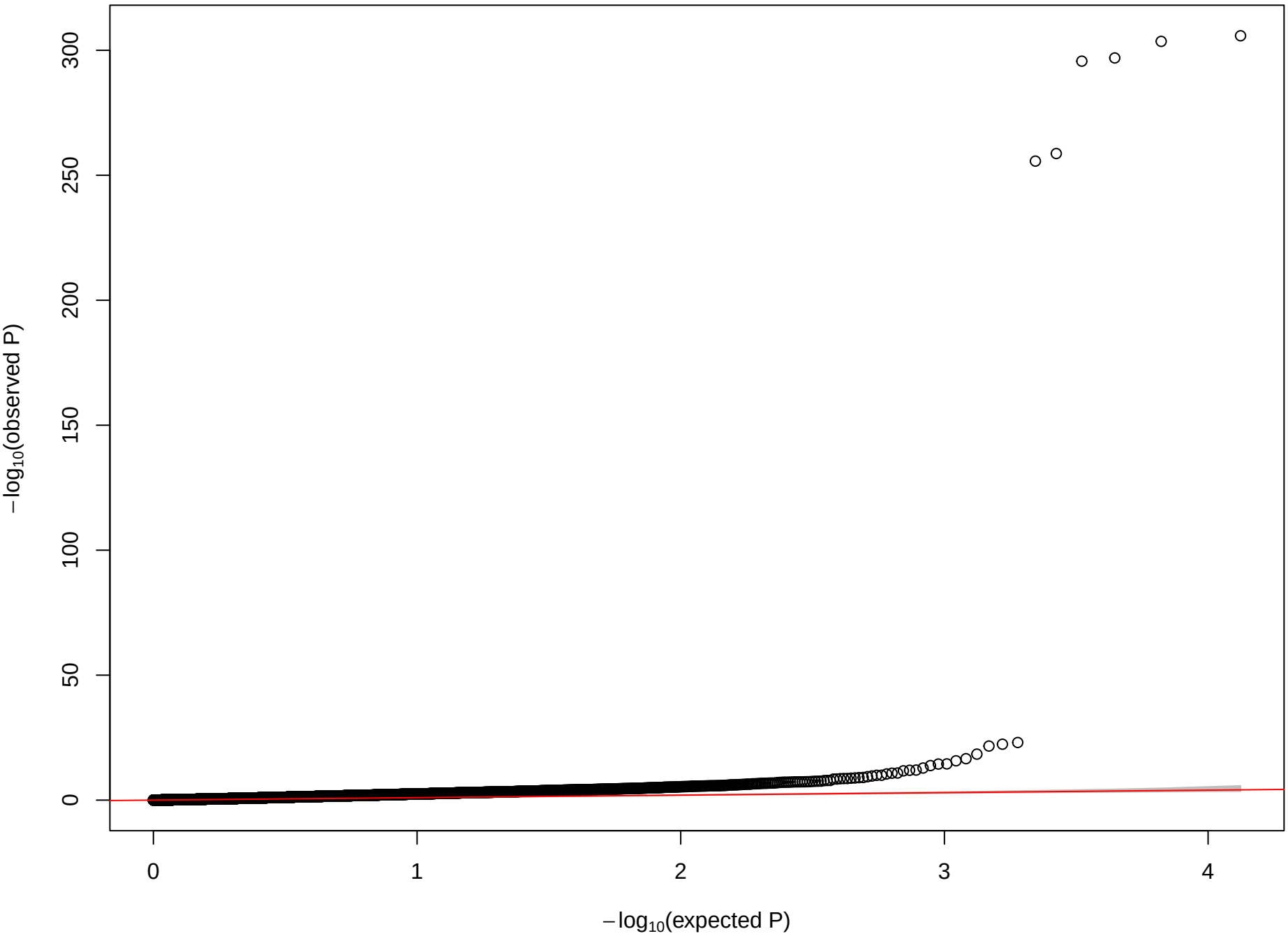
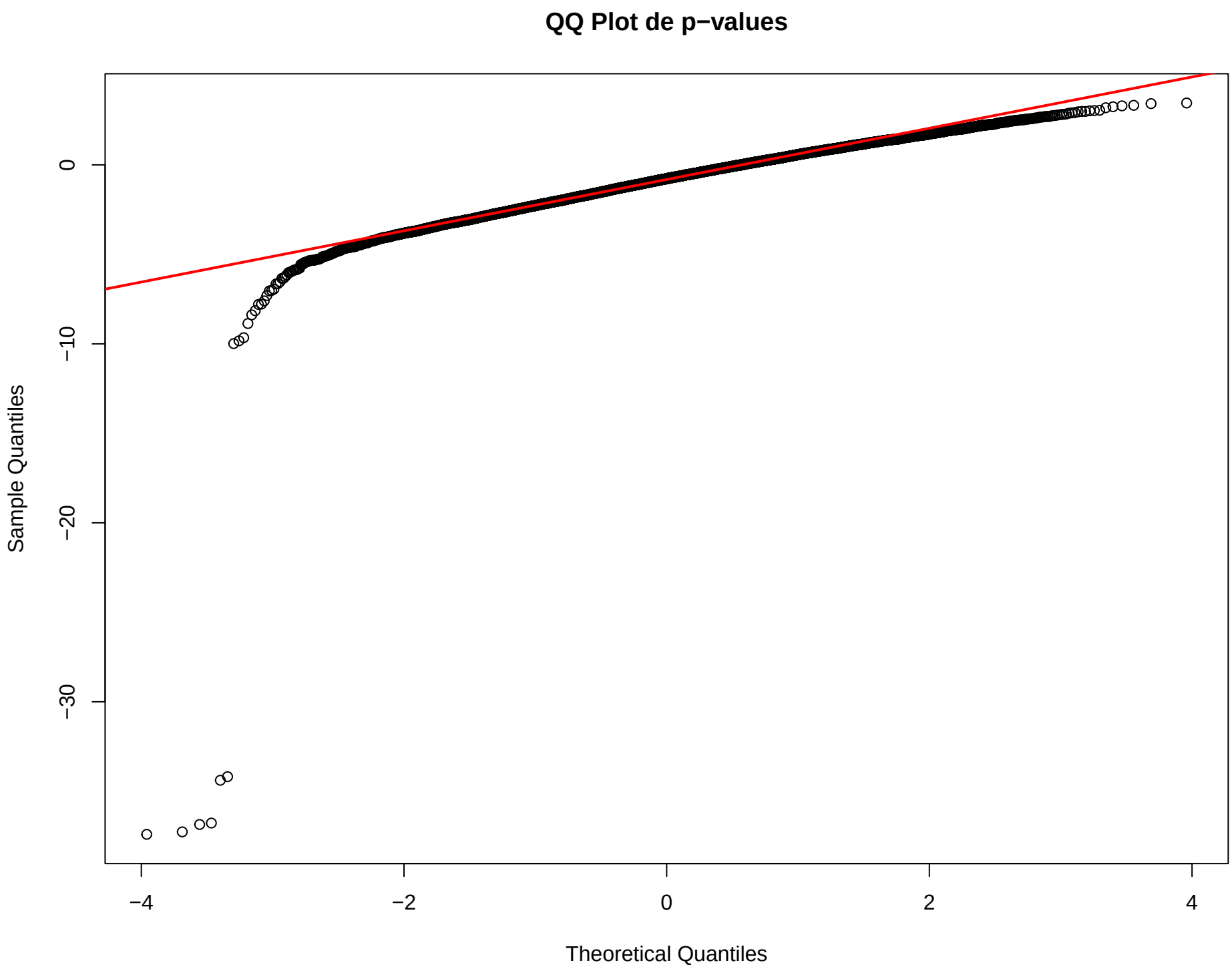
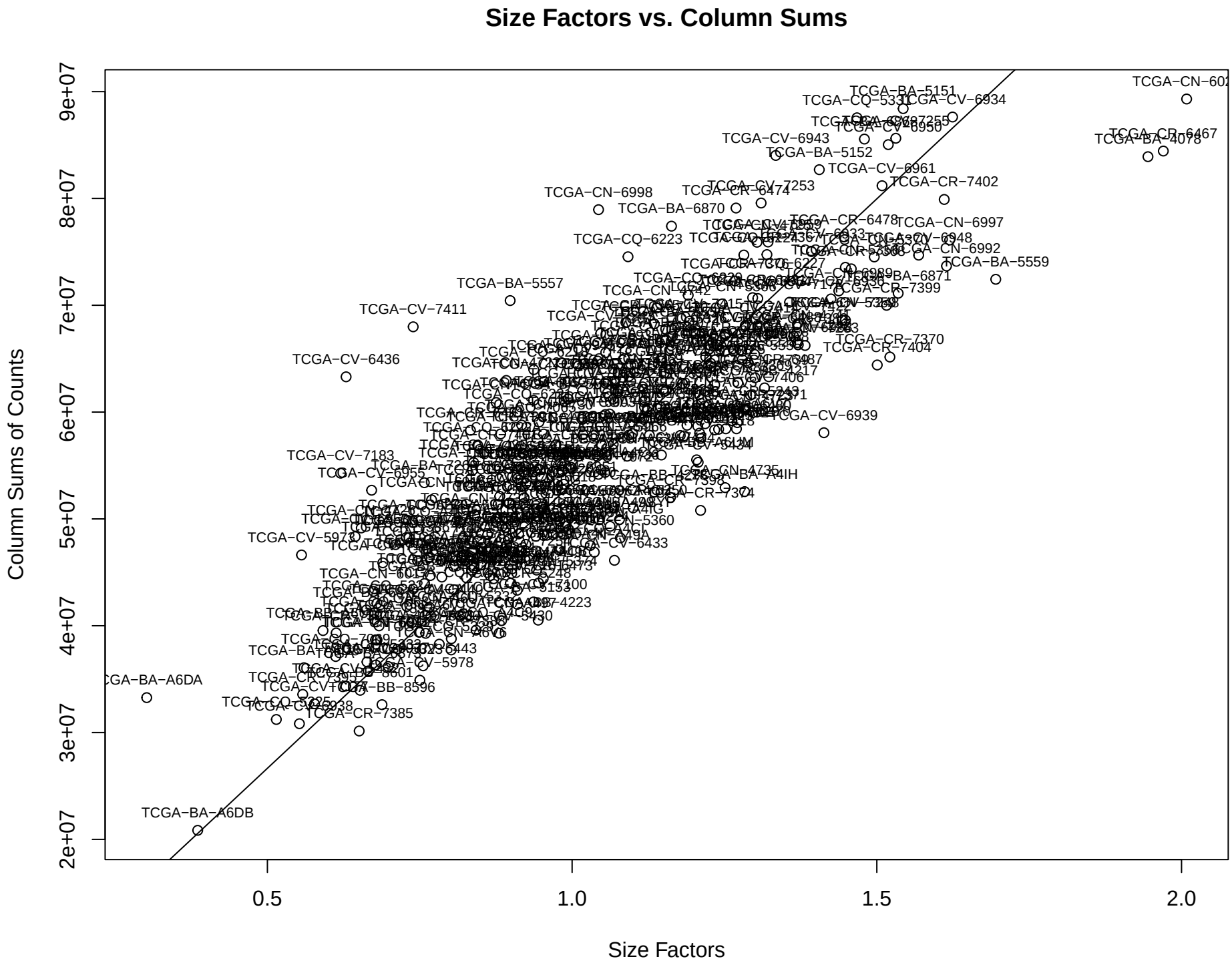
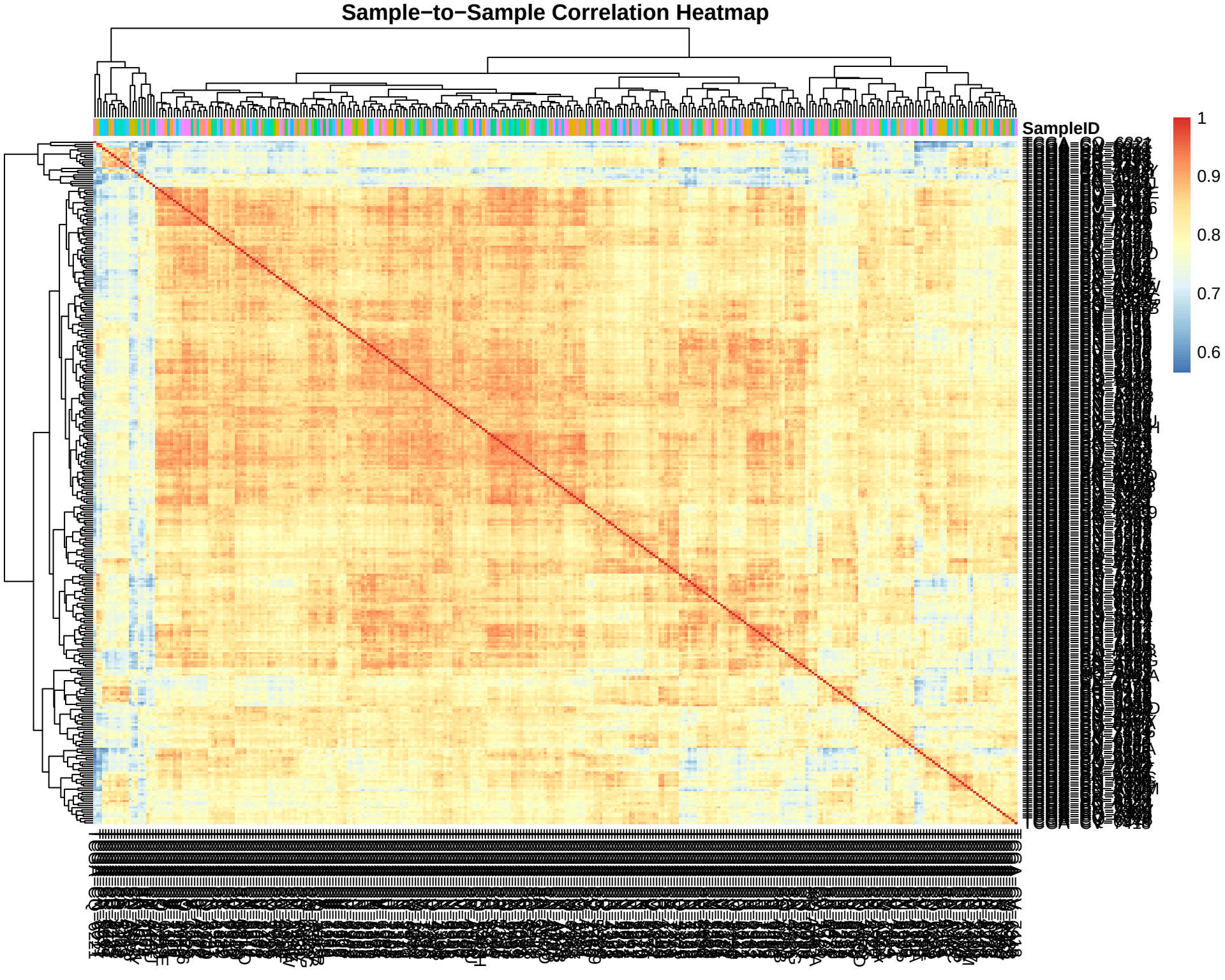
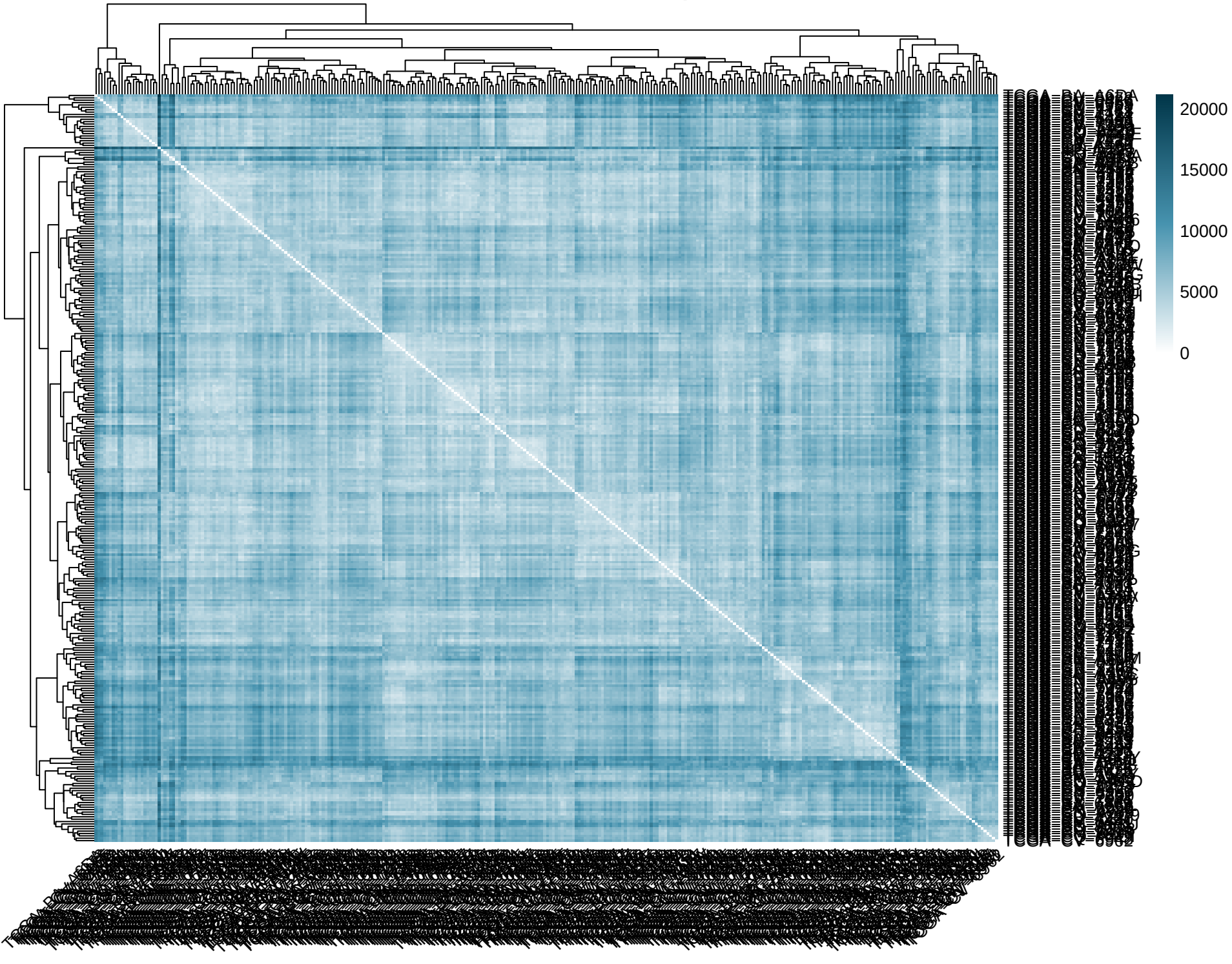

300
250
200
150
100
50
0
−log10(observed P)
0
1
2
3
4
−log10(expected P)

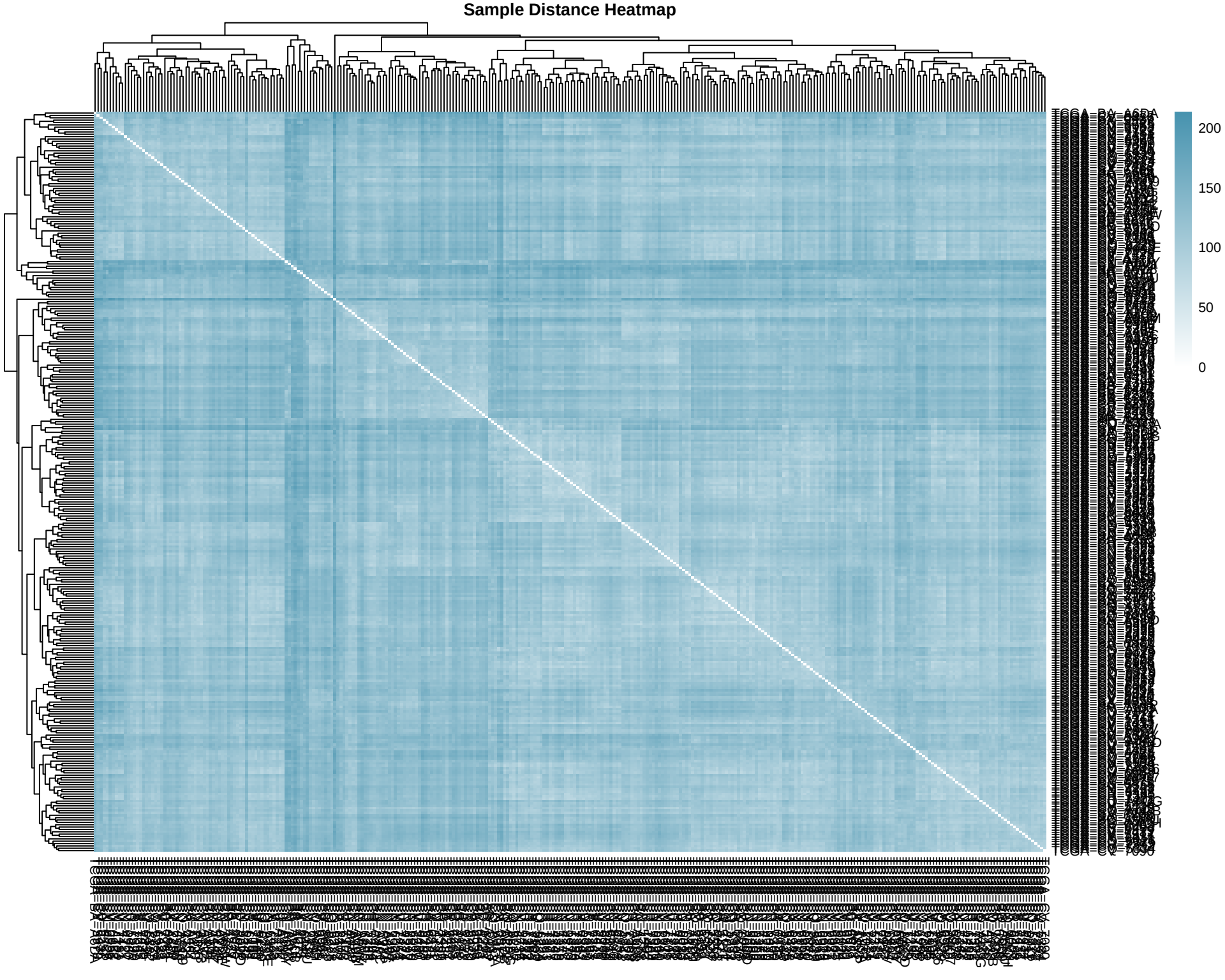

QQ Plot de p−values
Sample Quantiles
Theoretical Quantiles
0
−10
−20
−30
−4
−2
0
2
4


Size Factors vs. Column Sums
Column Sums of Counts
Size Factors
2e+07
3e+07
4e+07
5e+07
6e+07
7e+07
8e+07
9e+07
0.5
1.0
1.5
2.0
TCGA−BA−A6DA
TCGA−BA−A6DB
TCGA−CV−7411
TCGA−BA−5557
TCGA−CV−6436
TCGA−CN−6998
TCGA−BA−6870
TCGA−CQ−6223
TCGA−CV−6943
TCGA−BA−5152
TCGA−BA−5151
TCGA−CV−6934
TCGA−CV−6961
TCGA−CR−7402
TCGA−CR−6467
TCGA−BA−4078
TCGA−BA−5559
TCGA−CR−7399
TCGA−CR−7370
TCGA−CR−7404
TCGA−CV−6939
TCGA−CV−7183
TCGA−CV−6955
TCGA−CV−5978
TCGA−BB−8596
TCGA−CR−7385
TCGA−CV−6433
TCGA−CN−5360
TCGA−CN−6992
TCGA−CN−6997
TCGA−CR−6478
TCGA−CR−7253
TCGA−CR−6474
TCGA−CN−4735

