1. Table1

	condition	treatment
WP1	Wildtype	Picrotoxin
WC1	Wildtype	Control
KP1	Knockout	Picrotoxin
KC1	Knockout	Control
WP2	Wildtype	Picrotoxin
WC2	Wildtype	Control
KP2	Knockout	Picrotoxin
KC2	Knockout	Control

2. Multi-factor test

```
fit1 = fitNbinomGLMs( cds, count ~ treatment + condition )
fit0 = fitNbinomGLMs( cds, count ~ treatment )
pvalsGLM1 = nbinomGLMTest( fit1, fit0 )
padjGLM1 = p.adjust( pvalsGLM1, method="BH" )
```

Dataset1
P-value<0.05: 615
FDR<0.05: 20

```
fit3 = fitNbinomGLMs( cds, count ~ condition + treatment )
fit2 = fitNbinomGLMs( cds, count ~ condition )
pvalsGLM2 = nbinomGLMTest( fit3, fit2 )
padjGLM2 = p.adjust( pvalsGLM2, method="BH" )
```

Dataset2
P-value<0.05: 1959
FDR<0.05: 870

```
fit1 = fitNbinomGLMs( cds, count ~ treatment + condition )
fit4 = fitNbinomGLMs( cds, count ~ 1 )
pvalsGLM3 = nbinomGLMTest( fit1, fit4 )
padjGLM3 = p.adjust( pvalsGLM3, method="BH" )
```

Dataset3
P-value<0.05: 1767
FDR<0.05: 778

fit5 = fitNbinomGLMs(cds, count ~ condition * treatment)
fit0 = fitNbinomGLMs(cds, count ~ treatment)
pvalsGLM4 = nbinomGLMTest(fit5, fit0)
padjGLM4 = p.adjust(pvalsGLM4, method="BH")

Dataset4
P-value<0.05: 393
FDR<0.05: 26

fit5 = fitNbinomGLMs(cds, count ~ condition * treatment)
fit2 = fitNbinomGLMs(cds, count ~ condition)
pvalsGLM5 = nbinomGLMTest(fit5, fit2)
padjGLM5 = p.adjust(pvalsGLM5, method="BH")

Dataset5
P-value<0.05: 1450
FDR<0.05: 665

fit5 = fitNbinomGLMs(cds, count ~ condition * treatment)
fit4 = fitNbinomGLMs(cds, count ~ 1)
pvalsGLM6 = nbinomGLMTest(fit5, fit4)
padjGLM6 = p.adjust(pvalsGLM6, method="BH")

Dataset6
P-value<0.05: 1465
FDR<0.05: 657

Overlap(P-value<0.05)	Dataset1	Dataset2	Dataset3	Dataset4	Dataset5	Dataset6
Dataset1						
Dataset2	240					
Dataset3	455	1511				
Dataset4	356	178	342			
Dataset5	220	1423	1378	184		
Dataset6	396	1282	1432	328	1247	

Overlap(FDR<0.05)	Dataset1	Dataset2	Dataset3	Dataset4	Dataset5	Dataset6
Dataset1						
Dataset2	10					
Dataset3	20	720				
Dataset4	18	15	26			
Dataset5	9	658	652	15		
Dataset6	20	618	653	26	602	

3. Two way ANOVA After VST：

P-value<0.05: 671
FDR<0.05: 0

Overlap(P-value<0.05)	Dataset1	Dataset2	Dataset3	Dataset4	Dataset5	Dataset6
Two way ANOVA After VST	35	77	68	34	69	69