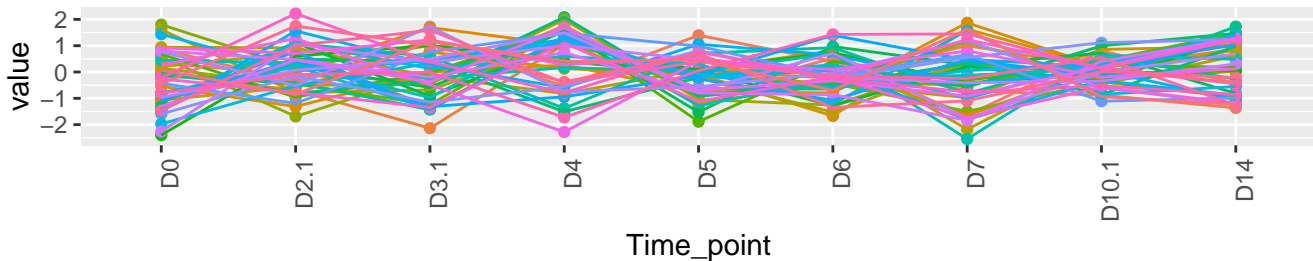
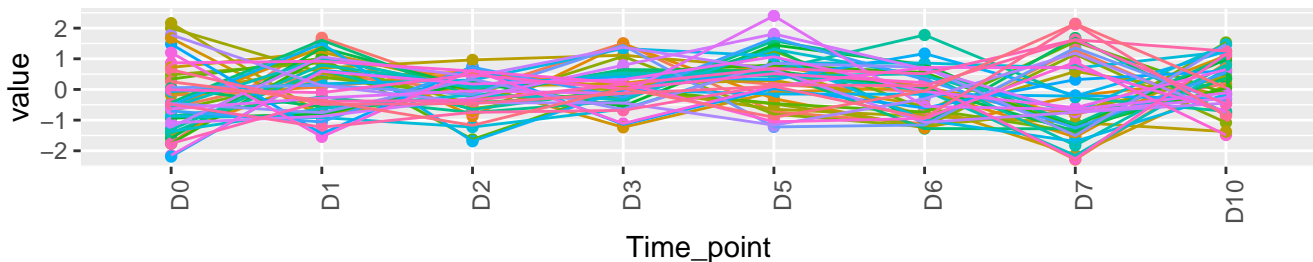


# HIF-1 signaling pathway

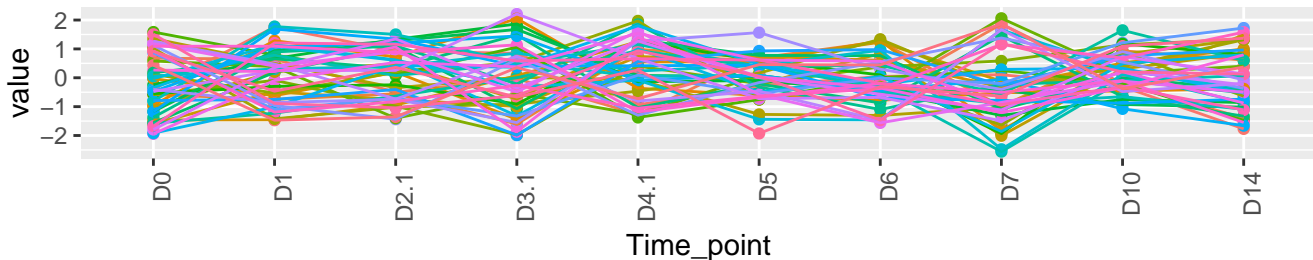
45 genes – EC\_WT-standardized



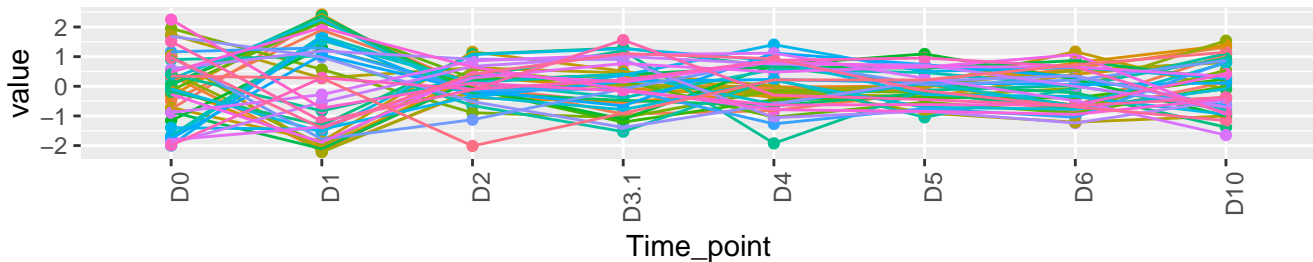
43 genes – EC\_KO-standardized



45 genes – FAP\_WT-standardized

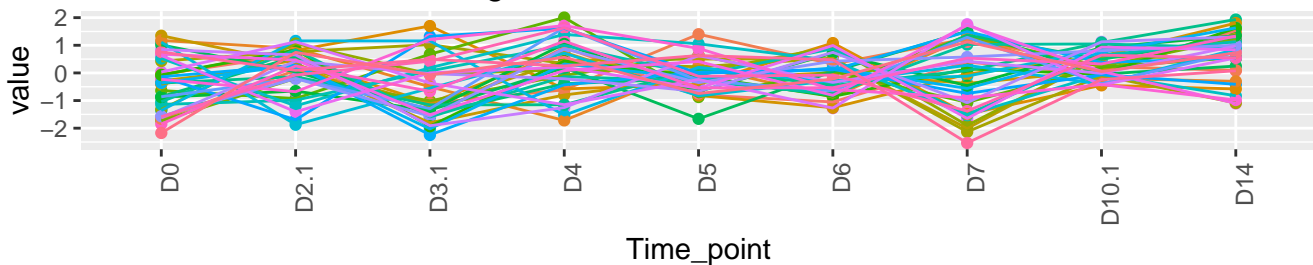


40 genes – FAP\_KO-standardized

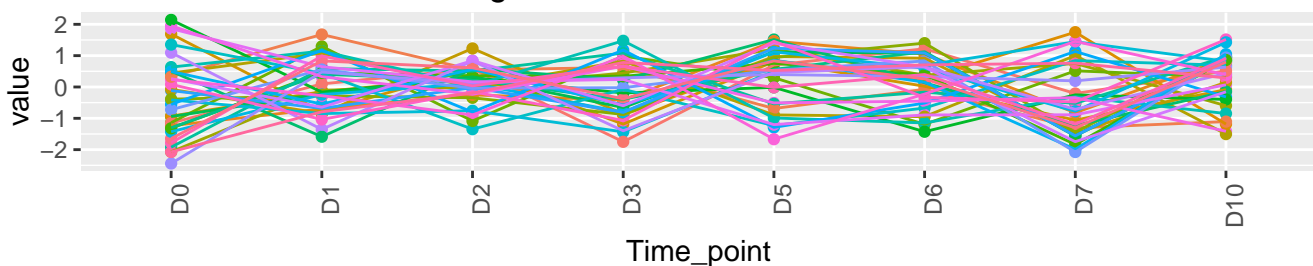


# MAPK signaling pathway.Prkacb-1;62

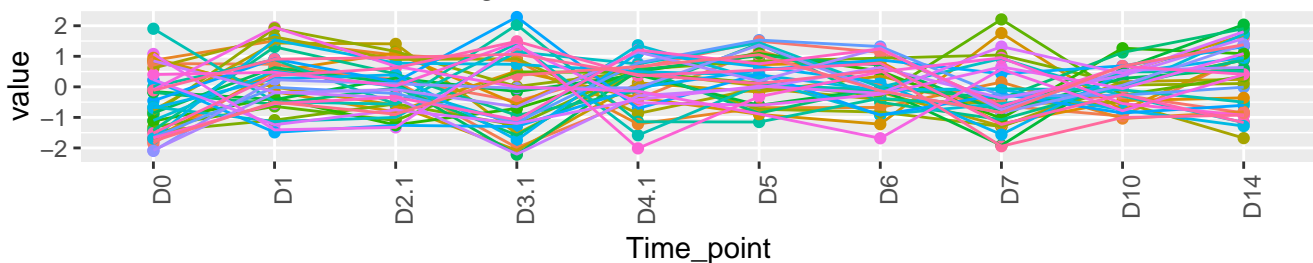
## 36 genes – EC\_WT-standardized



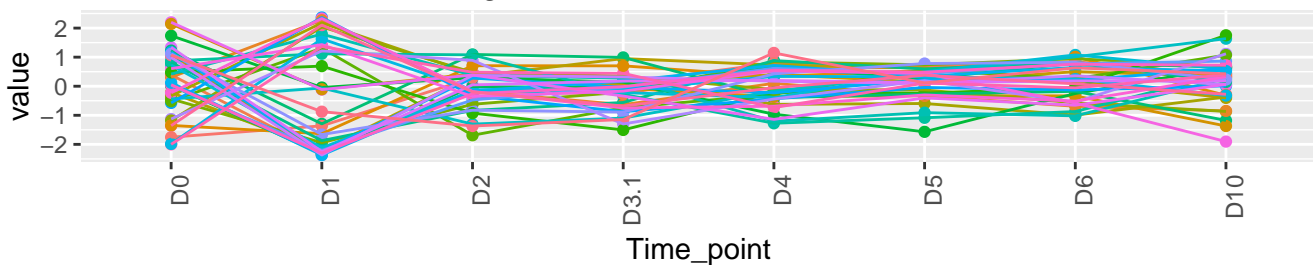
## 34 genes – EC\_KO-standardized



## 36 genes – FAP\_WT-standardized

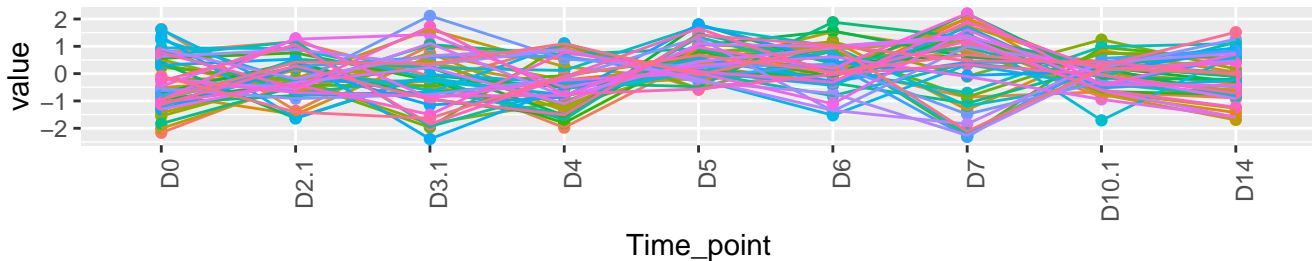


## 36 genes – FAP\_KO-standardized

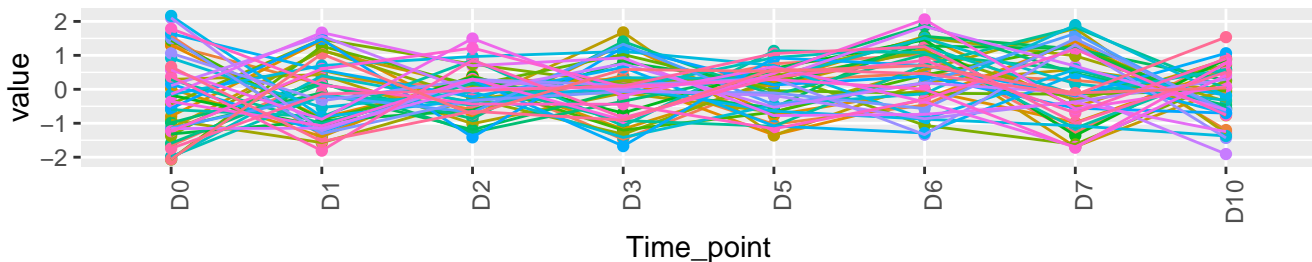


Cell cycle.Ttk-1;13

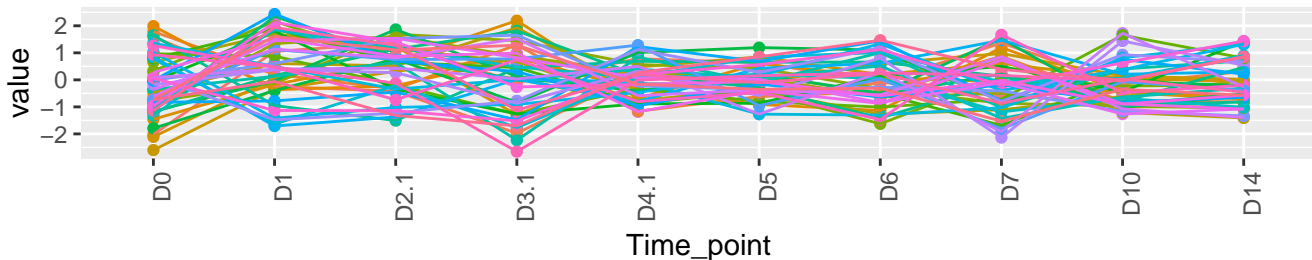
46 genes – EC\_WT-standardized



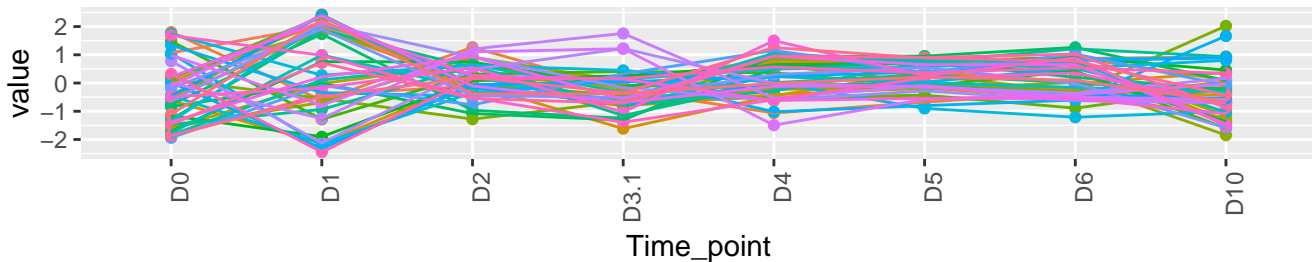
44 genes – EC\_KO-standardized



44 genes – FAP\_WT-standardized

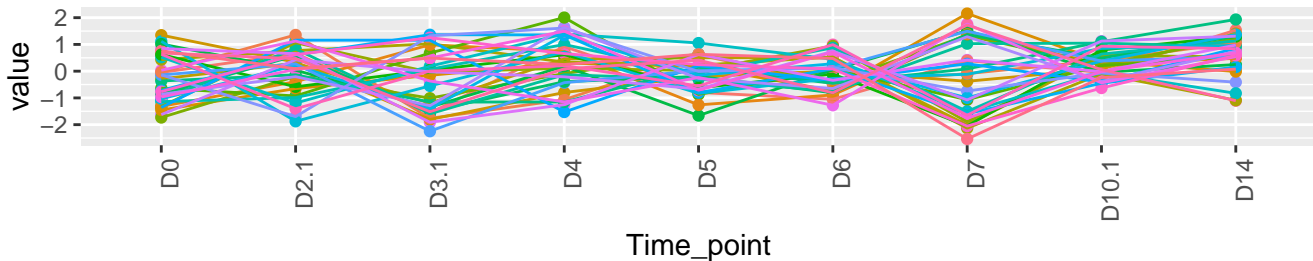


44 genes – FAP\_KO-standardized

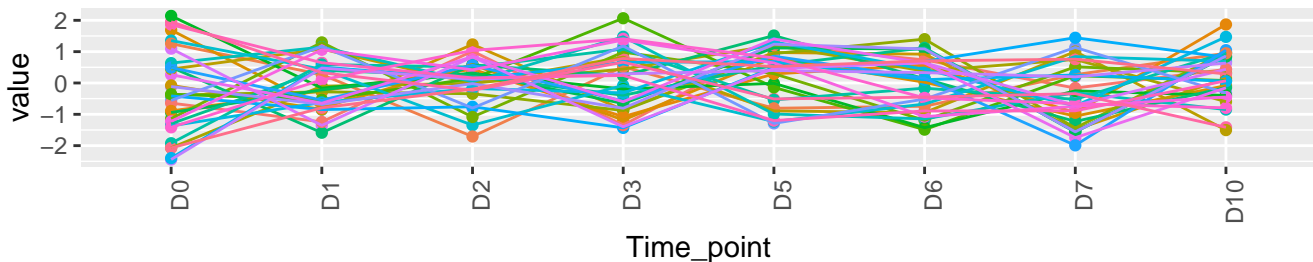


# MAPK signaling pathway.Prkacb-1;34

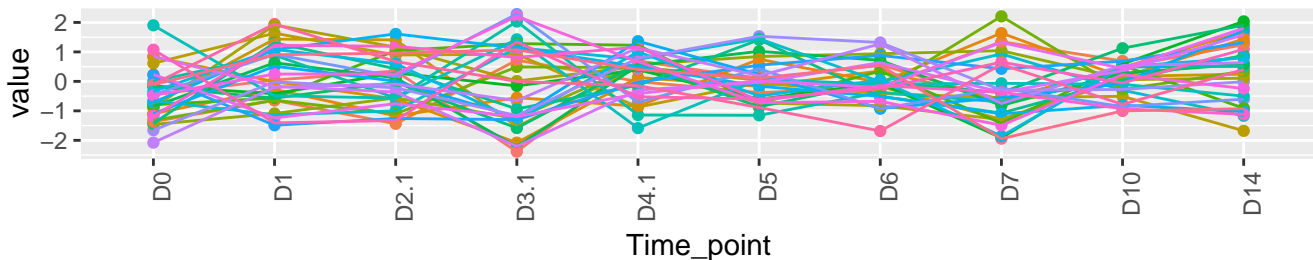
## 32 genes – EC\_WT-standardized



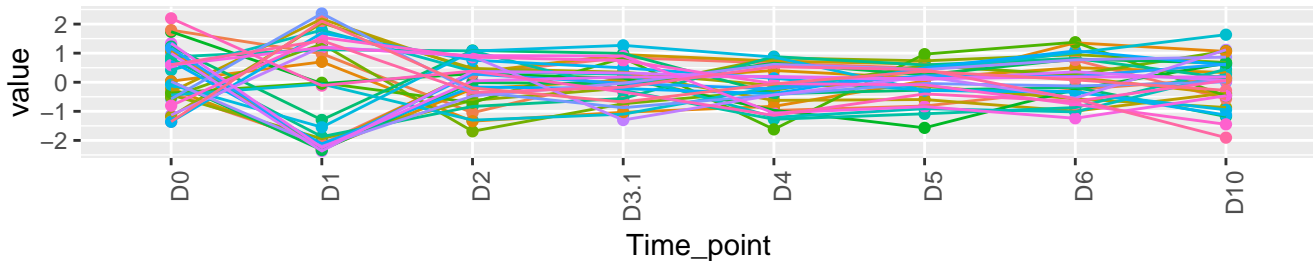
## 31 genes – EC\_KO-standardized



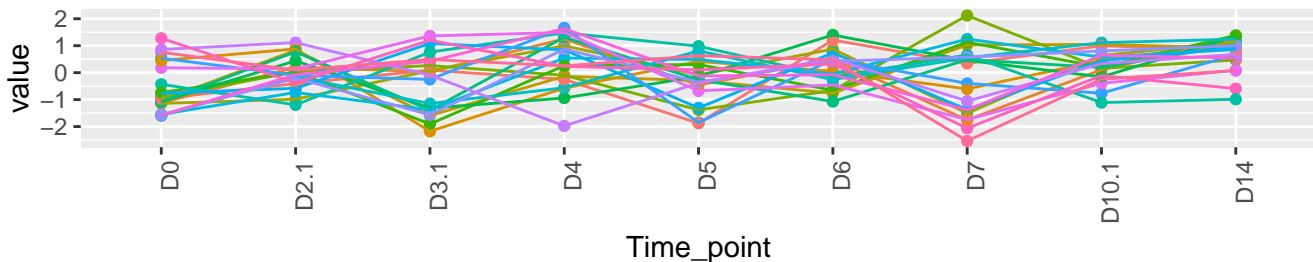
## 31 genes – FAP\_WT-standardized



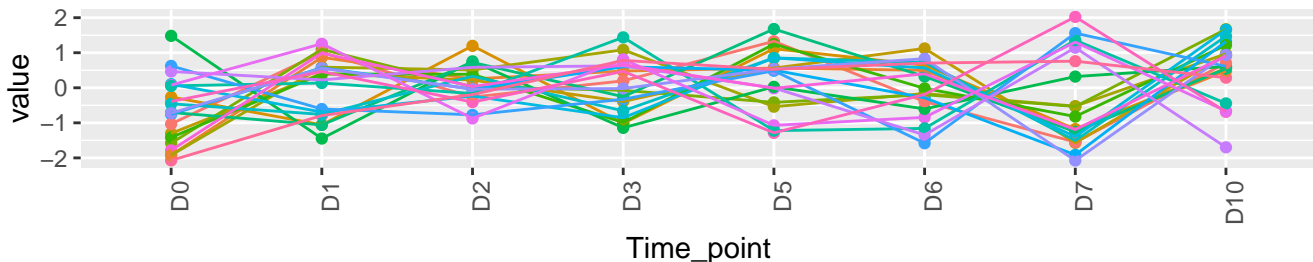
## 31 genes – FAP\_KO-standardized



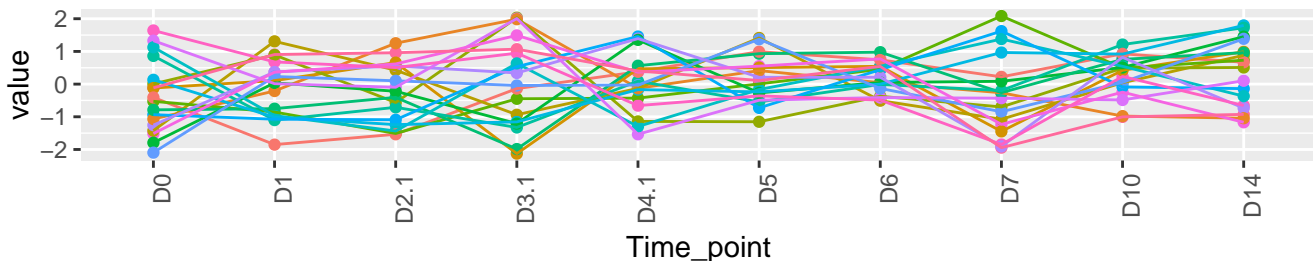
Springolipid signaling pathway  
20 genes – EC\_WT-standardized