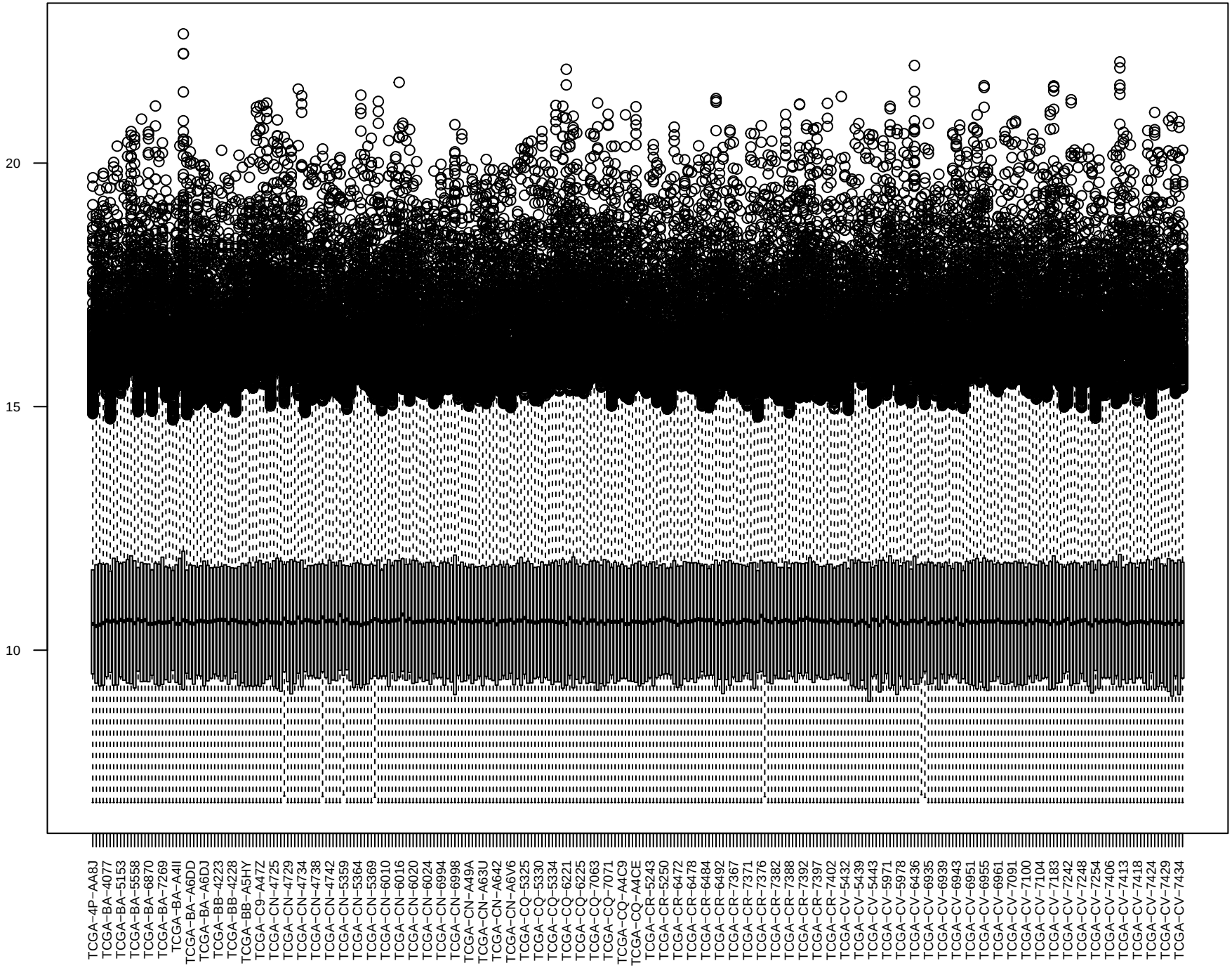

Sample−to−Sample Correlation Heatmap
SampleID
1
0.9
0.8
0.7
0.6

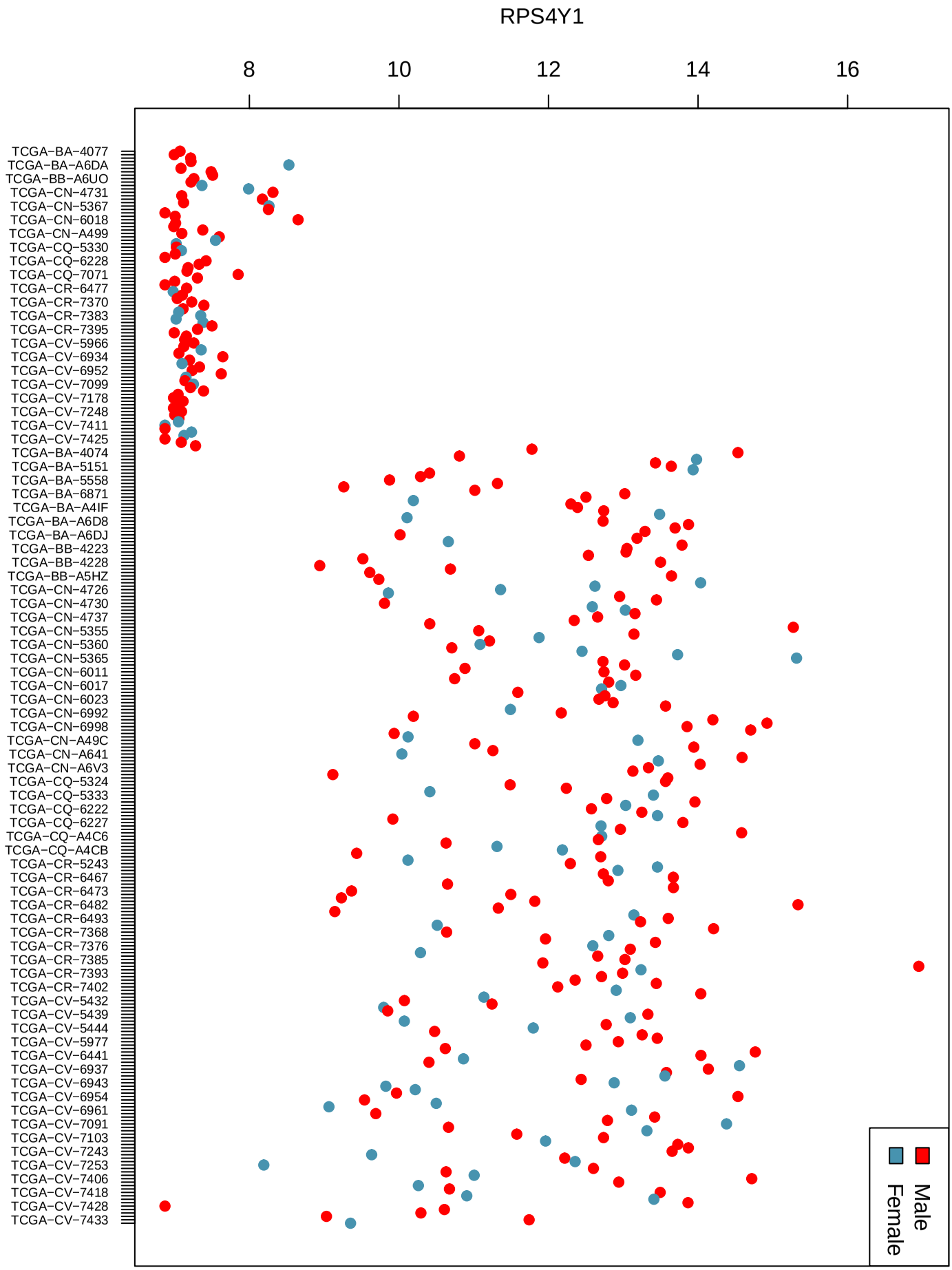
Poisson Distances Heatmap

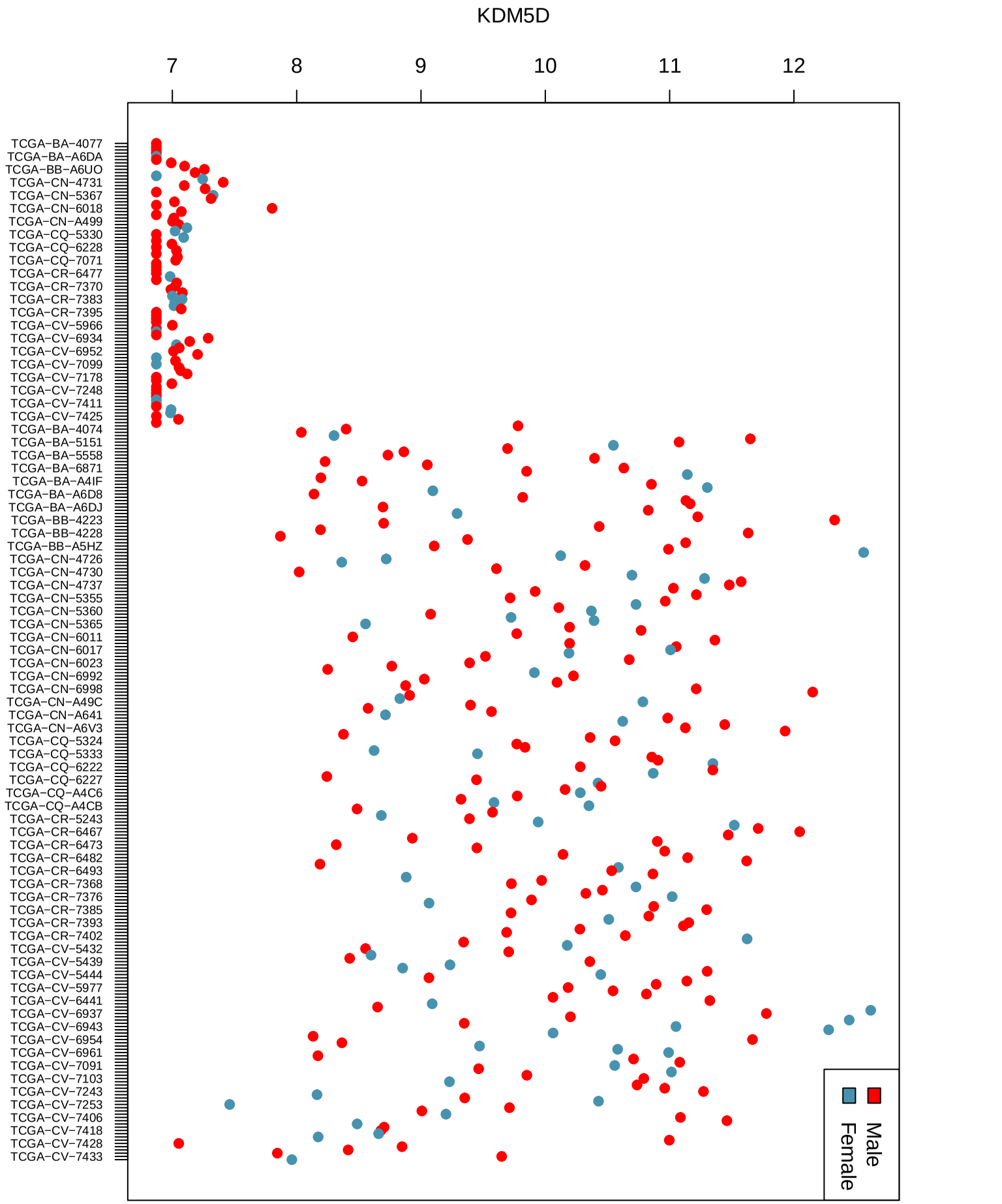


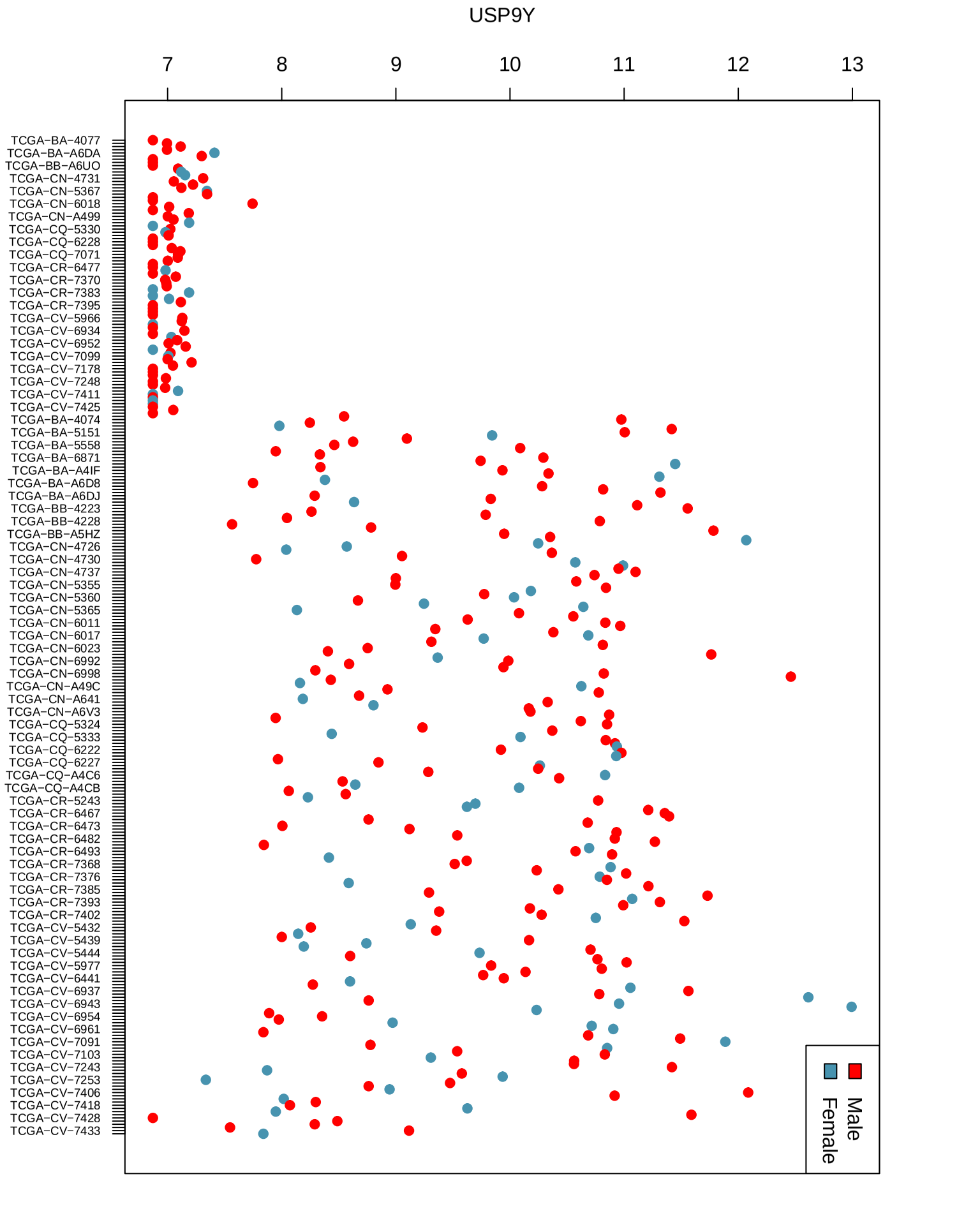

Sample Distance Heatmap
200
150
100
50
0

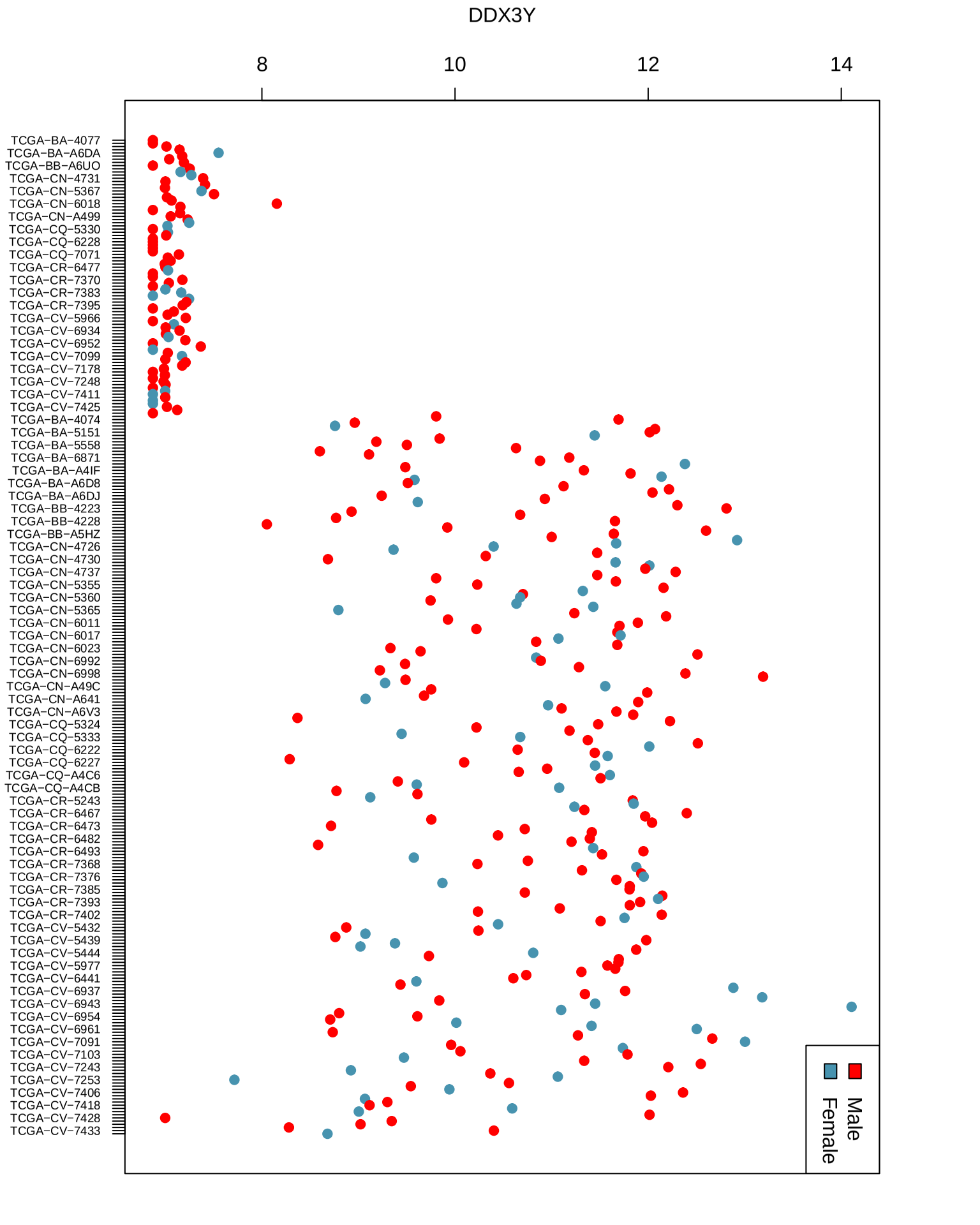
vsd

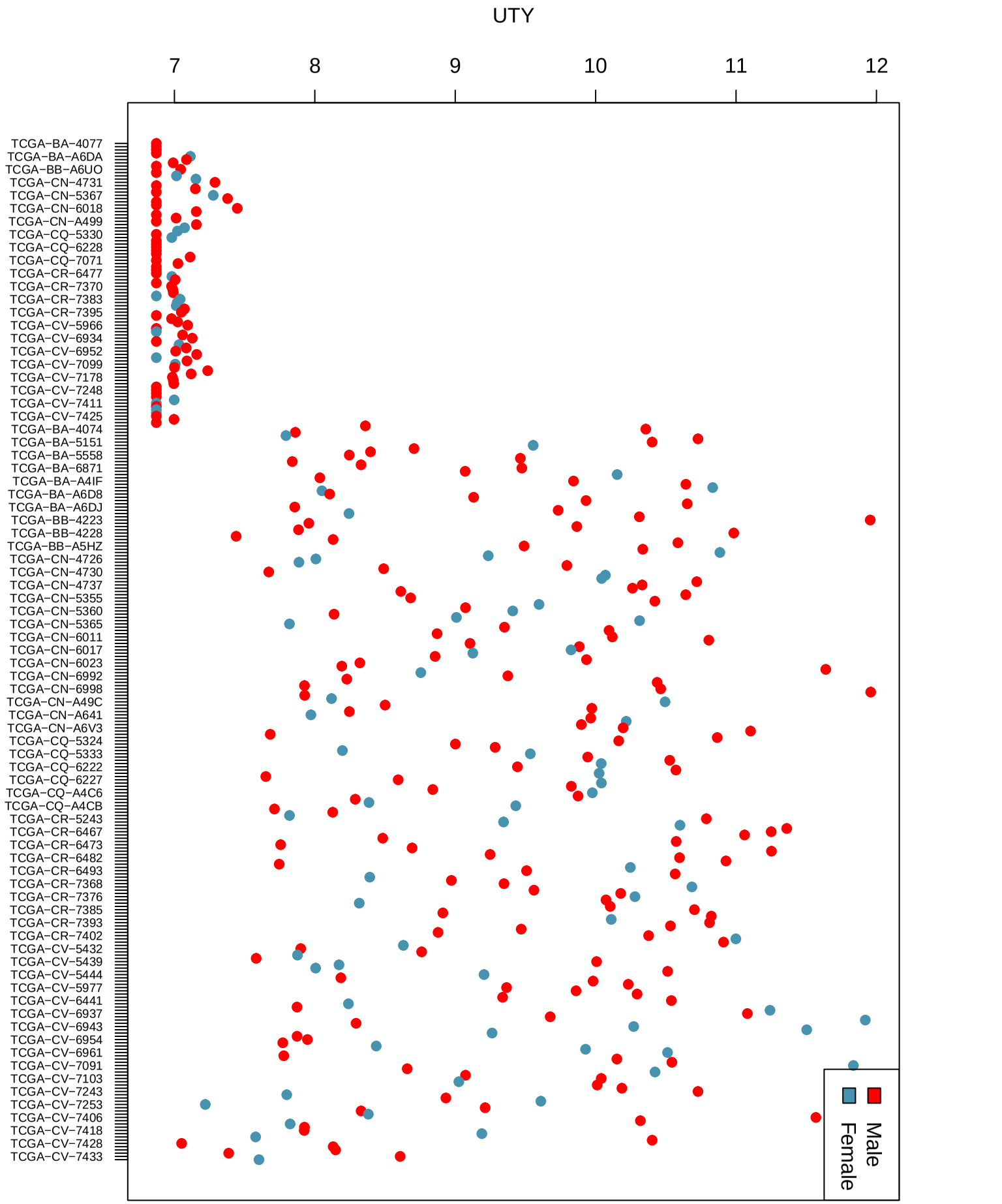

20
15
10
TCGA−4P−AA8J
TCGA−BA−4077
TCGA−BA−5153
TCGA−BA−5558
TCGA−BA−6870
TCGA−BA−7269
TCGA−BA−A4II
TCGA−BA−A6DD
TCGA−BA−A6DJ
TCGA−BB−4223
TCGA−BB−4228
TCGA−BB−A5HY
TCGA−C9−A47Z
TCGA−CN−4725
TCGA−CN−4729
TCGA−CN−4734
TCGA−CN−4738
TCGA−CN−4742
TCGA−CN−5359
TCGA−CN−5364
TCGA−CN−5369
TCGA−CN−6010
TCGA−CN−6016
TCGA−CN−6020
TCGA−CN−6024
TCGA−CN−6994
TCGA−CN−6998
TCGA−CN−A49A
TCGA−CN−A63U
TCGA−CN−A642
TCGA−CN−A6V6
TCGA−CQ−5325
TCGA−CQ−5330
TCGA−CQ−5334
TCGA−CQ−6221
TCGA−CQ−6225
TCGA−CQ−7063
TCGA−CQ−7071
TCGA−CQ−A4C9
TCGA−CQ−A4CE
TCGA−CR−5243
TCGA−CR−5250
TCGA−CR−6472
TCGA−CR−6478
TCGA−CR−6484
TCGA−CR−6492
TCGA−CR−7367
TCGA−CR−7371
TCGA−CR−7376
TCGA−CR−7382
TCGA−CR−7388
TCGA−CR−7392
TCGA−CR−7397
TCGA−CR−7402
TCGA−CV−5432
TCGA−CV−5439
TCGA−CV−5443
TCGA−CV−5971
TCGA−CV−5978
TCGA−CV−6436
TCGA−CV−6935
TCGA−CV−6939
TCGA−CV−6943
TCGA−CV−6951
TCGA−CV−6955
TCGA−CV−6961
TCGA−CV−7091
TCGA−CV−7100
TCGA−CV−7104
TCGA−CV−7183
TCGA−CV−7242
TCGA−CV−7248
TCGA−CV−7254
TCGA−CV−7406
TCGA−CV−7413
TCGA−CV−7418
TCGA−CV−7424
TCGA−CV−7429
TCGA−CV−7434

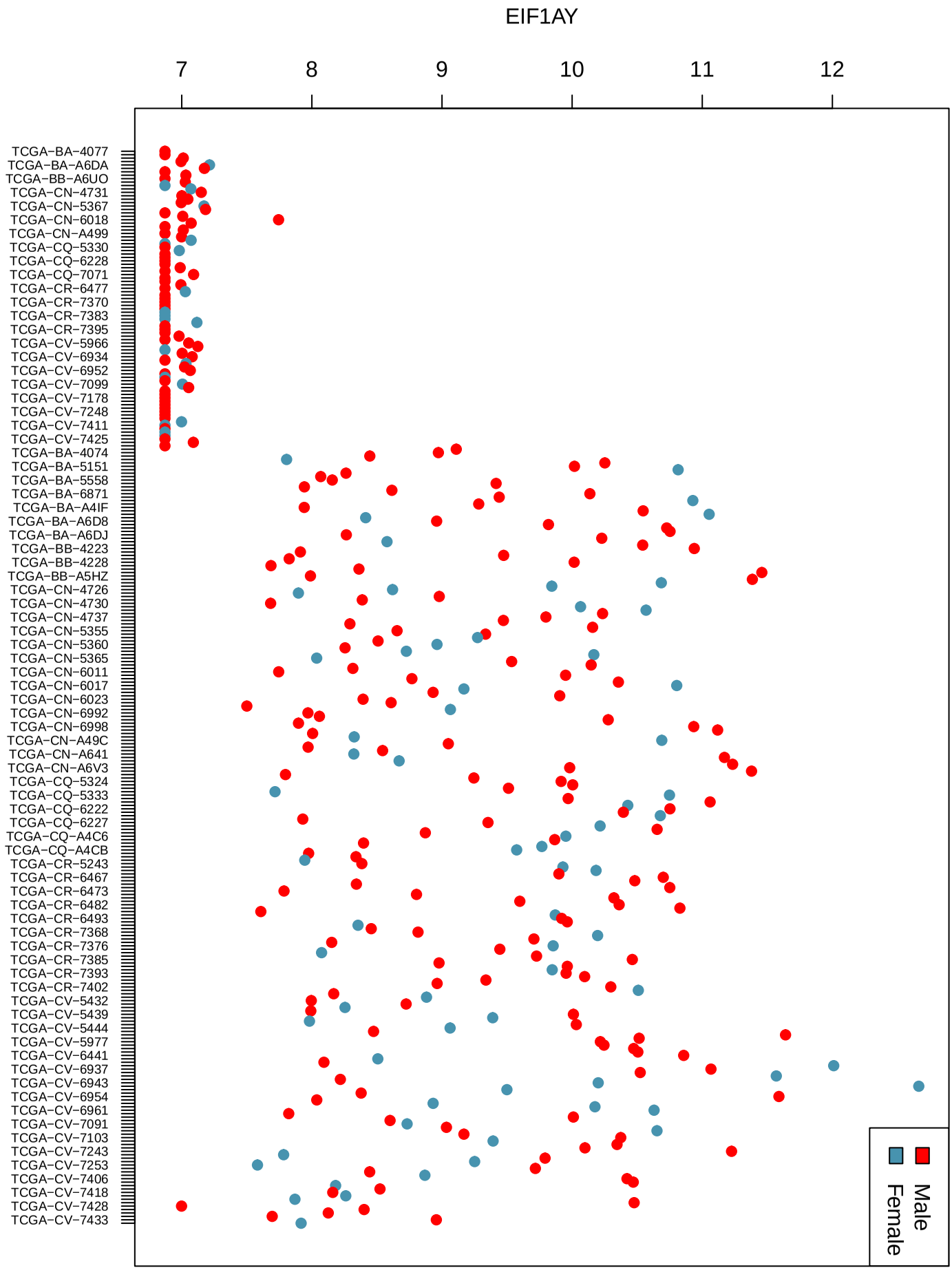

RPS4Y1
8
10
12
14
16
TCGA-BA-4077
TCGA-BA-A6DA
TCGA-BB-A6UO
TCGA-CN-4731
TCGA-CN-5367
TCGA-CN-6018
TCGA-CN-A499
TCGA-CQ-5330
TCGA-CQ-6228
TCGA-CQ-7071
TCGA-CR-6477
TCGA-CR-7370
TCGA-CR-7383
TCGA-CR-7395
TCGA-CV-5966
TCGA-CV-6934
TCGA-CV-6952
TCGA-CV-7099
TCGA-CV-7178
TCGA-CV-7248
TCGA-CV-7411
TCGA-CV-7425
TCGA-BA-4074
TCGA-BA-5151
TCGA-BA-5558
TCGA-BA-6871
TCGA-BA-A4IF
TCGA-BA-A6D8
TCGA-BA-A6DJ
TCGA-BB-4223
TCGA-BB-4228
TCGA-BB-A5HZ
TCGA-CN-4726
TCGA-CN-4730
TCGA-CN-4737
TCGA-CN-5355
TCGA-CN-5360
TCGA-CN-5365
TCGA-CN-6011
TCGA-CN-6017
TCGA-CN-6023
TCGA-CN-6992
TCGA-CN-6998
TCGA-CN-A49C
TCGA-CN-A641
TCGA-CN-A6V3
TCGA-CQ-5324
TCGA-CQ-5333
TCGA-CQ-6222
TCGA-CQ-6227
TCGA-CQ-A4C6
TCGA-CQ-A4CB
TCGA-CR-5243
TCGA-CR-6467
TCGA-CR-6473
TCGA-CR-6482
TCGA-CR-6493
TCGA-CR-7368
TCGA-CR-7376
TCGA-CR-7385
TCGA-CR-7393
TCGA-CR-7402
TCGA-CV-5432
TCGA-CV-5439
TCGA-CV-5444
TCGA-CV-5977
TCGA-CV-6441
TCGA-CV-6937
TCGA-CV-6943
TCGA-CV-6954
TCGA-CV-6961
TCGA-CV-7091
TCGA-CV-7103
TCGA-CV-7243
TCGA-CV-7253
TCGA-CV-7406
TCGA-CV-7418
TCGA-CV-7428
TCGA-CV-7433
Male
Female

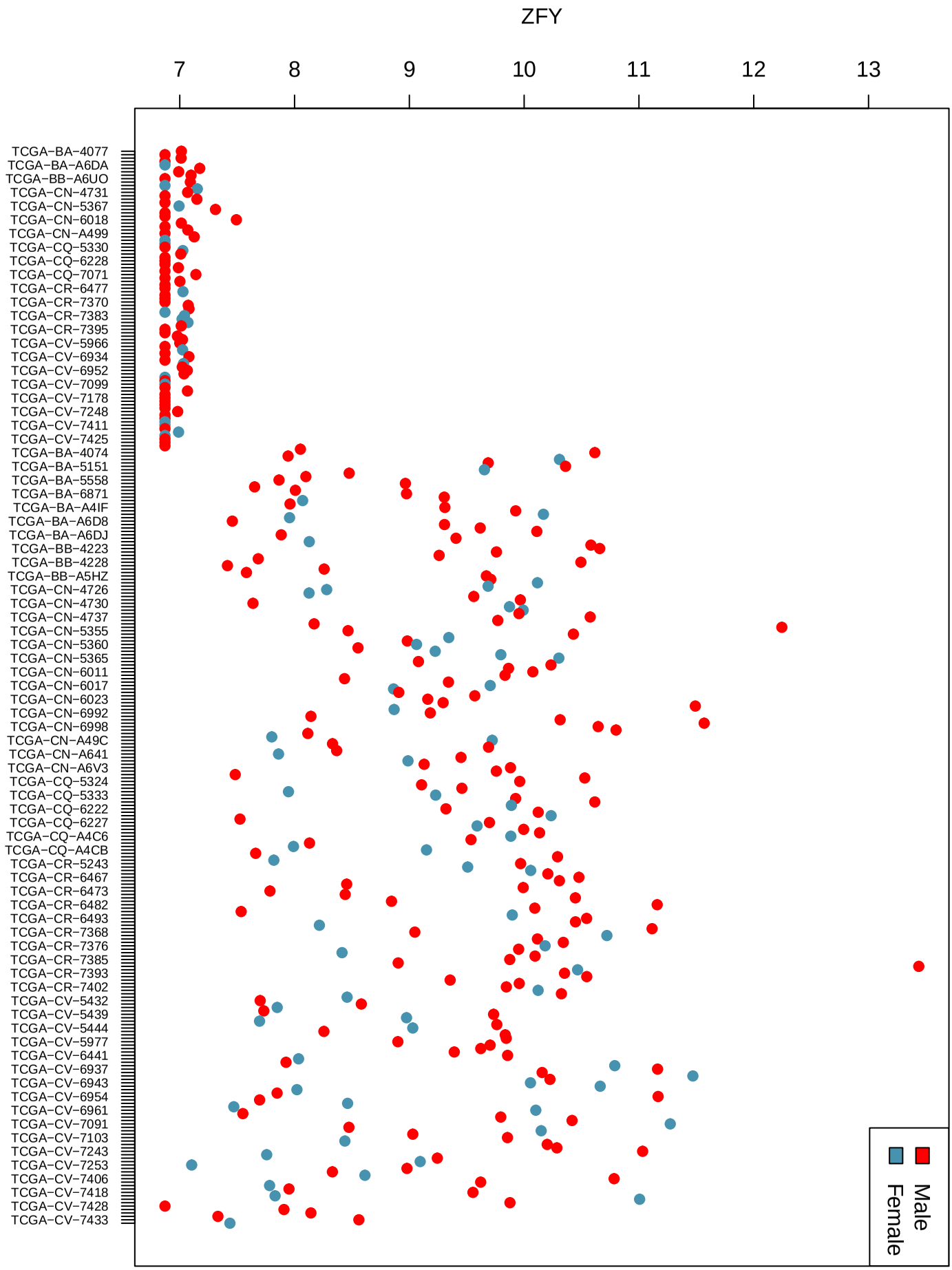

KDM5D
7
8
9
10
11
12
TCGA-BA-4077
TCGA-BA-A6DA
TCGA-BB-A6UO
TCGA-CN-4731
TCGA-CN-5367
TCGA-CN-6018
TCGA-CN-A499
TCGA-CQ-5330
TCGA-CQ-6228
TCGA-CQ-7071
TCGA-CR-6477
TCGA-CR-7370
TCGA-CR-7383
TCGA-CR-7395
TCGA-CV-5966
TCGA-CV-6934
TCGA-CV-6952
TCGA-CV-7099
TCGA-CV-7178
TCGA-CV-7248
TCGA-CV-7411
TCGA-CV-7425
TCGA-BA-4074
TCGA-BA-5151
TCGA-BA-5558
TCGA-BA-6871
TCGA-BA-A4IF
TCGA-BA-A6D8
TCGA-BA-A6DJ
TCGA-BB-4223
TCGA-BB-4228
TCGA-BB-A5HZ
TCGA-CN-4726
TCGA-CN-4730
TCGA-CN-4737
TCGA-CN-5355
TCGA-CN-5360
TCGA-CN-5365
TCGA-CN-6011
TCGA-CN-6017
TCGA-CN-6023
TCGA-CN-6992
TCGA-CN-6998
TCGA-CN-A49C
TCGA-CN-A641
TCGA-CN-A6V3
TCGA-CQ-5324
TCGA-CQ-5333
TCGA-CQ-6222
TCGA-CQ-6227
TCGA-CQ-A4C6
TCGA-CQ-A4CB
TCGA-CR-5243
TCGA-CR-6467
TCGA-CR-6473
TCGA-CR-6482
TCGA-CR-6493
TCGA-CR-7368
TCGA-CR-7376
TCGA-CR-7385
TCGA-CR-7393
TCGA-CR-7402
TCGA-CV-5432
TCGA-CV-5439
TCGA-CV-5444
TCGA-CV-5977
TCGA-CV-6441
TCGA-CV-6937
TCGA-CV-6943
TCGA-CV-6954
TCGA-CV-6961
TCGA-CV-7091
TCGA-CV-7103
TCGA-CV-7243
TCGA-CV-7253
TCGA-CV-7406
TCGA-CV-7418
TCGA-CV-7428
TCGA-CV-7433
Male
Female

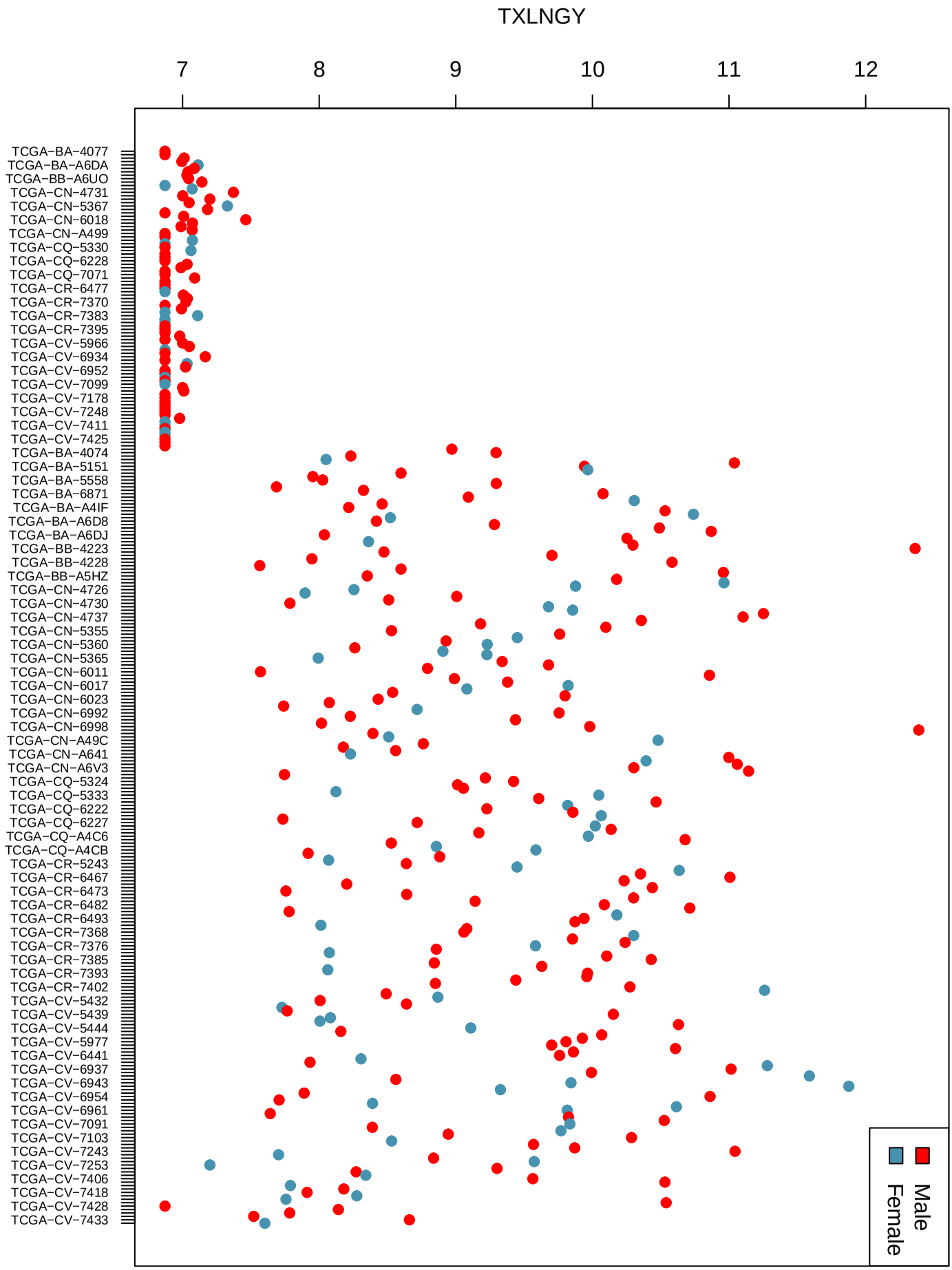

USP9Y
7
8
9
10
11
12
13
TCGA-BA-4077
TCGA-BA-A6DA
TCGA-BB-A6UO
TCGA-CN-4731
TCGA-CN-5367
TCGA-CN-6018
TCGA-CN-A499
TCGA-CQ-5330
TCGA-CQ-6228
TCGA-CQ-7071
TCGA-CR-6477
TCGA-CR-7370
TCGA-CR-7383
TCGA-CR-7395
TCGA-CV-5966
TCGA-CV-6934
TCGA-CV-6952
TCGA-CV-7099
TCGA-CV-7178
TCGA-CV-7248
TCGA-CV-7411
TCGA-CV-7425
TCGA-BA-4074
TCGA-BA-5151
TCGA-BA-5558
TCGA-BA-6871
TCGA-BA-A4IF
TCGA-BA-A6D8
TCGA-BA-A6DJ
TCGA-BB-4223
TCGA-BB-4228
TCGA-BB-A5HZ
TCGA-CN-4726
TCGA-CN-4730
TCGA-CN-4737
TCGA-CN-5355
TCGA-CN-5360
TCGA-CN-5365
TCGA-CN-6011
TCGA-CN-6017
TCGA-CN-6023
TCGA-CN-6992
TCGA-CN-6998
TCGA-CN-A49C
TCGA-CN-A641
TCGA-CN-A6V3
TCGA-CQ-5324
TCGA-CQ-5333
TCGA-CQ-6222
TCGA-CQ-6227
TCGA-CQ-A4C6
TCGA-CQ-A4CB
TCGA-CR-5243
TCGA-CR-6467
TCGA-CR-6473
TCGA-CR-6482
TCGA-CR-6493
TCGA-CR-7368
TCGA-CR-7376
TCGA-CR-7385
TCGA-CR-7393
TCGA-CR-7402
TCGA-CV-5432
TCGA-CV-5439
TCGA-CV-5444
TCGA-CV-5977
TCGA-CV-6441
TCGA-CV-6937
TCGA-CV-6943
TCGA-CV-6954
TCGA-CV-6961
TCGA-CV-7091
TCGA-CV-7103
TCGA-CV-7243
TCGA-CV-7253
TCGA-CV-7406
TCGA-CV-7418
TCGA-CV-7428
TCGA-CV-7433
Male
Female

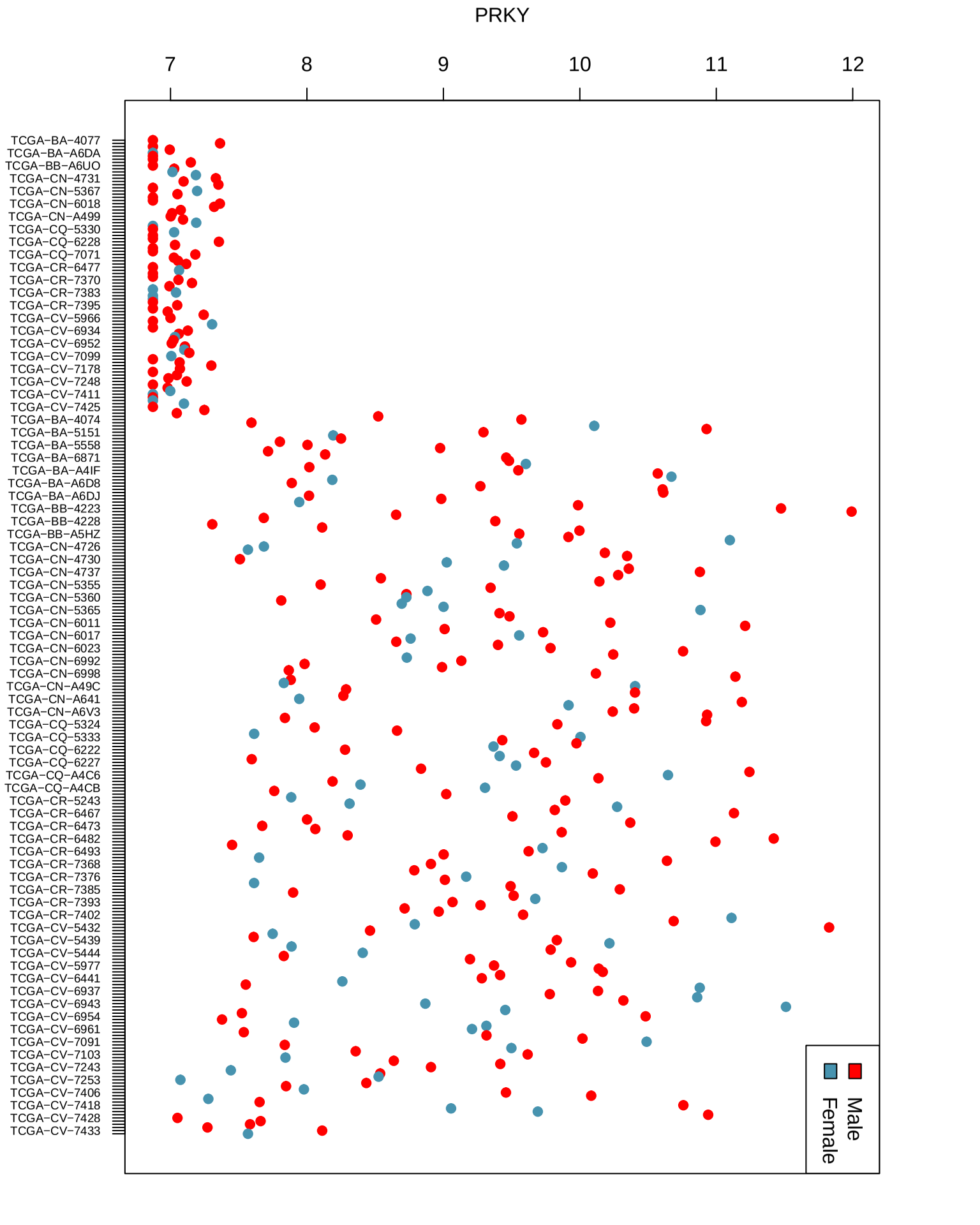

DDX3Y
8
10
12
14
TCGA-BA-4077
TCGA-BA-A6DA
TCGA-BB-A6UO
TCGA-CN-4731
TCGA-CN-5367
TCGA-CN-6018
TCGA-CN-A499
TCGA-CQ-5330
TCGA-CQ-6228
TCGA-CQ-7071
TCGA-CR-6477
TCGA-CR-7370
TCGA-CR-7383
TCGA-CR-7395
TCGA-CV-5966
TCGA-CV-6934
TCGA-CV-6952
TCGA-CV-7099
TCGA-CV-7178
TCGA-CV-7248
TCGA-CV-7411
TCGA-CV-7425
TCGA-BA-4074
TCGA-BA-5151
TCGA-BA-5558
TCGA-BA-6871
TCGA-BA-A4IF
TCGA-BA-A6D8
TCGA-BA-A6DJ
TCGA-BB-4223
TCGA-BB-4228
TCGA-BB-A5HZ
TCGA-CN-4726
TCGA-CN-4730
TCGA-CN-4737
TCGA-CN-5355
TCGA-CN-5360
TCGA-CN-5365
TCGA-CN-6011
TCGA-CN-6017
TCGA-CN-6023
TCGA-CN-6992
TCGA-CN-6998
TCGA-CN-A49C
TCGA-CN-A641
TCGA-CN-A6V3
TCGA-CQ-5324
TCGA-CQ-5333
TCGA-CQ-6222
TCGA-CQ-6227
TCGA-CQ-A4C6
TCGA-CQ-A4CB
TCGA-CR-5243
TCGA-CR-6467
TCGA-CR-6473
TCGA-CR-6482
TCGA-CR-6493
TCGA-CR-7368
TCGA-CR-7376
TCGA-CR-7385
TCGA-CR-7393
TCGA-CR-7402
TCGA-CV-5432
TCGA-CV-5439
TCGA-CV-5444
TCGA-CV-5977
TCGA-CV-6441
TCGA-CV-6937
TCGA-CV-6943
TCGA-CV-6954
TCGA-CV-6961
TCGA-CV-7091
TCGA-CV-7103
TCGA-CV-7243
TCGA-CV-7253
TCGA-CV-7406
TCGA-CV-7418
TCGA-CV-7428
TCGA-CV-7433
Male
Female

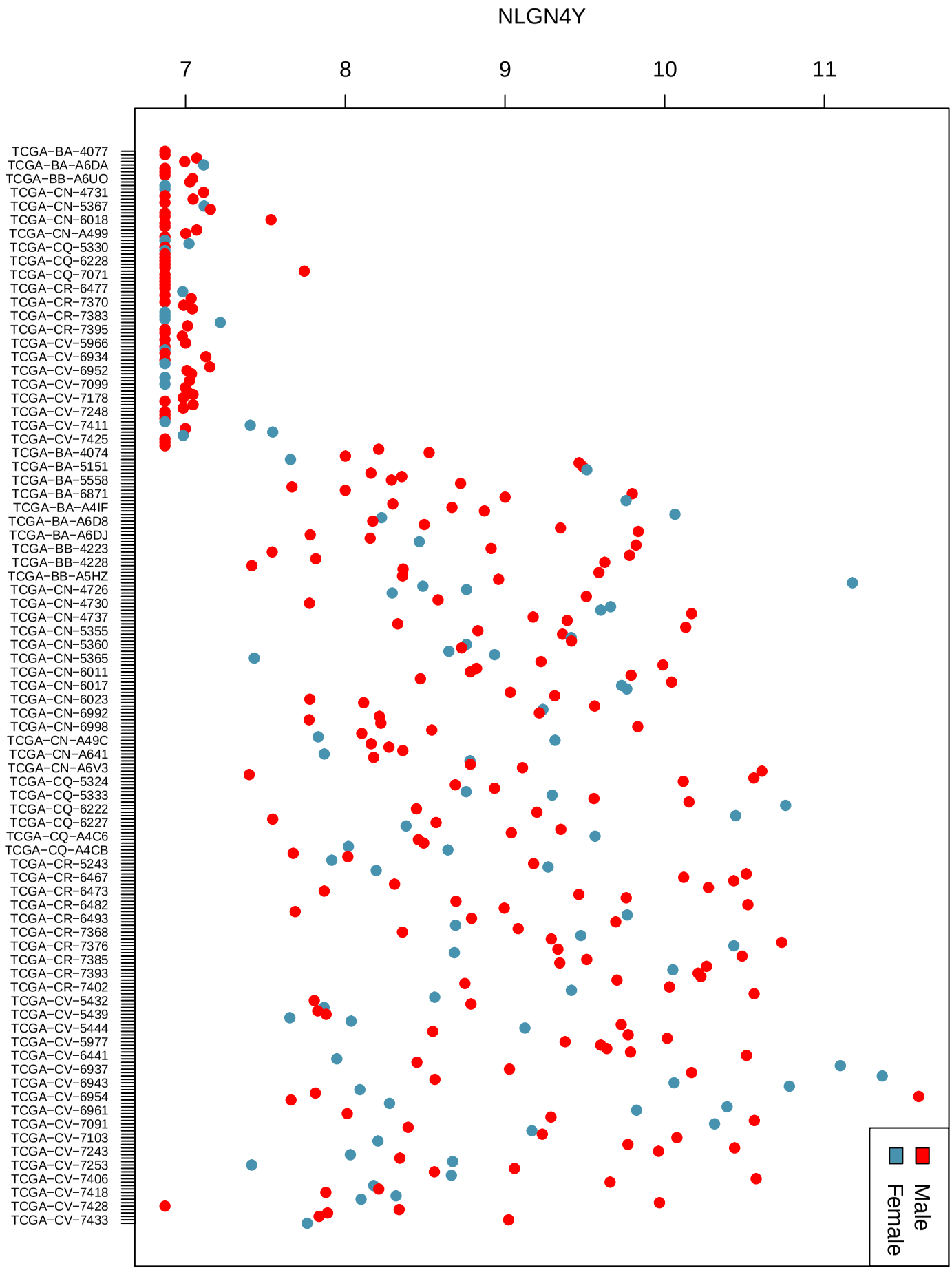

UTY
7
8
9
10
11
12
TCGA-BA-4077
TCGA-BA-A6DA
TCGA-BB-A6UO
TCGA-CN-4731
TCGA-CN-5367
TCGA-CN-6018
TCGA-CN-A499
TCGA-CQ-5330
TCGA-CQ-6228
TCGA-CQ-7071
TCGA-CR-6477
TCGA-CR-7370
TCGA-CR-7383
TCGA-CR-7395
TCGA-CV-5966
TCGA-CV-6934
TCGA-CV-6952
TCGA-CV-7099
TCGA-CV-7178
TCGA-CV-7248
TCGA-CV-7411
TCGA-CV-7425
TCGA-BA-4074
TCGA-BA-5151
TCGA-BA-5558
TCGA-BA-6871
TCGA-BA-A4IF
TCGA-BA-A6D8
TCGA-BA-A6DJ
TCGA-BB-4223
TCGA-BB-4228
TCGA-BB-A5HZ
TCGA-CN-4726
TCGA-CN-4730
TCGA-CN-4737
TCGA-CN-5355
TCGA-CN-5360
TCGA-CN-5365
TCGA-CN-6011
TCGA-CN-6017
TCGA-CN-6023
TCGA-CN-6992
TCGA-CN-6998
TCGA-CN-A49C
TCGA-CN-A641
TCGA-CN-A6V3
TCGA-CQ-5324
TCGA-CQ-5333
TCGA-CQ-6222
TCGA-CQ-6227
TCGA-CQ-A4C6
TCGA-CQ-A4CB
TCGA-CR-5243
TCGA-CR-6467
TCGA-CR-6473
TCGA-CR-6482
TCGA-CR-6493
TCGA-CR-7368
TCGA-CR-7376
TCGA-CR-7385
TCGA-CR-7393
TCGA-CR-7402
TCGA-CV-5432
TCGA-CV-5439
TCGA-CV-5444
TCGA-CV-5977
TCGA-CV-6441
TCGA-CV-6937
TCGA-CV-6943
TCGA-CV-6954
TCGA-CV-6961
TCGA-CV-7091
TCGA-CV-7103
TCGA-CV-7243
TCGA-CV-7253
TCGA-CV-7406
TCGA-CV-7418
TCGA-CV-7428
TCGA-CV-7433
Male
Female

