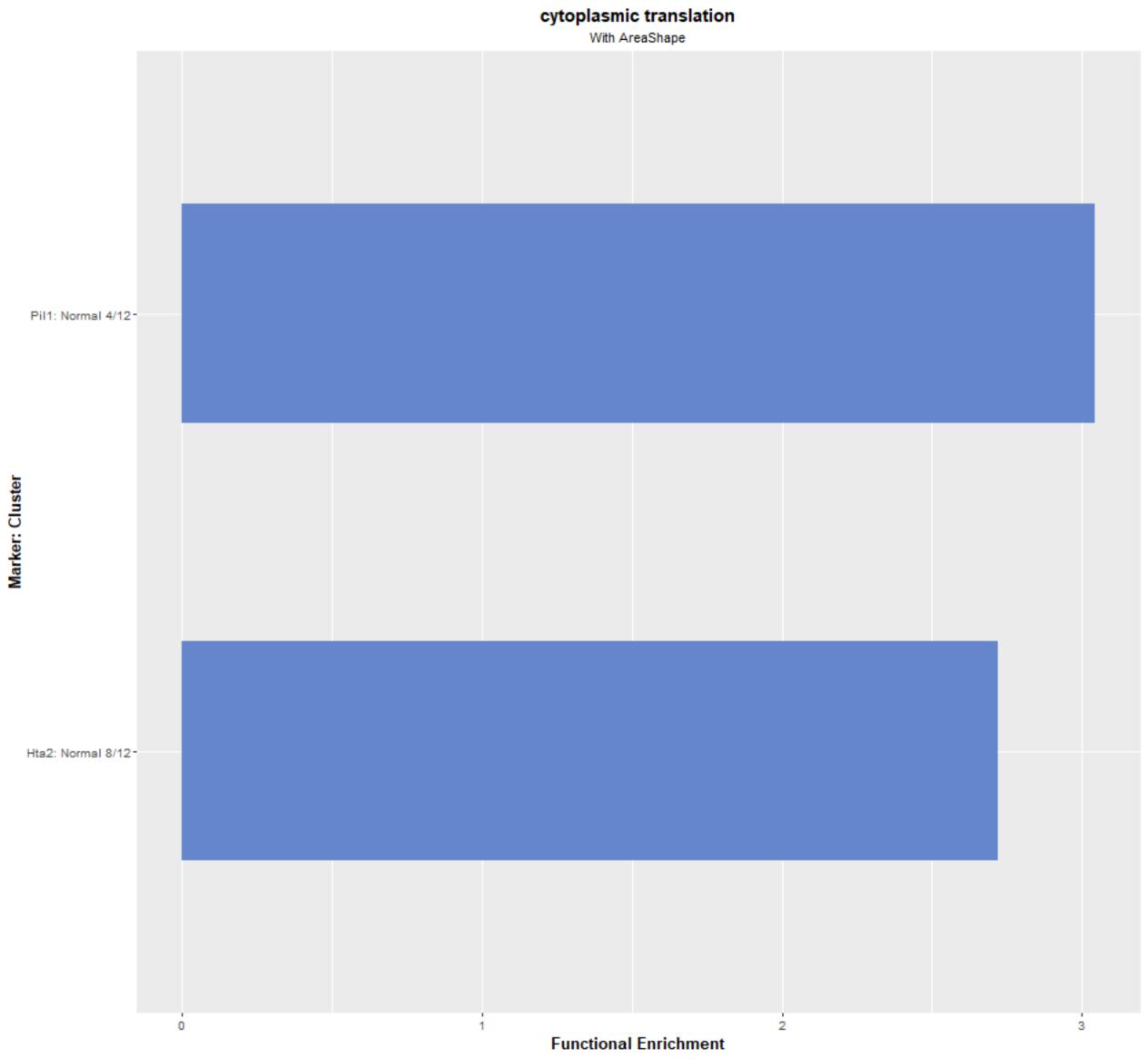
## chromosome segregation



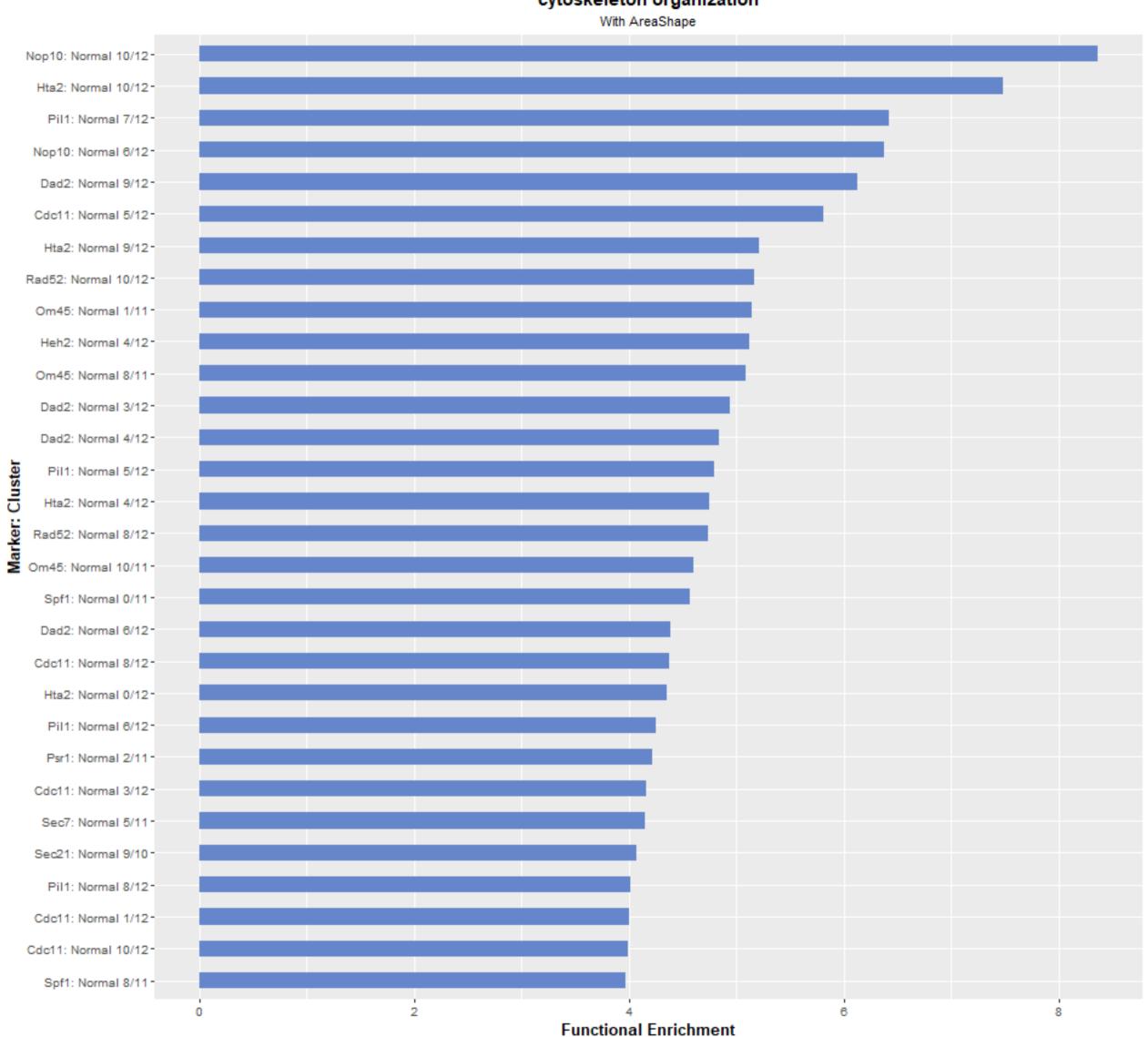
cofactor metabolic process With AreaShape Marker: Cluster: Om45: Normal 3/11-0.5 1.5 1.0 2.0 0.0 **Functional Enrichment** 



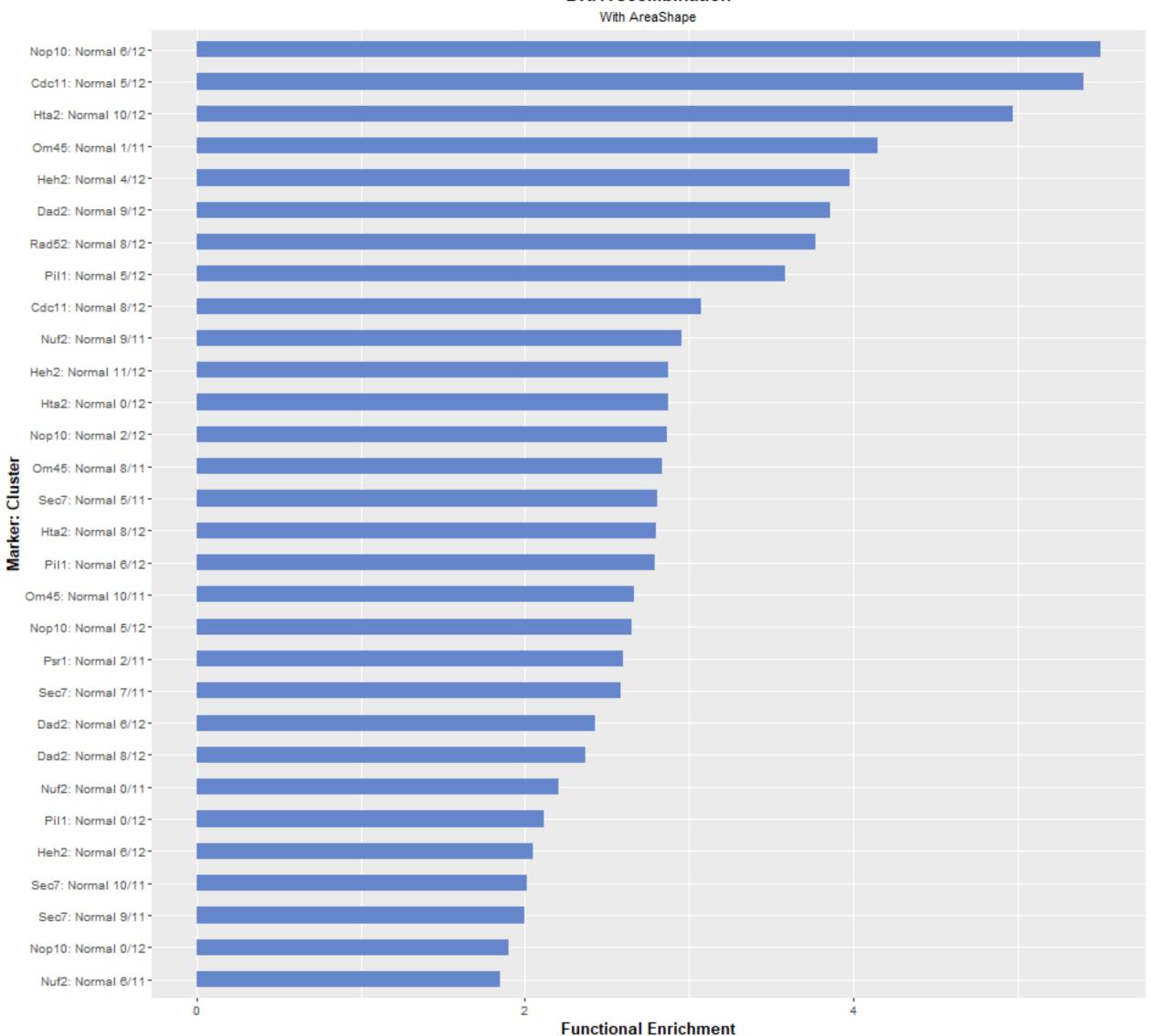
cytokinesis With AreaShape Heh2: Normal 2/12 Cdc11: Normal 6/12-Nop10: Normal 10/12-Cdc11: Normal 10/12 -Pil1: Normal 9/12-Dad2: Normal 4/12-Hta2: Normal 9/12 -Vph1\_R1\_no\_posctrl: Normal 8/12 -Om45: Normal 8/11 -Dad2: Normal 6/12-Heh2: Normal 1/12-Cdc11: Normal 1/12-Vph1\_R1\_with\_posctrl: Normal 2/12 -Marker: Cluster Sec21: Normal 0/10 -Cdc11: Normal 3/12-Hta2: Normal 4/12 -Nop10: Normal 9/12-Cdc11: Normal 7/12-Rad52: Normal 7/12 -Sec7: Normal 10/11 -Pil1: Normal 1/12-Psr1: Normal 3/11-Dad2: Normal 7/12-Nop10: Normal 3/12-Rad52: Normal 10/12 -Heh2: Normal 5/12 -Sec21: Normal 9/10 -Cdc11: Normal 4/12-Pil1: Normal 8/12-Nop10: Normal 1/12-0 2 6 **Functional Enrichment** 