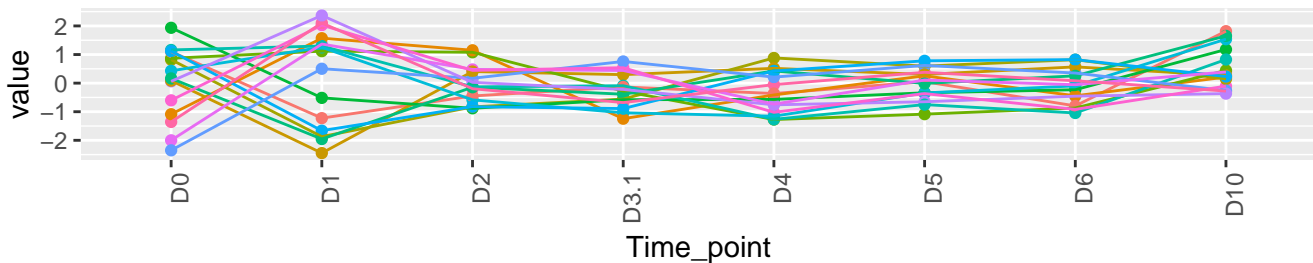
20 genes – EC\_KO-standardized



18 genes – FAP\_WT-standardized

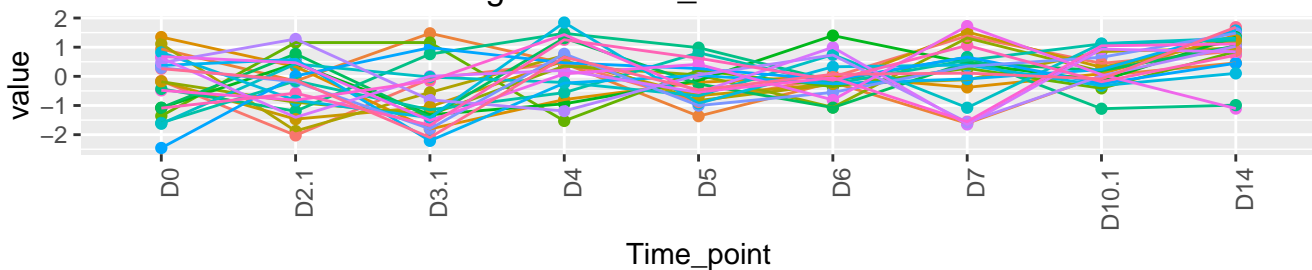


15 genes – FAP\_KO-standardized

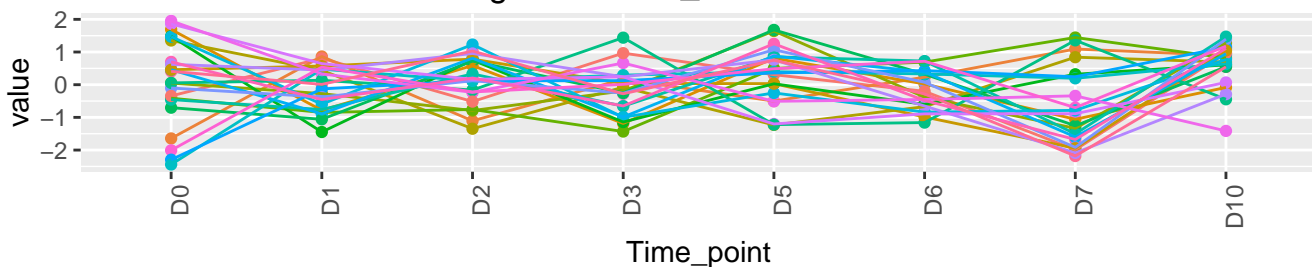


# Ras signaling pathway.Vegfb-1;15

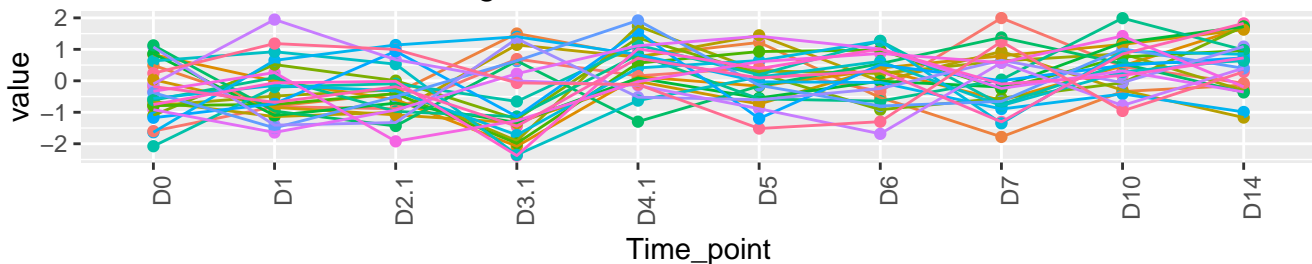
## 22 genes – EC\_WT-standardized



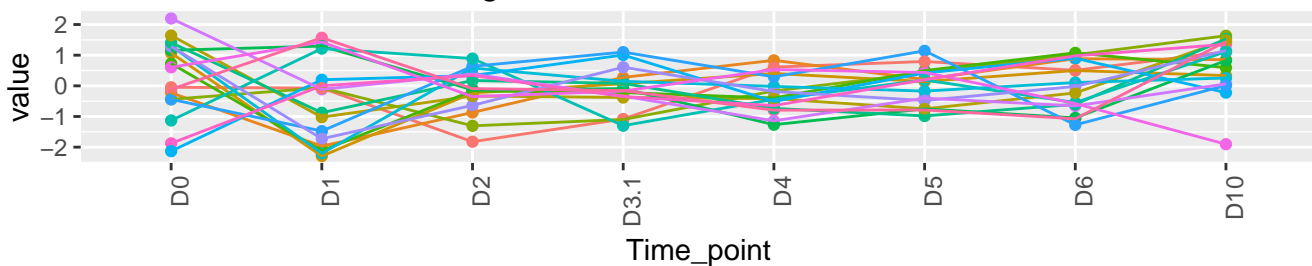
## 22 genes – EC\_KO-standardized



## 24 genes – FAP\_WT-standardized



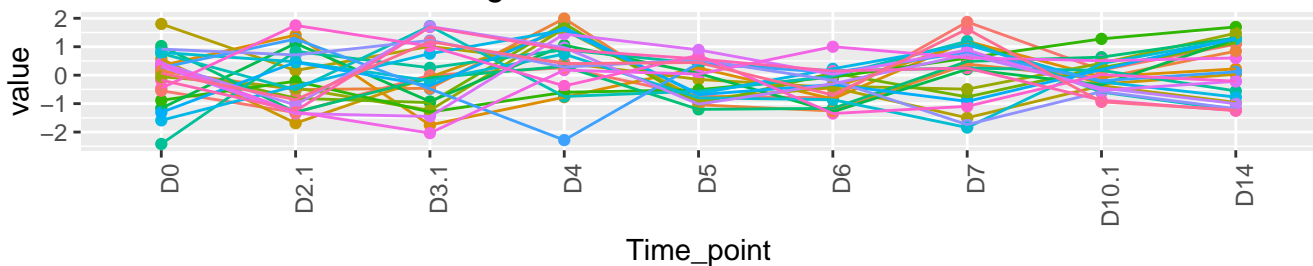
## 17 genes – FAP\_KO-standardized



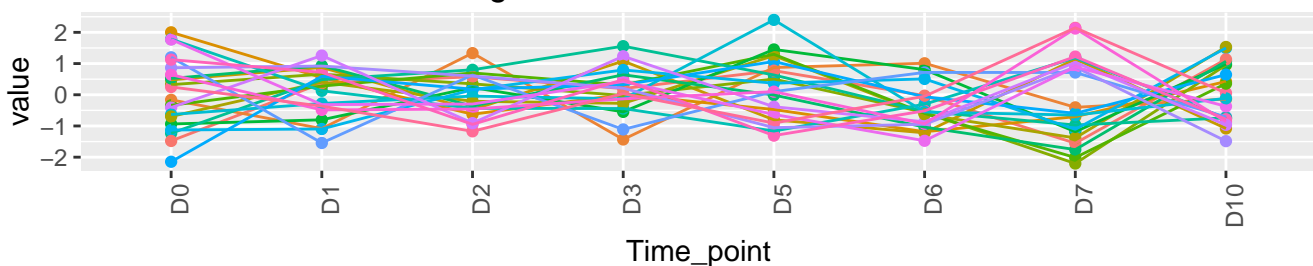


# Pathways in cancer.Egln1-1;74

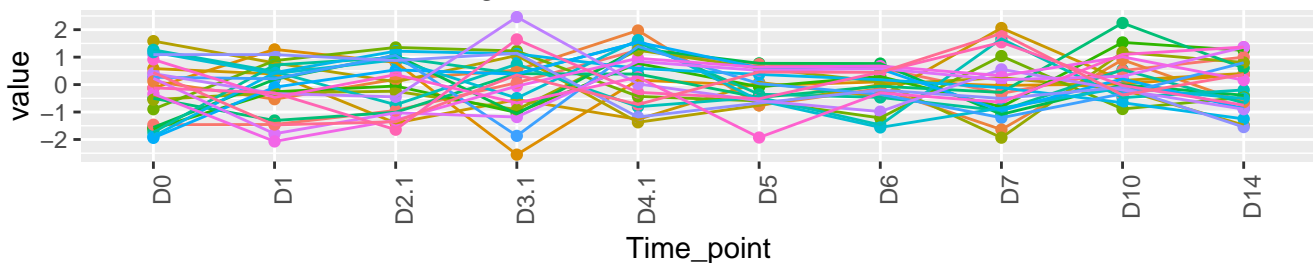
## 23 genes – EC\_WT-standardized



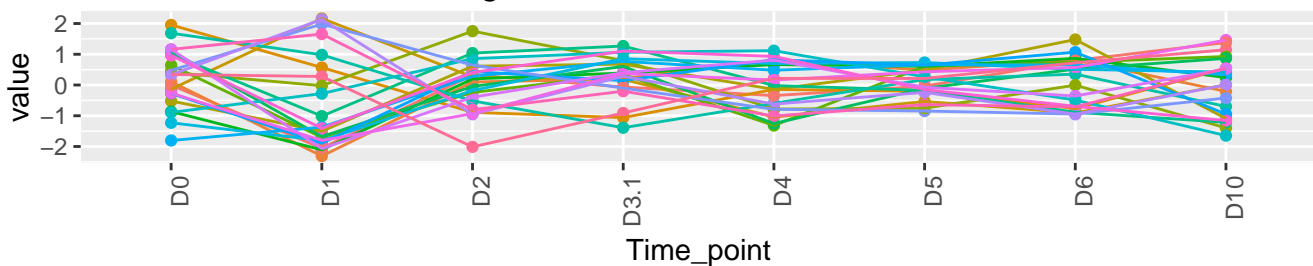
## 21 genes – EC\_KO-standardized



## 23 genes – FAP\_WT-standardized

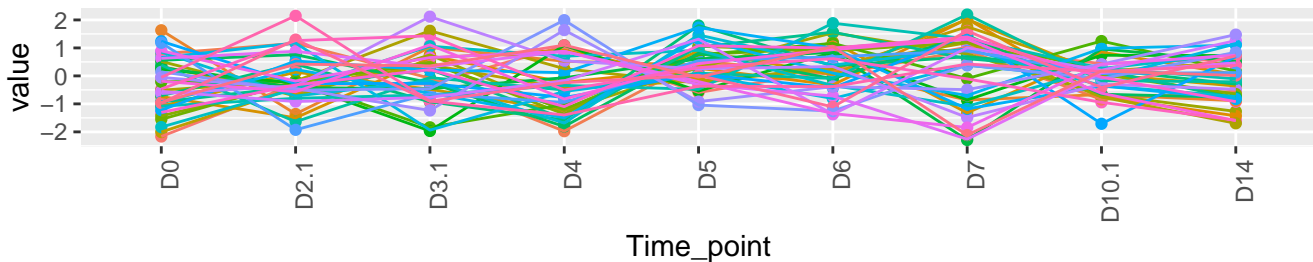


## 22 genes – FAP\_KO-standardized

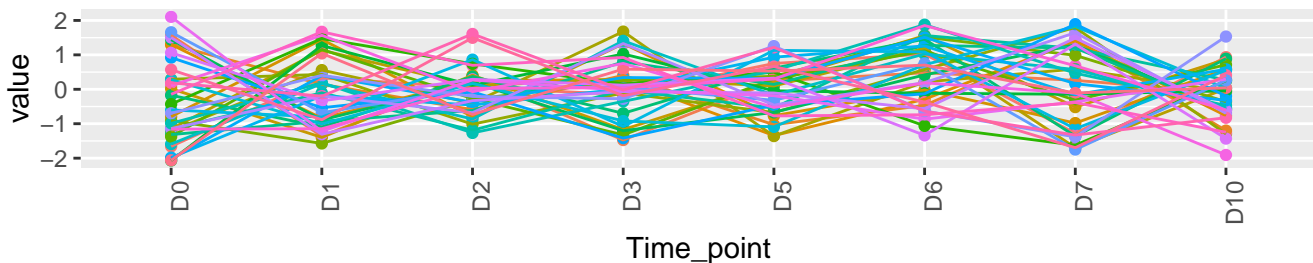


Cell cycle.Ttk-1;24

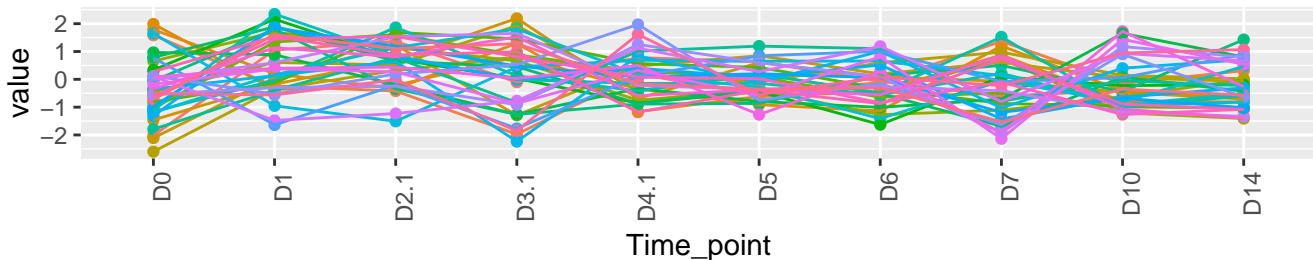
38 genes – EC\_WT-standardized



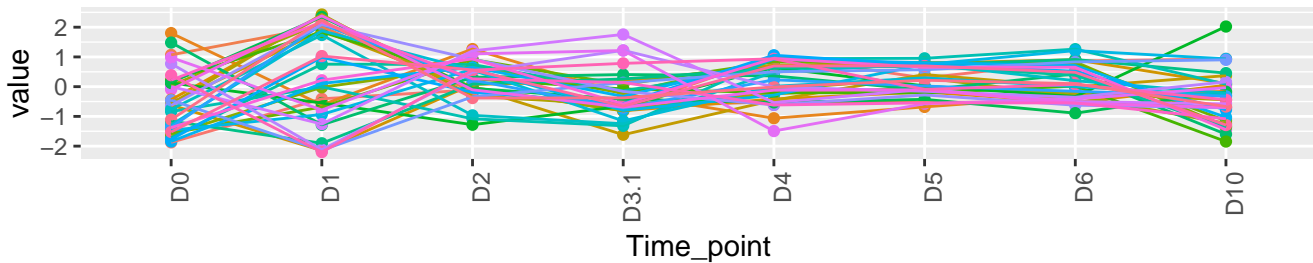
36 genes – EC\_KO-standardized



35 genes – FAP\_WT-standardized



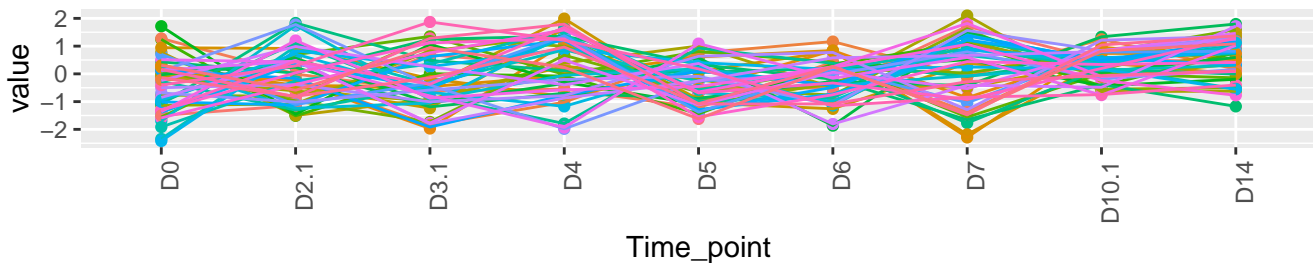
34 genes – FAP\_KO-standardized



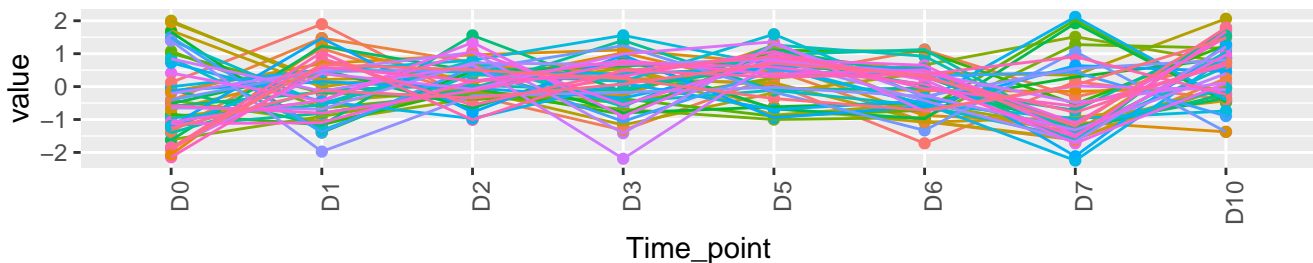


# Jak-STAT signaling pathway

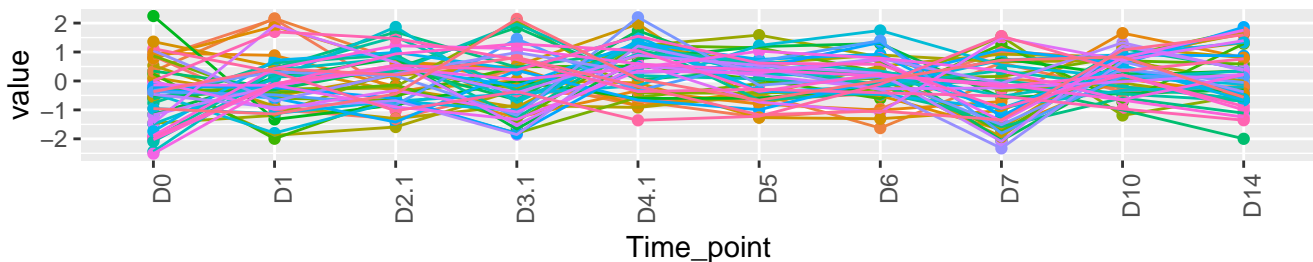
## 47 genes – EC\_WT-standardized



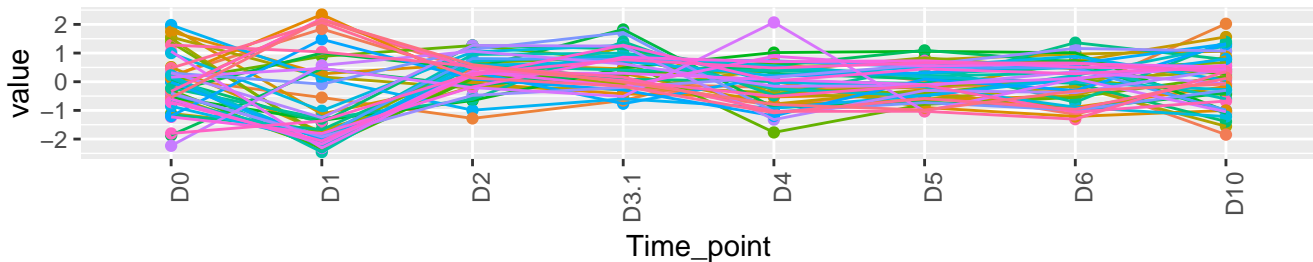
## 46 genes – EC\_KO-standardized



## 47 genes – FAP\_WT-standardized

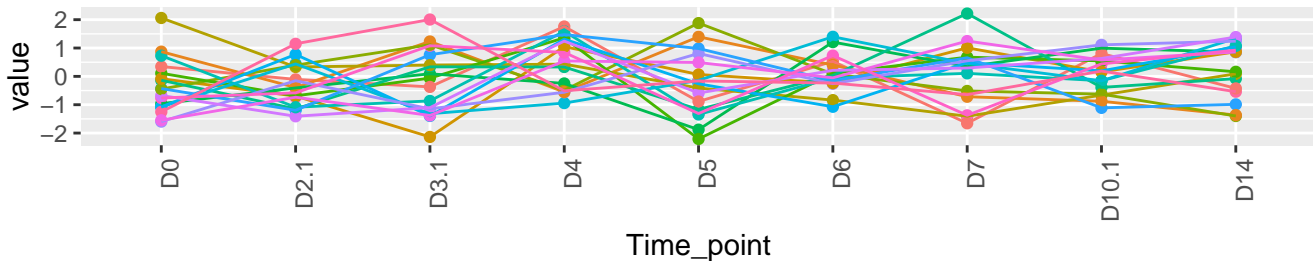


## 44 genes – FAP\_KO-standardized

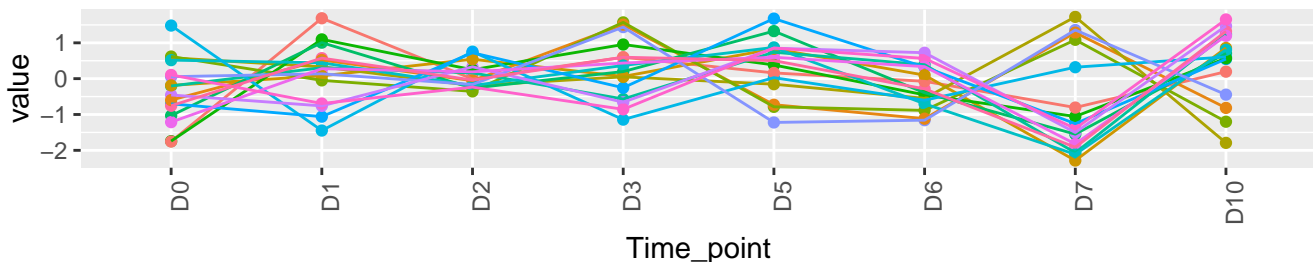


# Fc gamma R-mediated phagocytosis.Lyn-1;11

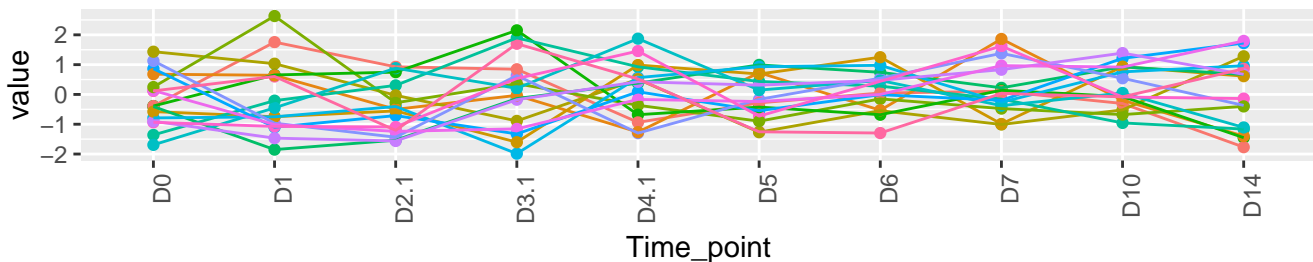
## 17 genes – EC\_WT-standardized



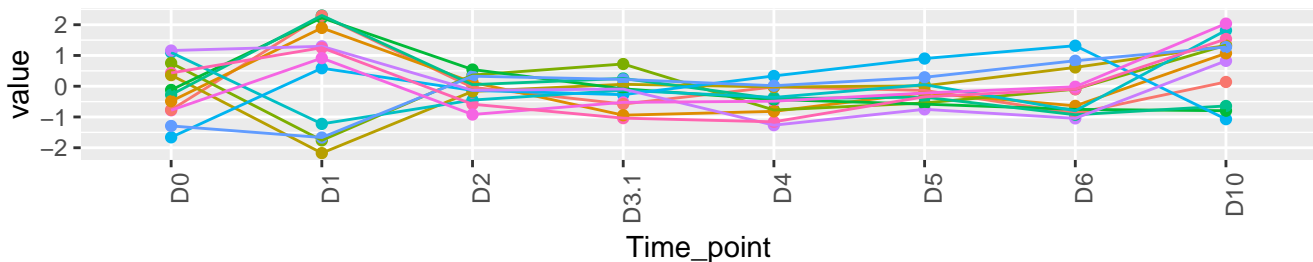
## 16 genes – EC\_KO-standardized



## 16 genes – FAP\_WT-standardized

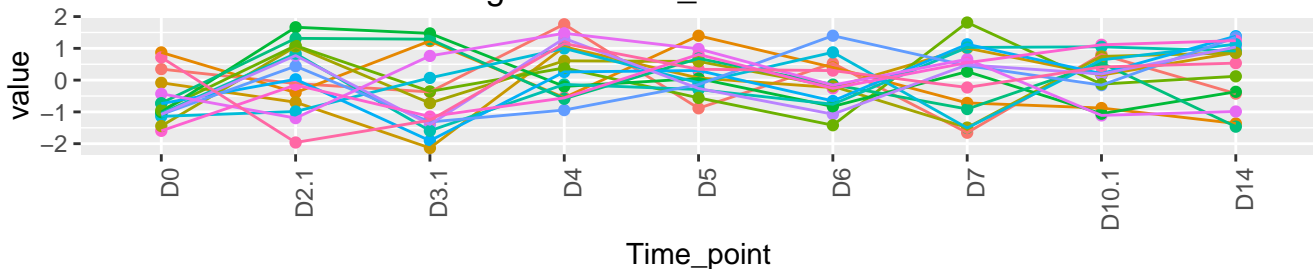


## 12 genes – FAP\_KO-standardized

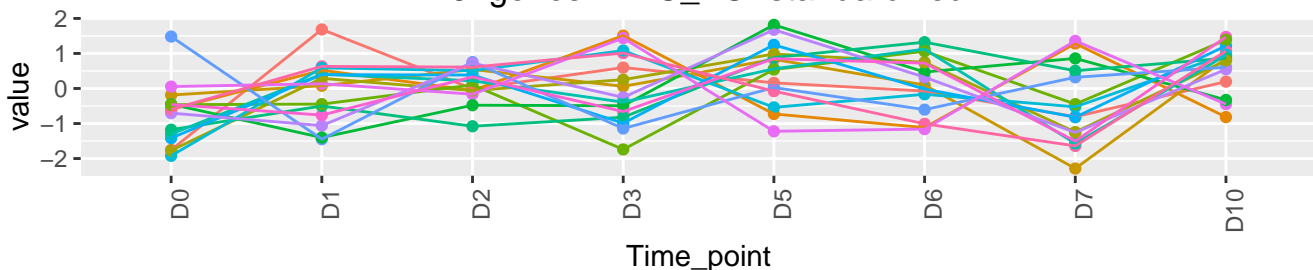


# Thyroid hormone signaling pathway.Pdpk1-1;8

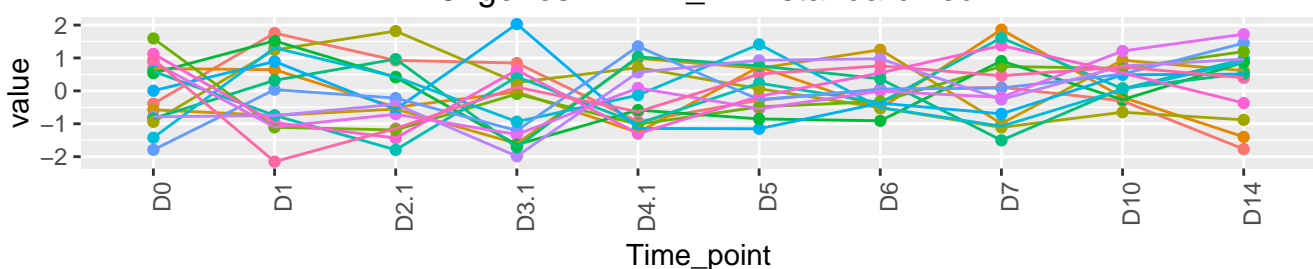
## 15 genes – EC\_WT-standardized



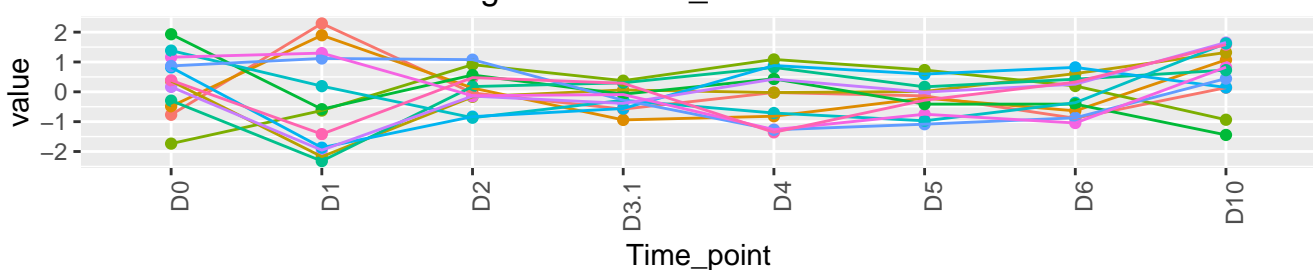
## 15 genes – EC\_KO-standardized



## 15 genes – FAP\_WT-standardized

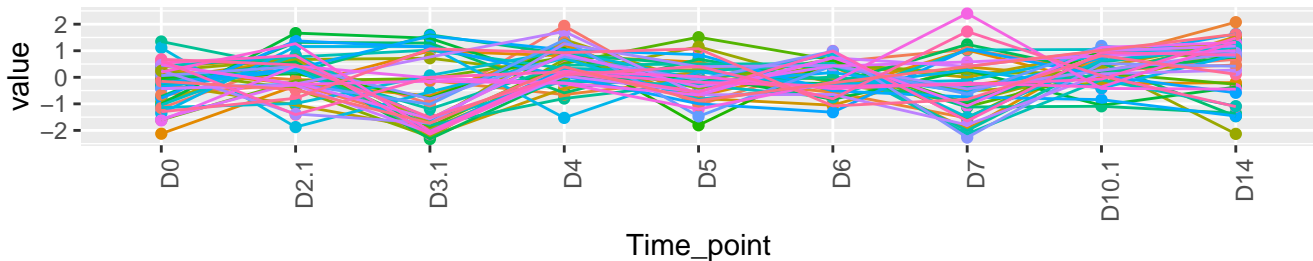


## 12 genes – FAP\_KO-standardized

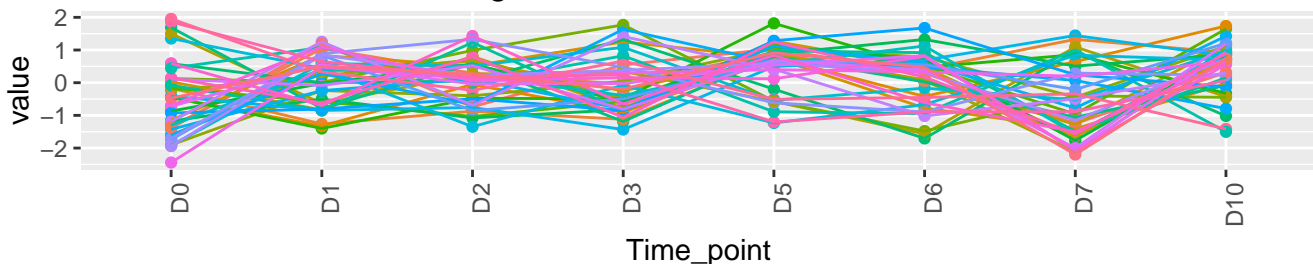


# Regulation of actin cytoskeleton.Itga7-1;46

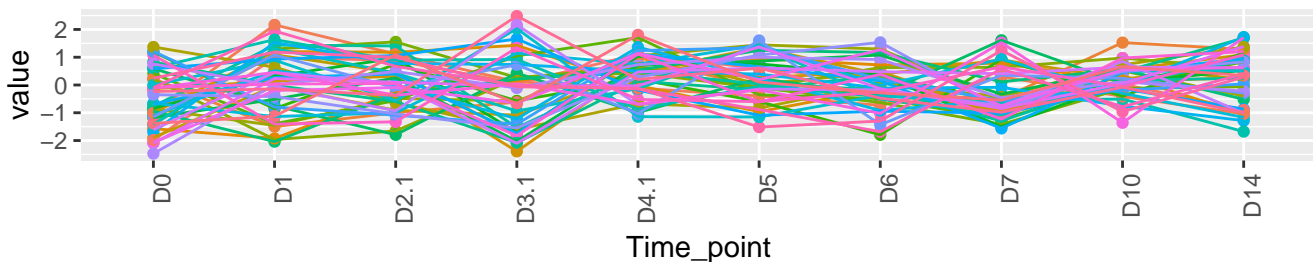
## 42 genes – EC\_WT-standardized



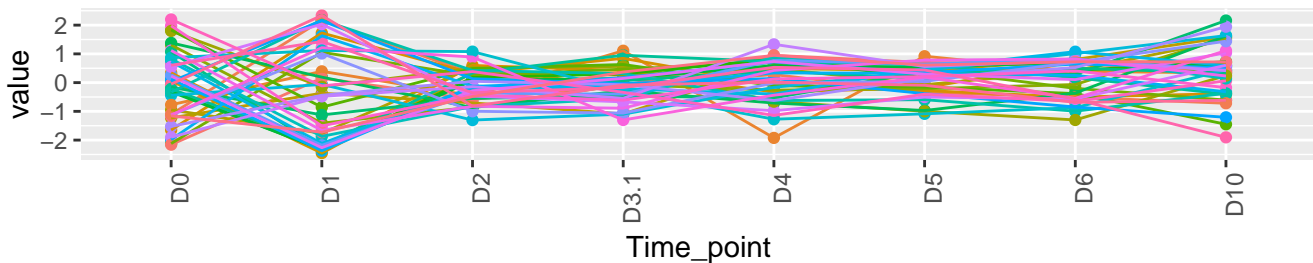