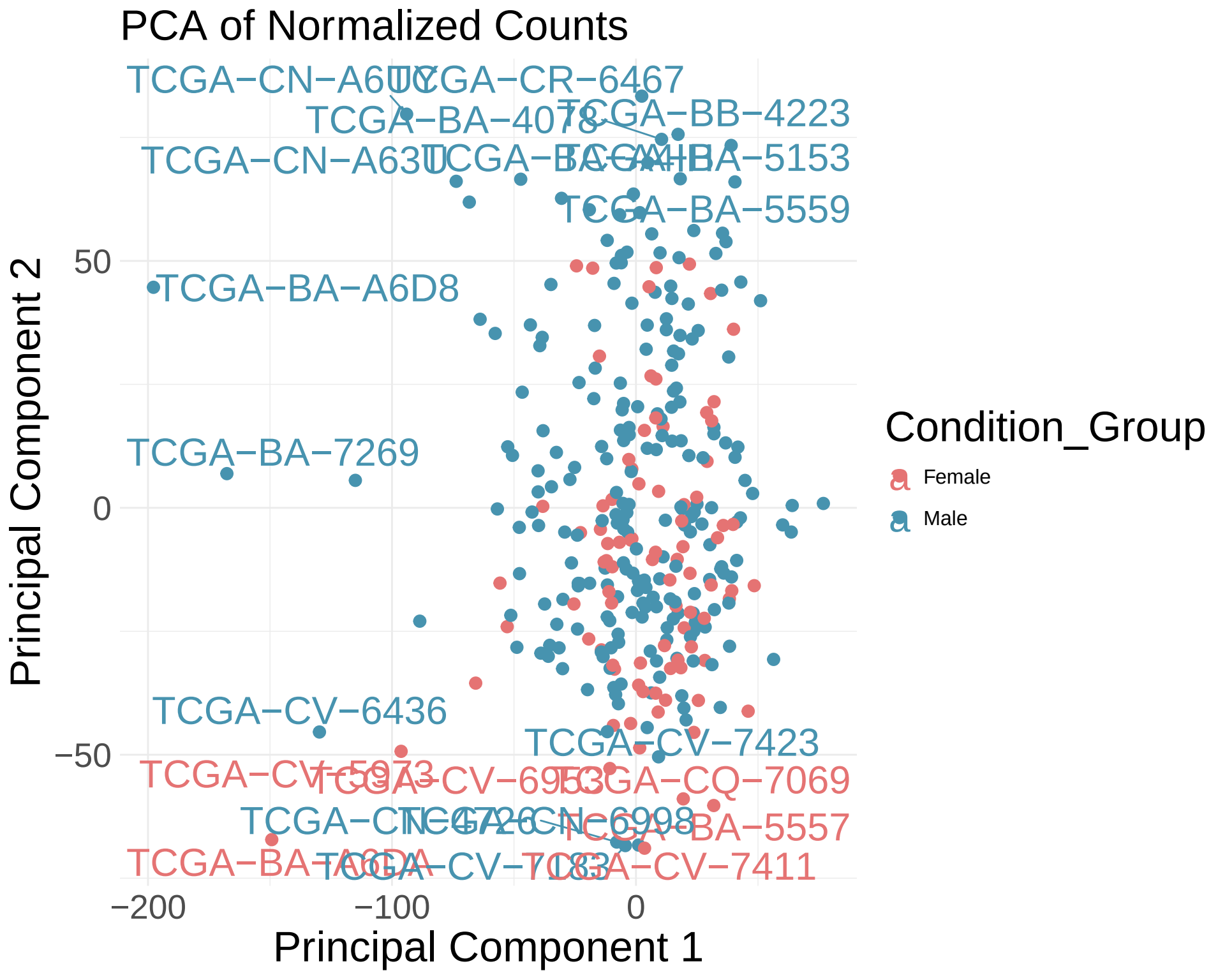

EIF1AY
7
8
9
10
11
12
TCGA-BA-4077
TCGA-BA-A6DA
TCGA-BB-A6UO
TCGA-CN-4731
TCGA-CN-5367
TCGA-CN-6018
TCGA-CN-A499
TCGA-CQ-5330
TCGA-CQ-6228
TCGA-CQ-7071
TCGA-CR-6477
TCGA-CR-7370
TCGA-CR-7383
TCGA-CR-7395
TCGA-CV-5966
TCGA-CV-6934
TCGA-CV-6952
TCGA-CV-7099
TCGA-CV-7178
TCGA-CV-7248
TCGA-CV-7411
TCGA-CV-7425
TCGA-BA-4074
TCGA-BA-5151
TCGA-BA-5558
TCGA-BA-6871
TCGA-BA-A4IF
TCGA-BA-A6D8
TCGA-BA-A6DJ
TCGA-BB-4223
TCGA-BB-4228
TCGA-BB-A5HZ
TCGA-CN-4726
TCGA-CN-4730
TCGA-CN-4737
TCGA-CN-5355
TCGA-CN-5360
TCGA-CN-5365
TCGA-CN-6011
TCGA-CN-6017
TCGA-CN-6023
TCGA-CN-6992
TCGA-CN-6998
TCGA-CN-A49C
TCGA-CN-A641
TCGA-CN-A6V3
TCGA-CQ-5324
TCGA-CQ-5333
TCGA-CQ-6222
TCGA-CQ-6227
TCGA-CQ-A4C6
TCGA-CQ-A4CB
TCGA-CR-5243
TCGA-CR-6467
TCGA-CR-6473
TCGA-CR-6482
TCGA-CR-6493
TCGA-CR-7368
TCGA-CR-7376
TCGA-CR-7385
TCGA-CR-7393
TCGA-CR-7402
TCGA-CV-5432
TCGA-CV-5439
TCGA-CV-5444
TCGA-CV-5977
TCGA-CV-6441
TCGA-CV-6937
TCGA-CV-6943
TCGA-CV-6954
TCGA-CV-6961
TCGA-CV-7091
TCGA-CV-7103
TCGA-CV-7243
TCGA-CV-7253
TCGA-CV-7406
TCGA-CV-7418
TCGA-CV-7428
TCGA-CV-7433
Male
Female

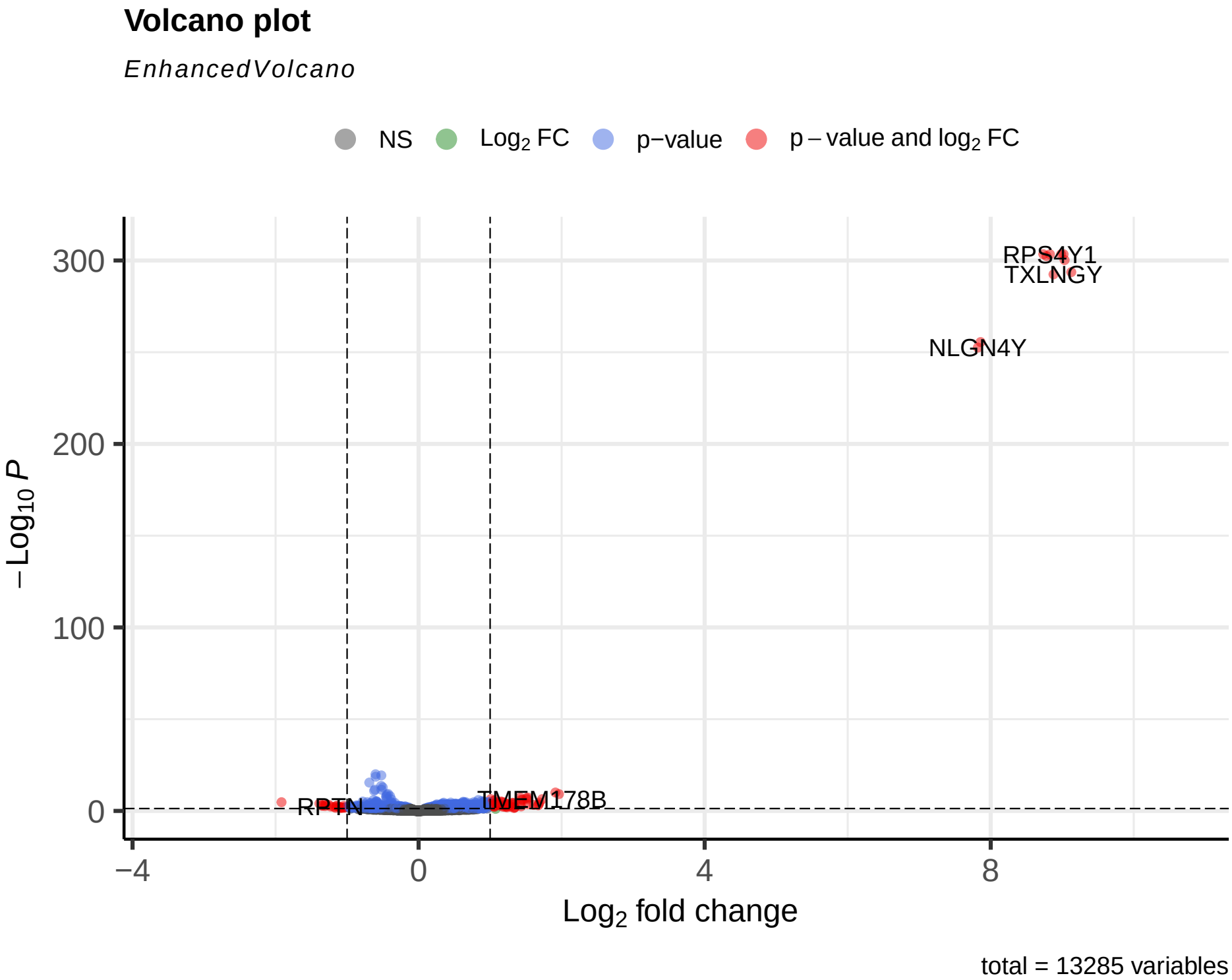

ZFY
7
8
9
10
11
12
13
TCGA-BA-4077
TCGA-BA-A6DA
TCGA-BB-A6UO
TCGA-CN-4731
TCGA-CN-5367
TCGA-CN-6018
TCGA-CN-A499
TCGA-CQ-5330
TCGA-CQ-6228
TCGA-CQ-7071
TCGA-CR-6477
TCGA-CR-7370
TCGA-CR-7383
TCGA-CR-7395
TCGA-CV-5966
TCGA-CV-6934
TCGA-CV-6952
TCGA-CV-7099
TCGA-CV-7178
TCGA-CV-7248
TCGA-CV-7411
TCGA-CV-7425
TCGA-BA-4074
TCGA-BA-5151
TCGA-BA-5558
TCGA-BA-6871
TCGA-BA-A4IF
TCGA-BA-A6D8
TCGA-BA-A6DJ
TCGA-BB-4223
TCGA-BB-4228
TCGA-BB-A5HZ
TCGA-CN-4726
TCGA-CN-4730
TCGA-CN-4737
TCGA-CN-5355
TCGA-CN-5360
TCGA-CN-5365
TCGA-CN-6011
TCGA-CN-6017
TCGA-CN-6023
TCGA-CN-6992
TCGA-CN-6998
TCGA-CN-A49C
TCGA-CN-A641
TCGA-CN-A6V3
TCGA-CQ-5324
TCGA-CQ-5333
TCGA-CQ-6222
TCGA-CQ-6227
TCGA-CQ-A4C6
TCGA-CQ-A4CB
TCGA-CR-5243
TCGA-CR-6467
TCGA-CR-6473
TCGA-CR-6482
TCGA-CR-6493
TCGA-CR-7368
TCGA-CR-7376
TCGA-CR-7385
TCGA-CR-7393
TCGA-CR-7402
TCGA-CV-5432
TCGA-CV-5439
TCGA-CV-5444
TCGA-CV-5977
TCGA-CV-6441
TCGA-CV-6937
TCGA-CV-6943
TCGA-CV-6954
TCGA-CV-6961
TCGA-CV-7091
TCGA-CV-7103
TCGA-CV-7243
TCGA-CV-7253
TCGA-CV-7406
TCGA-CV-7418
TCGA-CV-7428
TCGA-CV-7433
Male
Female

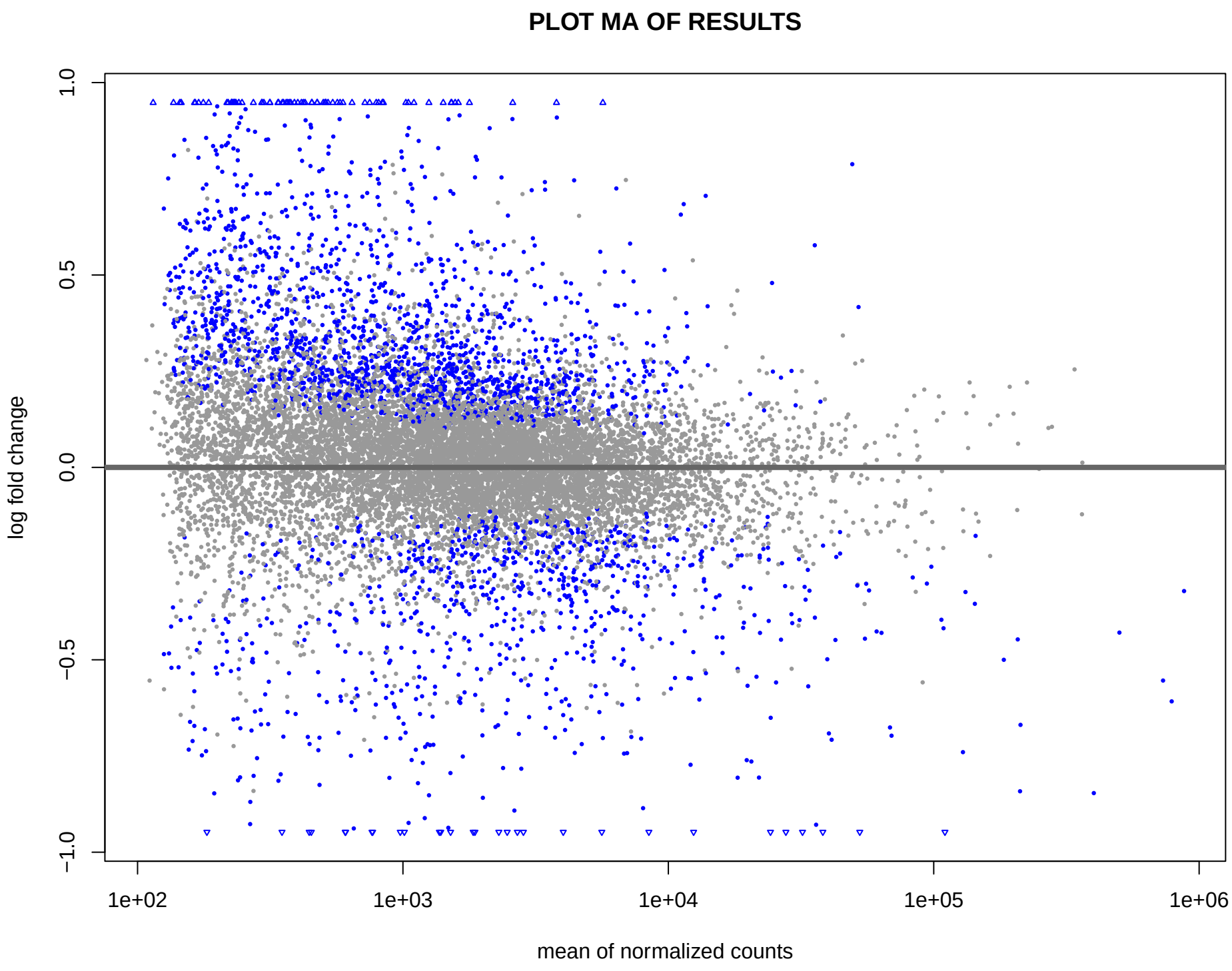

TXLNGY
7
8
9
10
11
12
TCGA-BA-4077
TCGA-BA-A6DA
TCGA-BB-A6UO
TCGA-CN-4731
TCGA-CN-5367
TCGA-CN-6018
TCGA-CN-A499
TCGA-CQ-5330
TCGA-CQ-6228
TCGA-CQ-7071
TCGA-CR-6477
TCGA-CR-7370
TCGA-CR-7383
TCGA-CR-7395
TCGA-CV-5966
TCGA-CV-6934
TCGA-CV-6952
TCGA-CV-7099
TCGA-CV-7178
TCGA-CV-7248
TCGA-CV-7411
TCGA-CV-7425
TCGA-BA-4074
TCGA-BA-5151
TCGA-BA-5558
TCGA-BA-6871
TCGA-BA-A4IF
TCGA-BA-A6D8
TCGA-BA-A6DJ
TCGA-BB-4223
TCGA-BB-4228
TCGA-BB-A5HZ
TCGA-CN-4726
TCGA-CN-4730
TCGA-CN-4737
TCGA-CN-5355
TCGA-CN-5360
TCGA-CN-5365
TCGA-CN-6011
TCGA-CN-6017
TCGA-CN-6023
TCGA-CN-6992
TCGA-CN-6998
TCGA-CN-A49C
TCGA-CN-A641
TCGA-CN-A6V3
TCGA-CQ-5324
TCGA-CQ-5333
TCGA-CQ-6222
TCGA-CQ-6227
TCGA-CQ-A4C6
TCGA-CQ-A4CB
TCGA-CR-5243
TCGA-CR-6467
TCGA-CR-6473
TCGA-CR-6482
TCGA-CR-6493
TCGA-CR-7368
TCGA-CR-7376
TCGA-CR-7385
TCGA-CR-7393
TCGA-CR-7402
TCGA-CV-5432
TCGA-CV-5439
TCGA-CV-5444
TCGA-CV-5977
TCGA-CV-6441
TCGA-CV-6937
TCGA-CV-6943
TCGA-CV-6954
TCGA-CV-6961
TCGA-CV-7091
TCGA-CV-7103
TCGA-CV-7243
TCGA-CV-7253
TCGA-CV-7406
TCGA-CV-7418
TCGA-CV-7428
TCGA-CV-7433
Male
Female

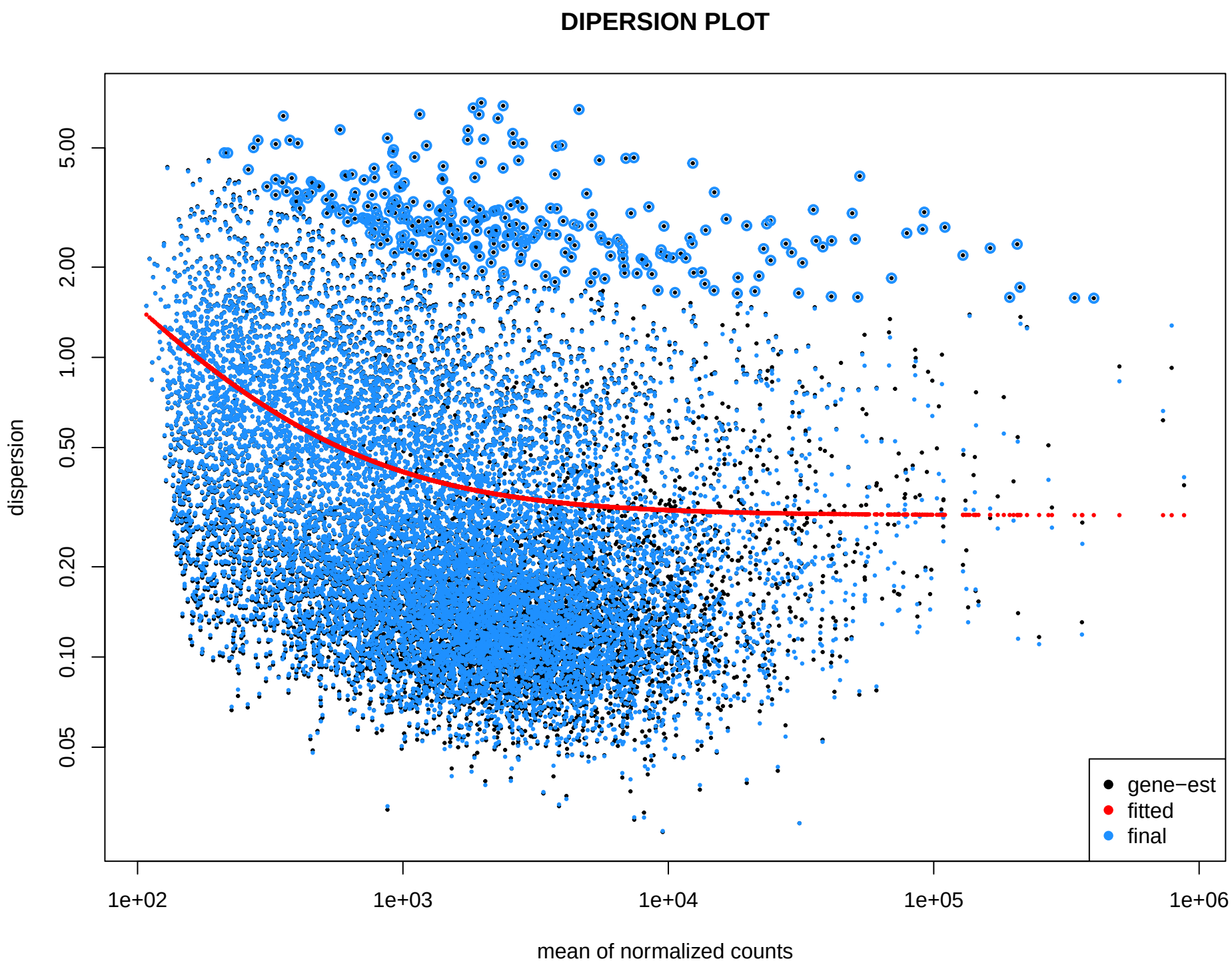

PRKY
7
8
9
10
11
12
TCGA-BA-4077
TCGA-BA-A6DA
TCGA-BB-A6UO
TCGA-CN-4731
TCGA-CN-5367
TCGA-CN-6018
TCGA-CN-A499
TCGA-CQ-5330
TCGA-CQ-6228
TCGA-CQ-7071
TCGA-CR-6477
TCGA-CR-7370
TCGA-CR-7383
TCGA-CR-7395
TCGA-CV-5966
TCGA-CV-6934
TCGA-CV-6952
TCGA-CV-7099
TCGA-CV-7178
TCGA-CV-7248
TCGA-CV-7411
TCGA-CV-7425
TCGA-BA-4074
TCGA-BA-5151
TCGA-BA-5558
TCGA-BA-6871
TCGA-BA-A4IF
TCGA-BA-A6D8
TCGA-BA-A6DJ
TCGA-BB-4223
TCGA-BB-4228
TCGA-BB-A5HZ
TCGA-CN-4726
TCGA-CN-4730
TCGA-CN-4737
TCGA-CN-5355
TCGA-CN-5360
TCGA-CN-5365
TCGA-CN-6011
TCGA-CN-6017
TCGA-CN-6023
TCGA-CN-6992
TCGA-CN-6998
TCGA-CN-A49C
TCGA-CN-A641
TCGA-CN-A6V3
TCGA-CQ-5324
TCGA-CQ-5333
TCGA-CQ-6222
TCGA-CQ-6227
TCGA-CQ-A4C6
TCGA-CQ-A4CB
TCGA-CR-5243
TCGA-CR-6467
TCGA-CR-6473
TCGA-CR-6482
TCGA-CR-6493
TCGA-CR-7368
TCGA-CR-7376
TCGA-CR-7385
TCGA-CR-7393
TCGA-CR-7402
TCGA-CV-5432
TCGA-CV-5439
TCGA-CV-5444
TCGA-CV-5977
TCGA-CV-6441
TCGA-CV-6937
TCGA-CV-6943
TCGA-CV-6954
TCGA-CV-6961
TCGA-CV-7091
TCGA-CV-7103
TCGA-CV-7243
TCGA-CV-7253
TCGA-CV-7406
TCGA-CV-7418
TCGA-CV-7428
TCGA-CV-7433
Male
Female

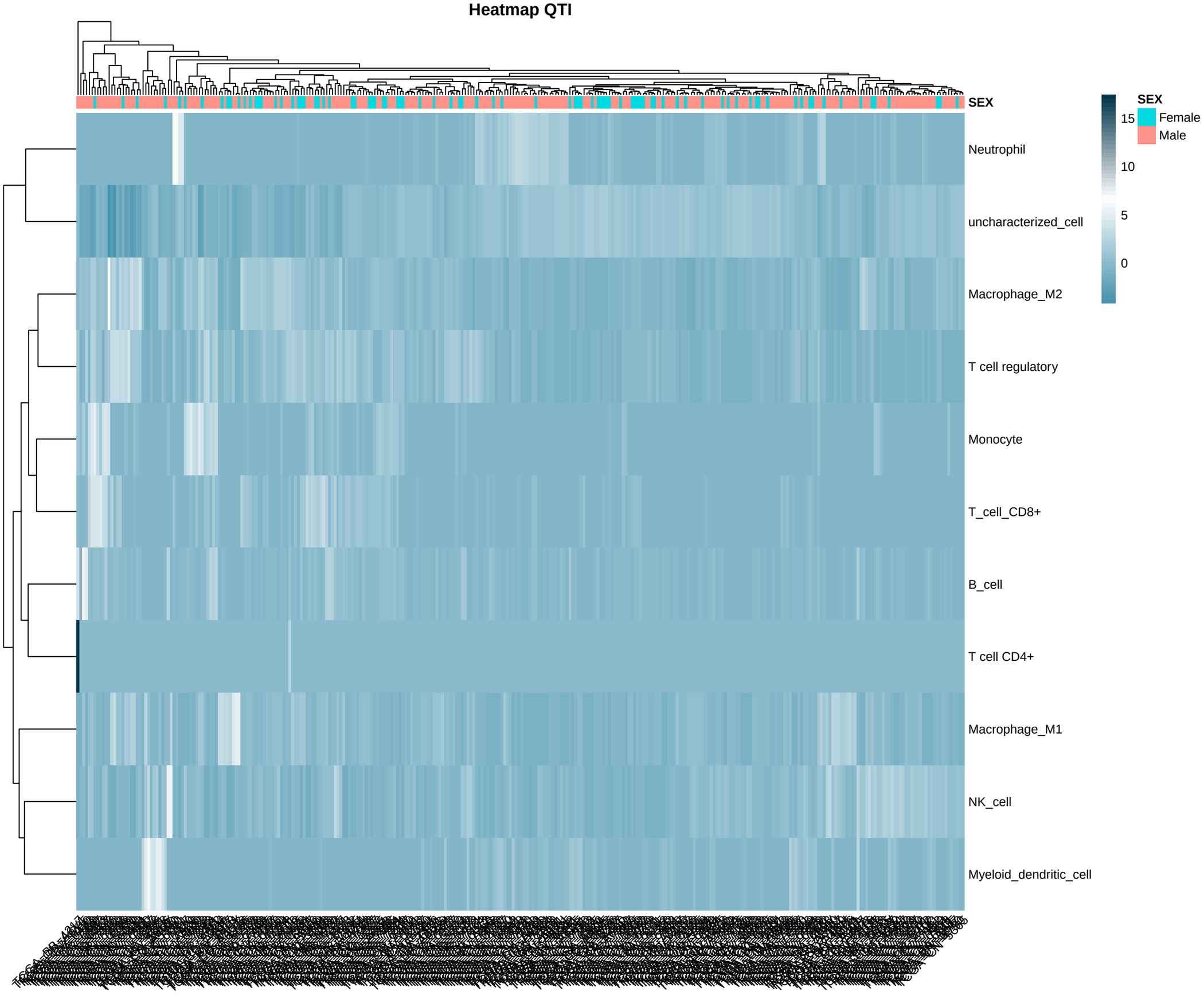

NLGN4Y
7
8
9
10
11
TCGA-BA-4077
TCGA-BA-A6DA
TCGA-BB-A6UO
TCGA-CN-4731
TCGA-CN-5367
TCGA-CN-6018
TCGA-CN-A499
TCGA-CQ-5330
TCGA-CQ-6228
TCGA-CQ-7071
TCGA-CR-6477
TCGA-CR-7370
TCGA-CR-7383
TCGA-CR-7395
TCGA-CV-5966
TCGA-CV-6934
TCGA-CV-6952
TCGA-CV-7099
TCGA-CV-7178
TCGA-CV-7248
TCGA-CV-7411
TCGA-CV-7425
TCGA-BA-4074
TCGA-BA-5151
TCGA-BA-5558
TCGA-BA-6871
TCGA-BA-A4IF
TCGA-BA-A6D8
TCGA-BA-A6DJ
TCGA-BB-4223
TCGA-BB-4228
TCGA-BB-A5HZ
TCGA-CN-4726
TCGA-CN-4730
TCGA-CN-4737
TCGA-CN-5355
TCGA-CN-5360
TCGA-CN-5365
TCGA-CN-6011
TCGA-CN-6017
TCGA-CN-6023
TCGA-CN-6992
TCGA-CN-6998
TCGA-CN-A49C
TCGA-CN-A641
TCGA-CN-A6V3
TCGA-CQ-5324
TCGA-CQ-5333
TCGA-CQ-6222
TCGA-CQ-6227
TCGA-CQ-A4C6
TCGA-CQ-A4CB
TCGA-CR-5243
TCGA-CR-6467
TCGA-CR-6473
TCGA-CR-6482
TCGA-CR-6493
TCGA-CR-7368
TCGA-CR-7376
TCGA-CR-7385
TCGA-CR-7393
TCGA-CR-7402
TCGA-CV-5432
TCGA-CV-5439
TCGA-CV-5444
TCGA-CV-5977
TCGA-CV-6441
TCGA-CV-6937
TCGA-CV-6943
TCGA-CV-6954
TCGA-CV-6961
TCGA-CV-7091
TCGA-CV-7103
TCGA-CV-7243
TCGA-CV-7253
TCGA-CV-7406
TCGA-CV-7418
TCGA-CV-7428
TCGA-CV-7433
Male
Female

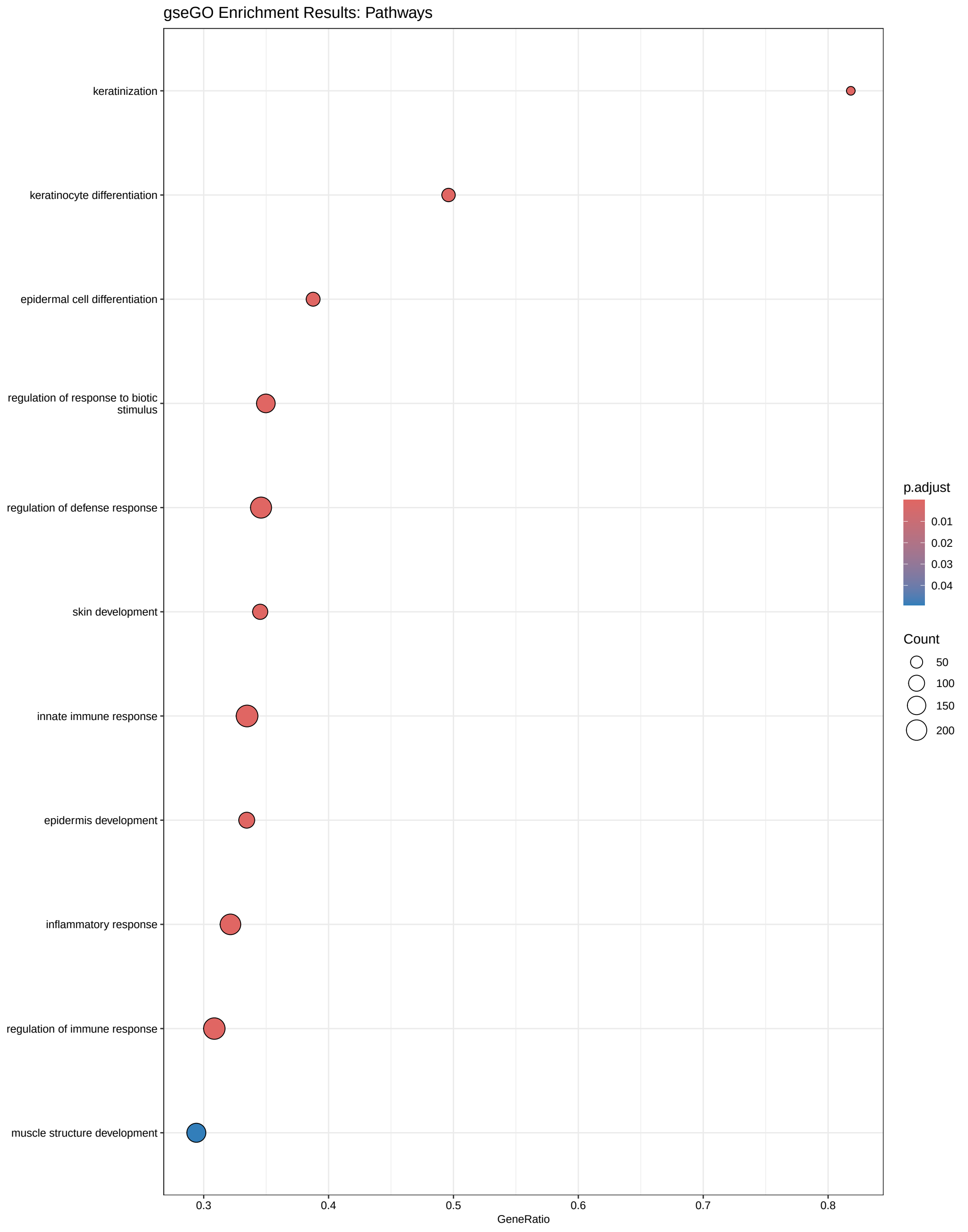

PCA of Normalized Counts
TCGA−CN−A6UY
TCGA−CR−6467
TCGA−BA−4078
TCGA−BB−4223
TCGA−CN−A63T
TCGA−BA−5153
TCGA−BA−5559
TCGA−BA−A6D8
TCGA−BA−7269
TCGA−CV−6436
TCGA−CV−7423
TCGA−CV−5973
TCGA−CV−6953
TCGA−CQ−7069
TCGA−CN−6998
TCGA−BA−5557
TCGA−BA−A6DA
TCGA−CV−7411
50
0
−50
−200
−100
0
Principal Component 2
Principal Component 1
Condition_Group
Female
Male

