

Figure S2

ACC

PD1

PD1

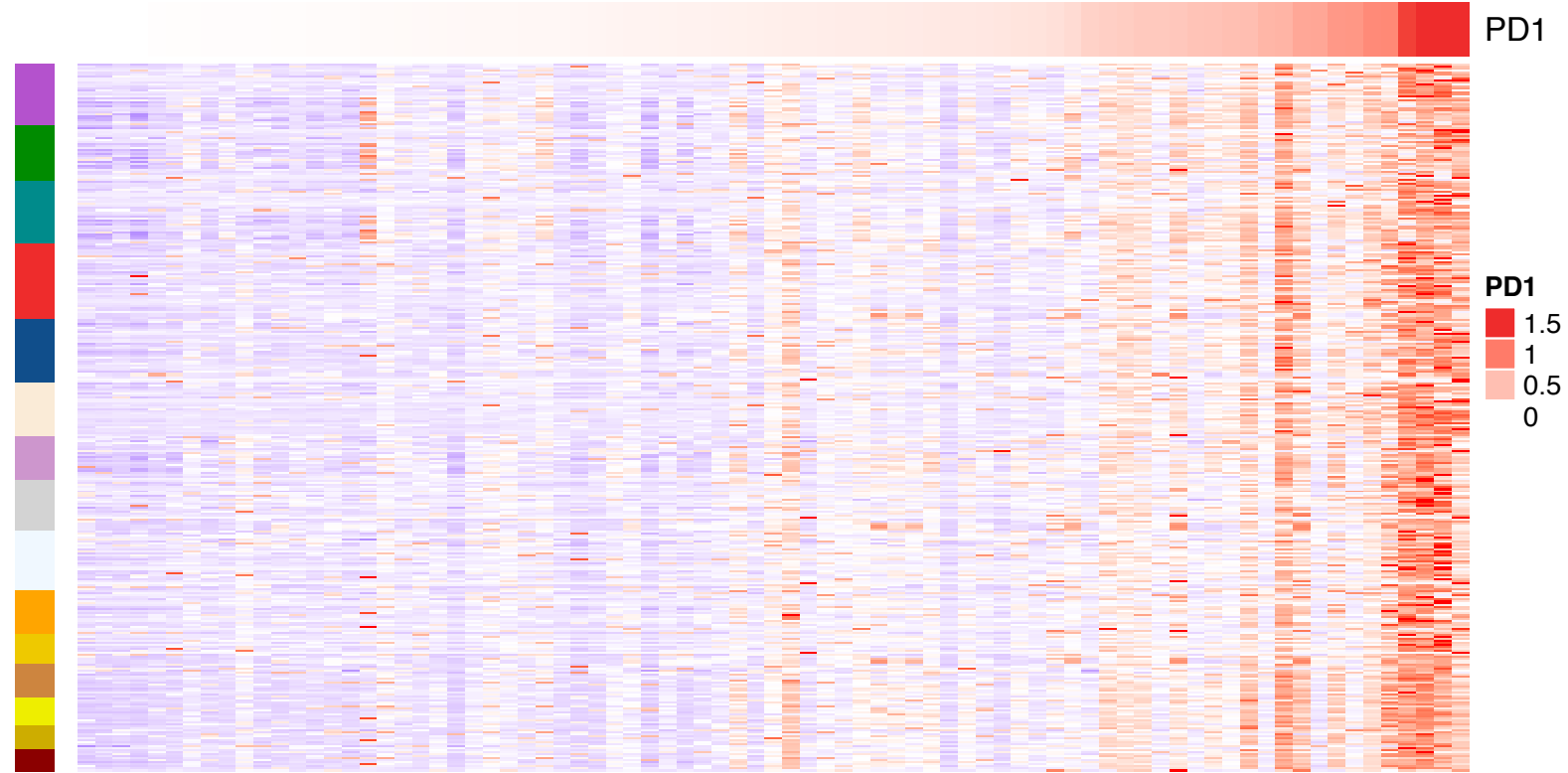
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pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Cytosolic DNA-sensing pathway
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

expression

- 4
- 2
- 0
- 2
- 4



# BLCA

PD1

PD1

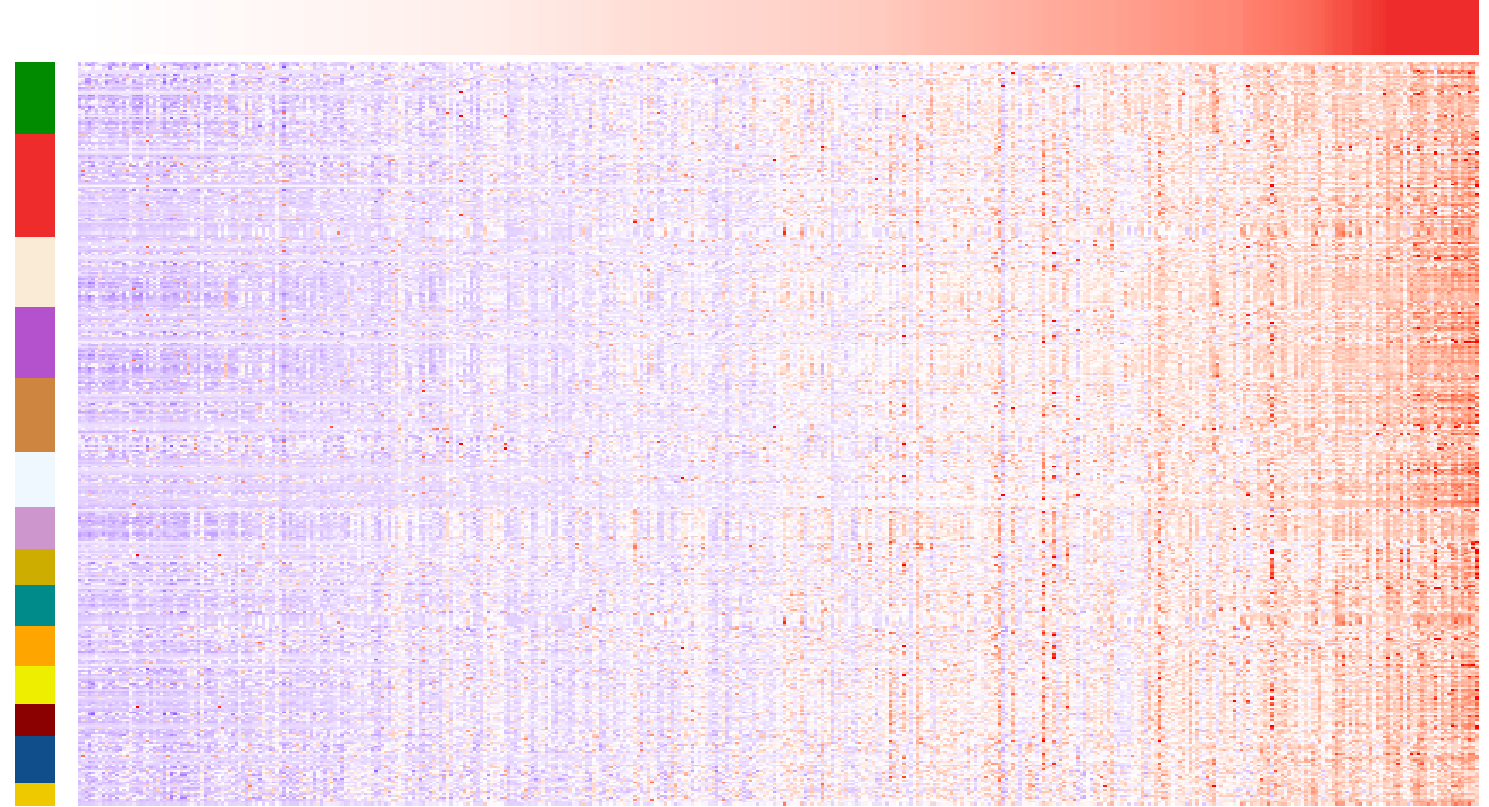
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## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Cytosolic DNA-sensing pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

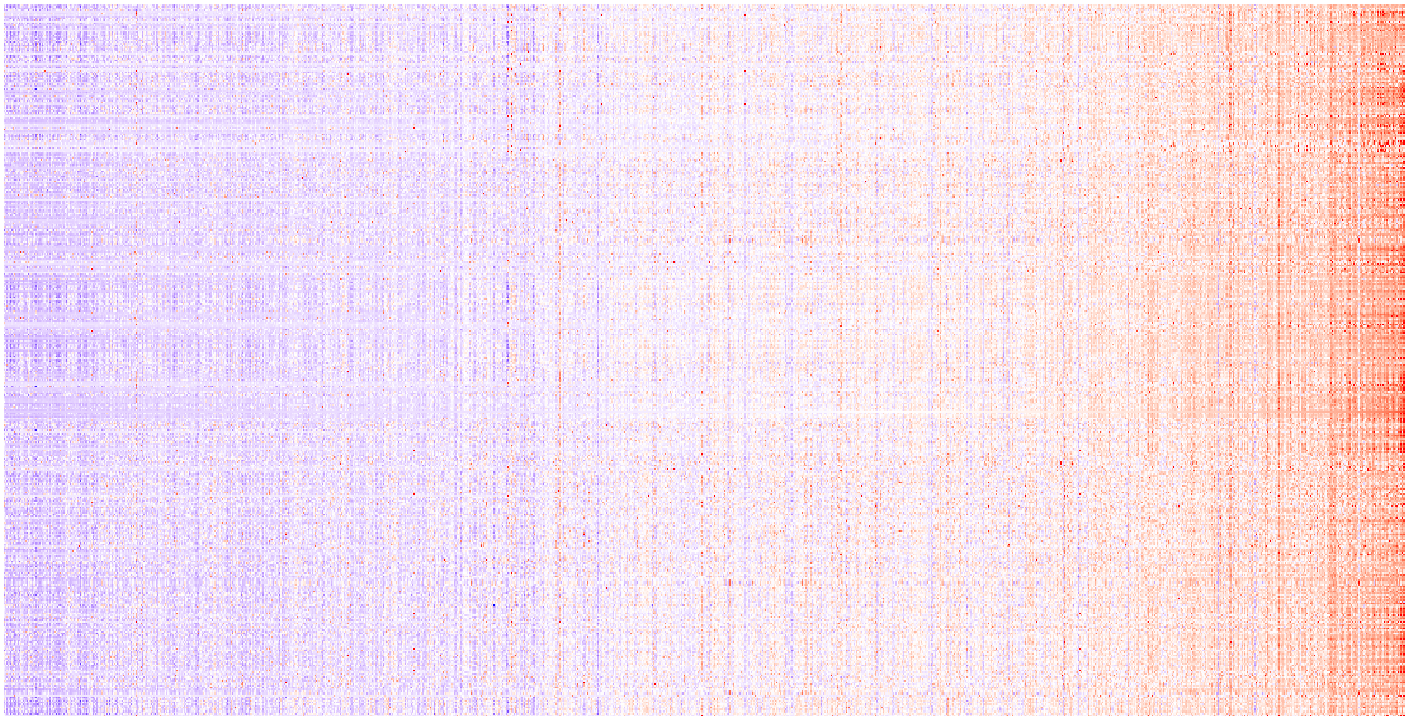
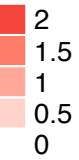
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- 2
- 0
- 2
- 4



# BRCA

PD1

PD1



## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
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- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

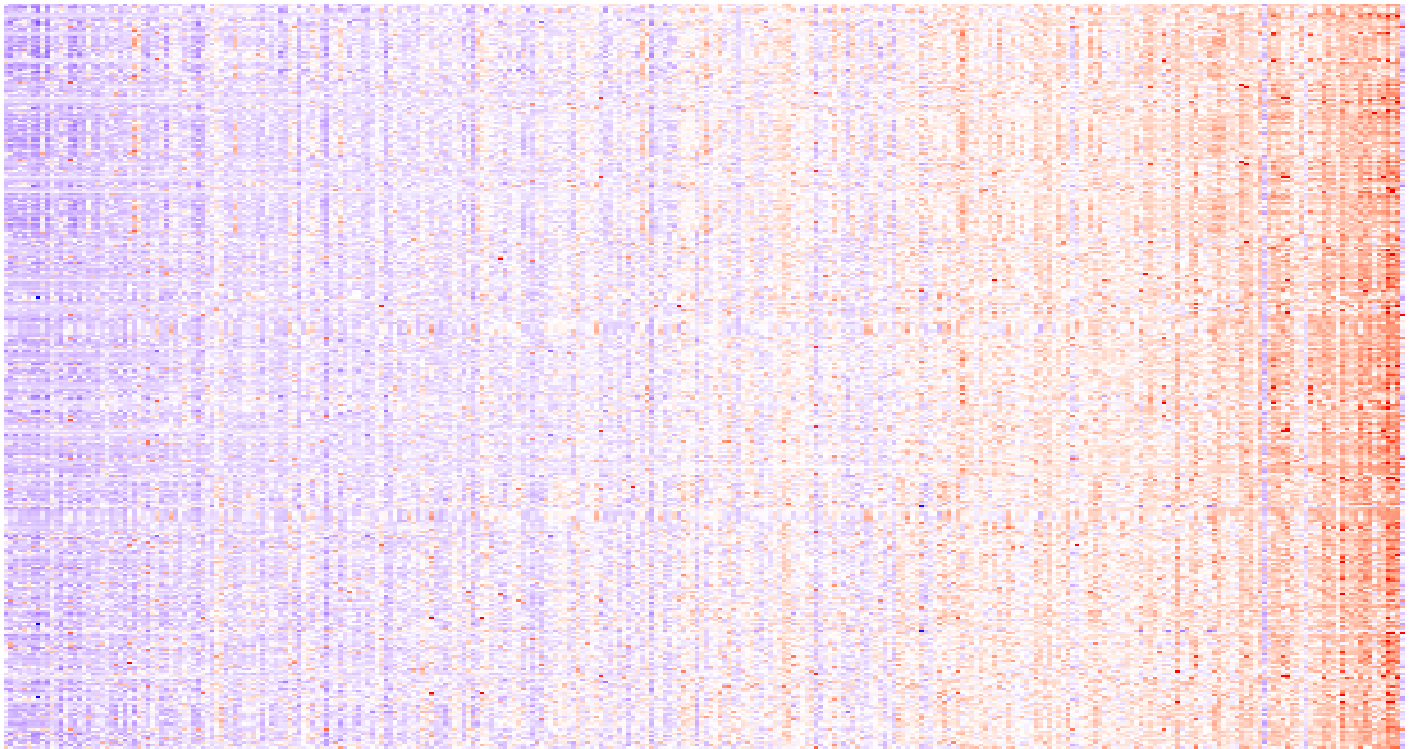
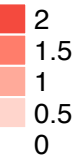
## expression