## 39 genes – EC\_KO-standardized



## 43 genes – FAP\_WT-standardized

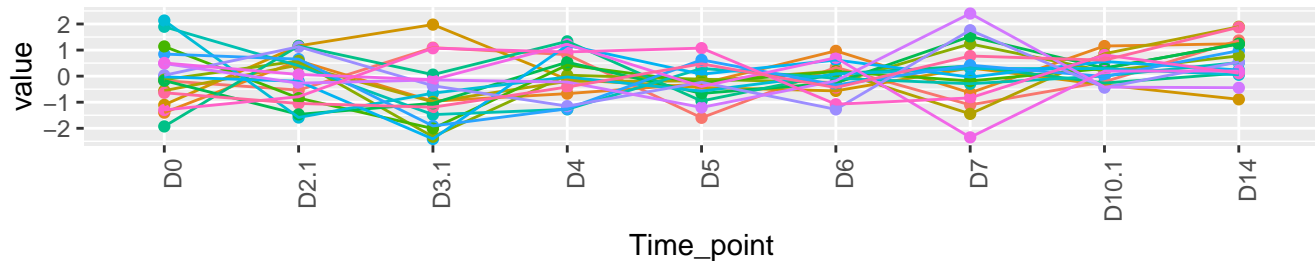


## 39 genes – FAP\_KO-standardized

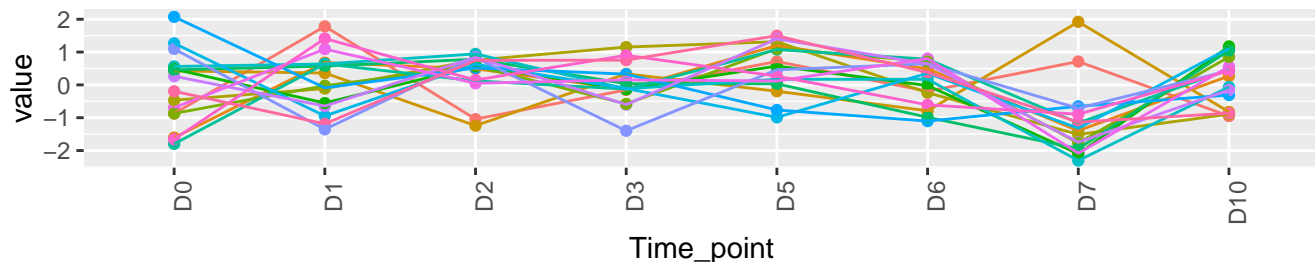


Leukocyte transendothelial migration.null-1;18

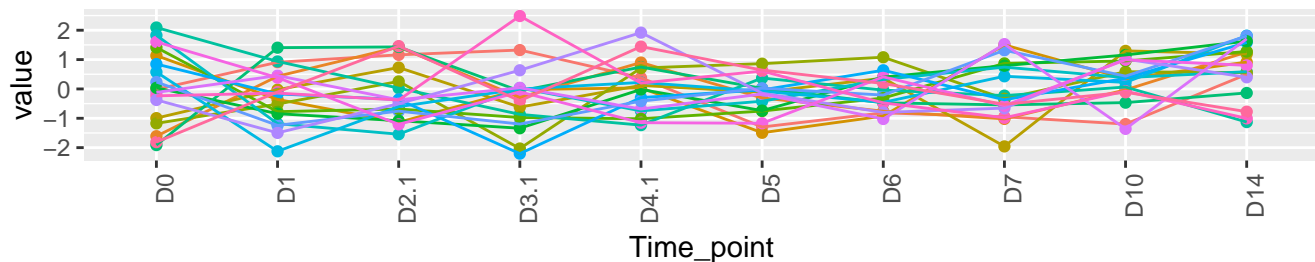
17 genes – EC\_WT-standardized



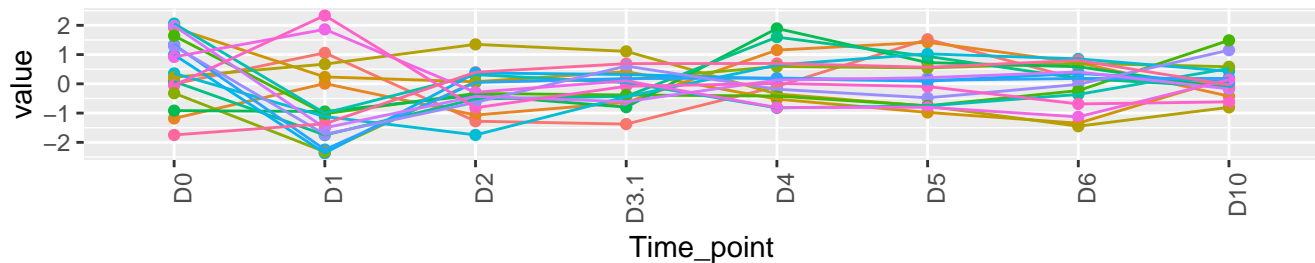
16 genes – EC\_KO-standardized



18 genes – FAP\_WT-standardized

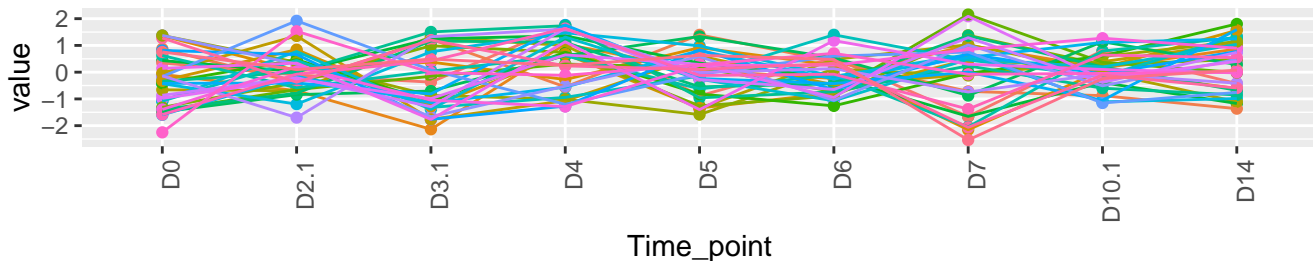


17 genes – FAP\_KO-standardized

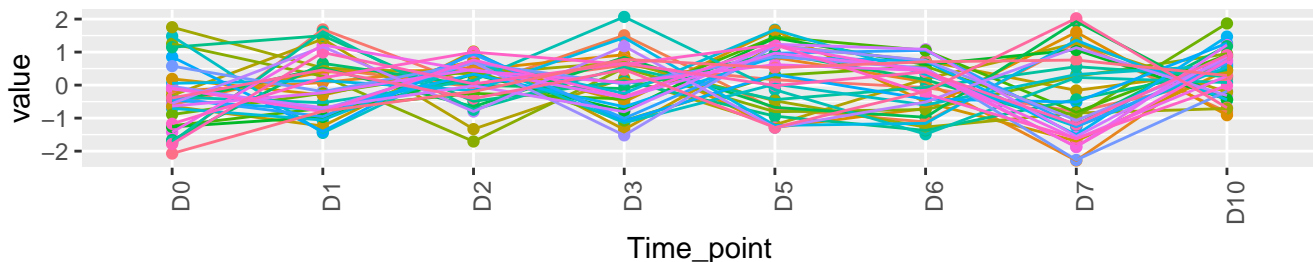


# Apoptosis

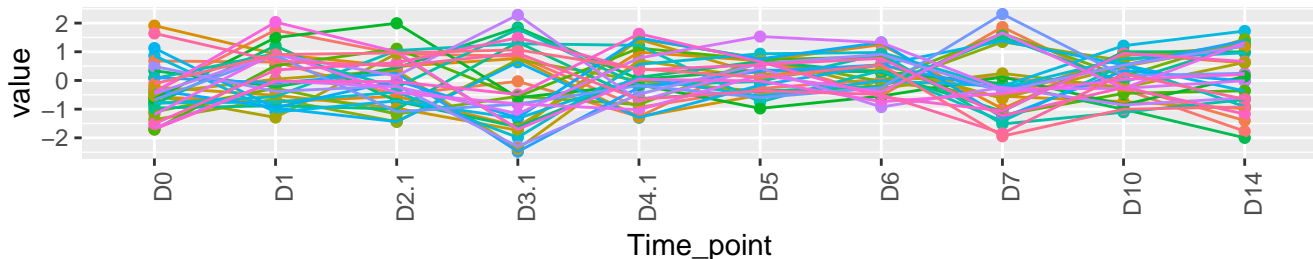
## 33 genes – EC\_WT–standardized



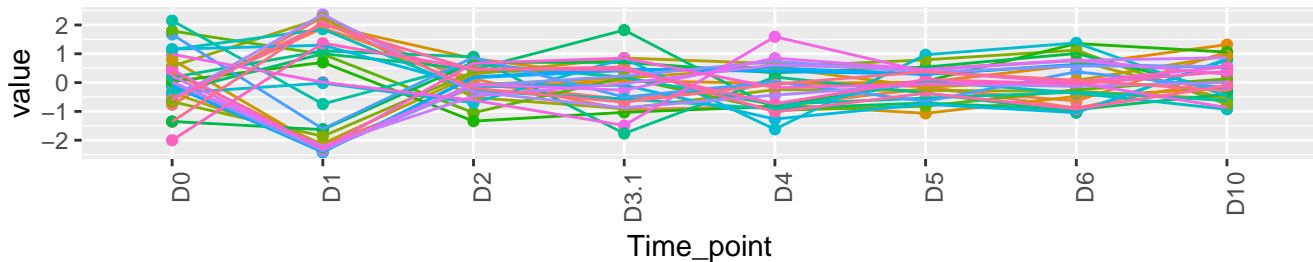
## 34 genes – EC\_KO–standardized



## 31 genes – FAP\_WT–standardized



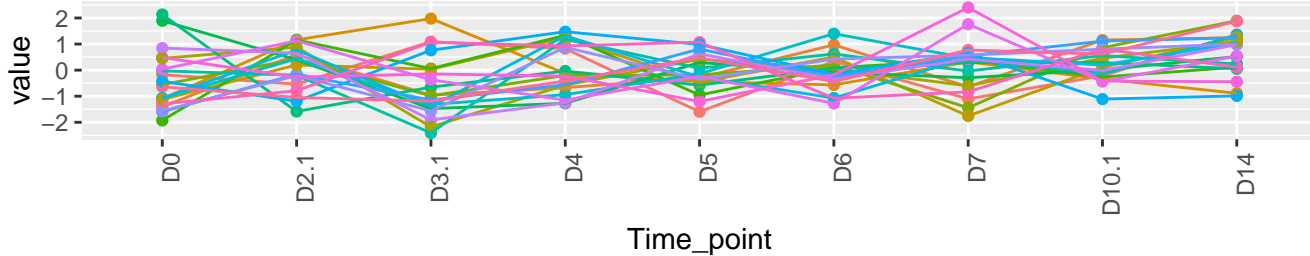
## 29 genes – FAP\_KO–standardized



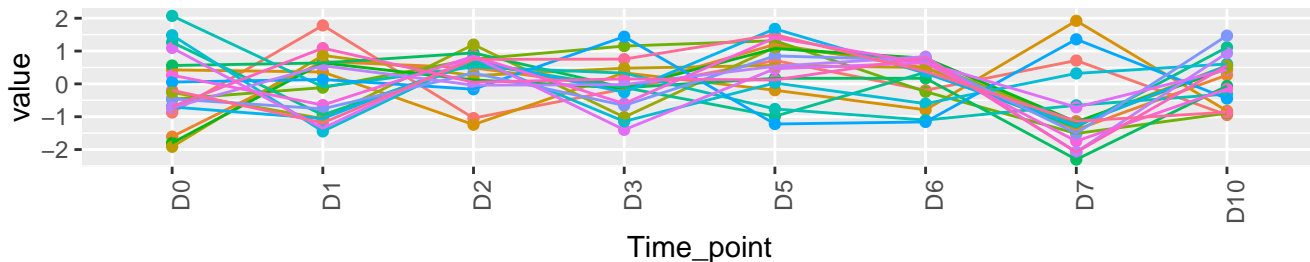


# Leukocyte transendothelial migration.null-1;11

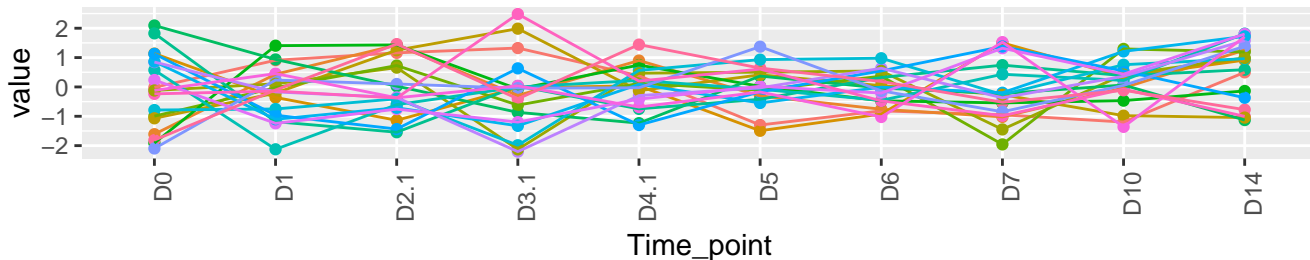
## 20 genes – EC\_WT-standardized



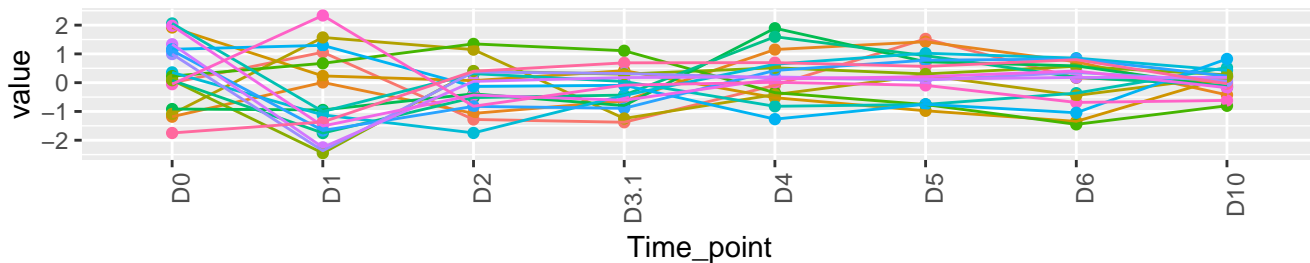
## 19 genes – EC\_KO-standardized



## 19 genes – FAP\_WT-standardized

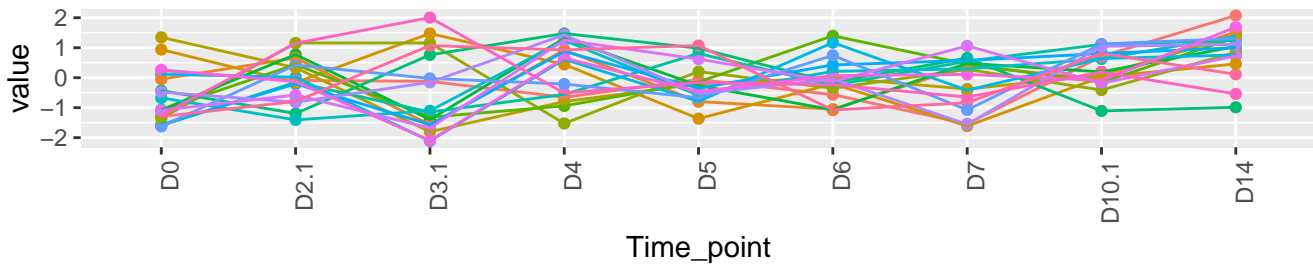


## 17 genes – FAP\_KO-standardized

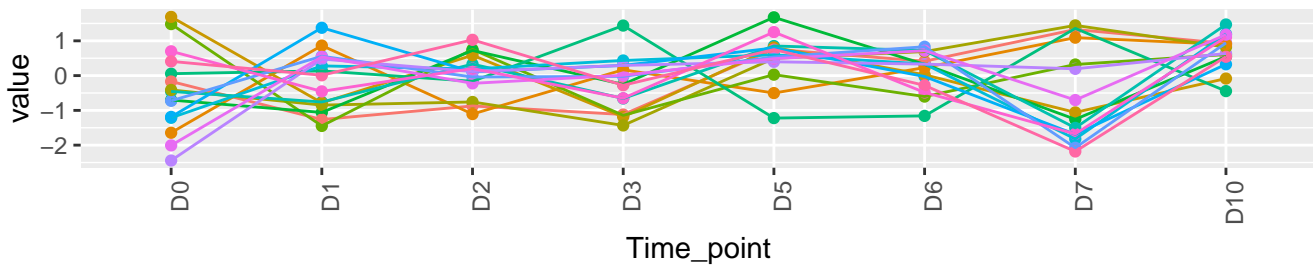


# Natural killer cell mediated cytotoxicity

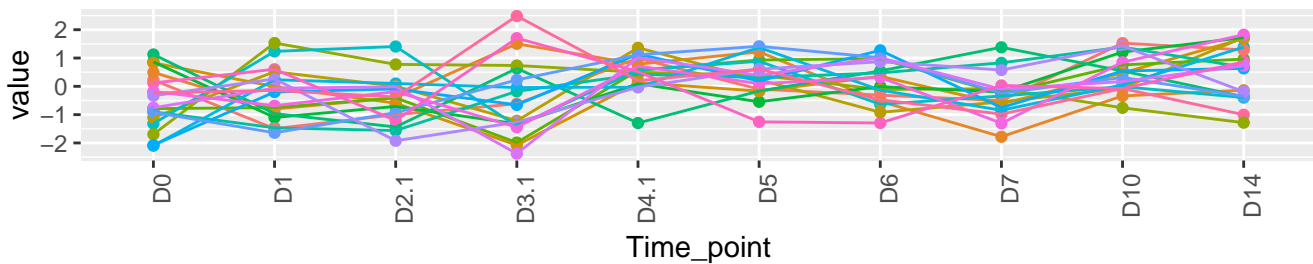
## 18 genes – EC\_WT-standardized



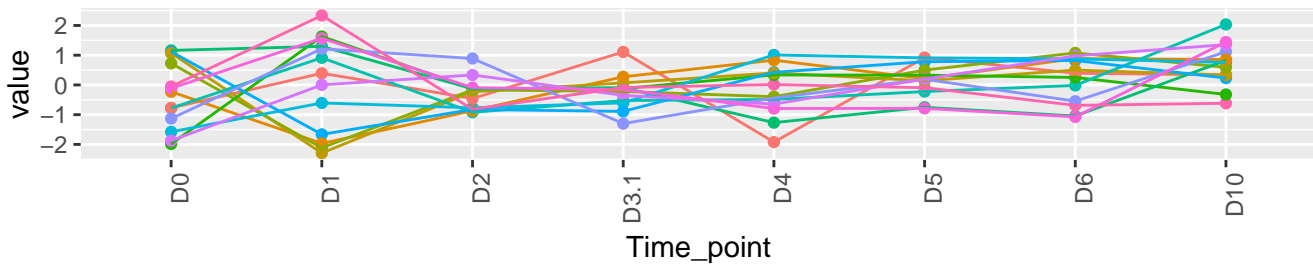
## 15 genes – EC\_KO-standardized



## 18 genes – FAP\_WT-standardized

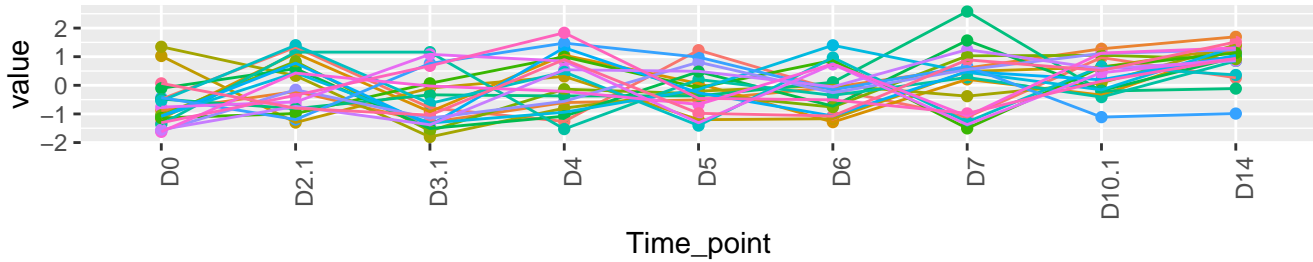


## 13 genes – FAP\_KO-standardized

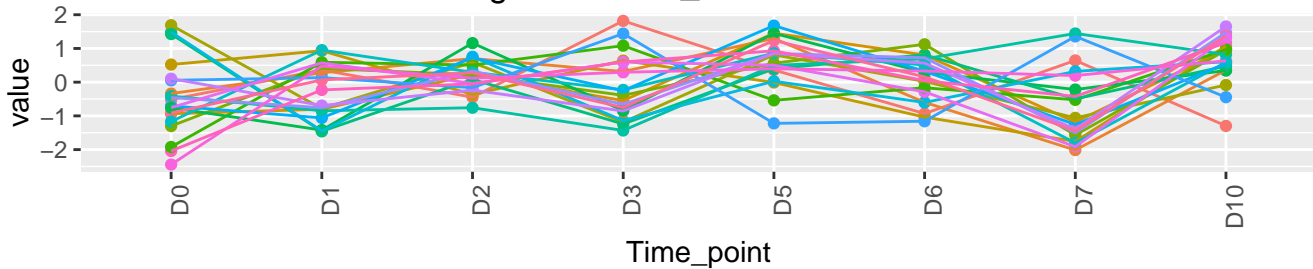


# Choline metabolism in cancer.Jun-1;10

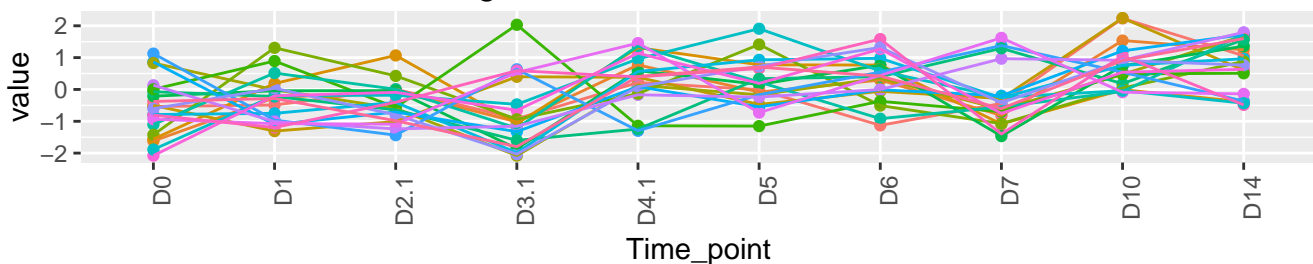
## 20 genes – EC\_WT-standardized



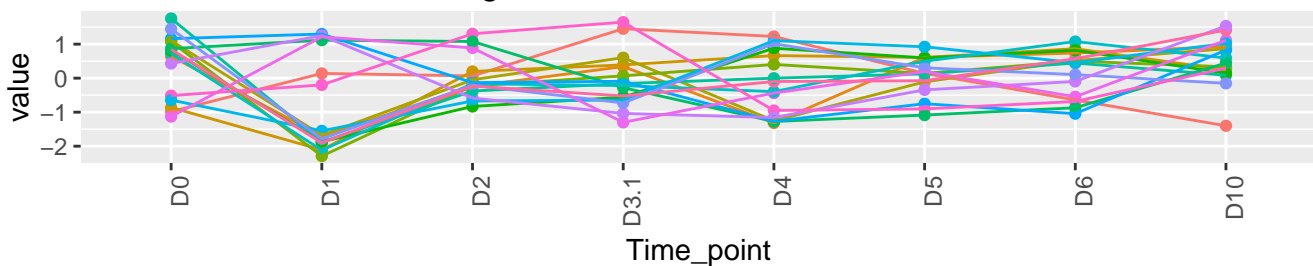
## 20 genes – EC\_KO-standardized



## 20 genes – FAP\_WT-standardized

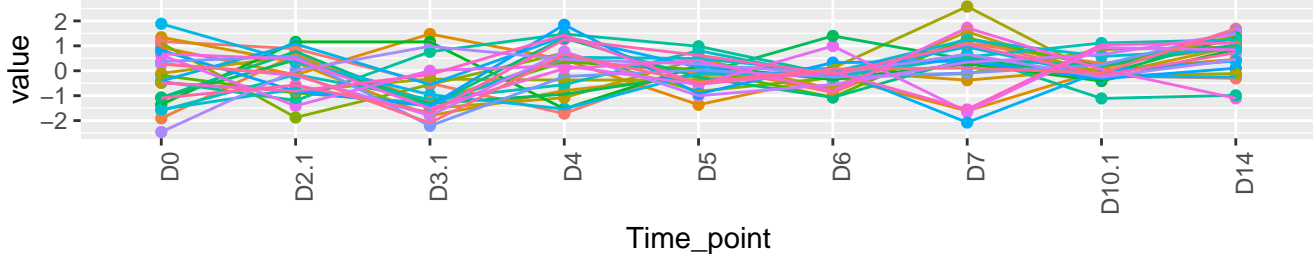


## 16 genes – FAP\_KO-standardized

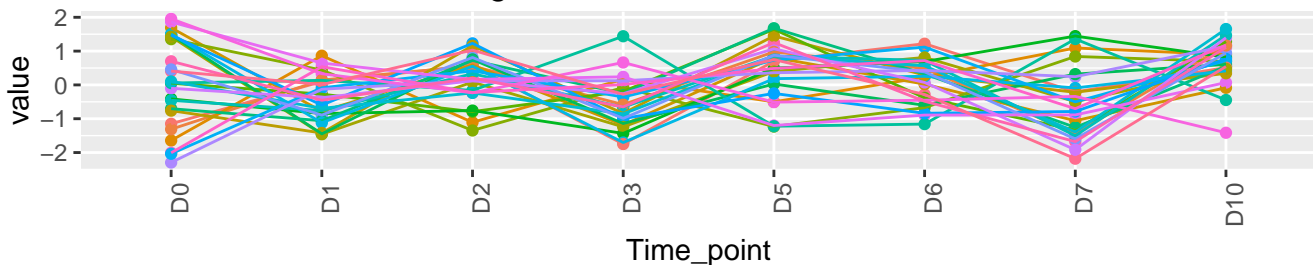


# Ras signaling pathway.Vegfb-1;27

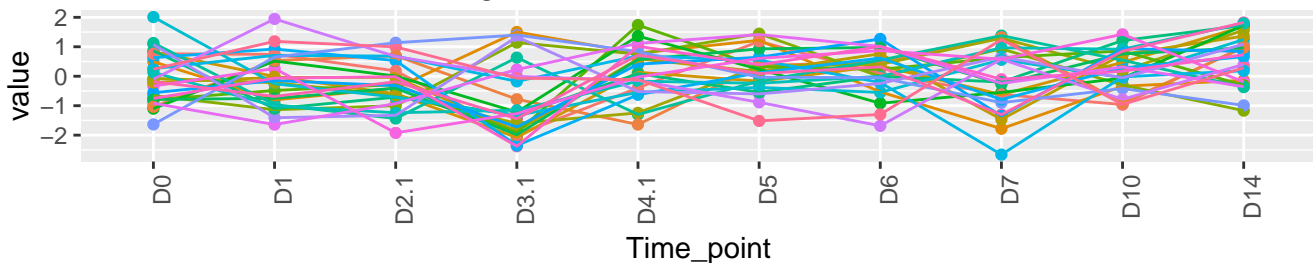
## 25 genes – EC\_WT-standardized



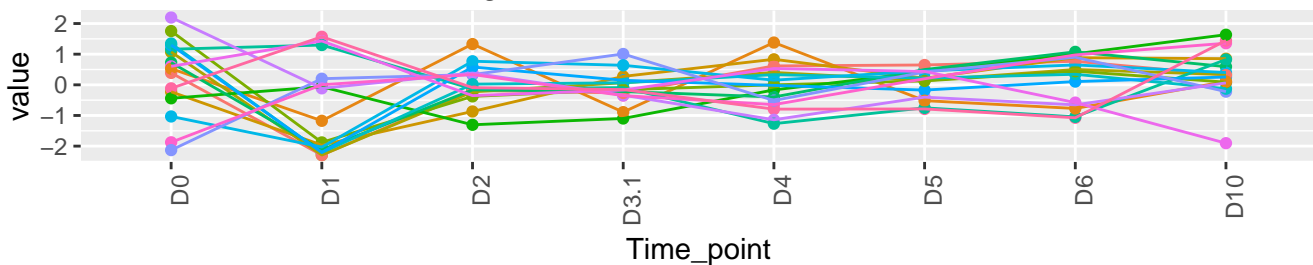
## 25 genes – EC\_KO-standardized



## 25 genes – FAP\_WT-standardized

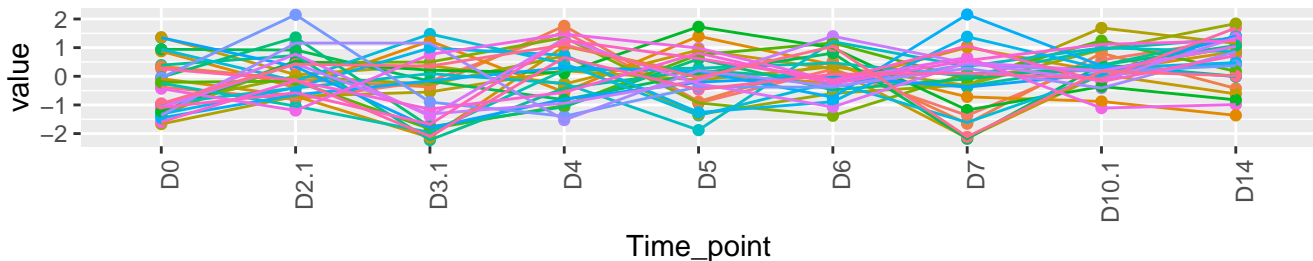


## 16 genes – FAP\_KO-standardized

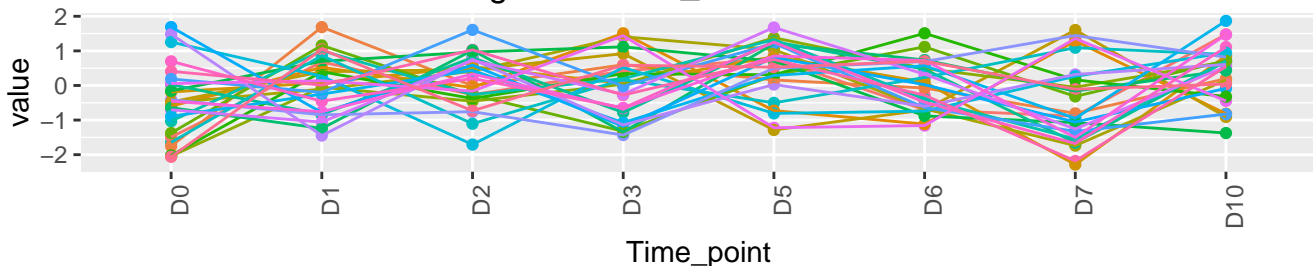


# Chronic myeloid leukemia

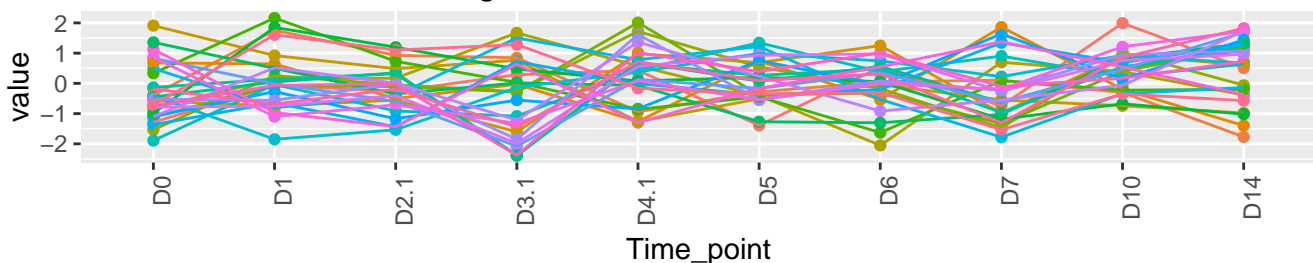
## 28 genes – EC\_WT-standardized



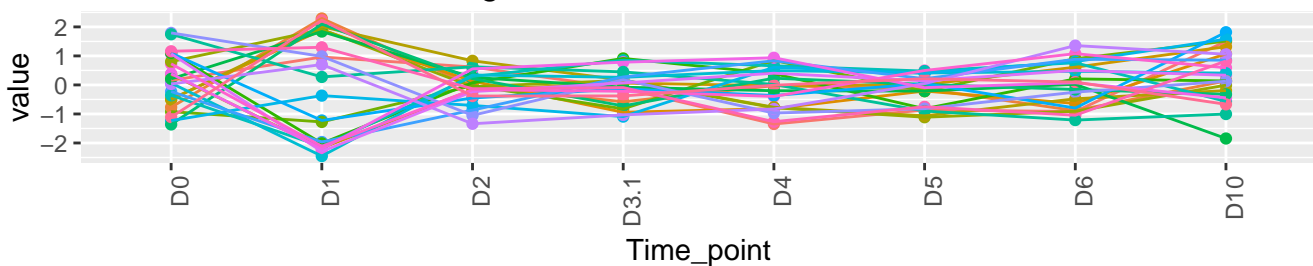