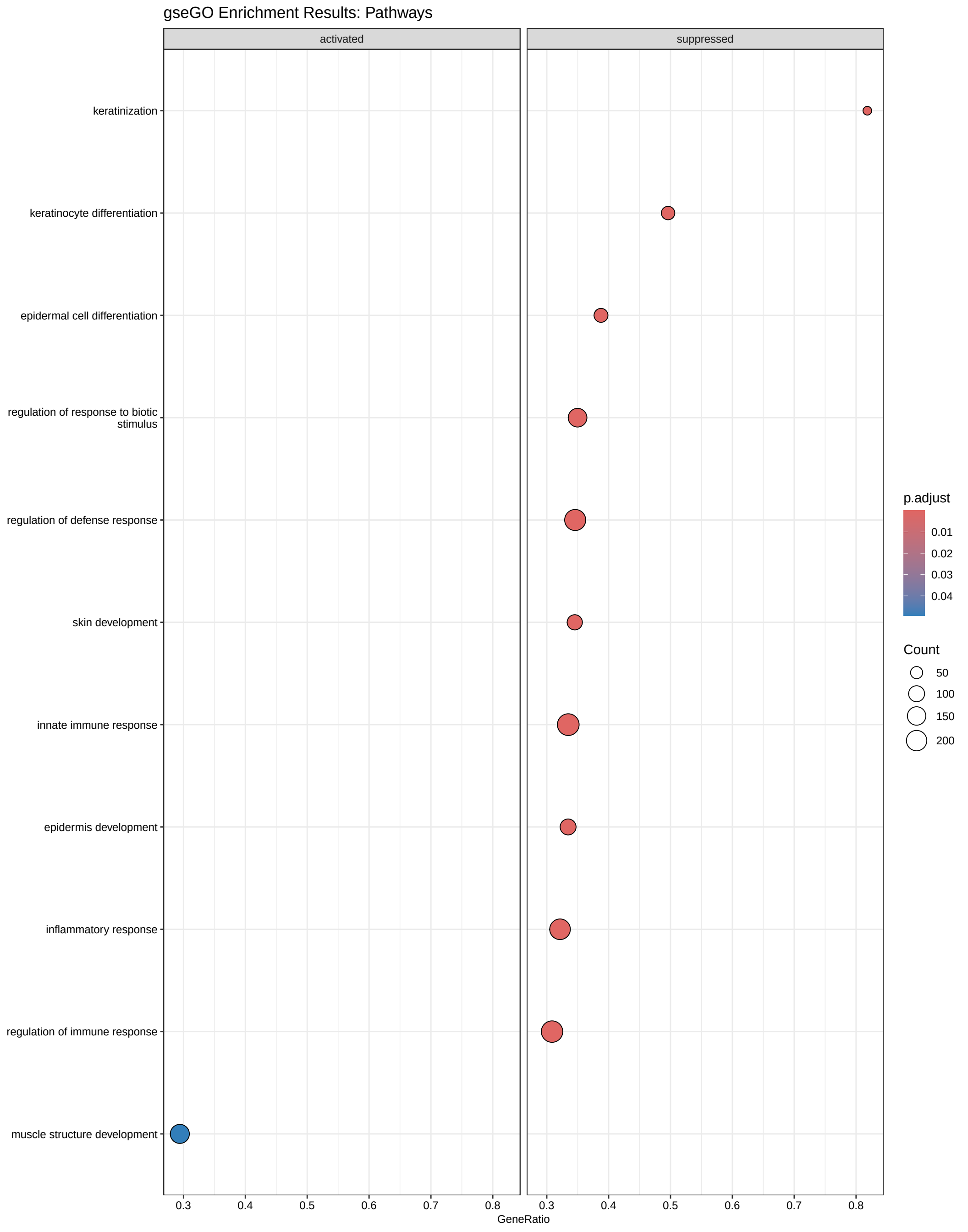

Volcano plot
EnhancedVolcano
NS
Log2 FC
p−value
p − value and log2 FC
RPS4Y1
TXLNGY
NLGN4Y
RPTN
TMEM178B
300
200
100
0
−Log10 P
−4
0
4
8
Log2 fold change
total = 13285 variables

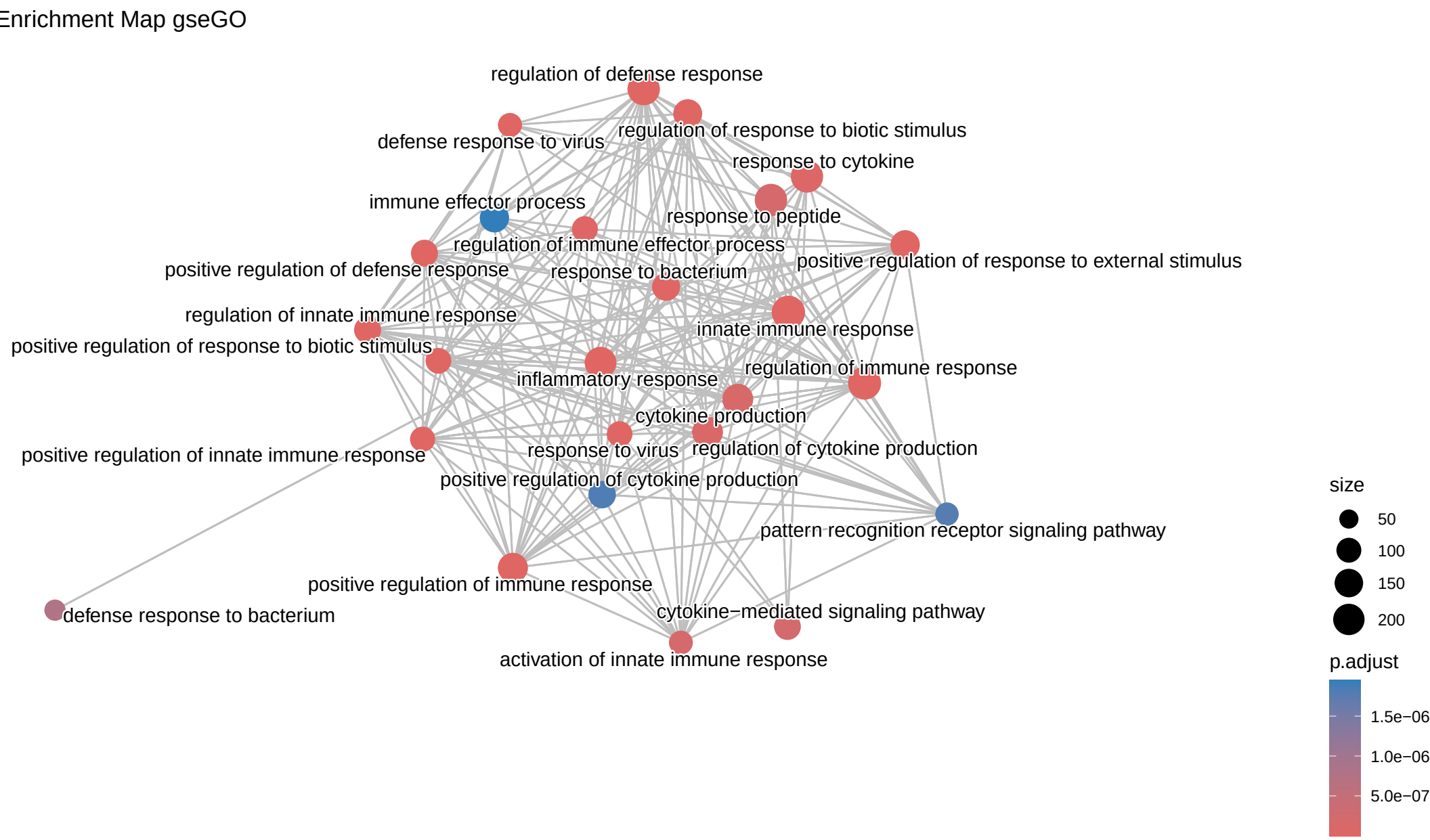

PLOT MA OF RESULTS
log fold change
1.0
0.5
0.0
−0.5
−1.0
1e+02
1e+03
1e+04
1e+05
1e+06
mean of normalized counts

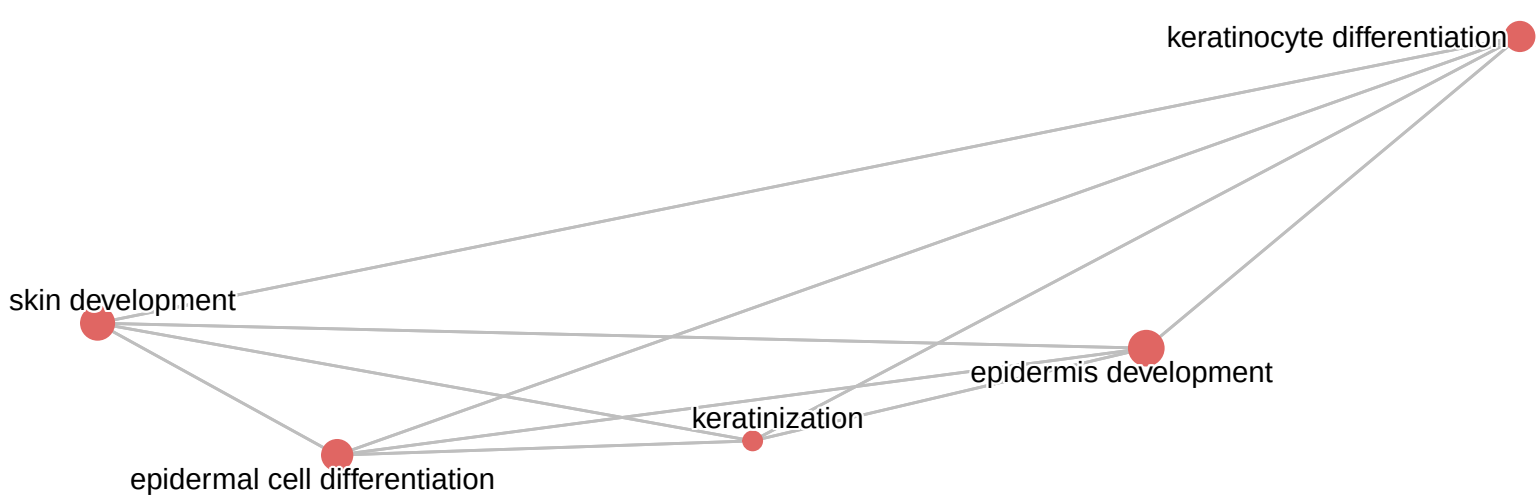

DIPERSION PLOT
dispersion
5.00
2.00
1.00
0.50
0.20
0.10
0.05
1e+02
1e+03
1e+04
1e+05
1e+06
mean of normalized counts
gene−est
fitted
final

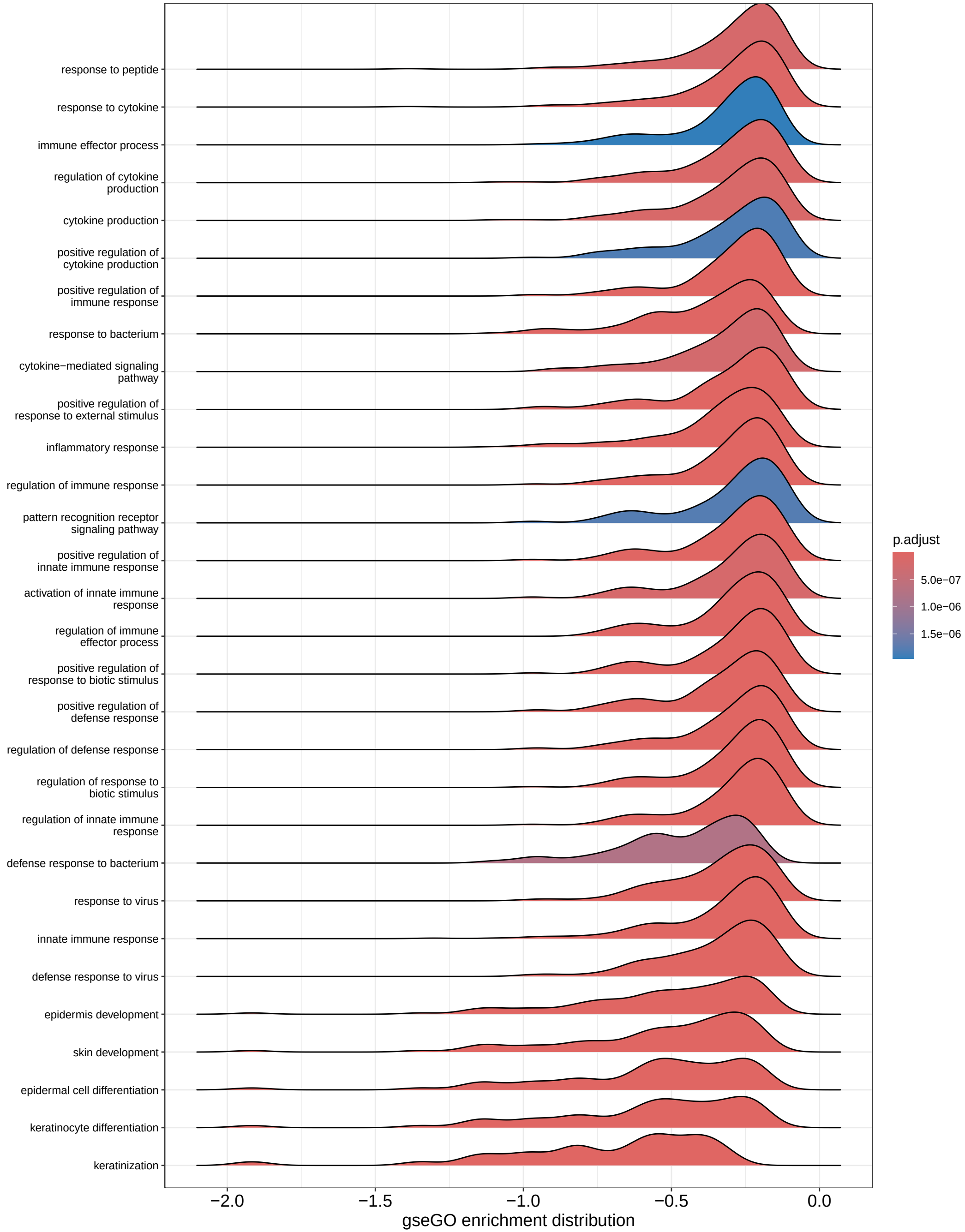

Heatmap QTI
SEX
Neutrophil
uncharacterized_cell
Macrophage_M2
T cell regulatory
Monocyte
T_cell_CD8+
B_cell
T cell CD4+
Macrophage_M1
NK_cell
Myeloid_dendritic_cell
SEX
Female
Male
15
10
5
0


gseGO Enrichment Results: Pathways
keratinization
keratinocyte differentiation
epidermal cell differentiation
regulation of response to biotic stimulus
regulation of defense response
skin development
innate immune response
epidermis development
inflammatory response
regulation of immune response
muscle structure development
0.3
0.4
0.5
0.6
0.7
0.8
GeneRatio
p.adjust
0.01
0.02
0.03
0.04
Count
50
100
150
200

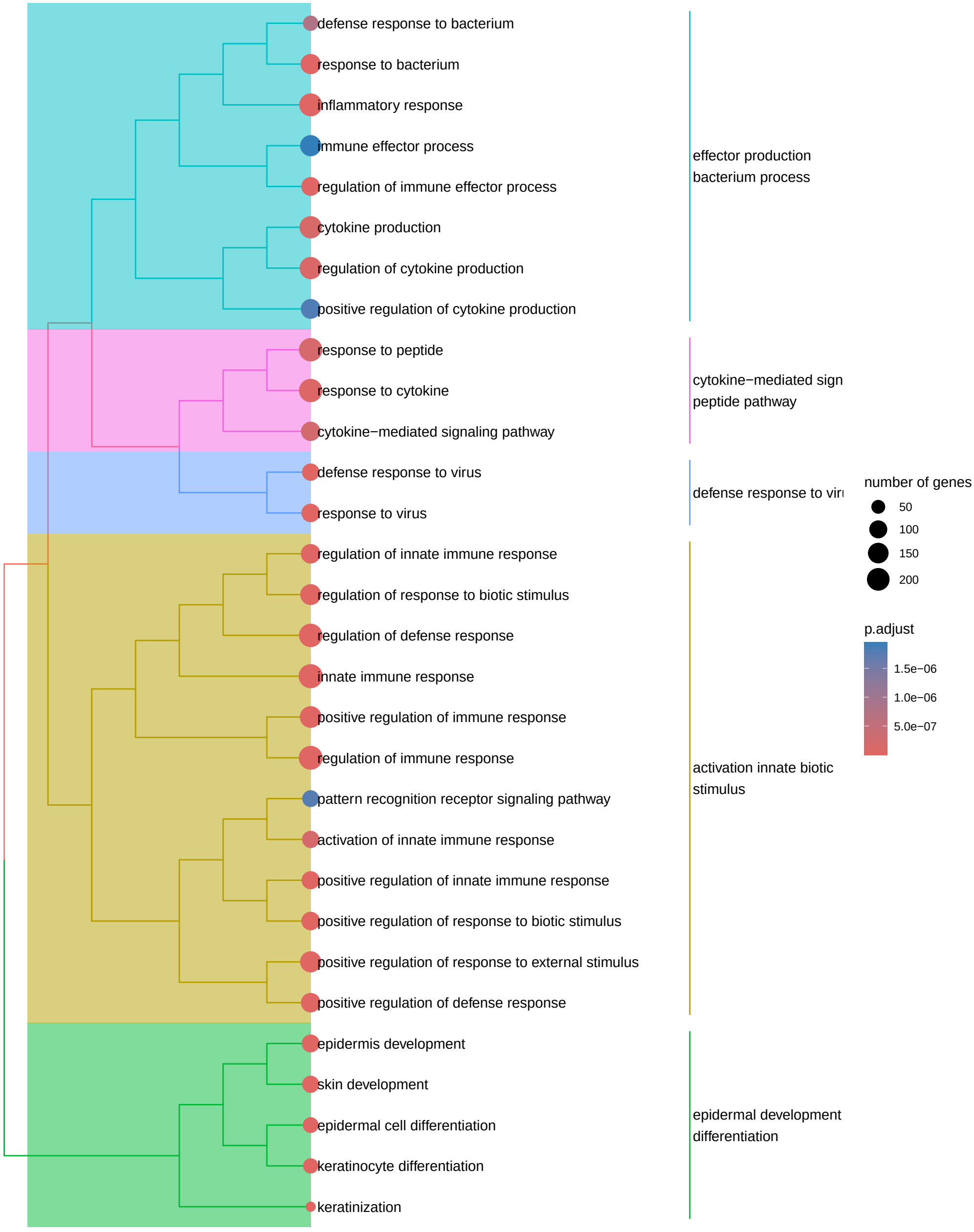

gseGO Enrichment Results: Pathways
activated
suppressed
keratinization
keratinocyte differentiation
epidermal cell differentiation
regulation of response to biotic stimulus
regulation of defense response
skin development
innate immune response
epidermis development
inflammatory response
regulation of immune response
muscle structure development
0.3
0.4
0.5
0.6
0.7
0.8
GeneRatio
p.adjust
0.01
0.02
0.03
0.04
Count
50
100
150
200

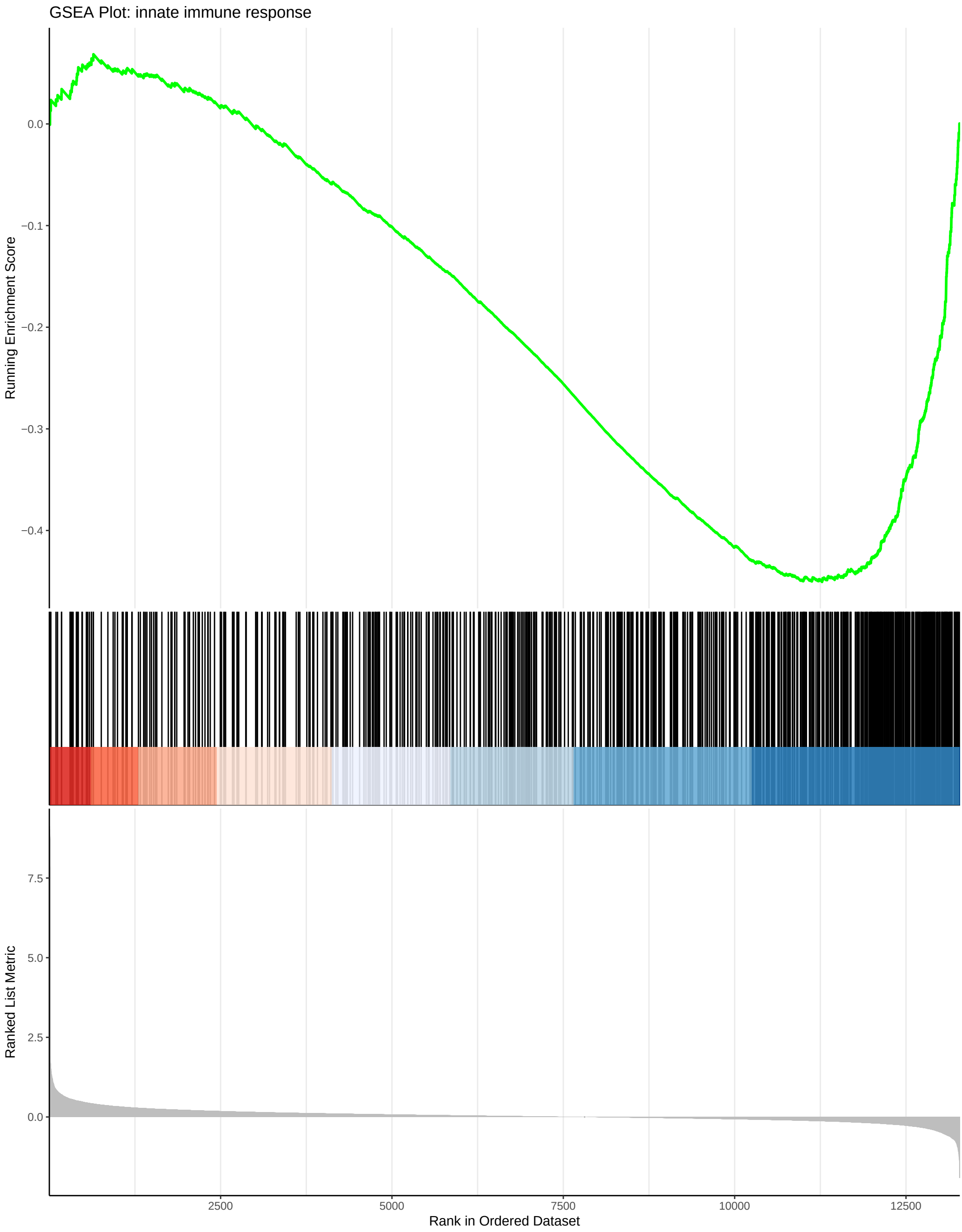

Enrichment Map gseGO
regulation of defense response
defense response to virus
regulation of response to biotic stimulus
response to cytokine
immune effector process
response to peptide
regulation of immune effector process
positive regulation of defense response
response to bacterium
positive regulation of response to external stimulus
regulation of innate immune response
innate immune response
positive regulation of response to biotic stimulus
inflammatory response
regulation of immune response
cytokine production
positive regulation of innate immune response
response to virus
regulation of cytokine production
positive regulation of cytokine production
pattern recognition receptor signaling pathway
positive regulation of immune response
defense response to bacterium
cytokine−mediated signaling pathway
activation of innate immune response
size
50
100
150
200
p.adjust
1.5e−06
1.0e−06
5.0e−07

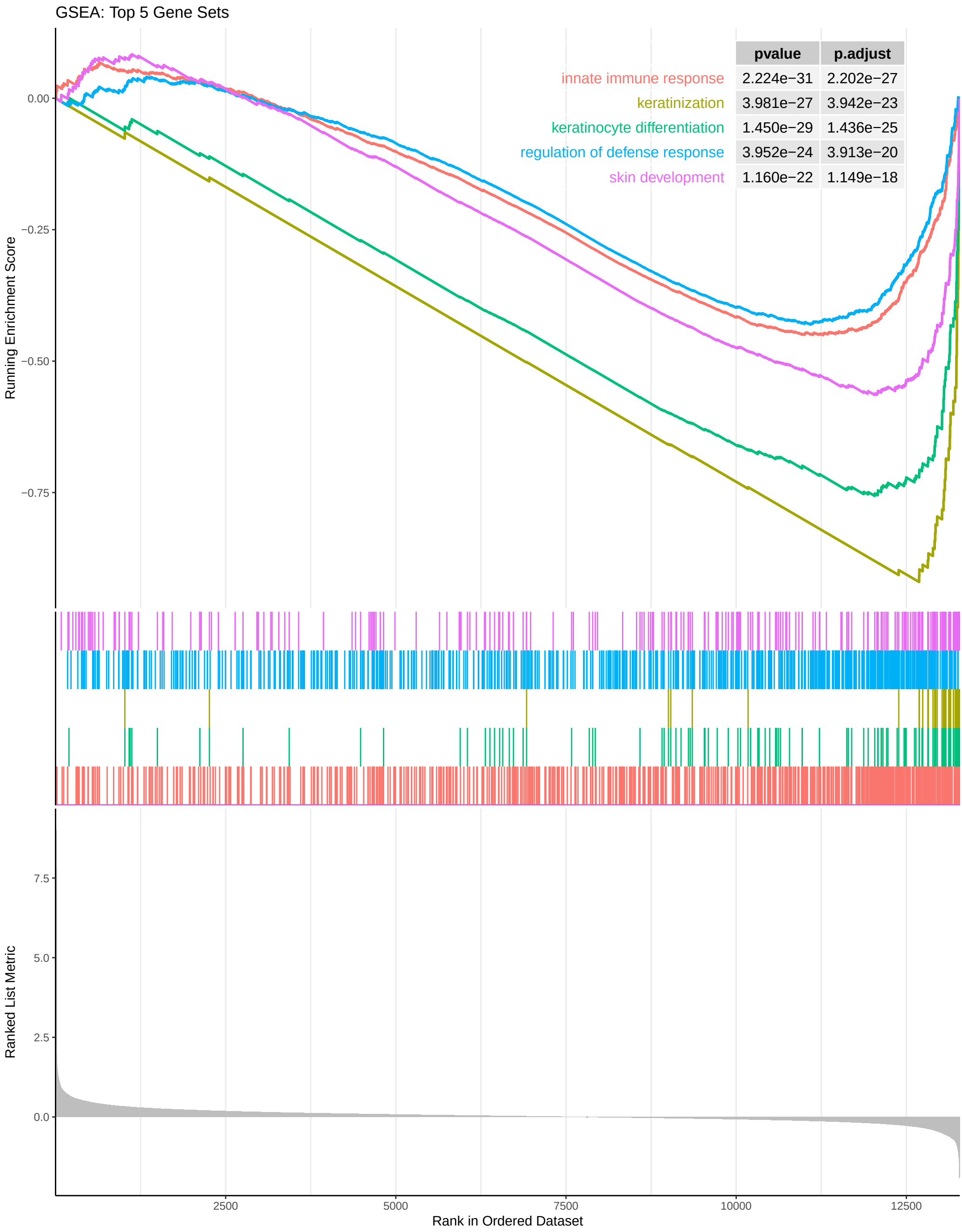

keratinocyte differentiation
skin development
epidermis development
keratinization
epidermal cell differentiation

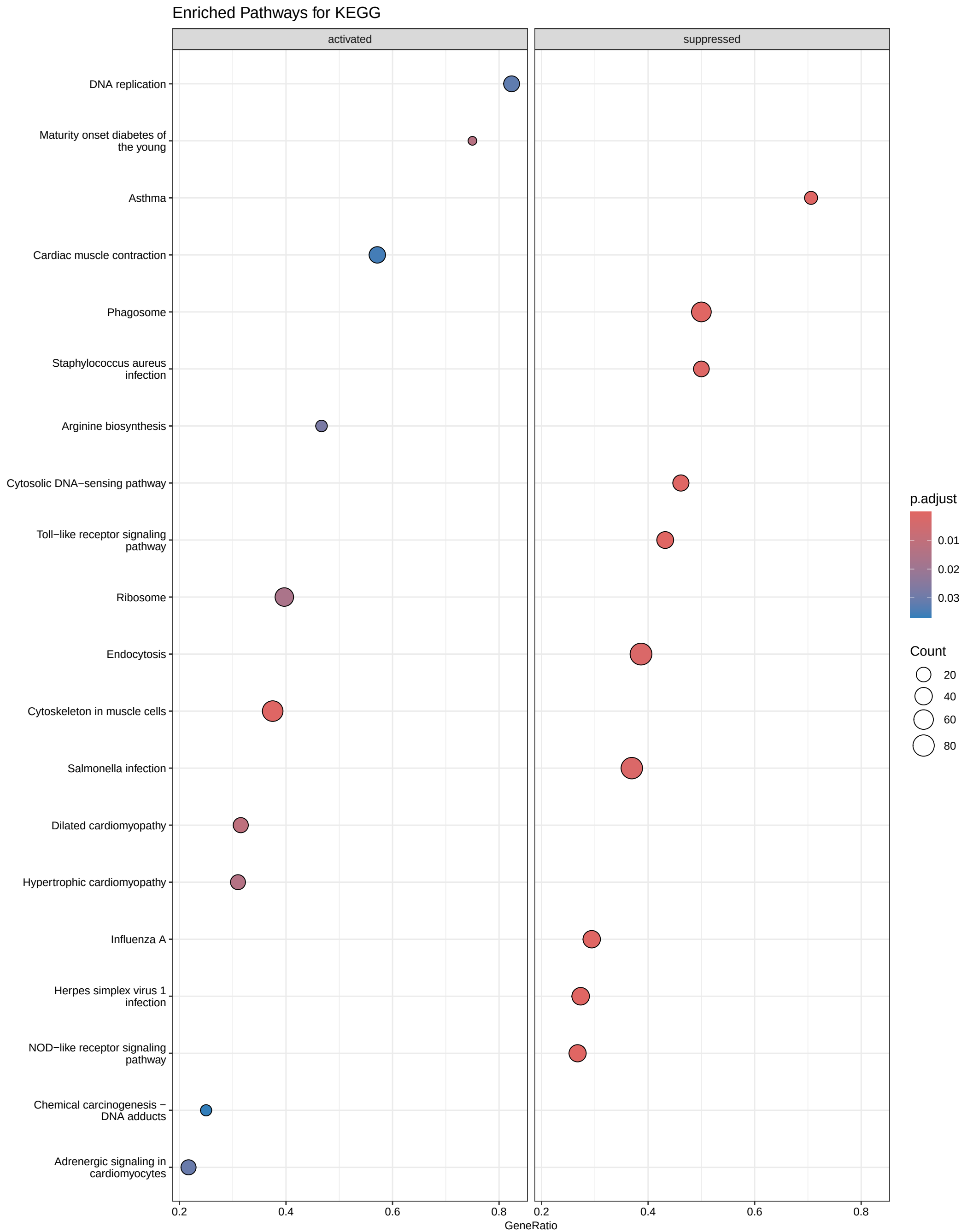

response to peptide
response to cytokine
immune effector process
regulation of cytokine production
cytokine production
positive regulation of cytokine production
positive regulation of immune response
response to bacterium
cytokine−mediated signaling pathway
positive regulation of response to external stimulus
inflammatory response
regulation of immune response
pattern recognition receptor signaling pathway
positive regulation of innate immune response
activation of innate immune response
regulation of immune effector process
positive regulation of response to biotic stimulus
positive regulation of defense response
regulation of defense response
regulation of response to biotic stimulus
regulation of innate immune response
defense response to bacterium
response to virus
innate immune response
defense response to virus
epidermis development
skin development
epidermal cell differentiation
keratinocyte differentiation
keratinization
−2.0
−1.5
−1.0
−0.5
0.0
gseGO enrichment distribution
p.adjust
5.0e−07
1.0e−06
1.5e−06

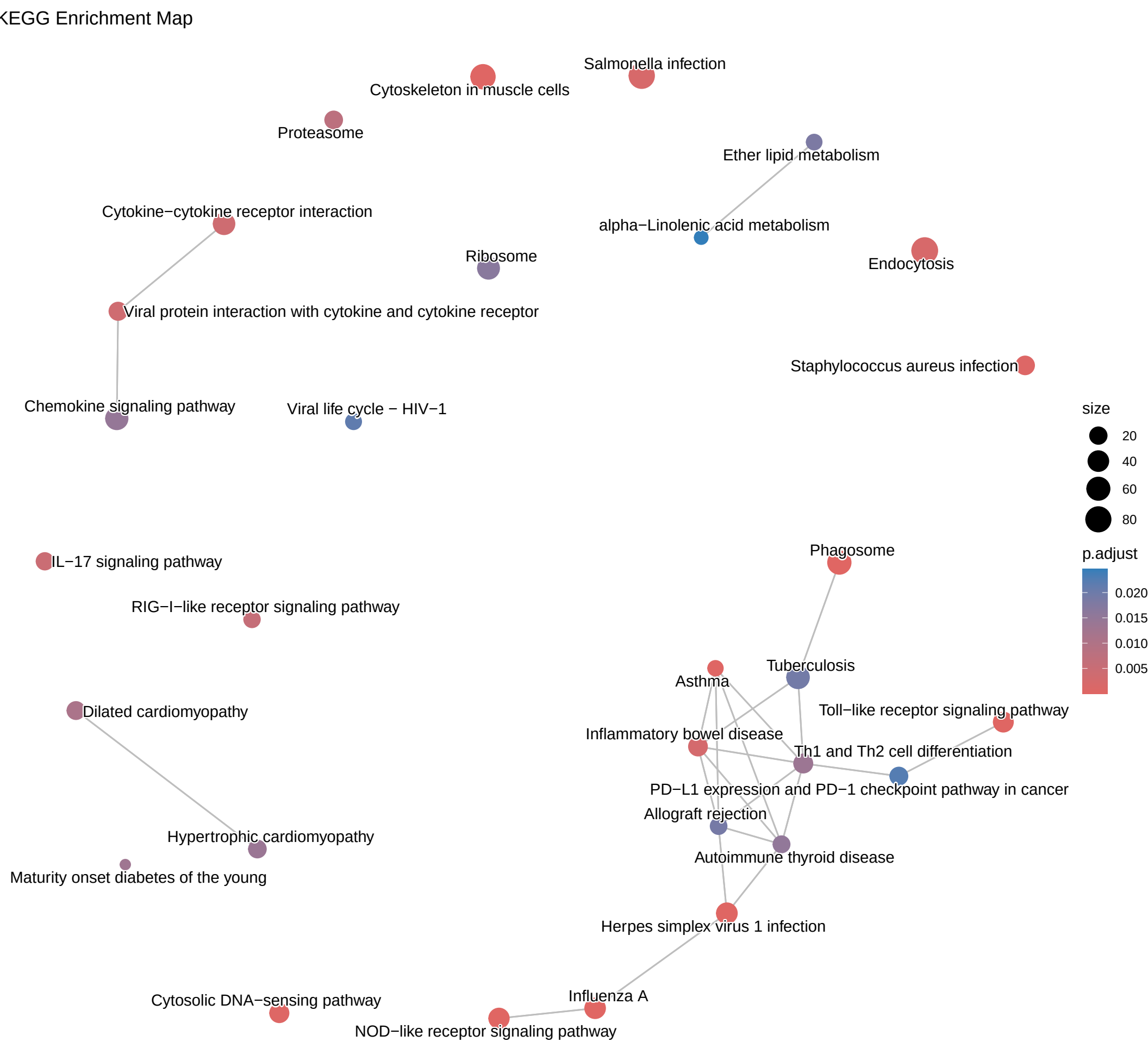
gseGO Treeplot

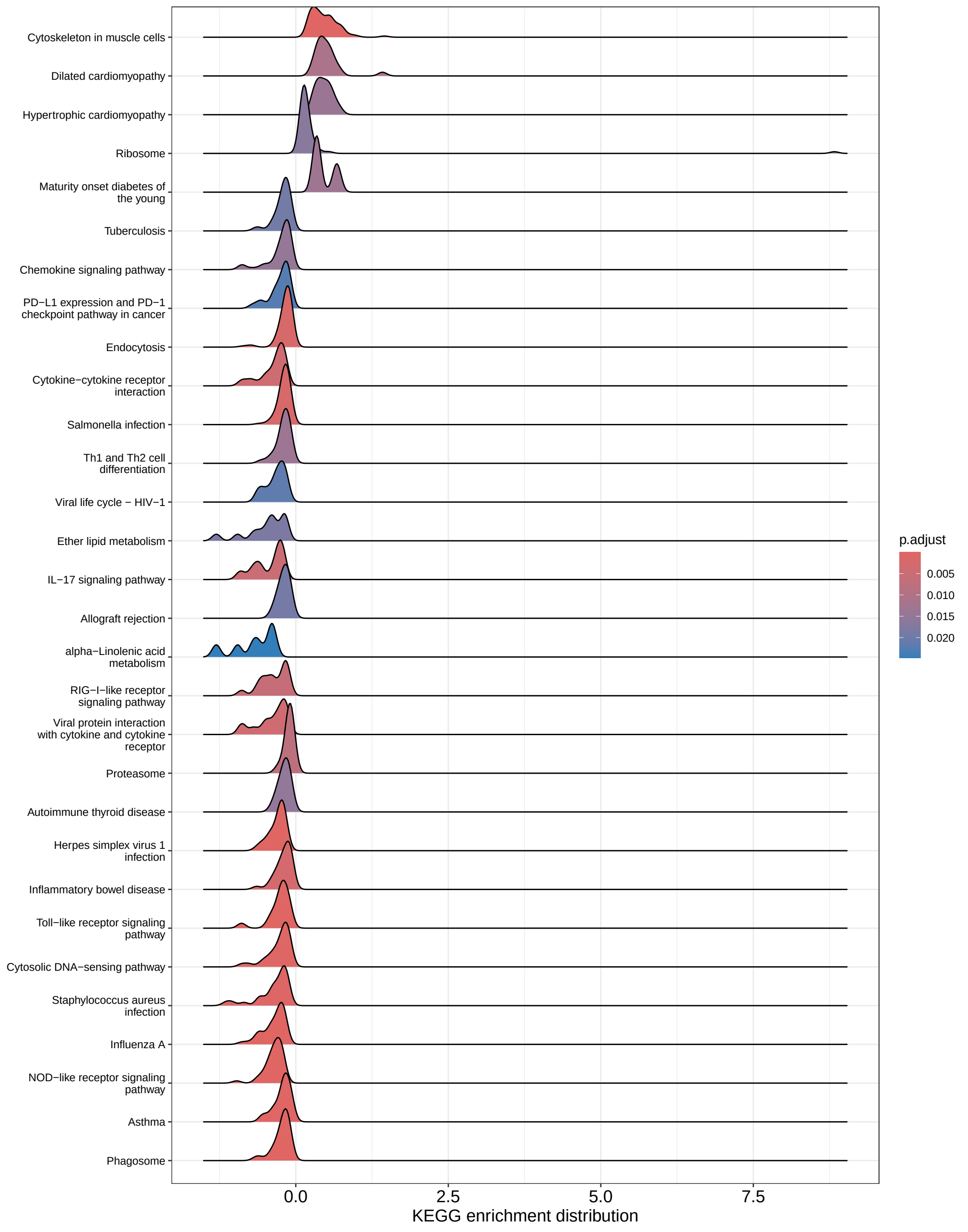



GSEA Plot: innate immune response
Running Enrichment Score
0.0
−0.1
−0.2
−0.3
−0.4
Ranked List Metric
7.5
5.0
2.5
0.0
2500
5000
7500
10000
12500
Rank in Ordered Dataset