- 4
- 2
- 0
- -2
- -4

# CESC

PD1

PD1



**pathway\_type**

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

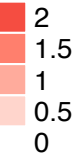
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- 4
- 2
- 0
- 2
- 4

# CHOL

PD1

PD1

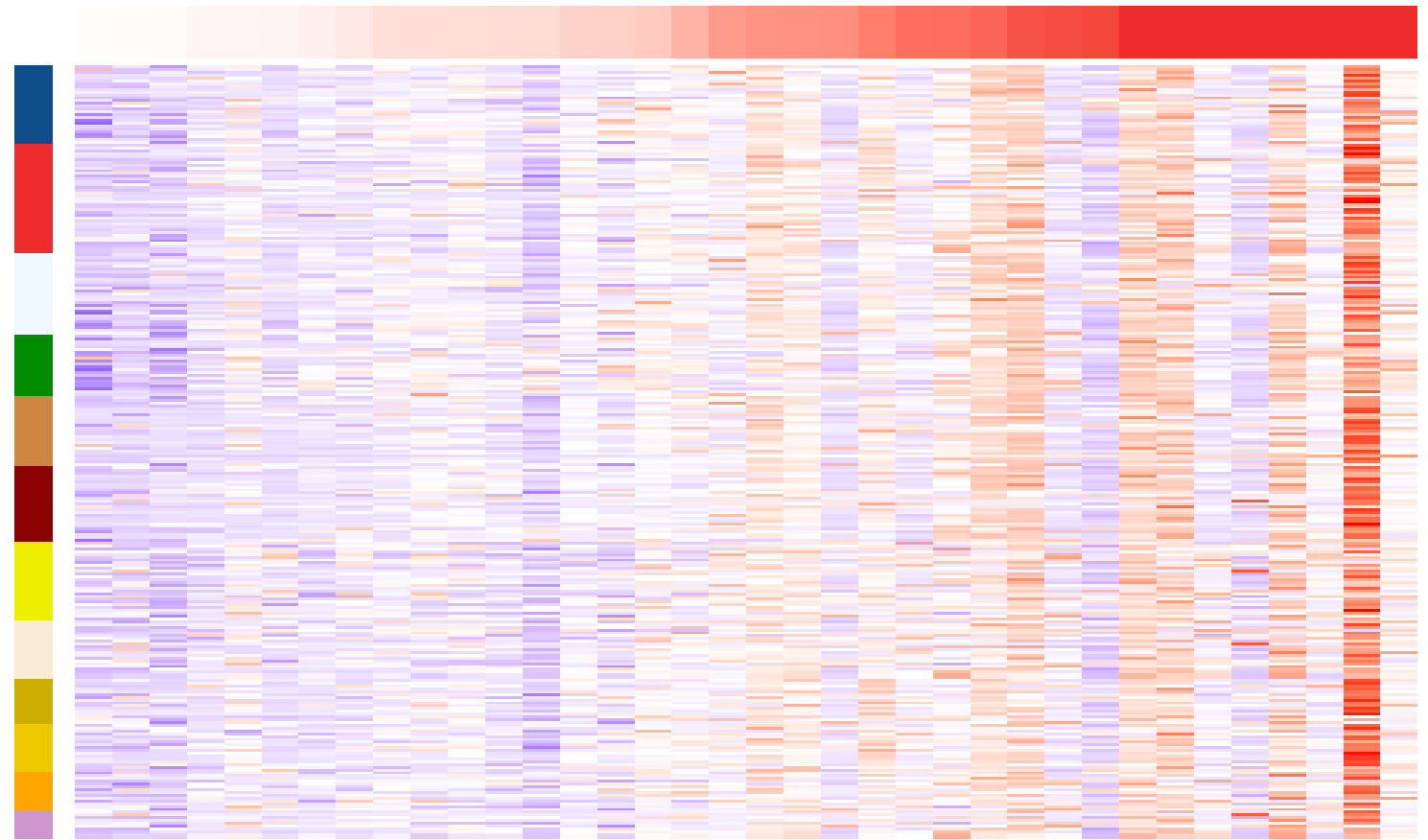


## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Cytosolic DNA-sensing pathway
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

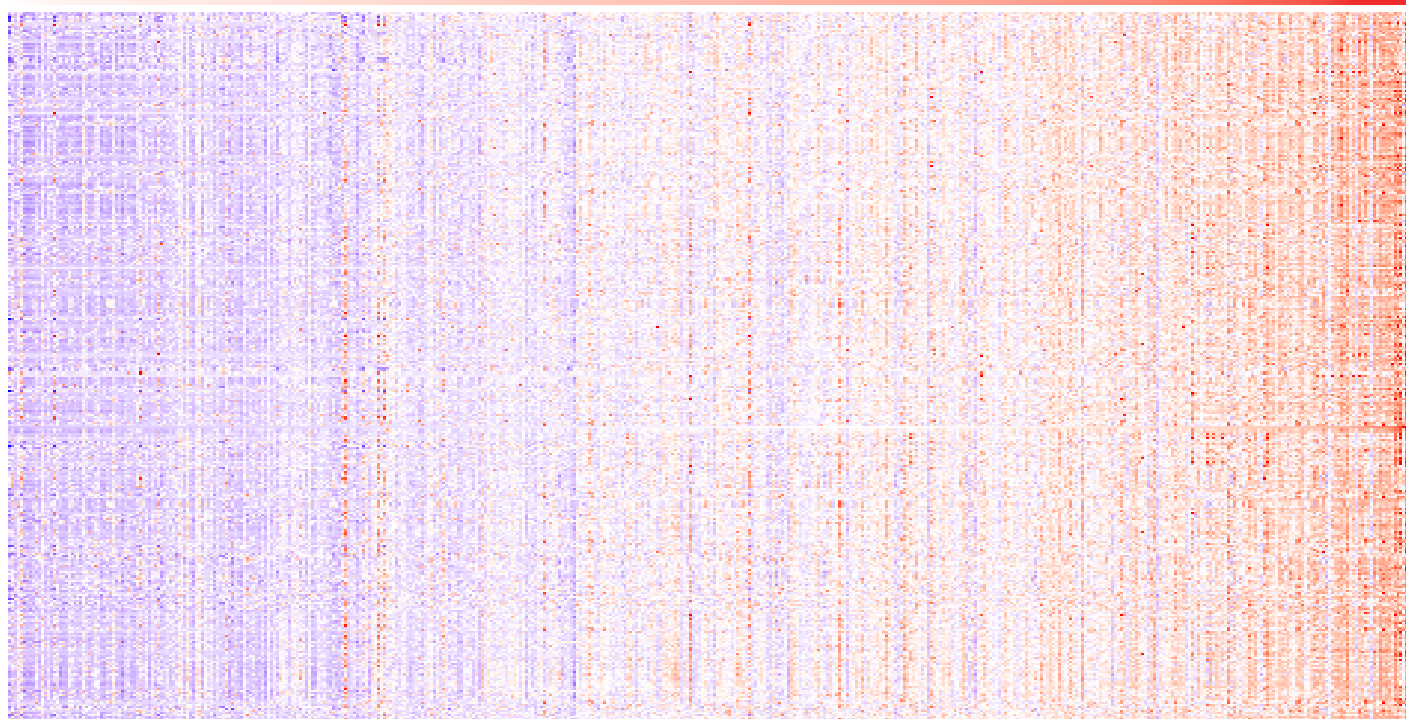
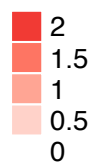
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- 2
- 4



# COAD

PD1

PD1



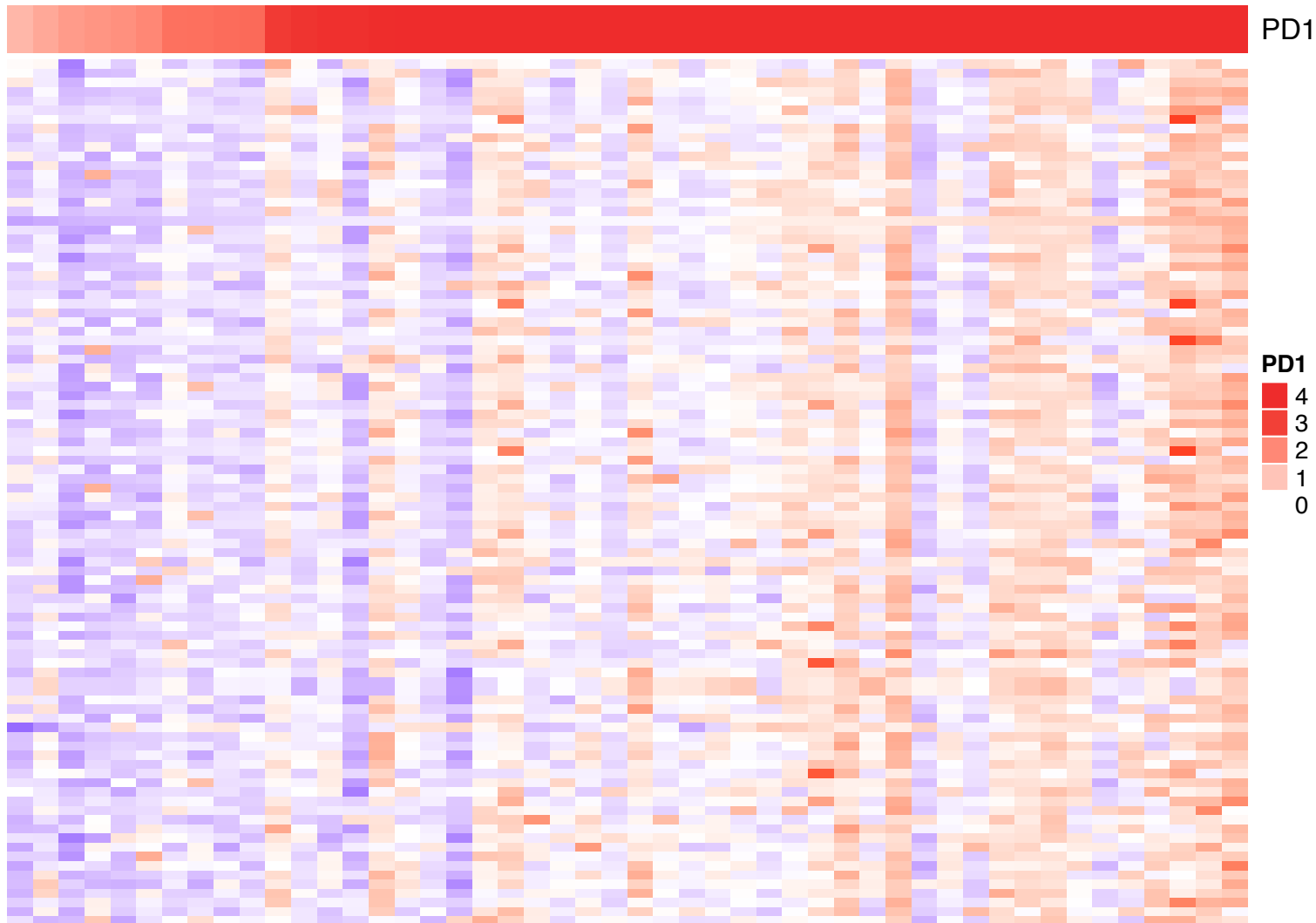
**pathway\_type**

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Cytosolic DNA-sensing pathway
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

**expression**

- 4
- 2
- 0
- 2
- 4

# DLBC



**pathway\_type**

- Chemokine signaling pathway
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation

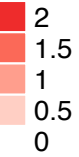
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- 4
- 2
- 0
- 2
- 4