## 26 genes – EC\_KO-standardized



## 27 genes – FAP\_WT-standardized

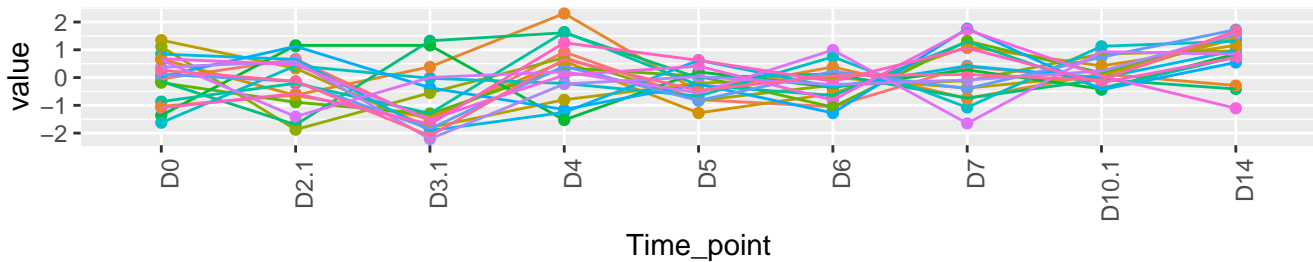


## 23 genes – FAP\_KO-standardized

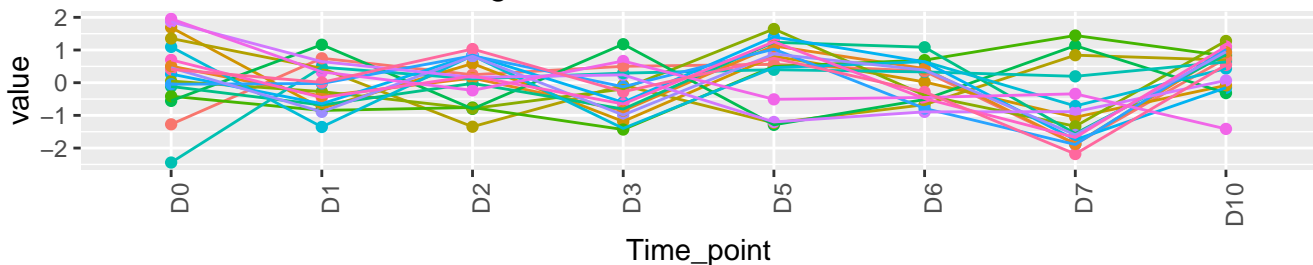


# MAPK signaling pathway.Prkacb-1;54

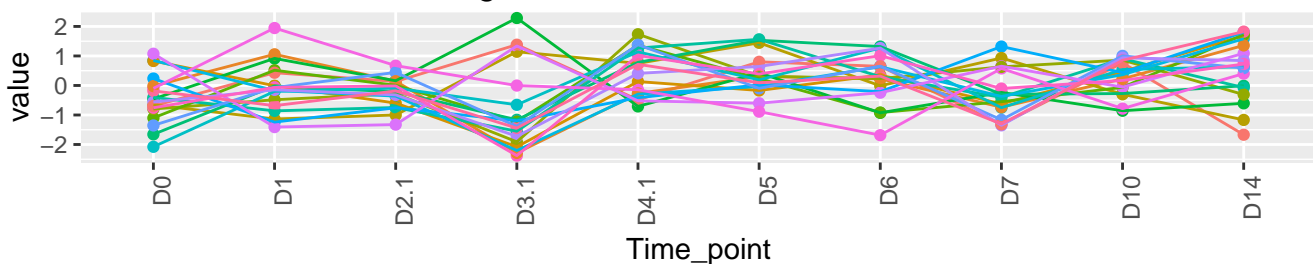
## 18 genes – EC\_WT-standardized



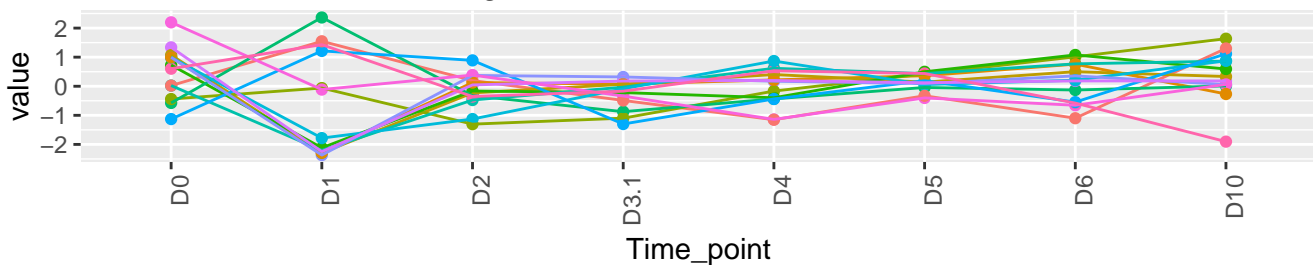
## 17 genes – EC\_KO-standardized



## 18 genes – FAP\_WT-standardized



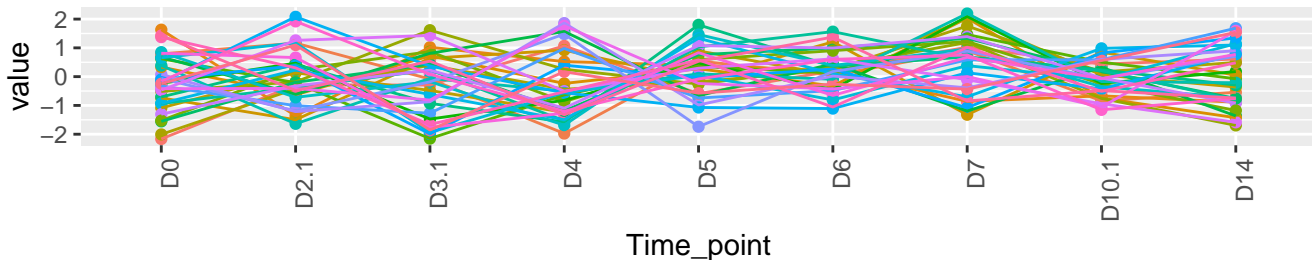
## 13 genes – FAP\_KO-standardized



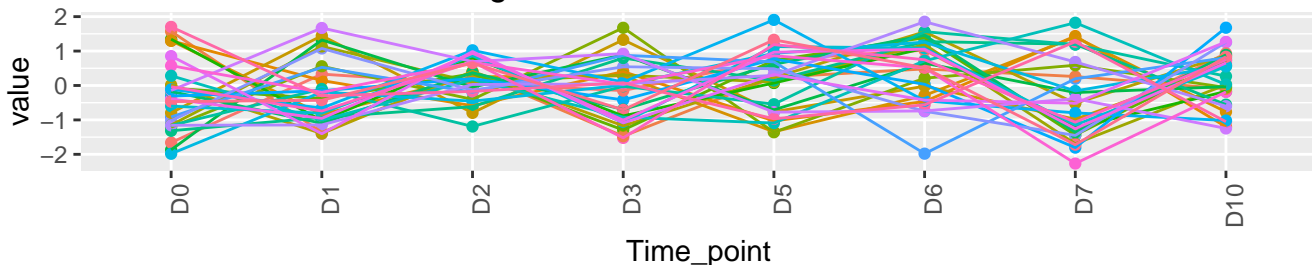


# Oocyte meiosis

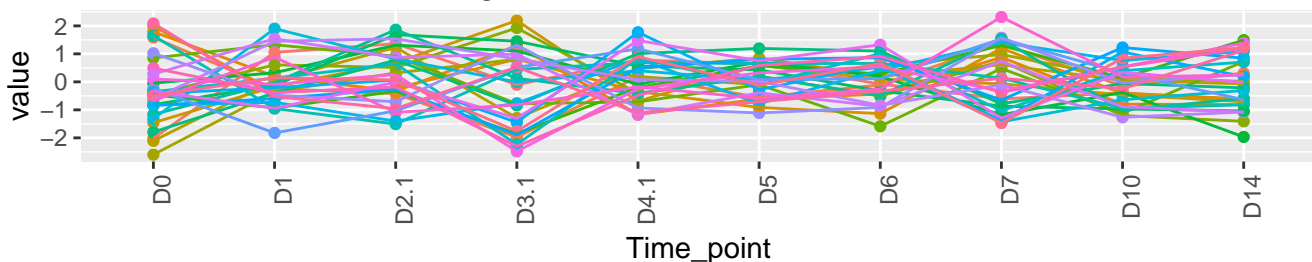
## 32 genes – EC\_WT-standardized



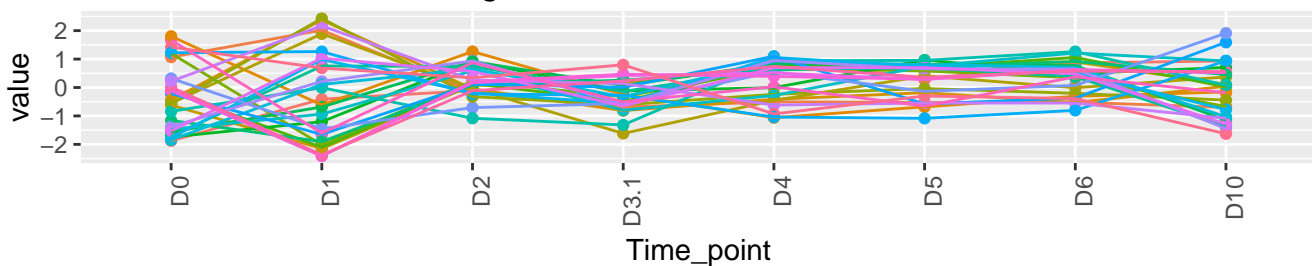
## 29 genes – EC\_KO-standardized



## 30 genes – FAP\_WT-standardized

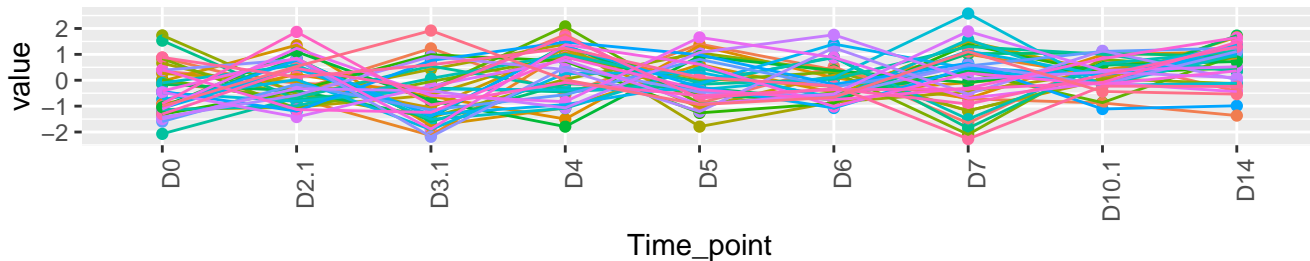


## 28 genes – FAP\_KO-standardized

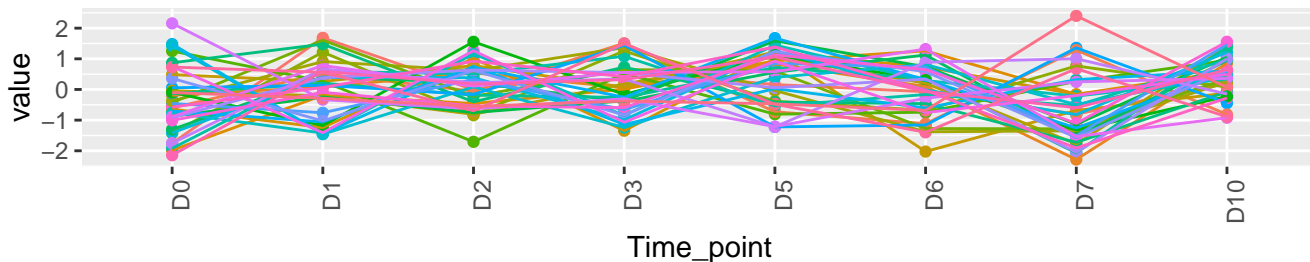


# FoxO signaling pathway

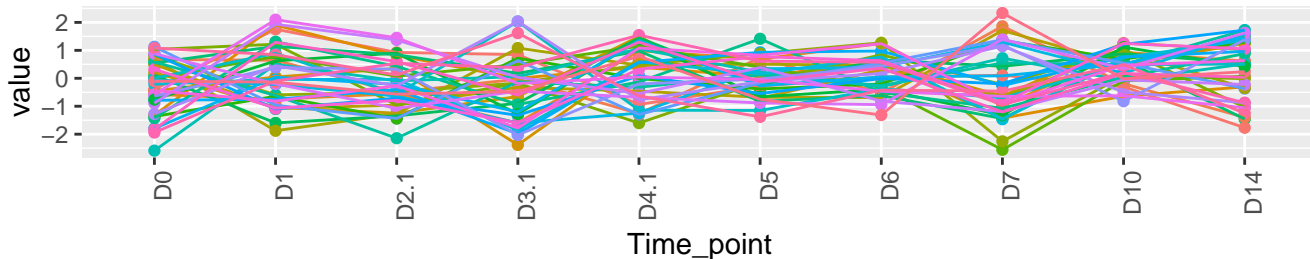
## 36 genes – EC\_WT-standardized



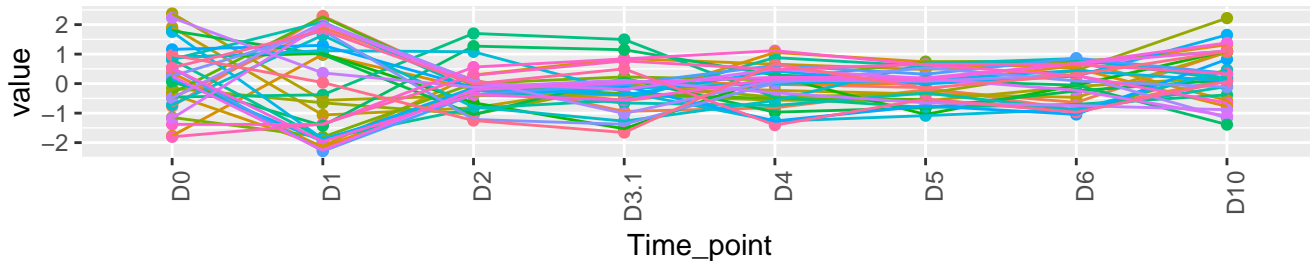
## 35 genes – EC\_KO-standardized



## 36 genes – FAP\_WT-standardized

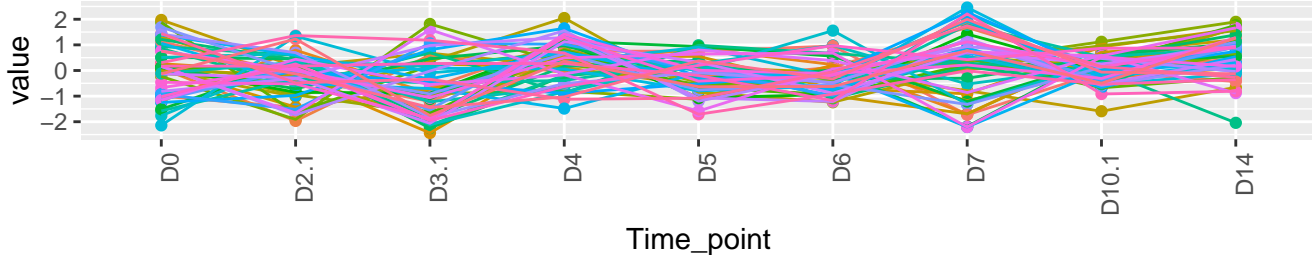


## 32 genes – FAP\_KO-standardized

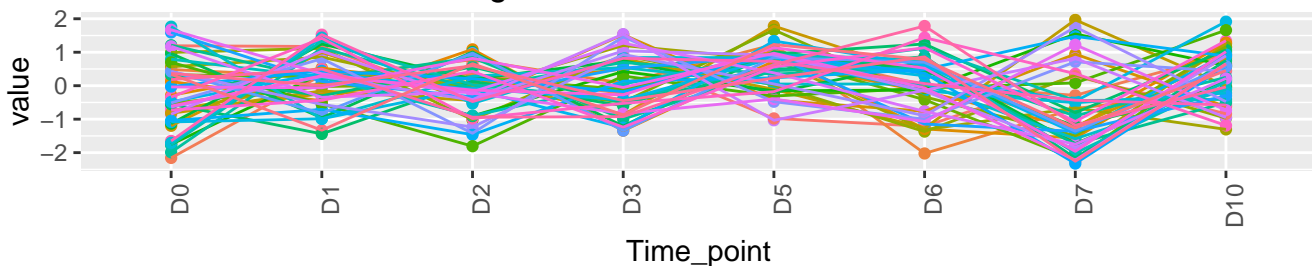


# Hippo signaling pathway.Wnt9a-1;28

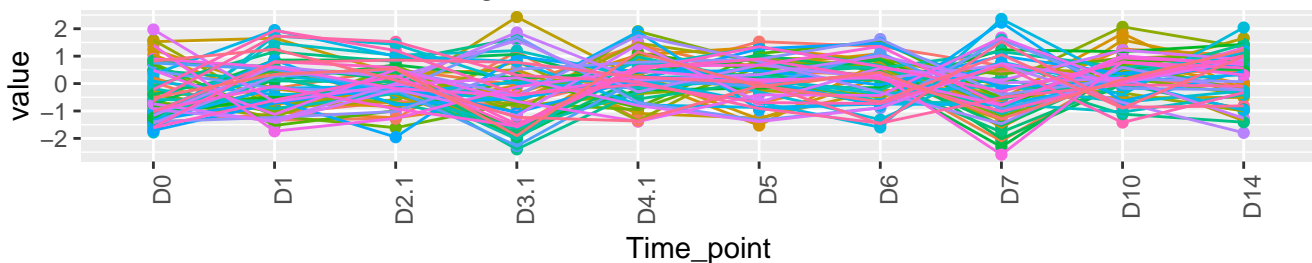
## 51 genes – EC\_WT-standardized



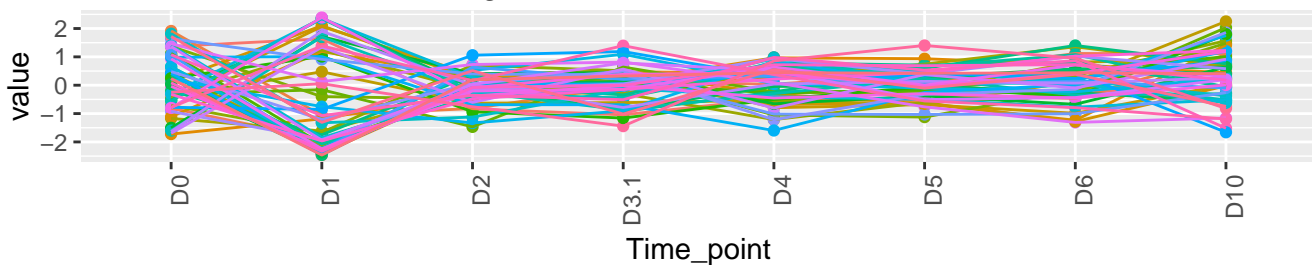
## 45 genes – EC\_KO-standardized



## 56 genes – FAP\_WT-standardized

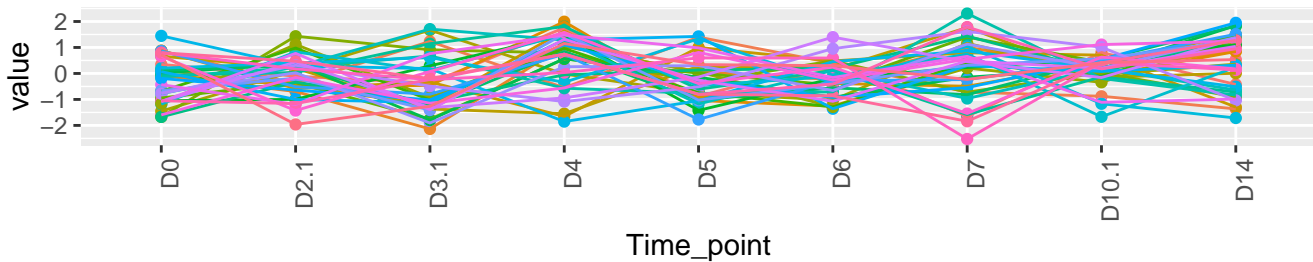


## 52 genes – FAP\_KO-standardized

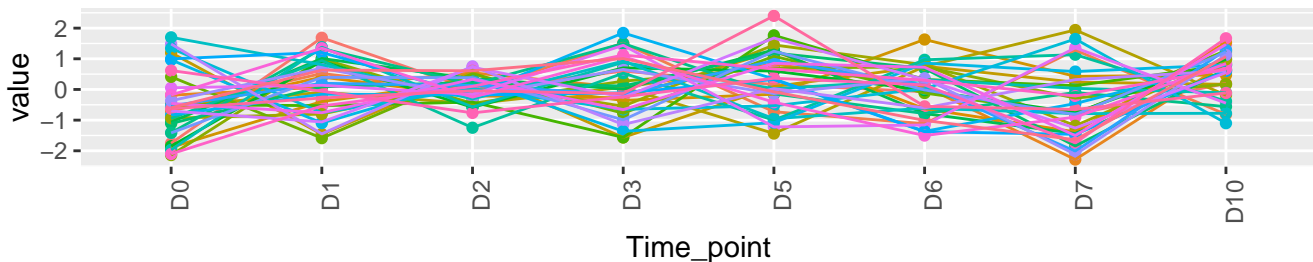


# Thyroid hormone signaling pathway.Pdpk1-1;39

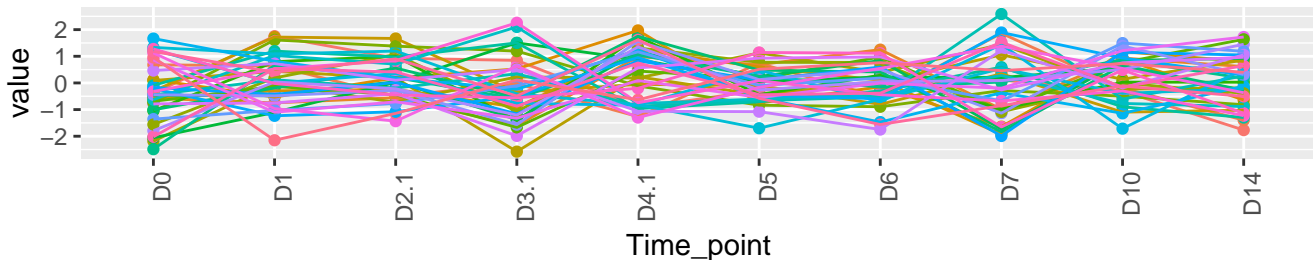
## 37 genes – EC\_WT-standardized



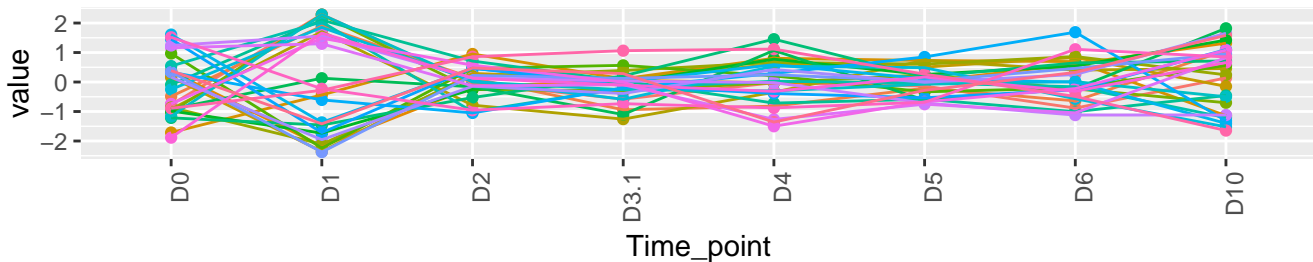
## 34 genes – EC\_KO-standardized



## 36 genes – FAP\_WT-standardized

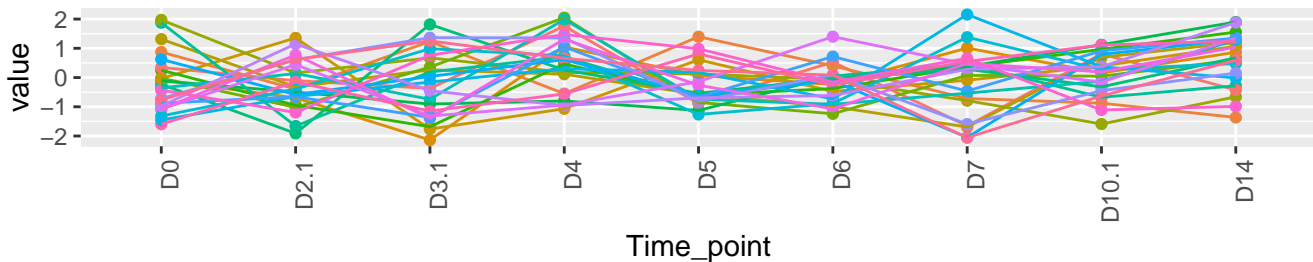


## 28 genes – FAP\_KO-standardized

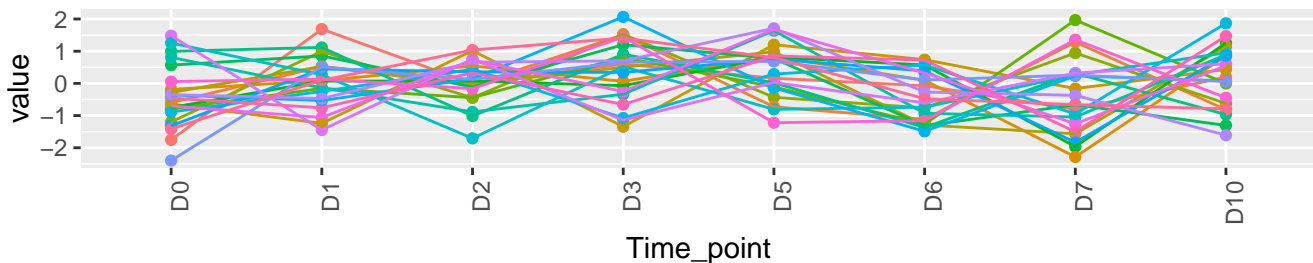


HTLV-I infection.Wnt11-1;24

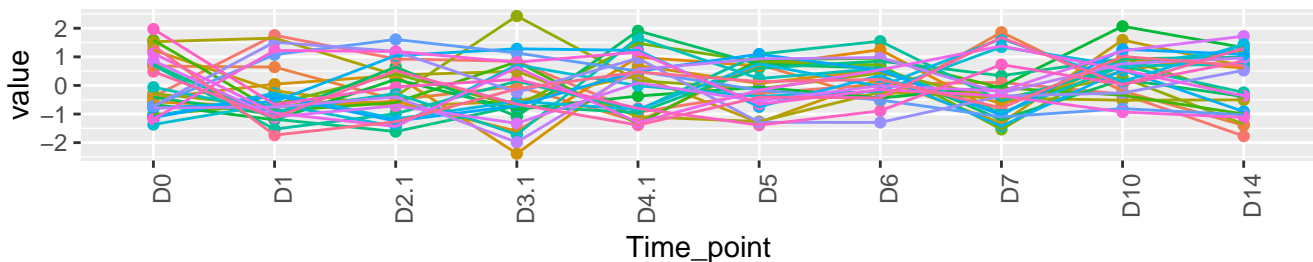
23 genes – EC\_WT-standardized



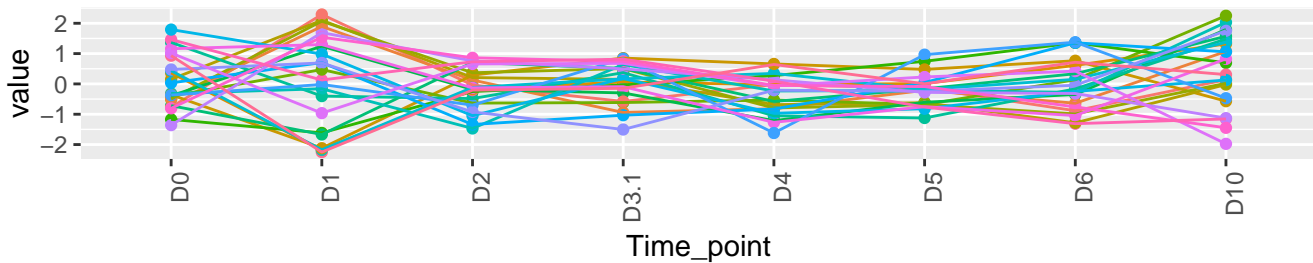
22 genes – EC\_KO-standardized



27 genes – FAP\_WT-standardized

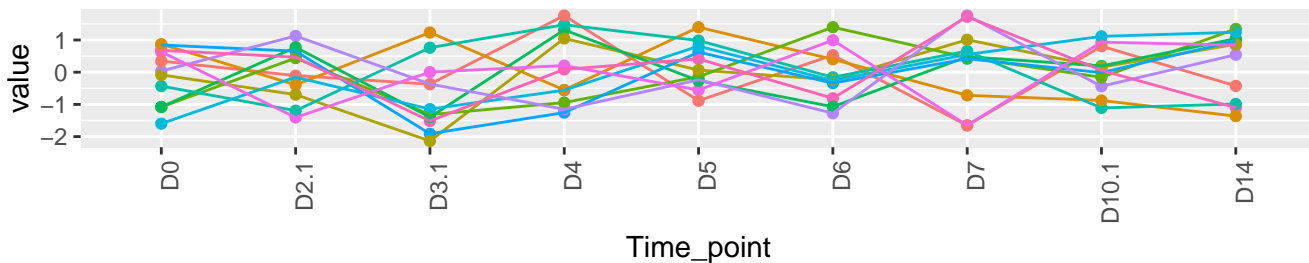


23 genes – FAP\_KO-standardized

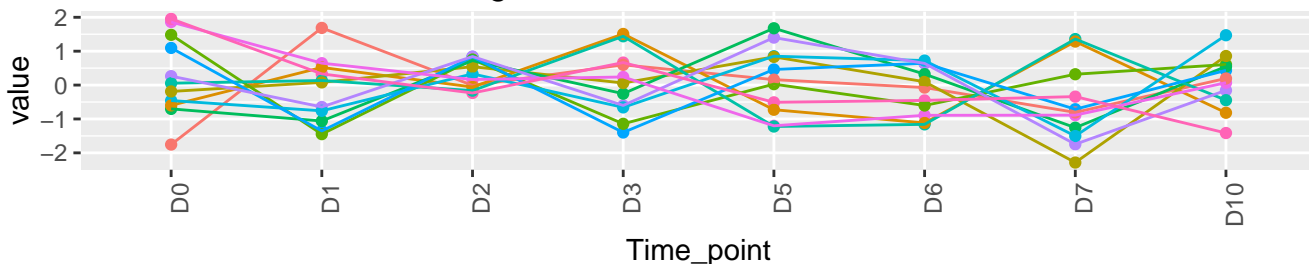


cAMP signaling pathway.Rras2-1;5

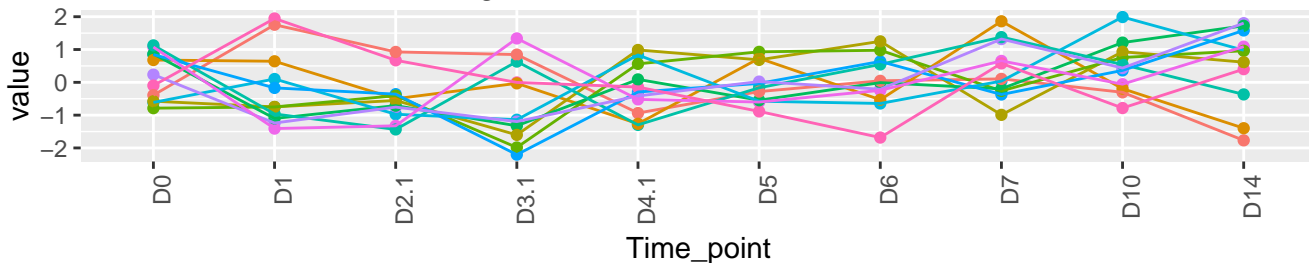
11 genes – EC\_WT-standardized



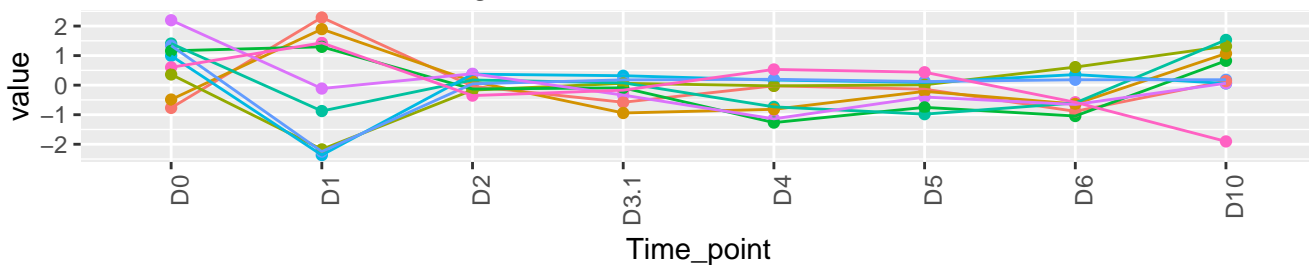
11 genes – EC\_KO-standardized



11 genes – FAP\_WT-standardized



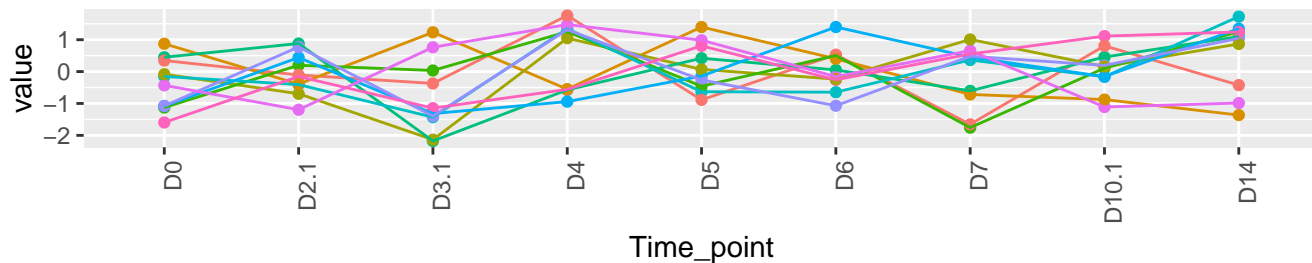
9 genes – FAP\_KO-standardized