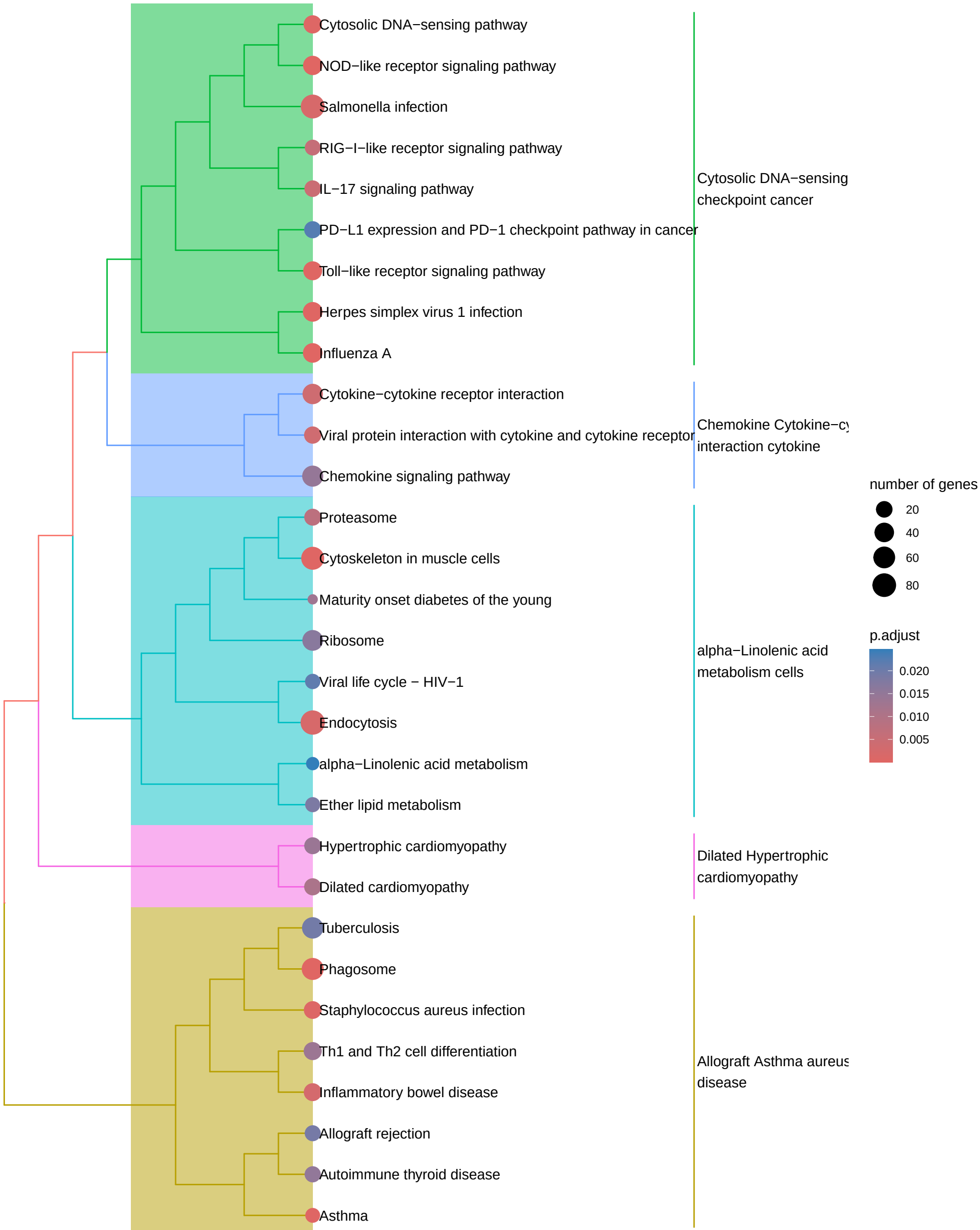

GSEA: Top 5 Gene Sets
pvalue
p.adjust
innate immune response 2.224e−31 2.202e−27
keratinization 3.981e−27 3.942e−23
keratinocyte differentiation 1.450e−29 1.436e−25
regulation of defense response 3.952e−24 3.913e−20
skin development 1.160e−22 1.149e−18
Running Enrichment Score
0.00
−0.25
−0.50
−0.75
Ranked List Metric
7.5
5.0
2.5
0.0
2500
5000
7500
10000
12500
Rank in Ordered Dataset

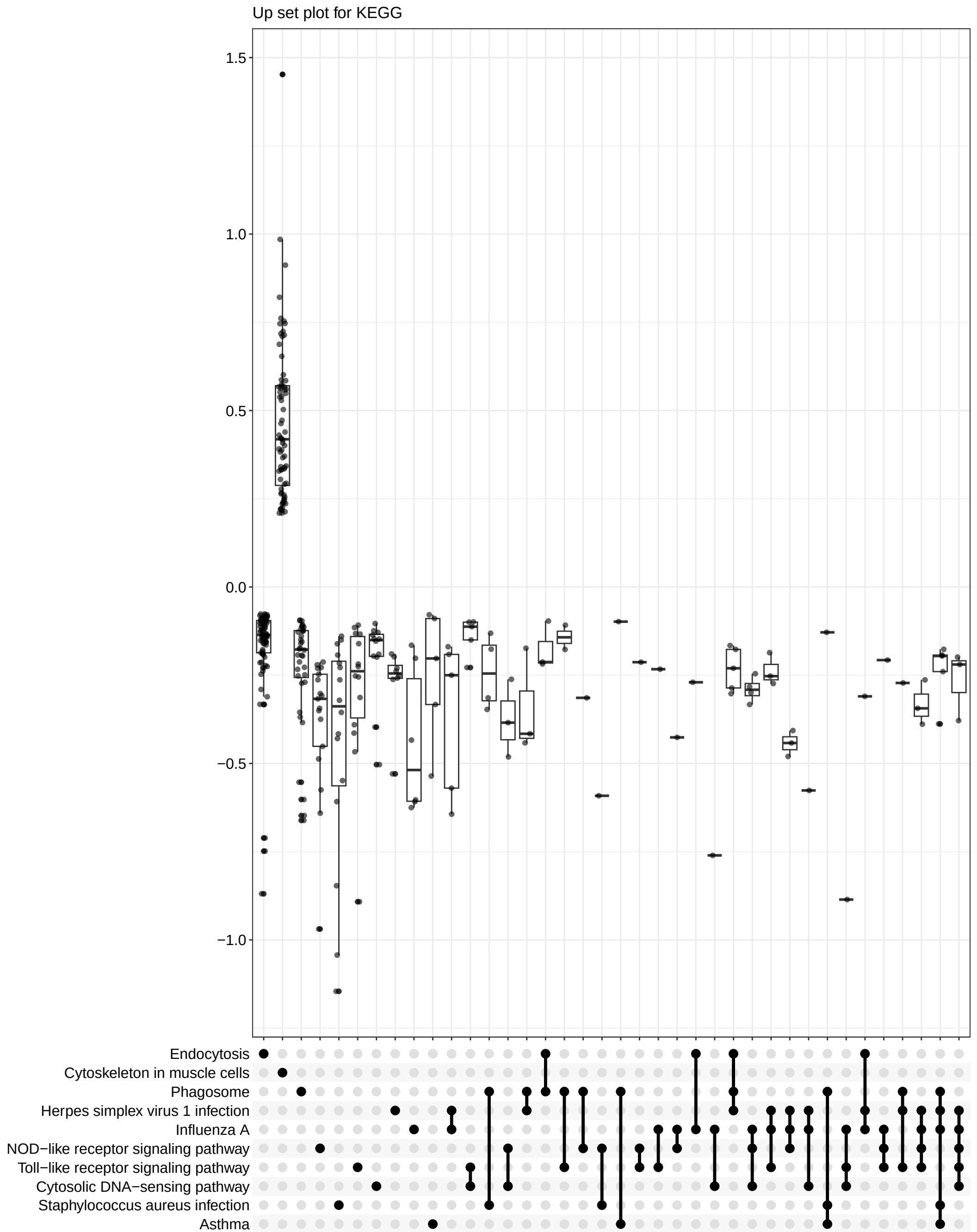

Enriched Pathways for KEGG
activated
suppressed
DNA replication
Maturity onset diabetes of the young
Asthma
Cardiac muscle contraction
Phagosome
Staphylococcus aureus infection
Arginine biosynthesis
Cytosolic DNA−sensing pathway
Toll−like receptor signaling pathway
Ribosome
Endocytosis
Cytoskeleton in muscle cells
Salmonella infection
Dilated cardiomyopathy
Hypertrophic cardiomyopathy
Influenza A
Herpes simplex virus 1 infection
NOD−like receptor signaling pathway
Chemical carcinogenesis − DNA adducts
Adrenergic signaling in cardiomyocytes
0.2
0.4
0.6
0.8
GeneRatio
p.adjust
0.01
0.02
0.03
Count
20
40
60
80


KEGG Enrichment Map
Salmonella infection
Cytoskeleton in muscle cells
Proteasome
Ether lipid metabolism
Cytokine−cytokine receptor interaction
alpha−Linolenic acid metabolism
Ribosome
Endocytosis
Viral protein interaction with cytokine and cytokine receptor
Staphylococcus aureus infection
Chemokine signaling pathway
Viral life cycle − HIV−1
size
20
40
60
80
IL−17 signaling pathway
Phagosome
p.adjust
0.020
0.015
0.010
0.005
RIG−I−like receptor signaling pathway
Tuberculosis
Asthma
Dilated cardiomyopathy
Toll−like receptor signaling pathway
Inflammatory bowel disease
Th1 and Th2 cell differentiation
PD−L1 expression and PD−1 checkpoint pathway in cancer
Allograft rejection
Hypertrophic cardiomyopathy
Autoimmune thyroid disease
Maturity onset diabetes of the young
Herpes simplex virus 1 infection
Influenza A
Cytosolic DNA−sensing pathway
NOD−like receptor signaling pathway

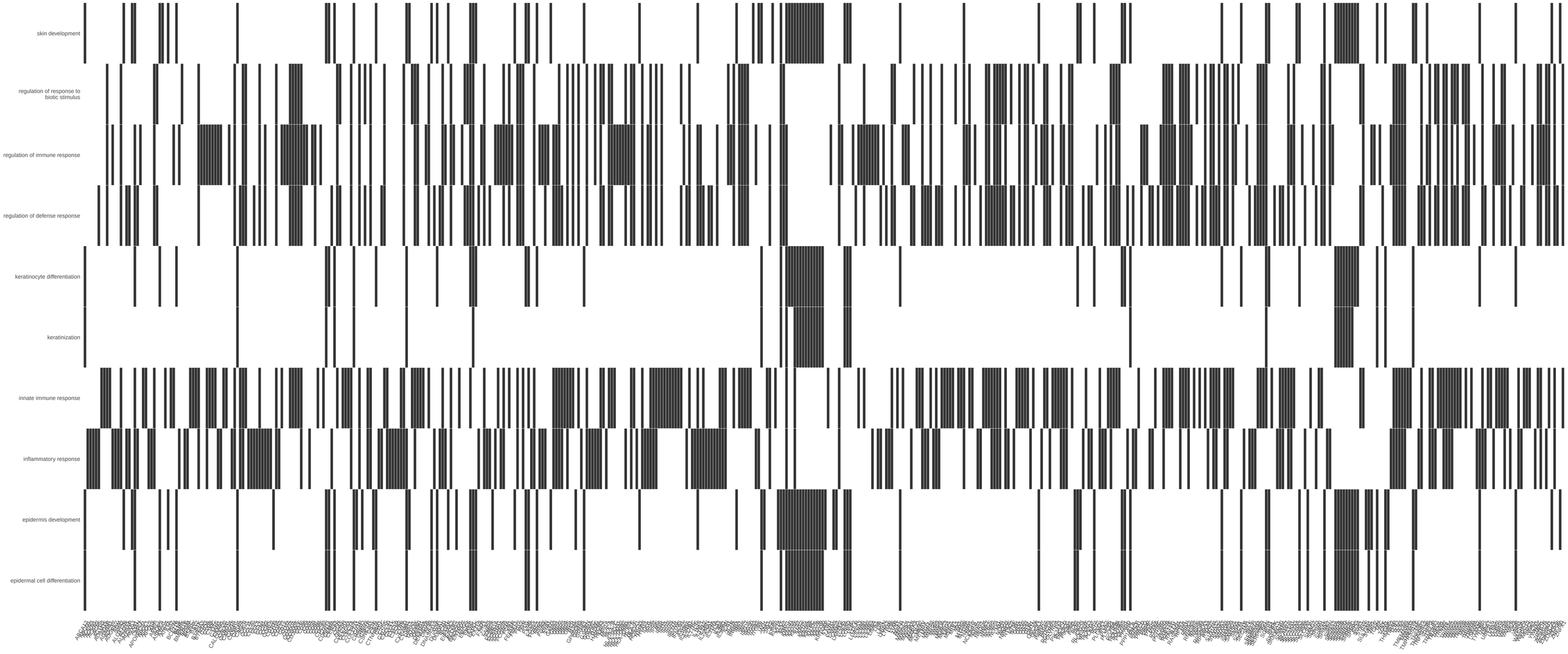

Cytoskeleton in muscle cells
Dilated cardiomyopathy
Hypertrophic cardiomyopathy
Ribosome
Maturity onset diabetes of the young
Tuberculosis
Chemokine signaling pathway
PD−L1 expression and PD−1 checkpoint pathway in cancer
Endocytosis
Cytokine−cytokine receptor interaction
Salmonella infection
Th1 and Th2 cell differentiation
Viral life cycle − HIV−1
Ether lipid metabolism
IL−17 signaling pathway
Allograft rejection
alpha−Linolenic acid metabolism
RIG−I−like receptor signaling pathway
Viral protein interaction with cytokine and cytokine receptor
Proteasome
Autoimmune thyroid disease
Herpes simplex virus 1 infection
Inflammatory bowel disease
Toll−like receptor signaling pathway
Cytosolic DNA−sensing pathway
Staphylococcus aureus infection
Influenza A
NOD−like receptor signaling pathway
Asthma
Phagosome
0.0
2.5
5.0
7.5
KEGG enrichment distribution
p.adjust
0.005
0.010
0.015
0.020

KEGG Treeplot

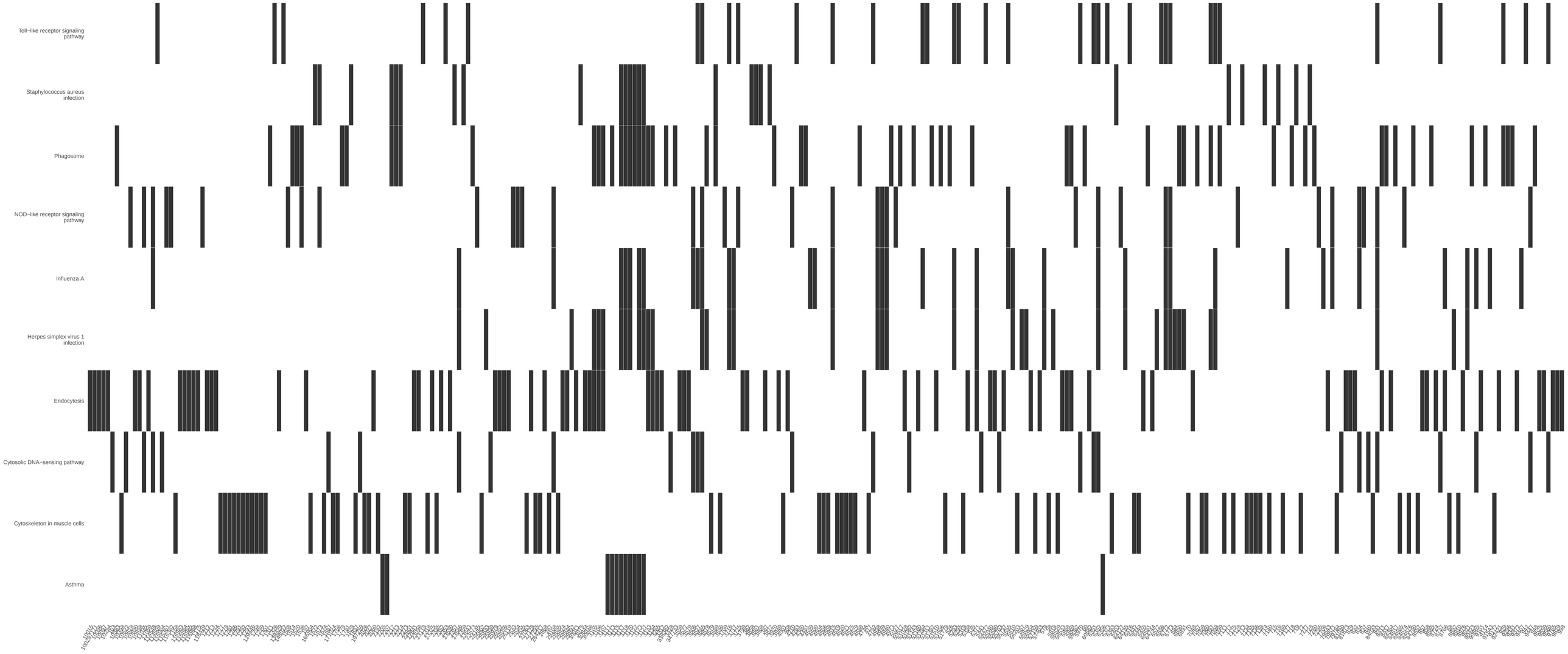


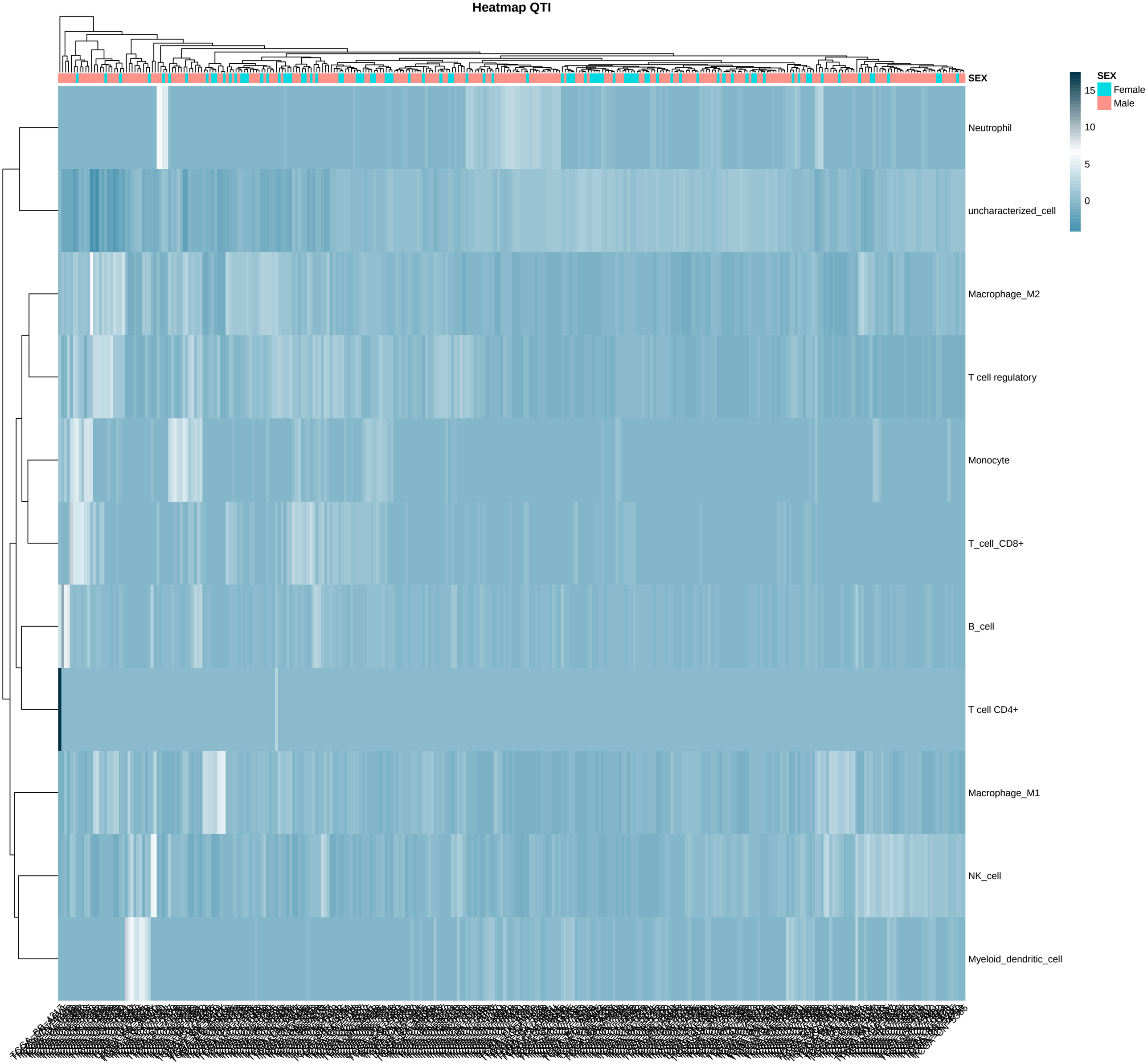

Up set plot for KEGG
1.5
1.0
0.5
0.0
−0.5
−1.0
Endocytosis
Cytoskeleton in muscle cells
Phagosome
Herpes simplex virus 1 infection
Influenza A
NOD−like receptor signaling pathway
Toll−like receptor signaling pathway
Cytosolic DNA−sensing pathway
Staphylococcus aureus infection
Asthma

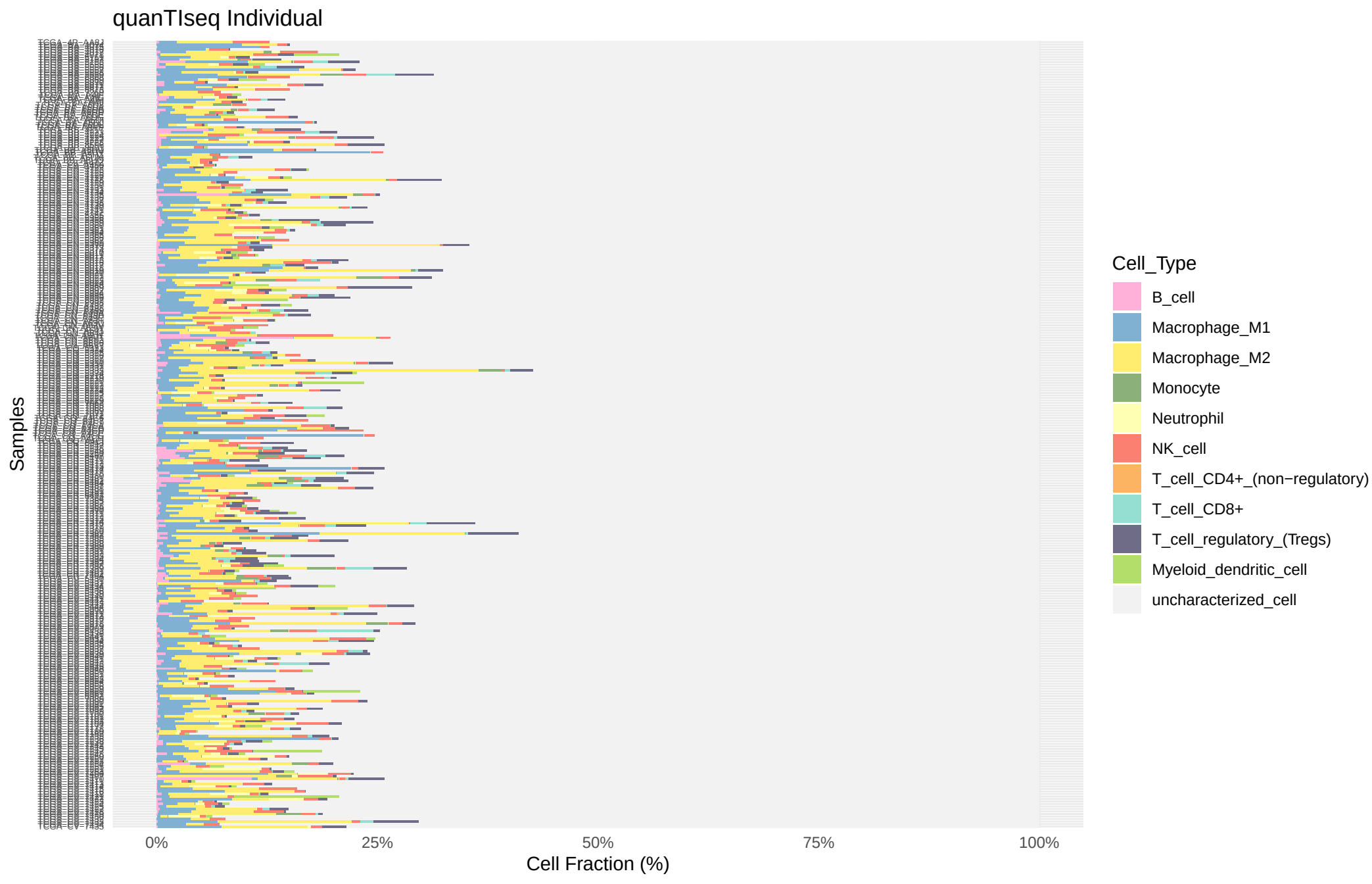
gseGO Heatplot

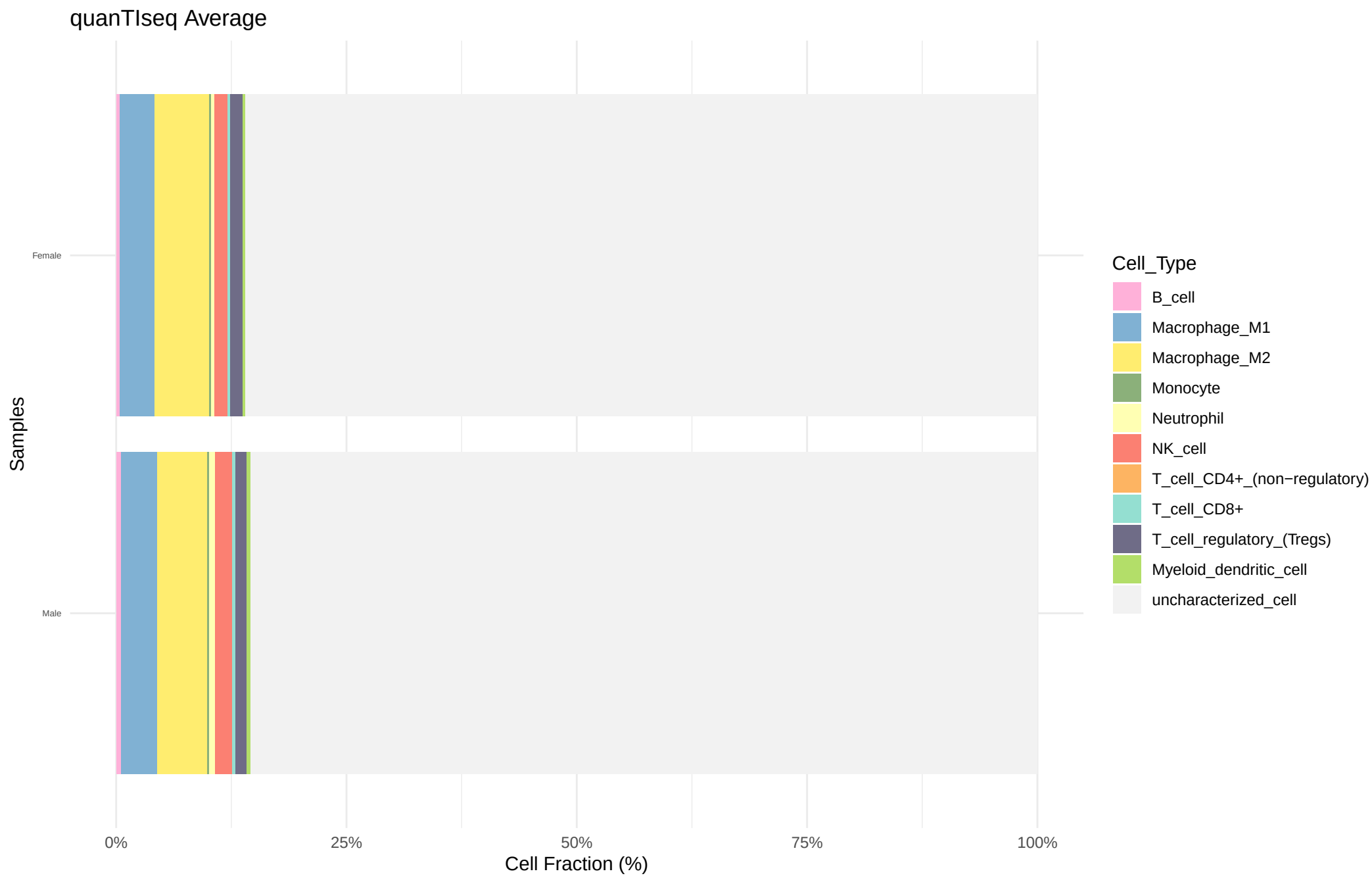


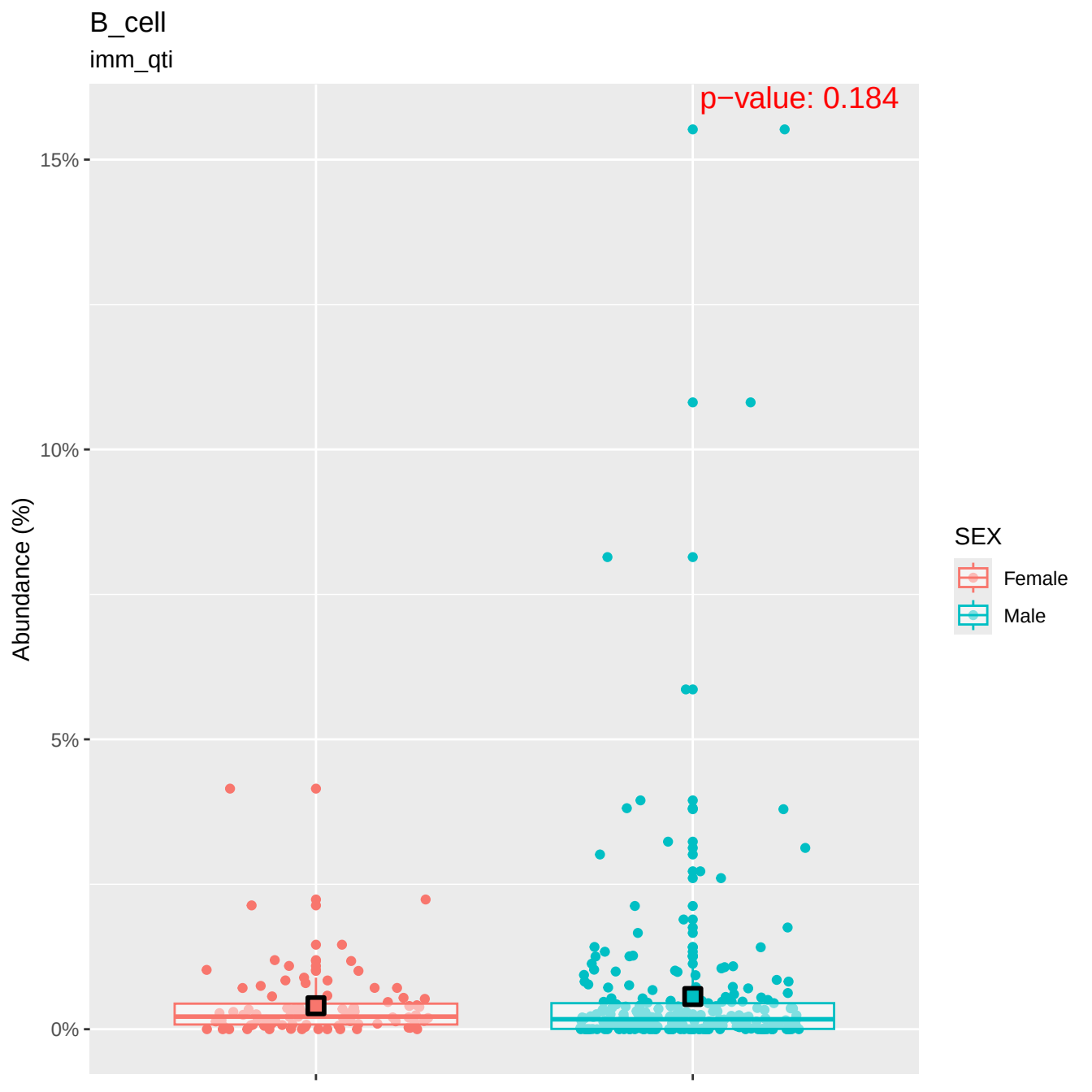
KEGG Heatplot



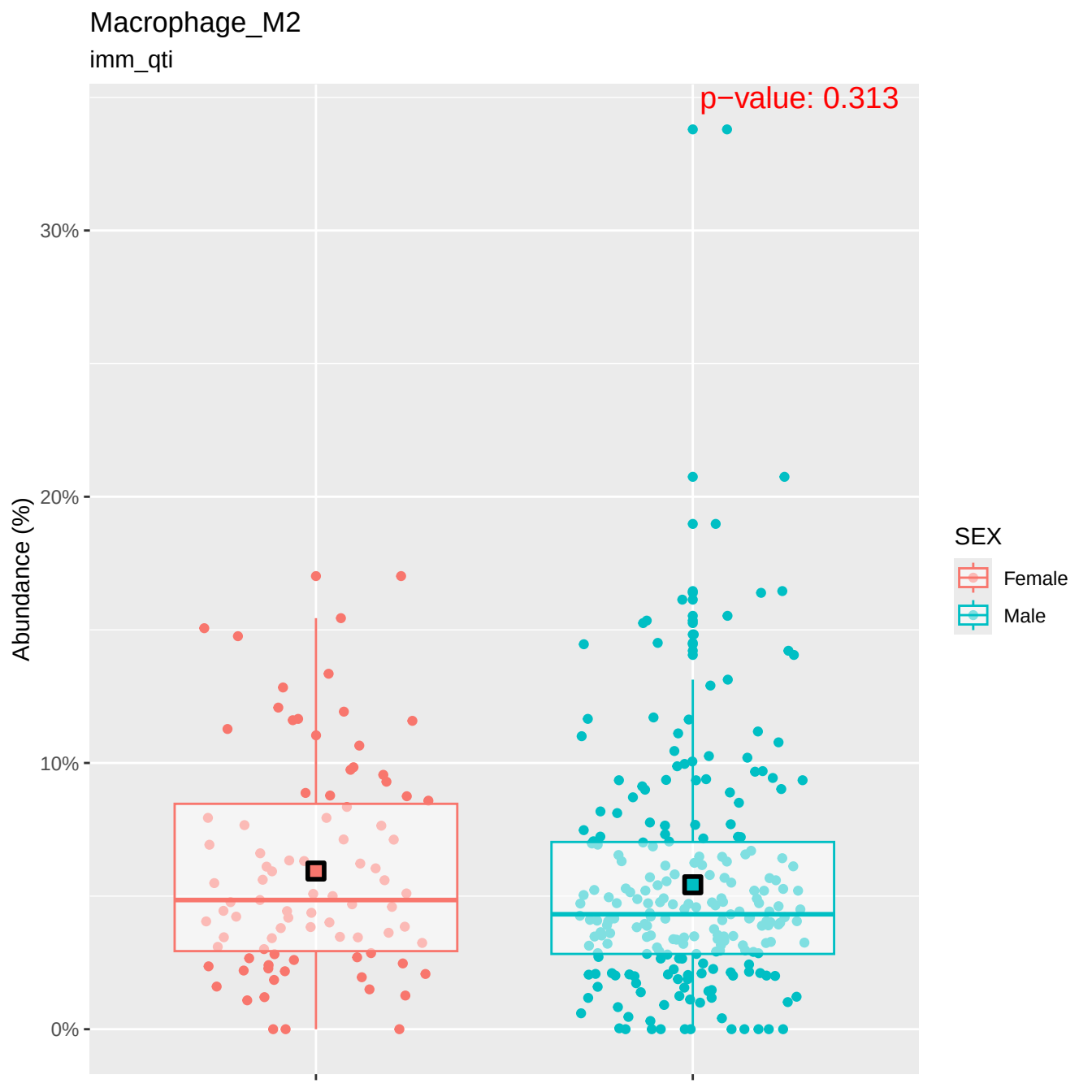

Heatmap QTI
SEX
Neutrophil
uncharacterized_cell
Macrophage_M2
T cell regulatory
Monocyte
T_cell_CD8+
B_cell
T cell CD4+
Macrophage_M1
NK_cell
Myeloid_dendritic_cell
SEX
Female
Male
15
10
5
0