# ESCA

PD1

PD1

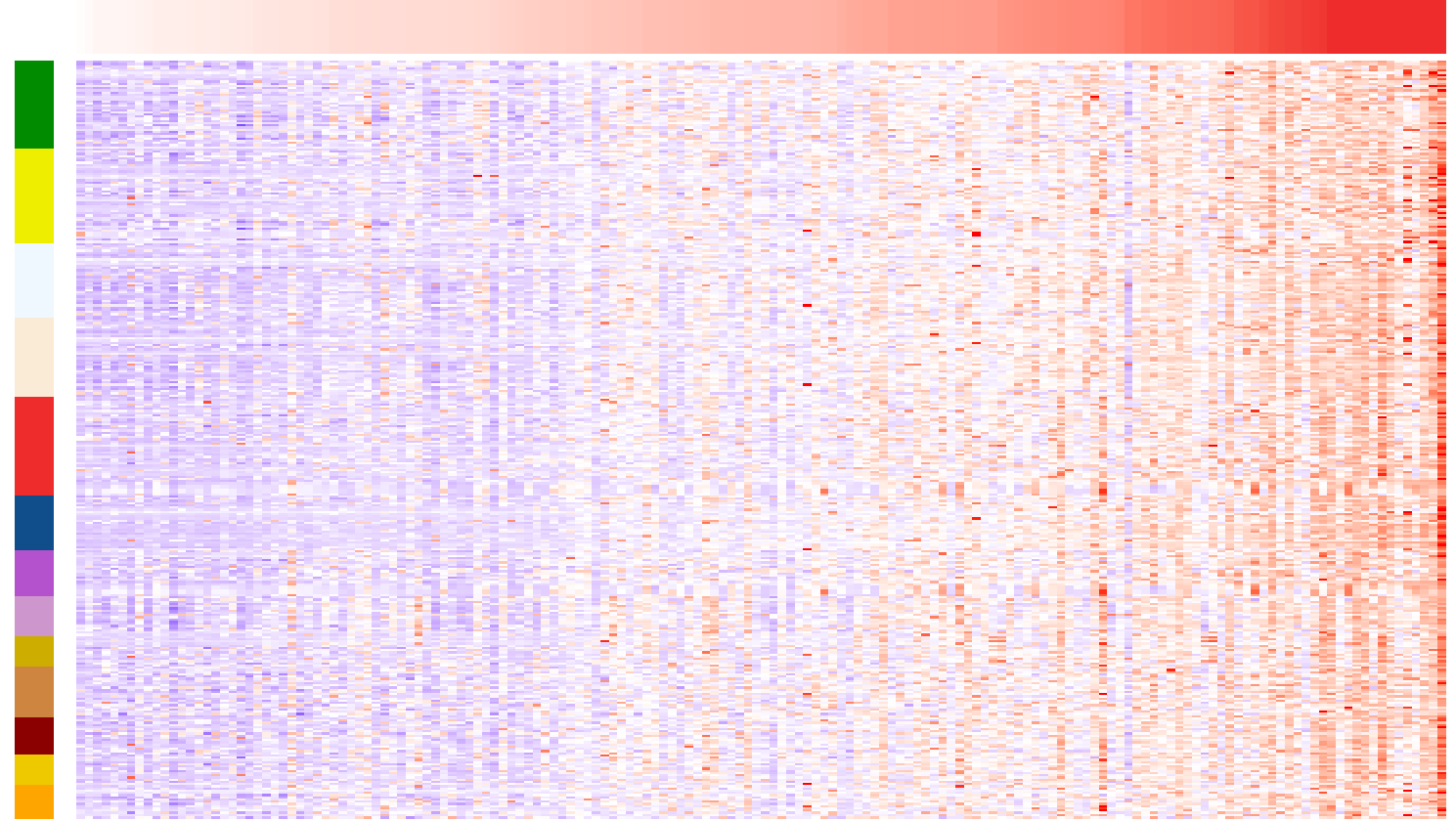


## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

- 4
- 2
- 0
- 2
- 4





# GBM

PD1

PD1

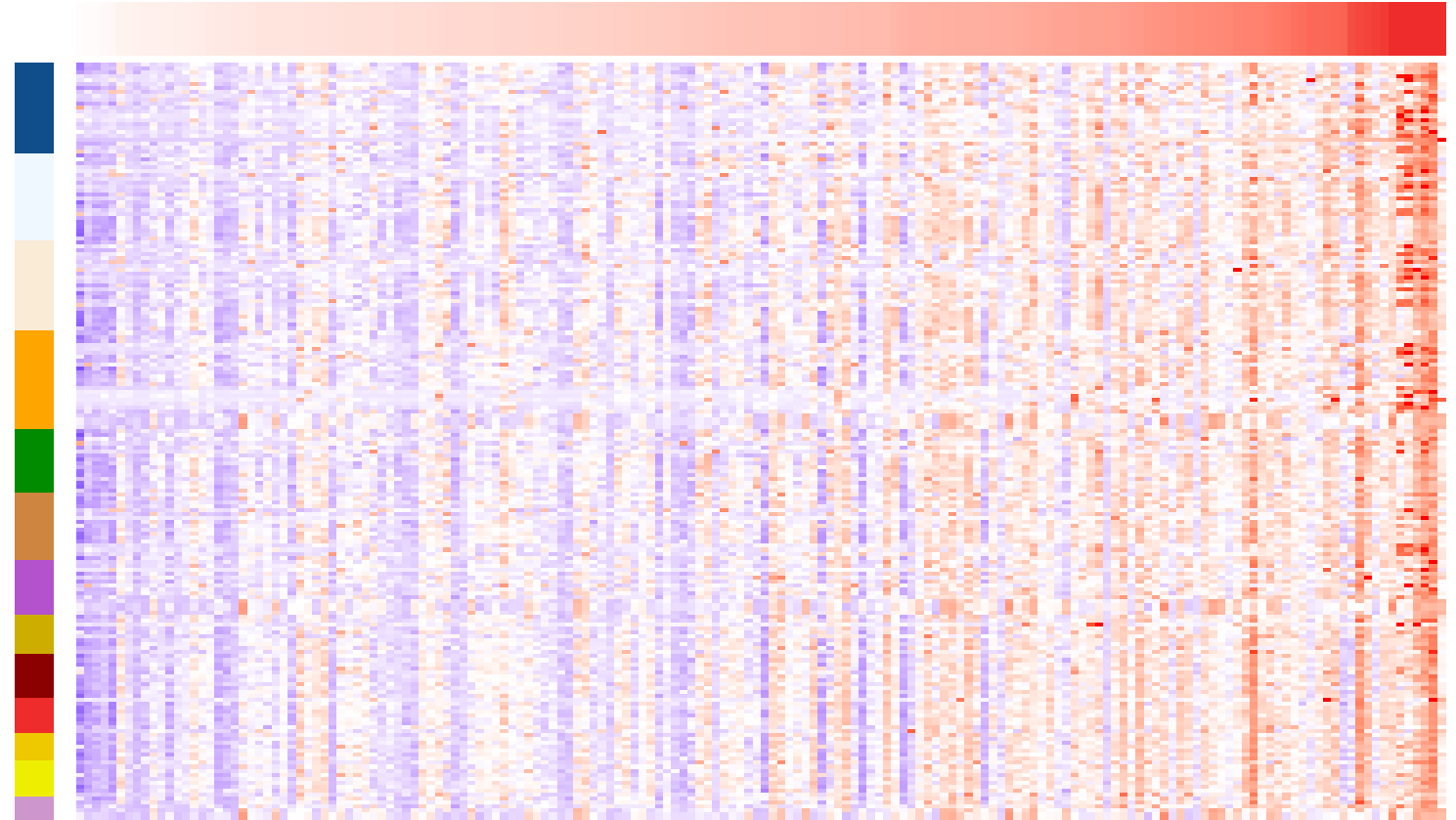
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0.2  
0

## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Cytosolic DNA-sensing pathway
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

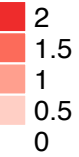
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- 2
- 0
- 2
- 4



# HNSC

PD1

PD1

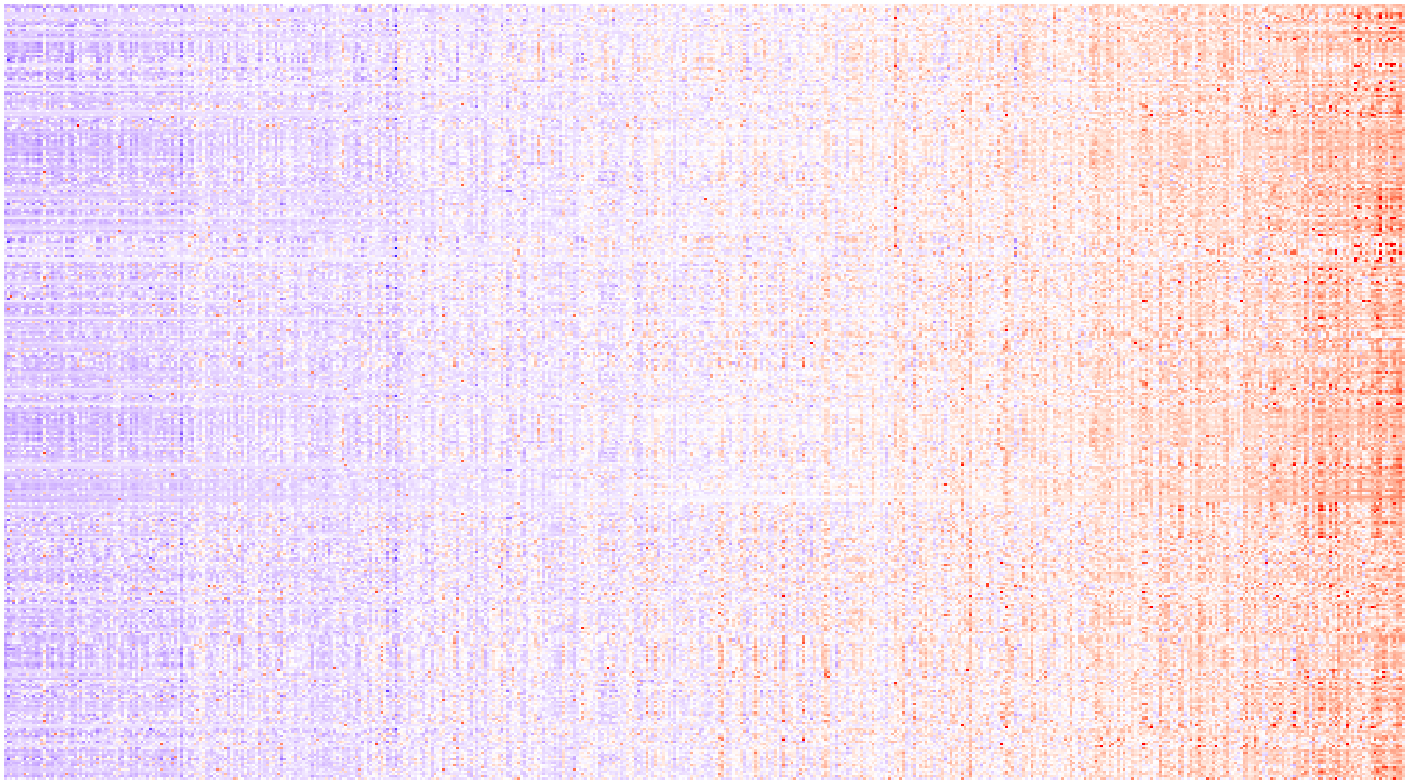


pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

expression

- 4
- 2
- 0
- 2
- 4



# KICH

PD1

PD1

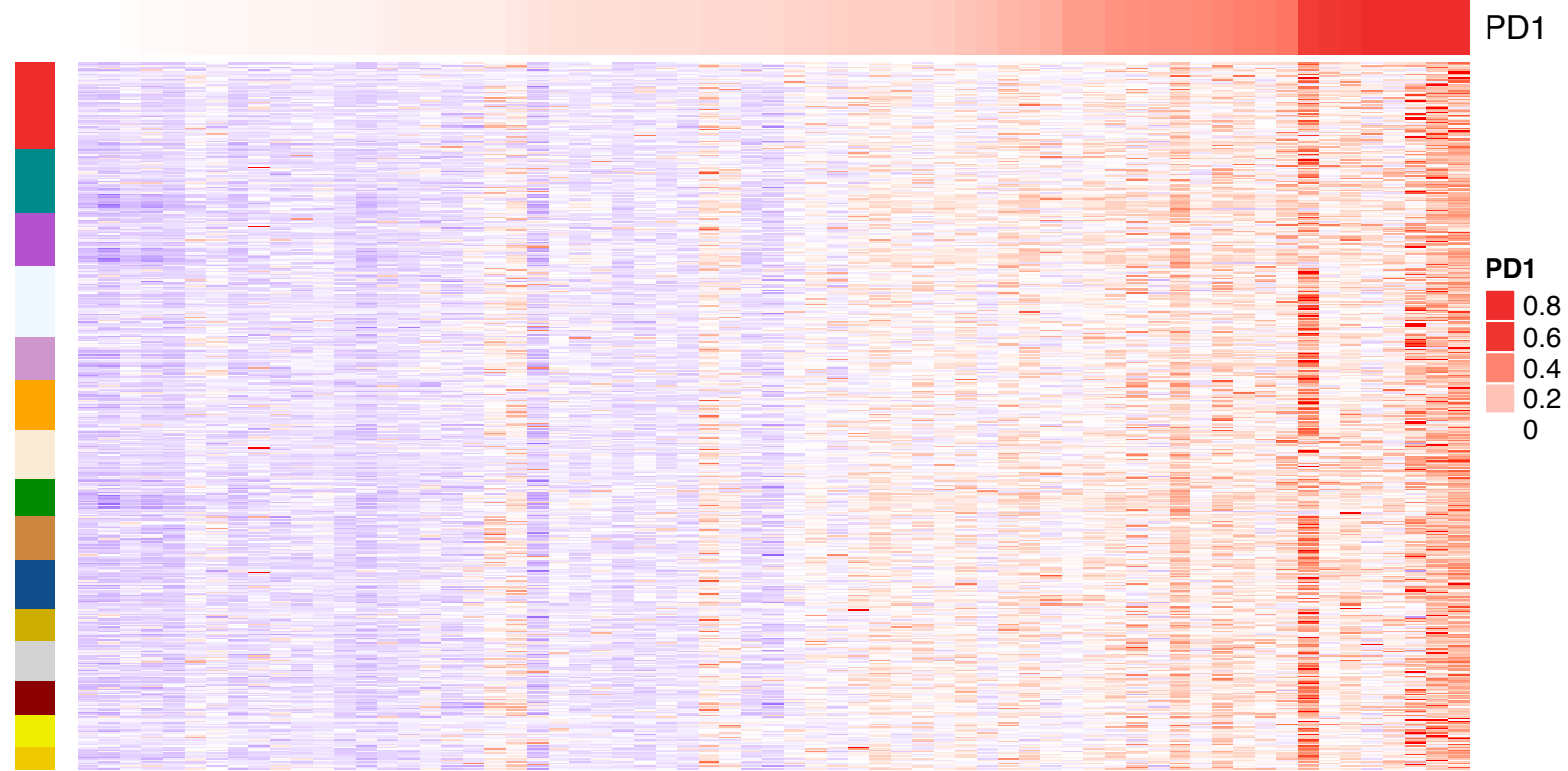
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0

## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- IL-17 signaling pathway
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

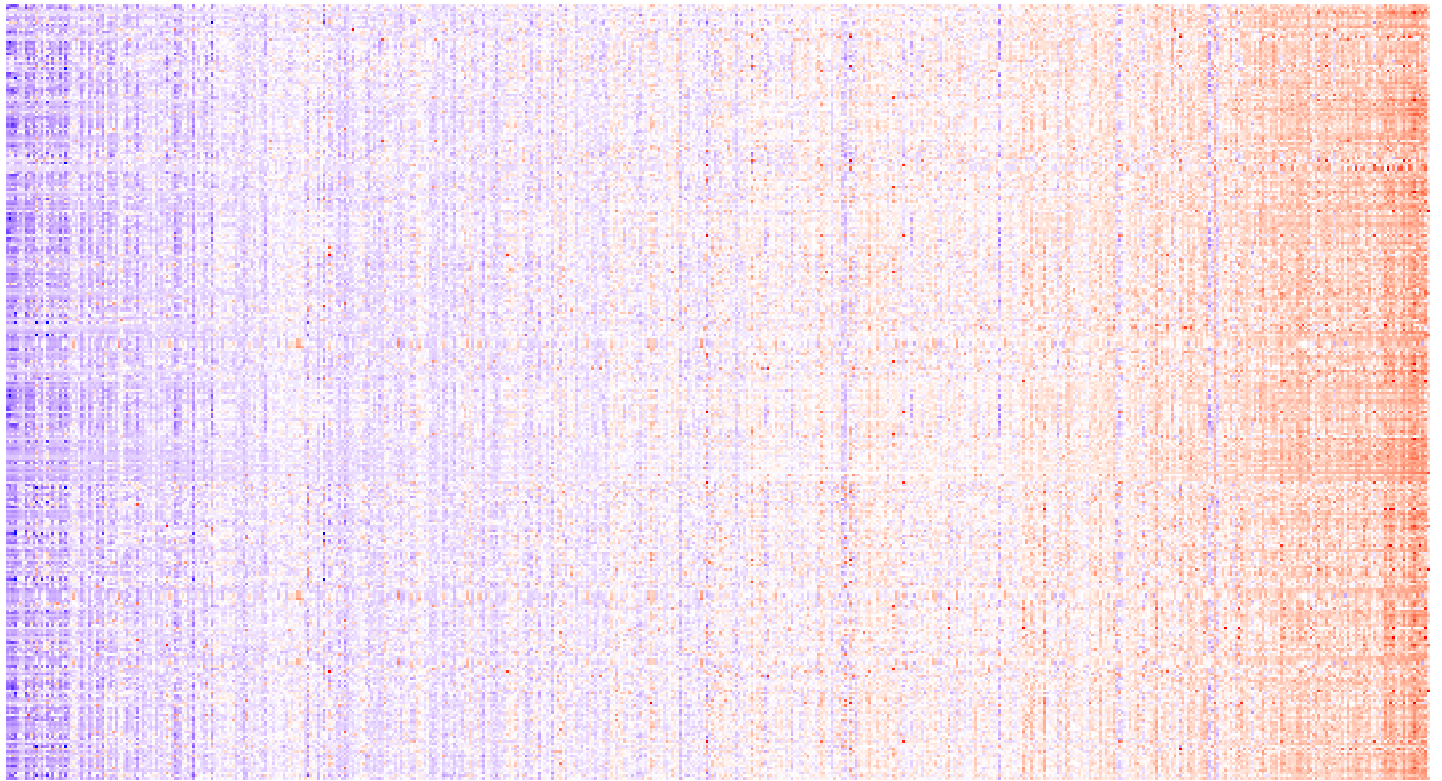
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- 2
- 0
- 2
- 4



# KIRC

PD1

PD1  
3  
2  
1  
0



## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Cytosolic DNA-sensing pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

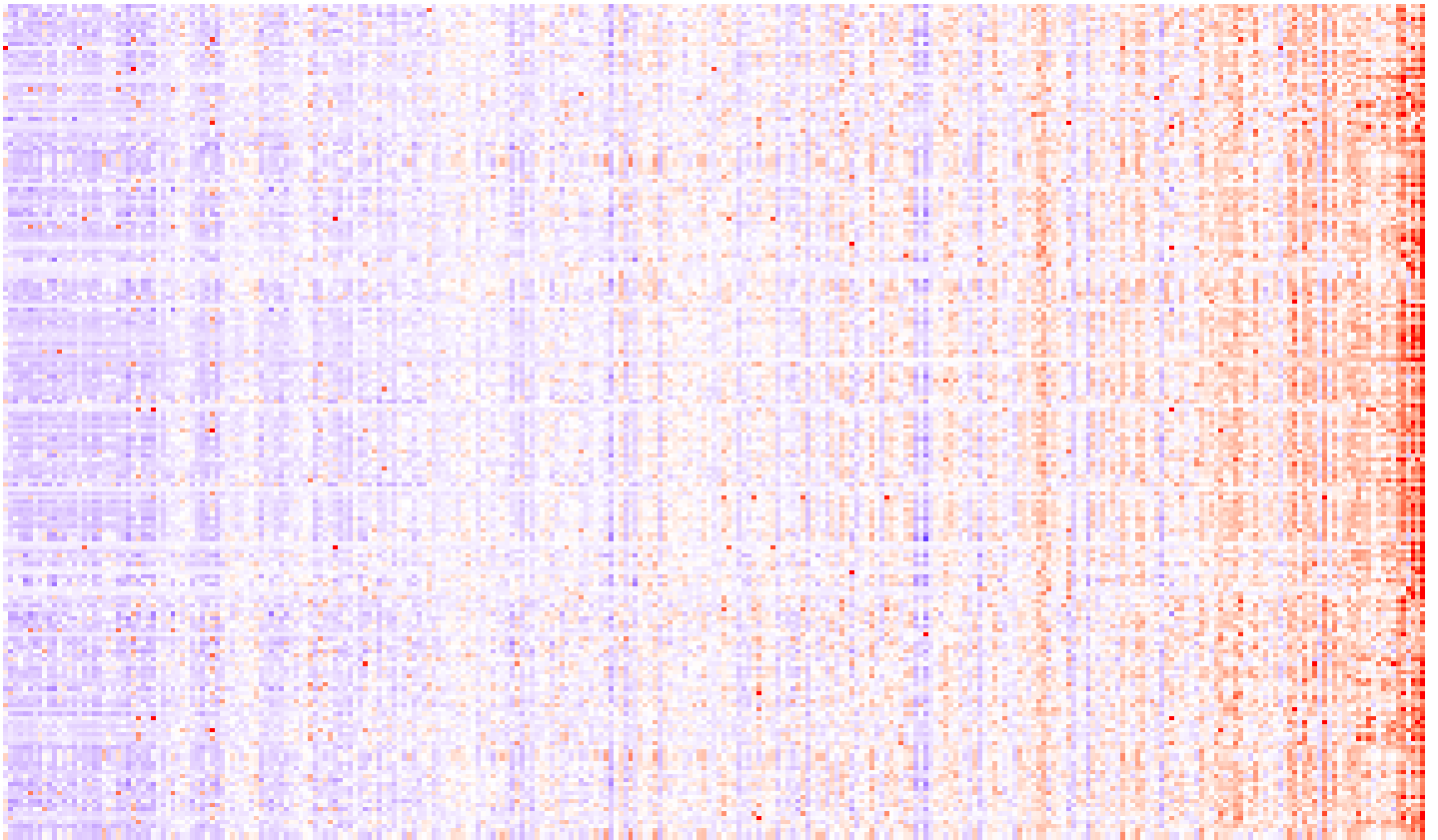
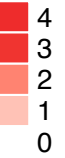
## expression

- 4
- 2
- 0
- 2
- 4

# KIRP

PD1

PD1



## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- Chemokine signaling pathway
- Cytosolic DNA-sensing pathway
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

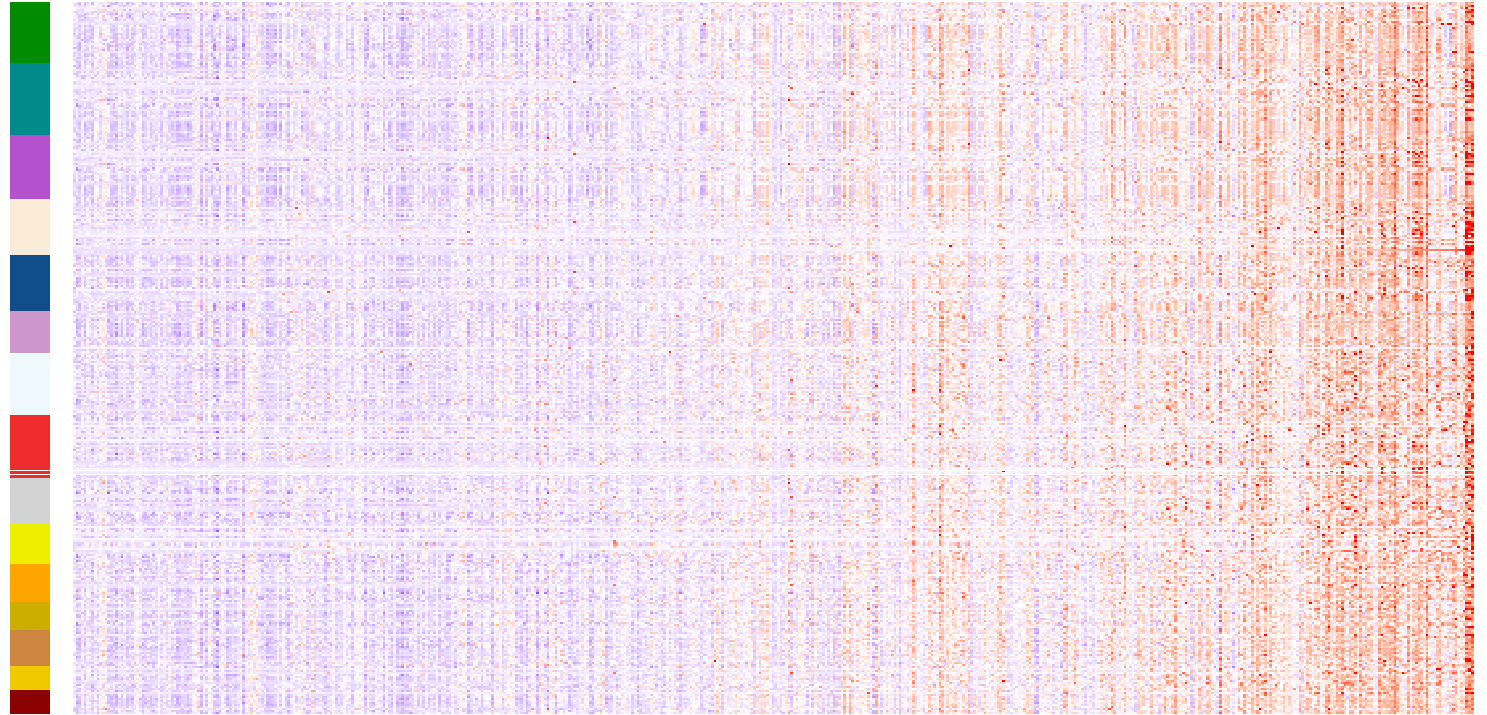
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- 2
- 0
- 2
- 4

# LGG

PD1

PD1

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0.5  
0



**pathway\_type**

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Cytosolic DNA-sensing pathway
- Fc gamma R-mediated phagocytosis
- IL-17 signaling pathway
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