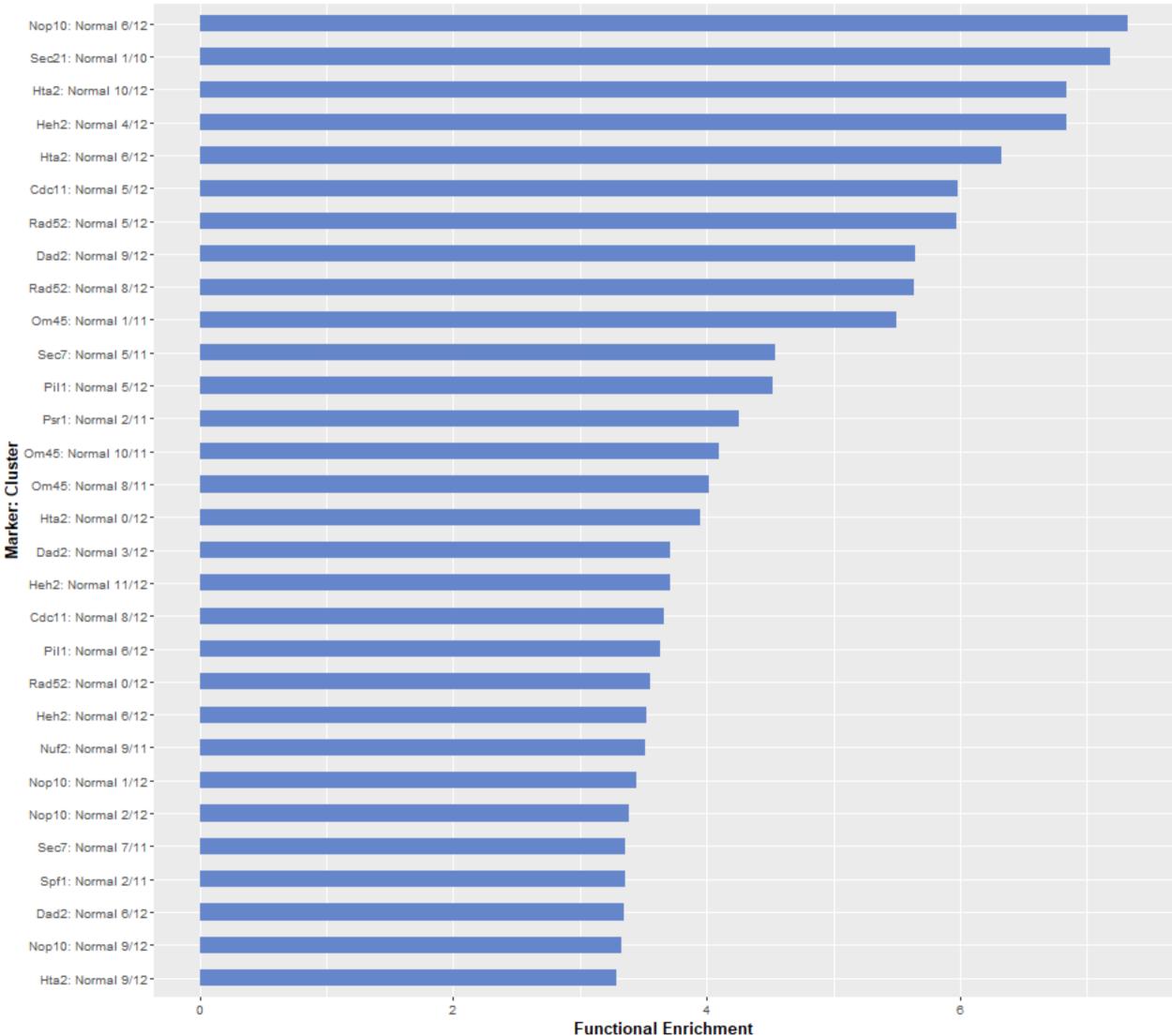
## cytoskeleton organization



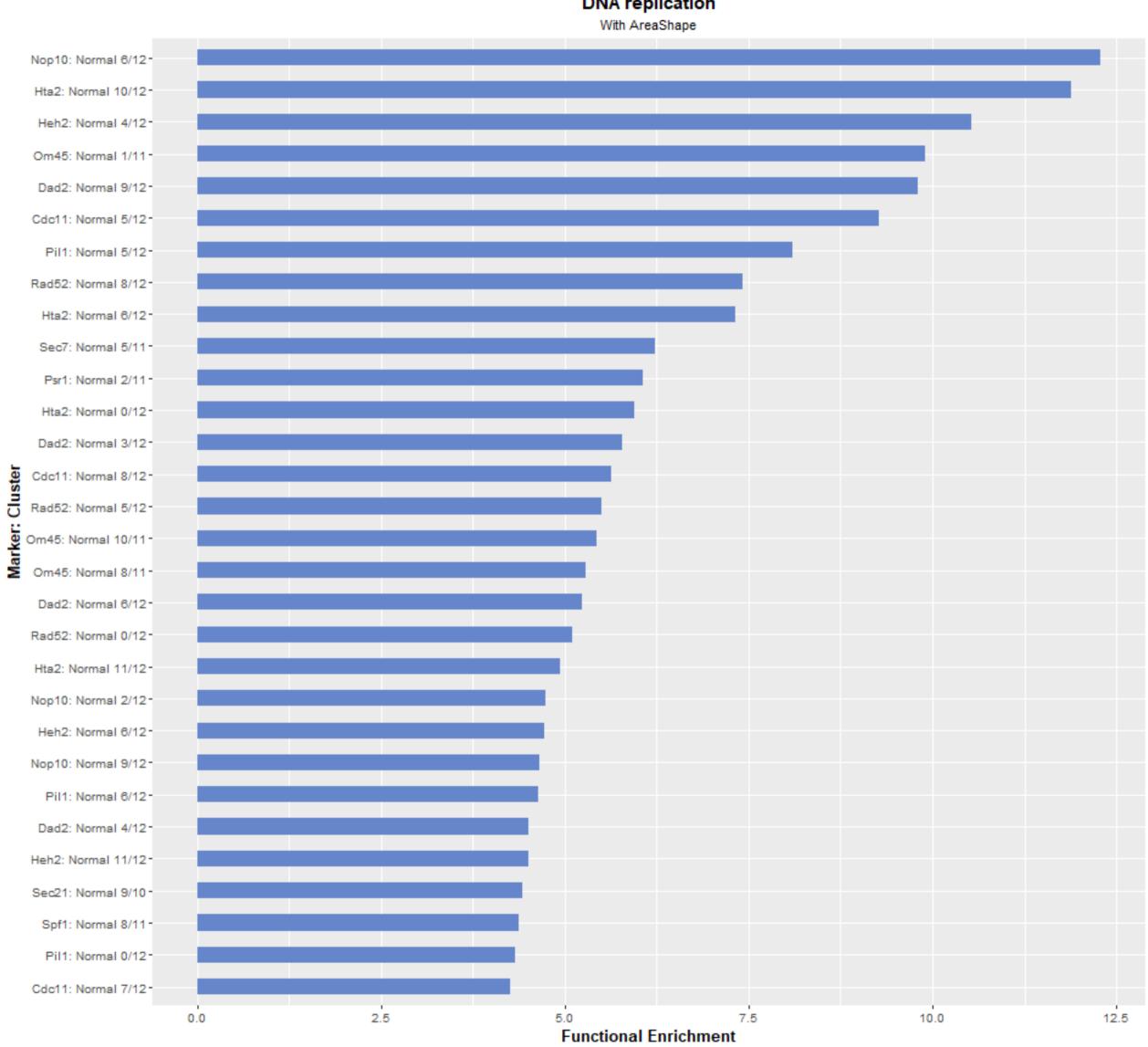
## **DNA** recombination



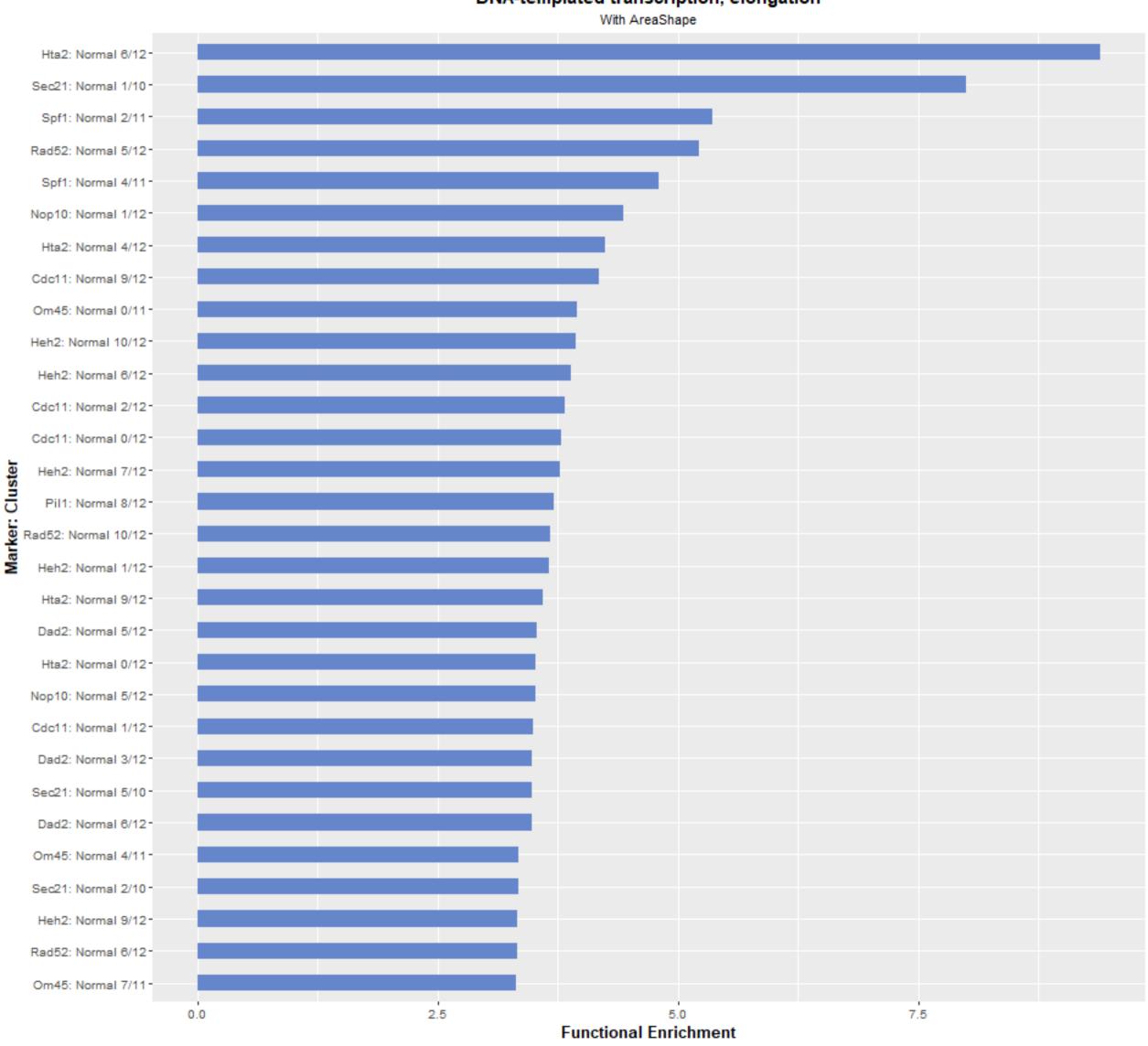
**DNA** repair With AreaShape



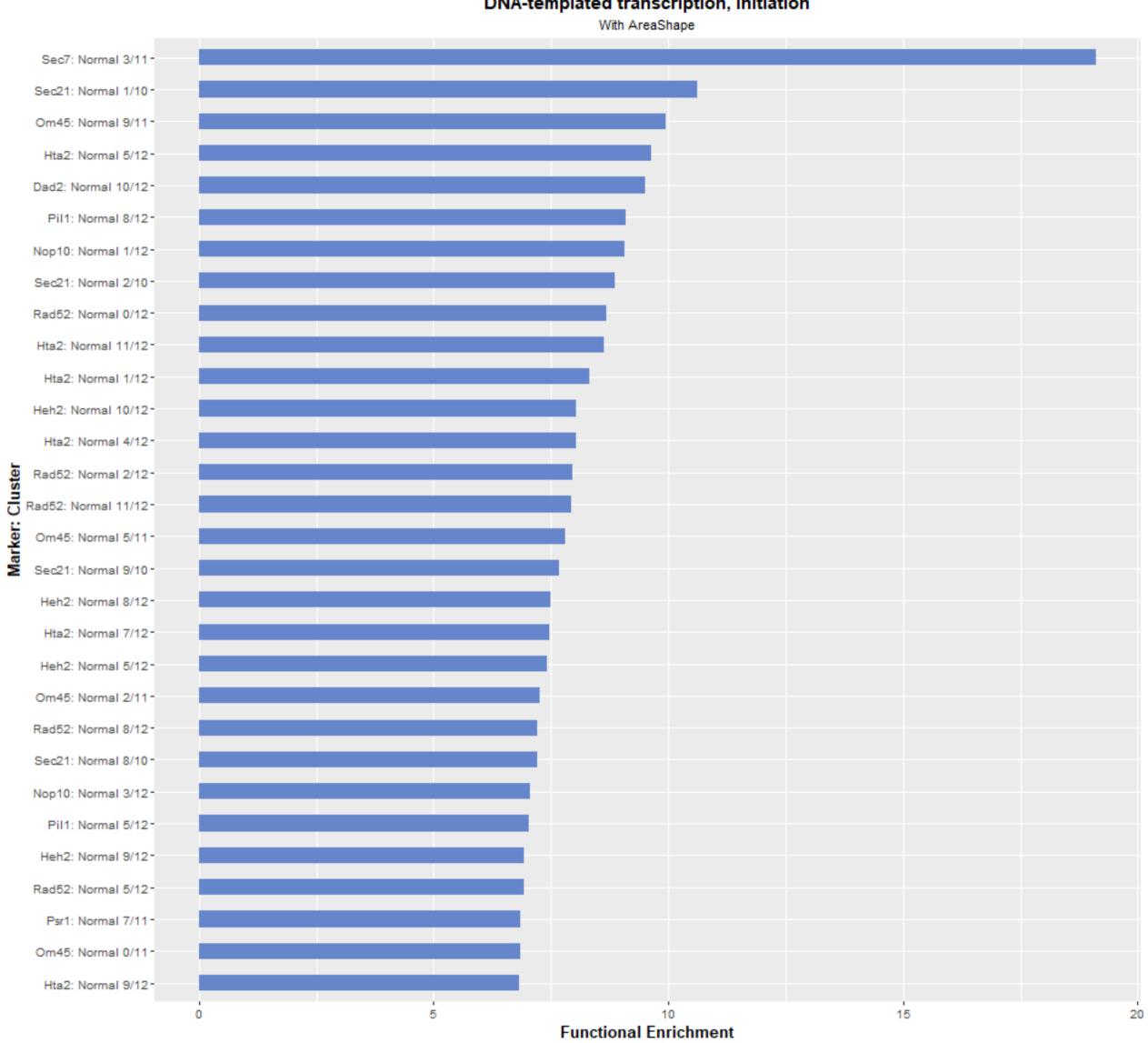
**DNA** replication



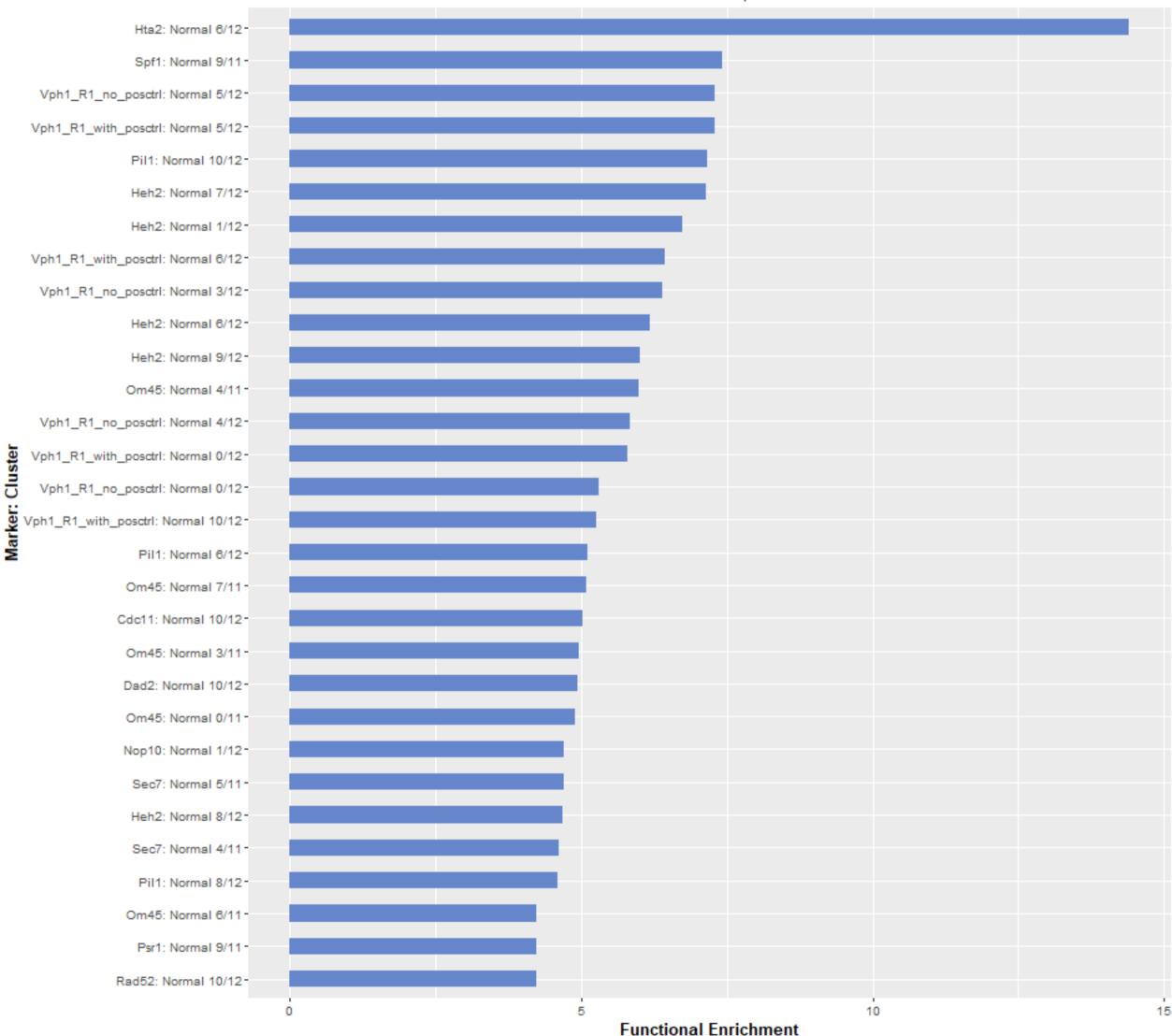
# DNA-templated transcription, elongation With AreaShape

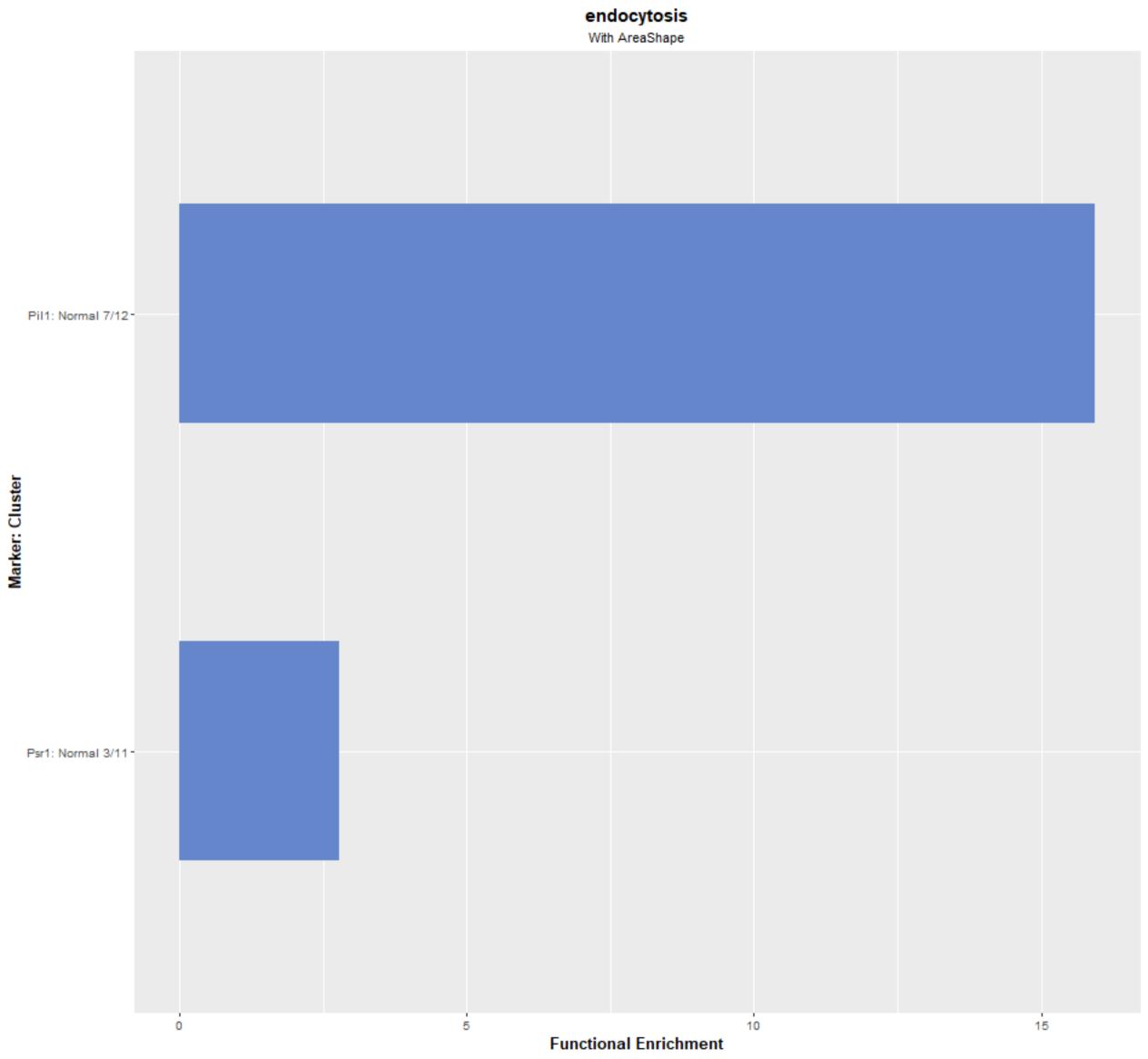


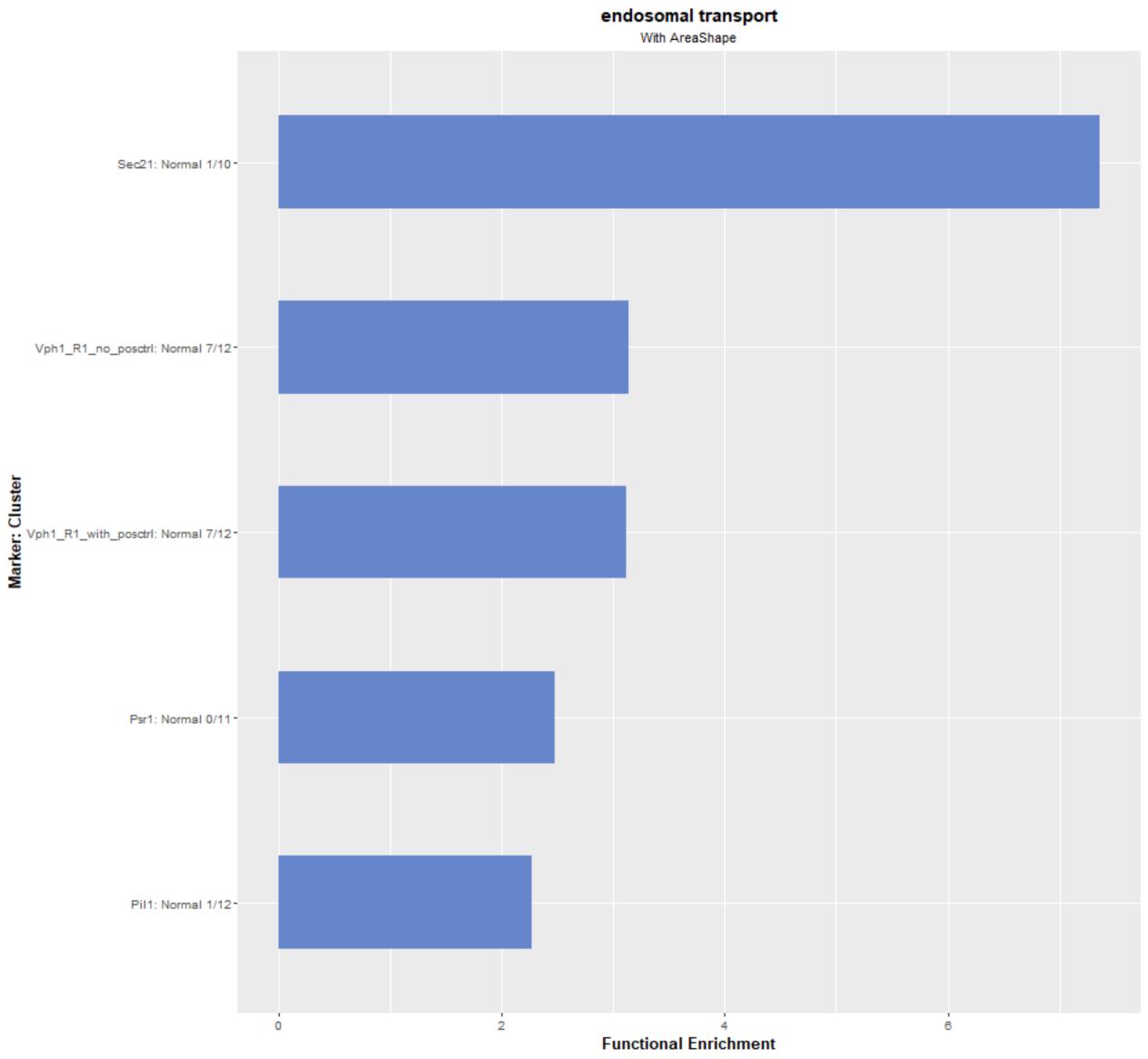
# DNA-templated transcription, initiation



# DNA-templated transcription, termination With AreaShape

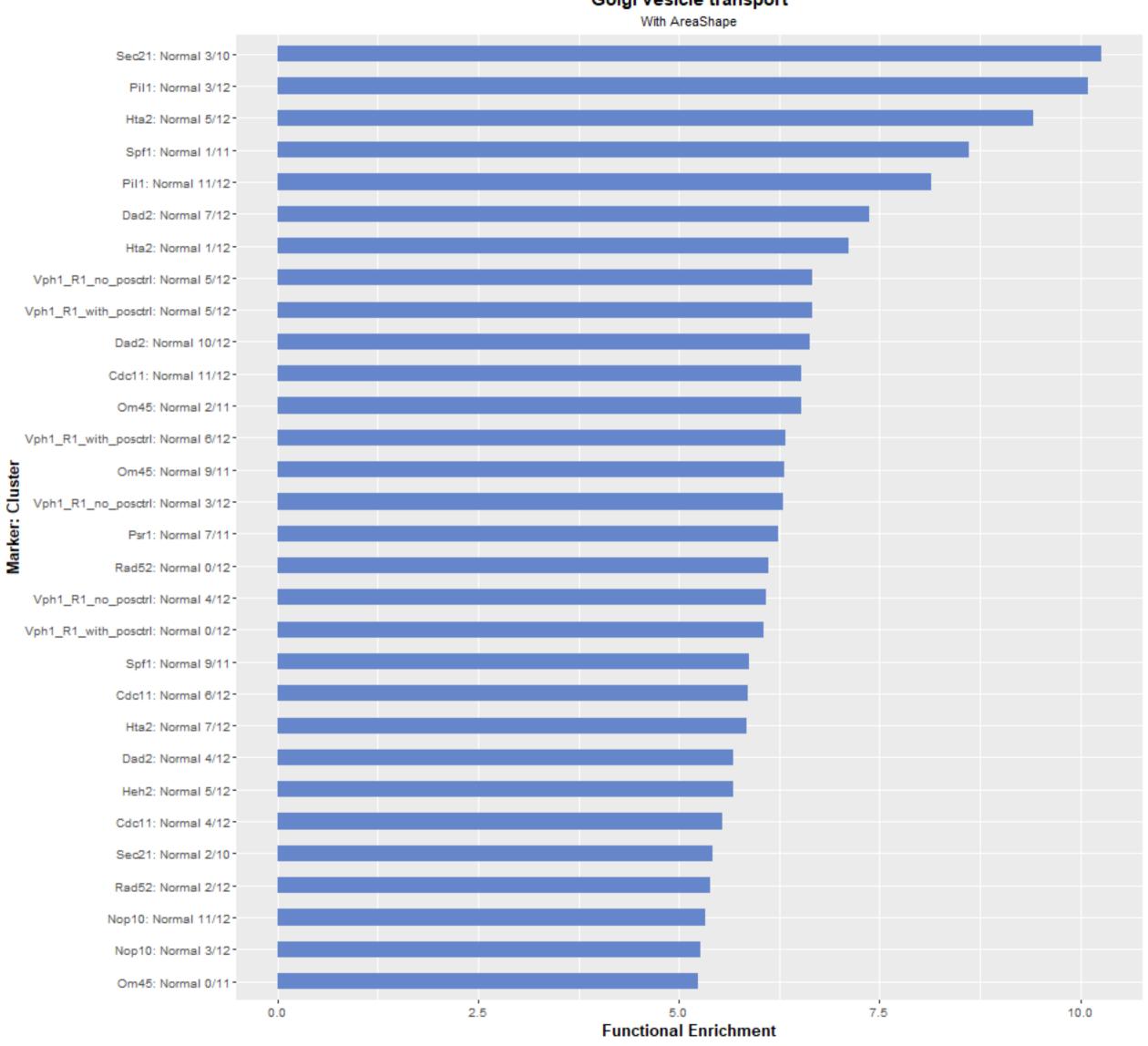




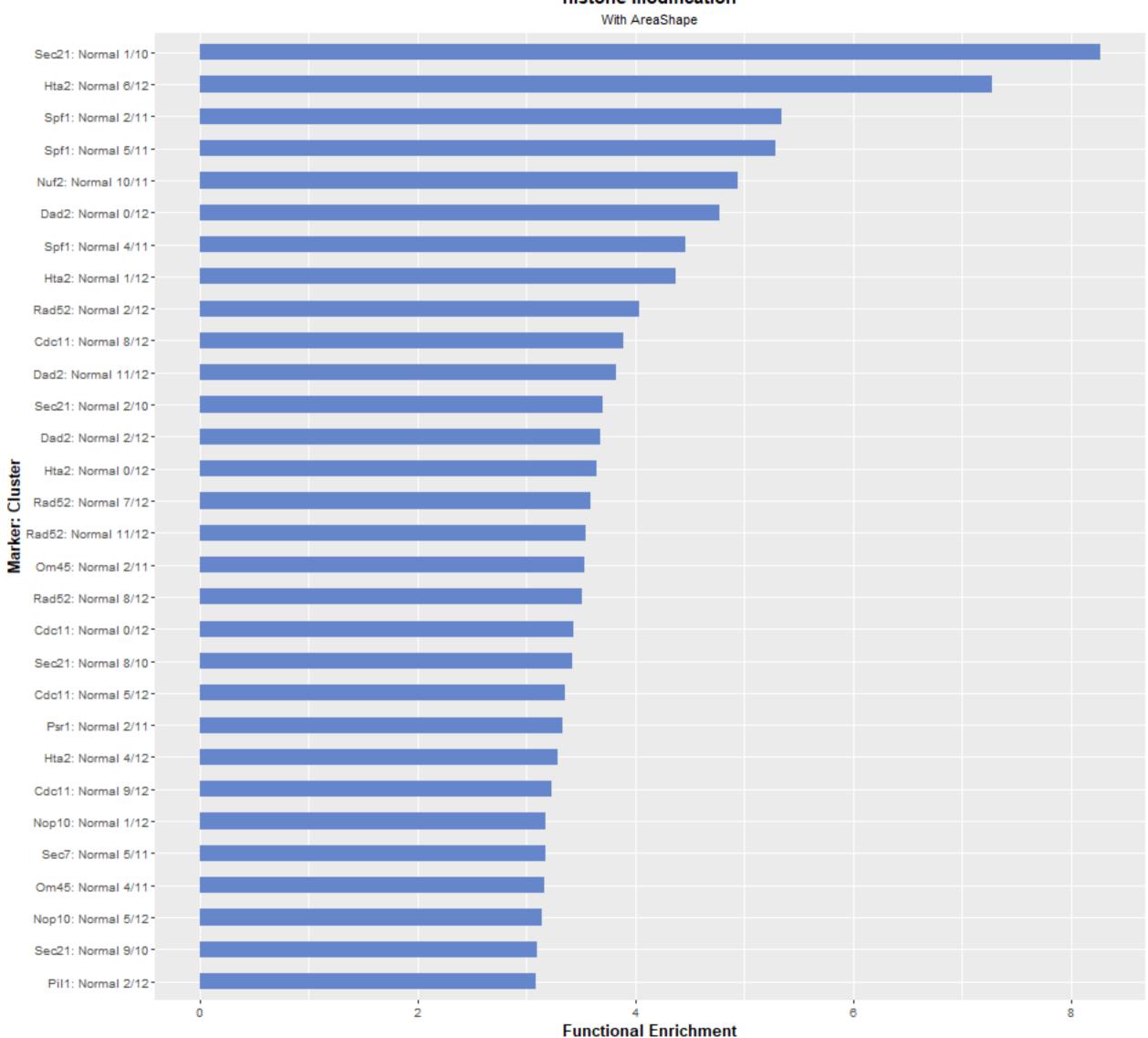


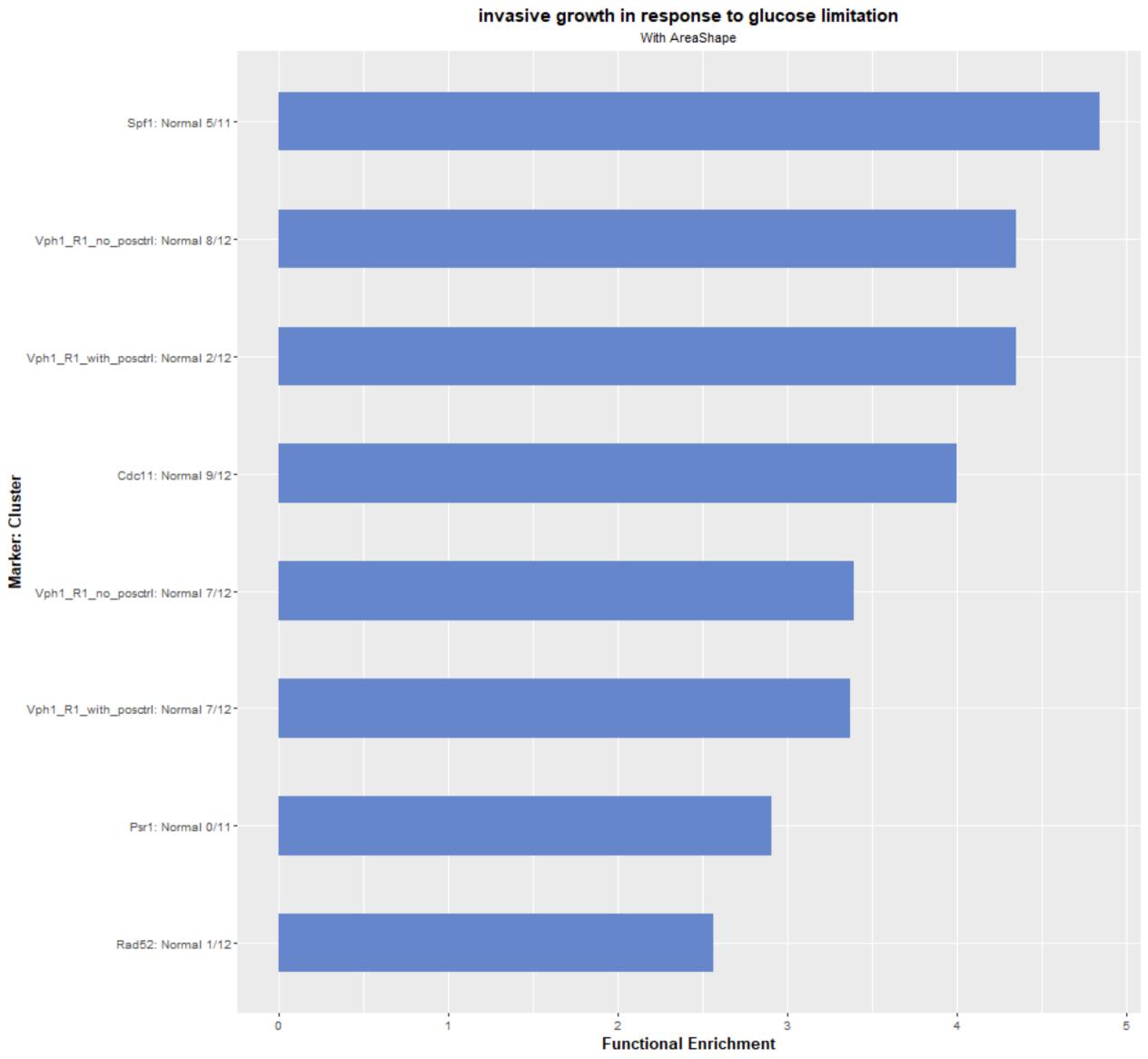
exocytosis With AreaShape Pil1: Normal 7/12-Sec21: Normal 3/10 -Spf1: Normal 1/11 -Hta2: Normal 5/12 Pil1: Normal 3/12-Pil1: Normal 11/12-Cdc11: Normal 6/12-Cdc11: Normal 4/12-Dad2: Normal 4/12-Om45: Normal 2/11 -Heh2: Normal 2/12 Cdc11: Normal 11/12-Spf1: Normal 9/11 -Marker: Cluster Hta2: Normal 7/12 Psr1: Normal 7/11 -Rad52: Normal 0/12 -Dad2: Normal 10/12 -Nop10: Normal 11/12 -Sec21: Normal 8/10 -Vph1\_R1\_no\_posctrl: Normal 5/12-Vph1\_R1\_with\_posctrl: Normal 5/12 -Sec7: Normal 4/11-Vph1\_R1\_with\_posctrl: Normal 6/12-Vph1\_R1\_no\_posctrl: Normal 3/12-Om45: Normal 9/11 -Rad52: Normal 2/12 -Dad2: Normal 7/12 -Heh2: Normal 5/12 Sec21: Normal 5/10 -Om45: Normal 0/11 -0 10 5 15 20 **Functional Enrichment** 