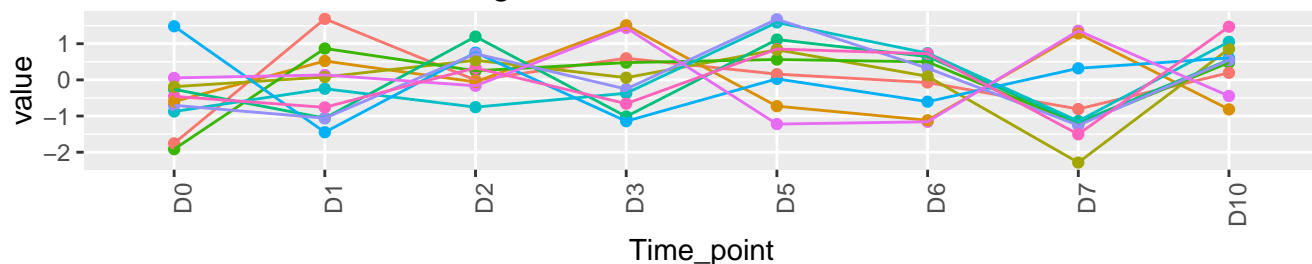


# cGMP-PKG signaling pathway.Insr-1;5

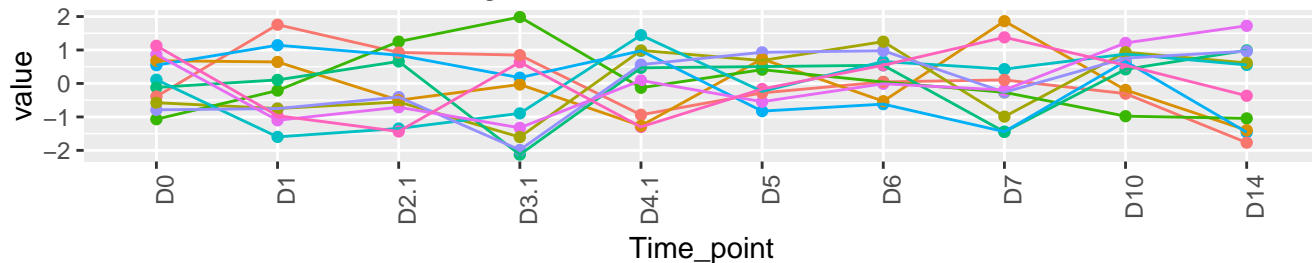
## 10 genes – EC\_WT-standardized



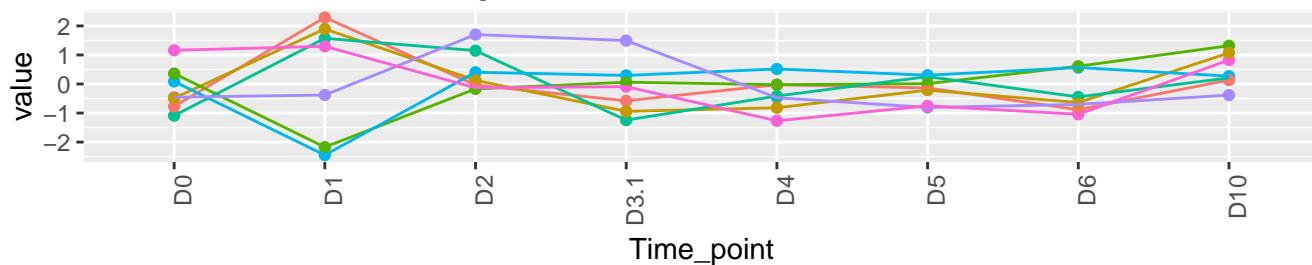
## 10 genes – EC\_KO-standardized



## 10 genes – FAP\_WT-standardized

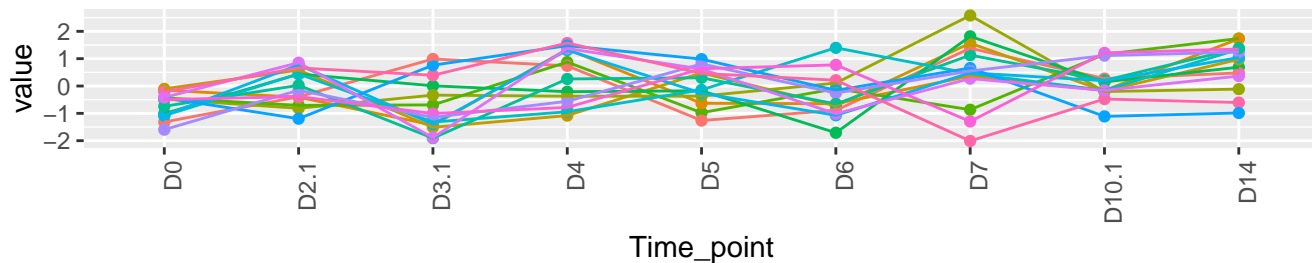


## 7 genes – FAP\_KO-standardized

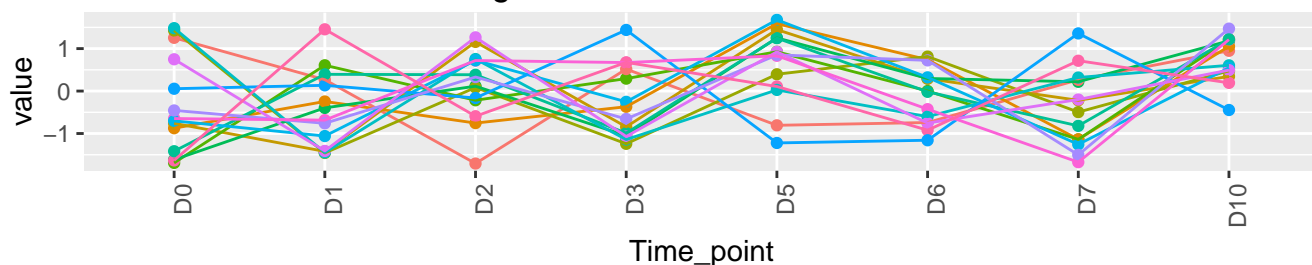


# Insulin resistance

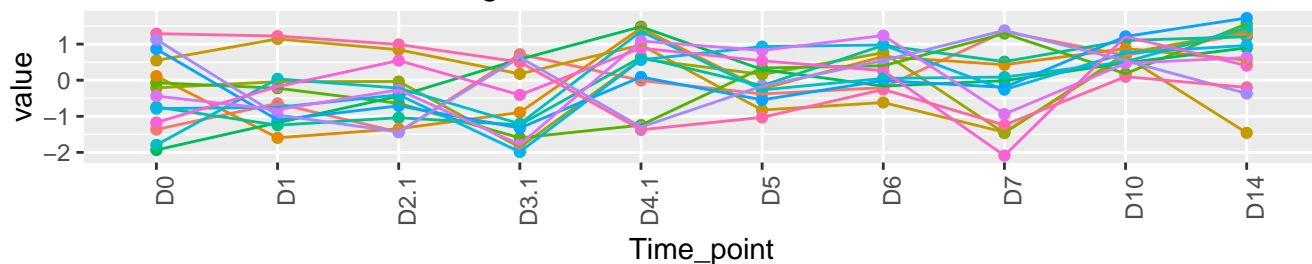
## 14 genes – EC\_WT-standardized



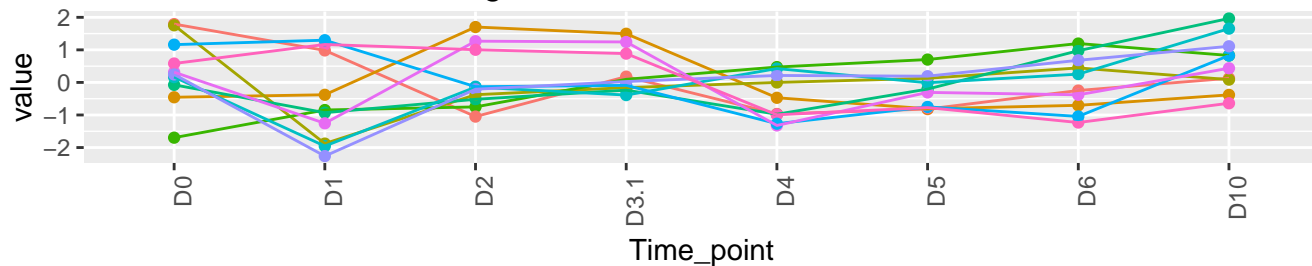
## 14 genes – EC\_KO-standardized



## 14 genes – FAP\_WT-standardized

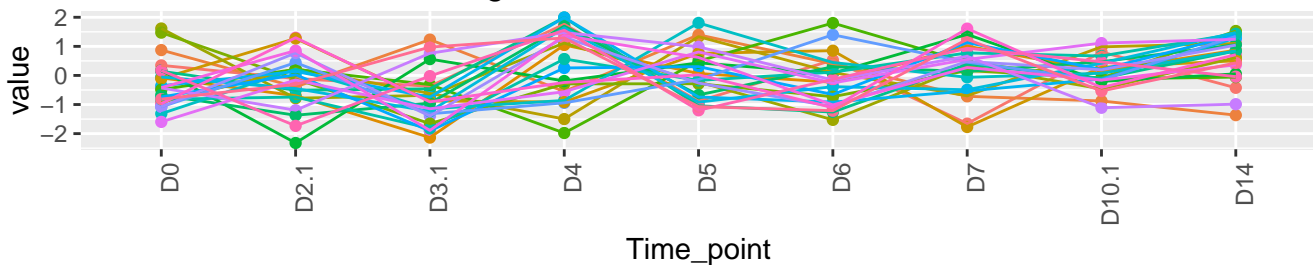


## 10 genes – FAP\_KO-standardized

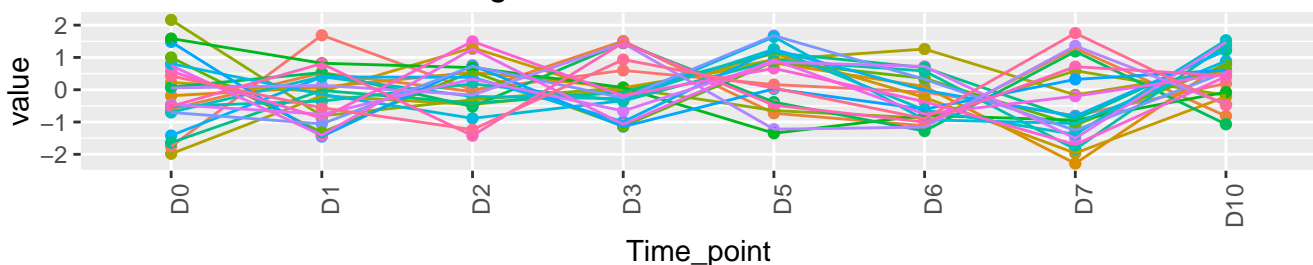


# Prostate cancer

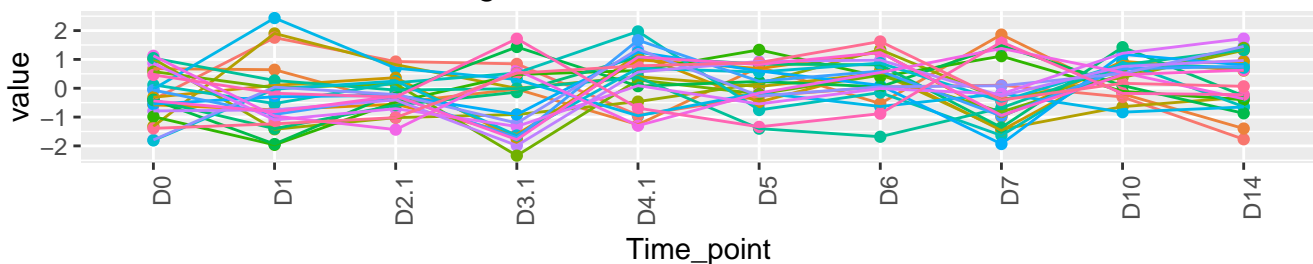
## 24 genes – EC\_WT-standardized



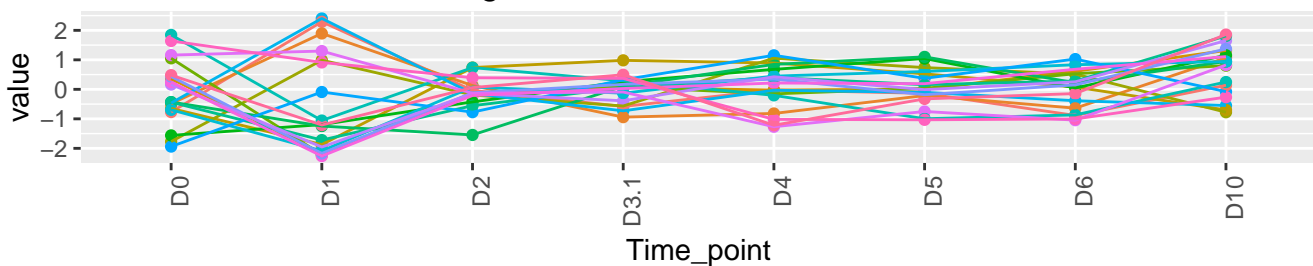
## 22 genes – EC\_KO-standardized



## 23 genes – FAP\_WT-standardized

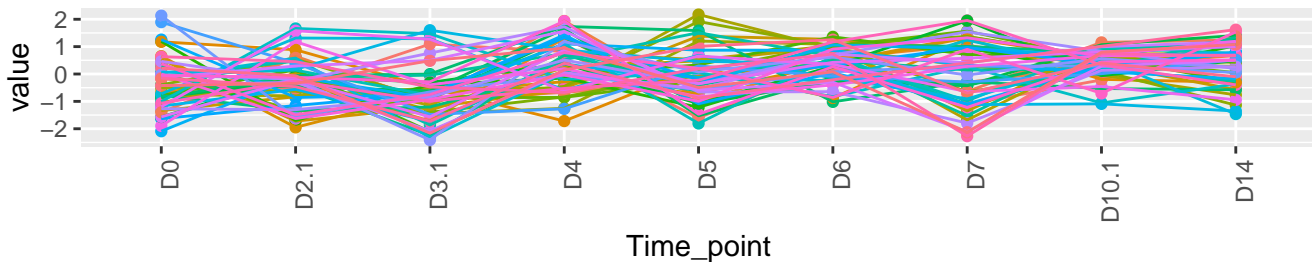


## 19 genes – FAP\_KO-standardized

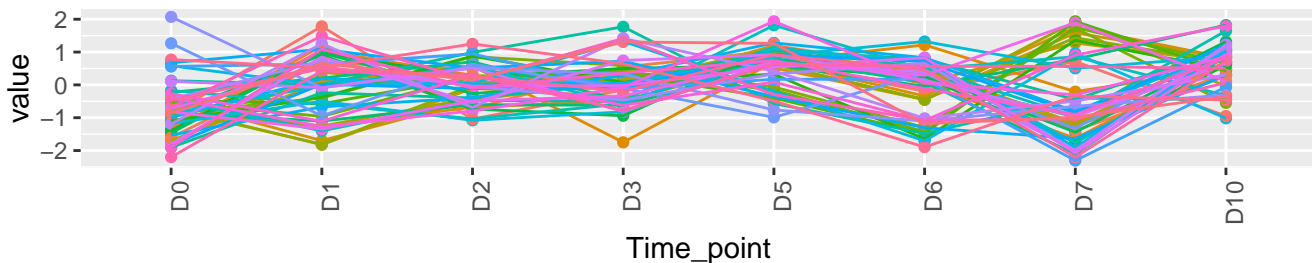


Focal adhesion.Comp-1;7

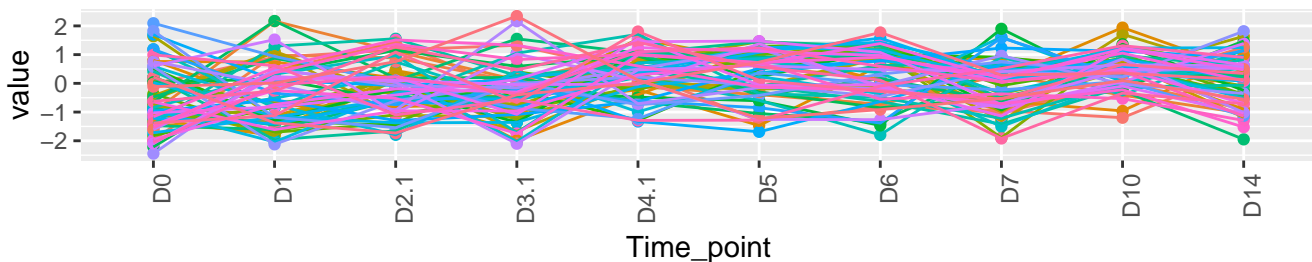
52 genes – EC\_WT-standardized



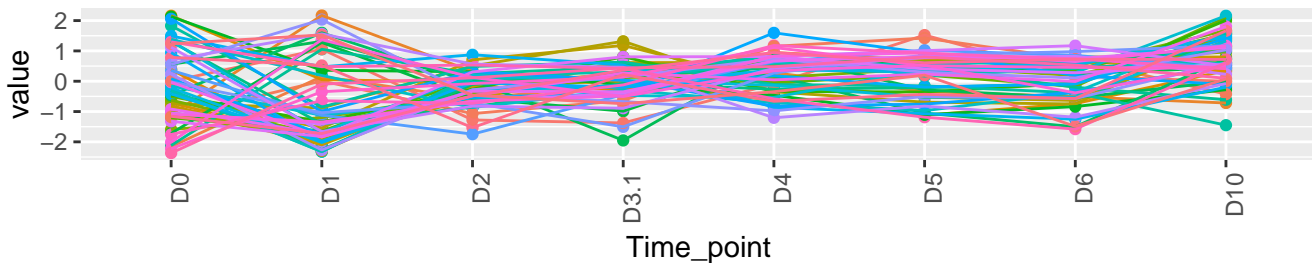
49 genes – EC\_KO-standardized



62 genes – FAP\_WT-standardized

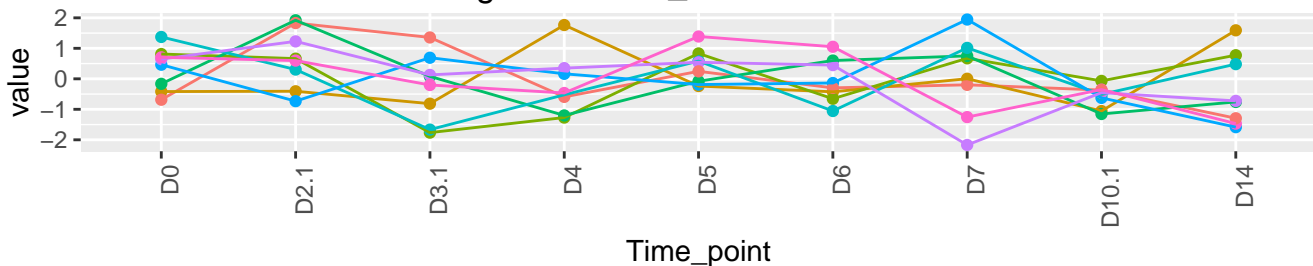


56 genes – FAP\_KO-standardized

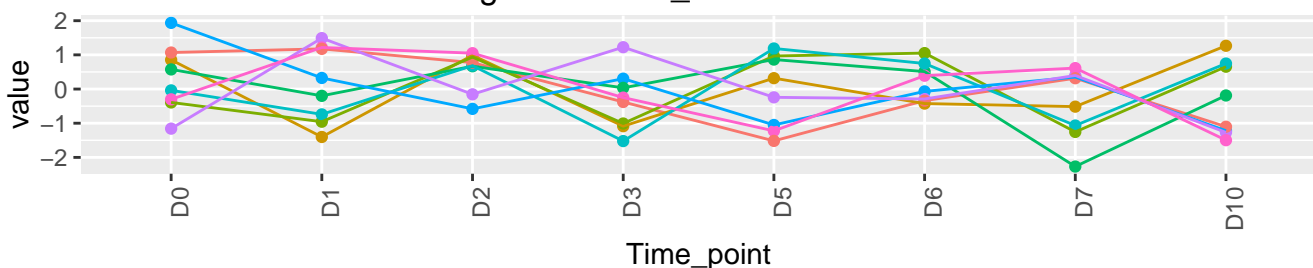


Amyotrophic lateral sclerosis (ALS).Sod1-1;7

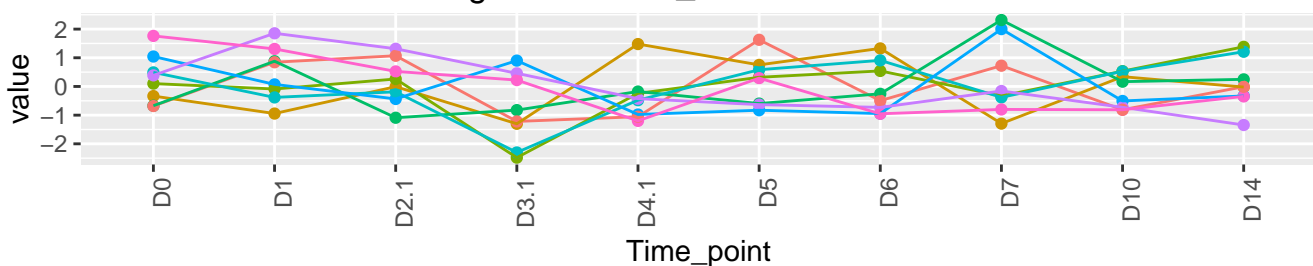
8 genes – EC\_WT-standardized



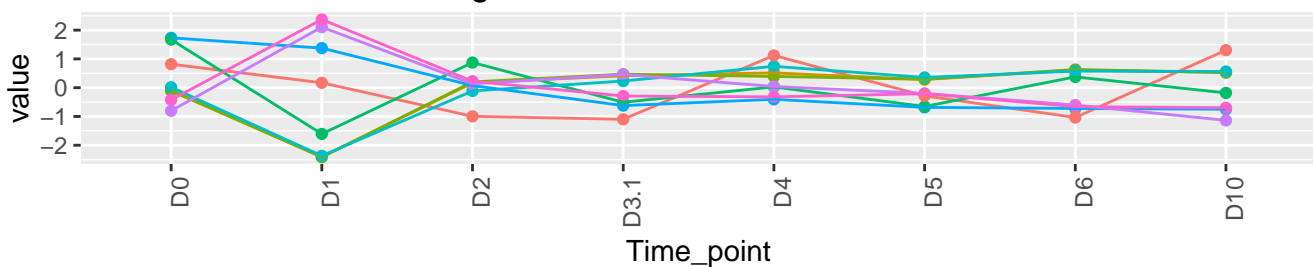
8 genes – EC\_KO-standardized



8 genes – FAP\_WT-standardized

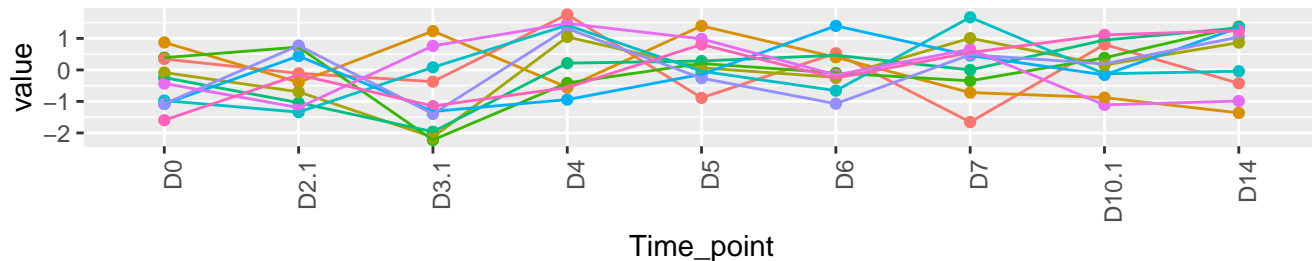


8 genes – FAP\_KO-standardized

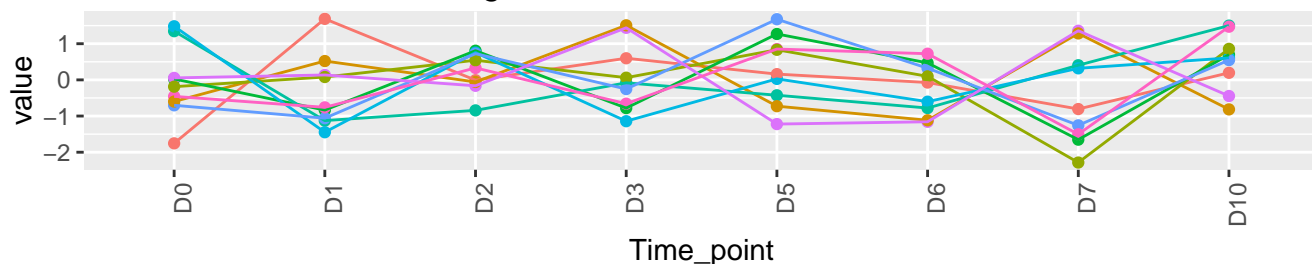


# Renal cell carcinoma.Gab1-1;6

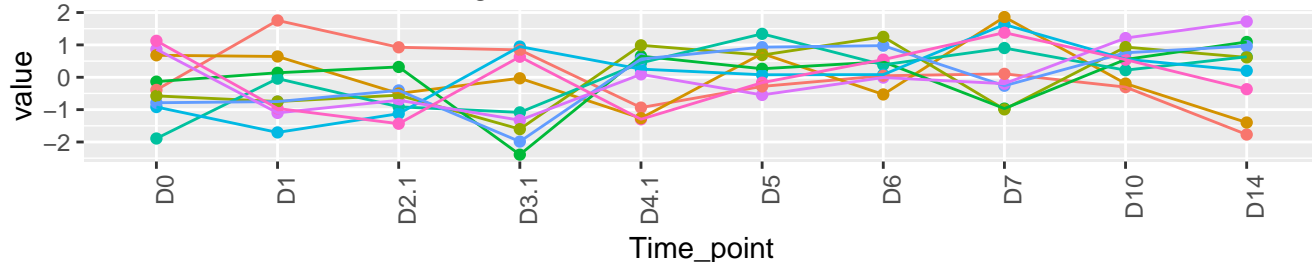
## 10 genes – EC\_WT-standardized



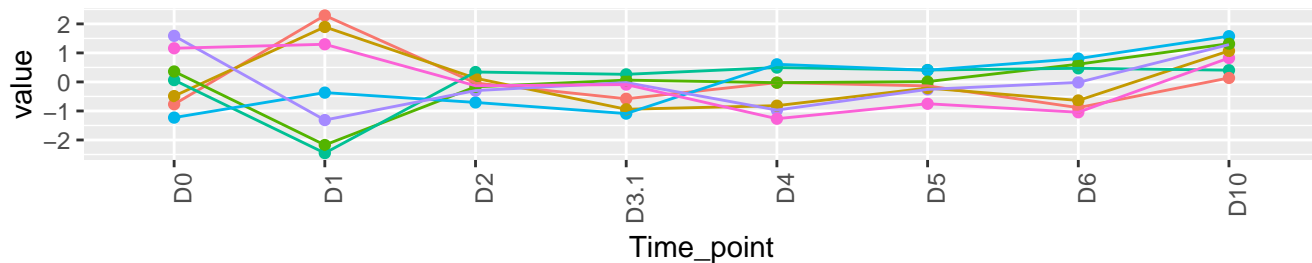
## 9 genes – EC\_KO-standardized



## 9 genes – FAP\_WT-standardized



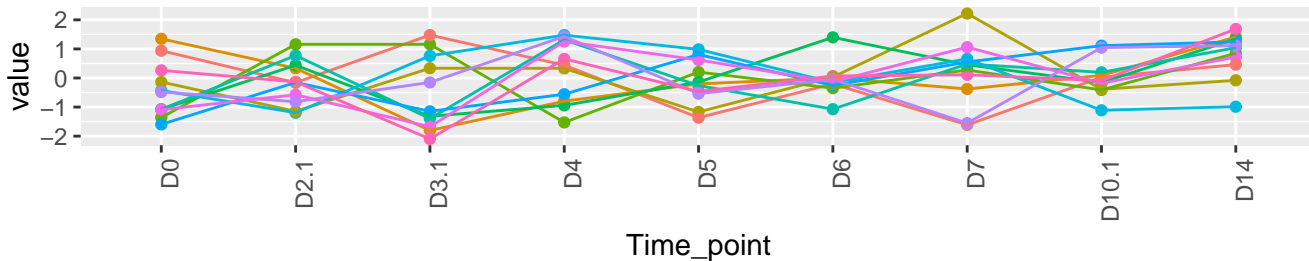
## 7 genes – FAP\_KO-standardized



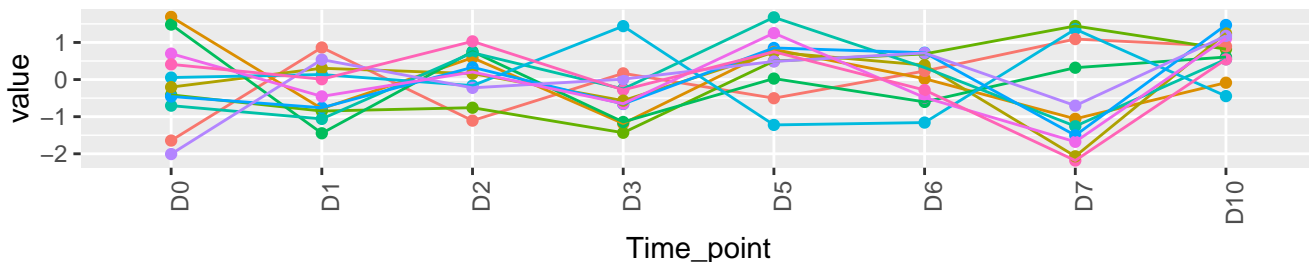


# Chemokine signaling pathway.Jak2-5;14

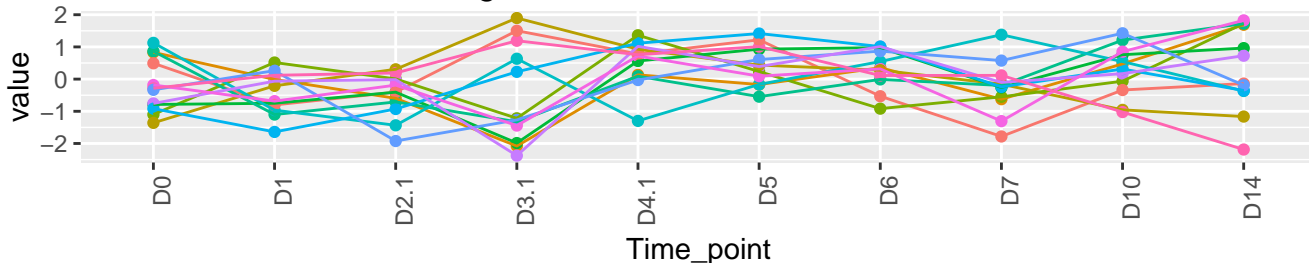
## 11 genes – EC\_WT-standardized



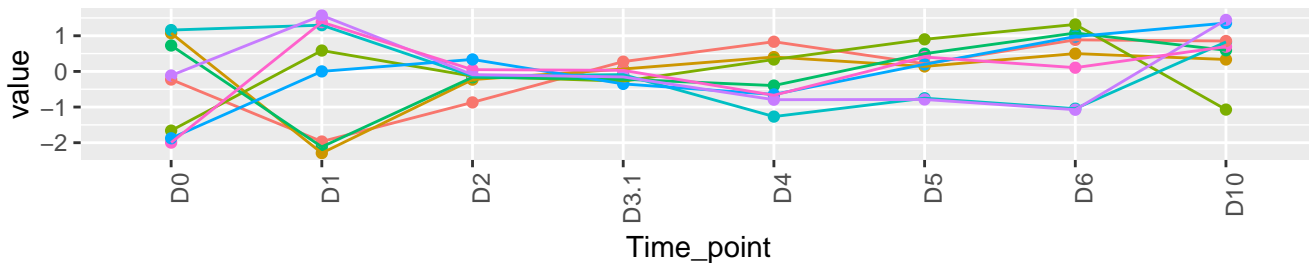
## 11 genes – EC\_KO-standardized



## 12 genes – FAP\_WT-standardized

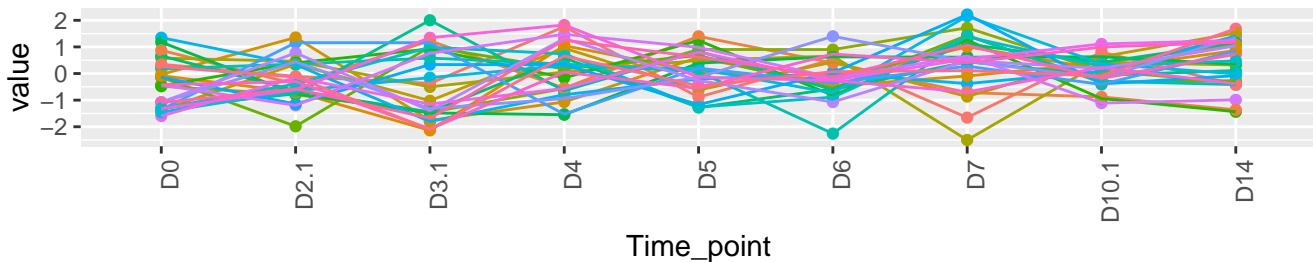


## 8 genes – FAP\_KO-standardized

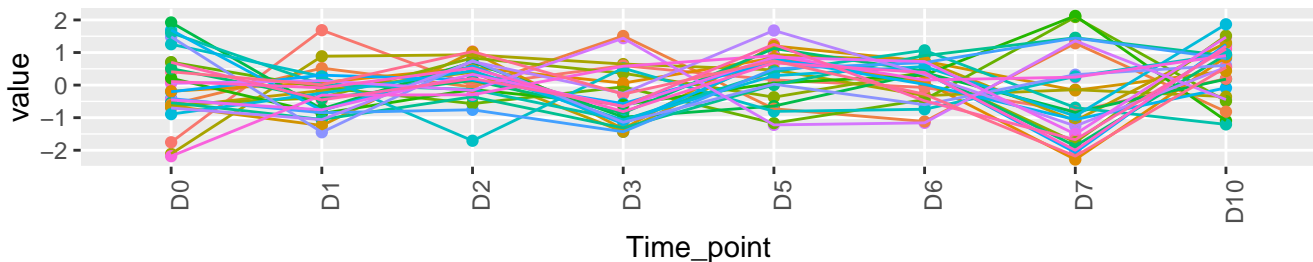


# Chemokine signaling pathway.Jak2-5;19

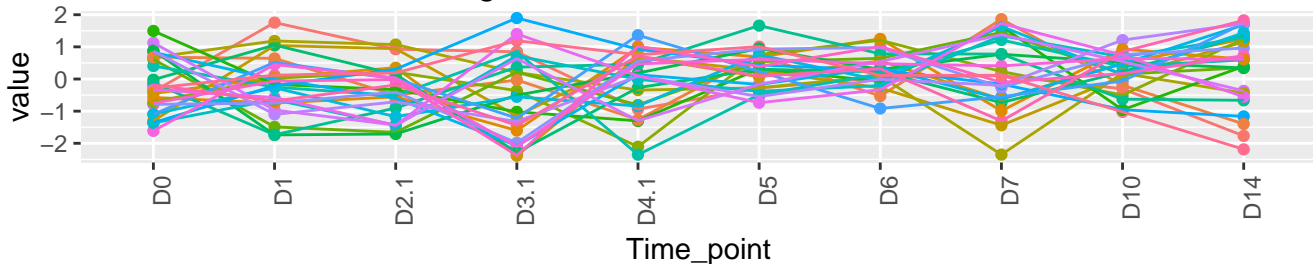