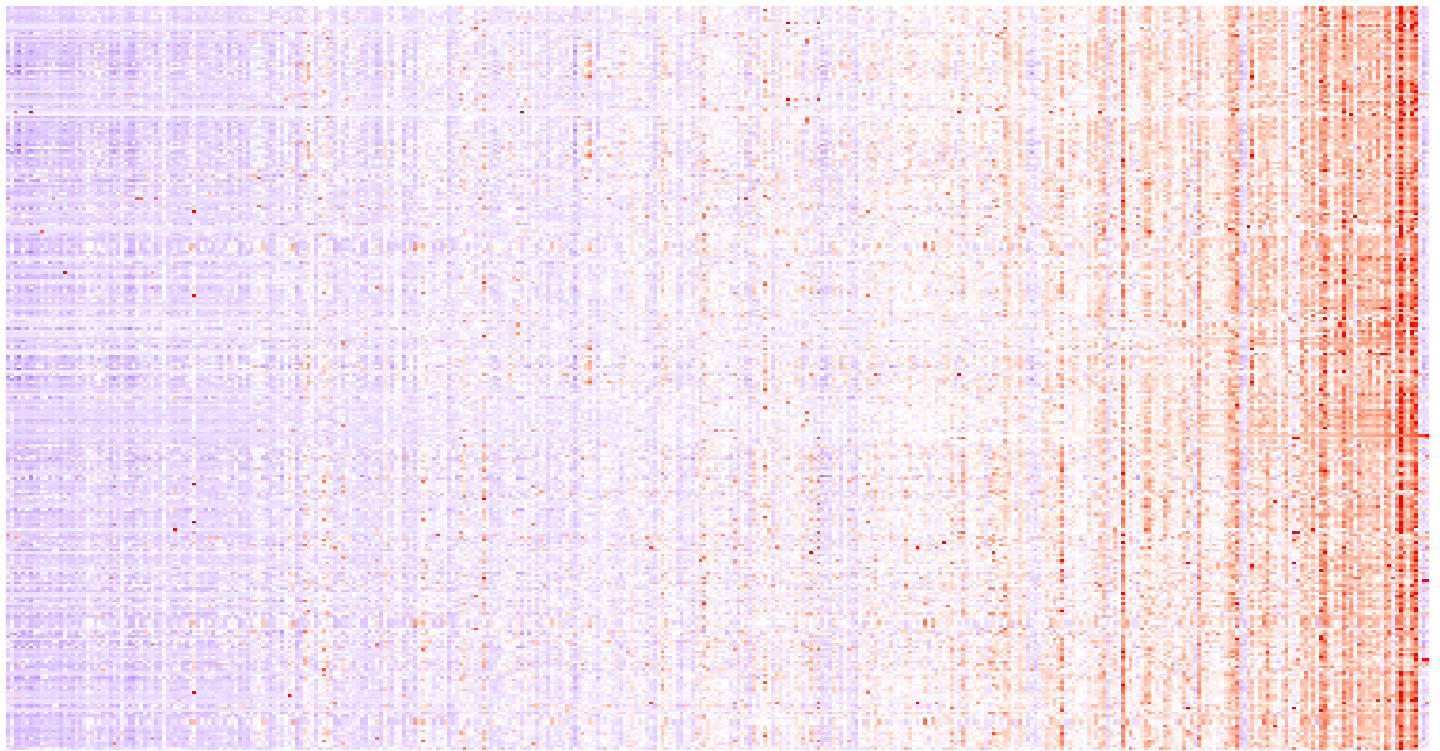
**expression**

- 4
- 2
- 0
- -2
- -4

# LIHC

PD1

PD1  
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2  
1  
0



## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Cytosolic DNA-sensing pathway
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

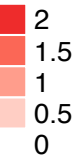
## expression

- 4
- 2
- 0
- 2
- 4

# LUAD

PD1

PD1

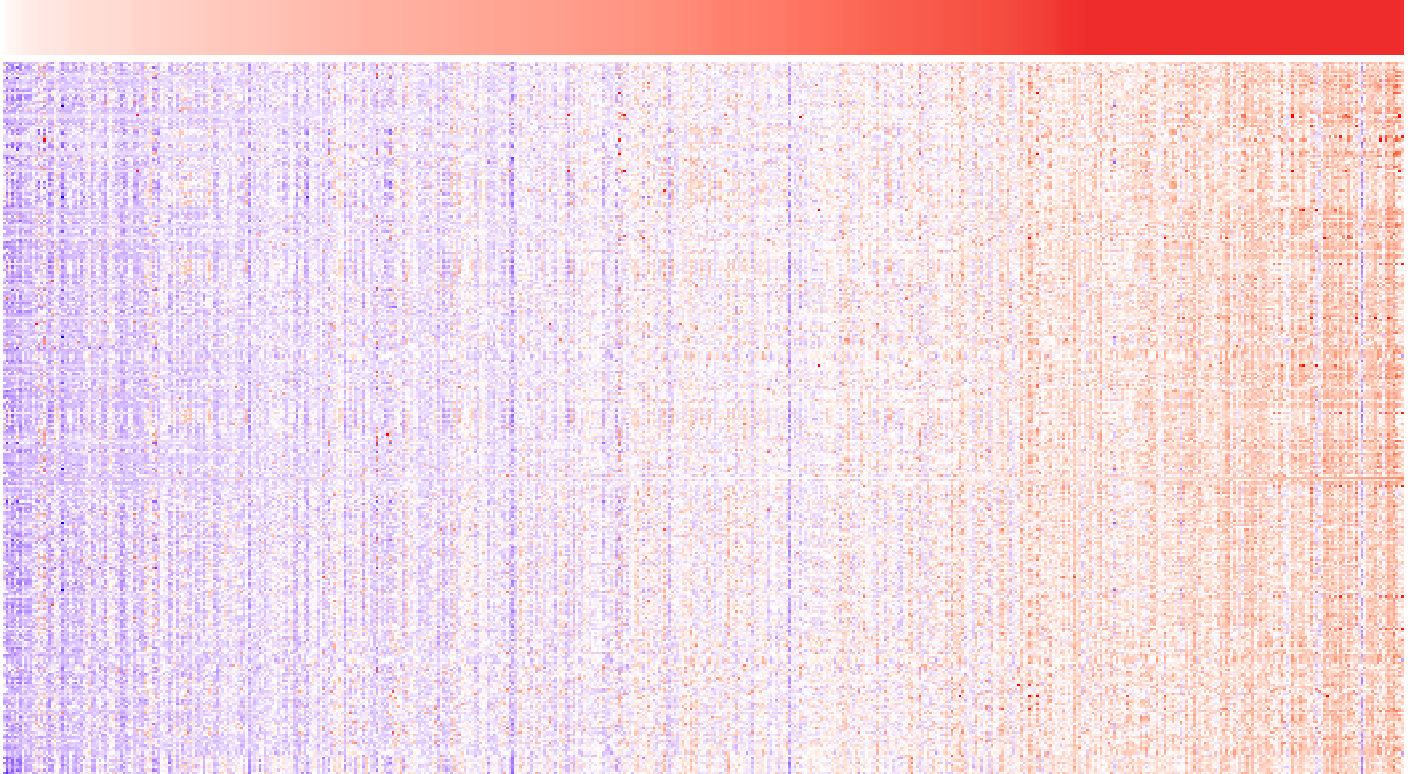


## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Cytosolic DNA-sensing pathway
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

- 4
- 2
- 0
- -2
- -4

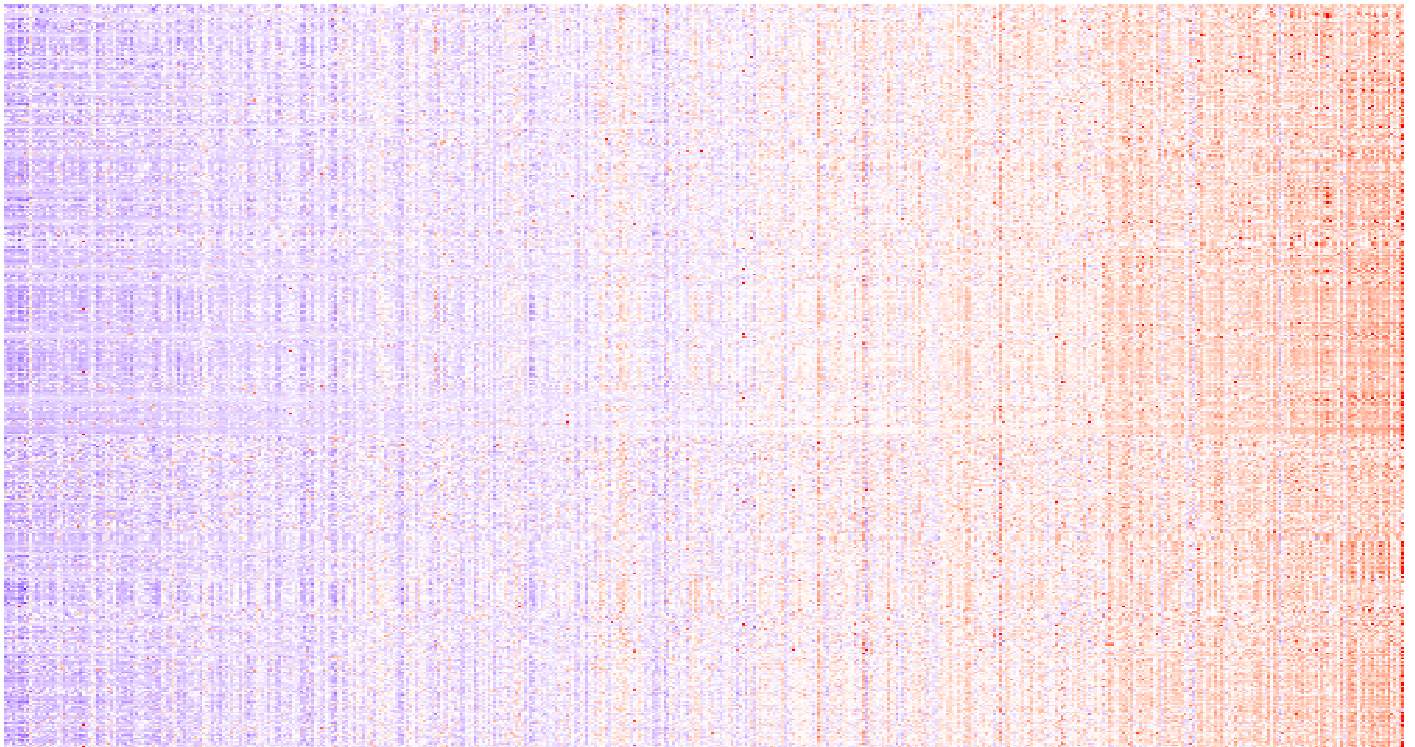
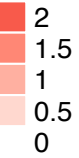