Golgi vesicle transport

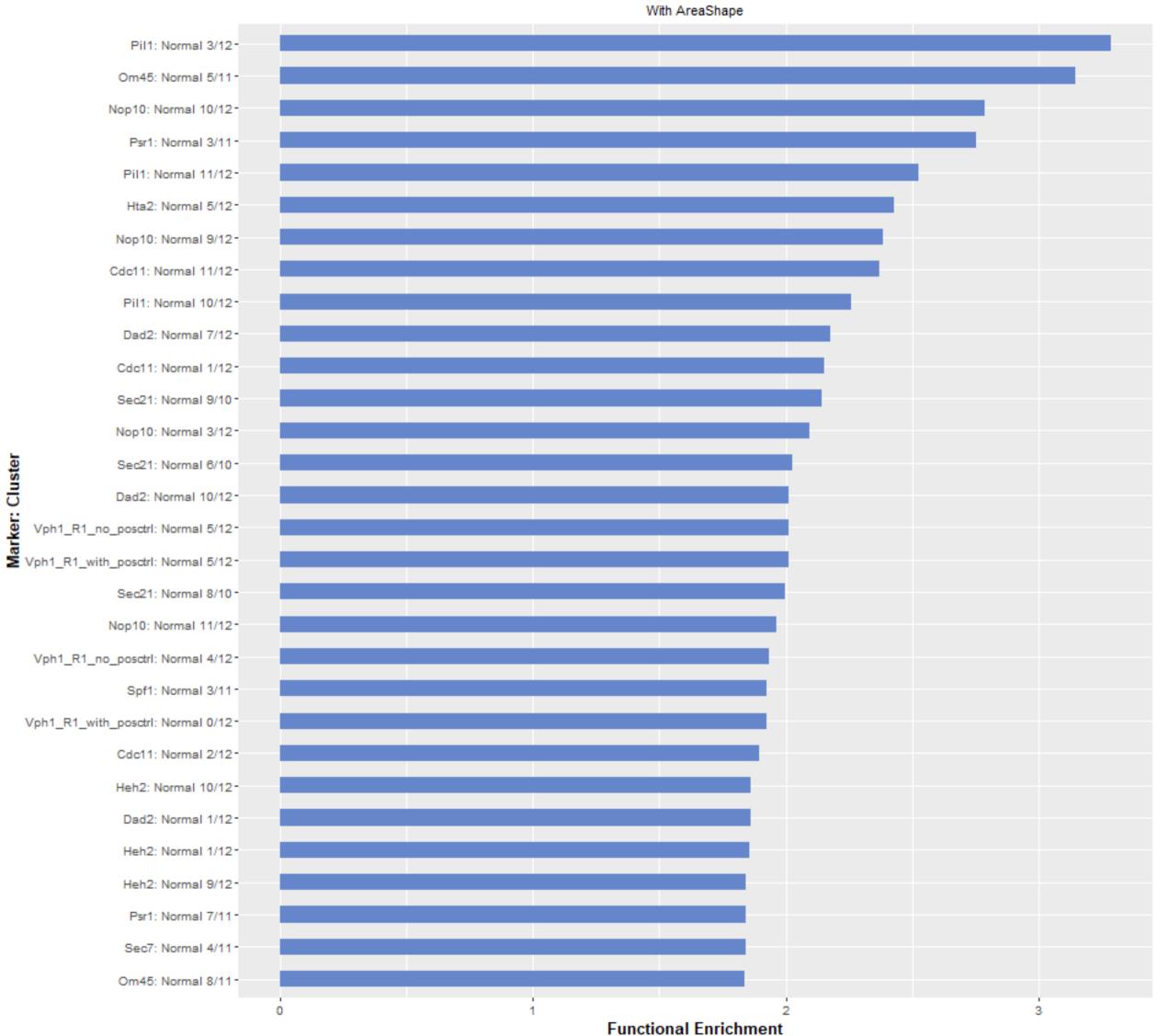


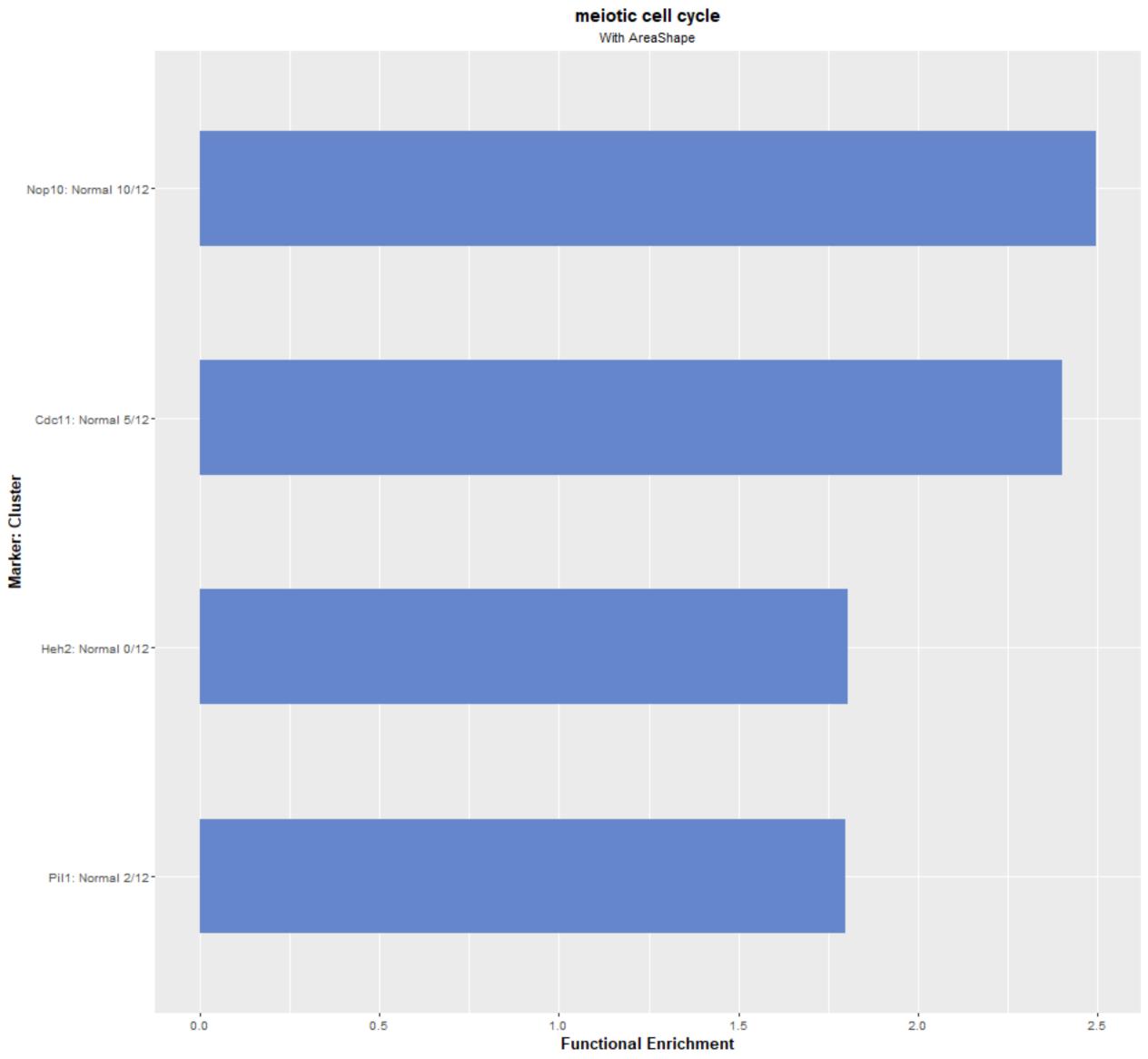
## histone modification



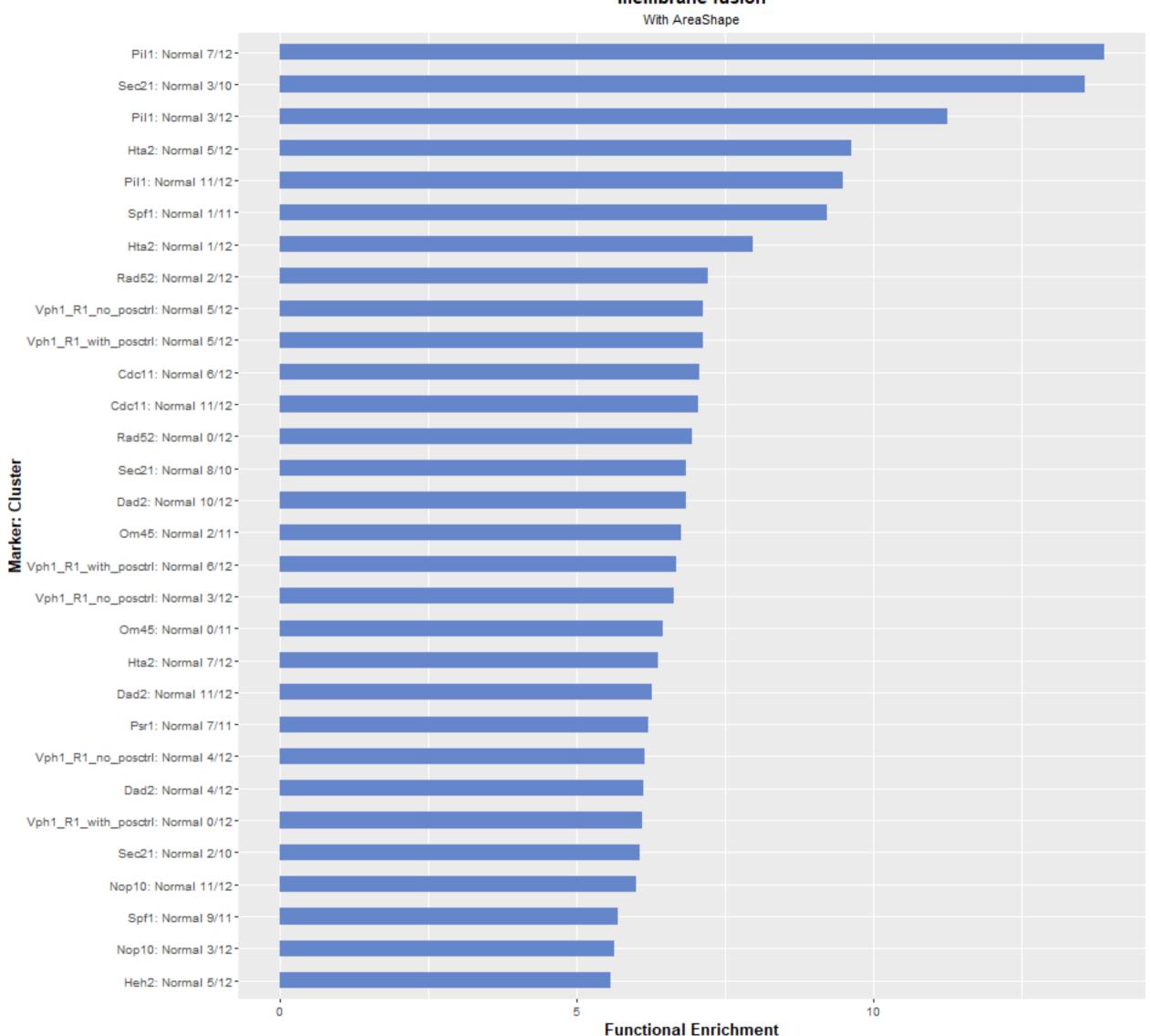


## lipid metabolic process

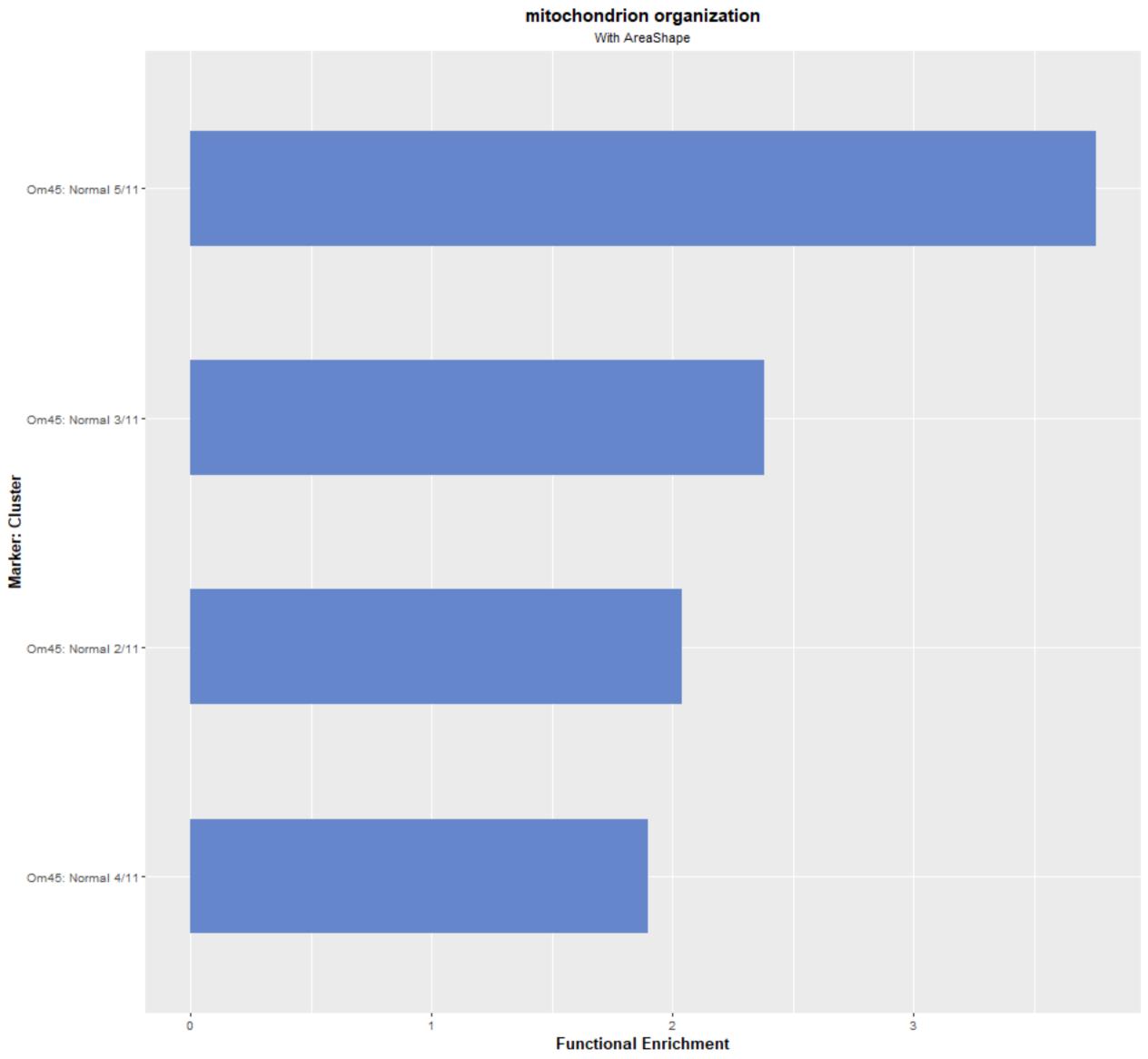




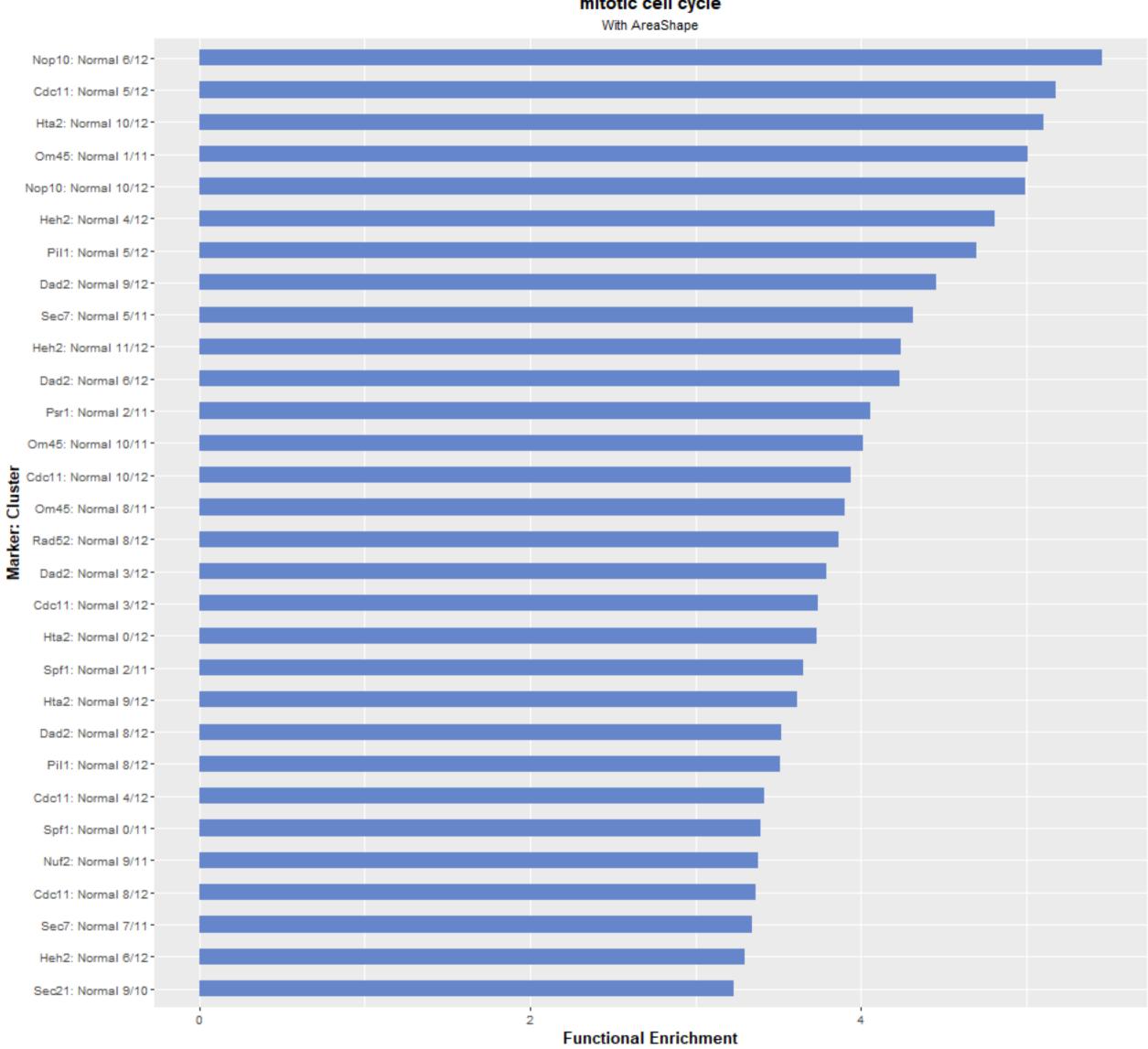
membrane fusion



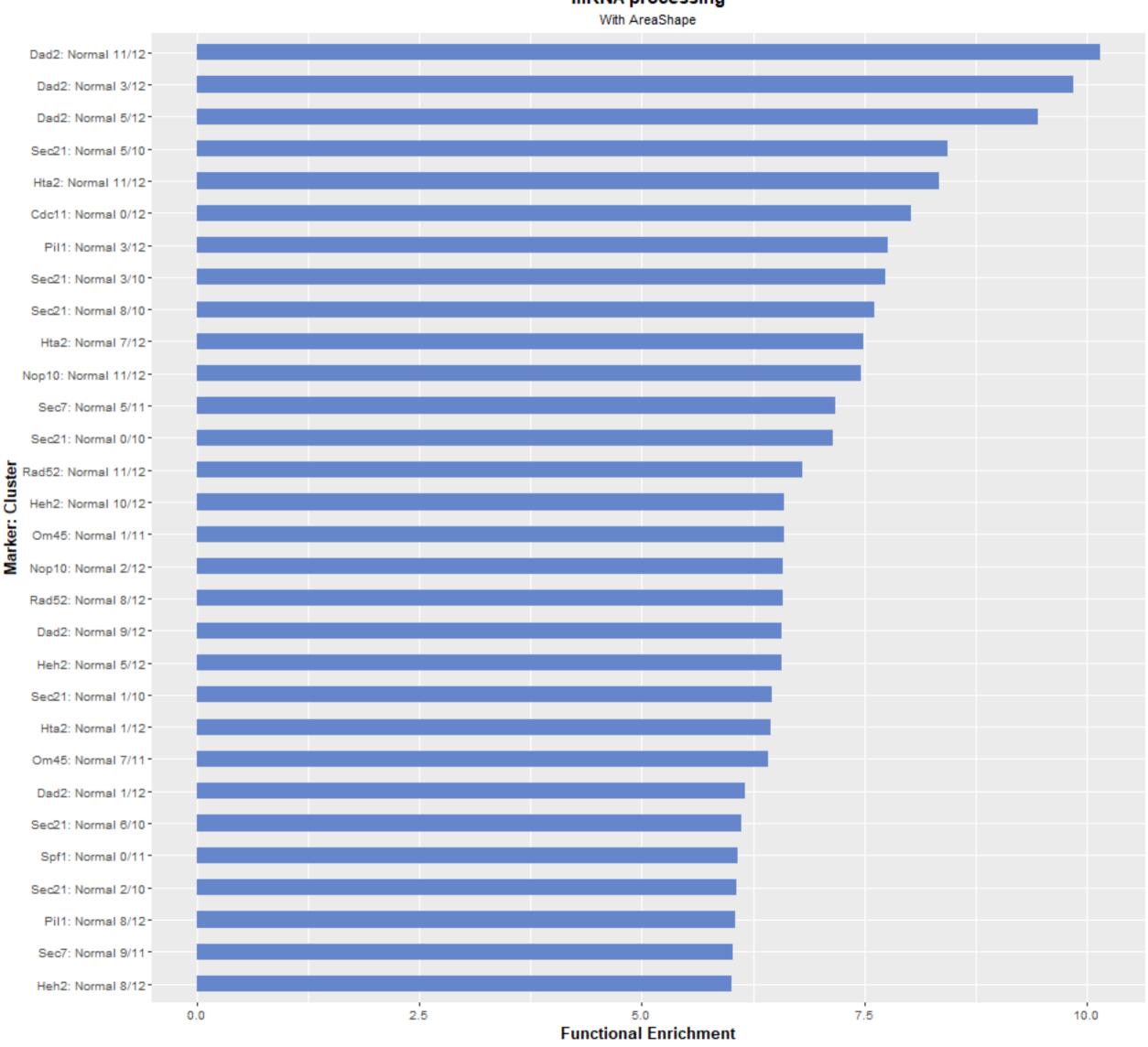
mitochondrial translation With AreaShape Marker: Cluster: Om45: Normal 3/11-2 0 **Functional Enrichment** 