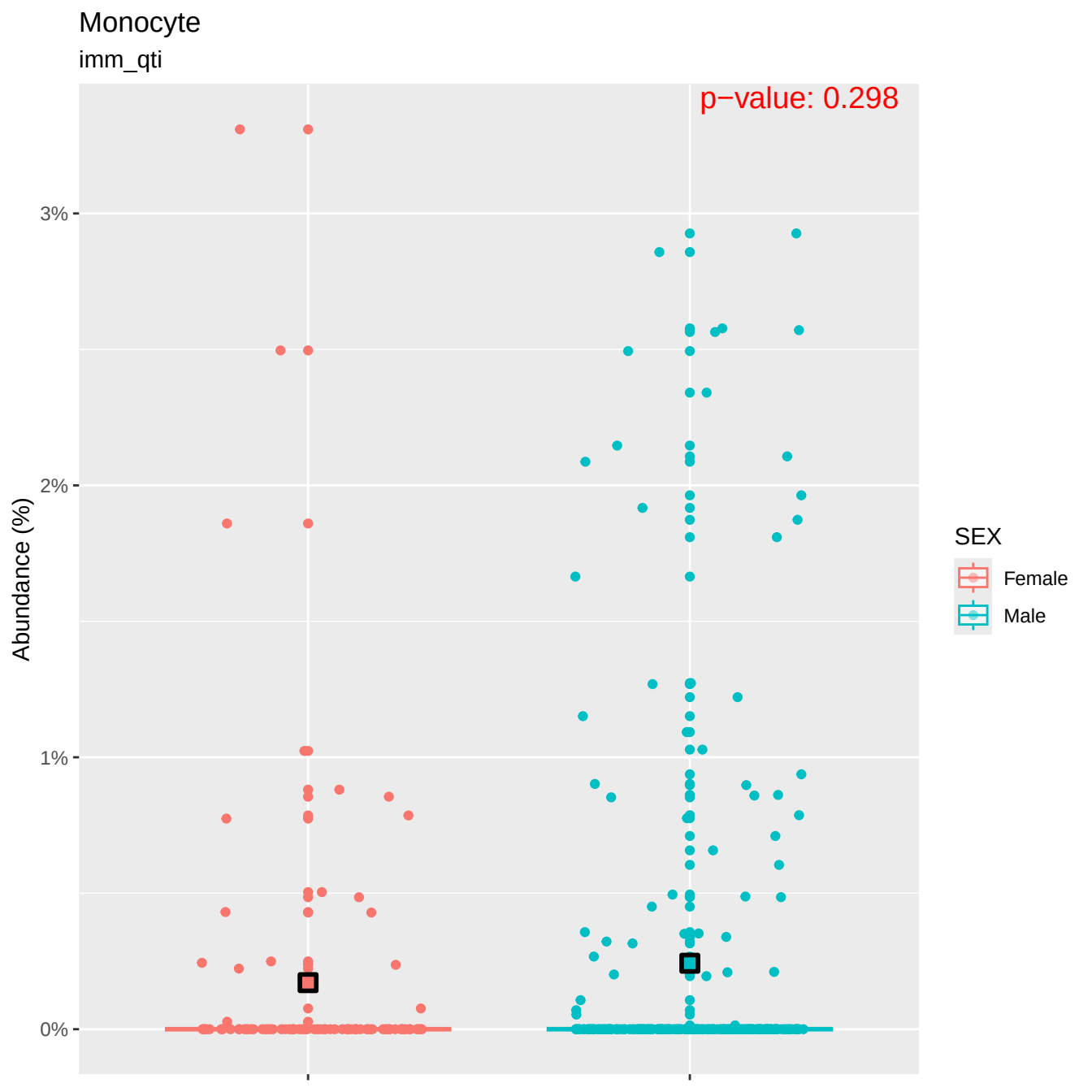

quanTIseq Individual
Samples
0%
25%
50%
75%
100%
Cell Fraction (%)
Cell_Type
B_cell
Macrophage_M1
Macrophage_M2
Monocyte
Neutrophil
NK_cell
T_cell_CD4+_(non−regulatory)
T_cell_CD8+
T_cell_regulatory_(Tregs)
Myeloid_dendritic_cell
uncharacterized_cell

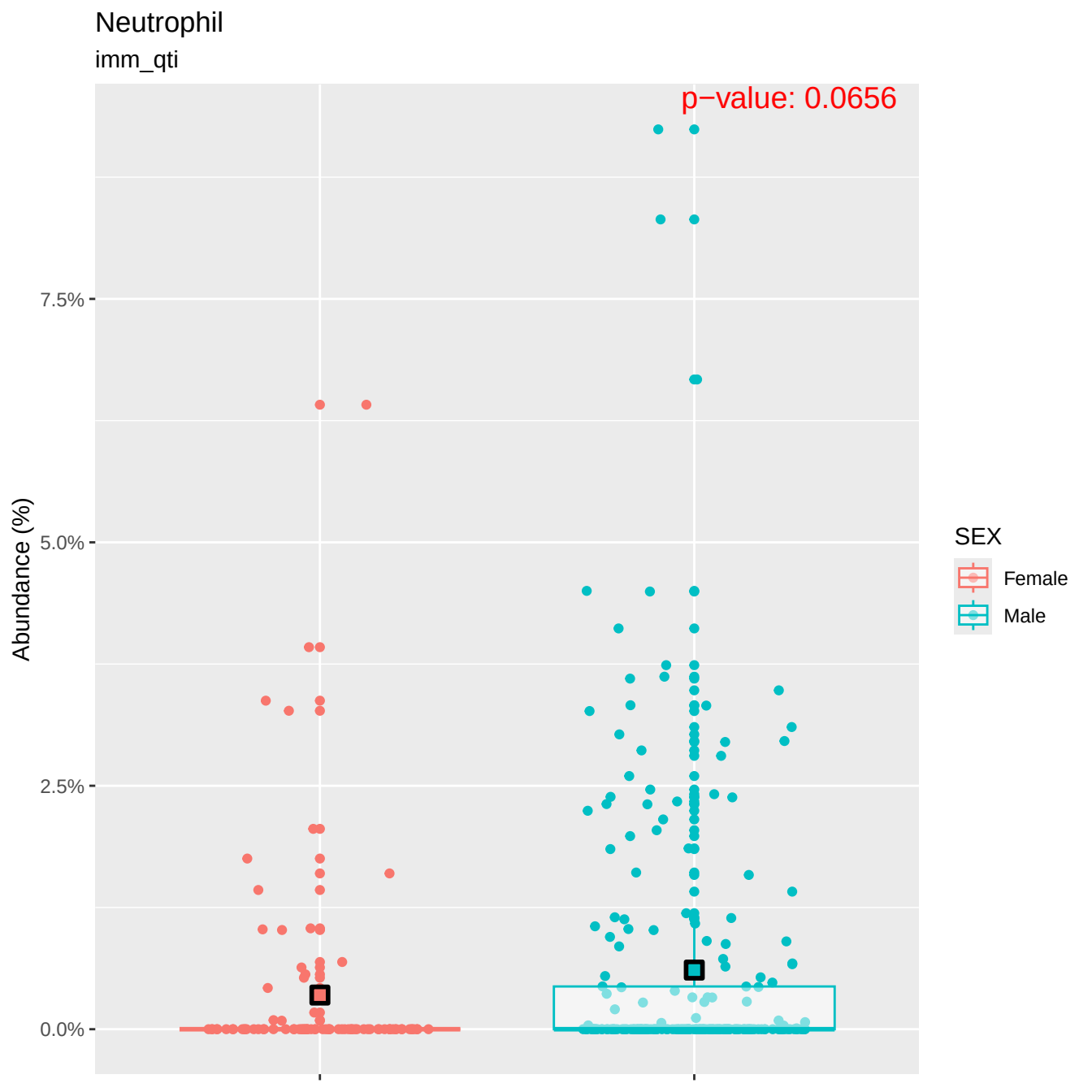

quanTIseq Average
Samples
Female
Male
0%
25%
50%
75%
100%
Cell Fraction (%)
Cell_Type
B_cell
Macrophage_M1
Macrophage_M2
Monocyte
Neutrophil
NK_cell
T_cell_CD4+_(non−regulatory)
T_cell_CD8+
T_cell_regulatory_(Tregs)
Myeloid_dendritic_cell
uncharacterized_cell


B_cell
imm_qti
p−value: 0.184
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

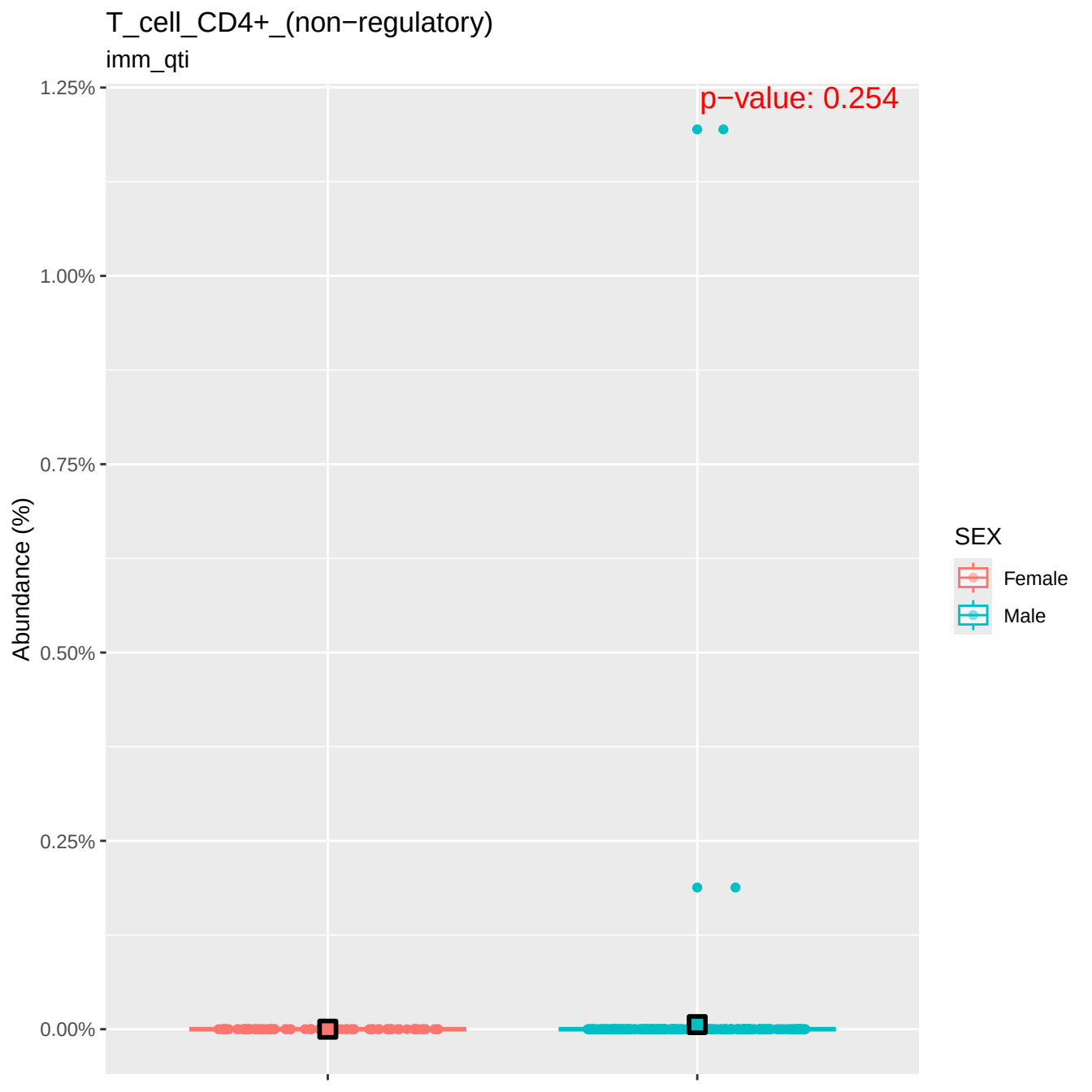
Macrophage_M1
imm_qti
p−value: 0.841
25%
20%
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

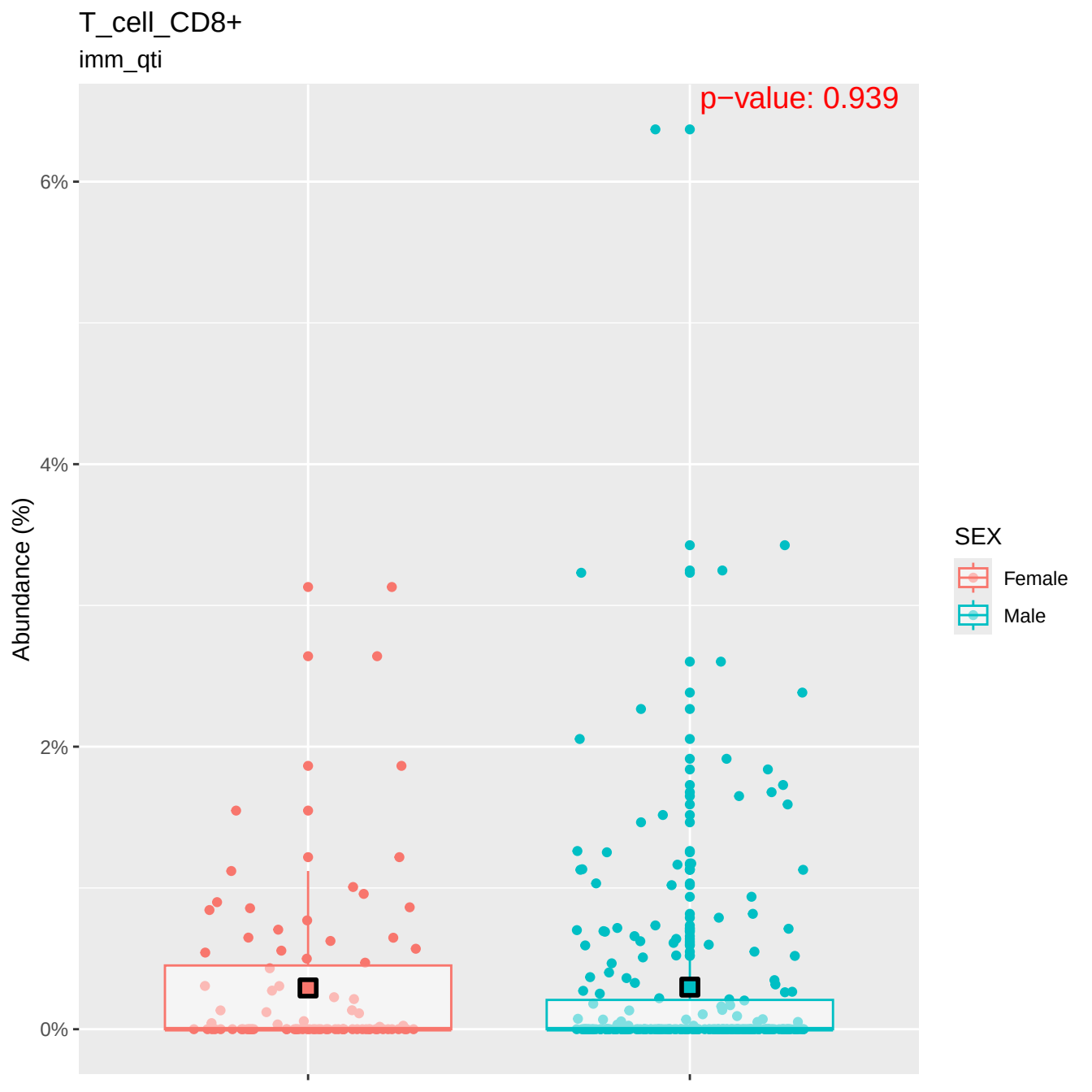

Macrophage_M2
imm_qti
p−value: 0.313
30%
20%
10%
0%
Abundance (%)
SEX
Female
Male

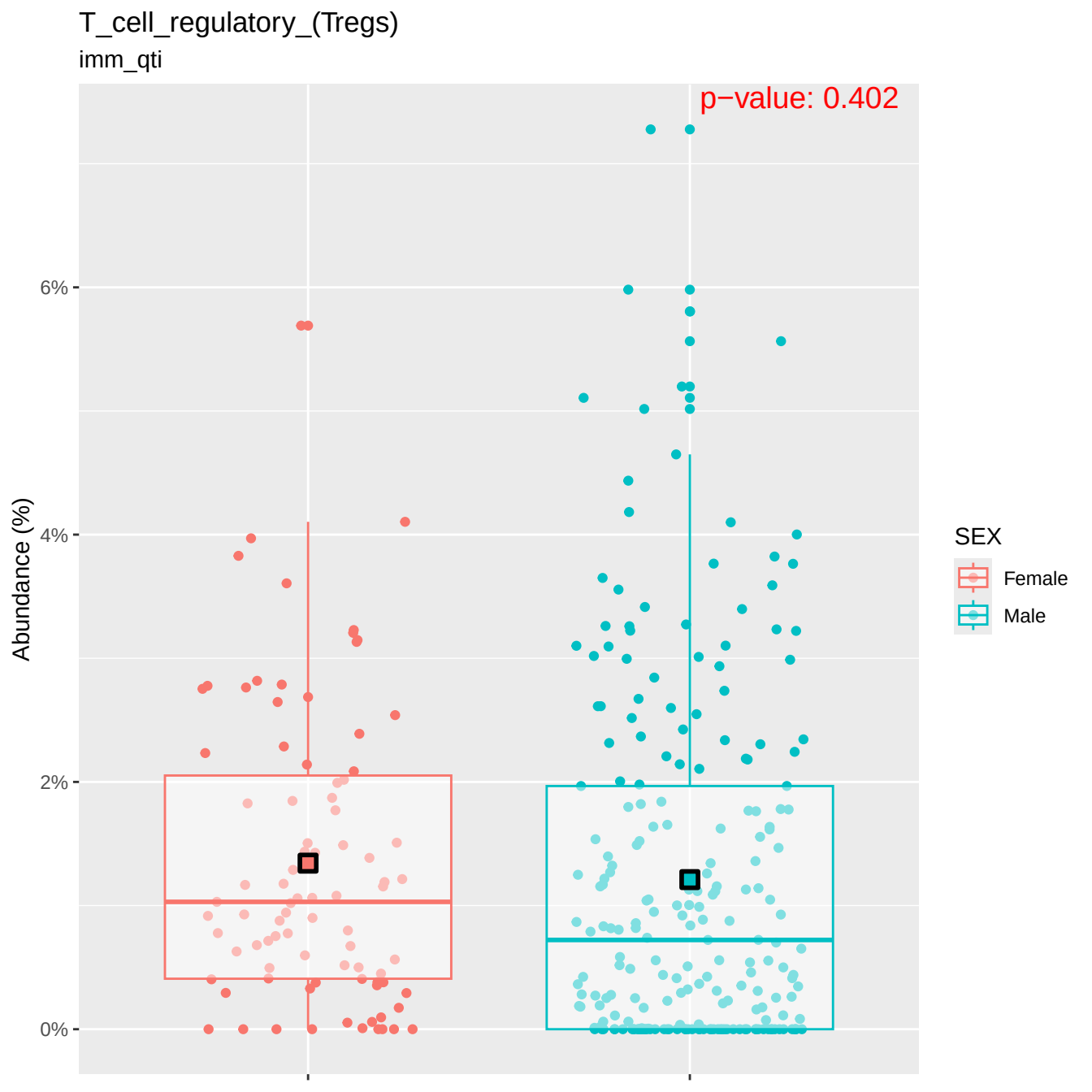

Monocyte
imm_qti
p−value: 0.298
3%
2%
1%
0%
Abundance (%)
SEX
Female
Male

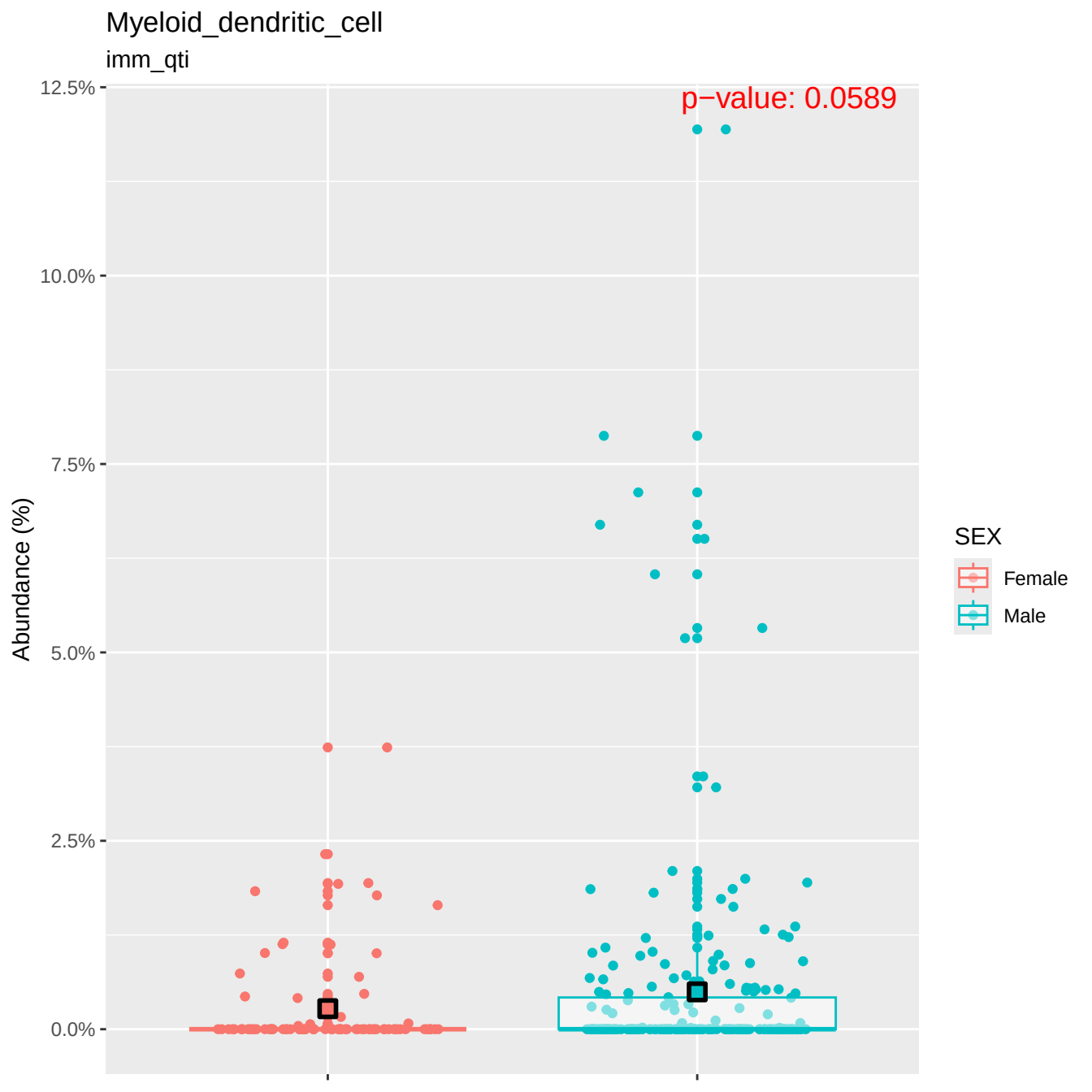

Neutrophil
imm_qti
p−value: 0.0656
7.5%
5.0%
2.5%
0.0%
Abundance (%)
SEX
Female
Male

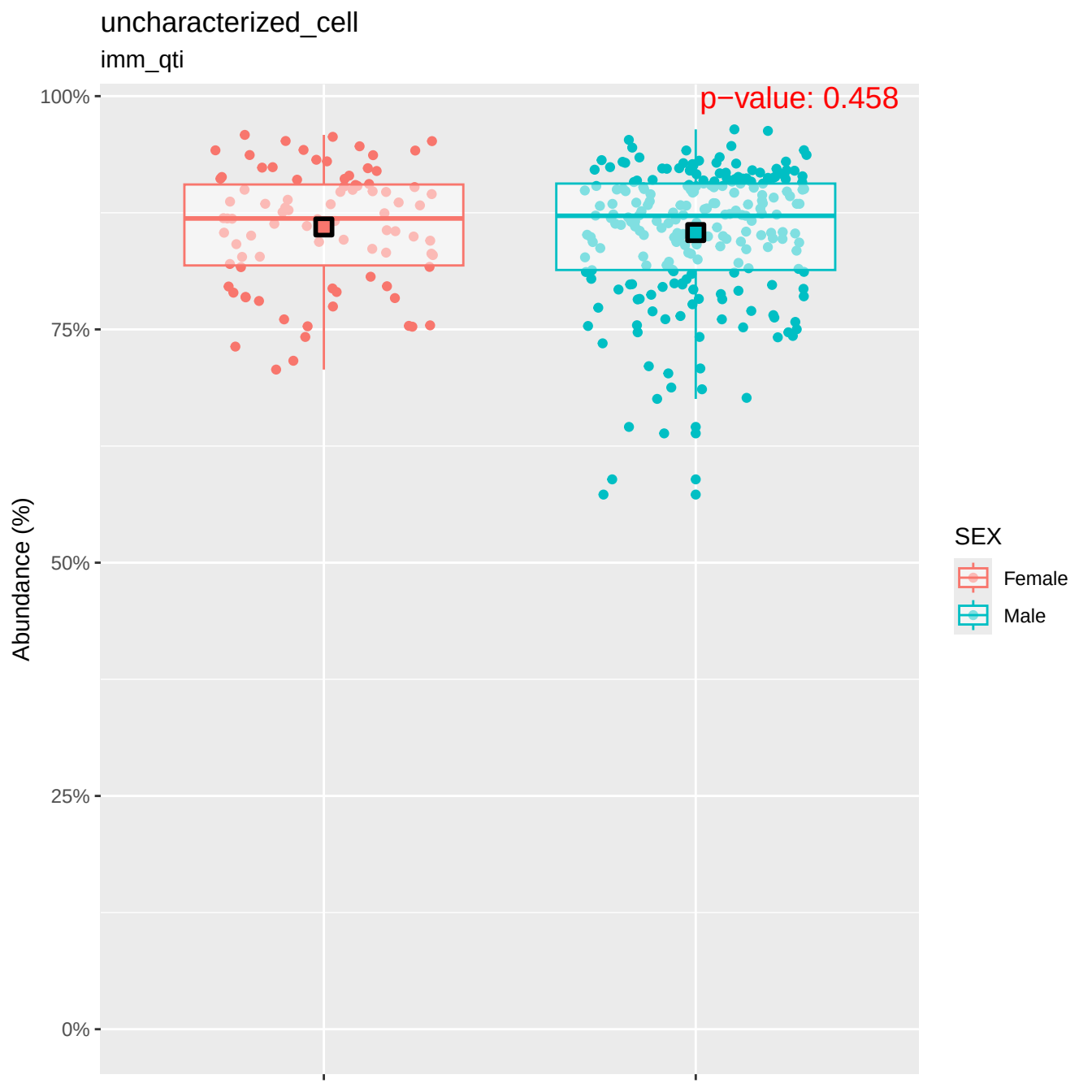
NK_cell
imm_qti
p−value: 0.000767
7.5%
5.0%
2.5%
0.0%
Abundance (%)
SEX
Female
Male

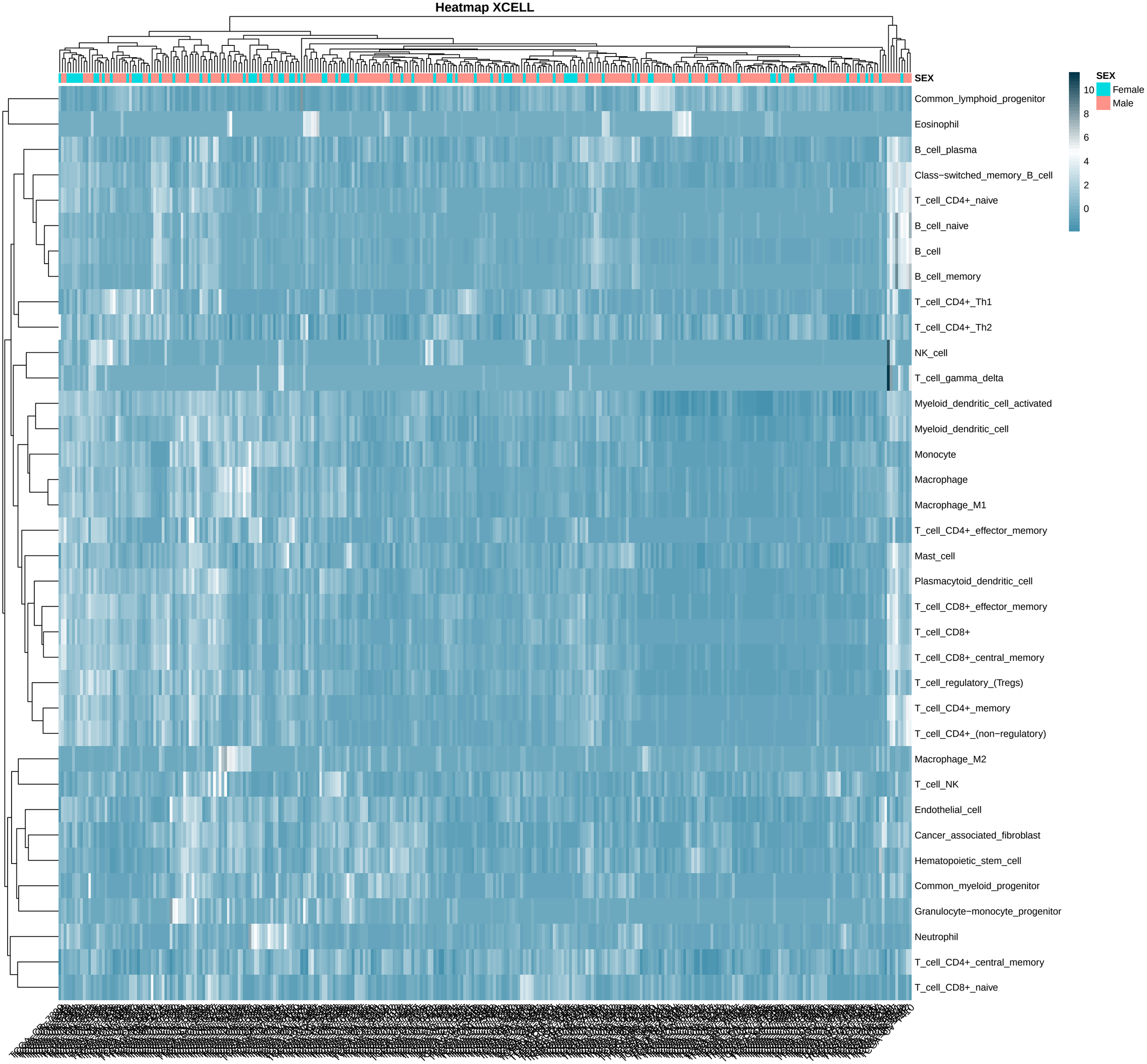

T_cell_CD4+_(non−regulatory)
imm_qti
p−value: 0.254
1.25%
1.00%
0.75%
0.50%
0.25%
0.00%
Abundance (%)
SEX
Female
Male

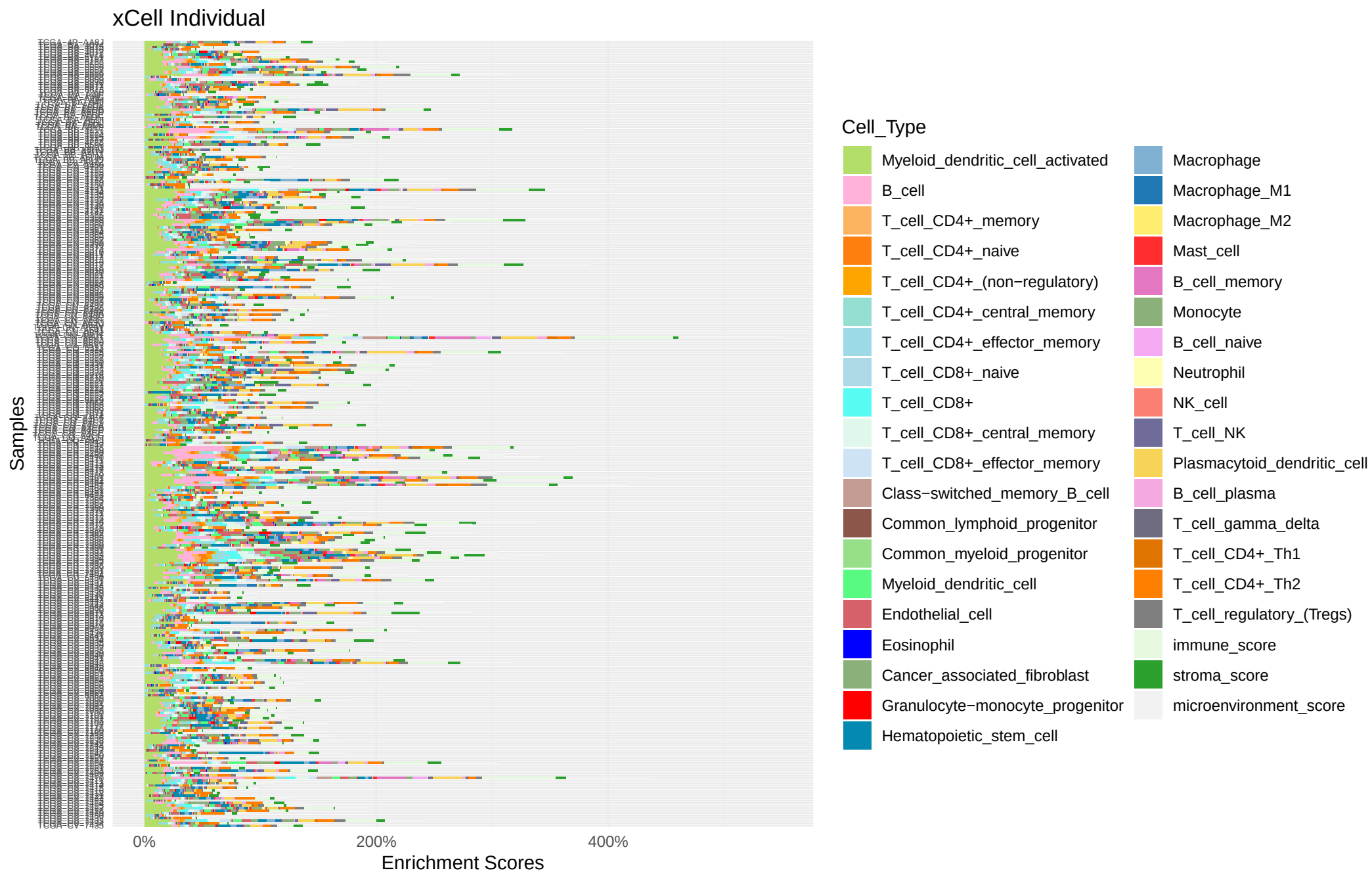

T_cell_CD8+
imm_qti
p−value: 0.939
6%
4%
2%
0%
Abundance (%)
SEX
Female
Male

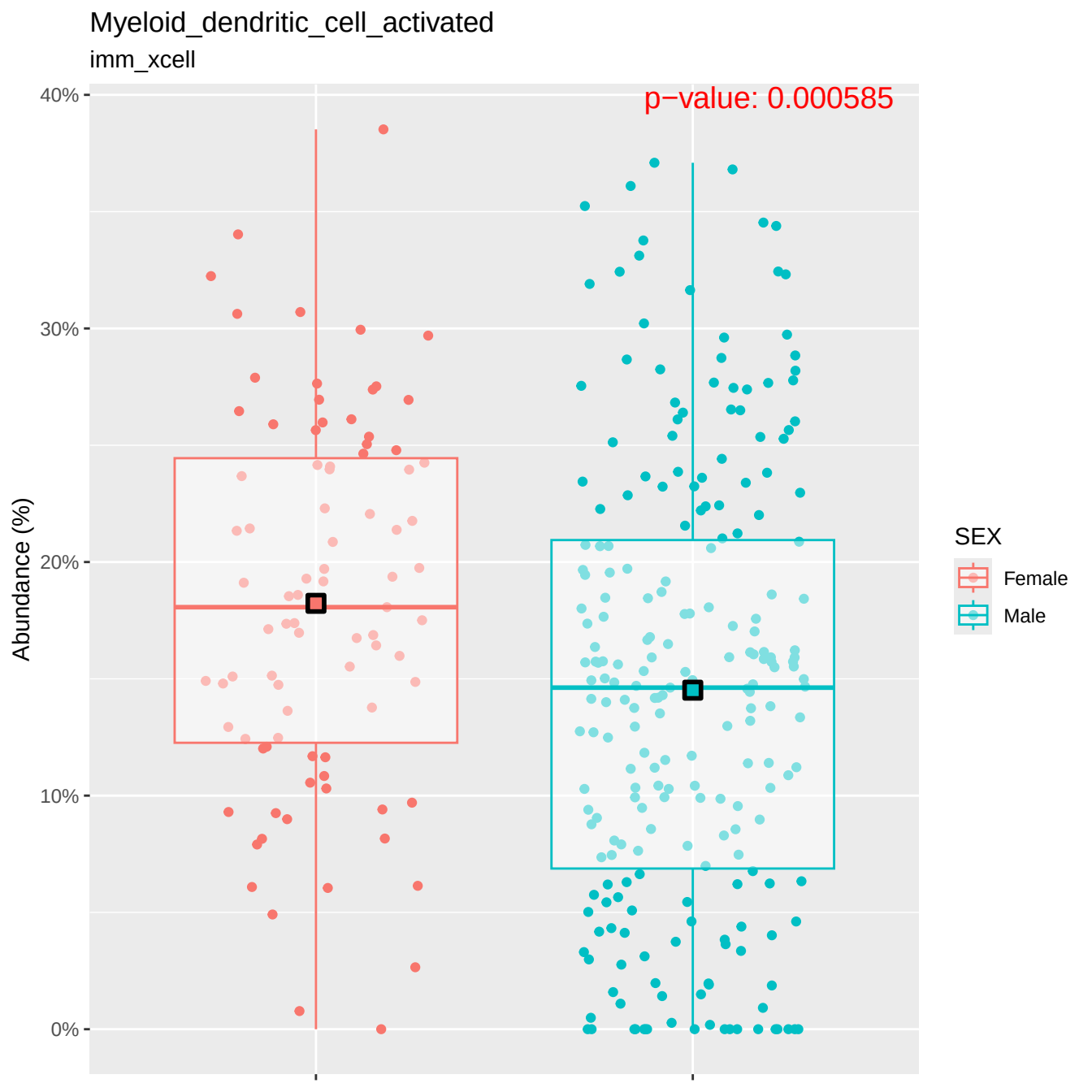

T_cell_regulatory_(Tregs)
imm_qti
p−value: 0.402
Abundance (%)
6%
4%
2%
0%
SEX
Female
Male