# LUSC

PD1

PD1



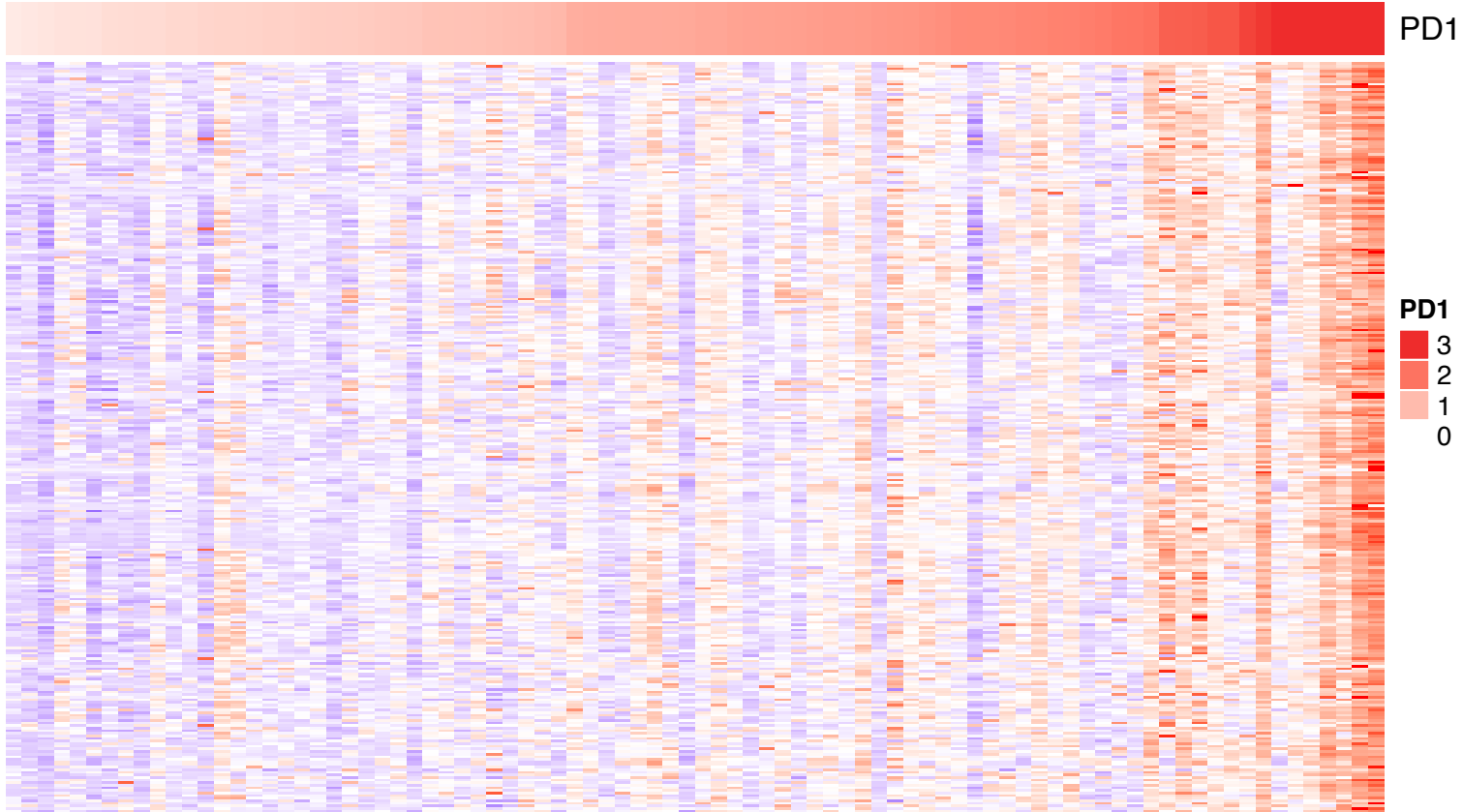
**pathway\_type**

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

**expression**

- 4
- 2
- 0
- 2
- 4

# MESO



PD1

PD1

3  
2  
1  
0

## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

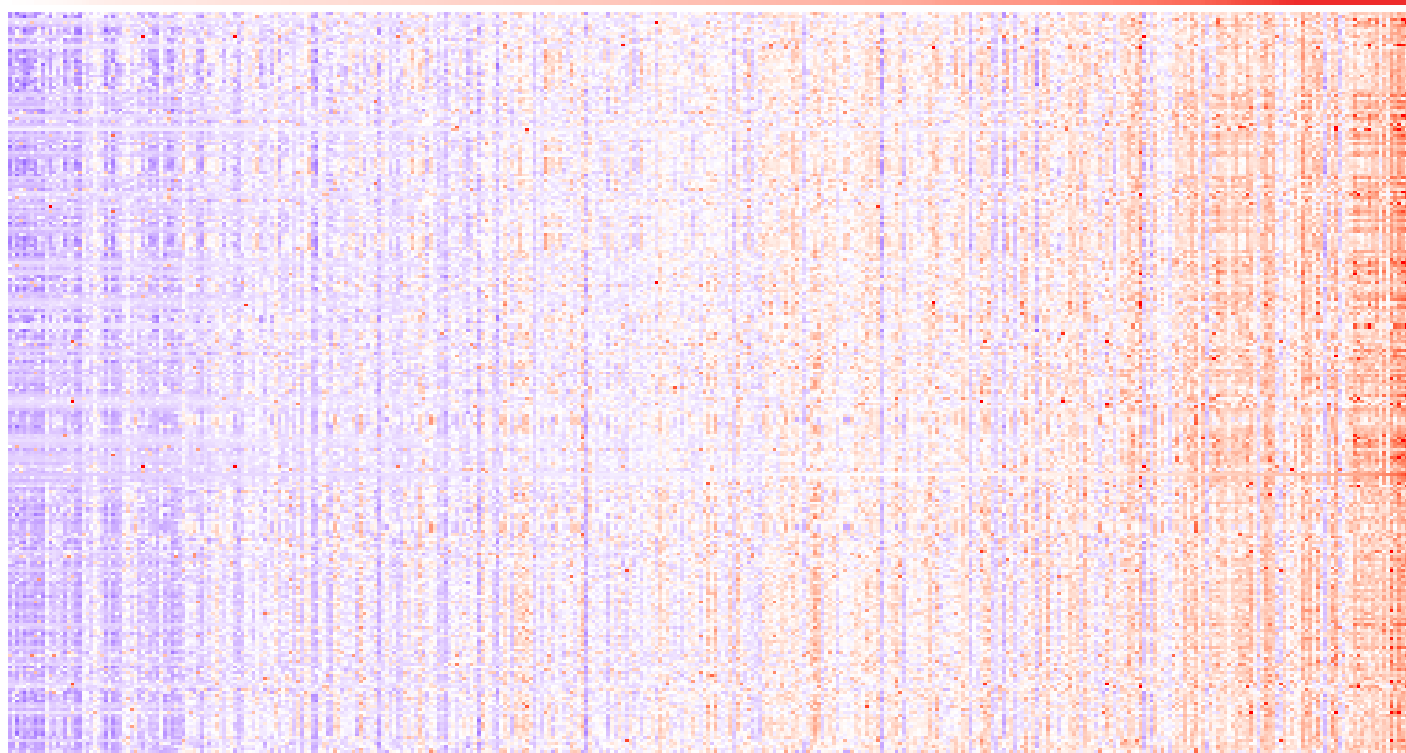
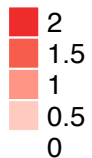
## expression

- 4
- 2
- 0
- 2
- 4

OV

PD1

PD1



**pathway\_type**

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
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- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

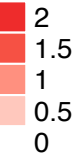
**expression**

- 4
- 2
- 0
- 2
- 4

# PAAD

PD1

PD1



## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

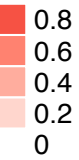
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- 4
- 2
- 0
- -2
- -4

# PCPG

PD1

PD1

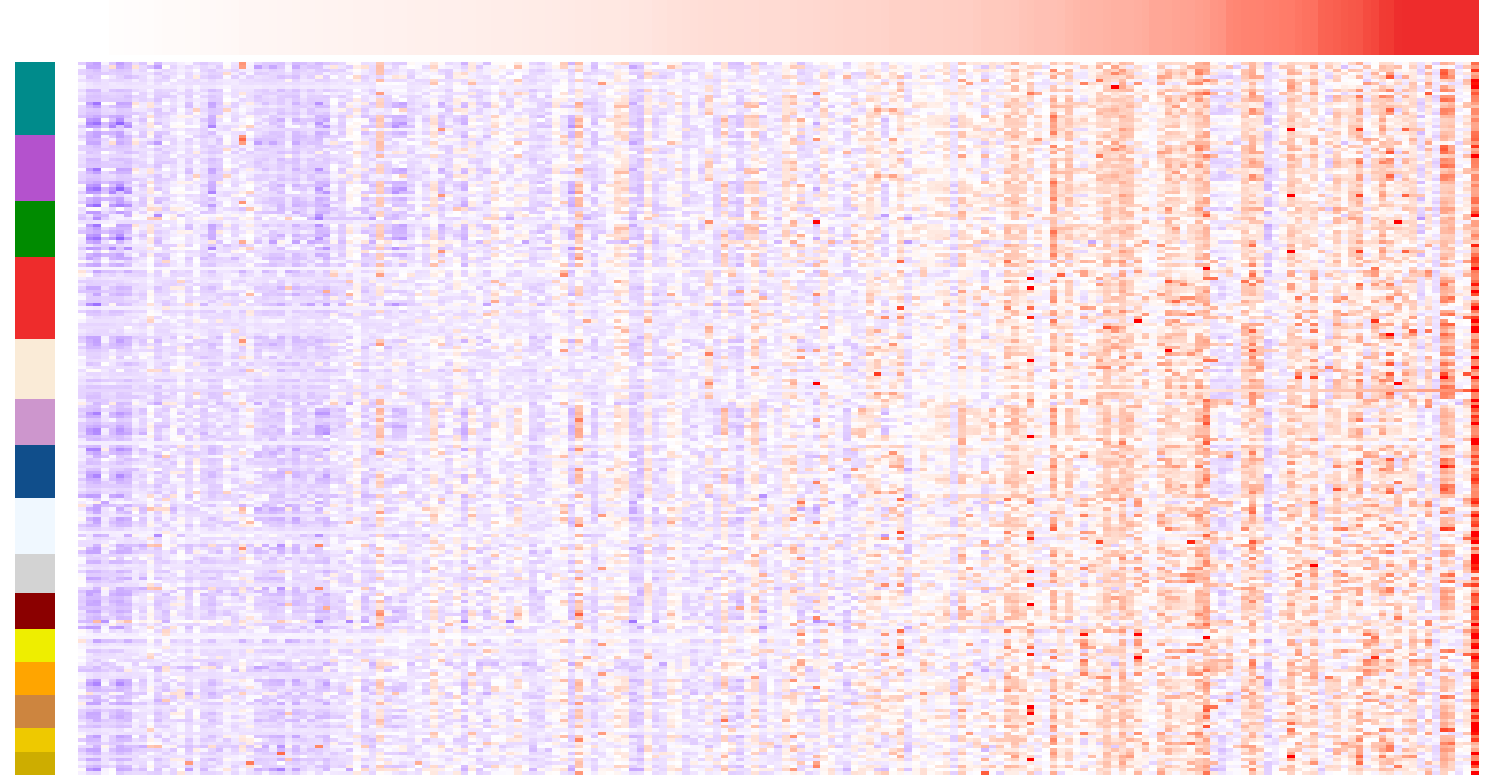


## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Cytosolic DNA-sensing pathway
- Fc gamma R-mediated phagocytosis
- IL-17 signaling pathway
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

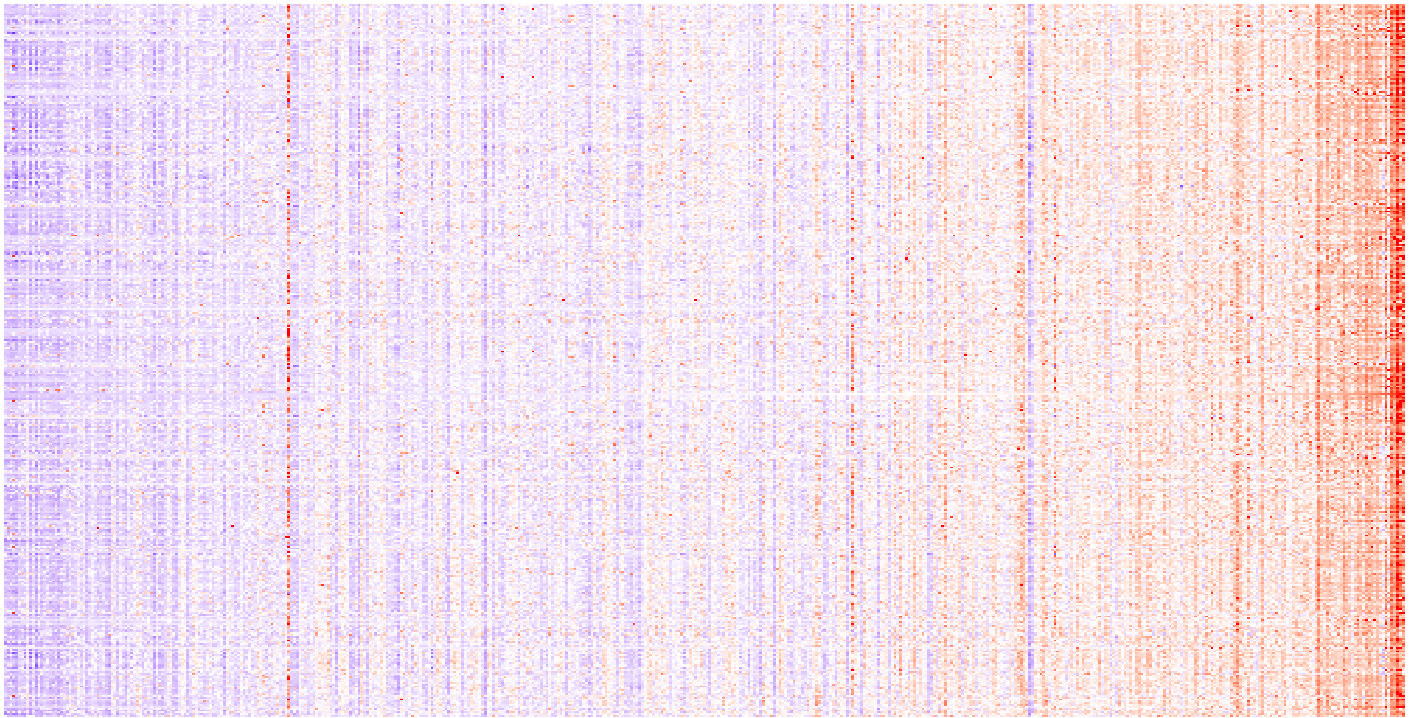
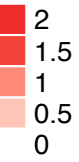
- 4
- 2
- 0
- 2
- 4



# PRAD

PD1

PD1



## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Cytosolic DNA-sensing pathway
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

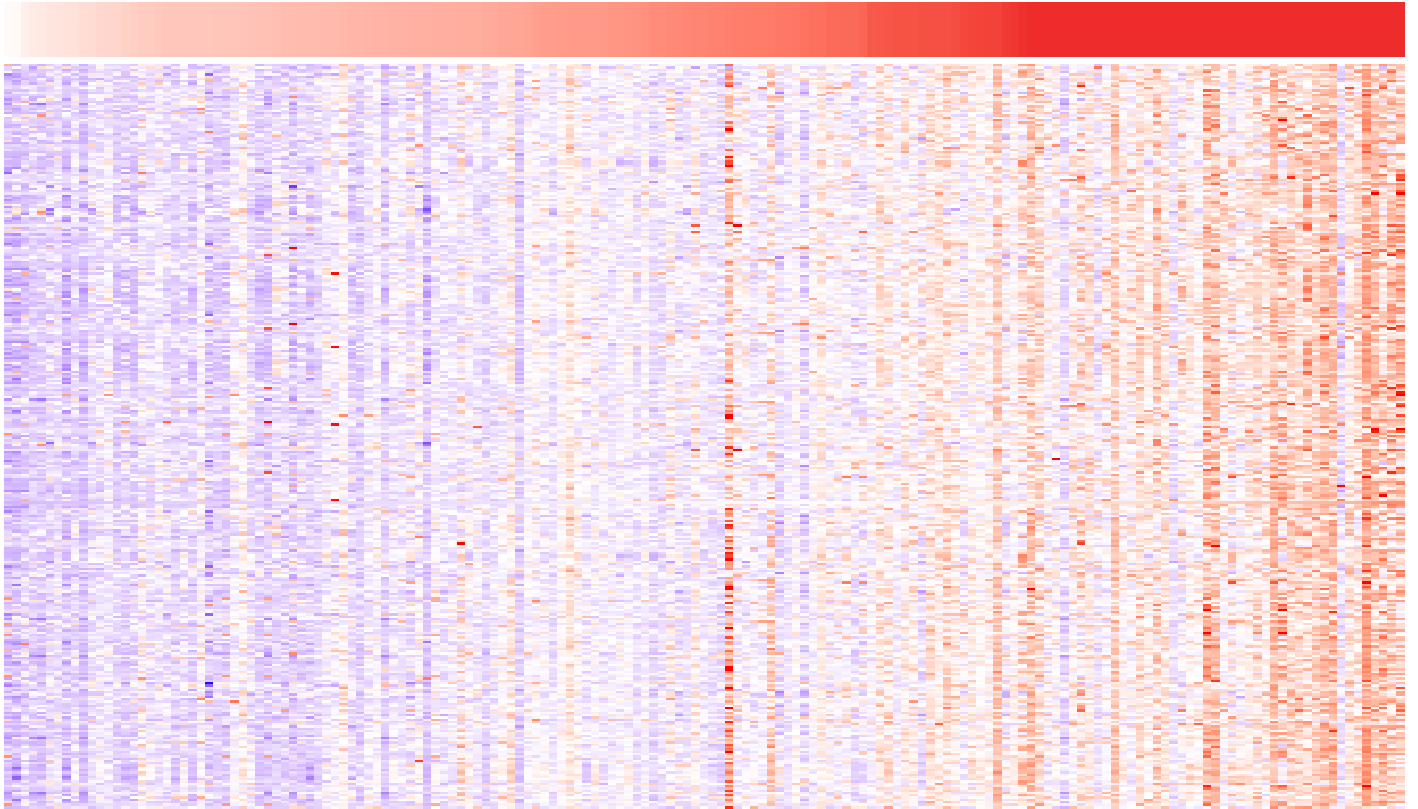
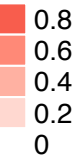
## expression