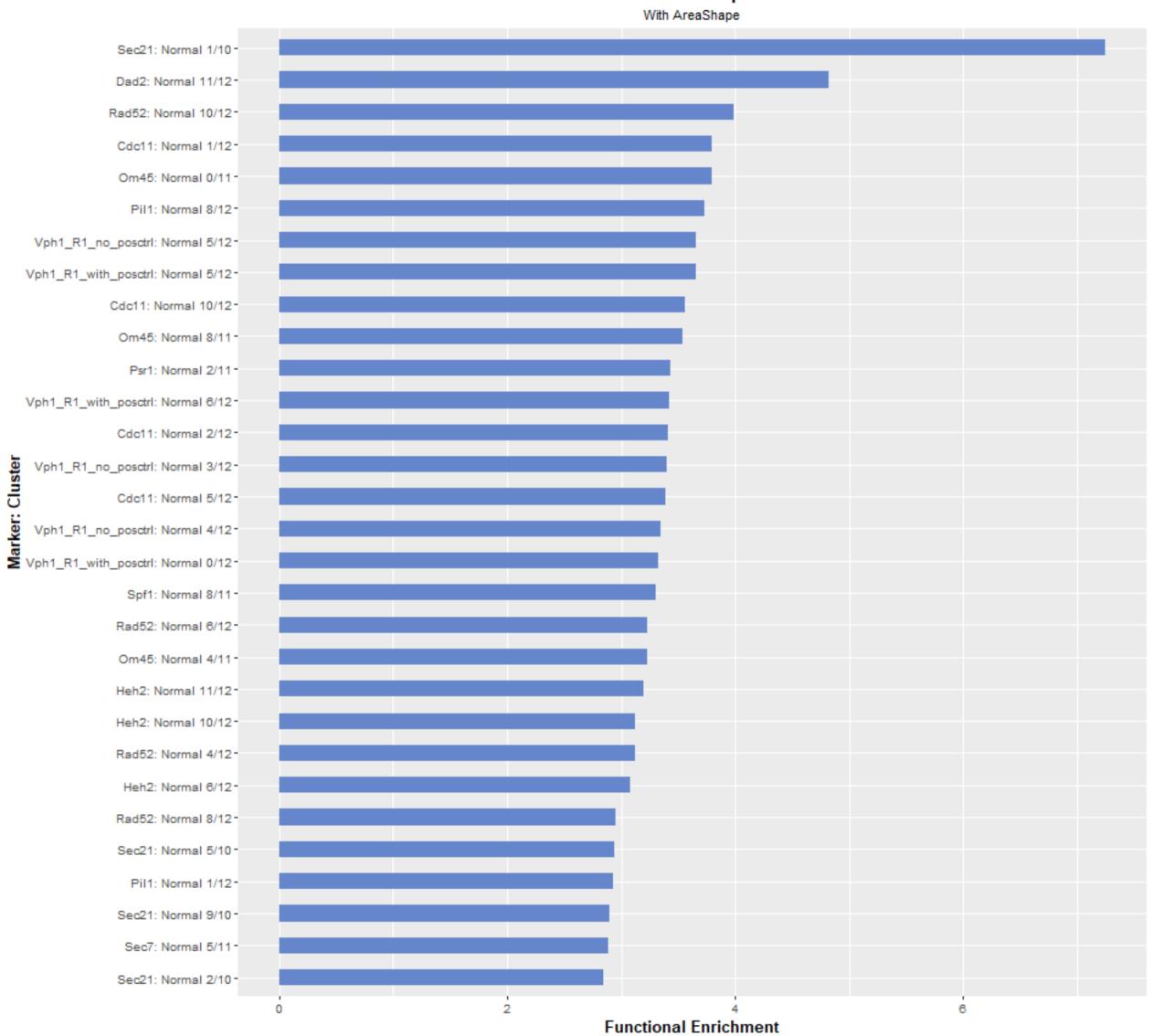
mitotic cell cycle



mRNA processing

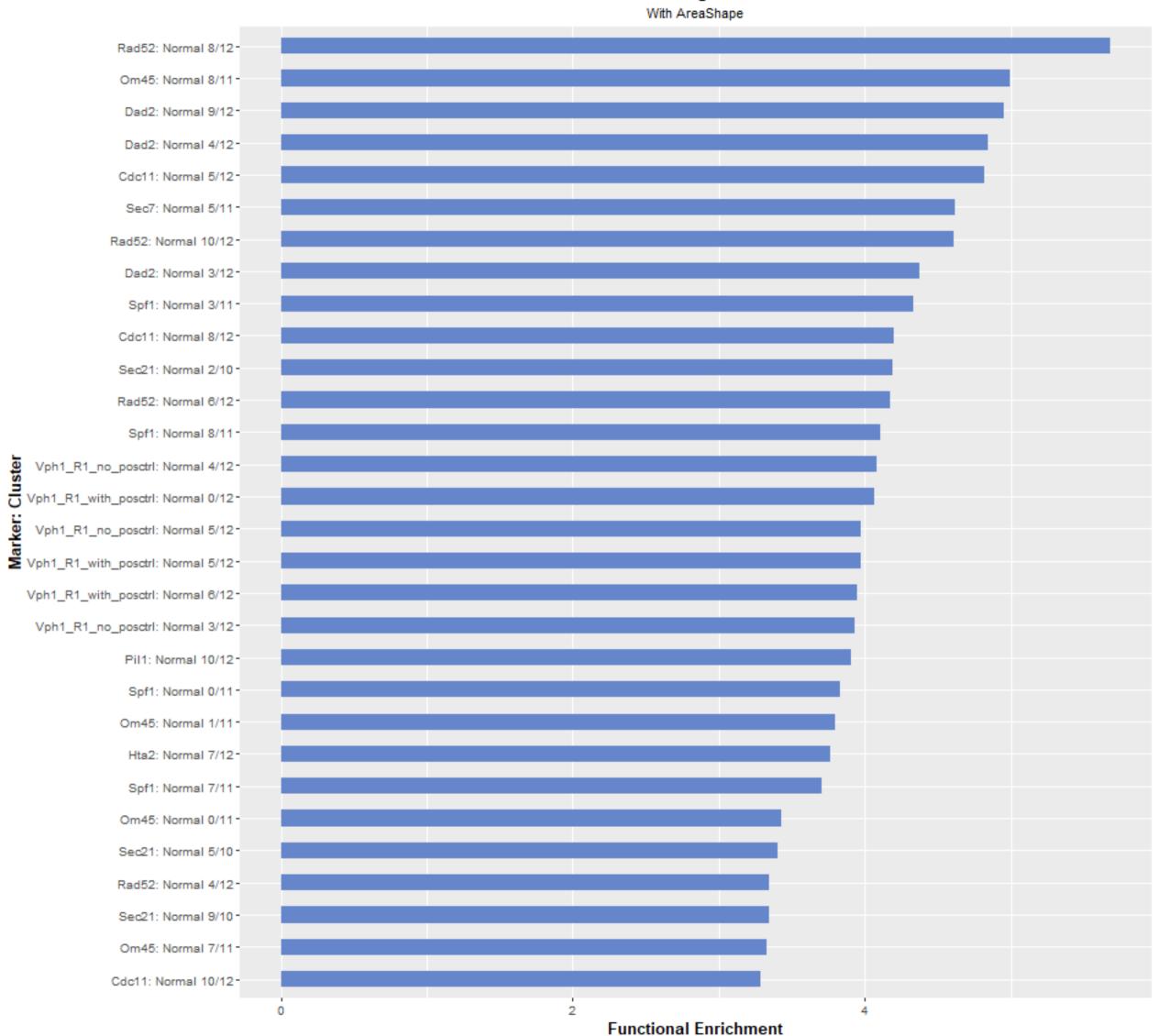


nuclear transport With AreaShape

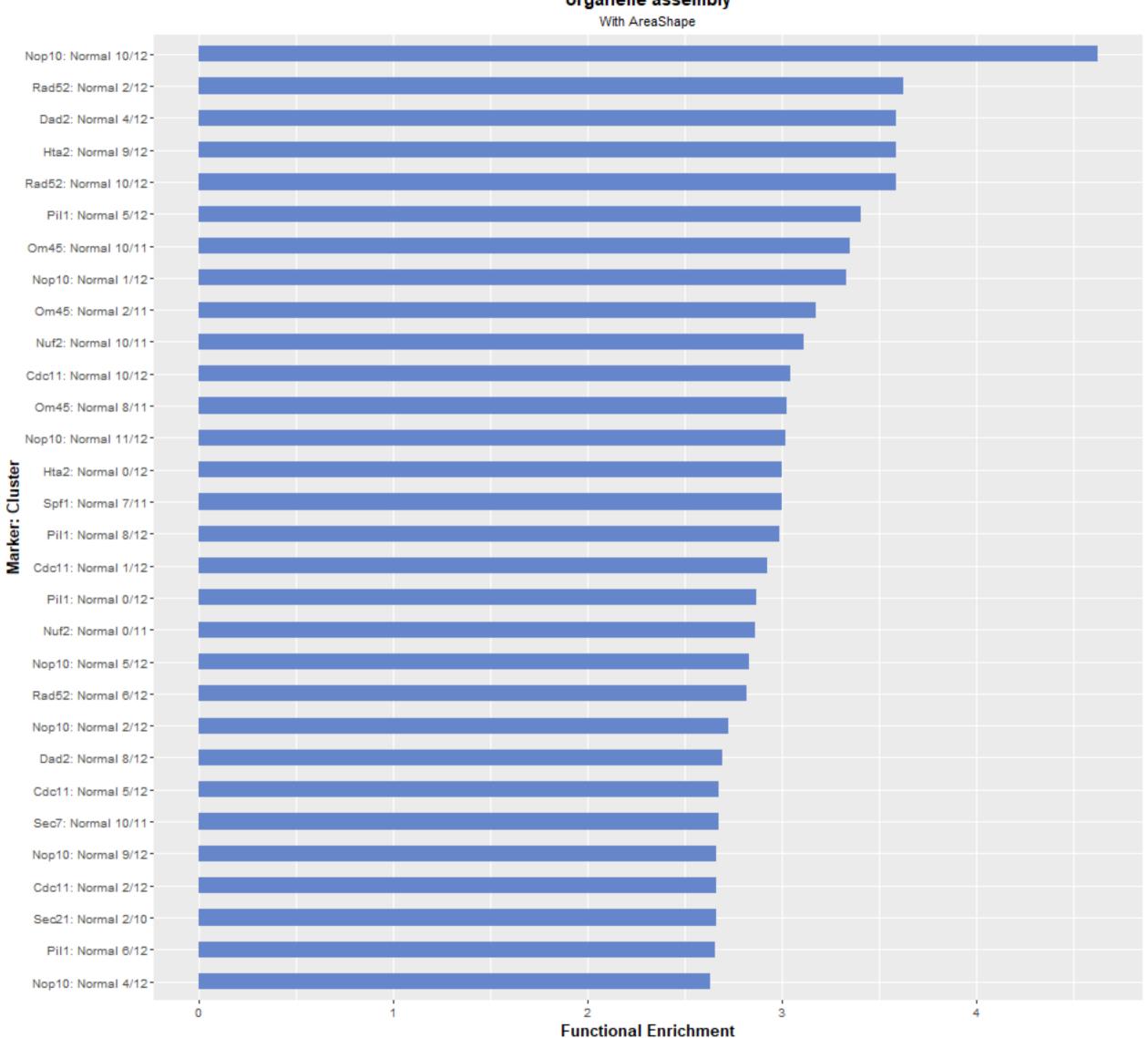


nucleobase-containing compound transport With AreaShape Sec21: Normal 1/10 -Vph1\_R1\_with\_posctrl: Normal 6/12-Vph1\_R1\_no\_posctrl: Normal 3/12-Vph1\_R1\_no\_posctrl: Normal 5/12 -Vph1\_R1\_with\_posctrl: Normal 5/12-Sec21: Normal 5/10 -Om45: Normal 0/11 -Sec21: Normal 9/10 -Rad52: Normal 10/12 -Vph1\_R1\_no\_posctrl: Normal 4/12-Cdc11: Normal 5/12 -Vph1\_R1\_with\_posctrl: Normal 0/12-Sec21: Normal 2/10 -Marker: Cluster Cdc11: Normal 11/12 -Pil1: Normal 8/12-Om45: Normal 8/11 -Heh2: Normal 10/12 -Hta2: Normal 11/12 -Psr1: Normal 2/11 Sec21: Normal 8/10 -Om45: Normal 4/11 -Nuf2: Normal 2/11-Dad2: Normal 10/12-Heh2: Normal 9/12-Cdc11: Normal 2/12-Nuf2: Normal 0/11 -Cdc11: Normal 1/12-Nop10: Normal 0/12-Nuf2: Normal 6/11-Rad52: Normal 1/12 -0.0 2.5 5.0 10.0 7.5 **Functional Enrichment** 