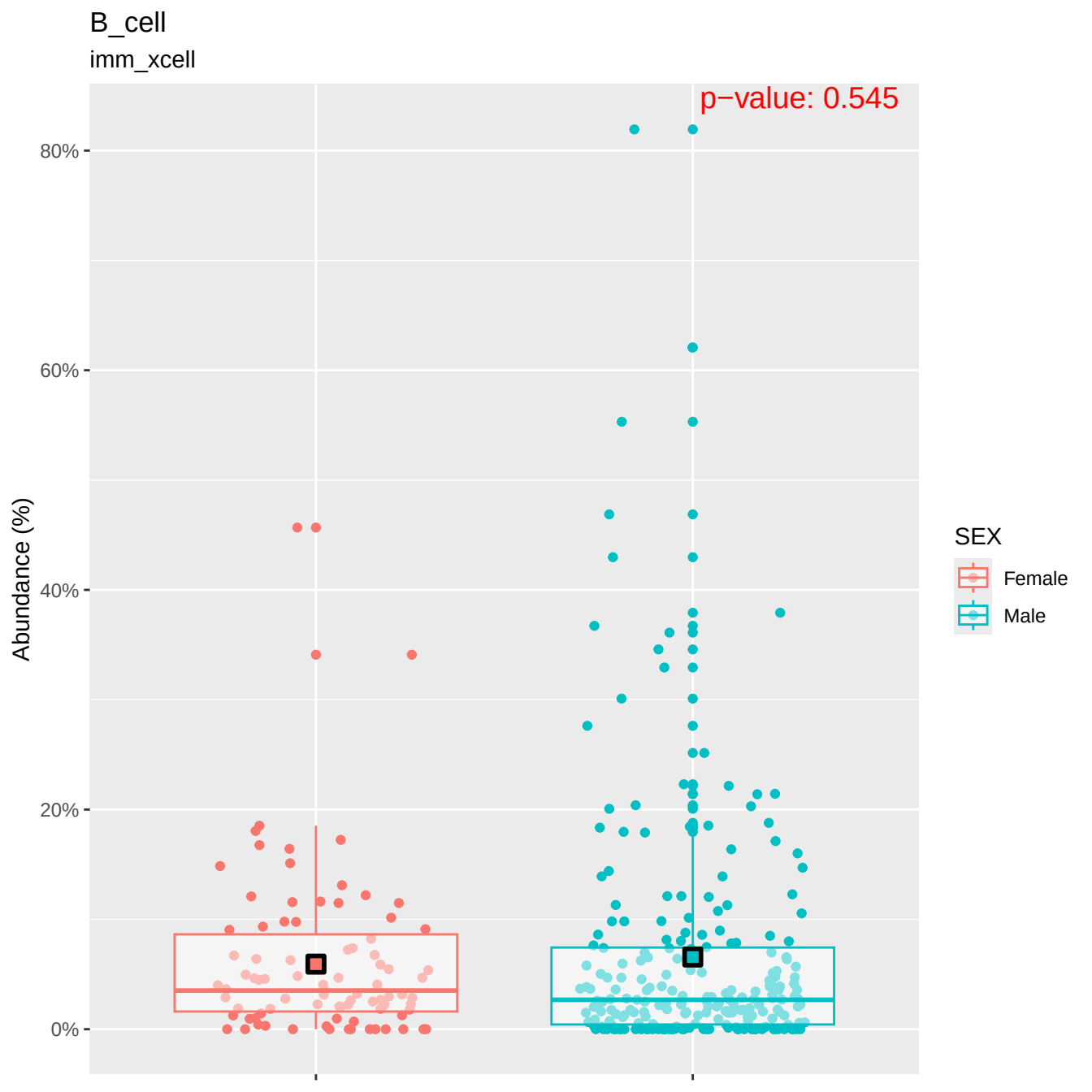

Myeloid_dendritic_cell
imm_qti
p−value: 0.0589
12.5%
10.0%
7.5%
5.0%
2.5%
0.0%
Abundance (%)
SEX
Female
Male

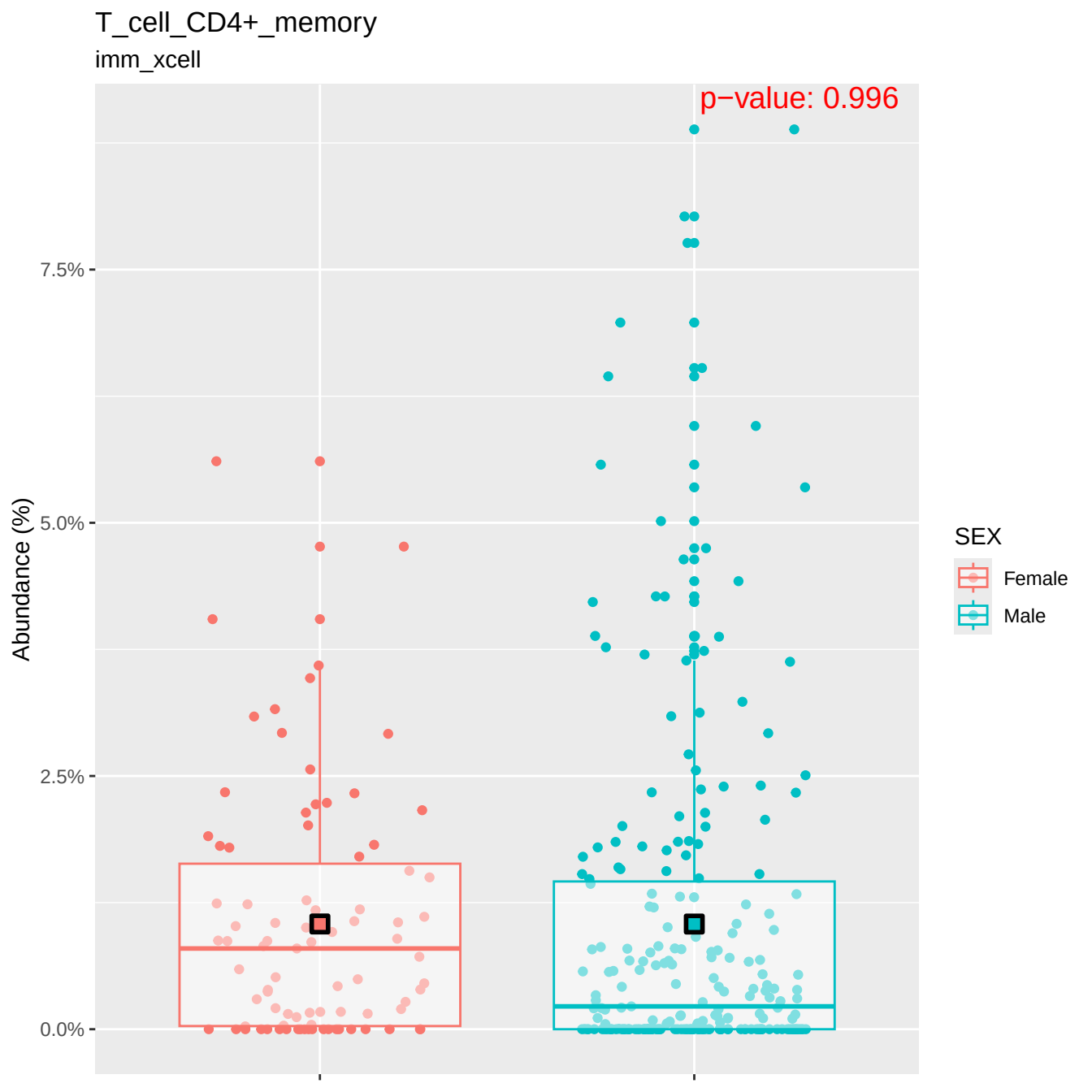

uncharacterized_cell
imm_qti
p−value: 0.458
100%
75%
50%
25%
0%
Abundance (%)
SEX
Female
Male

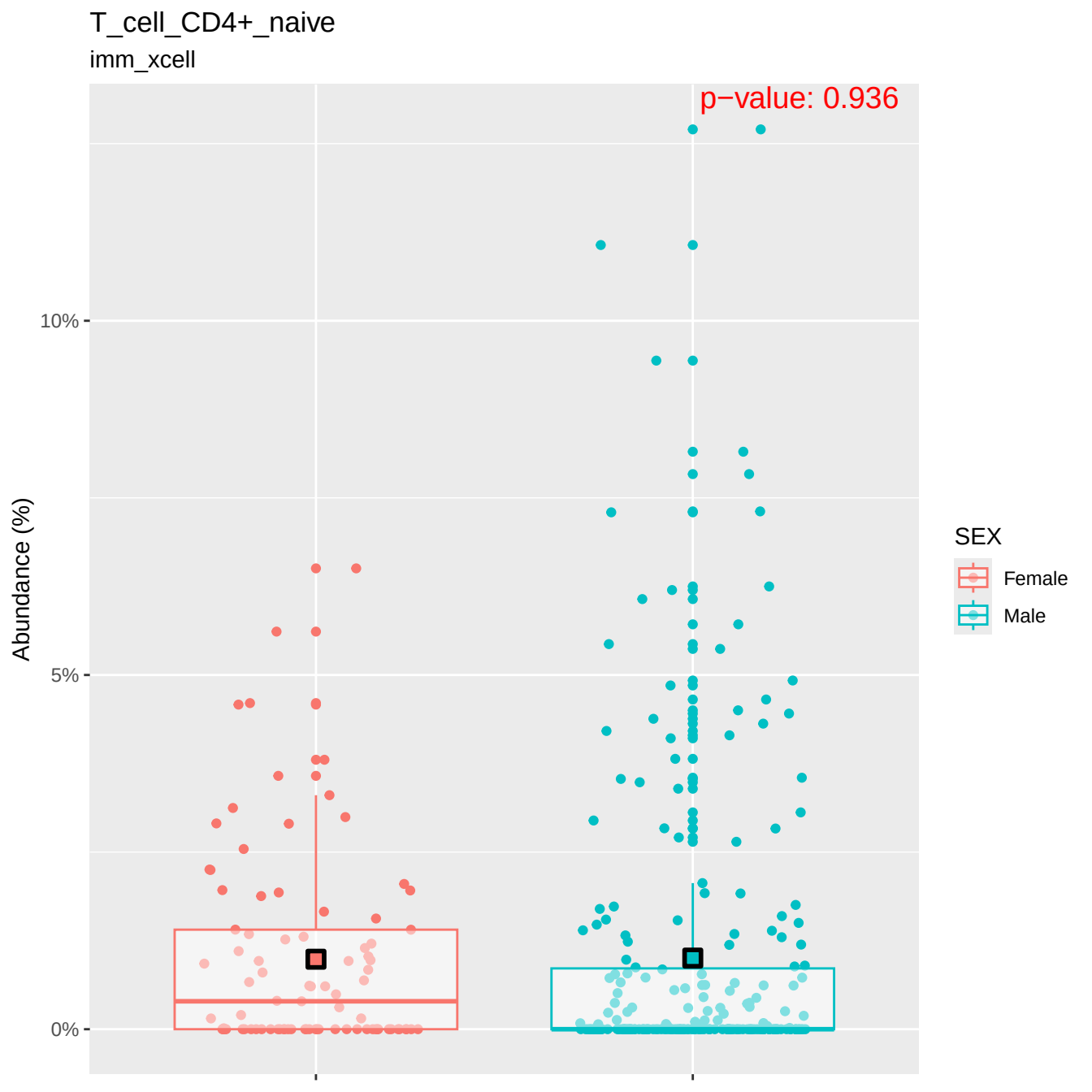

Heatmap XCELL
SEX
Common_lymphoid_progenitor
Eosinophil
B_cell_plasma
Class−switched_memory_B_cell
T_cell_CD4+_naive
B_cell_naive
B_cell
B_cell_memory
T_cell_CD4+_Th1
T_cell_CD4+_Th2
NK_cell
T_cell_gamma_delta
Myeloid_dendritic_cell_activated
Myeloid_dendritic_cell
Monocyte
Macrophage
Macrophage_M1
T_cell_CD4+_effector_memory
Mast_cell
Plasmacytoid_dendritic_cell
T_cell_CD8+_effector_memory
T_cell_CD8+
T_cell_CD8+_central_memory
T_cell_regulatory_(Tregs)
T_cell_CD4+_memory
T_cell_CD4+_(non−regulatory)
Macrophage_M2
T_cell_NK
Endothelial_cell
Cancer_associated_fibroblast
Hematopoietic_stem_cell
Common_myeloid_progenitor
Granulocyte−monocyte_progenitor
Neutrophil
T_cell_CD4+_central_memory
T_cell_CD8+_naive
SEX
Female
Male
10
8
6
4
2
0

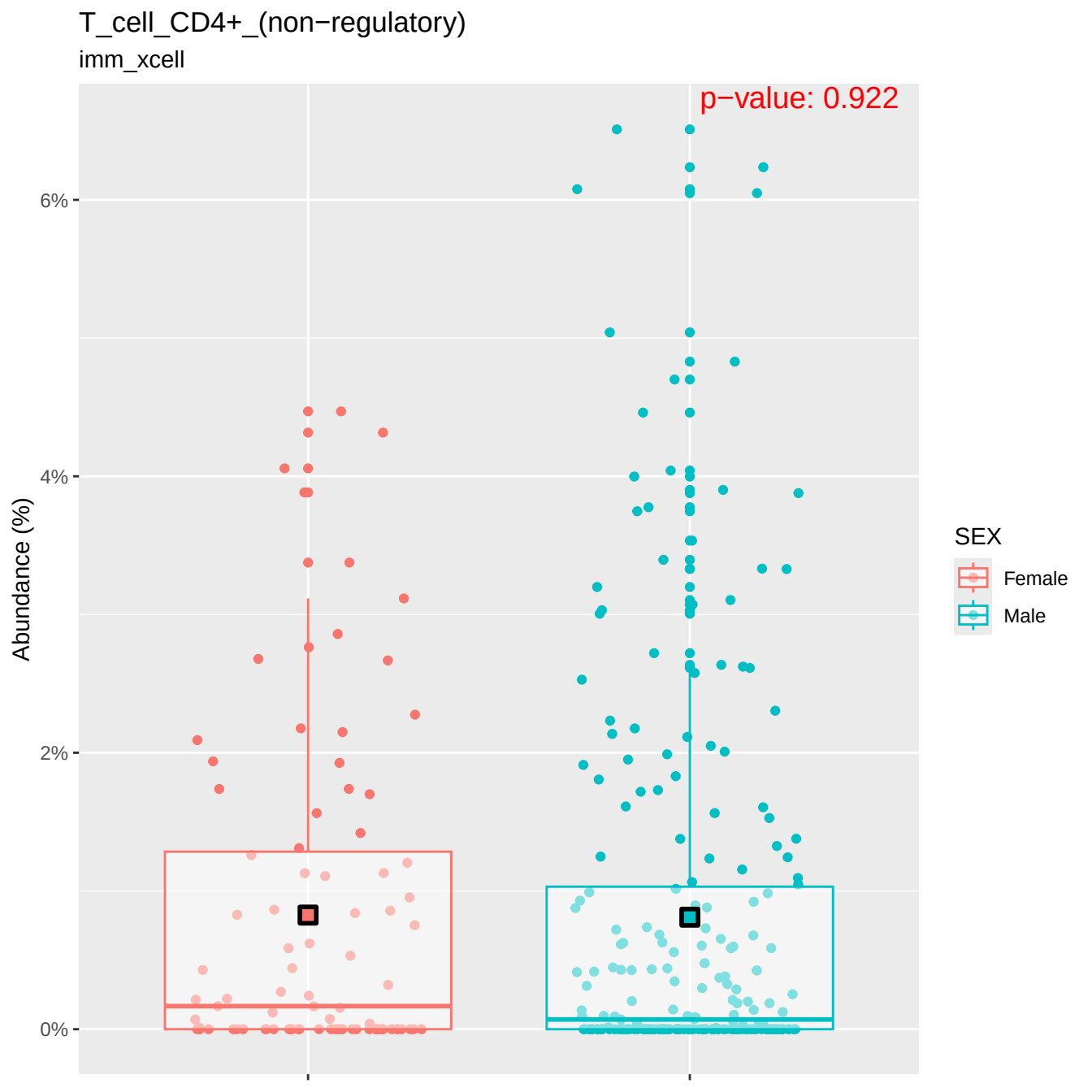

xCell Individual
Samples
0%
200%
400%
Enrichment Scores
Cell_Type
Myeloid_dendritic_cell_activated
B_cell
T_cell_CD4+_memory
T_cell_CD4+_naive
T_cell_CD4+_(non−regulatory)
T_cell_CD4+_central_memory
T_cell_CD4+_effector_memory
T_cell_CD8+_naive
T_cell_CD8+
T_cell_CD8+_central_memory
T_cell_CD8+_effector_memory
Class−switched_memory_B_cell
Common_lymphoid_progenitor
Common_myeloid_progenitor
Myeloid_dendritic_cell
Endothelial_cell
Eosinophil
Cancer_associated_fibroblast
Granulocyte−monocyte_progenitor
Hematopoietic_stem_cell
Macrophage
Macrophage_M1
Macrophage_M2
Mast_cell
B_cell_memory
Monocyte
B_cell_naive
Neutrophil
NK_cell
T_cell_NK
Plasmacytoid_dendritic_cell
B_cell_plasma
T_cell_gamma_delta
T_cell_CD4+_Th1
T_cell_CD4+_Th2
T_cell_regulatory_(Tregs)
immune_score
stroma_score
microenvironment_score
xCell Average
Samples
Female
Male
0%
50%
100%
150%
Enrichment Scores
Cell_Type
Myeloid_dendritic_cell_activated
B_cell
T_cell_CD4+_memory
T_cell_CD4+_naive
T_cell_CD4+_(non−regulatory)
T_cell_CD4+_central_memory
T_cell_CD4+_effector_memory
T_cell_CD8+_naive
T_cell_CD8+
T_cell_CD8+_central_memory
T_cell_CD8+_effector_memory
Class−switched_memory_B_cell
Common_lymphoid_progenitor
Common_myeloid_progenitor
Myeloid_dendritic_cell
Endothelial_cell
Eosinophil
Cancer_associated_fibroblast
Granulocyte−monocyte_progenitor
Hematopoietic_stem_cell
Macrophage
Macrophage_M1
Macrophage_M2
Mast_cell
B_cell_memory
Monocyte
B_cell_naive
Neutrophil
NK_cell
T_cell_NK
Plasmacytoid_dendritic_cell
B_cell_plasma
T_cell_gamma_delta
T_cell_CD4+_Th1
T_cell_CD4+_Th2
T_cell_regulatory_(Tregs)
immune_score
stroma_score
microenvironment_score

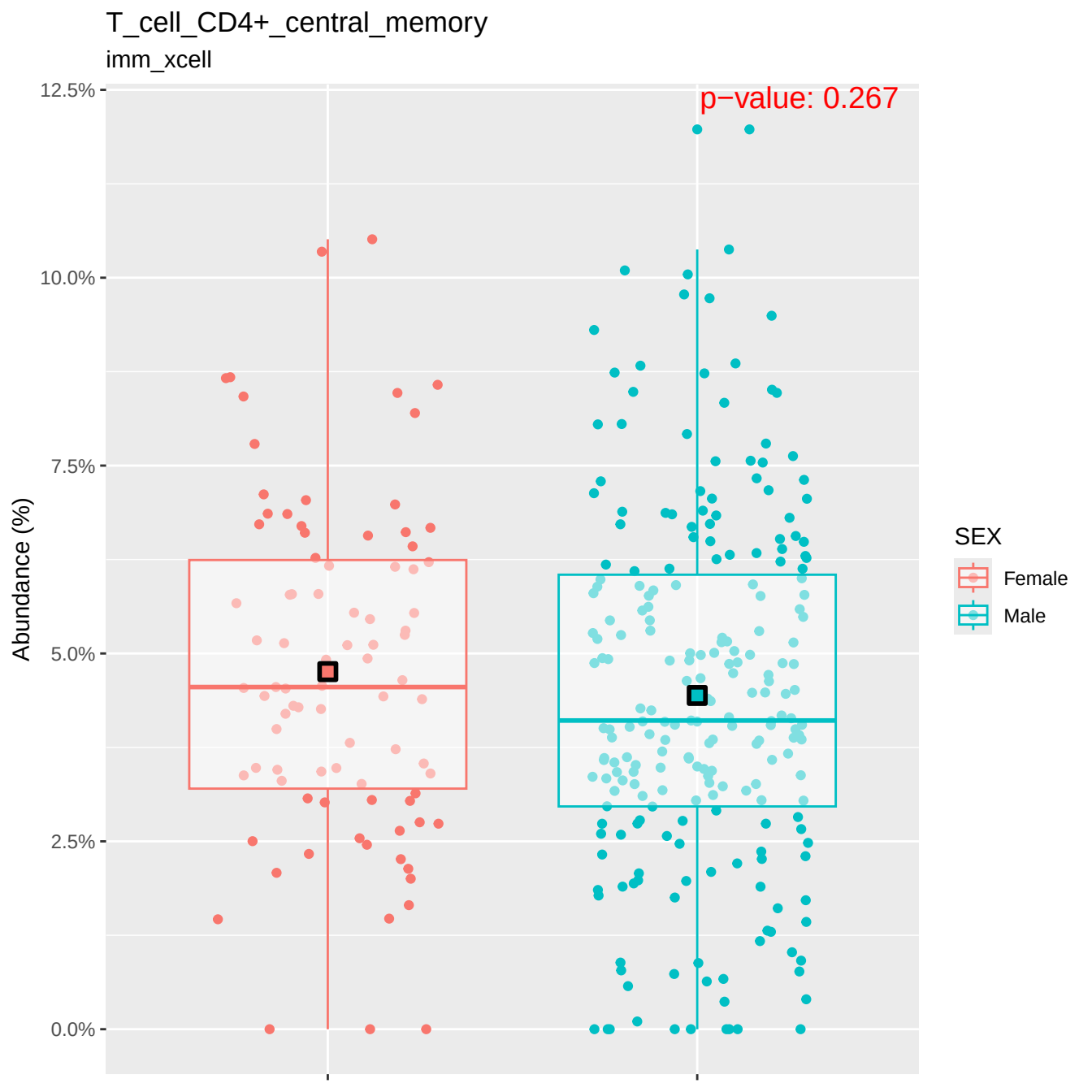

Myeloid_dendritic_cell_activated
imm_xcell
p−value: 0.000585
40%
30%
20%
10%
0%
Abundance (%)
SEX
Female
Male

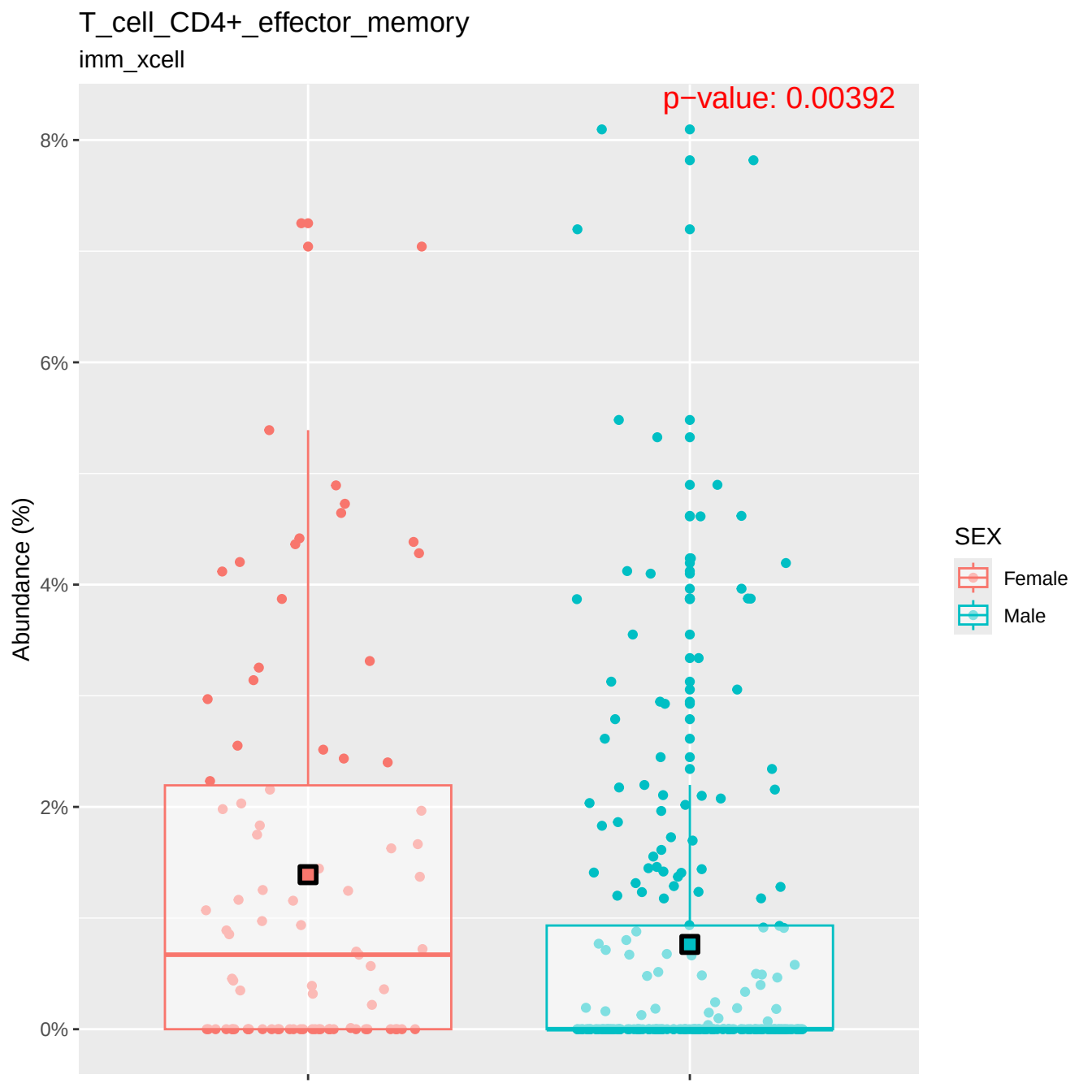

B_cell
imm_xcell
p−value: 0.545
80%
60%
40%
20%
0%
Abundance (%)
SEX
Female
Male

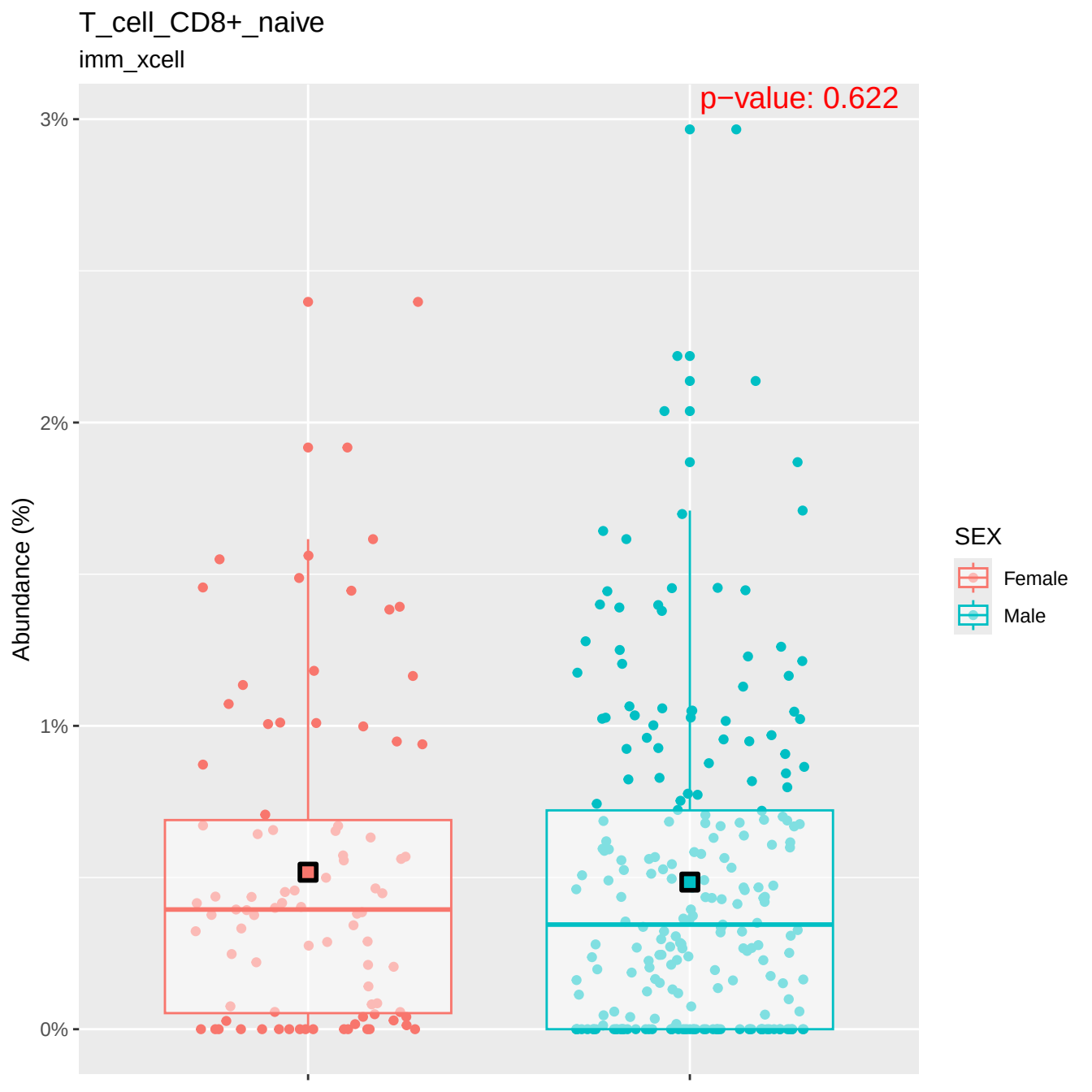

T_cell_CD4+_memory
imm_xcell
p−value: 0.996
Abundance (%)
7.5%
5.0%
2.5%
0.0%
SEX
Female
Male

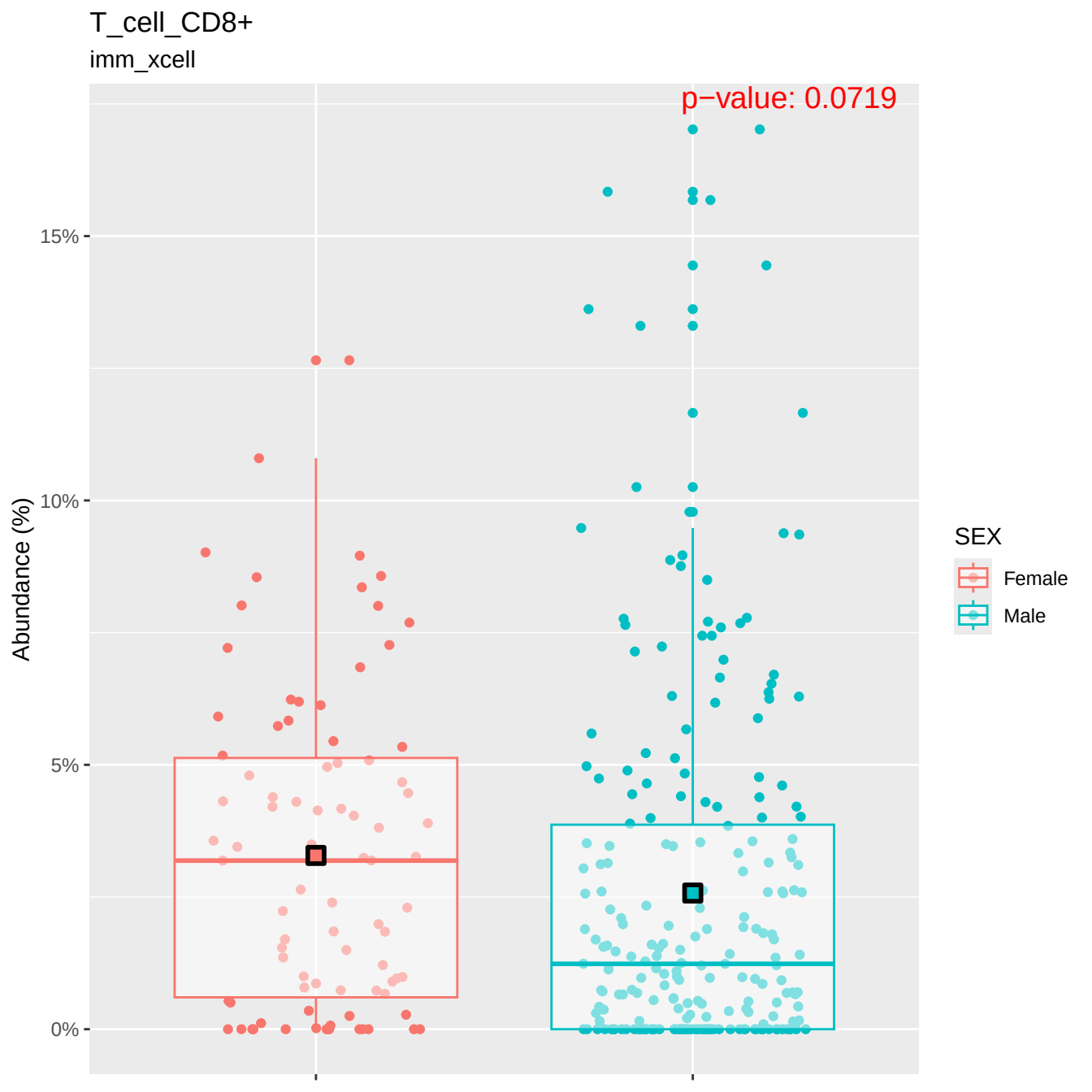

T_cell_CD4+_naive
imm_xcell
p−value: 0.936
10%
5%
0%
Abundance (%)
SEX
Female
Male

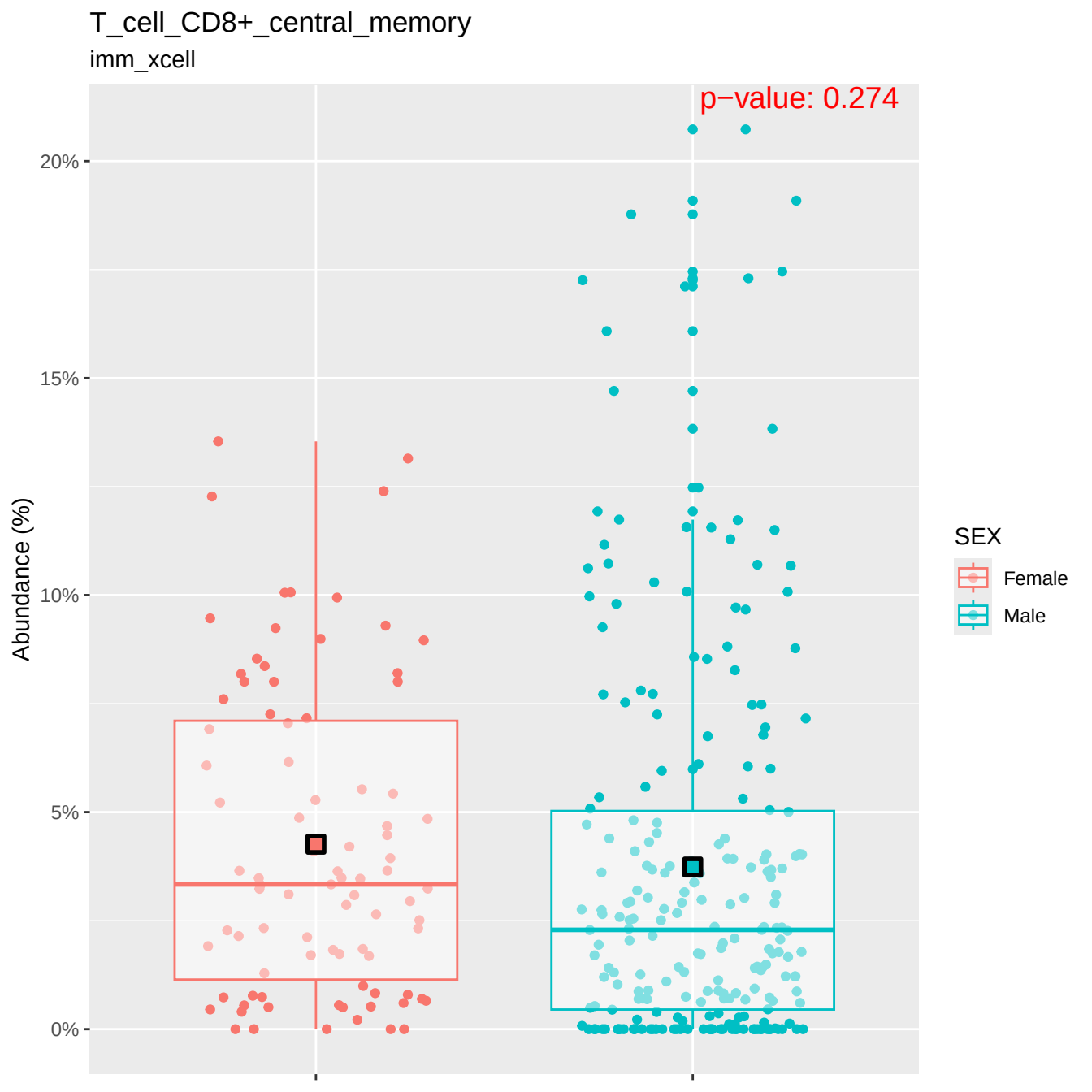

T_cell_CD4+_(non−regulatory)
imm_xcell
p−value: 0.922
6%
4%
2%
0%
Abundance (%)
SEX
Female
Male