- 4
- 2
- 0
- -2
- -4

# READ

PD1

PD1



## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

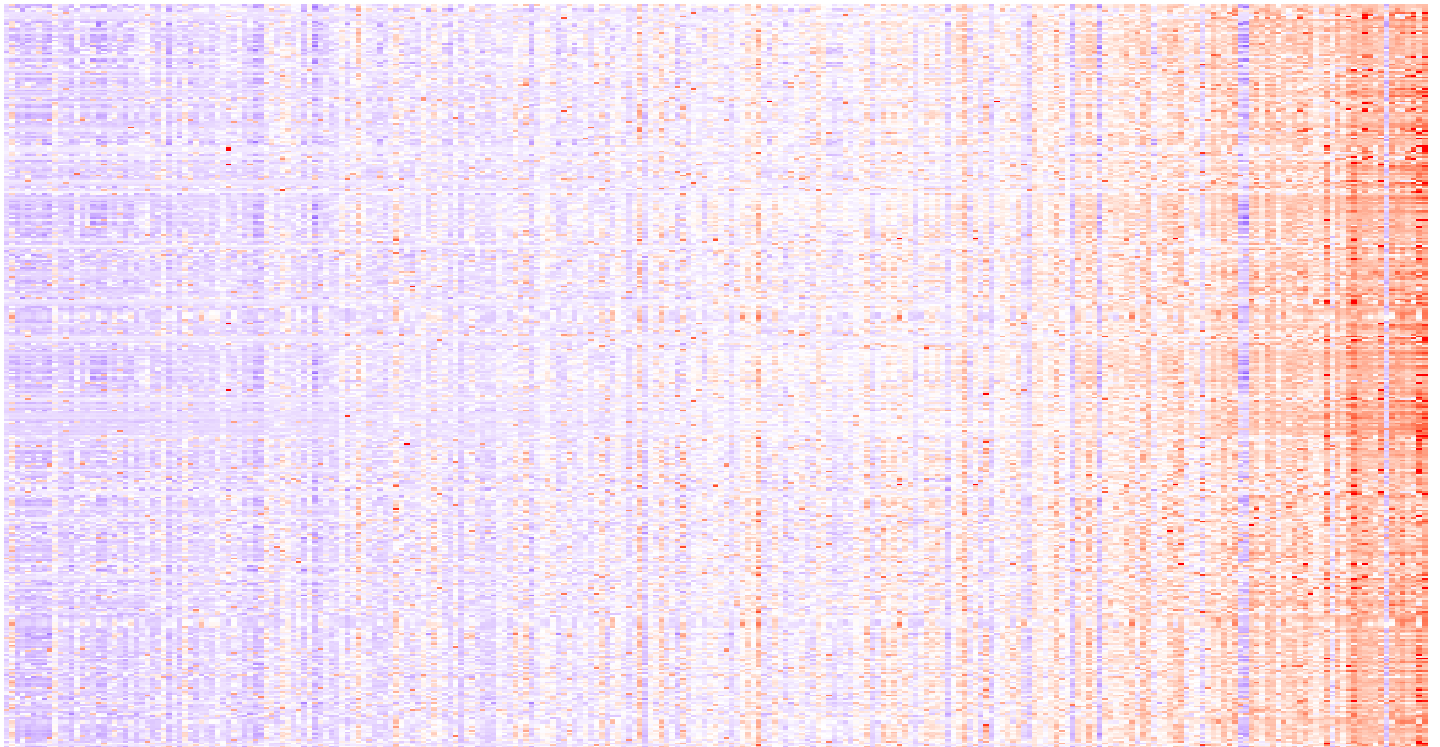
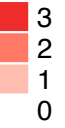
## expression

- 4
- 2
- 0
- 2
- 4

# SARC

PD1

PD1



**pathway\_type**

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Cytosolic DNA-sensing pathway
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

**expression**

- 4
- 2
- 0
- -2
- -4

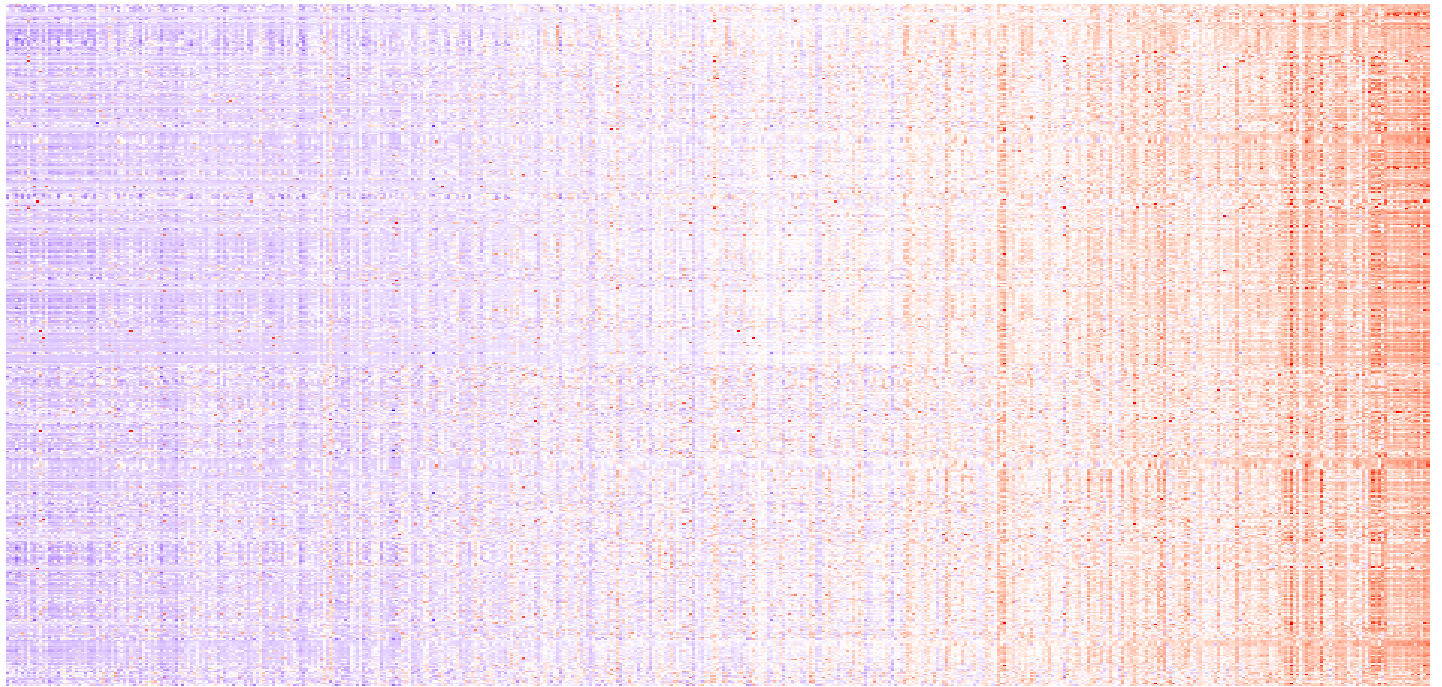


# SKCM

PD1

PD1

3  
2  
1  
0



**pathway\_type**

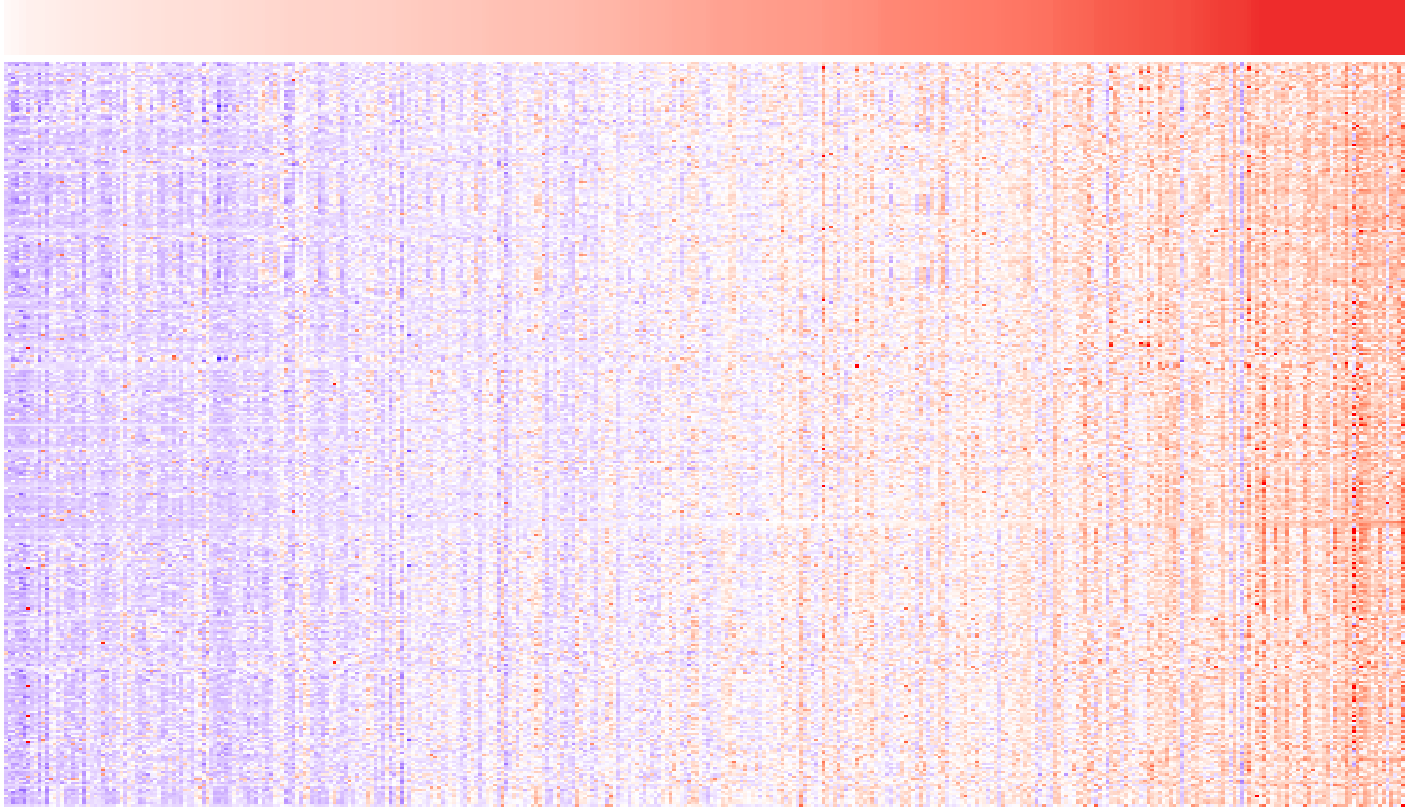
- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Cytosolic DNA-sensing pathway
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- RIG-I-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

**expression**

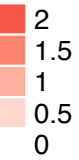
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- 2
- 4

# STAD

PD1



PD1



## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

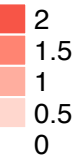
## expression

- 4
- 2
- 0
- -2
- -4

# TGCT

PD1

PD1

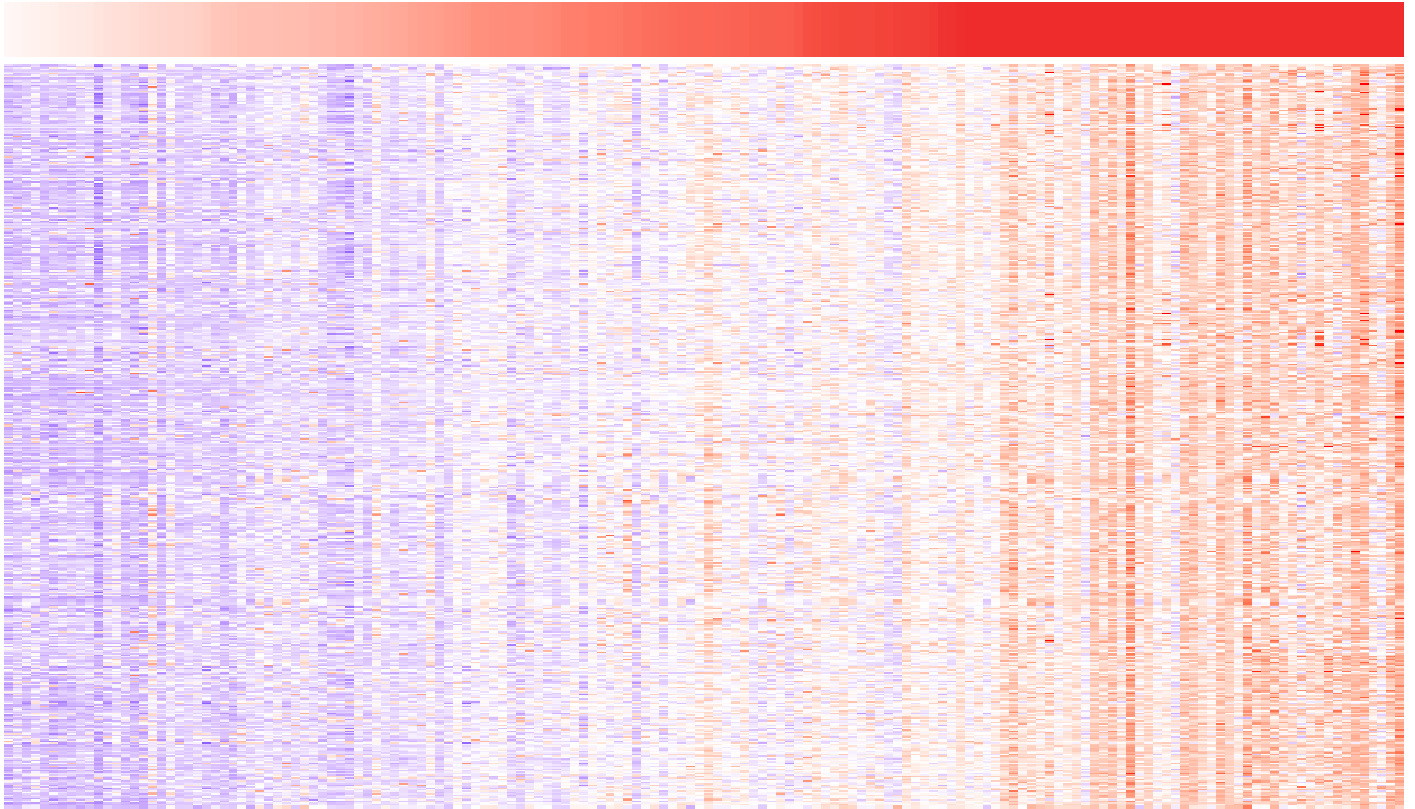


## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Cytosolic DNA-sensing pathway
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