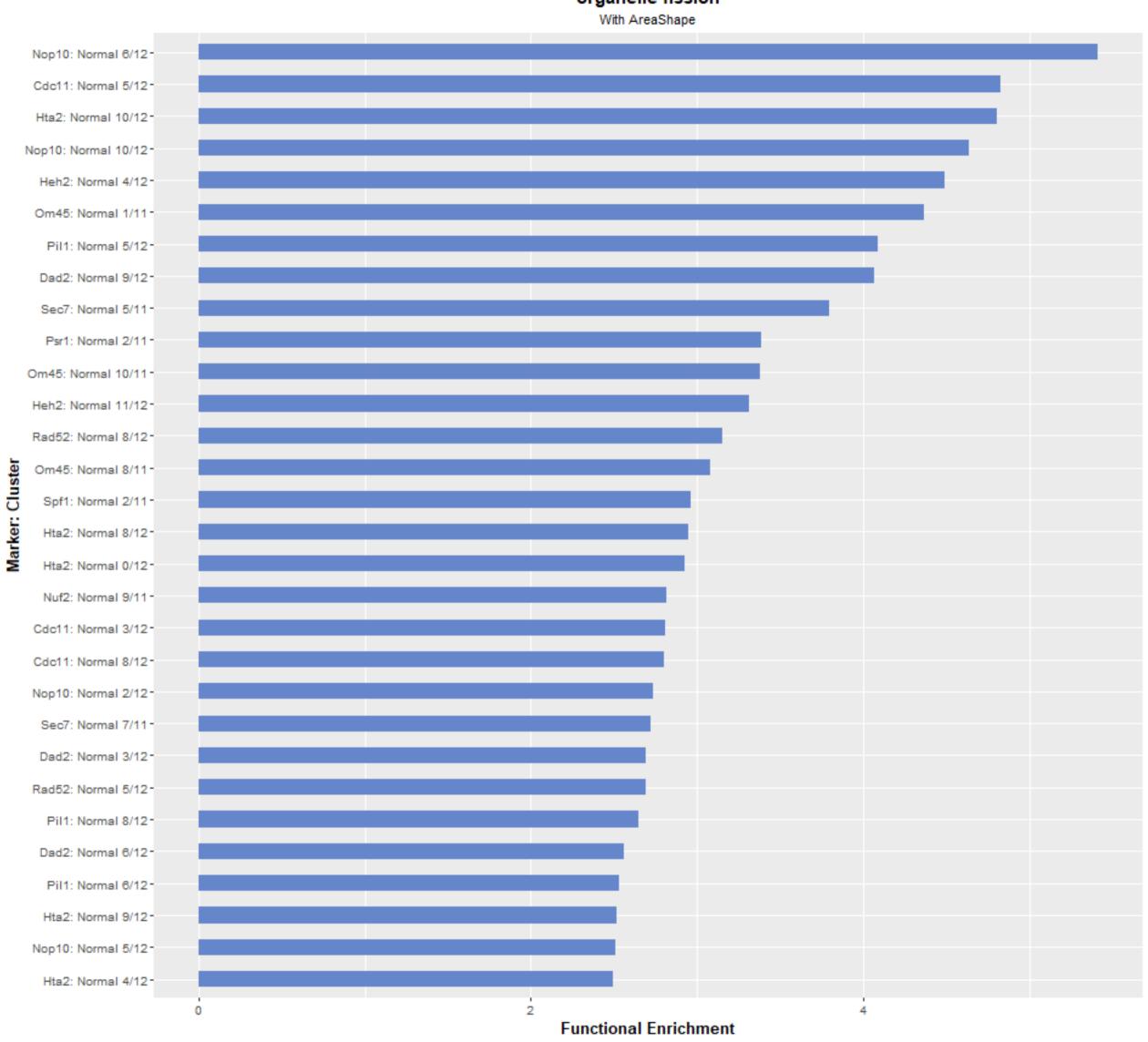
## nucleus organization



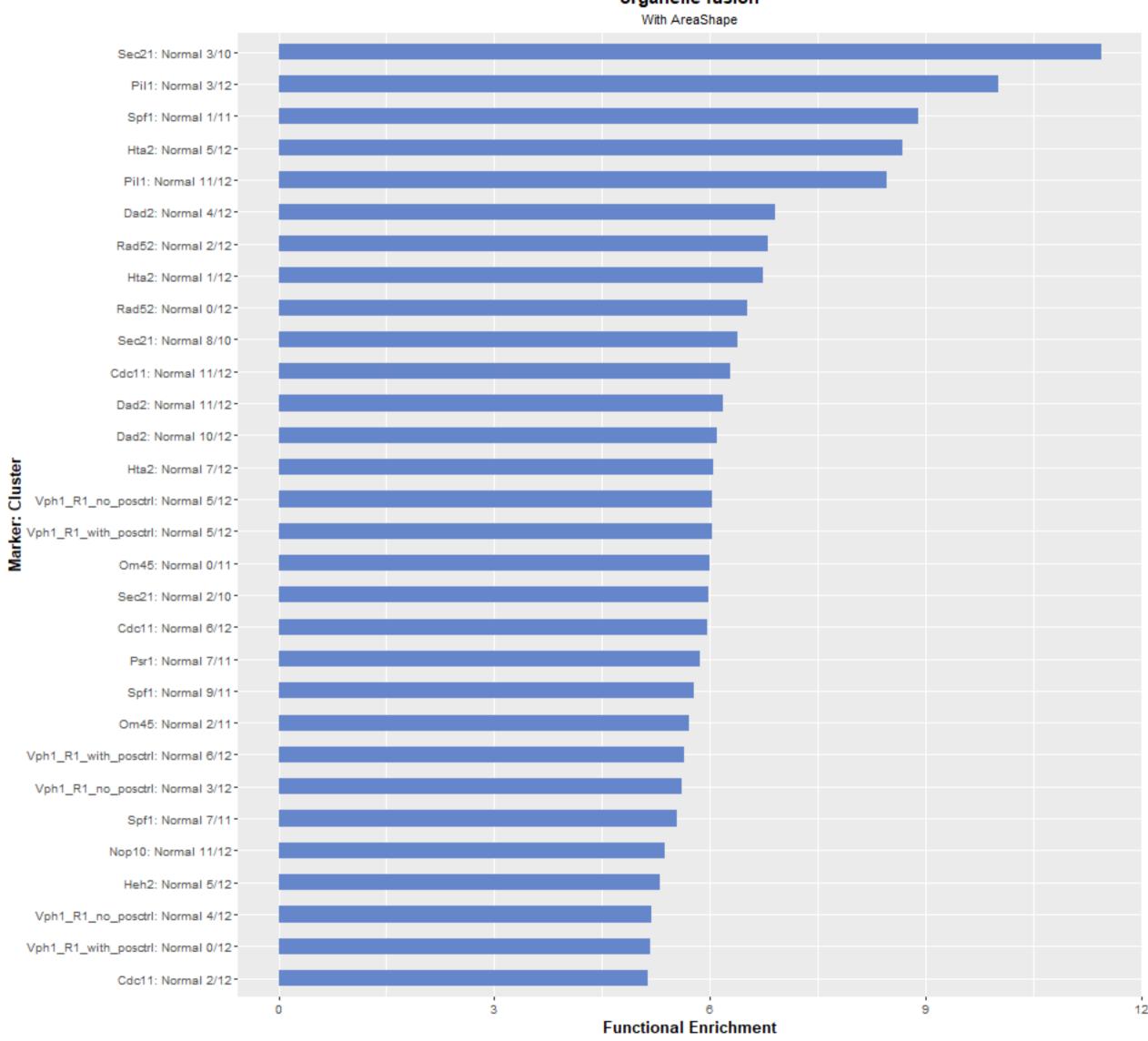
## organelle assembly



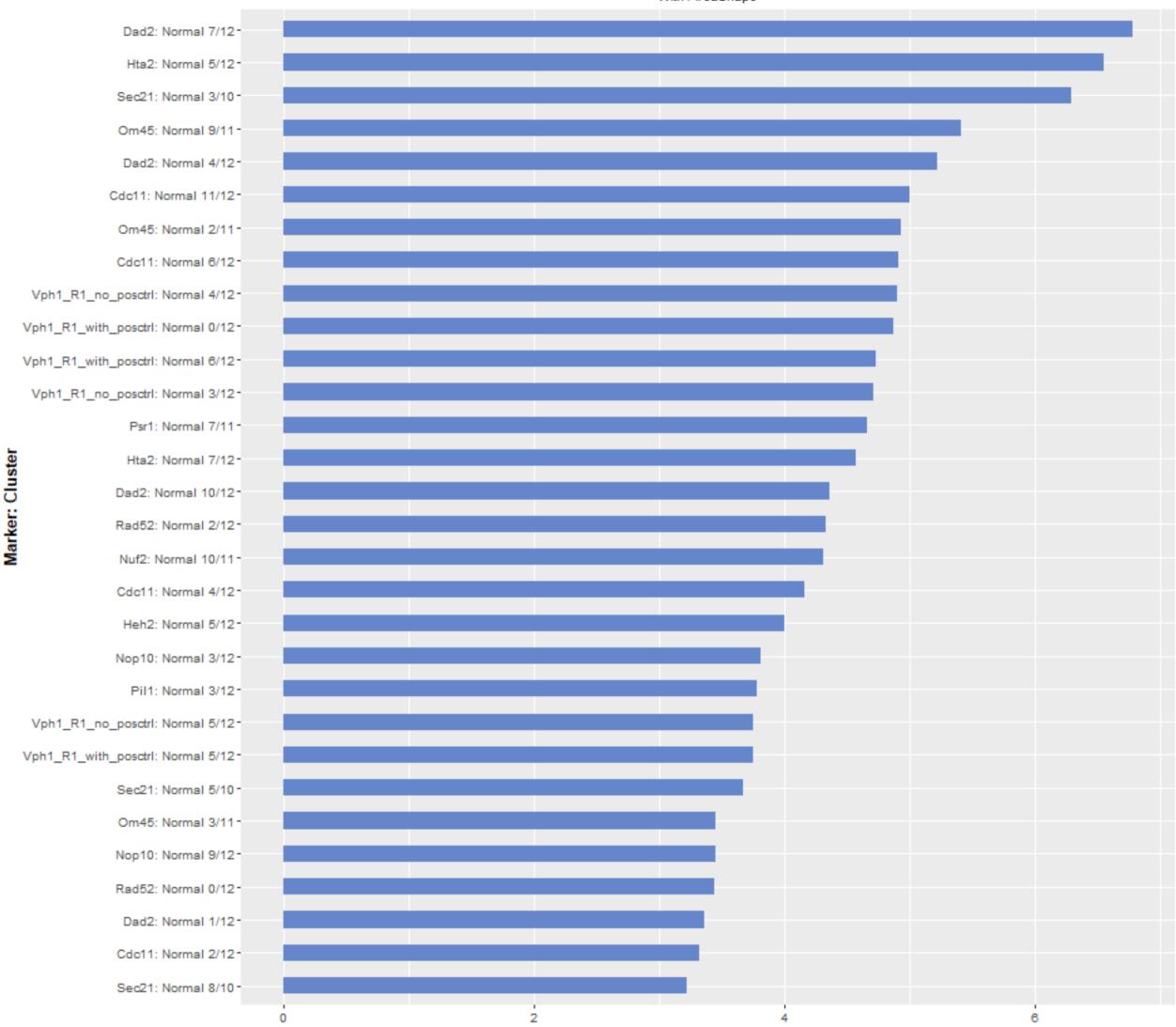
# organelle fission With AreaShape



organelle fusion

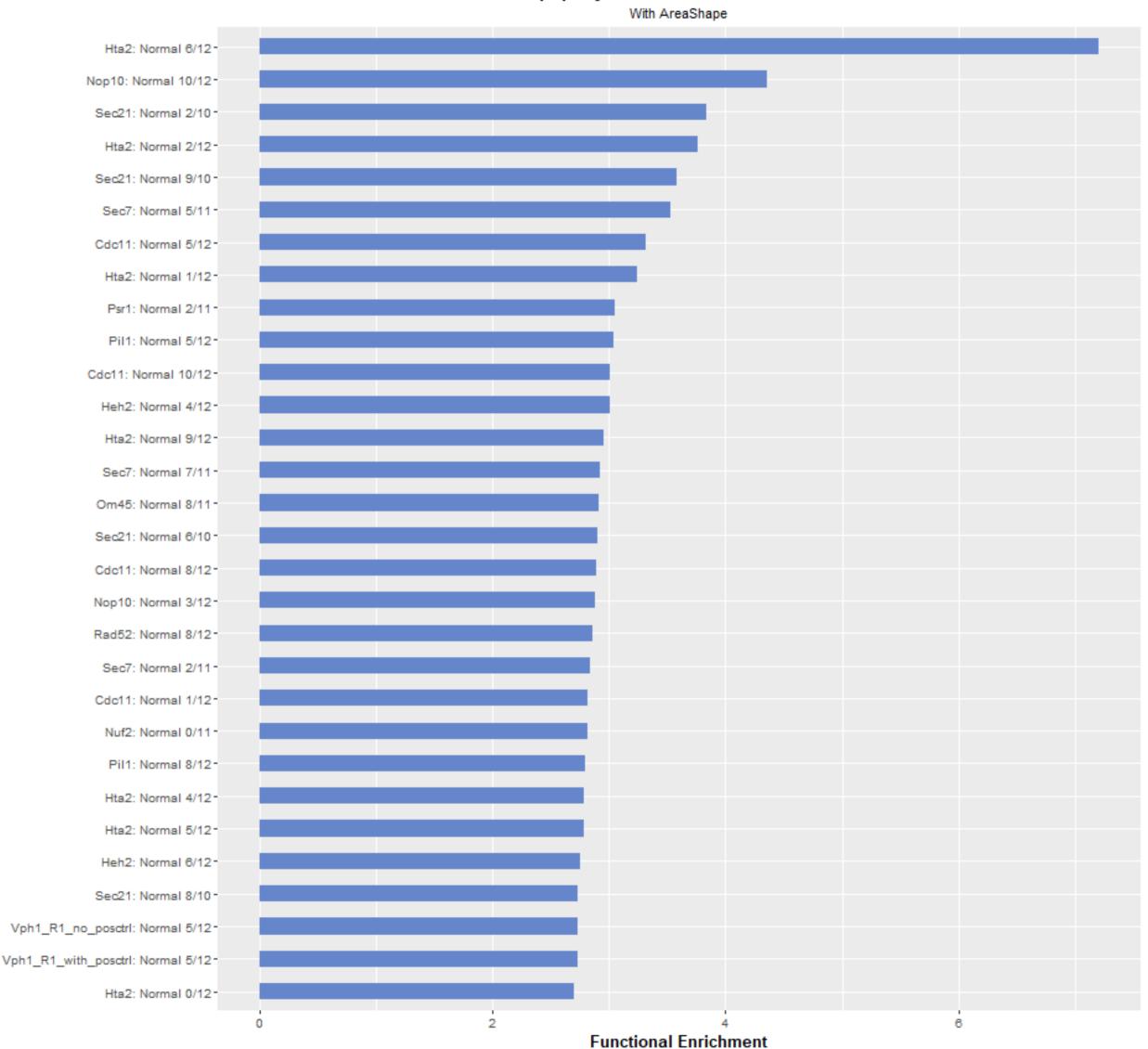


organelle inheritance With AreaShape



**Functional Enrichment** 

### peptidyl-amino acid modification



# protein acylation With AreaShape

Hta2: Normal 6/12 -

Hta2: Normal 1/12 -

Hta2: Normal 5/12

Pil1: Normal 9/12-

Dad2: Normal 11/12-

Sec21: Normal 2/10 -

Om45: Normal 2/11 -

Hta2: Normal 0/12

Rad52: Normal 11/12-

Cdc11: Normal 0/12-

Nop10: Normal 3/12-

Pil1: Normal 4/12-

Hta2: Normal 4/12-

Dad2: Normal 5/12 -

Hta2: Normal 7/12

Rad52: Normal 7/12-

Heh2: Normal 11/12 -

Rad52: Normal 10/12 -

Sec7: Normal 5/11

Hta2: Normal 8/12 -

Rad52: Normal 2/12 -

Nop10: Normal 1/12-

Rad52: Normal 8/12-

Sec21: Normal 8/10 -

Nop10: Normal 5/12-

Hta2: Normal 11/12 -

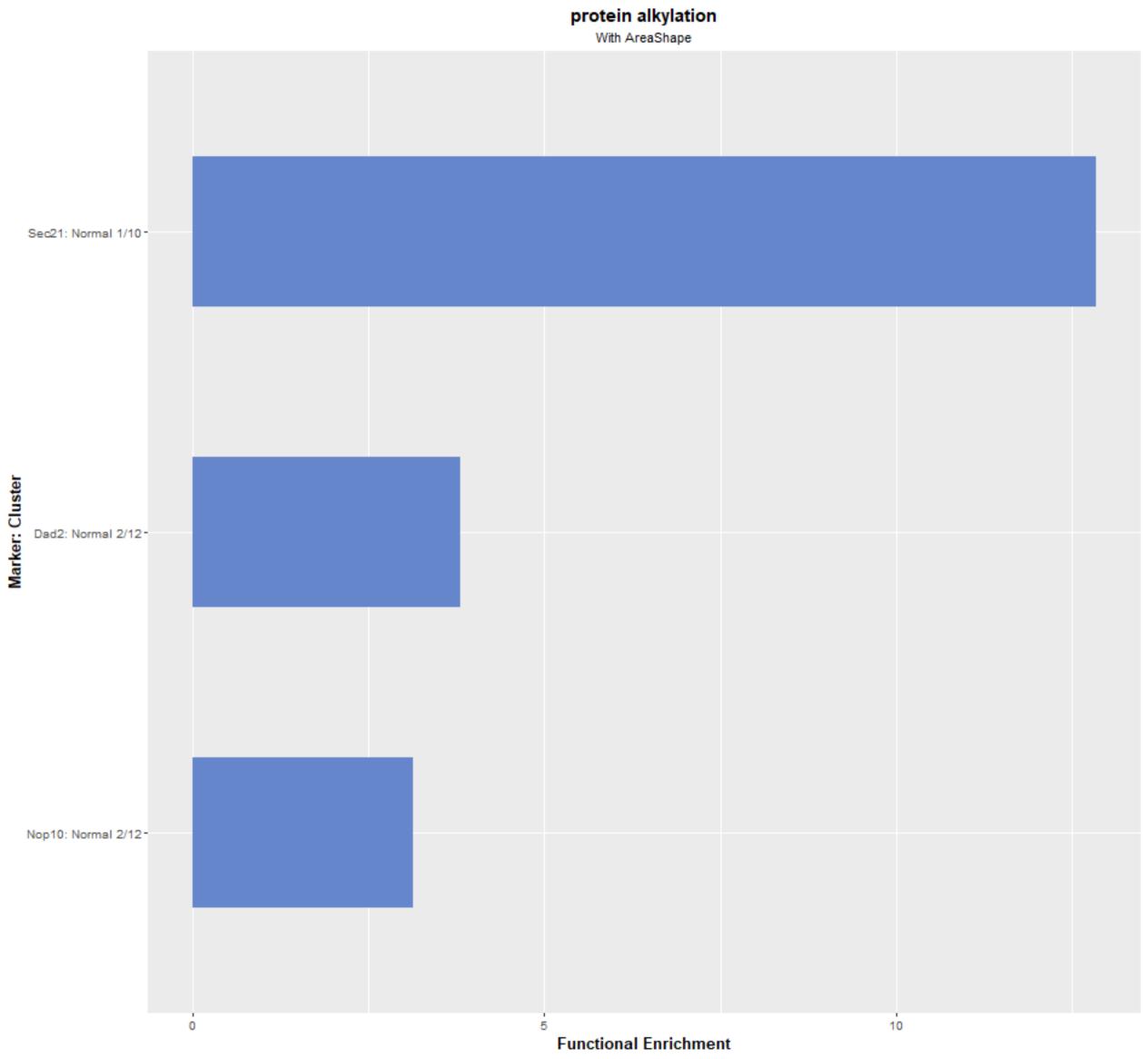
Sec21: Normal 9/10 -

Sec7: Normal 0/11 -

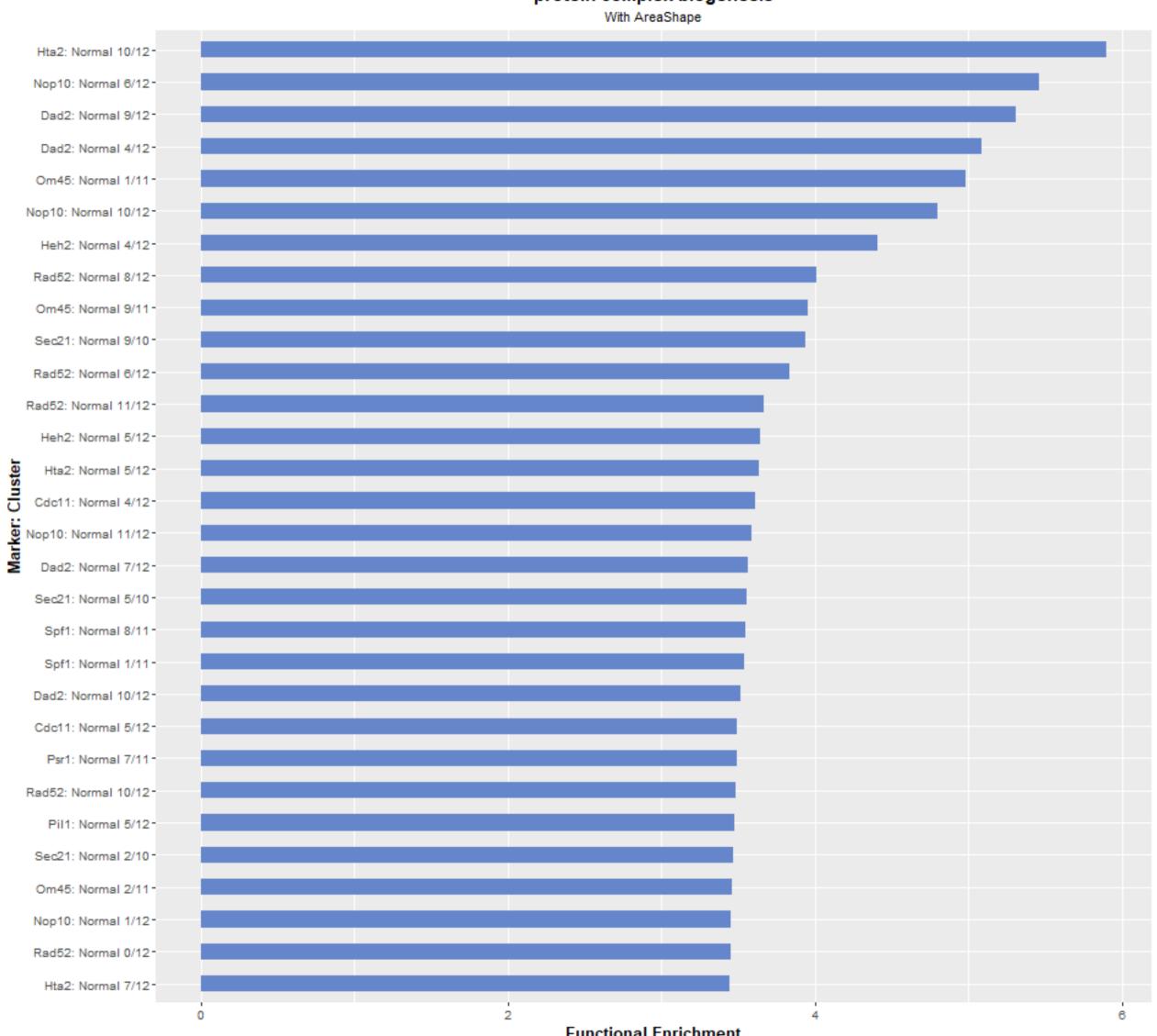
Hta2: Normal 9/12-

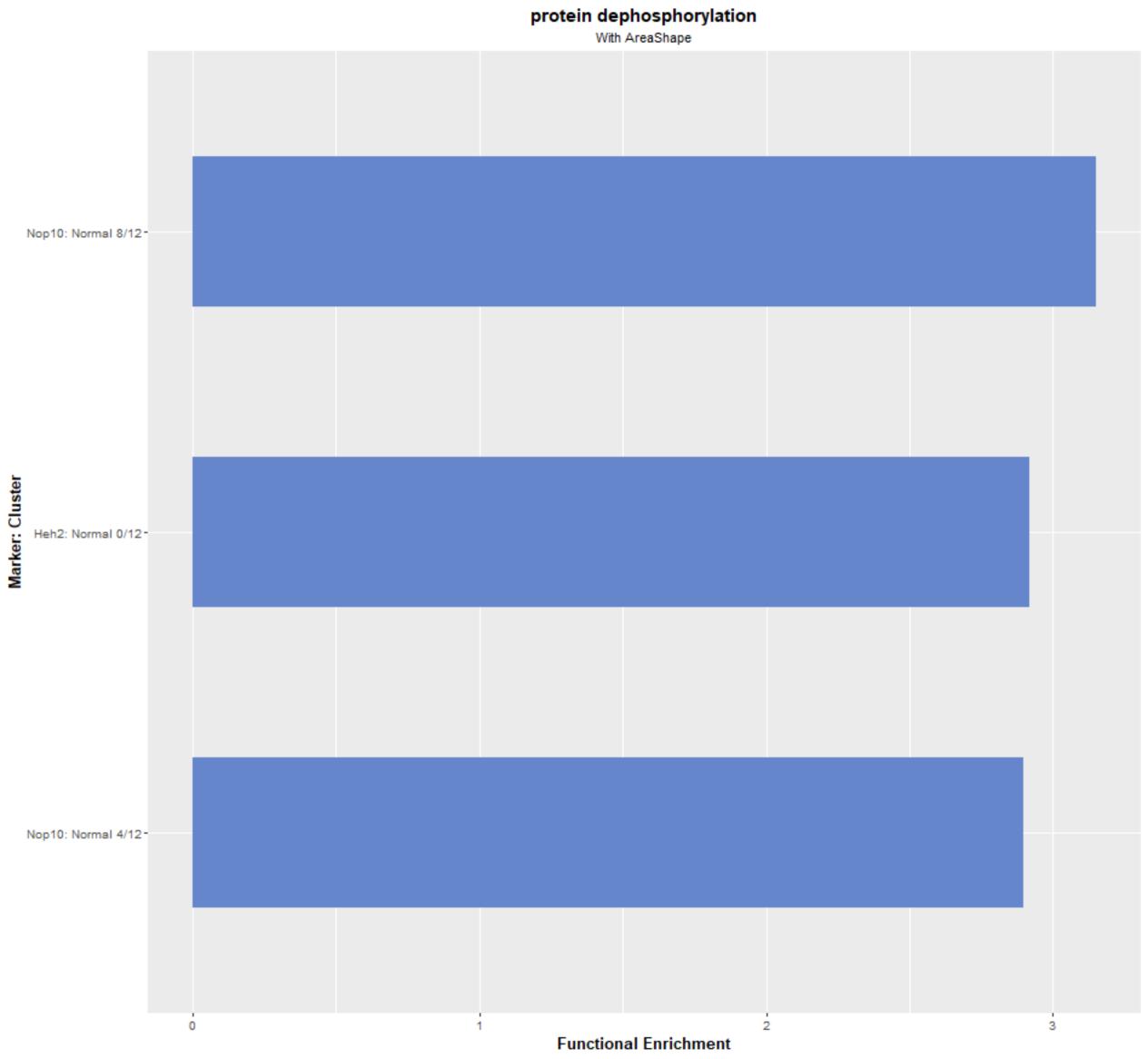
Sec7: Normal 7/11 -

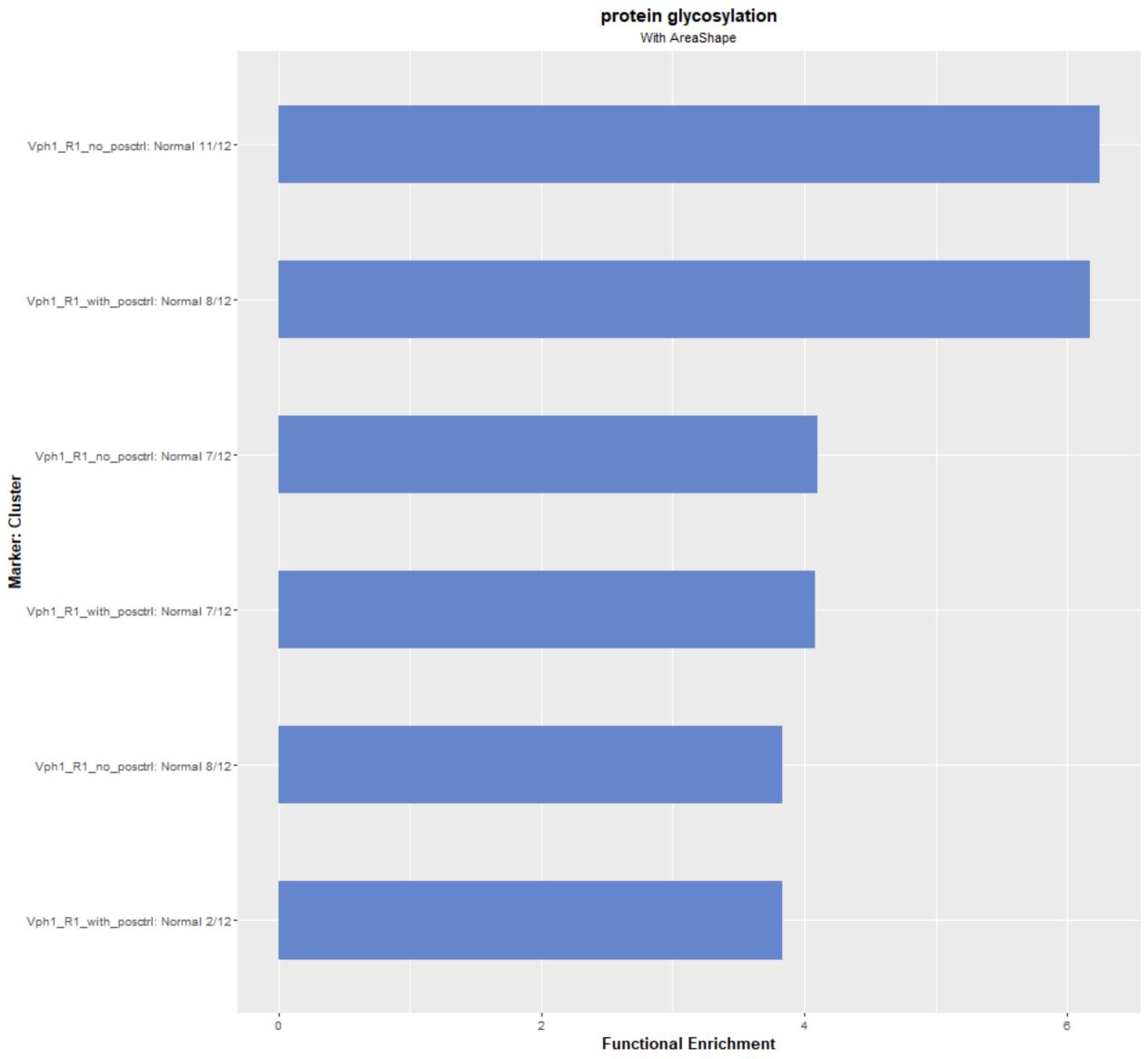
Marker: Cluster



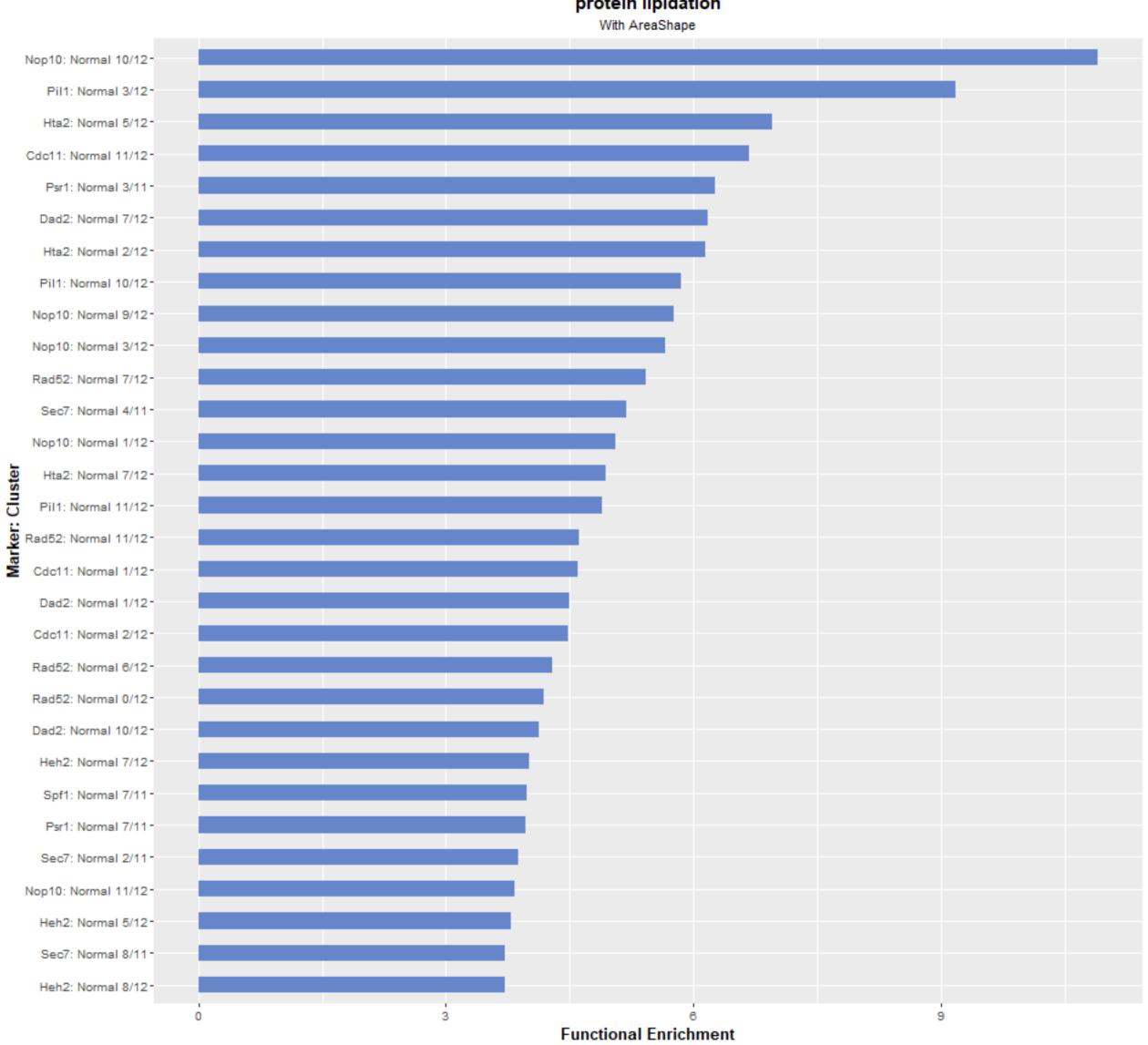
### protein complex biogenesis







# protein lipidation

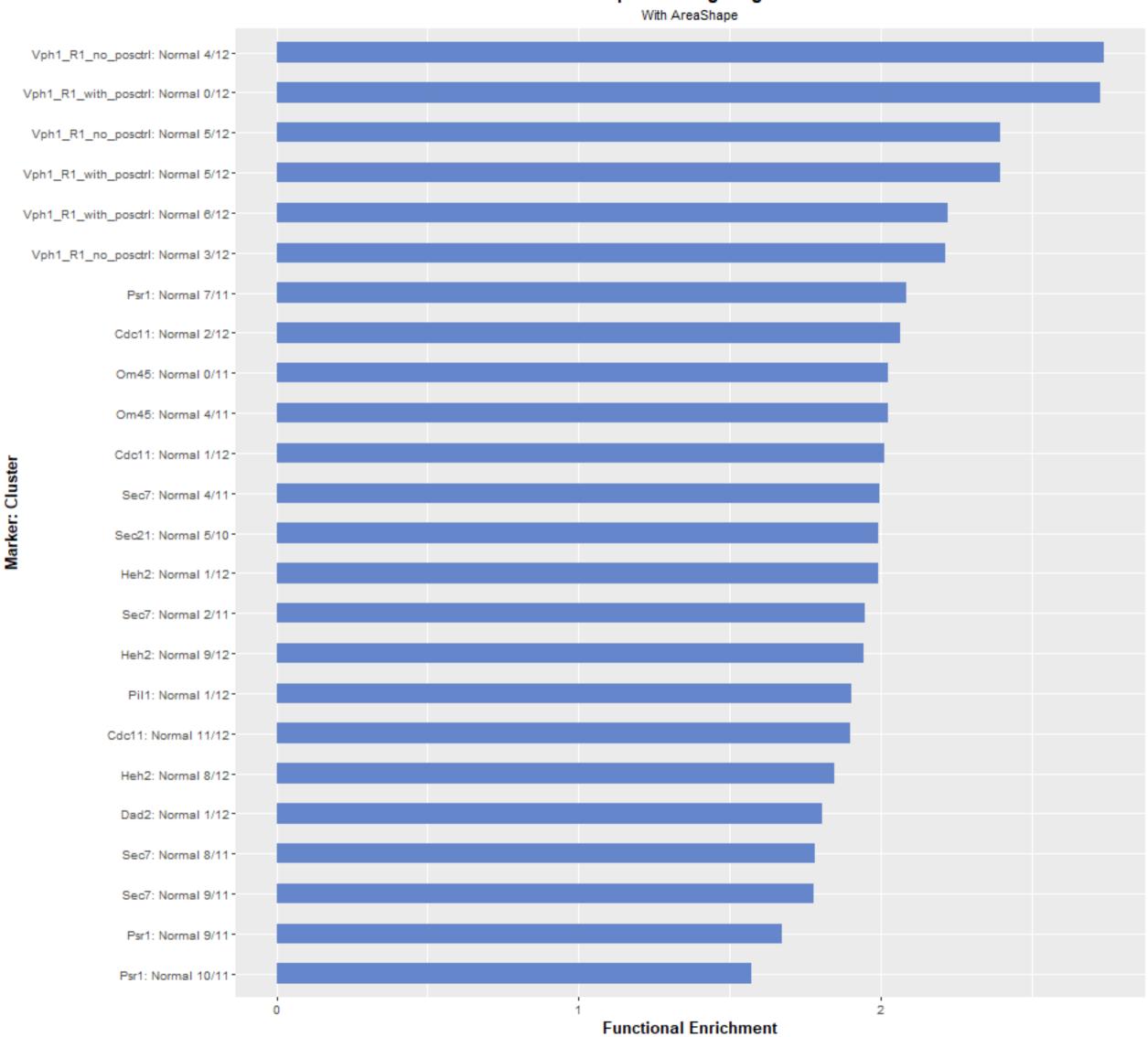


protein maturation With AreaShape Marker: Cluster: Psr1: Normal 0/11 0 2 **Functional Enrichment** 

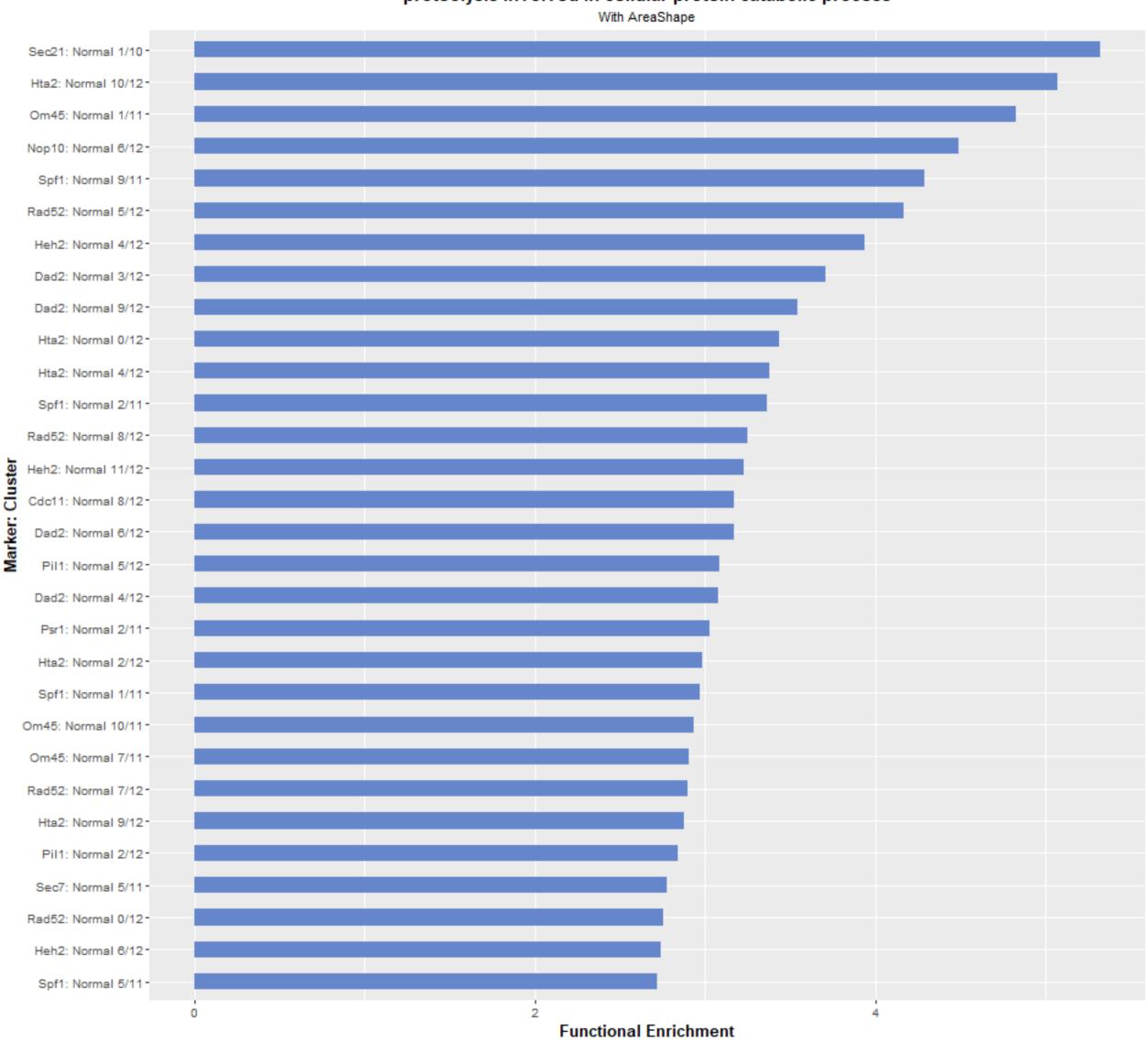
# protein modification by small protein conjugation or removal With AreaShape Sec21: Normal 1/10 Nop10: Normal 6/12-Om45: Normal 1/11 Rad52: Normal 5/12-Heh2: Normal 4/12-Hta2: Normal 10/12-Spf1: Normal 5/11 -Heh2: Normal 11/12 Cdc11: Normal 5/12-Pil1: Normal 5/12-Spf1: Normal 2/11 Dad2: Normal 6/12-Psr1: Normal 2/11 Hta2: Normal 4/12 Rad52: Normal 8/12-Om45: Normal 10/11 -Nuf2: Normal 10/11 -Sec7: Normal 5/11 -Cdc11: Normal 8/12-Cdc11: Normal 10/12 -Nop10: Normal 9/12-Hta2: Normal 0/12-Nuf2: Normal 0/11 -Om45: Normal 8/11 -Rad52: Normal 9/12-Nop10: Normal 5/12-Heh2: Normal 0/12 -Spf1: Normal 0/11 -Heh2: Normal 1/12 -Spf1: Normal 3/11 -0 2 **Functional Enrichment**

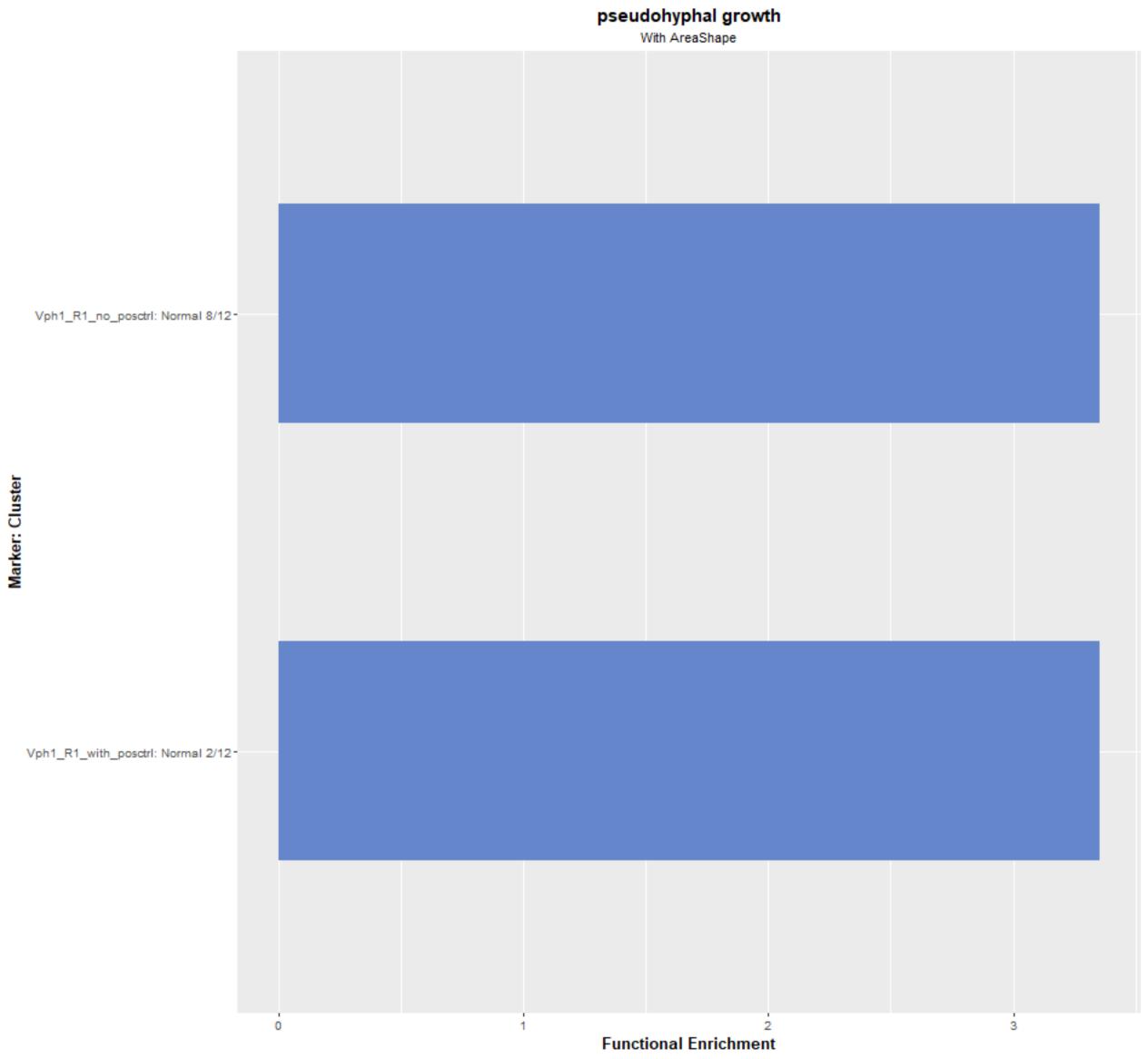
protein phosphorylation With AreaShape Nuf2: Normal 10/11 -Nop10: Normal 10/12 -Dad2: Normal 8/12-Om45: Normal 8/11 -Cdc11: Normal 10/12 -Hta2: Normal 1/12-Cdc11: Normal 1/12-Hta2: Normal 0/12 -Om45: Normal 10/11 -Nuf2: Normal 9/11 -Dad2: Normal 6/12-Rad52: Normal 10/12 -Sec7: Normal 0/11-Marker: Cluster Sec21: Normal 5/10 -Nop10: Normal 5/12-Pil1: Normal 1/12-Nop10: Normal 11/12 -Nop10: Normal 2/12-Nop10: Normal 4/12-Nuf2: Normal 0/11 -Sec7: Normal 10/11 -Spf1: Normal 3/11 -Heh2: Normal 11/12-Vph1\_R1\_no\_posctrl: Normal 5/12-Vph1\_R1\_with\_posctrl: Normal 5/12 -Om45: Normal 7/11 -Rad52: Normal 6/12 -Rad52: Normal 9/12-Sec7: Normal 7/11 Pil1: Normal 8/12-0 3 **Functional Enrichment** 