## 26 genes – EC\_WT-standardized



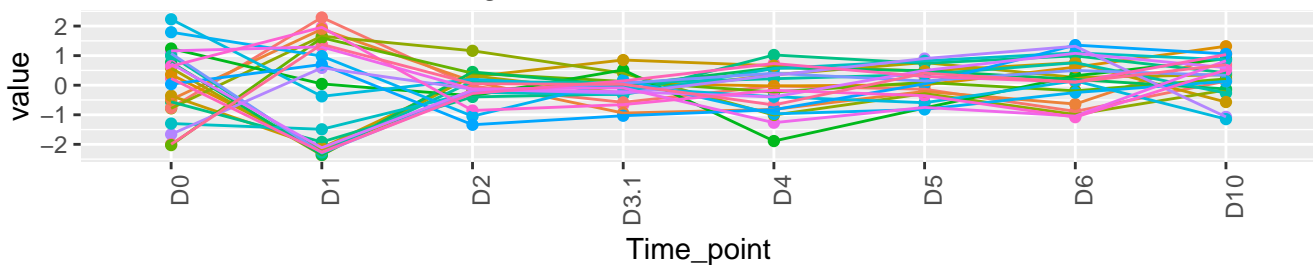
## 26 genes – EC\_KO-standardized



## 26 genes – FAP\_WT-standardized

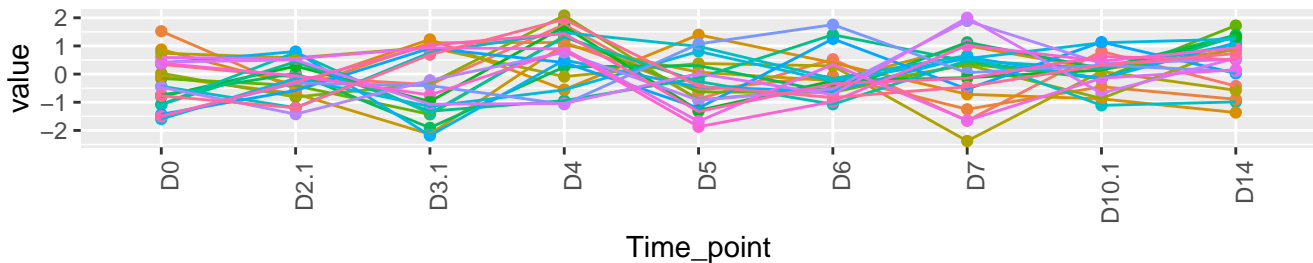


## 22 genes – FAP\_KO-standardized

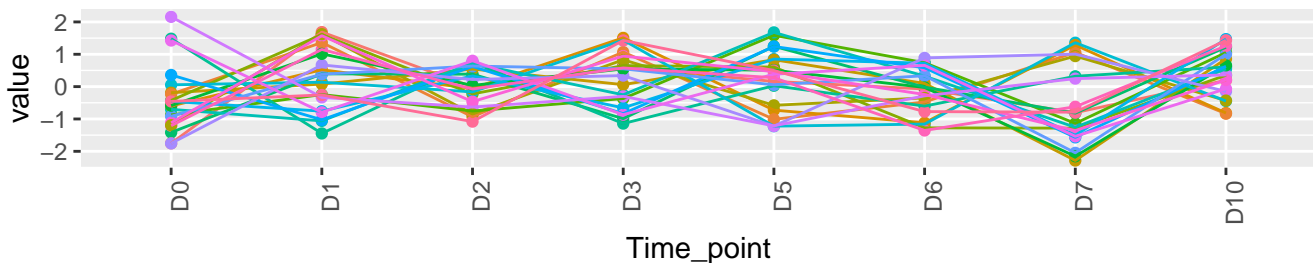


# AMPK signaling pathway

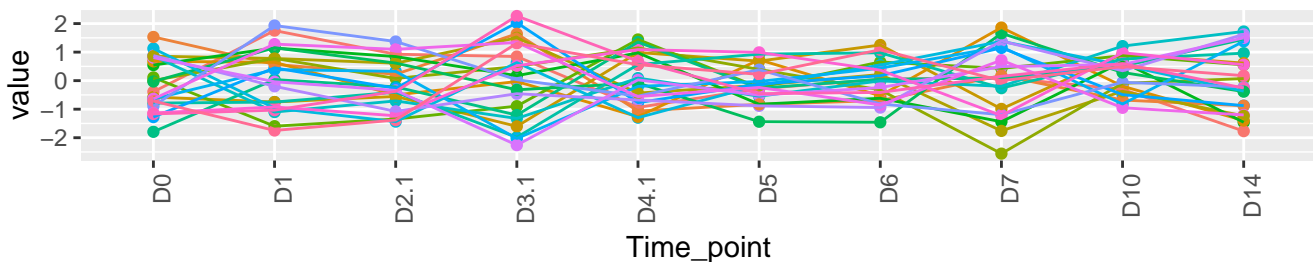
## 22 genes – EC\_WT-standardized



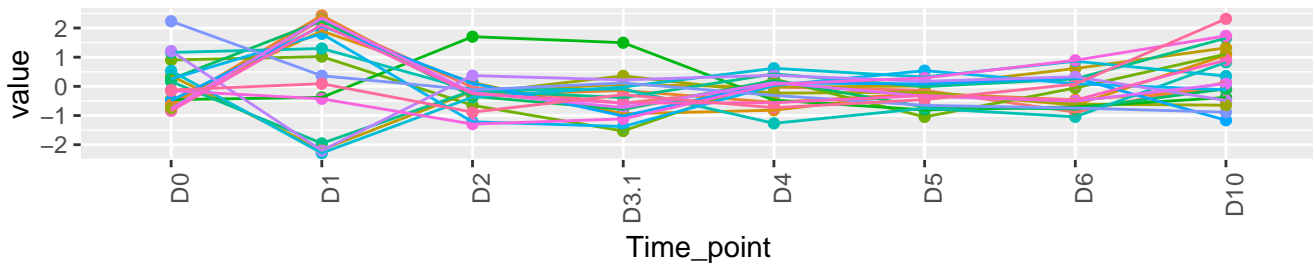
## 21 genes – EC\_KO-standardized



## 22 genes – FAP\_WT-standardized

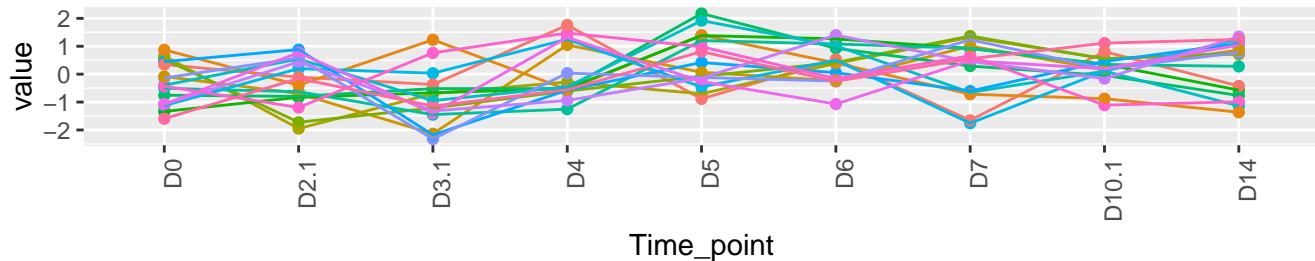


## 19 genes – FAP\_KO-standardized

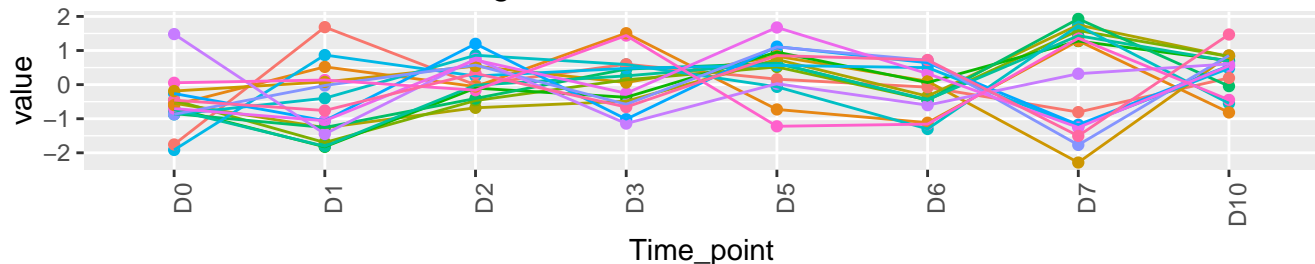


# Platelet activation

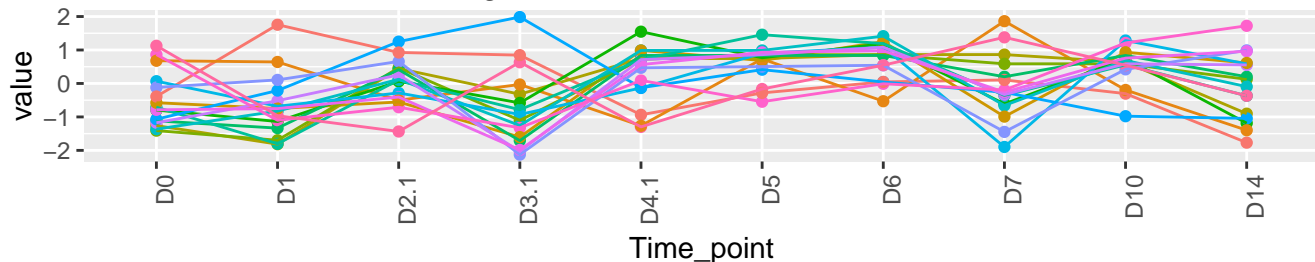
## 16 genes – EC\_WT-standardized



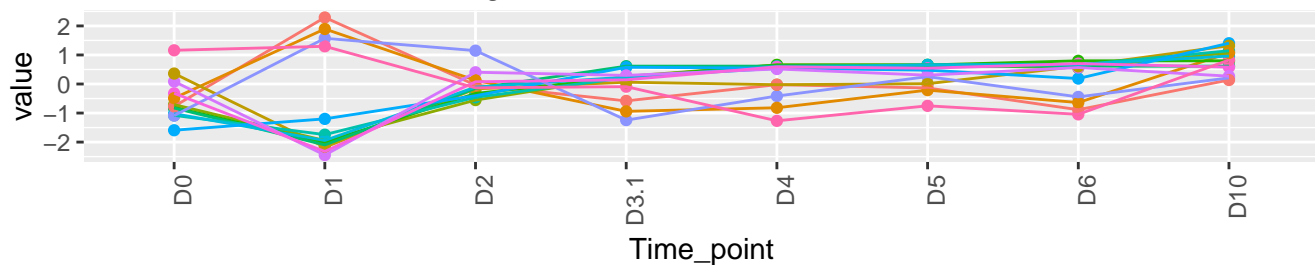
## 16 genes – EC\_KO-standardized



## 16 genes – FAP\_WT-standardized

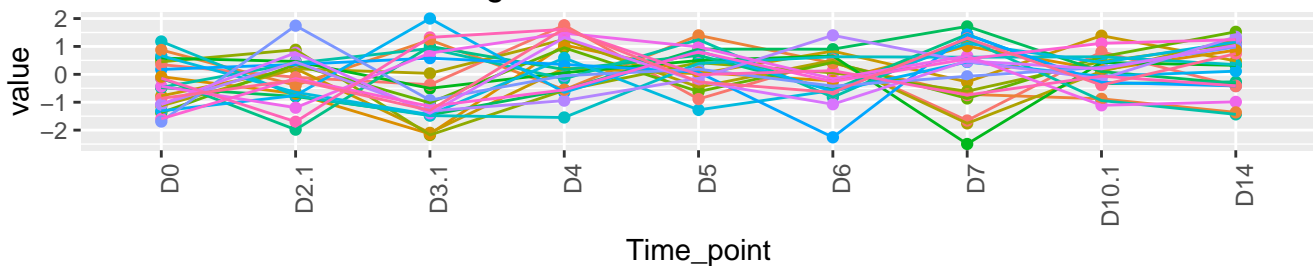


## 13 genes – FAP\_KO-standardized

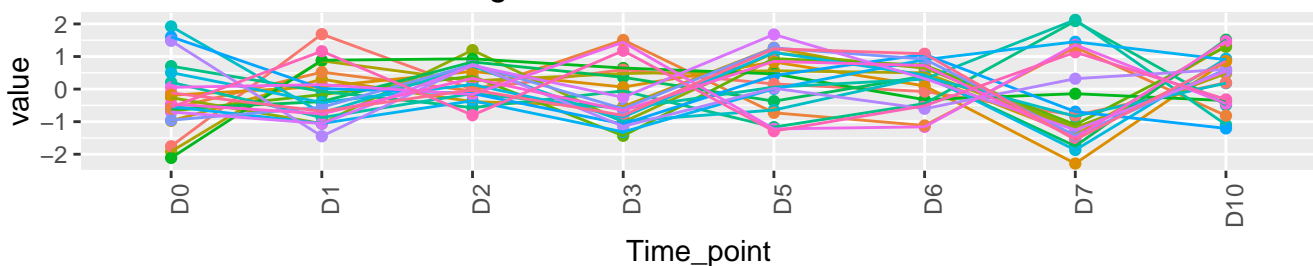


# Cholinergic synapse

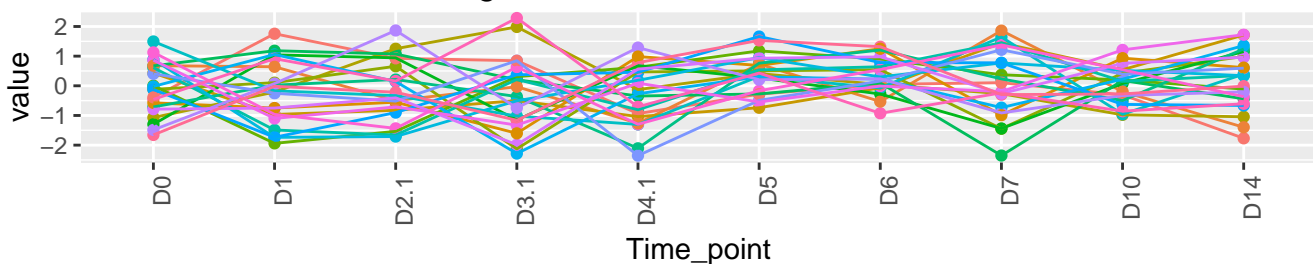
## 22 genes – EC\_WT-standardized



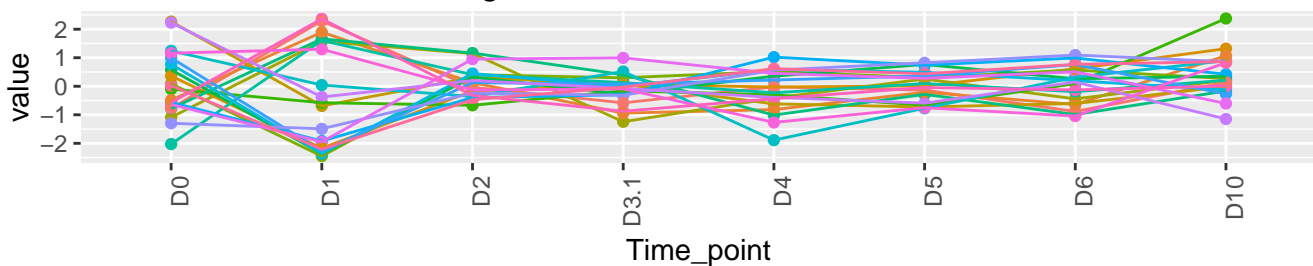
## 22 genes – EC\_KO-standardized



## 22 genes – FAP\_WT-standardized

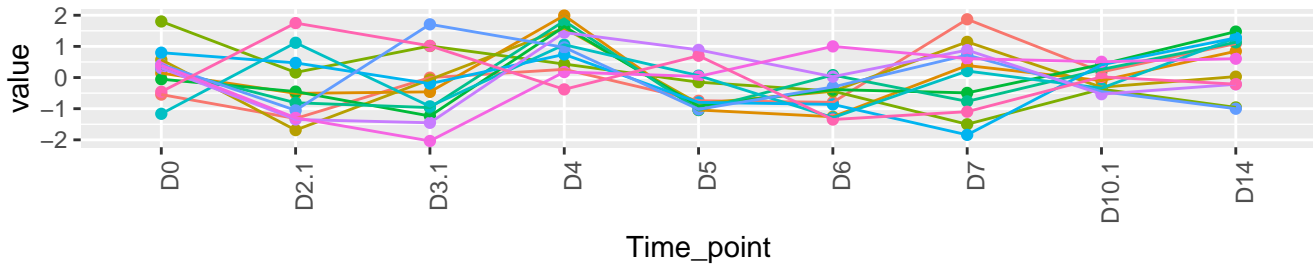


## 20 genes – FAP\_KO-standardized

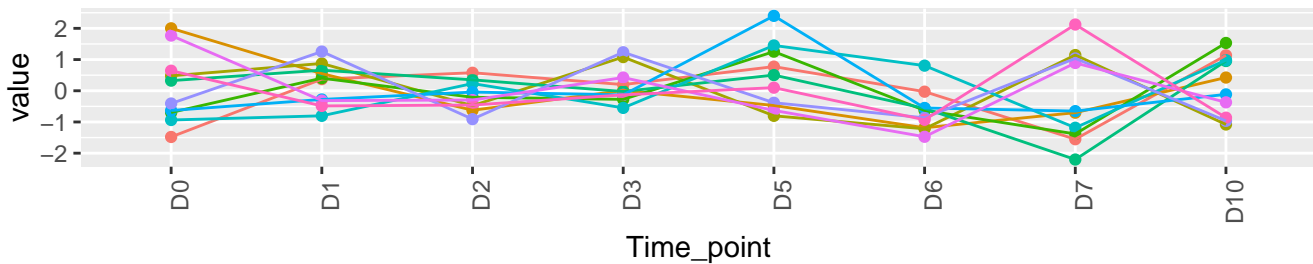


# Renal cell carcinoma.Gab1-17;22

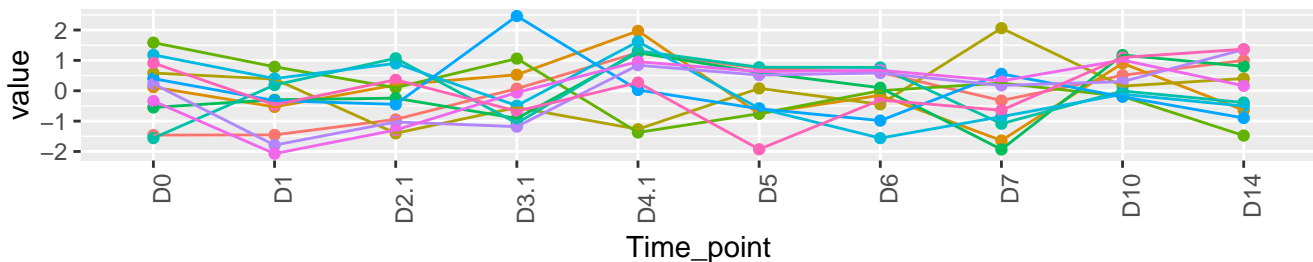
## 12 genes – EC\_WT-standardized



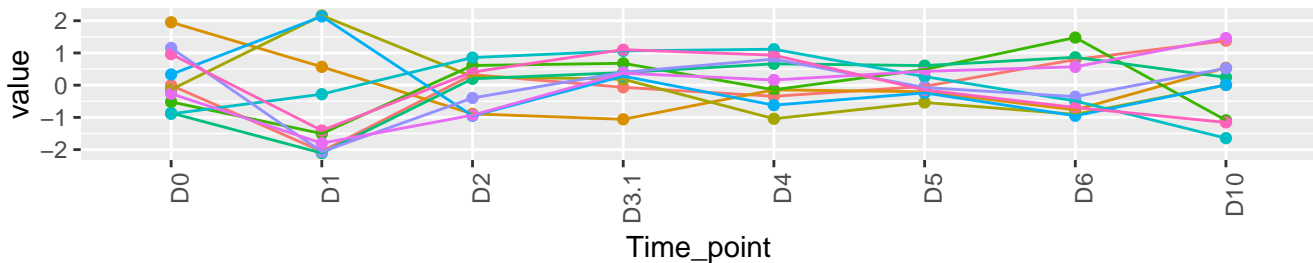
## 10 genes – EC\_KO-standardized



## 11 genes – FAP\_WT-standardized

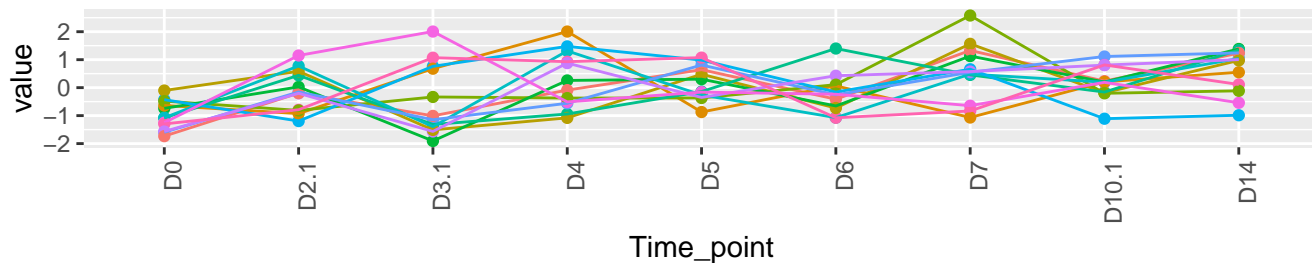


## 10 genes – FAP\_KO-standardized

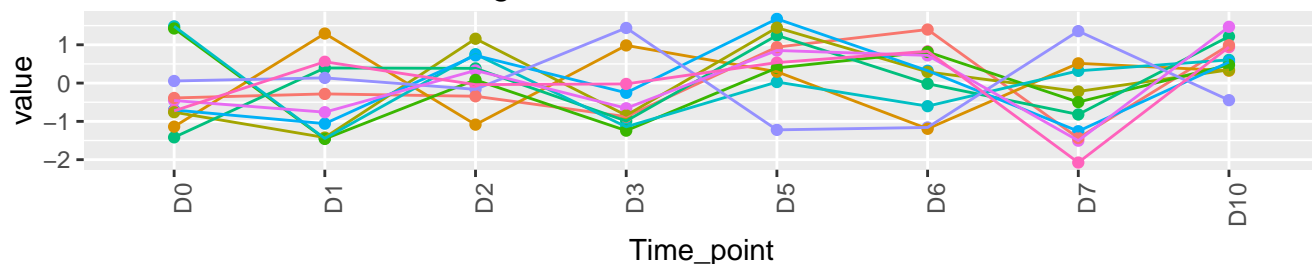


# Fc epsilon RI signaling pathway.Grb2-7;15

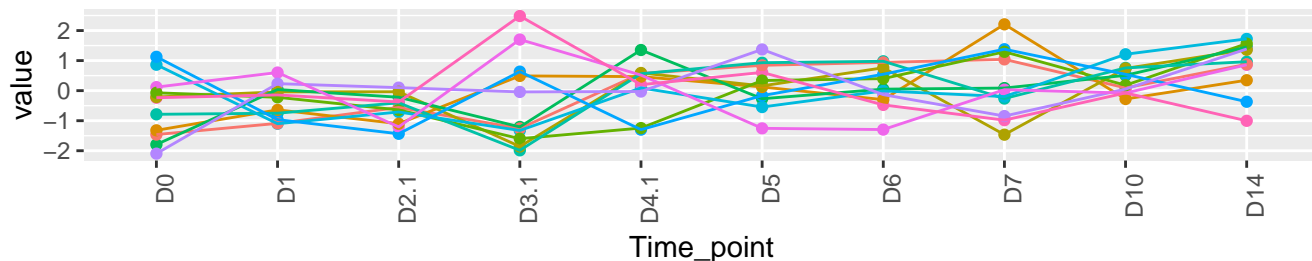
## 12 genes – EC\_WT-standardized



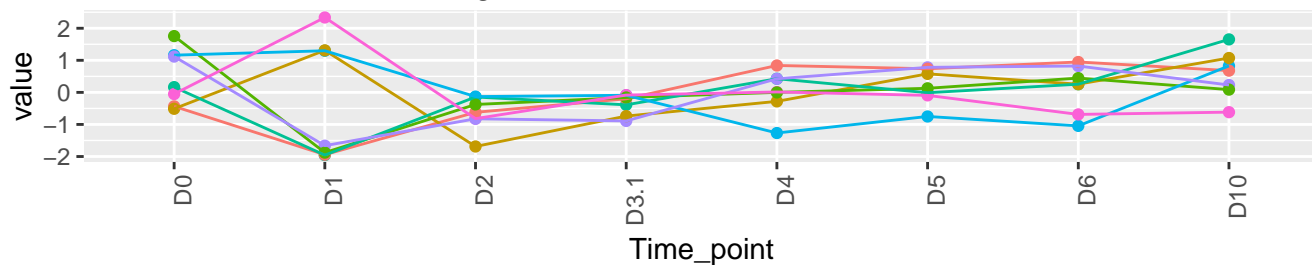
## 10 genes – EC\_KO-standardized



## 11 genes – FAP\_WT-standardized



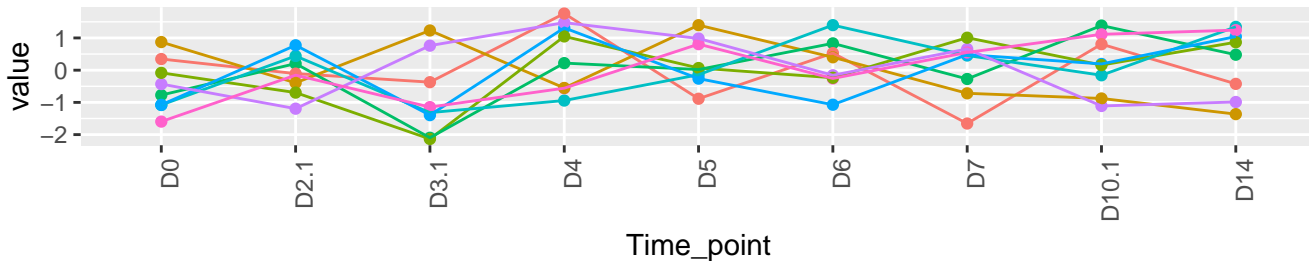
## 7 genes – FAP\_KO-standardized



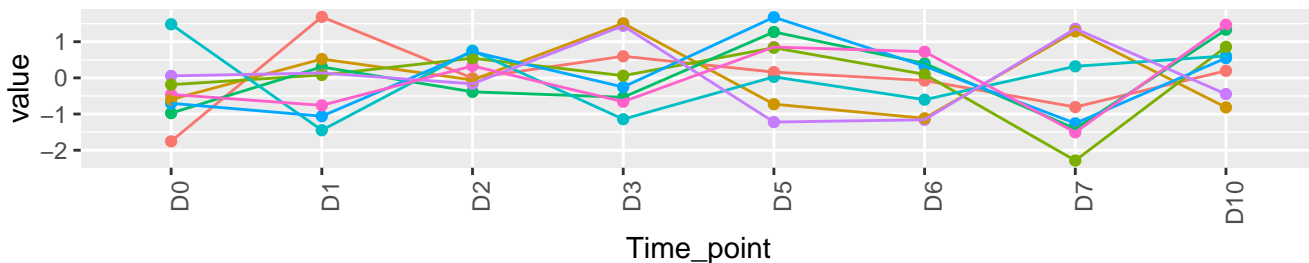


# Osteoclast differentiation.Camk4-2;5

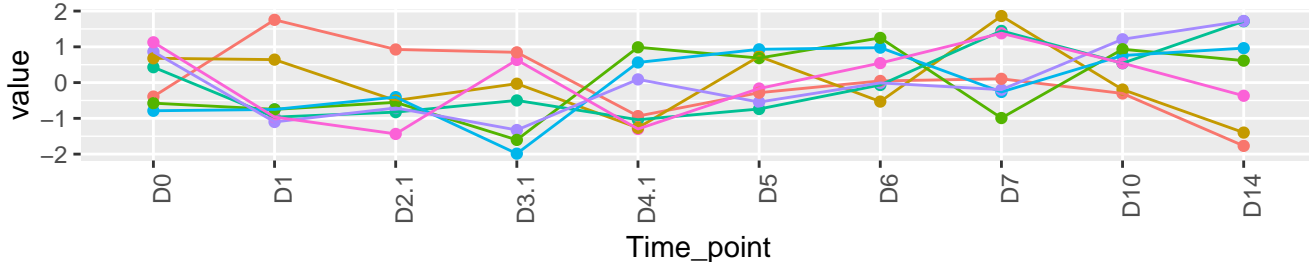
## 8 genes – EC\_WT-standardized



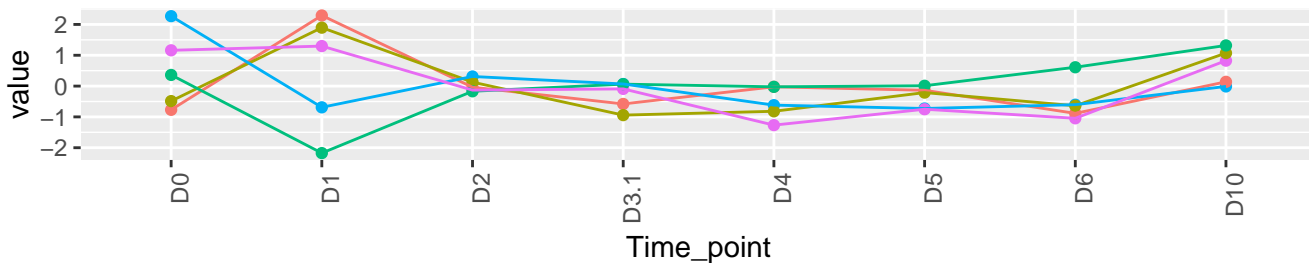
## 8 genes – EC\_KO-standardized



## 7 genes – FAP\_WT-standardized

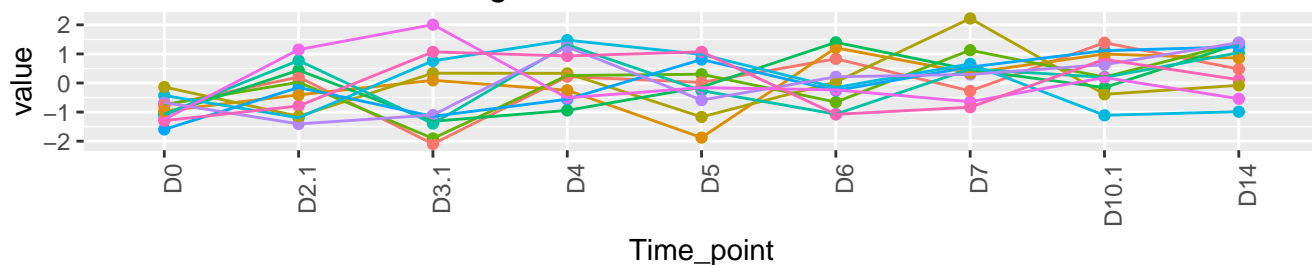


## 5 genes – FAP\_KO-standardized

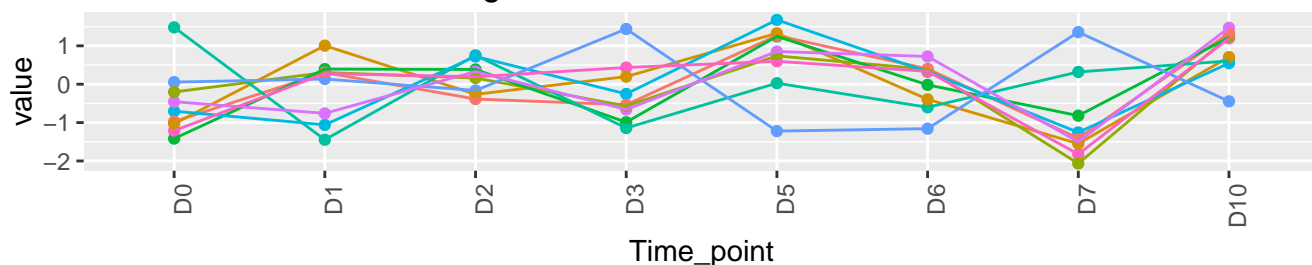


# Fc epsilon RI signaling pathway.Grb2-7;12

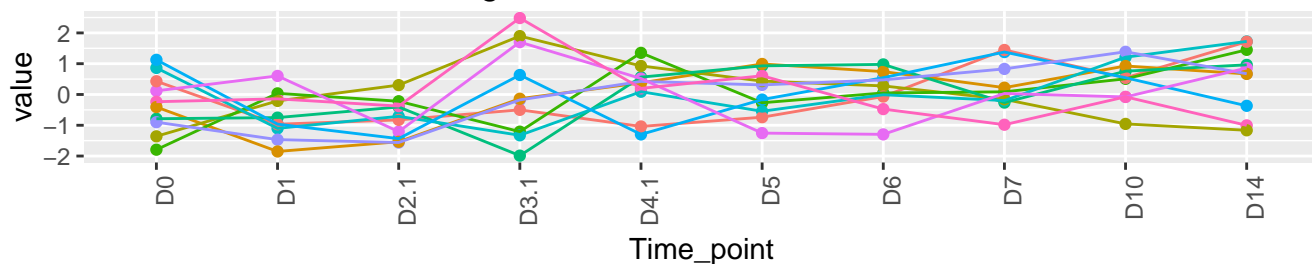