- 4
- 2
- 0
- -2
- -4



# THCA

PD1

PD1

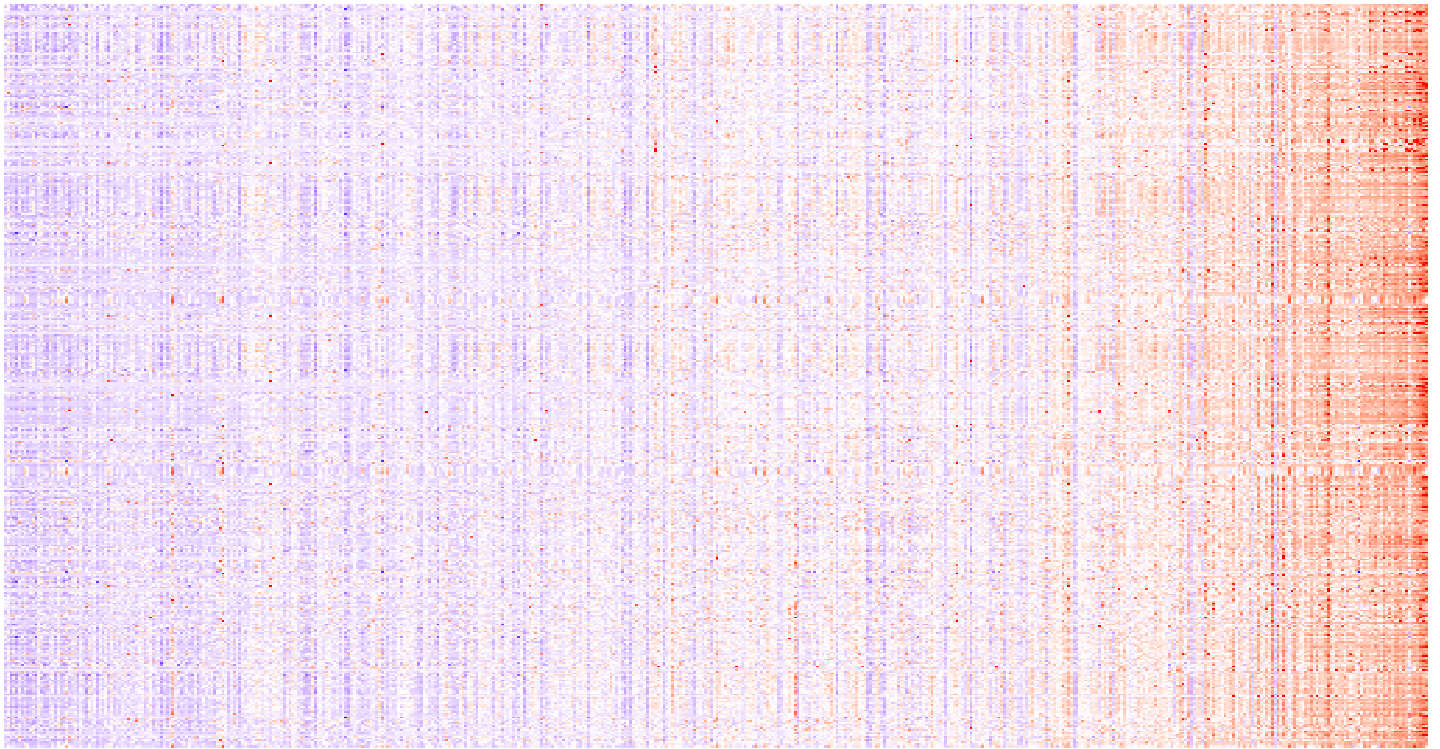
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2  
1  
0

## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Complement and coagulation cascades
- Cytosolic DNA-sensing pathway
- Fc gamma R-mediated phagocytosis
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

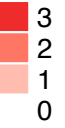
- 4
- 2
- 0
- 2
- 4



# UCEC

PD1

PD1

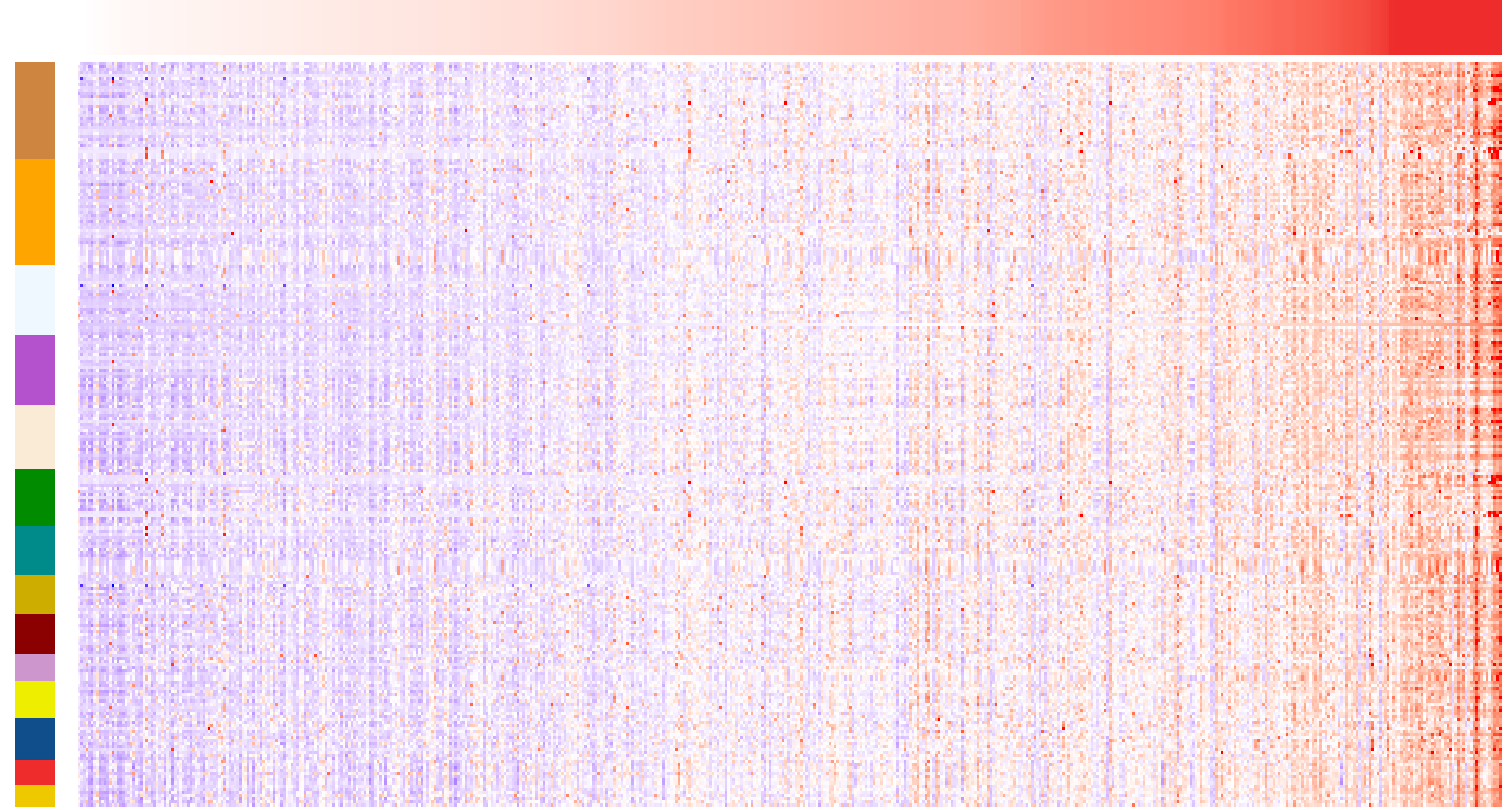


## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
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- Complement and coagulation cascades
- Cytosolic DNA-sensing pathway
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- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

- 4
- 2
- 0
- 2
- 4



# UCS

PD1

PD1

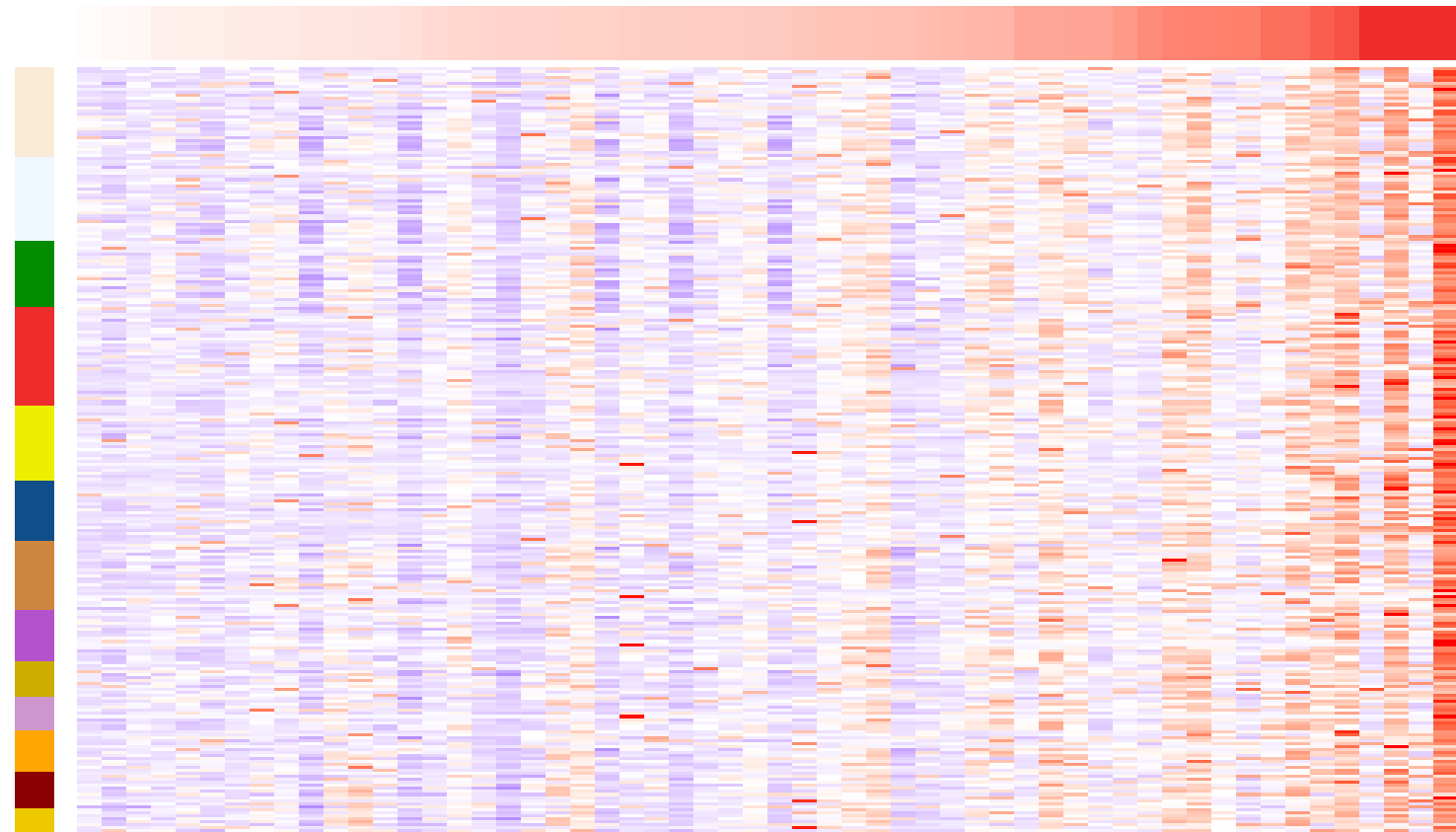
2  
1.5  
1  
0.5  
0

## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Cytosolic DNA-sensing pathway
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- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

- 4
- 2
- 0
- -2
- -4



# UVM

PD1

PD1

2  
1.5  
1  
0.5  
0

## pathway\_type

- Antigen processing and presentation
- B cell receptor signaling pathway
- C-type lectin receptor signaling pathway
- Chemokine signaling pathway
- Cytosolic DNA-sensing pathway
- Fc epsilon RI signaling pathway
- Fc gamma R-mediated phagocytosis
- IL-17 signaling pathway
- Leukocyte transendothelial migration
- Natural killer cell mediated cytotoxicity
- NOD-like receptor signaling pathway
- T cell receptor signaling pathway
- Th1 and Th2 cell differentiation
- Th17 cell differentiation
- Toll-like receptor signaling pathway

## expression

- 4
- 2
- 0
- 2
- 4