# protein targeting

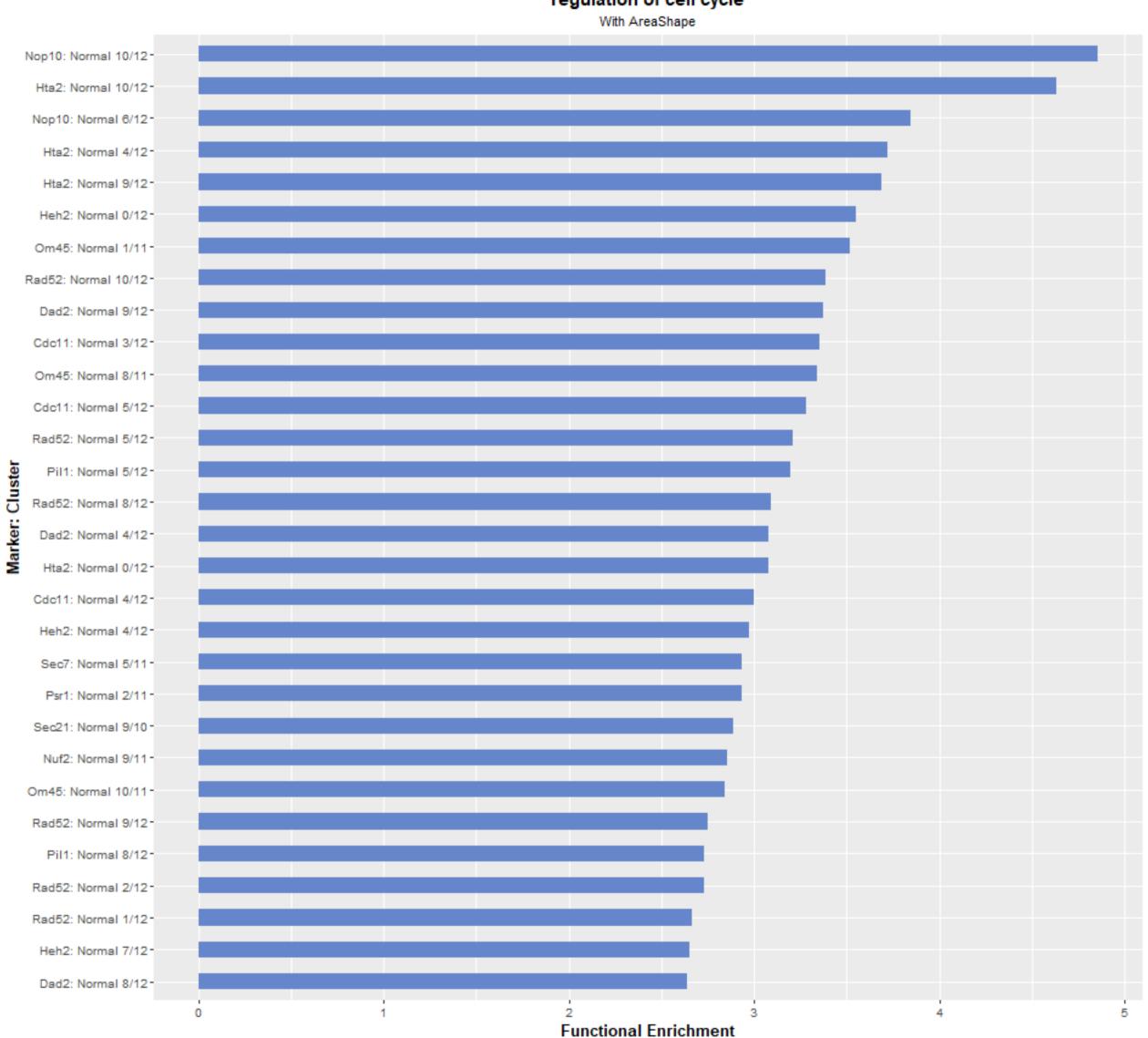


# proteolysis involved in cellular protein catabolic process With AreaShape

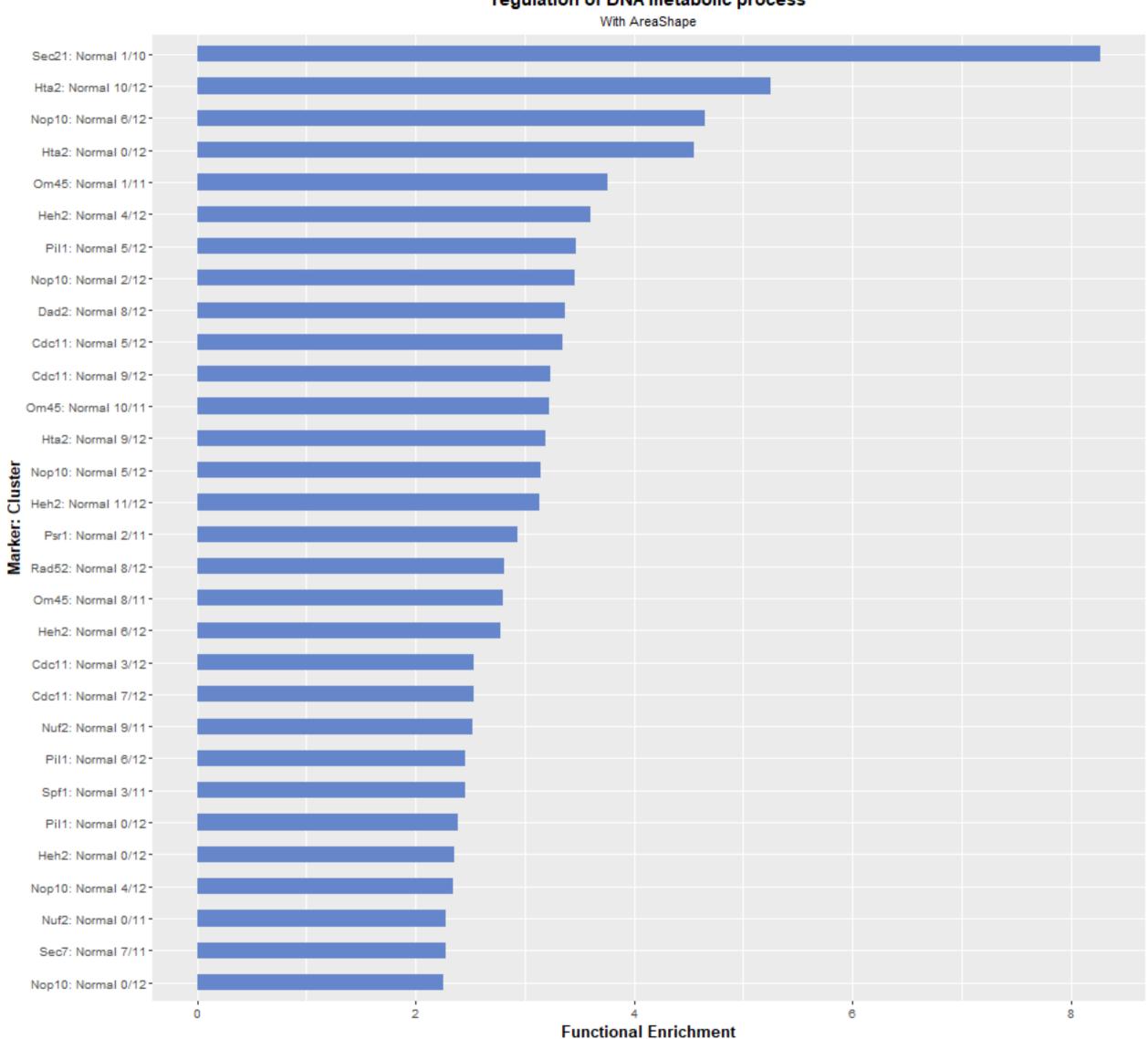




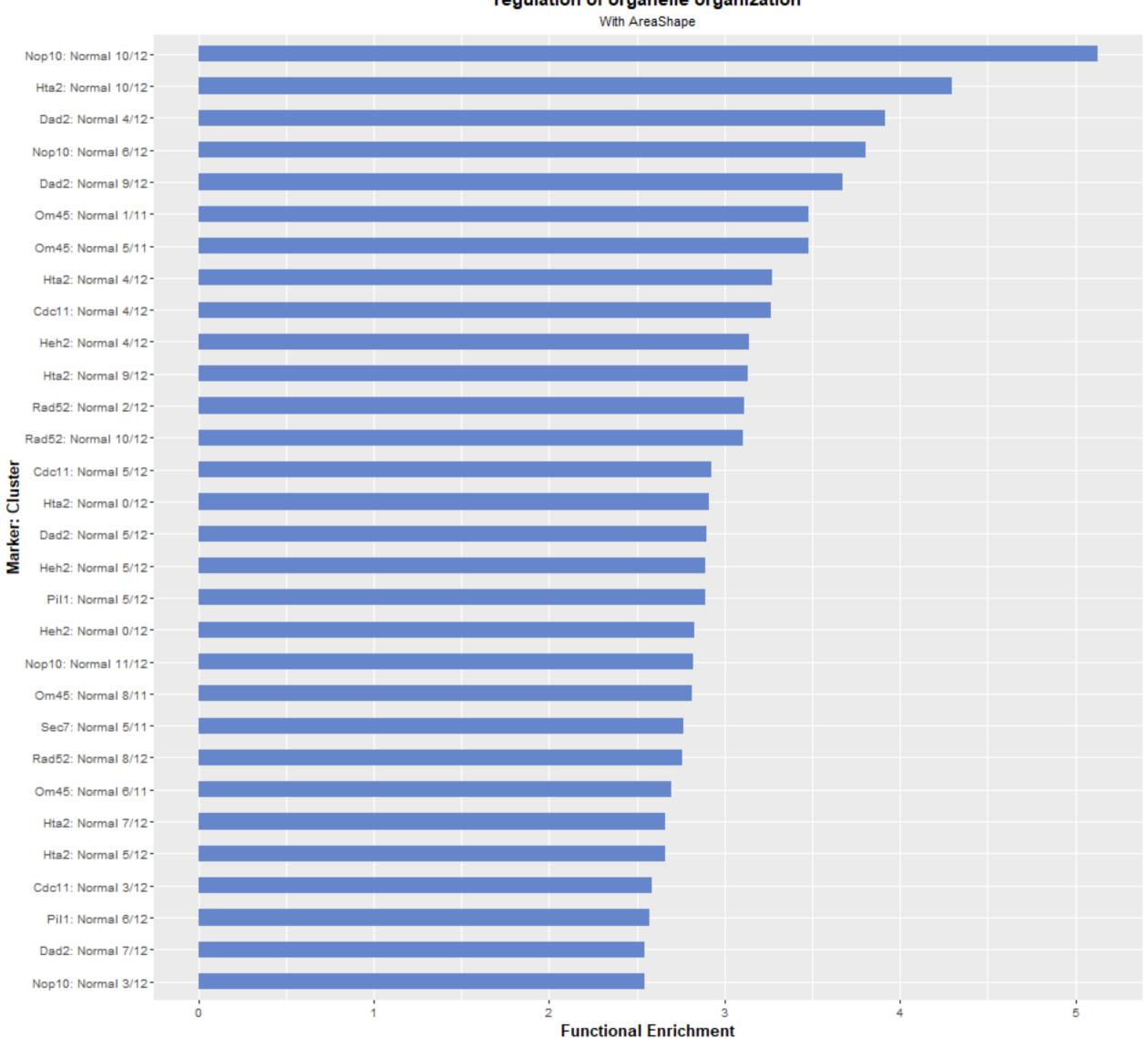
regulation of cell cycle



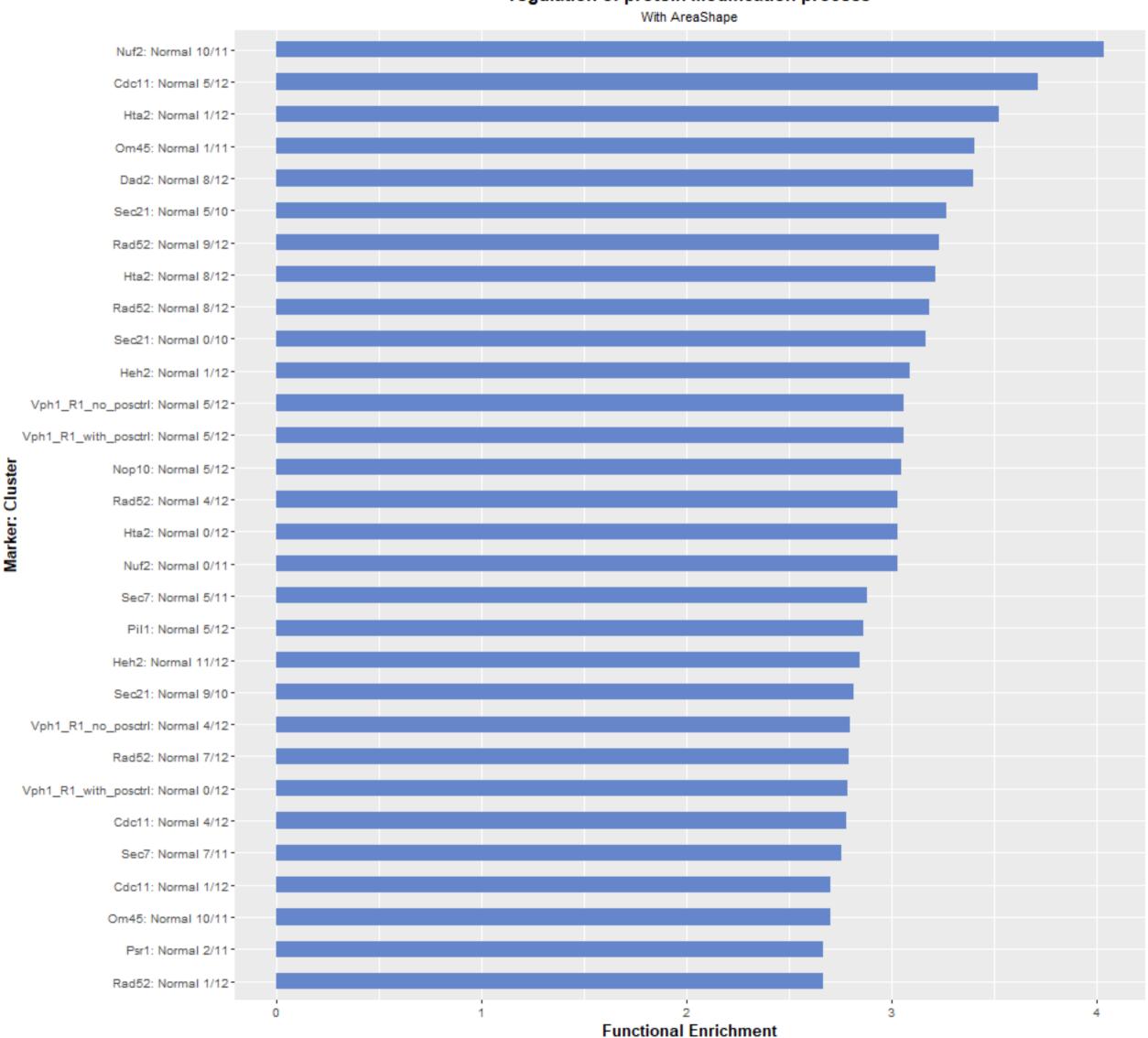
### regulation of DNA metabolic process



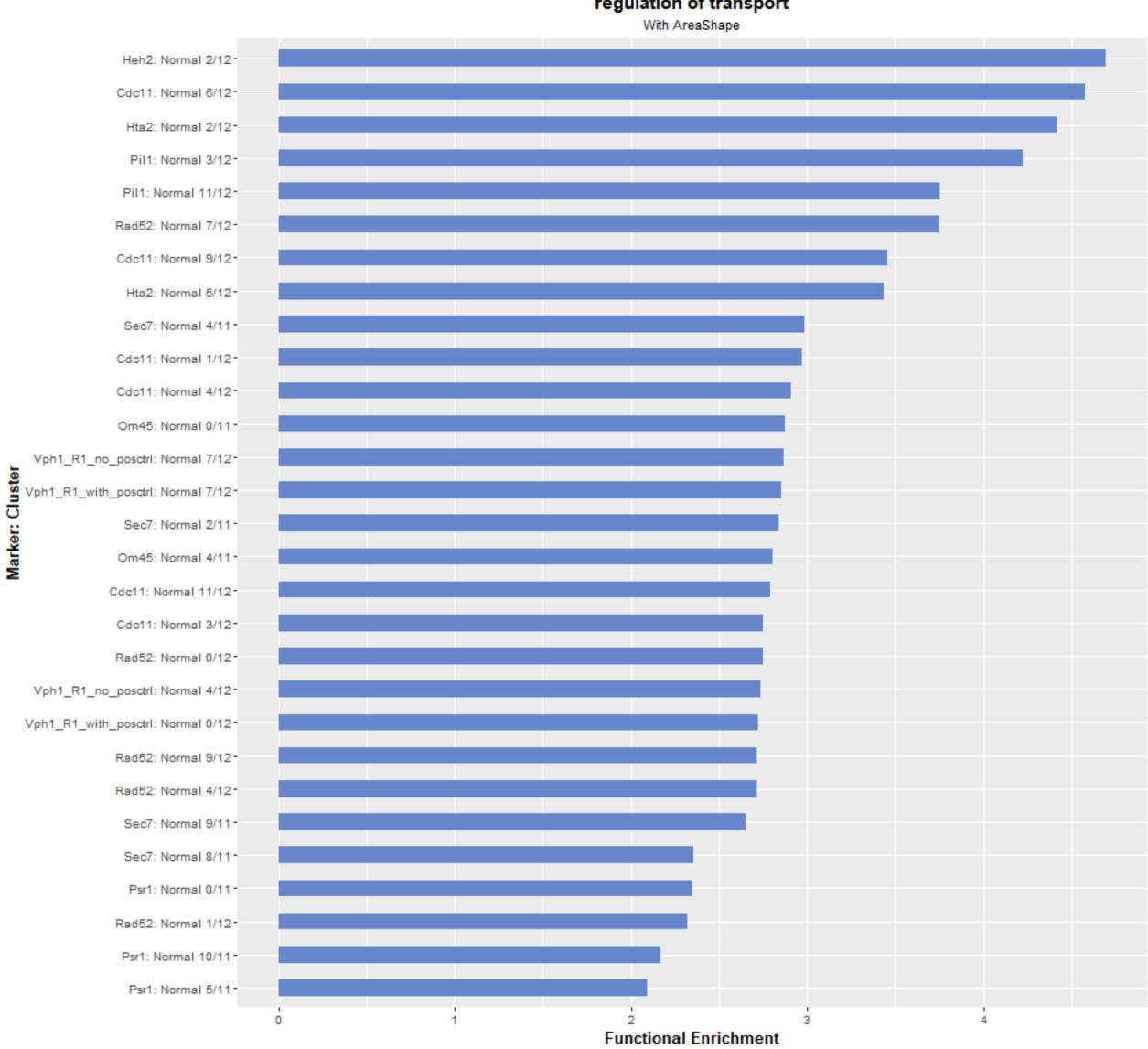
### regulation of organelle organization