## 11 genes – EC\_WT-standardized



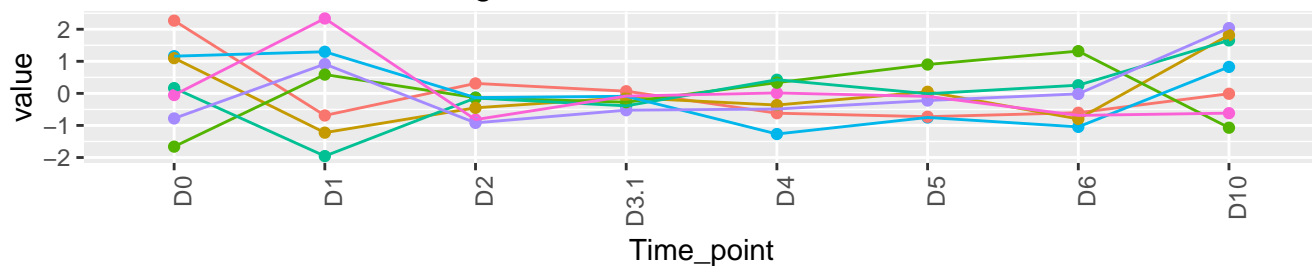
## 9 genes – EC\_KO-standardized



## 10 genes – FAP\_WT-standardized

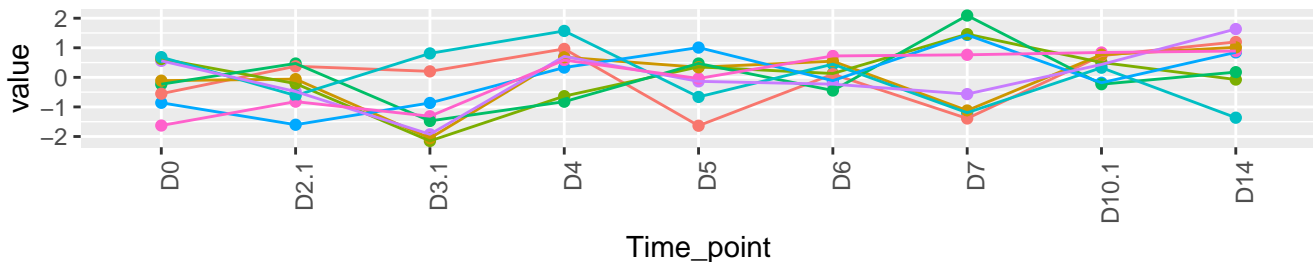


## 7 genes – FAP\_KO-standardized

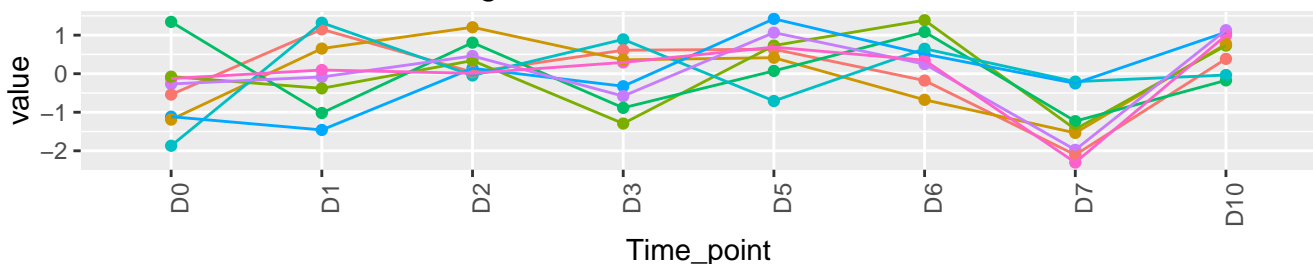


# Rap1 signaling pathway.F2r-1;20

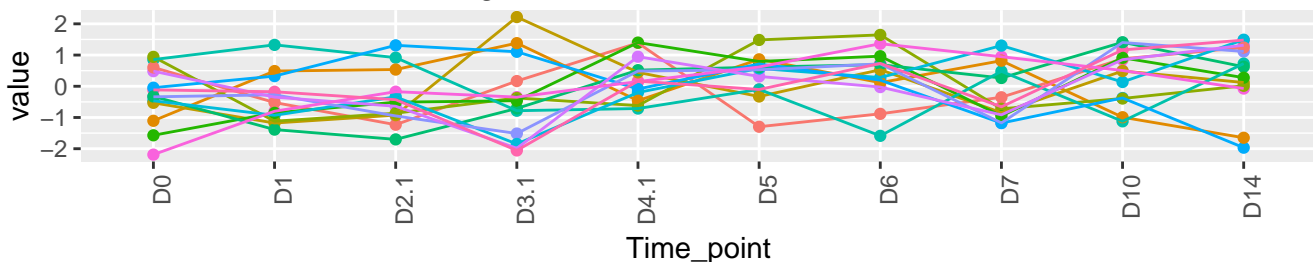
## 8 genes – EC\_WT-standardized



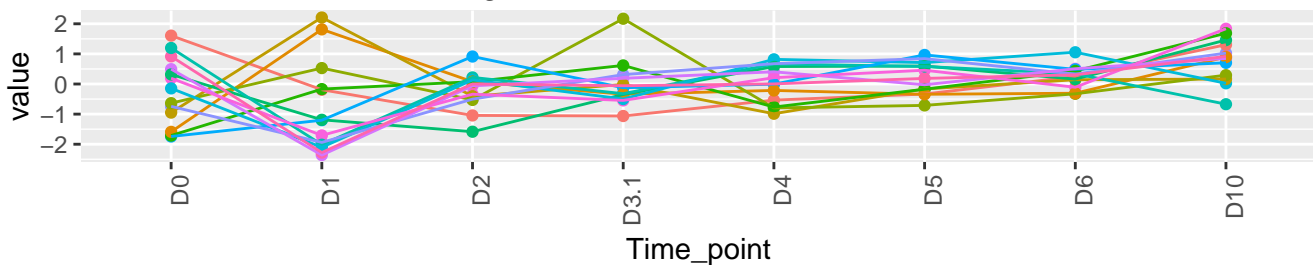
## 8 genes – EC\_KO-standardized



## 13 genes – FAP\_WT-standardized

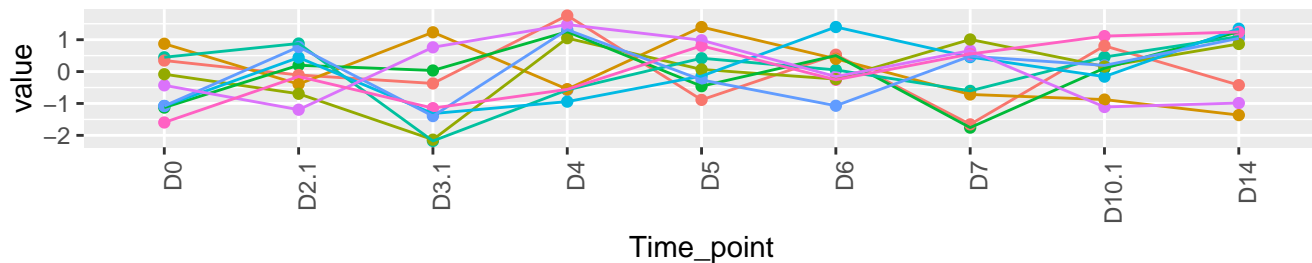


## 13 genes – FAP\_KO-standardized

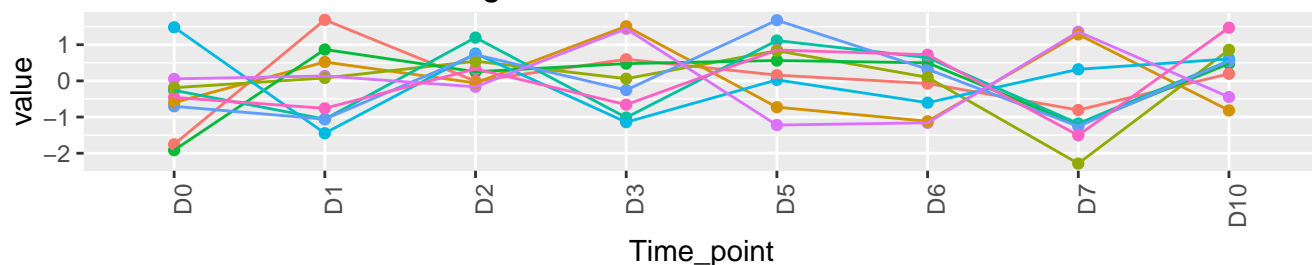


# Adrenergic signaling in cardiomyocytes.Gnai3-1;4

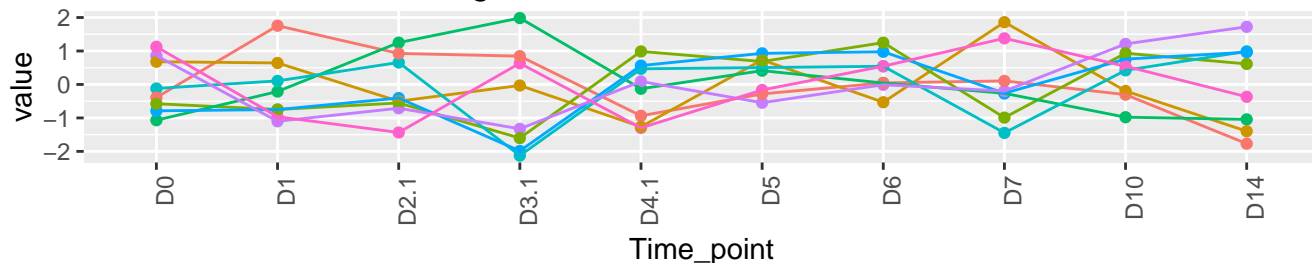
## 9 genes – EC\_WT-standardized



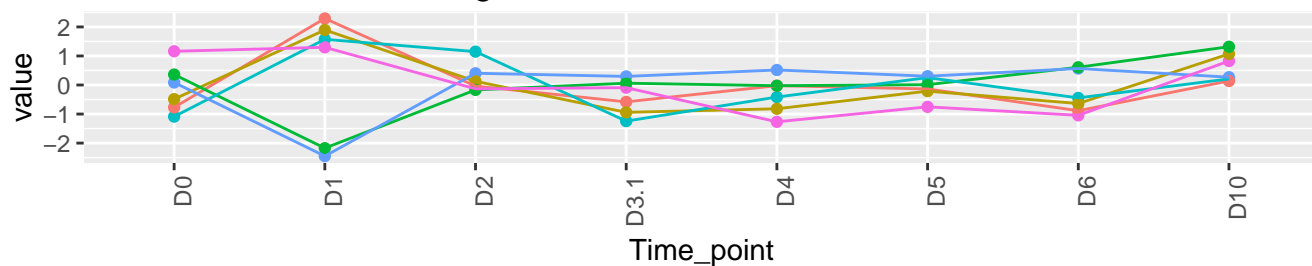
## 9 genes – EC\_KO-standardized



## 8 genes – FAP\_WT-standardized

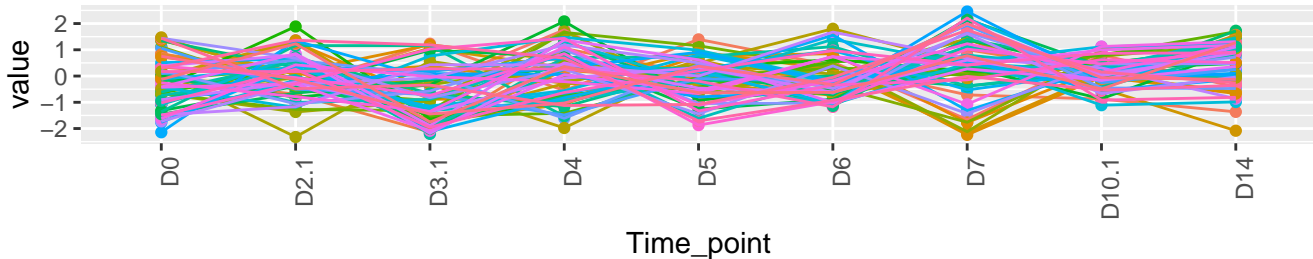


## 6 genes – FAP\_KO-standardized

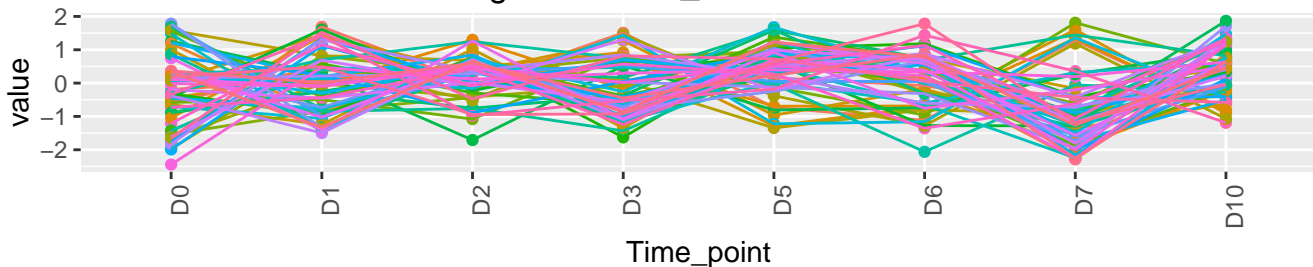


# PI3K-Akt signaling pathway.Stk11-1;18

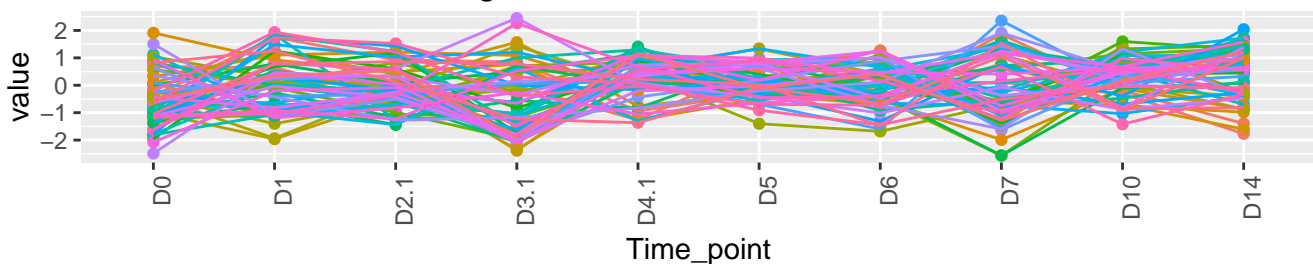
## 58 genes – EC\_WT-standardized



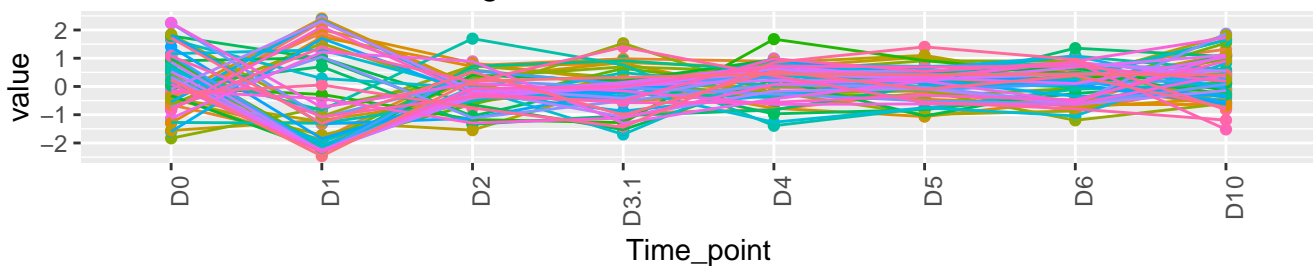
## 58 genes – EC\_KO-standardized



## 61 genes – FAP\_WT-standardized

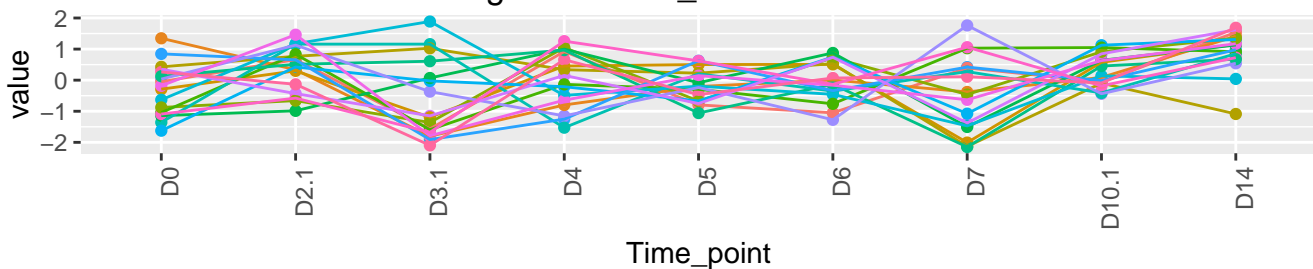


## 55 genes – FAP\_KO-standardized

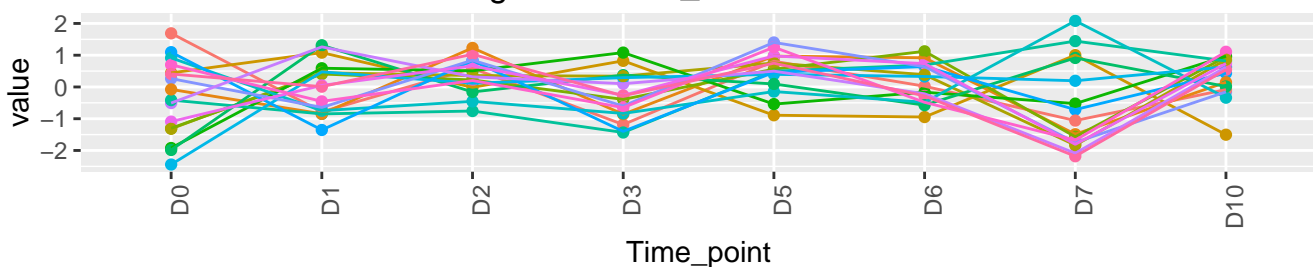


# Neurotrophin signaling pathway

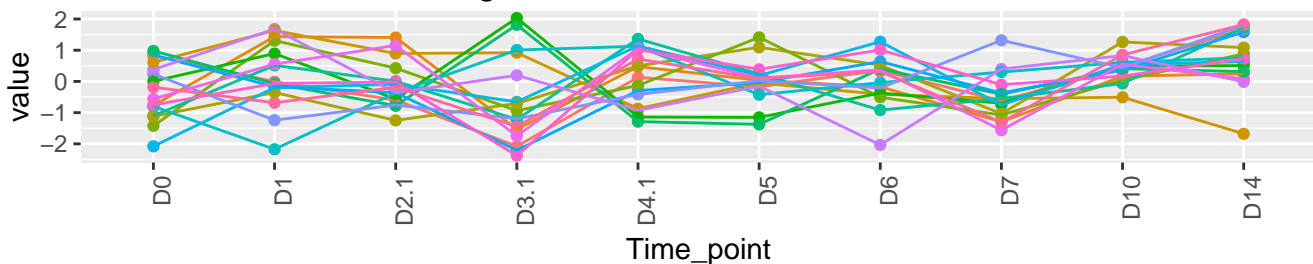
## 17 genes – EC\_WT-standardized



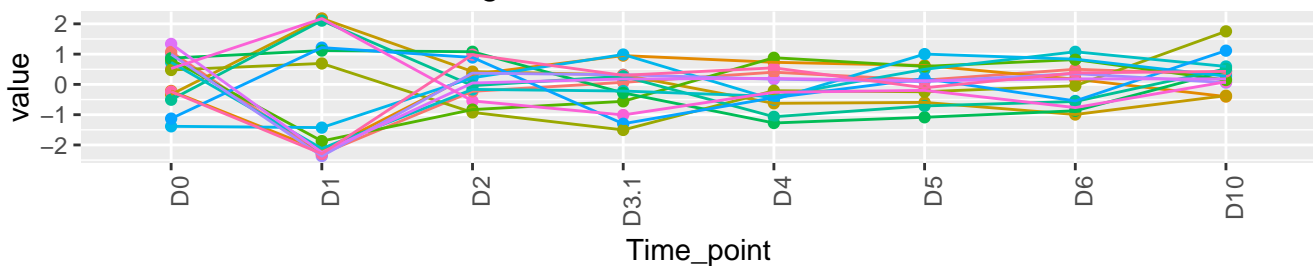
## 16 genes – EC\_KO-standardized



## 16 genes – FAP\_WT-standardized

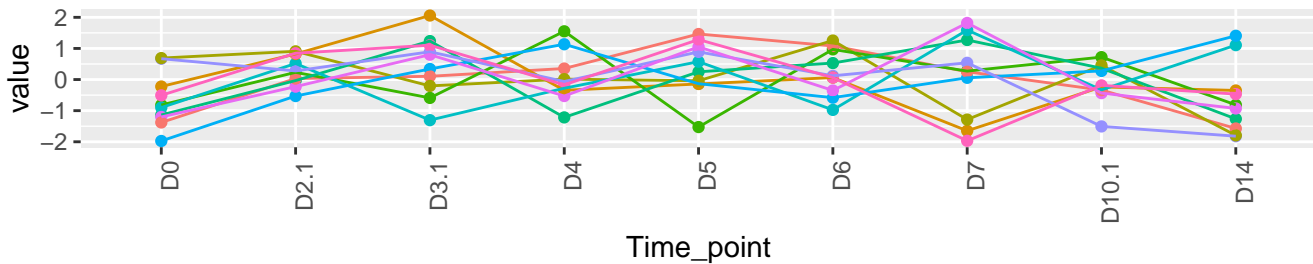


## 14 genes – FAP\_KO-standardized

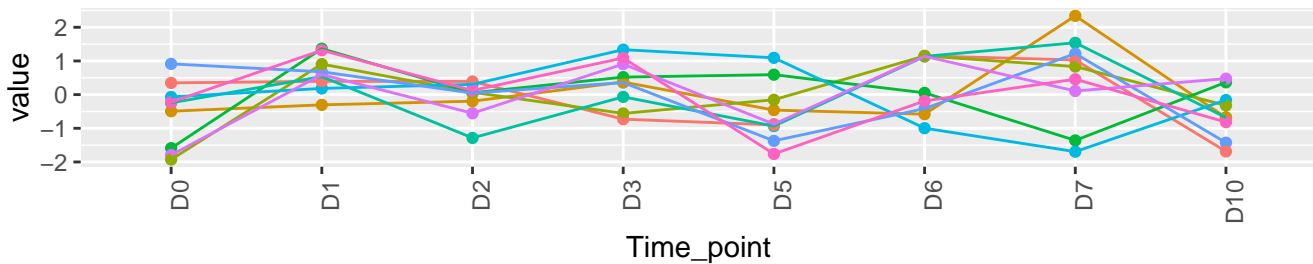


# Fructose and mannose metabolism.null-1;7

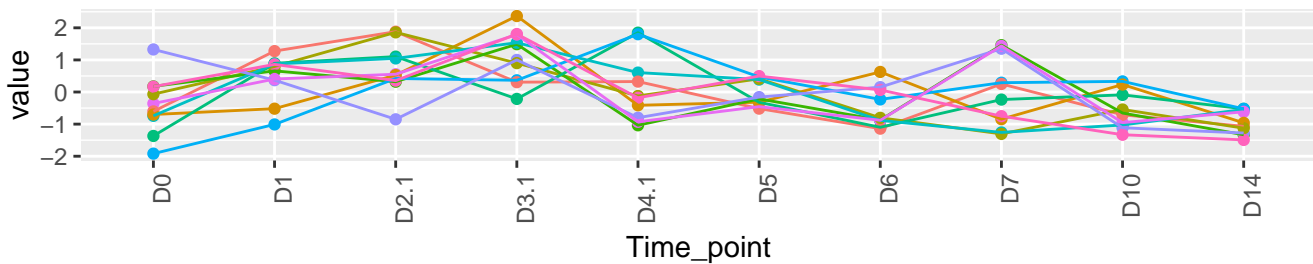
## 10 genes – EC\_WT-standardized



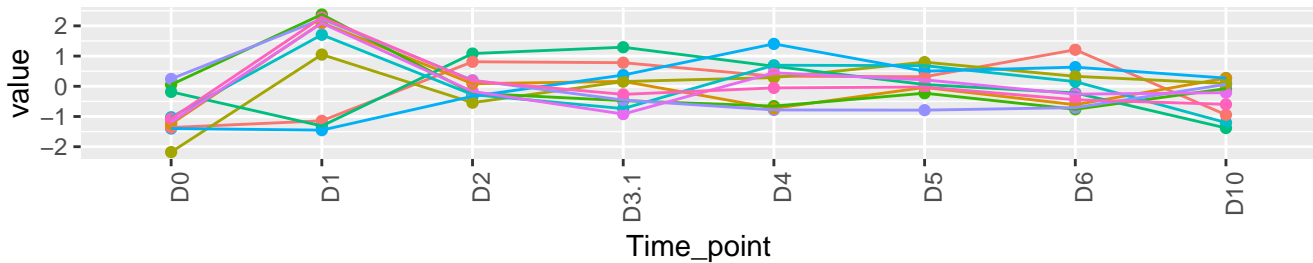
## 9 genes – EC\_KO-standardized



## 10 genes – FAP\_WT-standardized



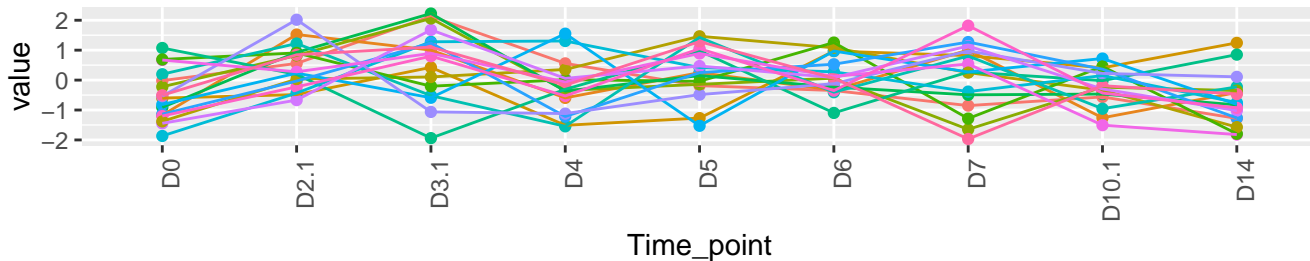
## 10 genes – FAP\_KO-standardized



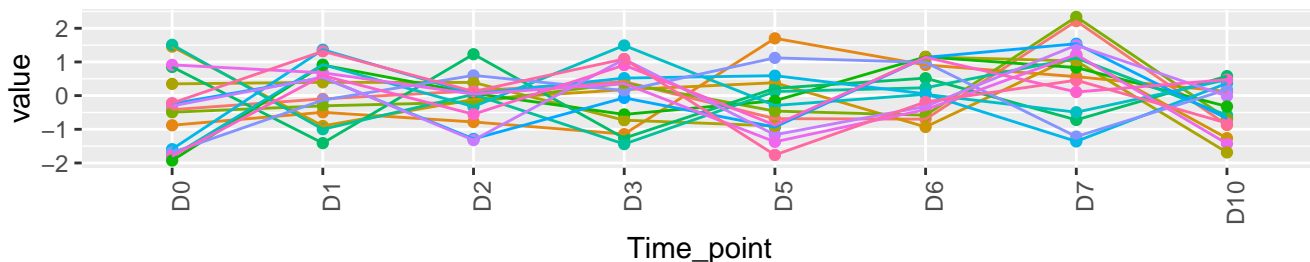


## Amino sugar and nucleotide sugar metabolism

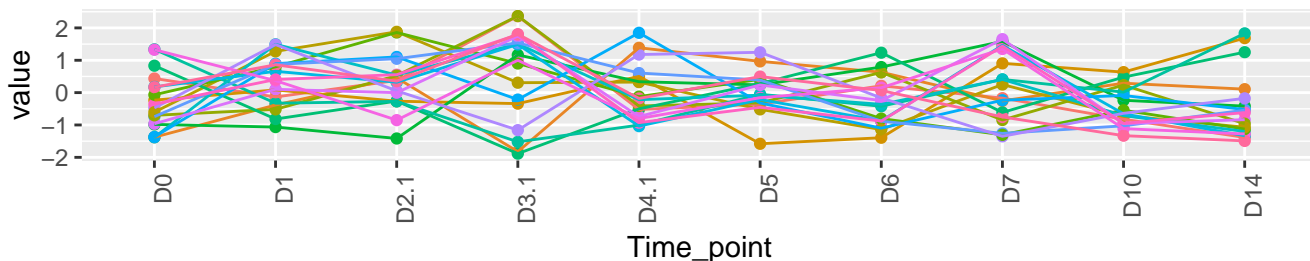
### 17 genes – EC\_WT-standardized



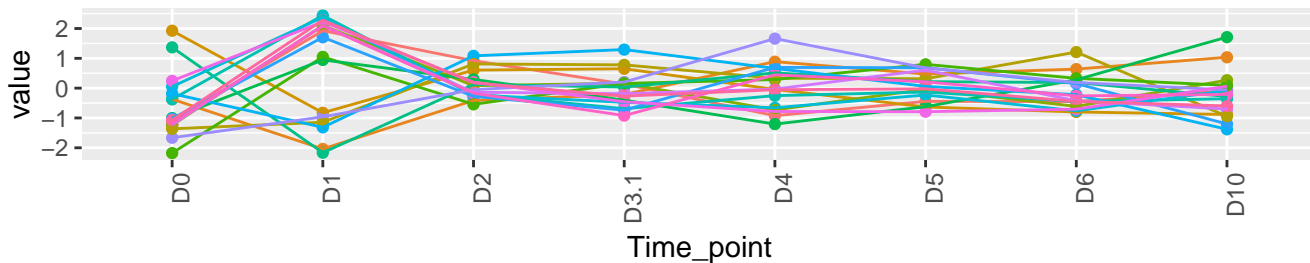
### 16 genes – EC\_KO-standardized



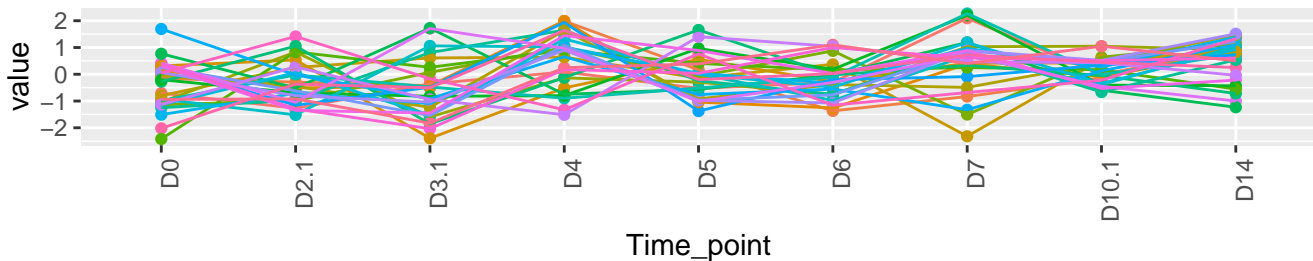
### 18 genes – FAP\_WT-standardized



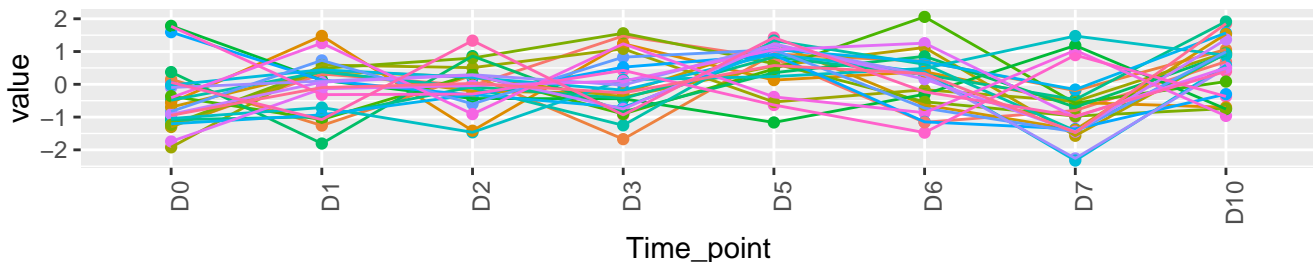
### 17 genes – FAP\_KO-standardized



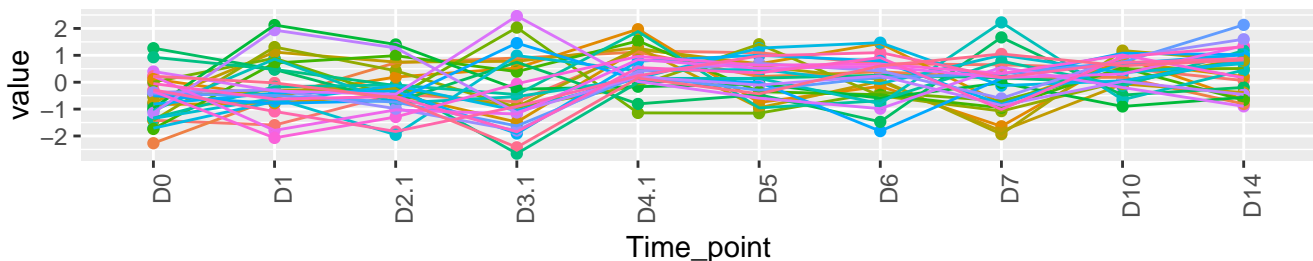
TGF- $\beta$  signaling pathway  
28 genes – EC\_WT-standardized