# regulation of protein modification process

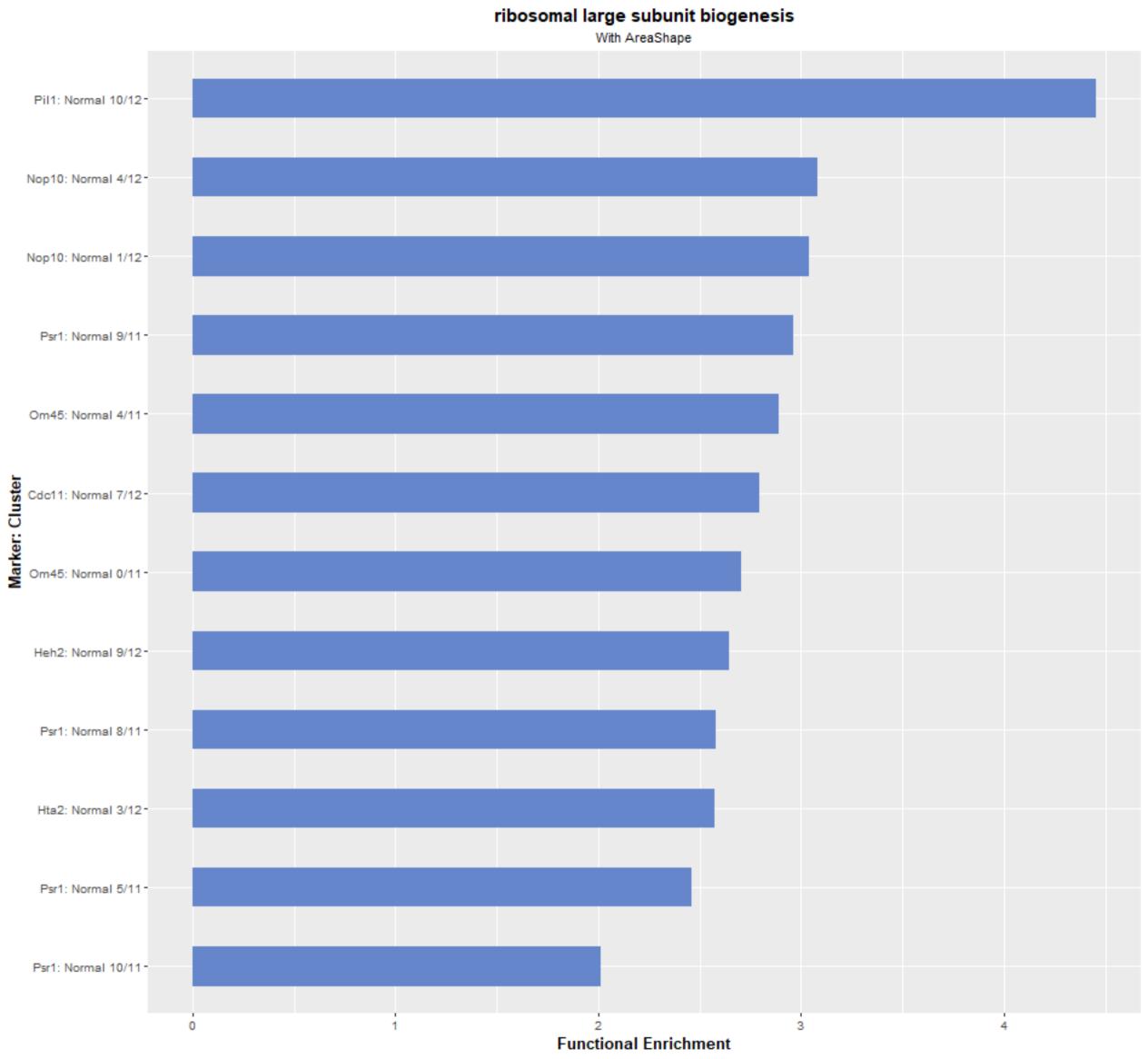


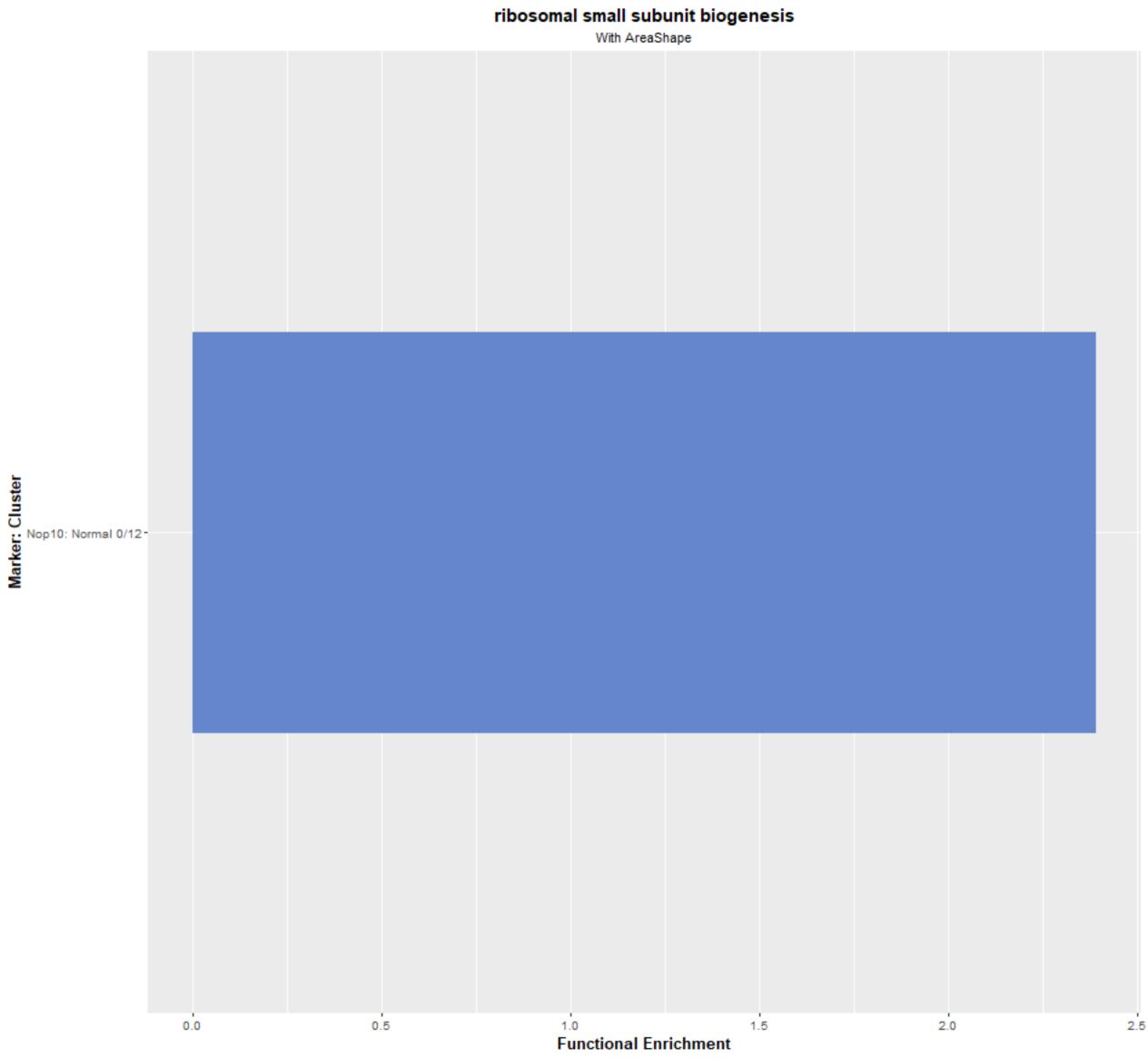
regulation of transport



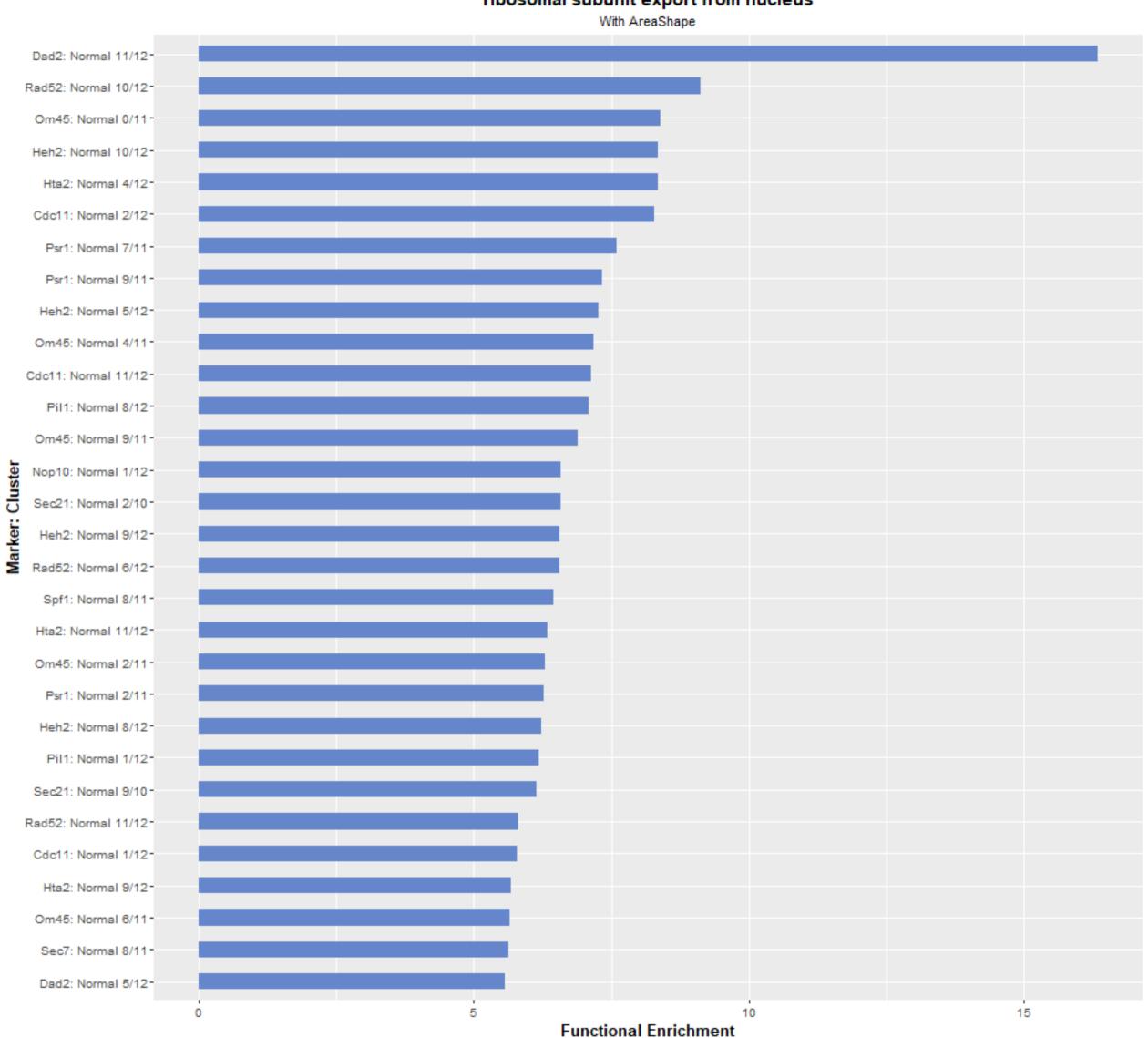
response to heat With AreaShape Marker: Cluster: Psr1: Normal 0/11 0.0 0.5 1.0 1. Functional Enrichment 1.5 2.0 2.5

response to starvation With AreaShape Marker: Cluster: Psr1: Normal 6/11-5 Ó 10 15 **Functional Enrichment** 

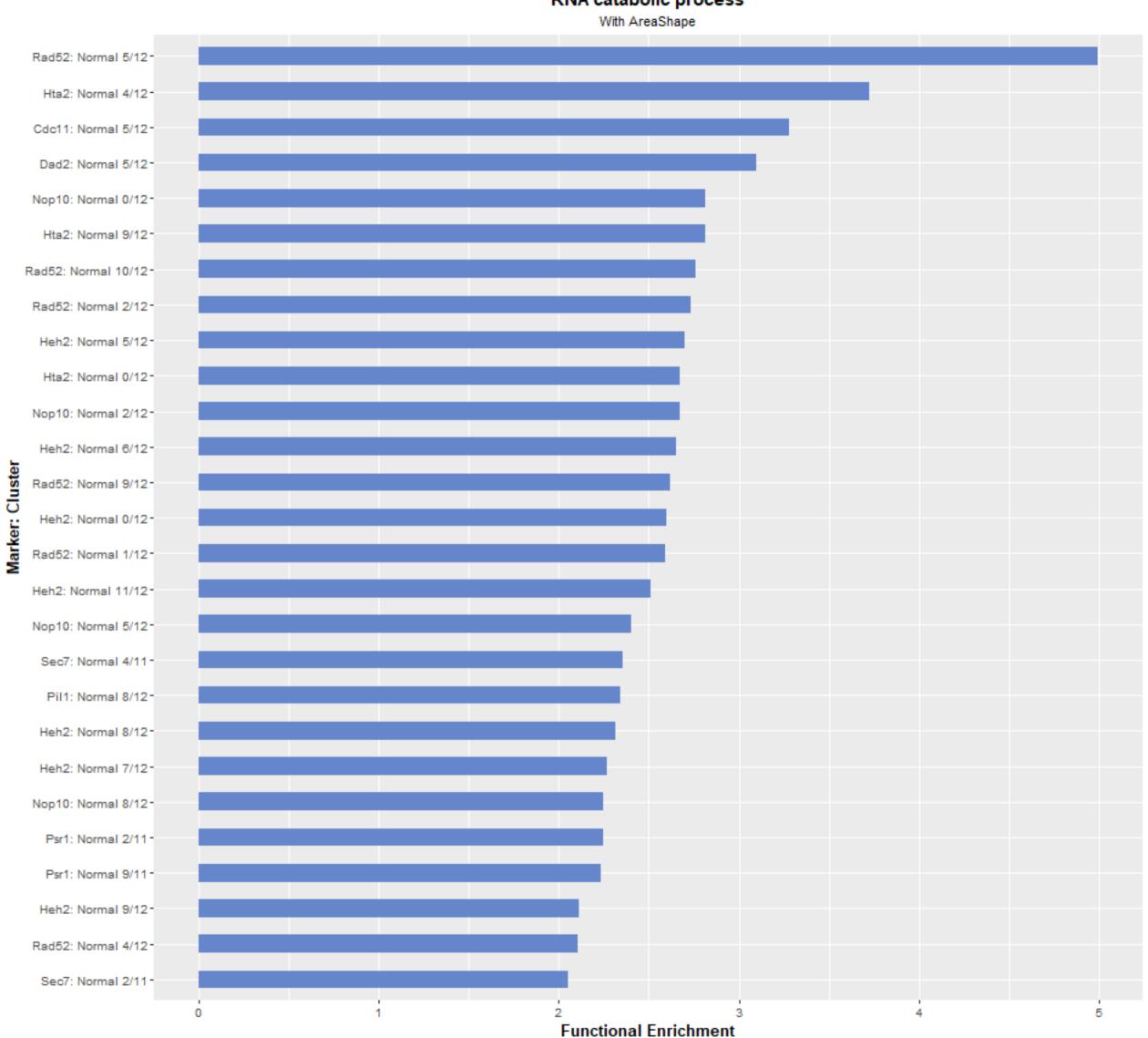




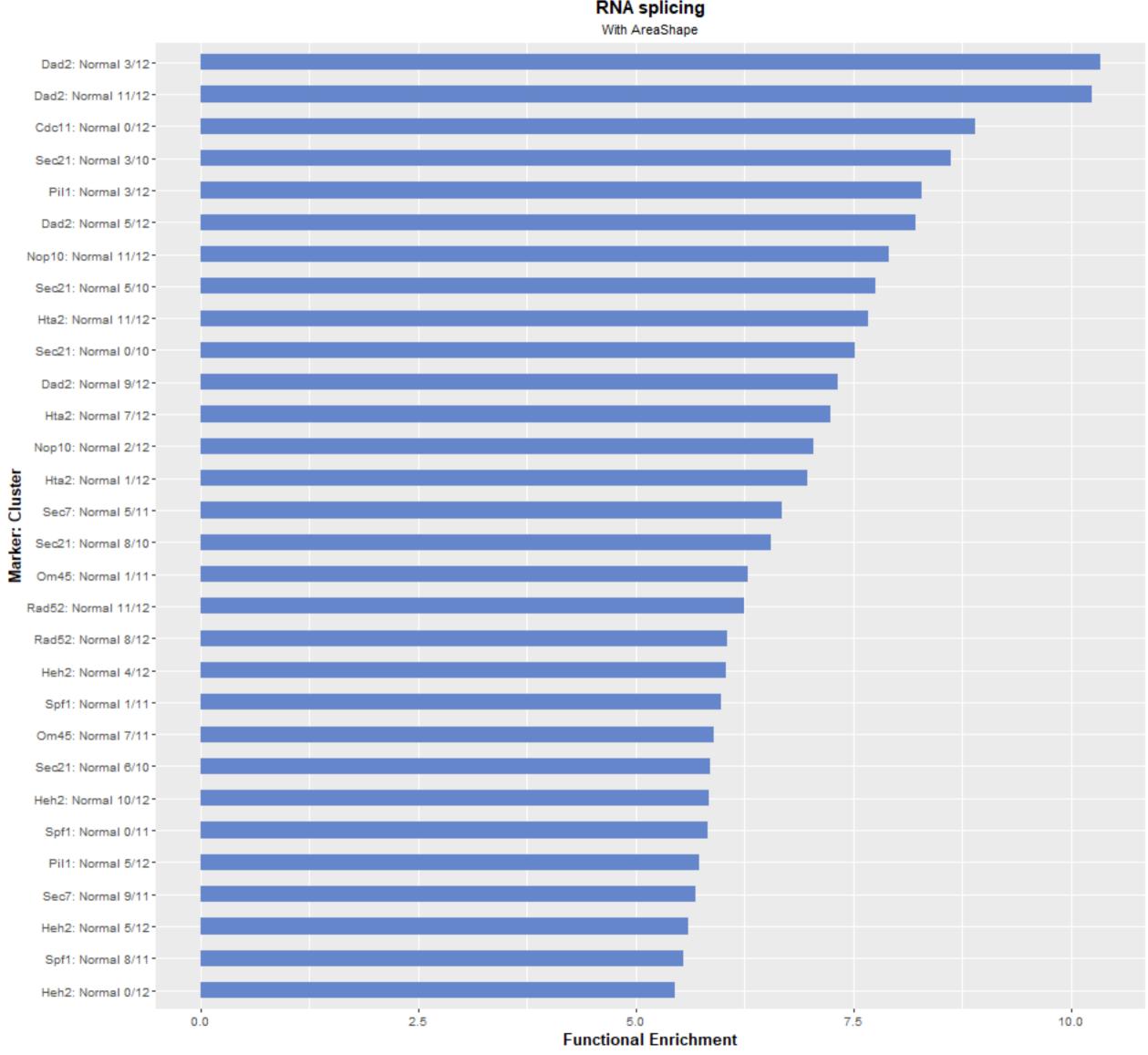
### ribosomal subunit export from nucleus



### **RNA** catabolic process

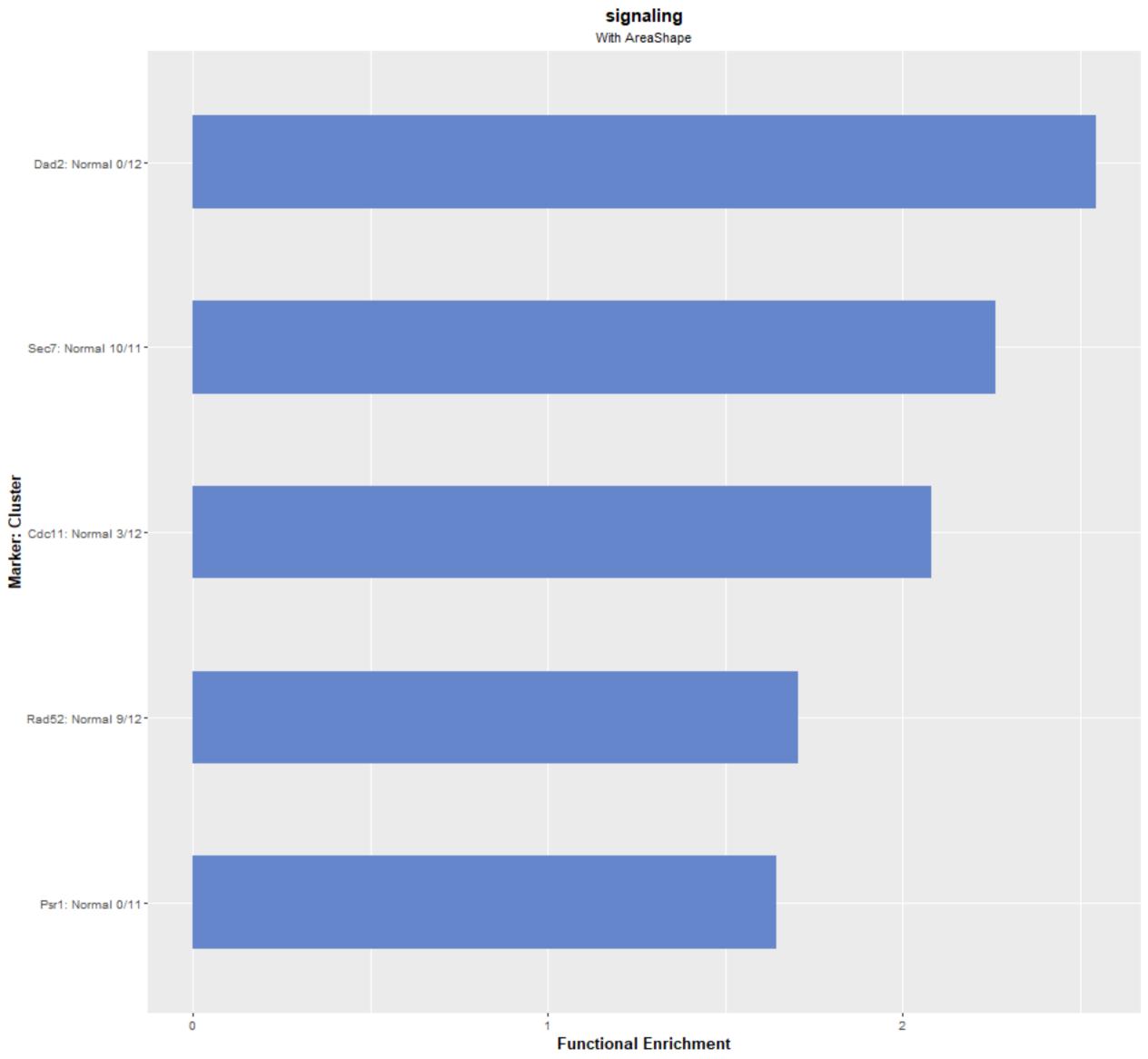


**RNA** splicing

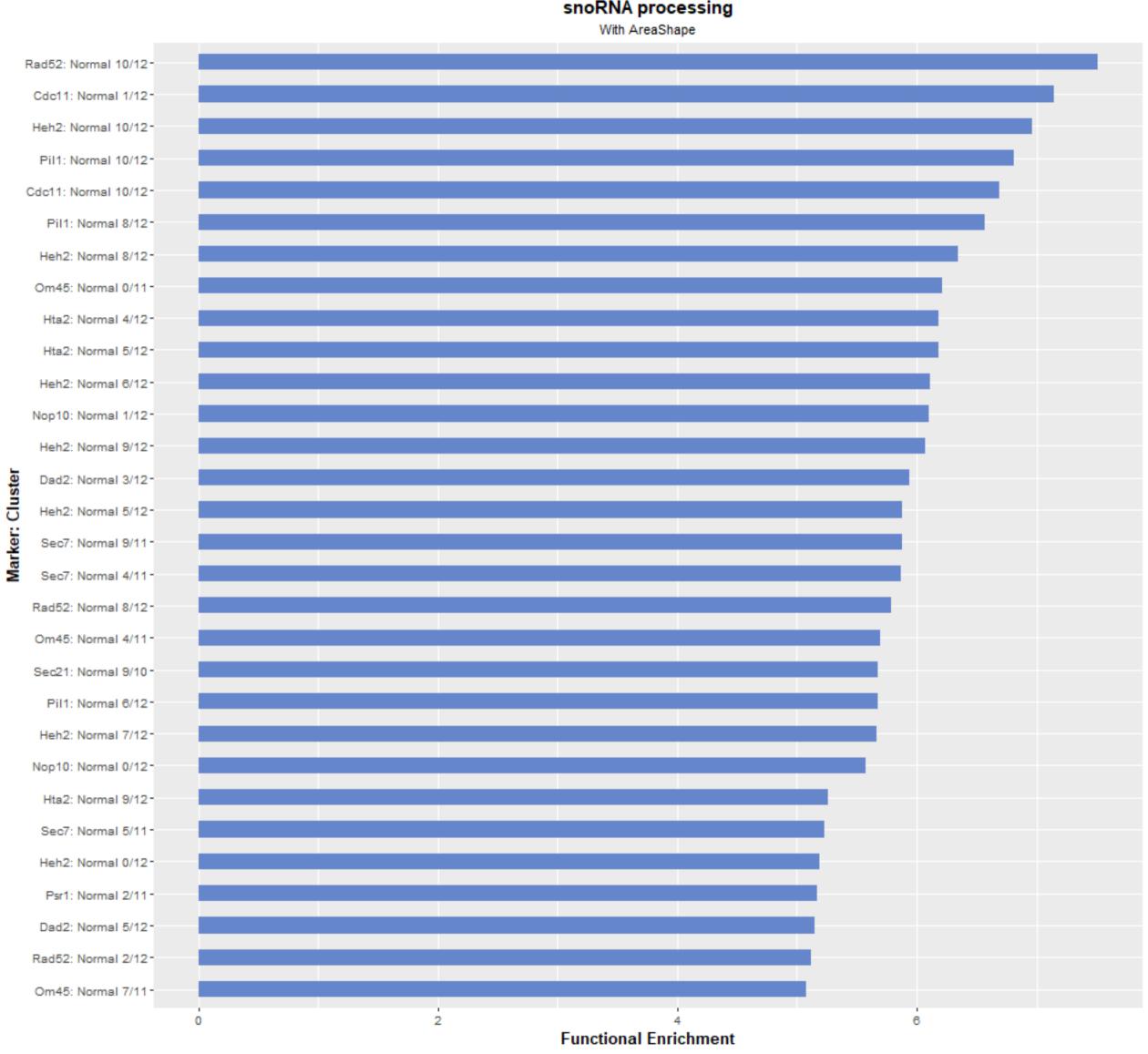


rRNA processing With AreaShape Rad52: Normal 10/12 -Nop10: Normal 1/12-Pil1: Normal 10/12-Heh2: Normal 6/12-Heh2: Normal 7/12-Hta2: Normal 4/12-Cdc11: Normal 10/12 -Nop10: Normal 0/12-Nop10: Normal 4/12-Pil1: Normal 8/12-Heh2: Normal 9/12 Marker: Cluster Rad52: Normal 4/12-Psr1: Normal 9/11 -Psr1: Normal 2/11 Heh2: Normal 8/12-Om45: Normal 0/11 Heh2: Normal 10/12 -Rad52: Normal 1/12 -Om45: Normal 6/11-Rad52: Normal 6/12-Psr1: Normal 8/11 -Sec7: Normal 2/11-Psr1: Normal 5/11 Psr1: Normal 10/11-2 0