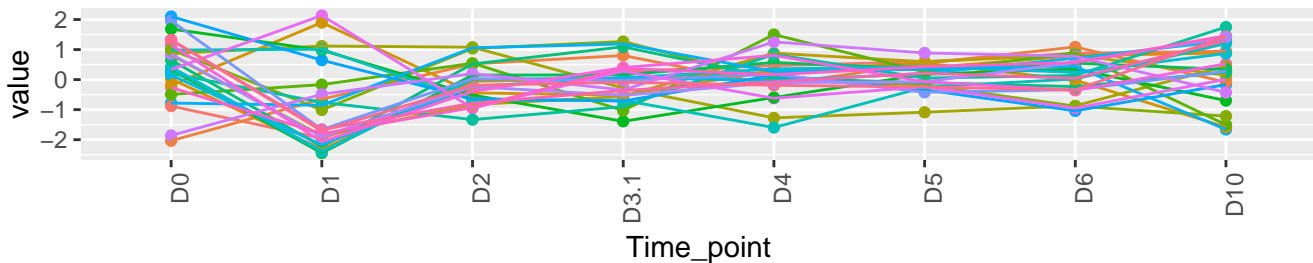
24 genes – EC\_KO-standardized



27 genes – FAP\_WT-standardized

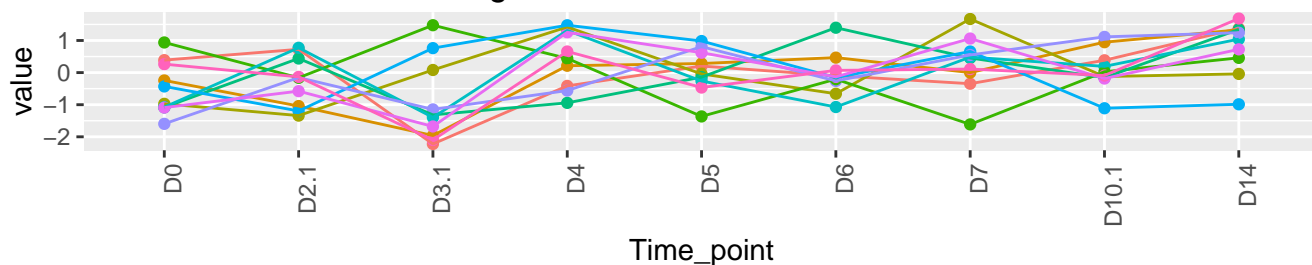


25 genes – FAP\_KO-standardized

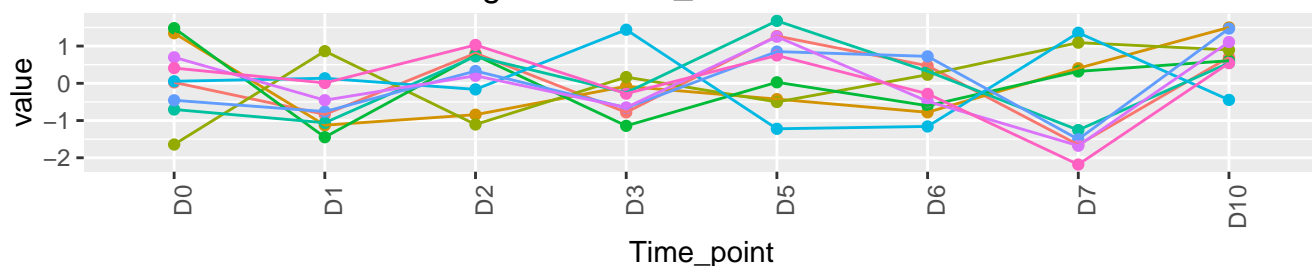


# Renal cell carcinoma.Gab1-1;15

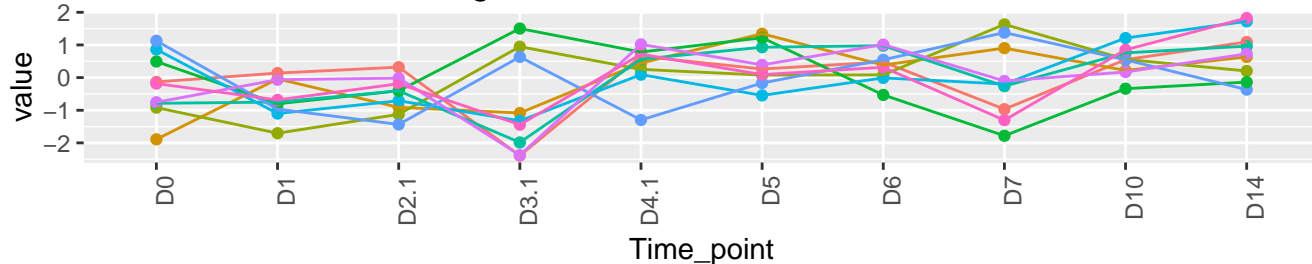
## 10 genes – EC\_WT-standardized



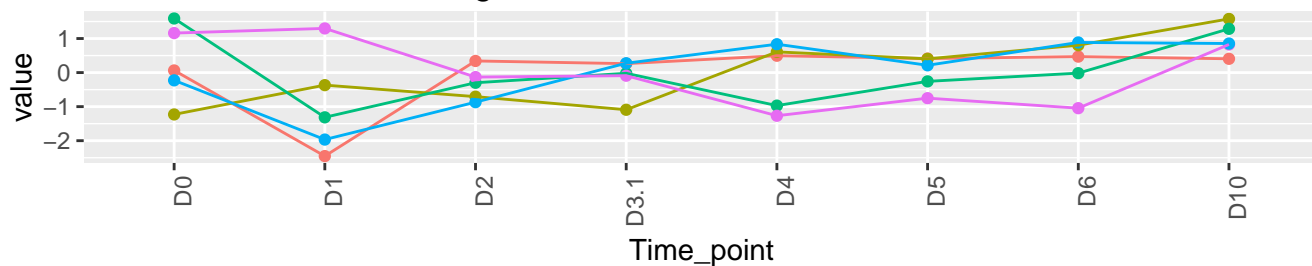
## 9 genes – EC\_KO-standardized



## 9 genes – FAP\_WT-standardized

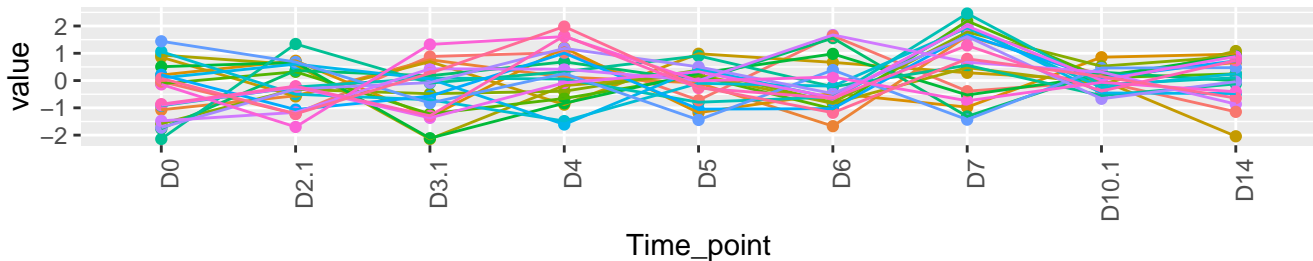


## 5 genes – FAP\_KO-standardized

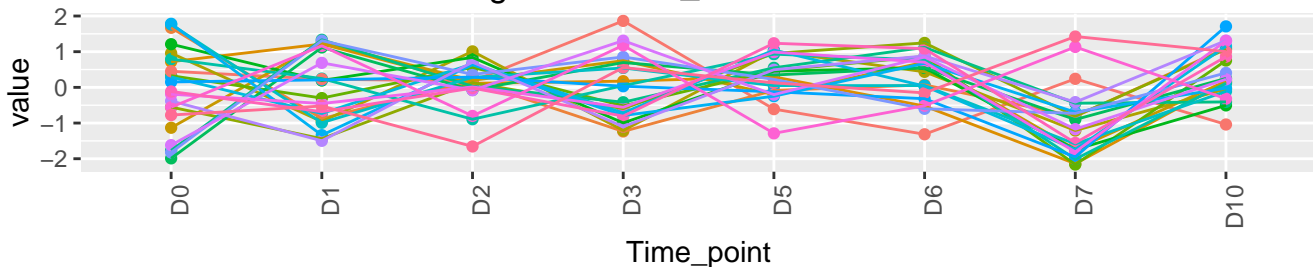


# Adrenergic signaling in cardiomyocytes.Gnai3-10;24

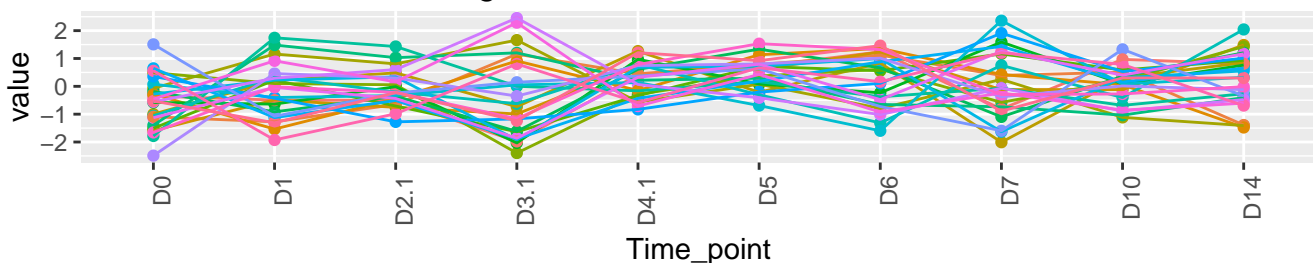
## 21 genes – EC\_WT-standardized



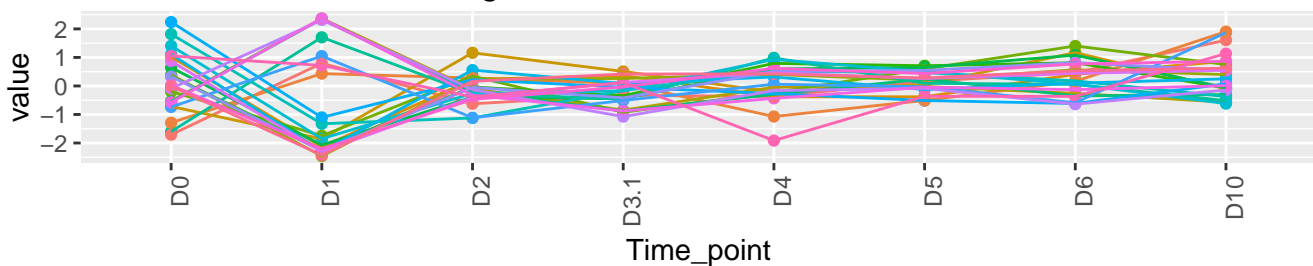
## 22 genes – EC\_KO-standardized



## 25 genes – FAP\_WT-standardized

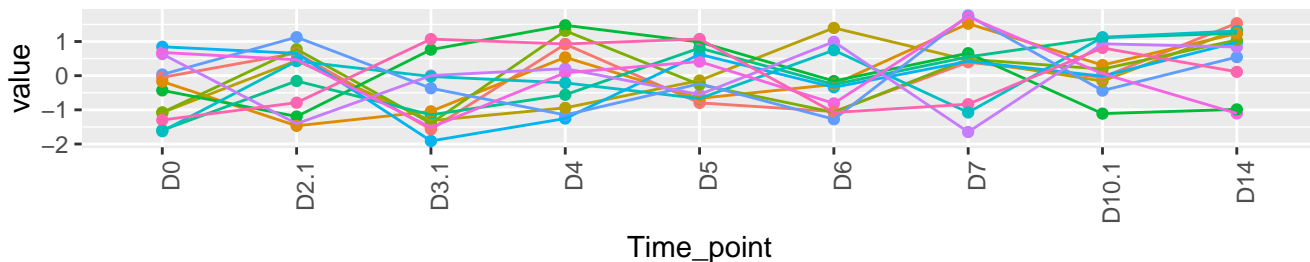


## 23 genes – FAP\_KO-standardized

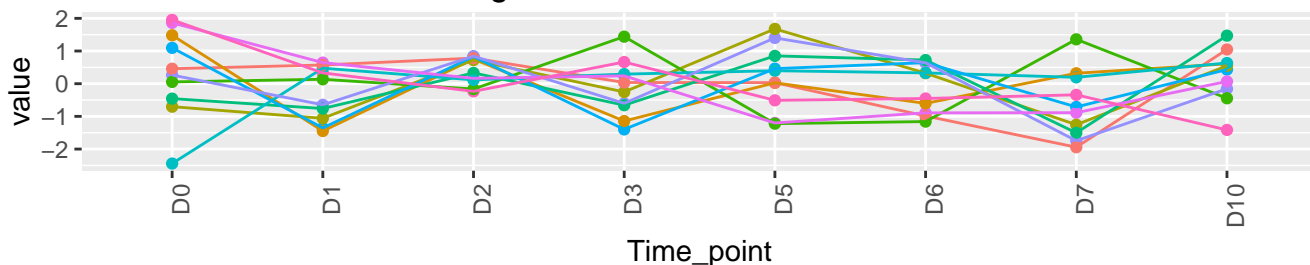


# cAMP signaling pathway.Rras2-1;34

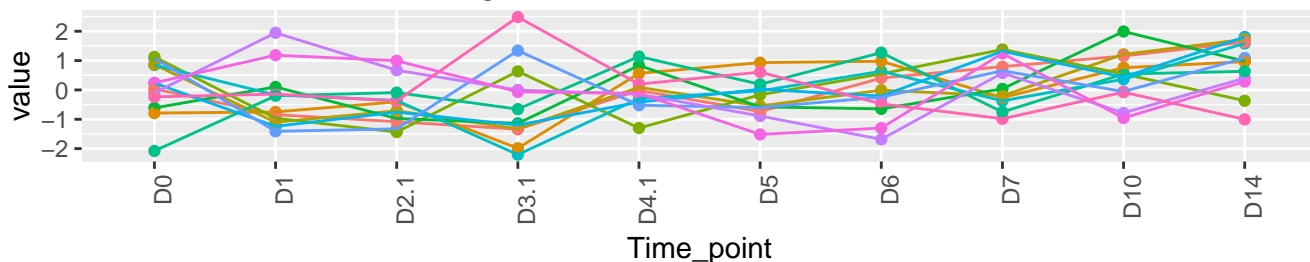
## 12 genes – EC\_WT-standardized



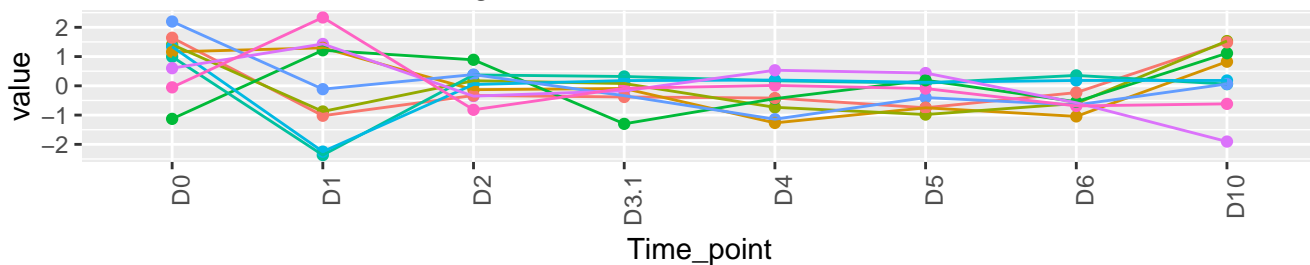
## 10 genes – EC\_KO-standardized



## 12 genes – FAP\_WT-standardized

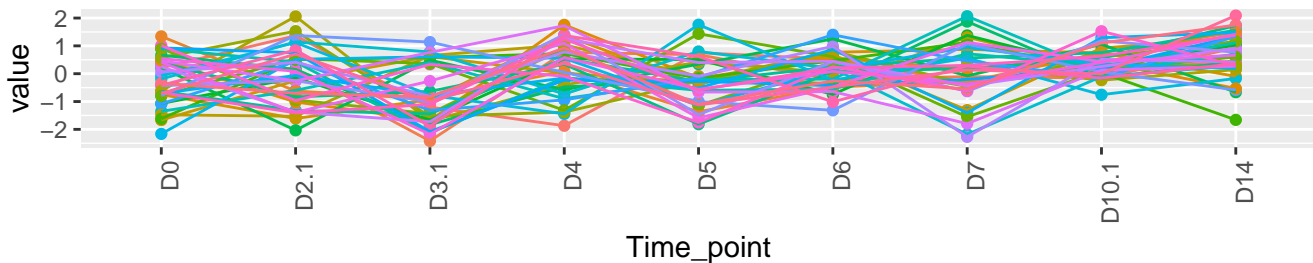


## 9 genes – FAP\_KO-standardized

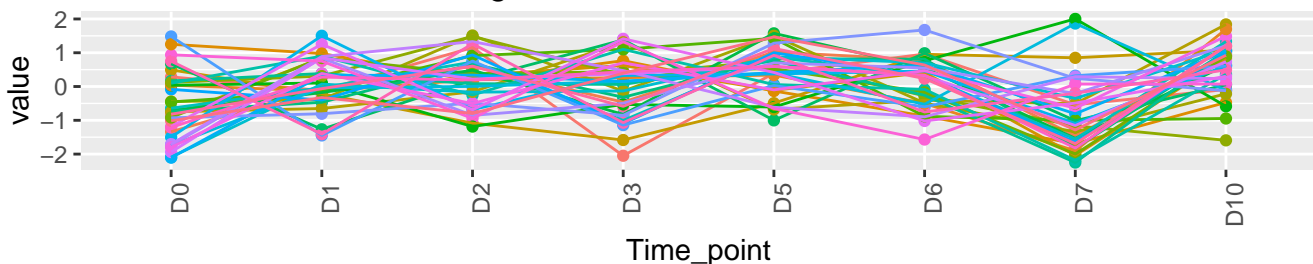


# Inositol phosphate metabolism

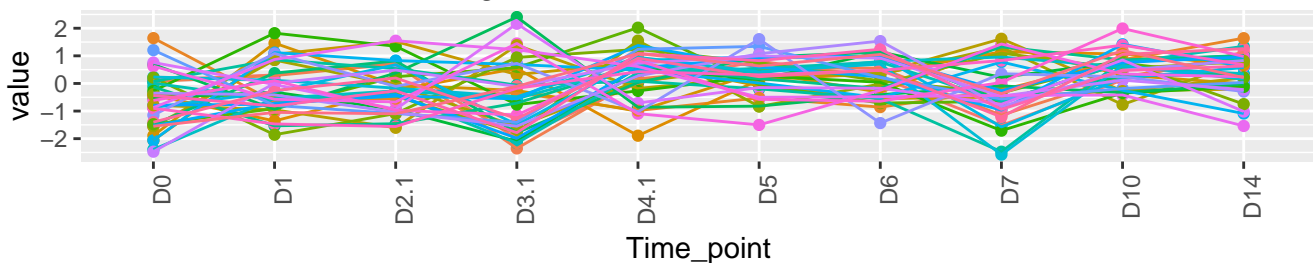
## 37 genes – EC\_WT-standardized



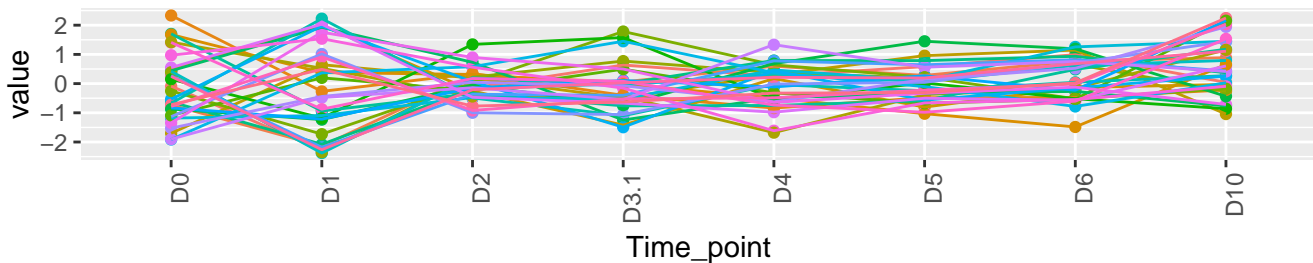
## 35 genes – EC\_KO-standardized



## 36 genes – FAP\_WT-standardized

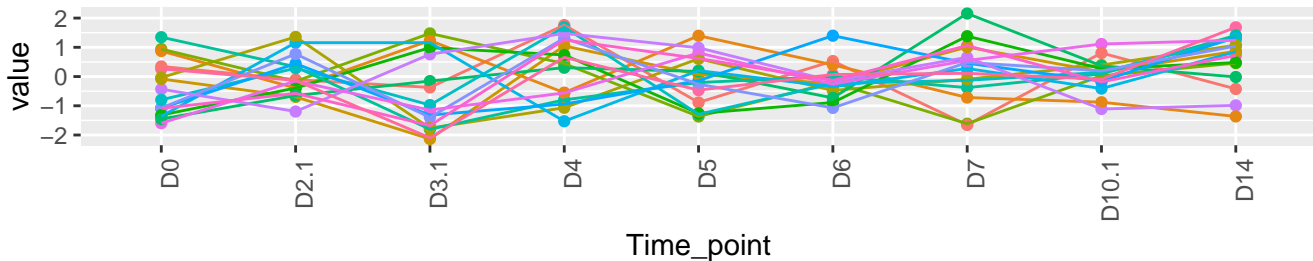


## 32 genes – FAP\_KO-standardized

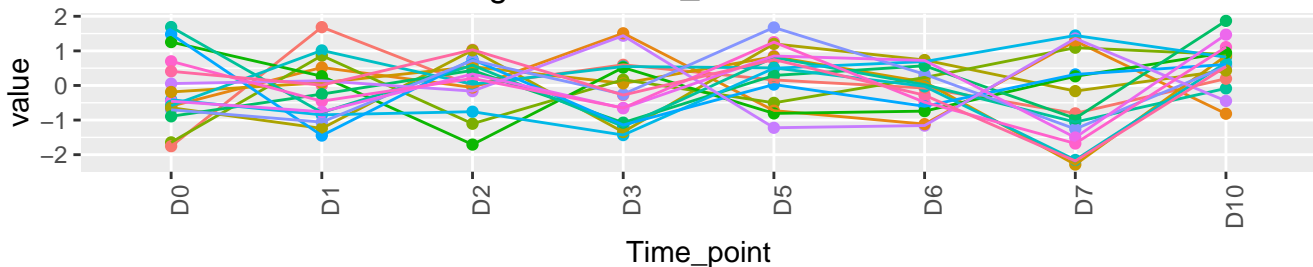


Acute myeloid leukemia.Grb2-1;7

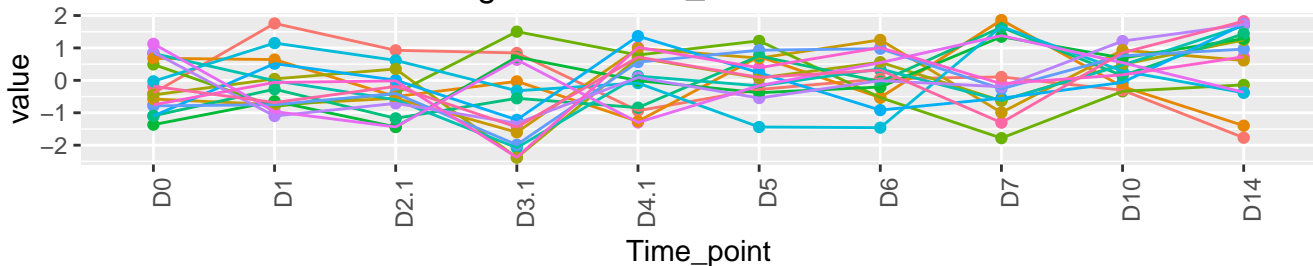
16 genes – EC\_WT-standardized



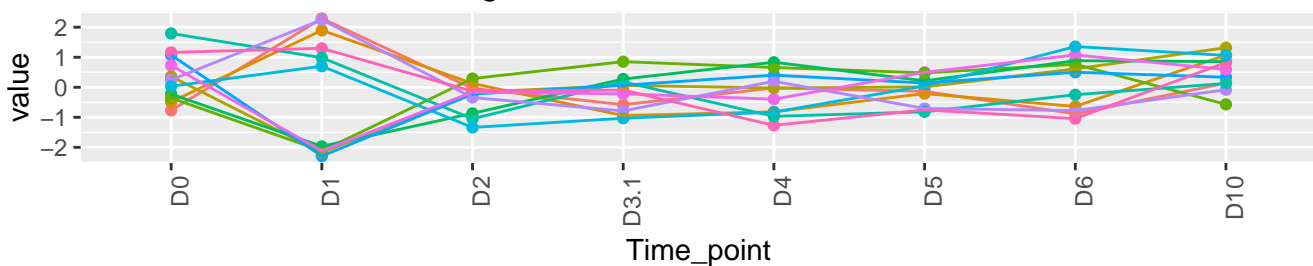
16 genes – EC\_KO-standardized



15 genes – FAP\_WT-standardized



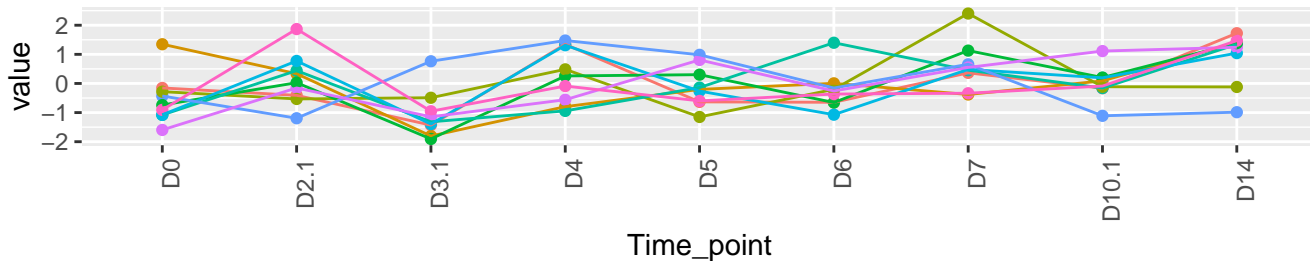
11 genes – FAP\_KO-standardized



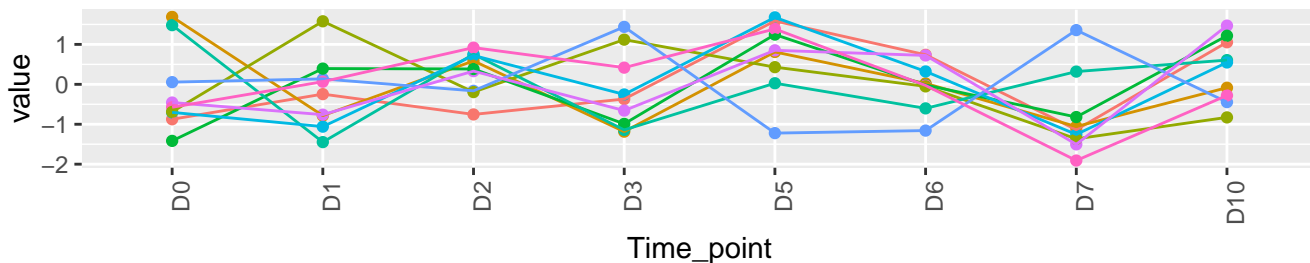


# Aldosterone-regulated sodium reabsorption

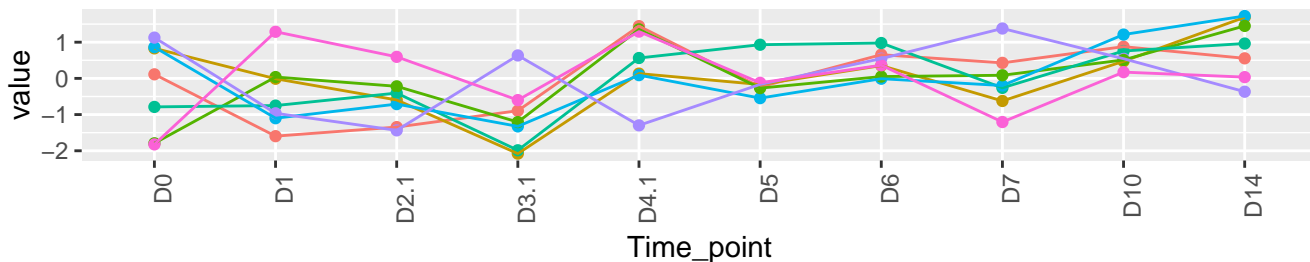
## 9 genes – EC\_WT-standardized



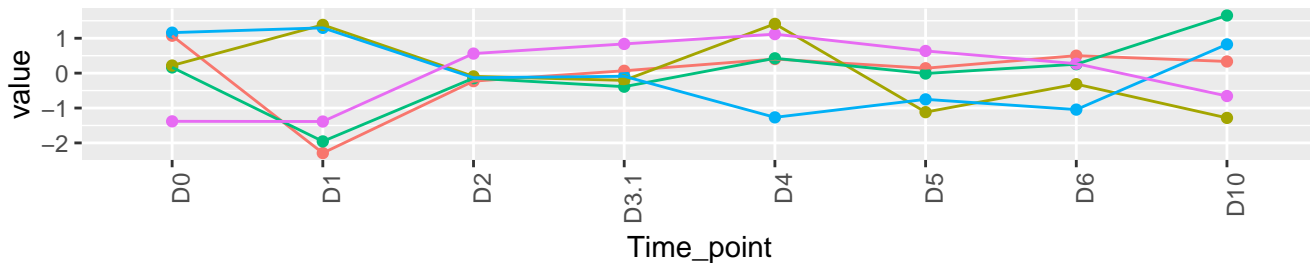
## 9 genes – EC\_KO-standardized



## 7 genes – FAP\_WT-standardized

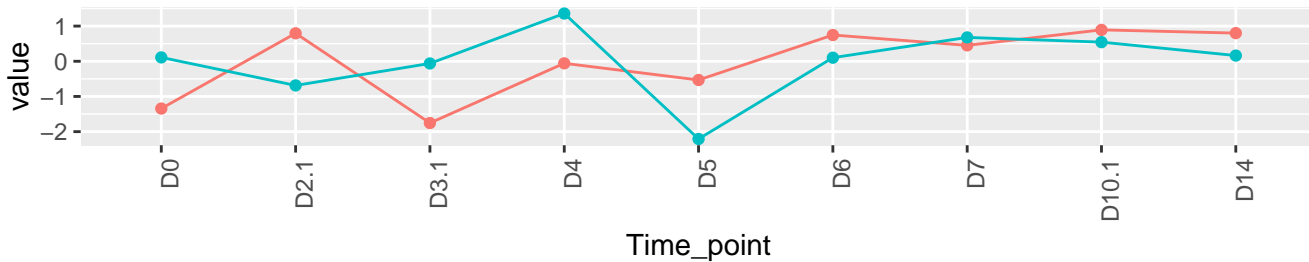


## 5 genes – FAP\_KO-standardized

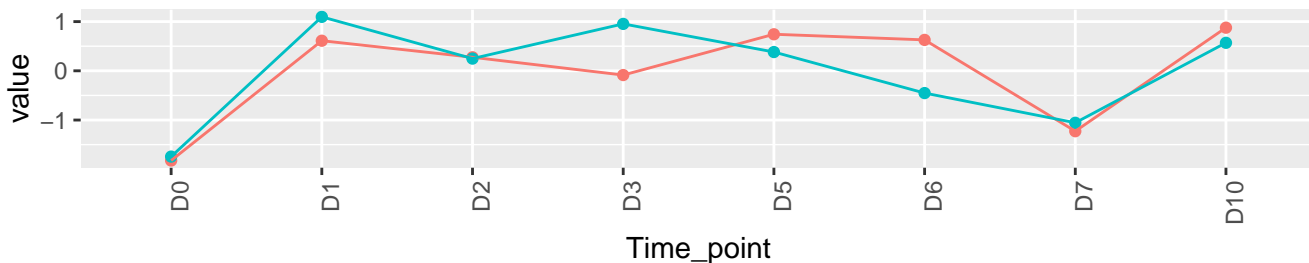


# Bacterial invasion of epithelial cells.Src-1;21

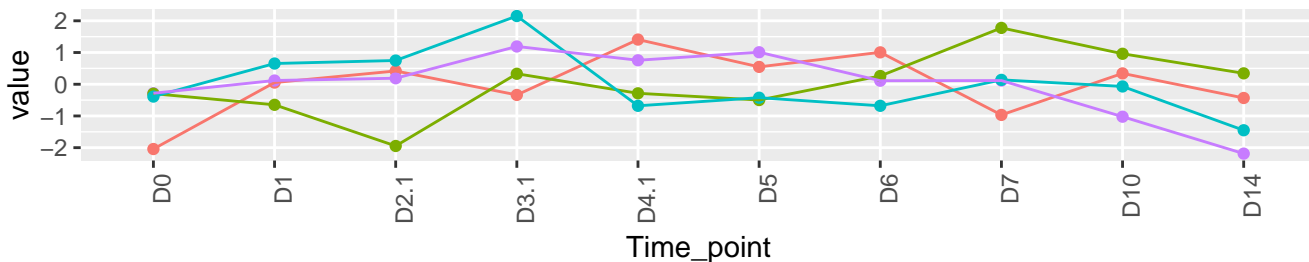
## 2 genes – EC\_WT-standardized



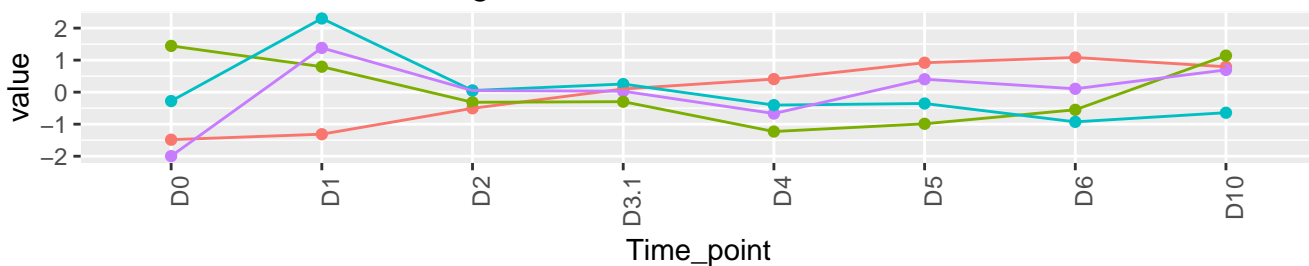
## 2 genes – EC\_KO-standardized



## 4 genes – FAP\_WT-standardized

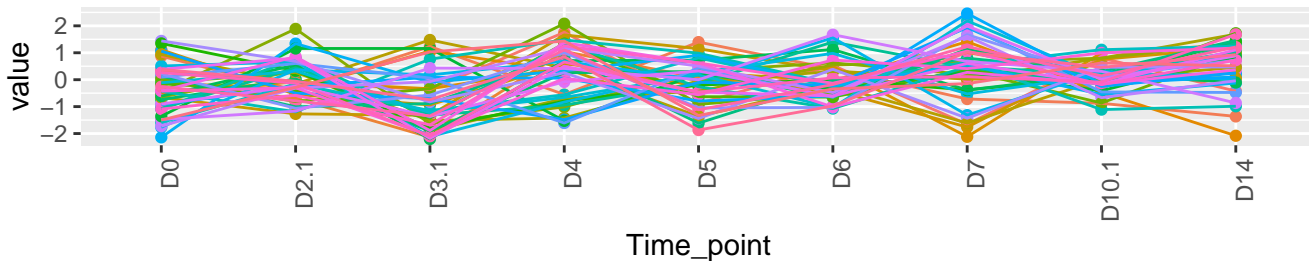


## 4 genes – FAP\_KO-standardized

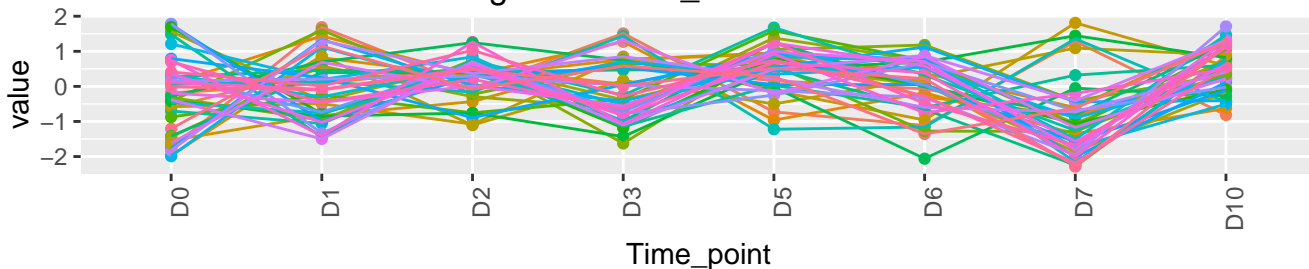


# PI3K-Akt signaling pathway.Stk11-1;21

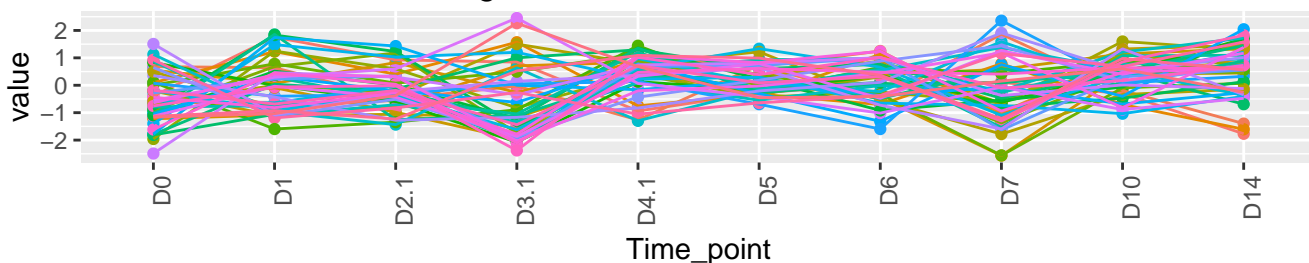
## 42 genes – EC\_WT-standardized



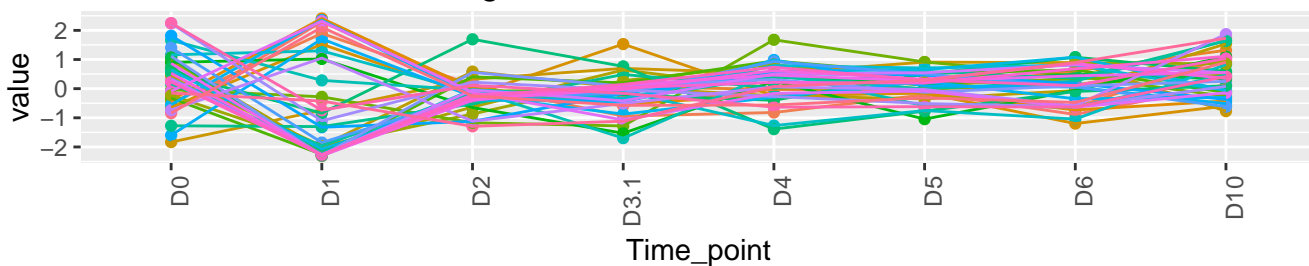
## 42 genes – EC\_KO-standardized



## 45 genes – FAP\_WT-standardized

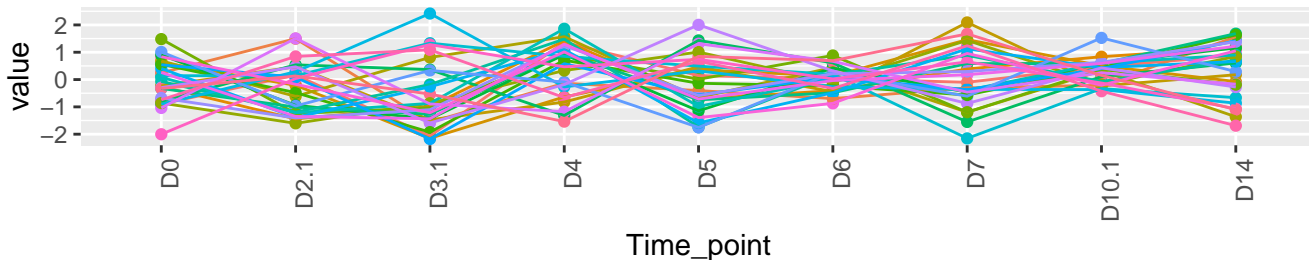


## 38 genes – FAP\_KO-standardized

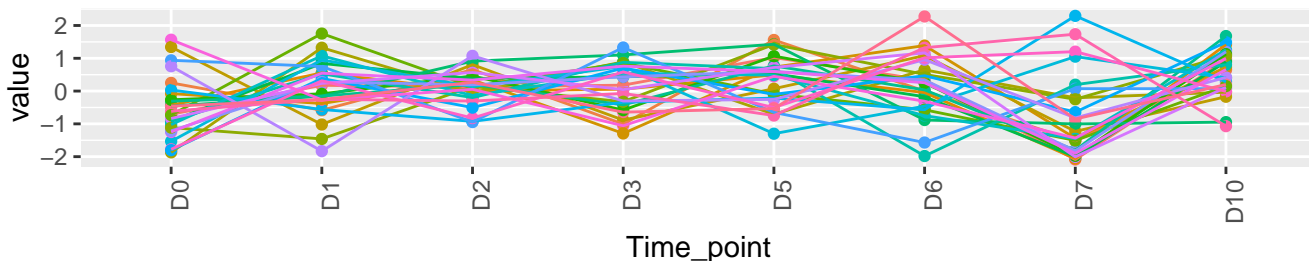


# Calcium signaling pathway

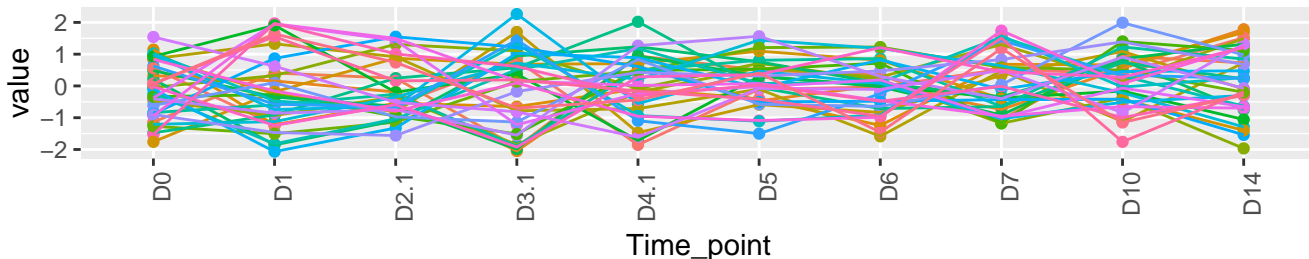
## 27 genes – EC\_WT-standardized



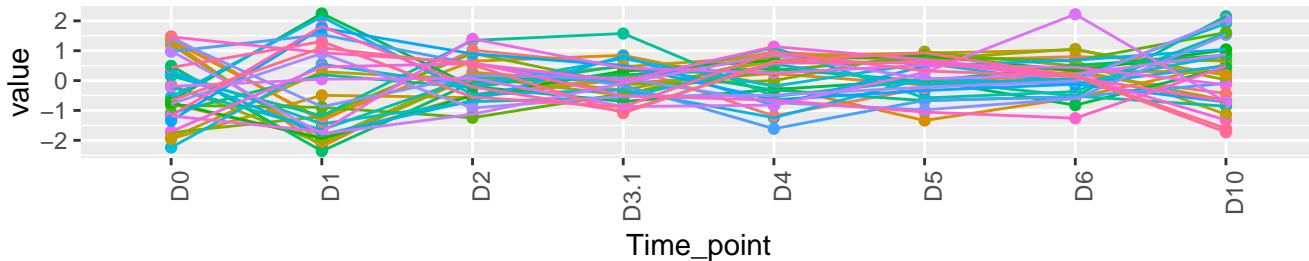
## 26 genes – EC\_KO-standardized



## 34 genes – FAP\_WT-standardized

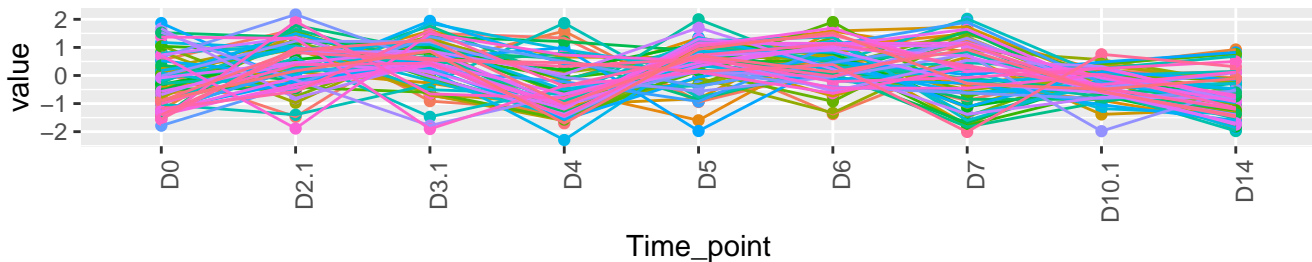


## 32 genes – FAP\_KO-standardized

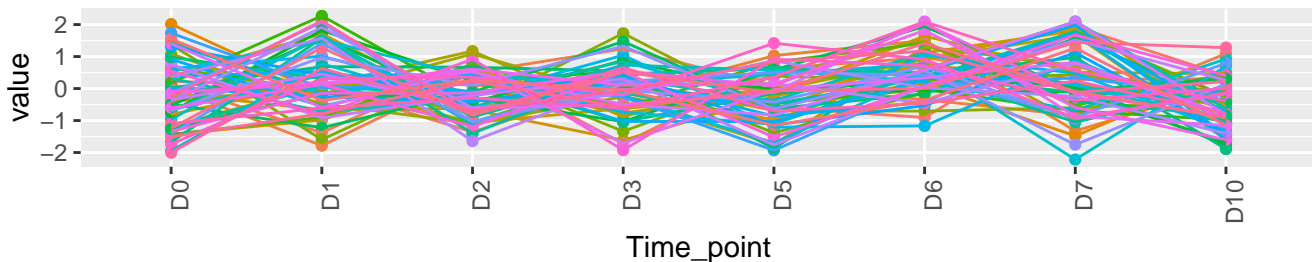


# Pyrimidine metabolism

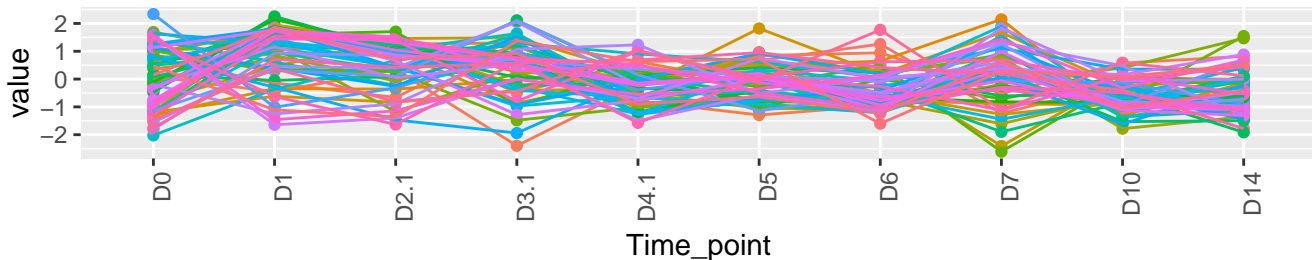
## 63 genes – EC\_WT-standardized



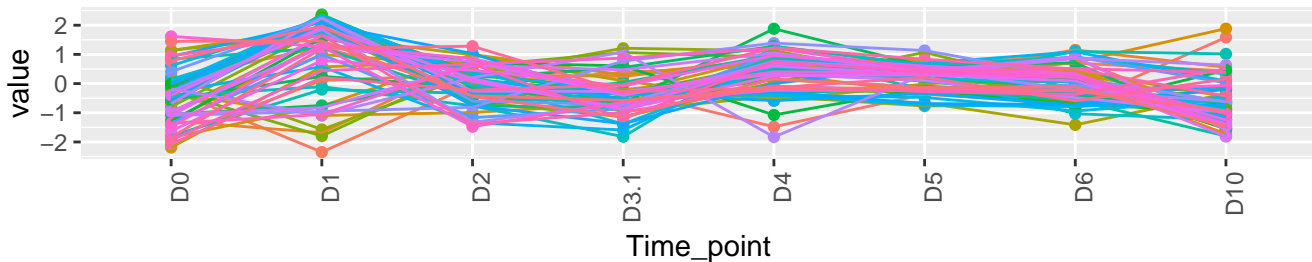
## 60 genes – EC\_KO-standardized



## 58 genes – FAP\_WT-standardized

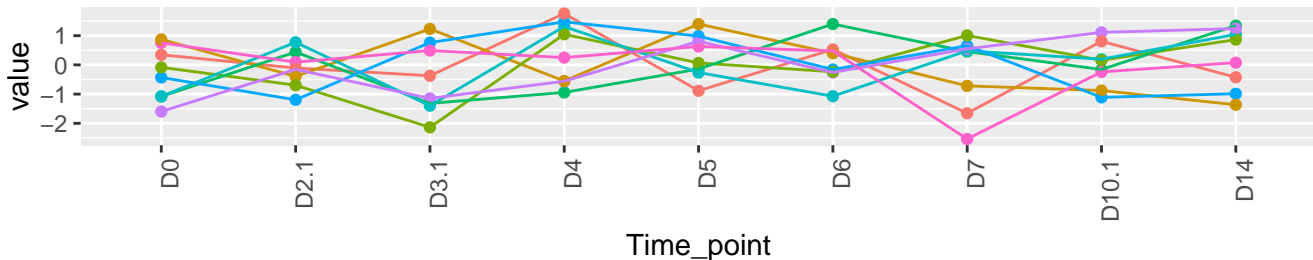


## 59 genes – FAP\_KO-standardized

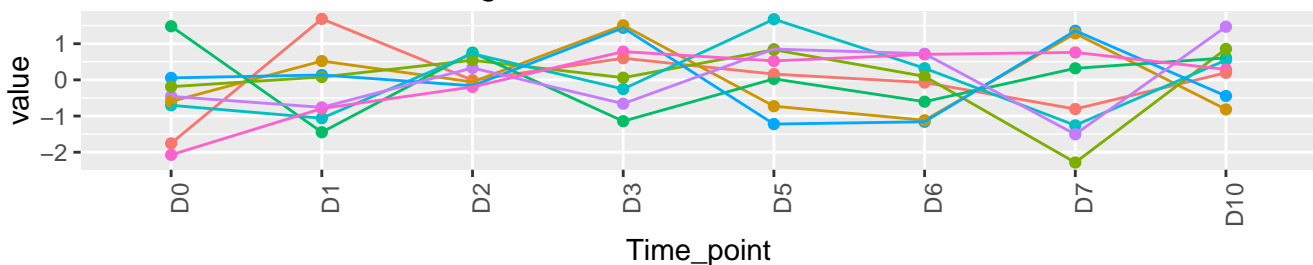


# TNF signaling pathway.Tnfrsf1b-1;5

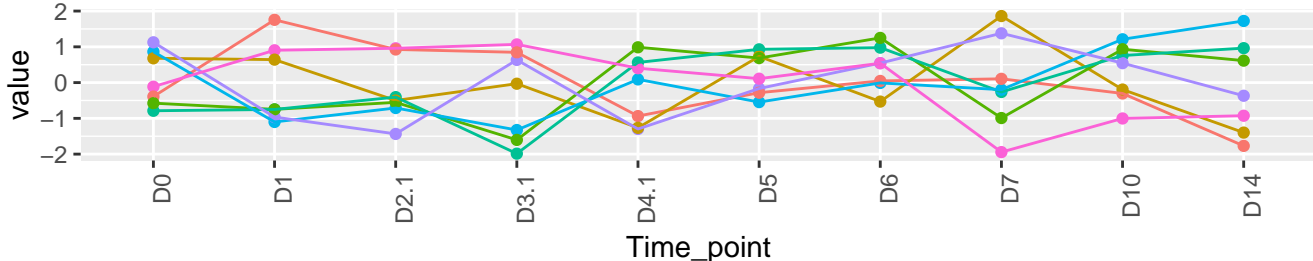
## 8 genes – EC\_WT-standardized



## 8 genes – EC\_KO-standardized



## 7 genes – FAP\_WT-standardized



## 5 genes – FAP\_KO-standardized