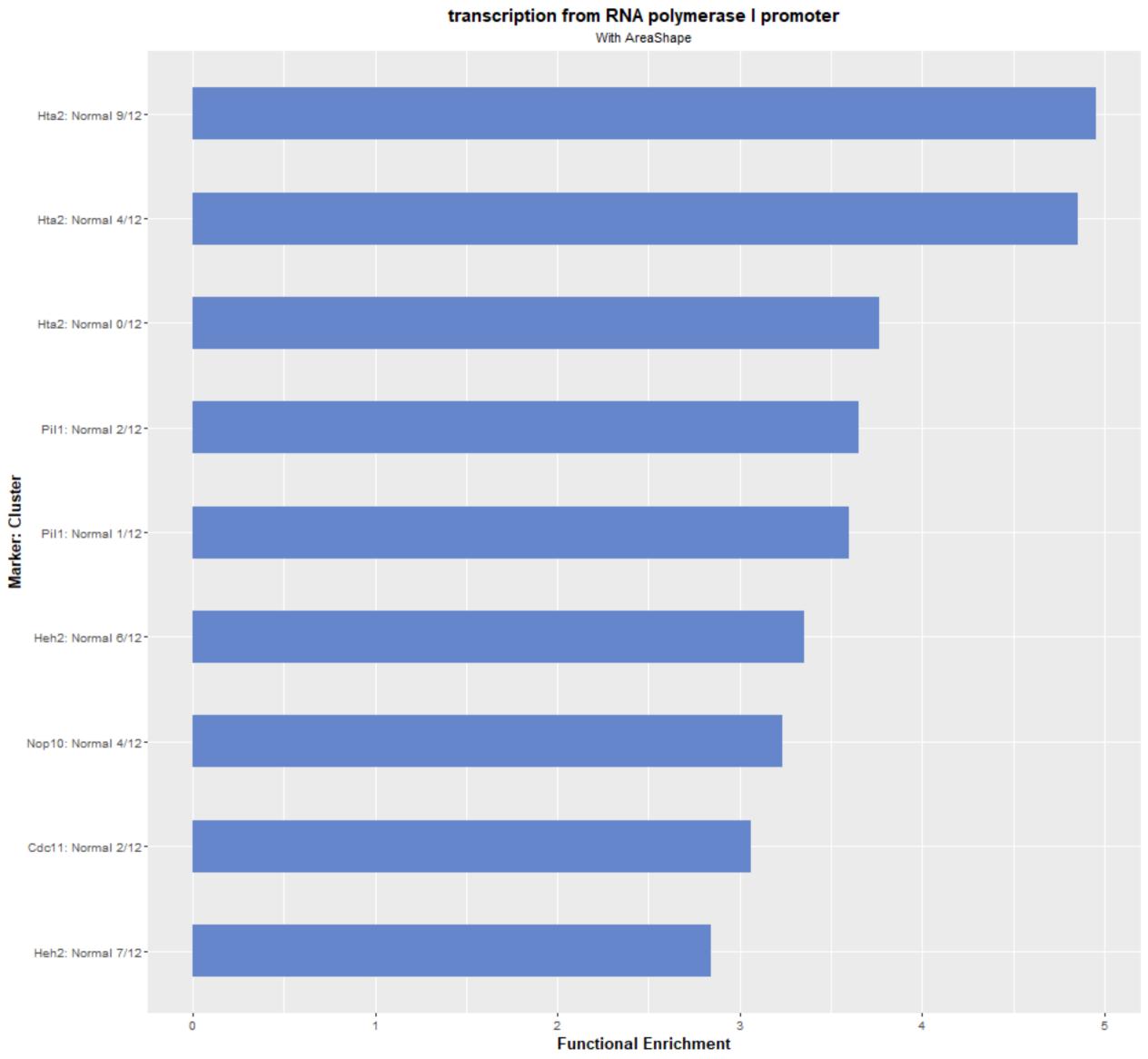
**Functional Enrichment** 



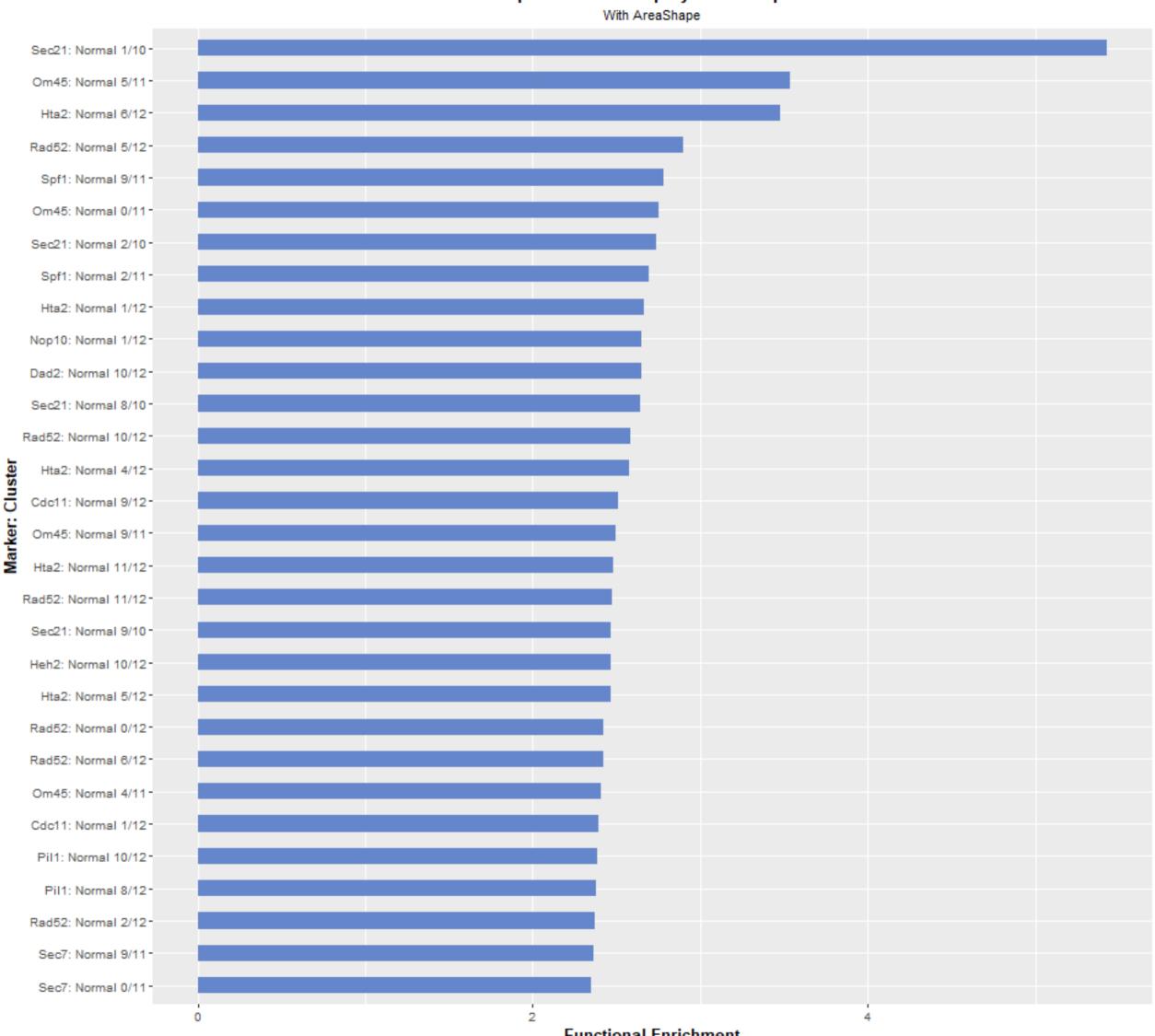
snoRNA processing



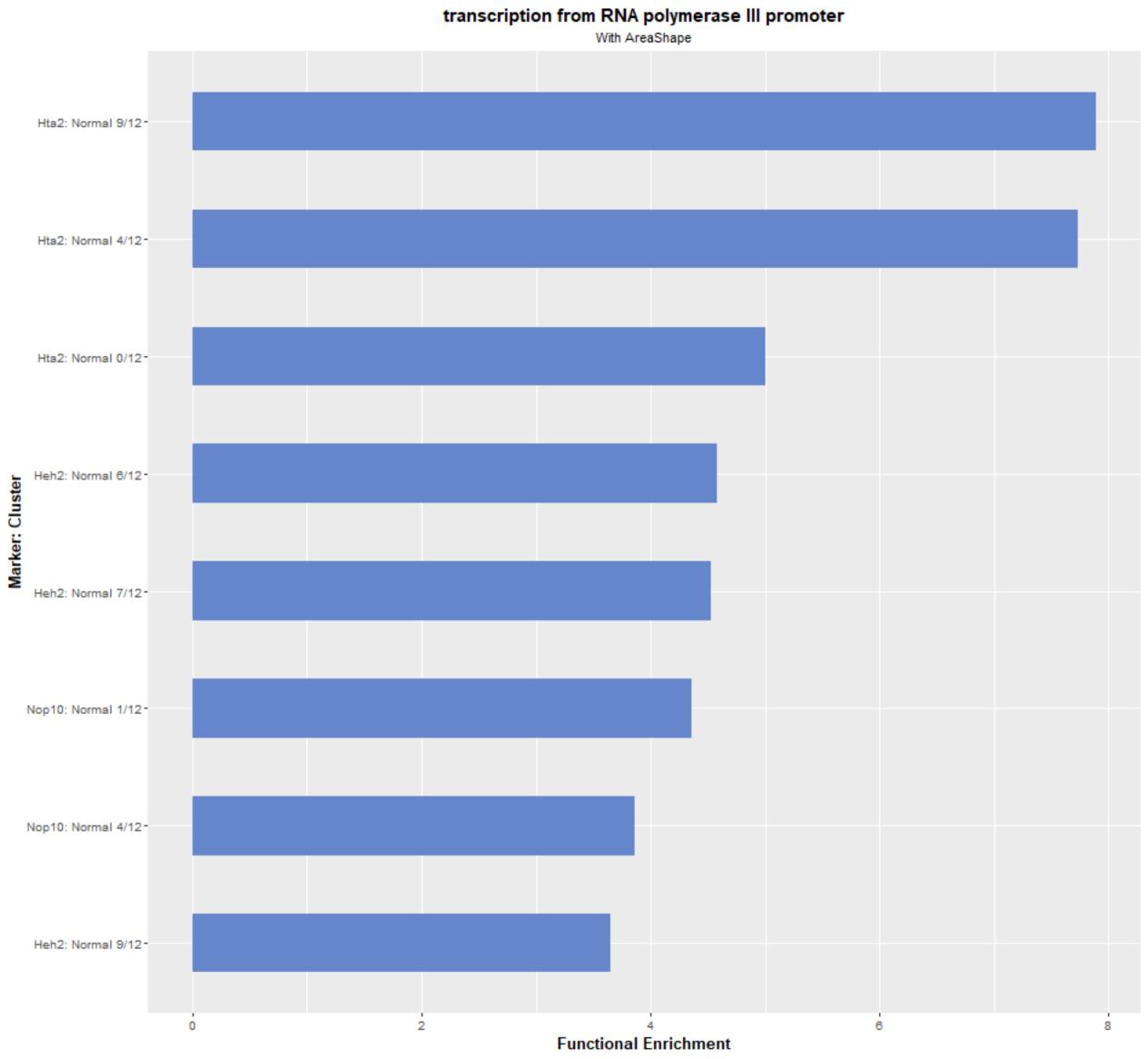
# telomere organization With AreaShape Rad52: Normal 5/12 Cdc11: Normal 5/12 -Heh2: Normal 4/12 -Dad2: Normal 8/12 -Heh2: Normal 11/12-Marker: Cluster Pil1: Normal 5/12 Dad2: Normal 6/12-Psr1: Normal 2/11 Pil1: Normal 6/12-Nop10: Normal 2/12-Heh2: Normal 0/12-Sec7: Normal 7/11 **Functional Enrichment**

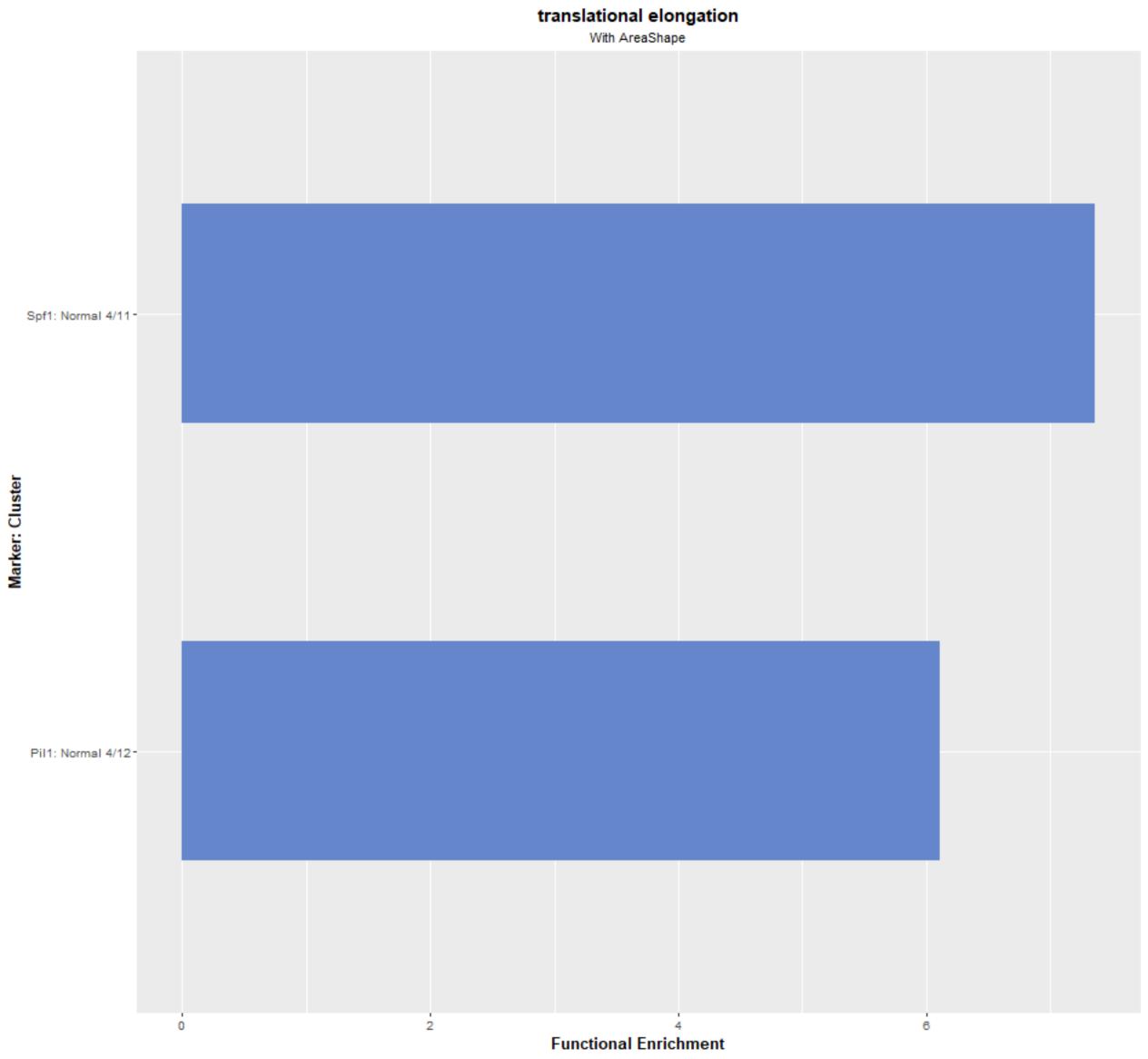


### transcription from RNA polymerase II promoter

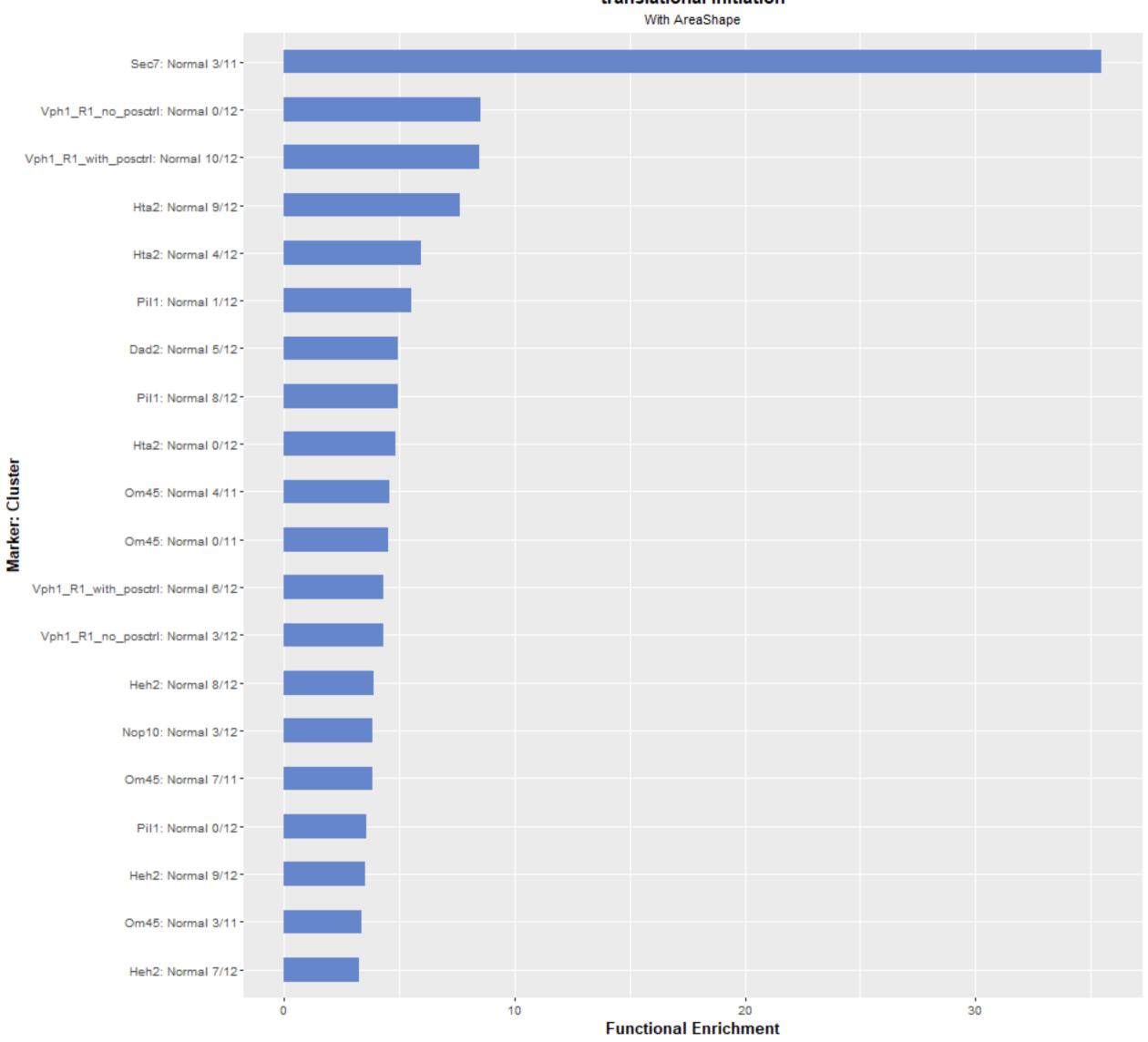


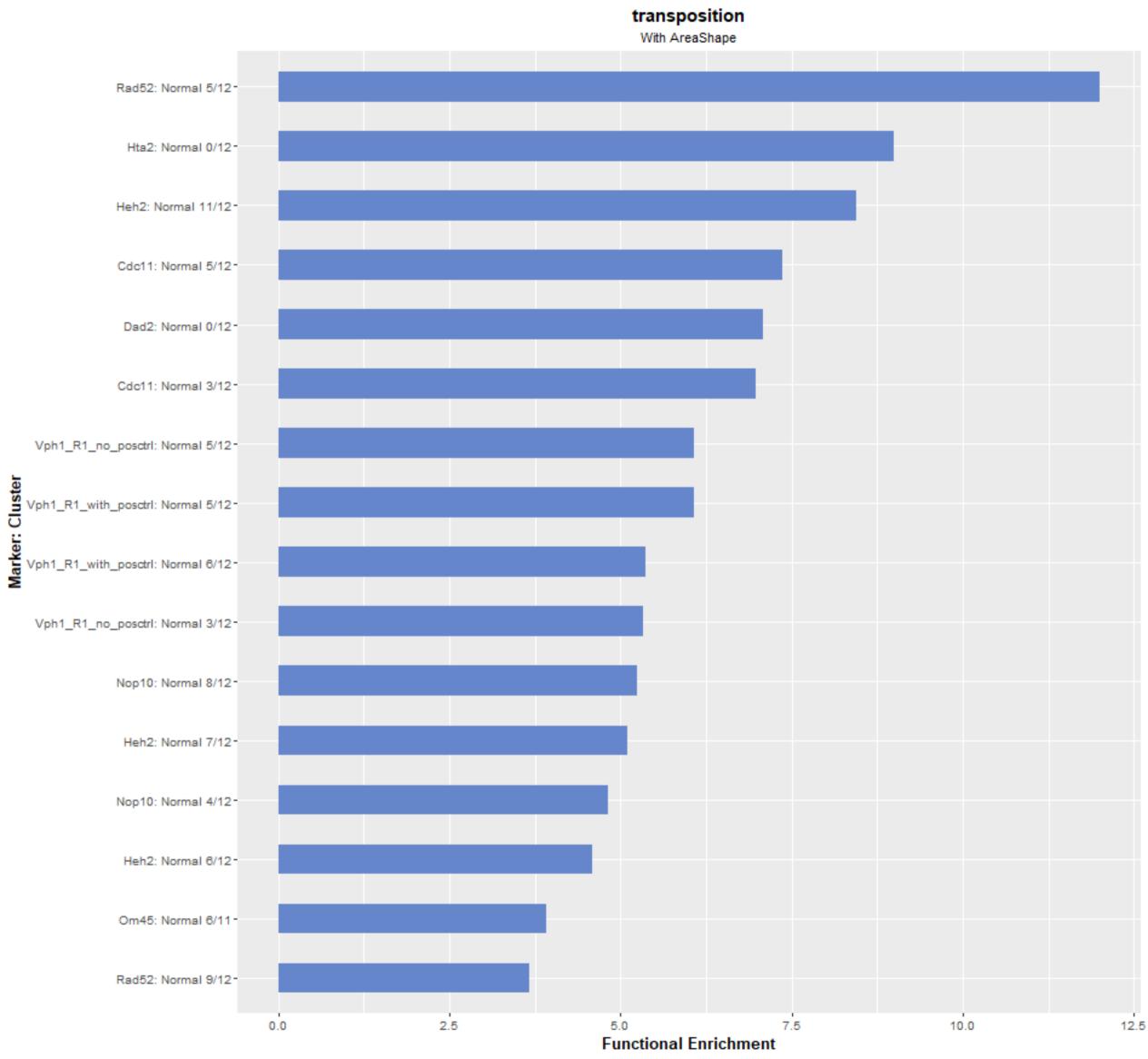
### **Functional Enrichment**

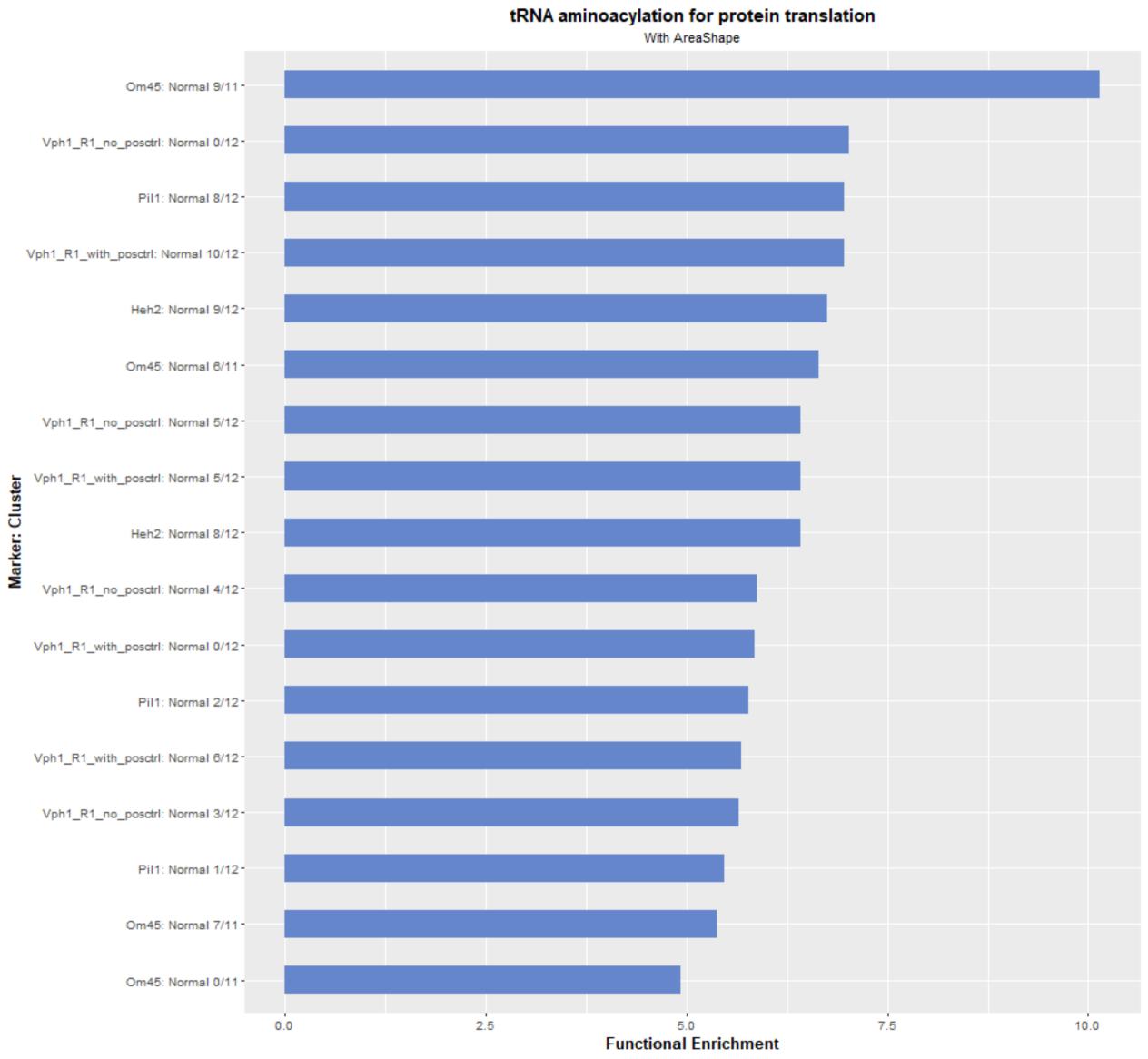


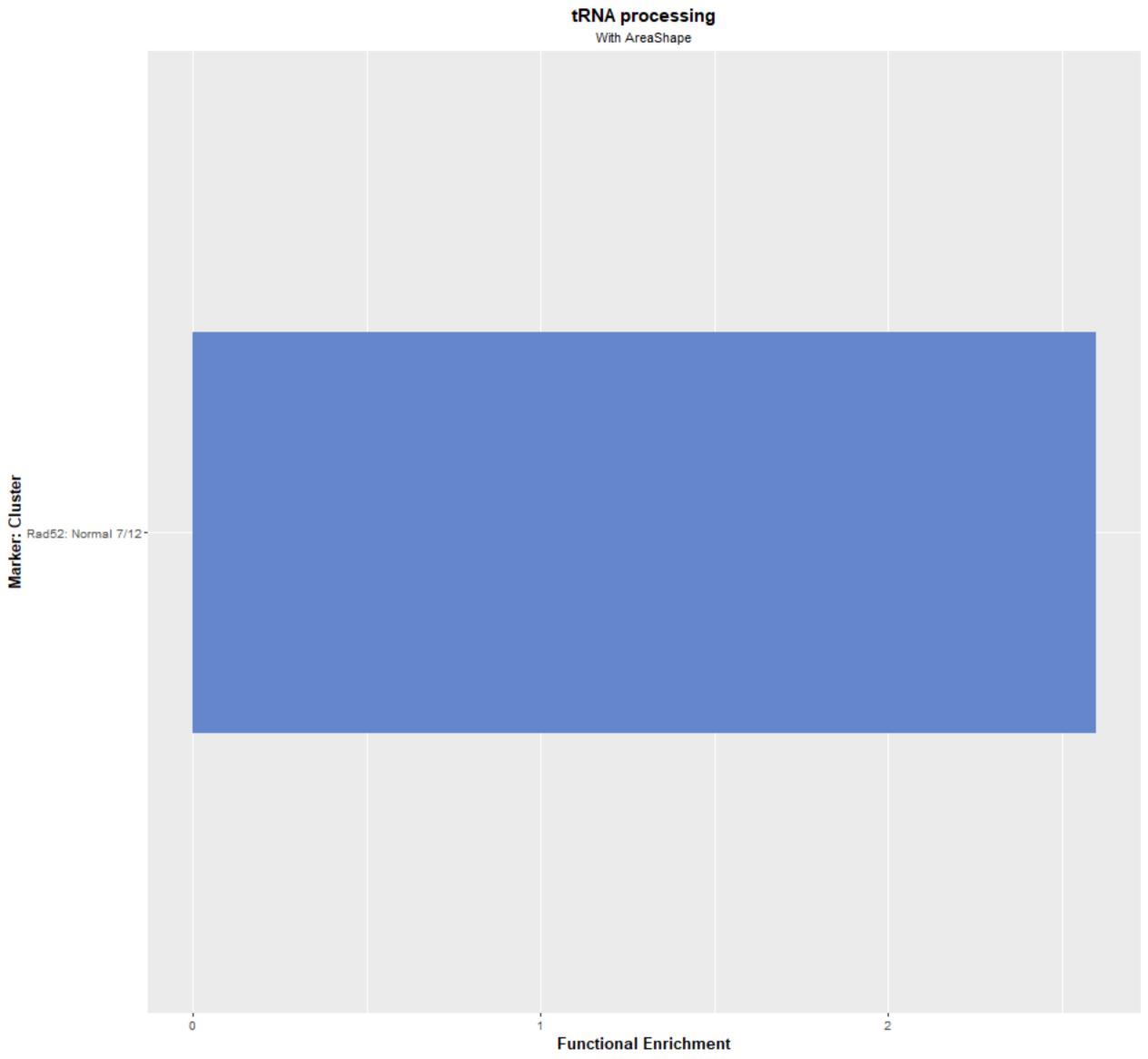


translational initiation









vacuole organization With AreaShape Pil1: Normal 3/12-Vph1\_R1\_no\_posctrl: Normal 11/12 -Vph1\_R1\_with\_posctrl: Normal 8/12 -Hta2: Normal 5/12 -Pil1: Normal 11/12-Nop10: Normal 7/12-Sec21: Normal 2/10 -Spf1: Normal 1/11 -Cdc11: Normal 11/12 -Marker: Cluster Rad52: Normal 2/12-Om45: Normal 9/11 -Vph1\_R1\_no\_posctrl: Normal 4/12 -Vph1\_R1\_with\_posctrl: Normal 0/12-Psr1: Normal 7/11 -Sec21: Normal 8/10 -Om45: Normal 0/11 -Heh2: Normal 5/12-Nop10: Normal 0/12-Cdc11: Normal 2/12 -Psr1: Normal 0/11 -Sec7: Normal 2/11-2 0 **Functional Enrichment** 

vesicle organization With AreaShape Sec21: Normal 3/10 -Pil1: Normal 3/12-Hta2: Normal 5/12 -Spf1: Normal 1/11 -Pil1: Normal 11/12-Hta2: Normal 1/12-Dad2: Normal 10/12-Cdc11: Normal 11/12-Rad52: Normal 0/12-Vph1\_R1\_no\_posctrl: Normal 5/12-Vph1\_R1\_with\_posctrl: Normal 5/12-Sec21: Normal 2/10 -Om45: Normal 9/11 -Marker: Cluster Dad2: Normal 4/12-Psr1: Normal 7/11 -Hta2: Normal 7/12-Om45: Normal 2/11 -Dad2: Normal 7/12-Vph1\_R1\_with\_posctrl: Normal 6/12 -Vph1\_R1\_no\_posctrl: Normal 3/12 -Vph1\_R1\_no\_posctrl: Normal 4/12 -Vph1\_R1\_with\_posctrl: Normal 0/12-Cdc11: Normal 6/12-Nop10: Normal 11/12-Rad52: Normal 2/12-Heh2: Normal 5/12 -Sec21: Normal 8/10 -Cdc11: Normal 4/12 Om45: Normal 0/11 -Dad2: Normal 11/12-0 5 10 15 **Functional Enrichment**