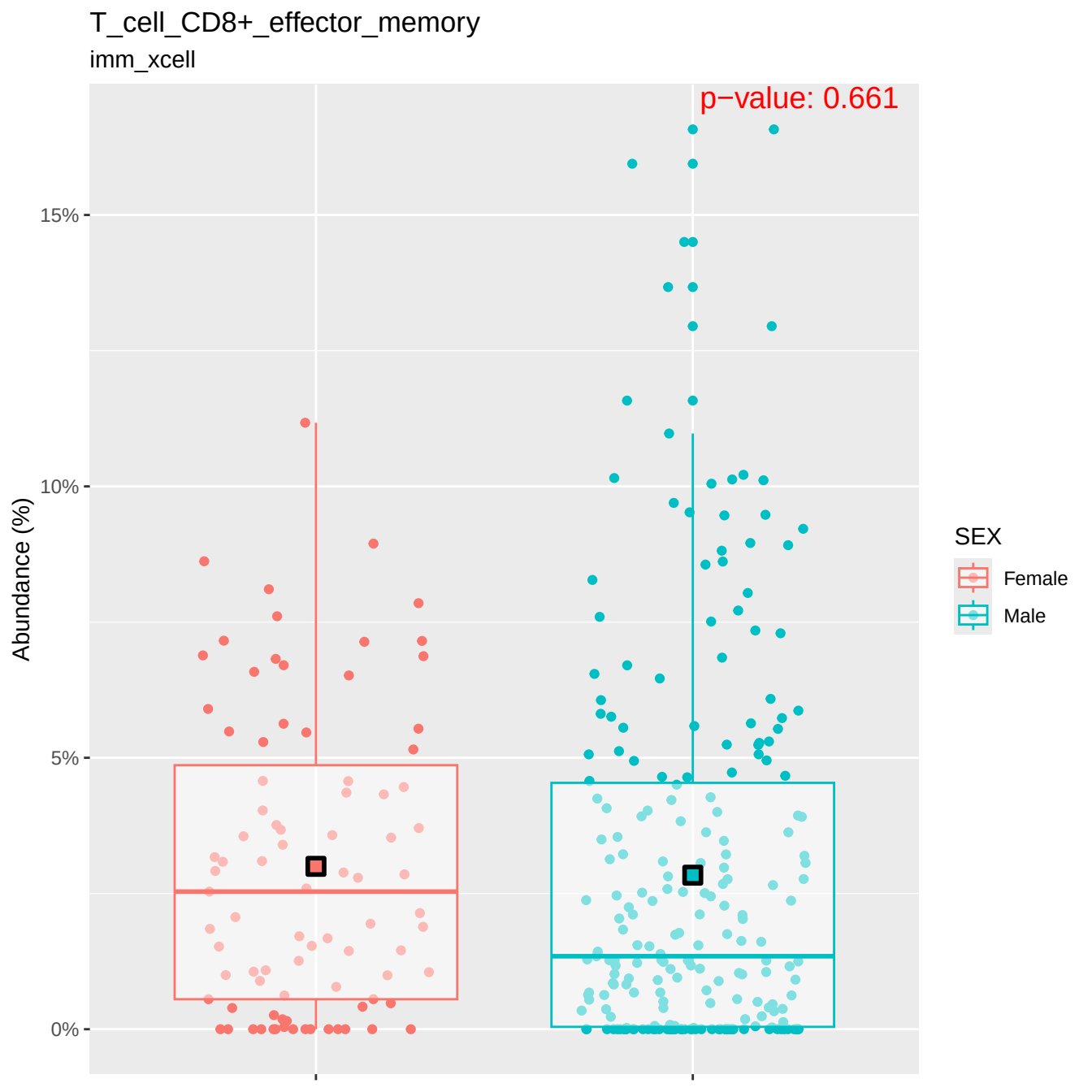

T_cell_CD4+_central_memory
imm_xcell
p−value: 0.267
12.5%
10.0%
7.5%
5.0%
2.5%
0.0%
Abundance (%)
SEX
Female
Male

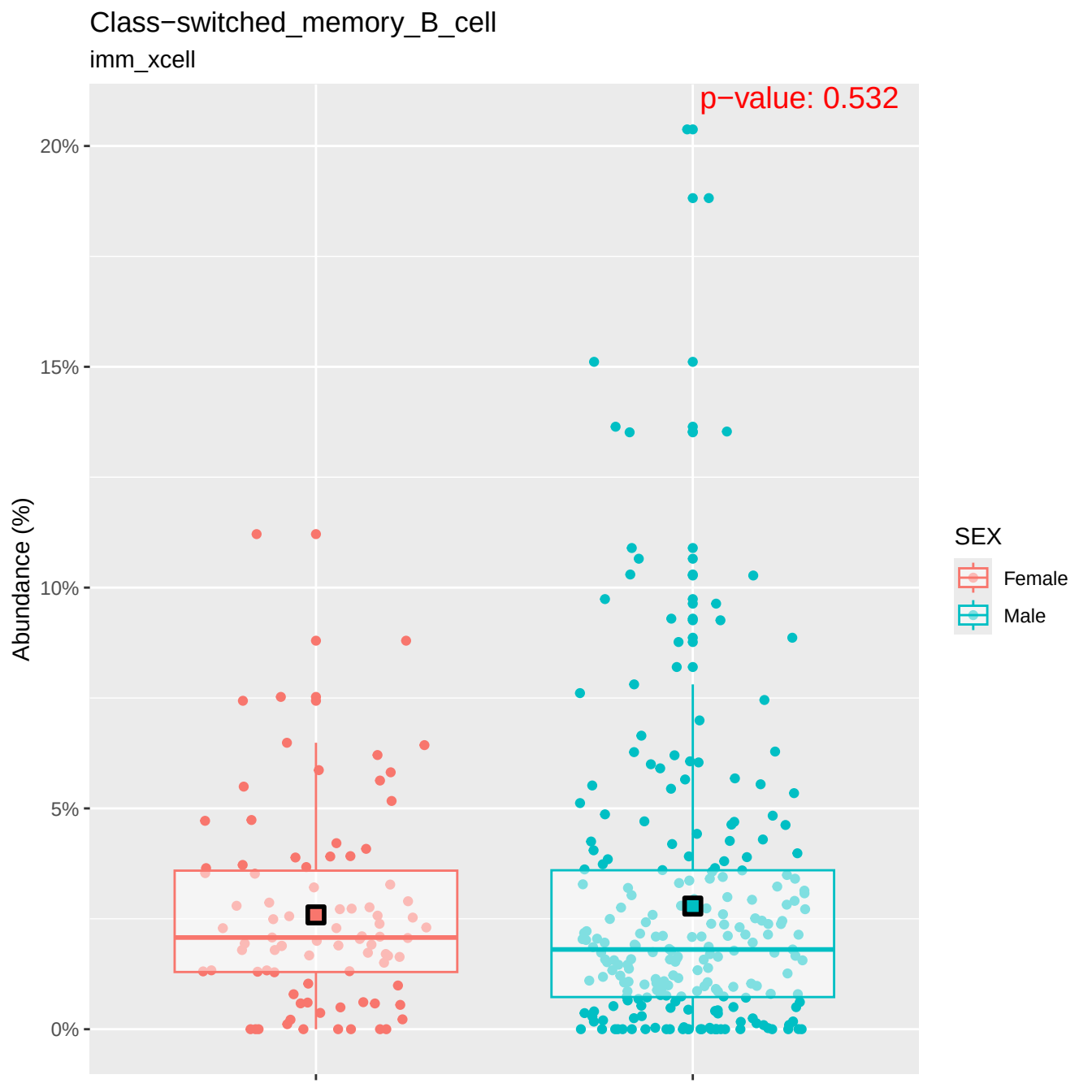

T_cell_CD4+_effector_memory
imm_xcell
p−value: 0.00392
8%
6%
4%
2%
0%
Abundance (%)
SEX
Female
Male

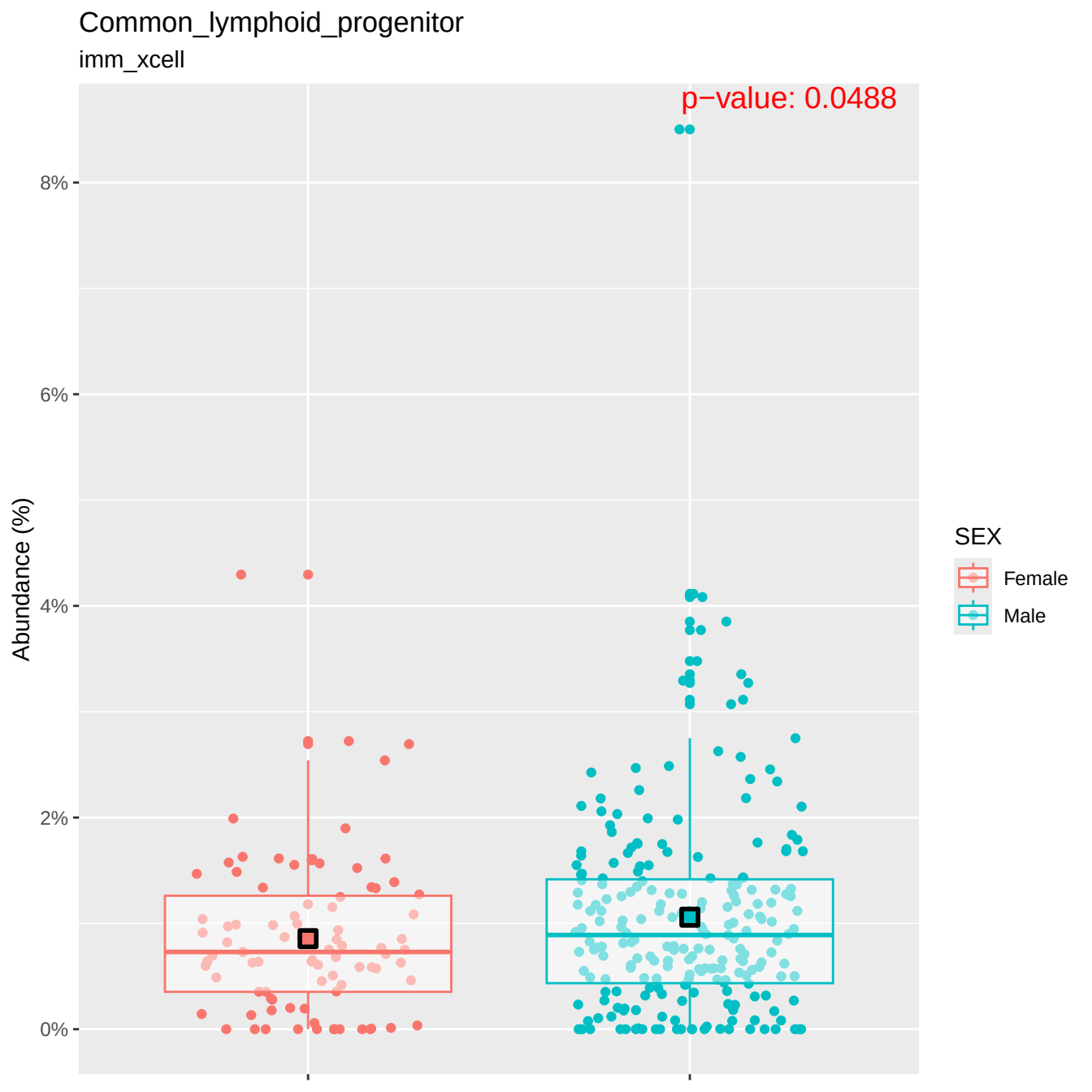

T_cell_CD8+_naive
imm_xcell
p−value: 0.622
3%
2%
1%
0%
Abundance (%)
SEX
Female
Male

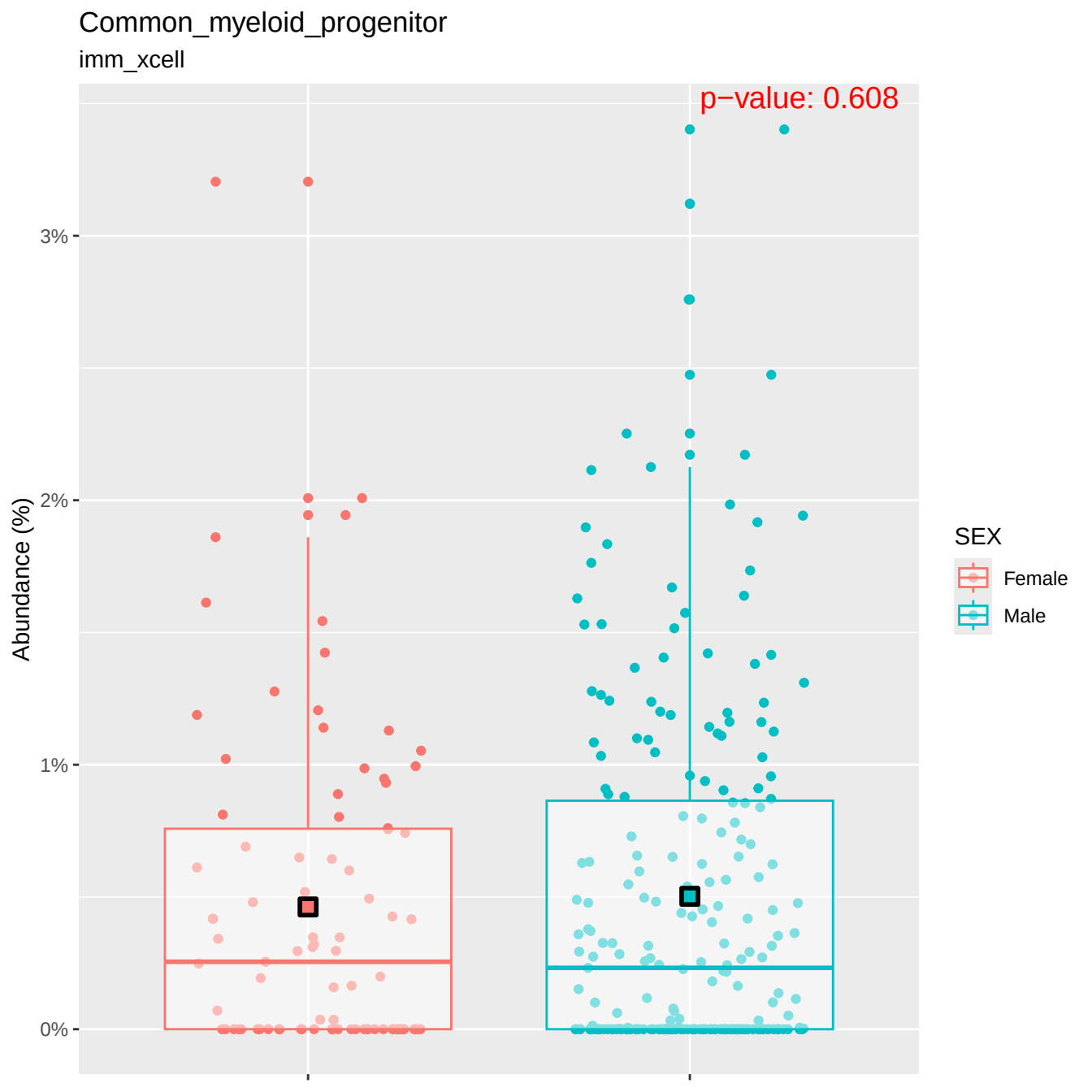

T_cell_CD8+
imm_xcell
p−value: 0.0719
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

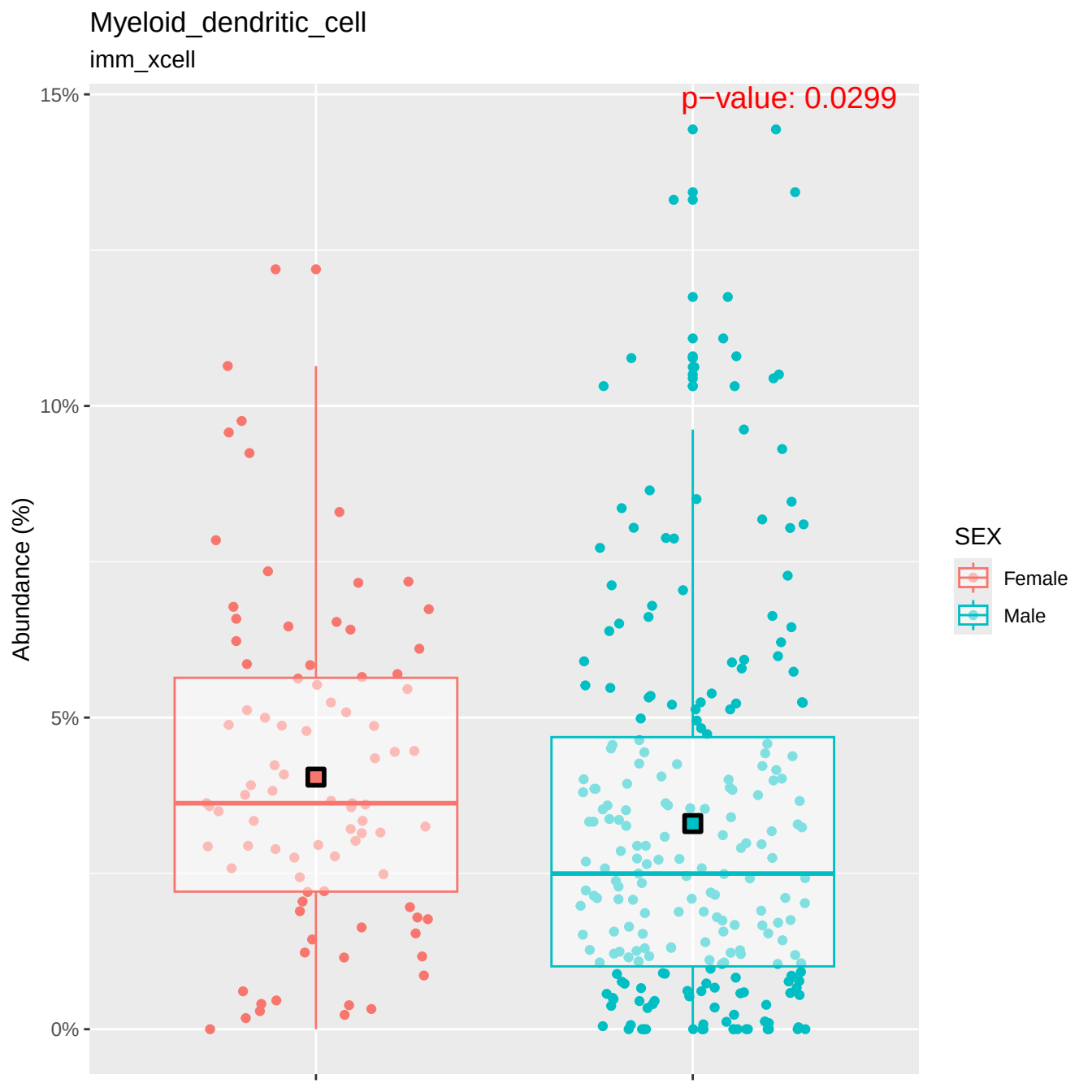

T_cell_CD8+_central_memory
imm_xcell
p−value: 0.274
20%
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

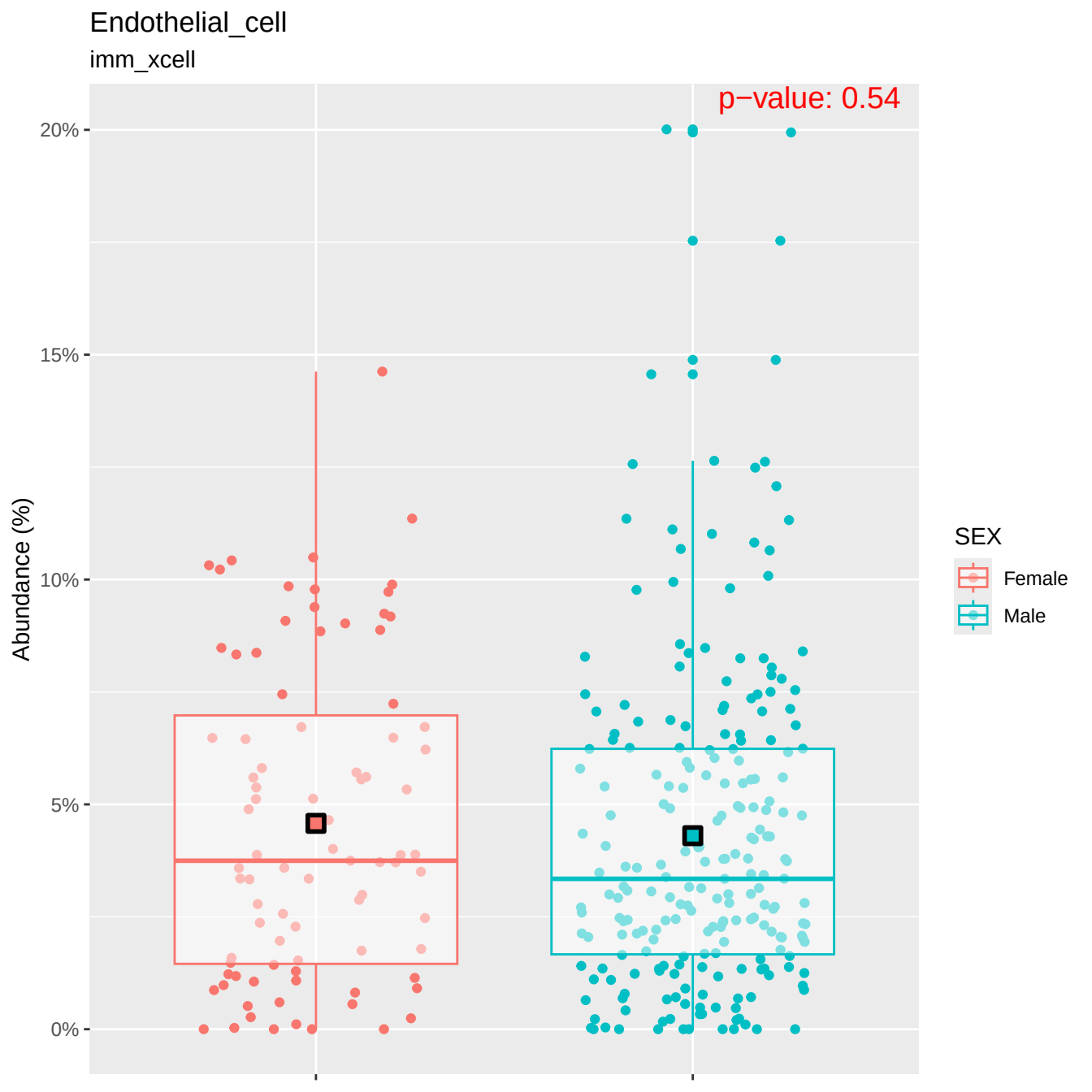

T_cell_CD8+_effector_memory
imm_xcell
p−value: 0.661
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

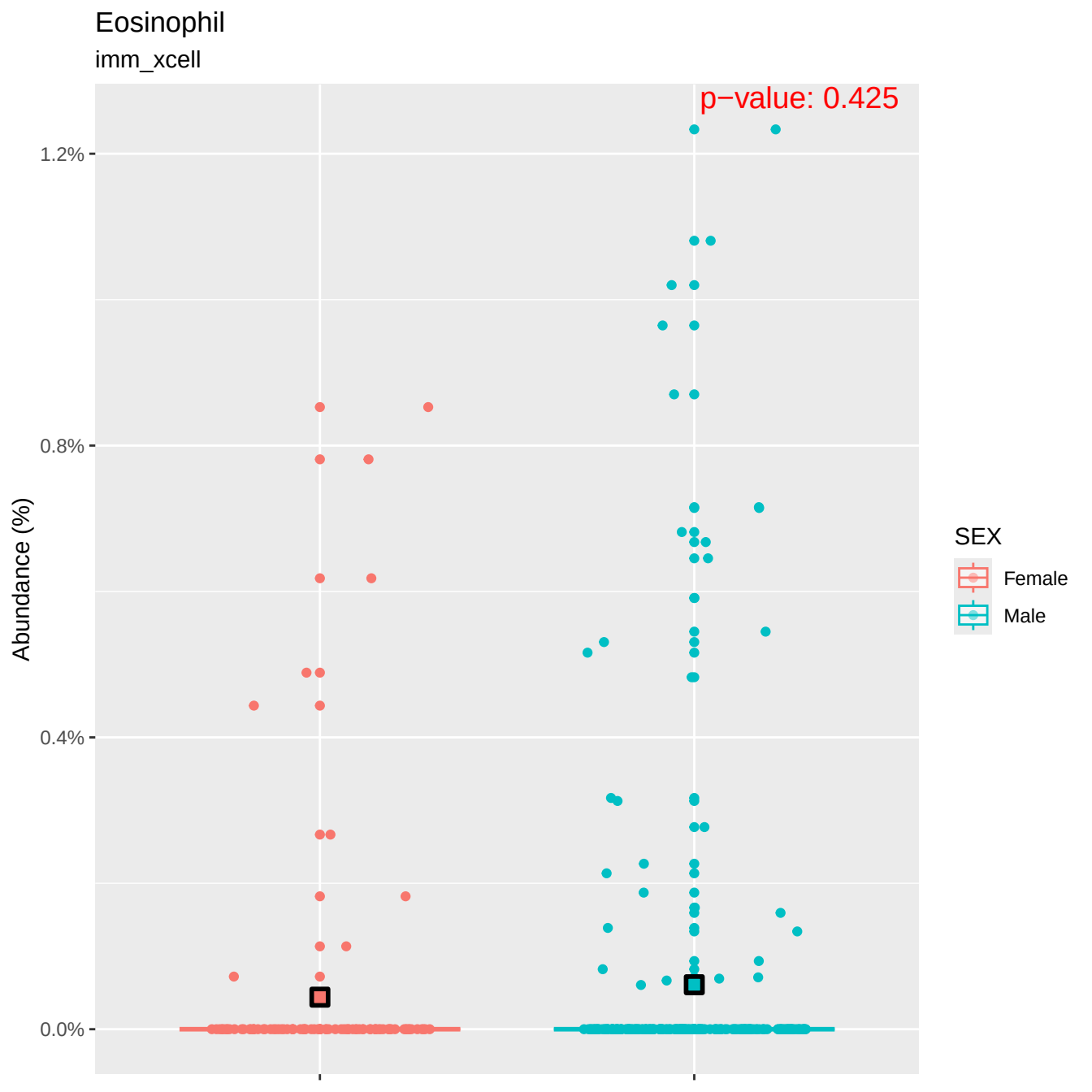

Class−switched_memory_B_cell
imm_xcell
p−value: 0.532
20%
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

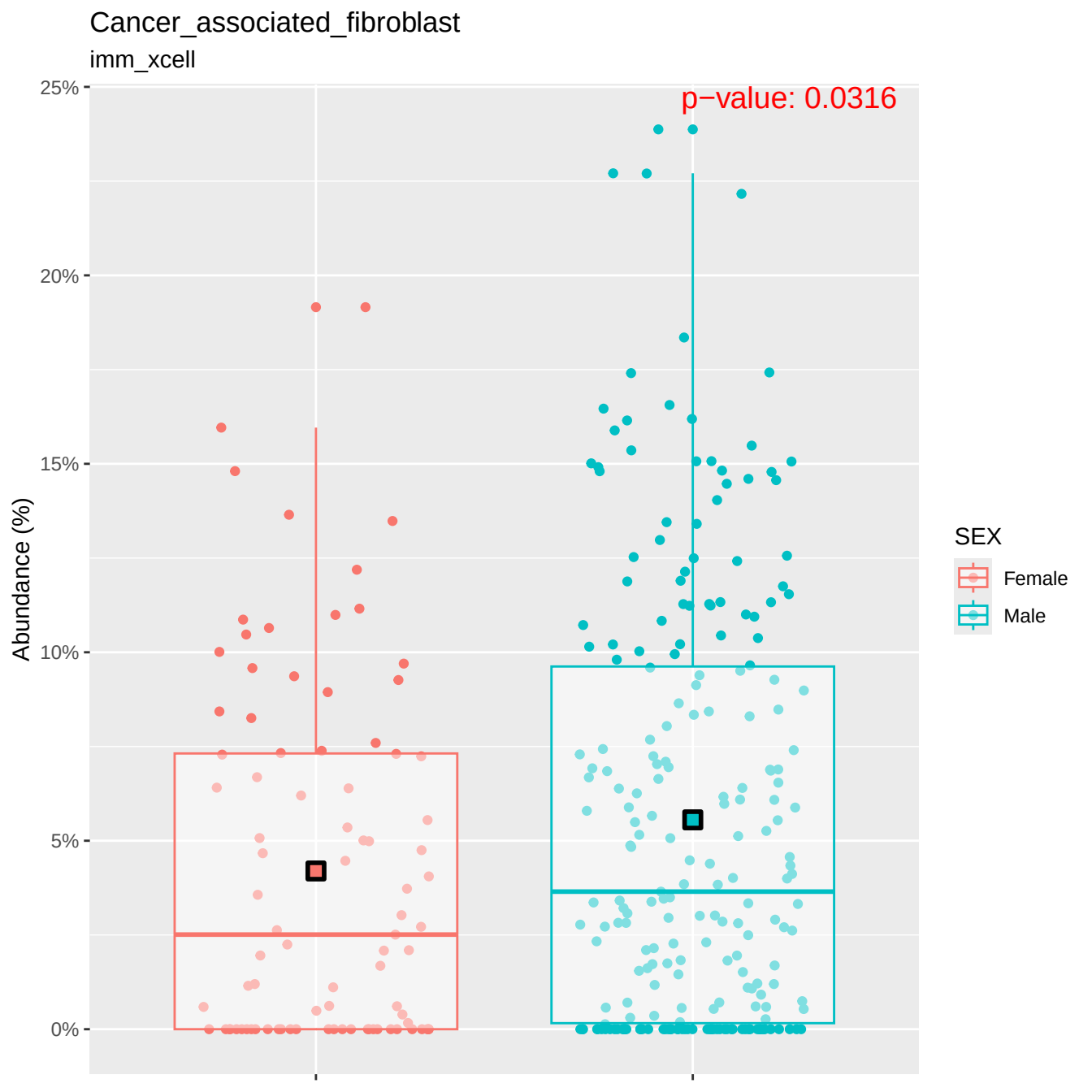

Common_lymphoid_progenitor
imm_xcell
p−value: 0.0488
8%
6%
4%
2%
0%
Abundance (%)
SEX
Female
Male

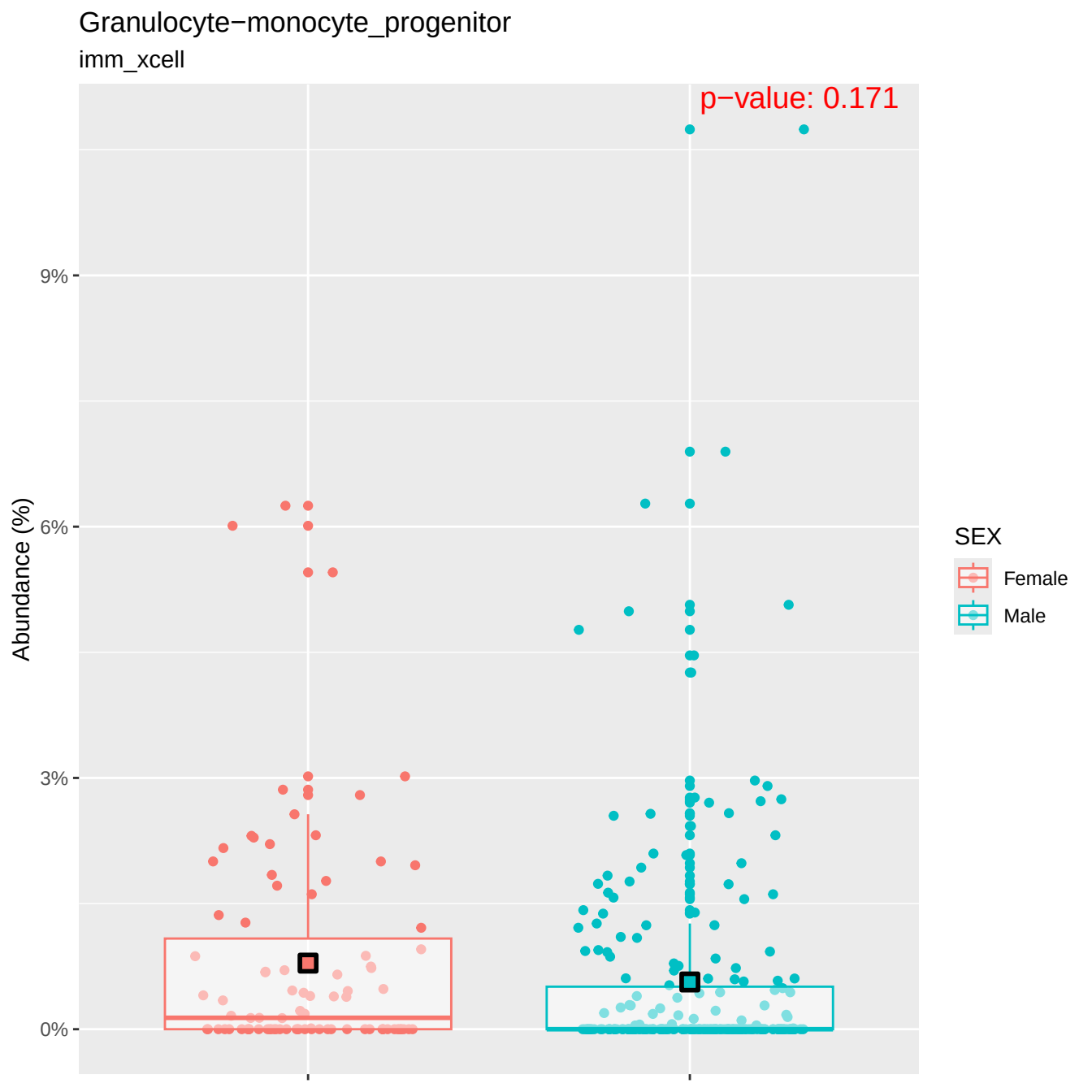

Common_myeloid_progenitor
imm_xcell
p−value: 0.608
Abundance (%)
3%
2%
1%
0%
SEX
Female
Male


Myeloid_dendritic_cell
imm_xcell
p−value: 0.0299
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

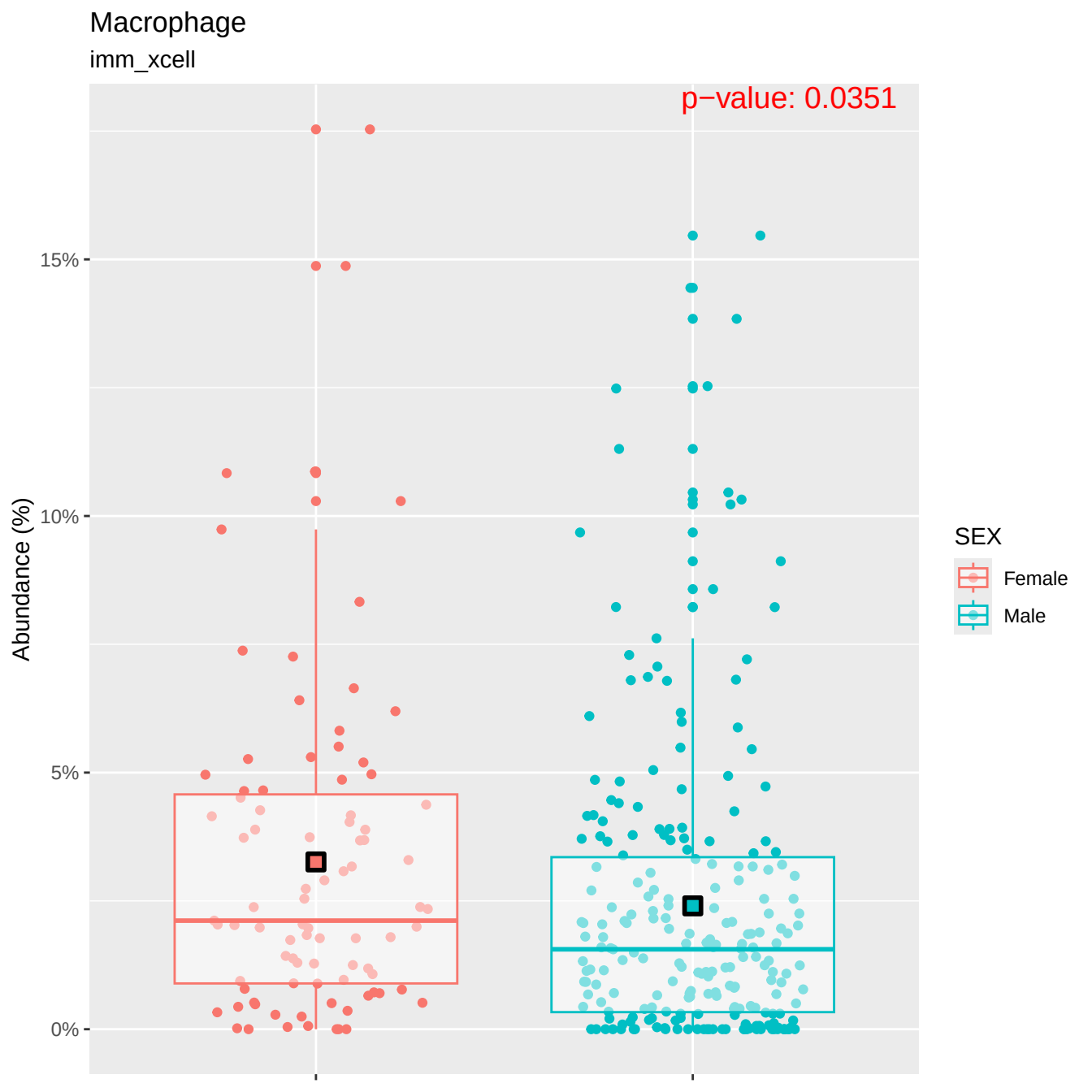

Endothelial_cell
imm_xcell
p−value: 0.54
20%
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

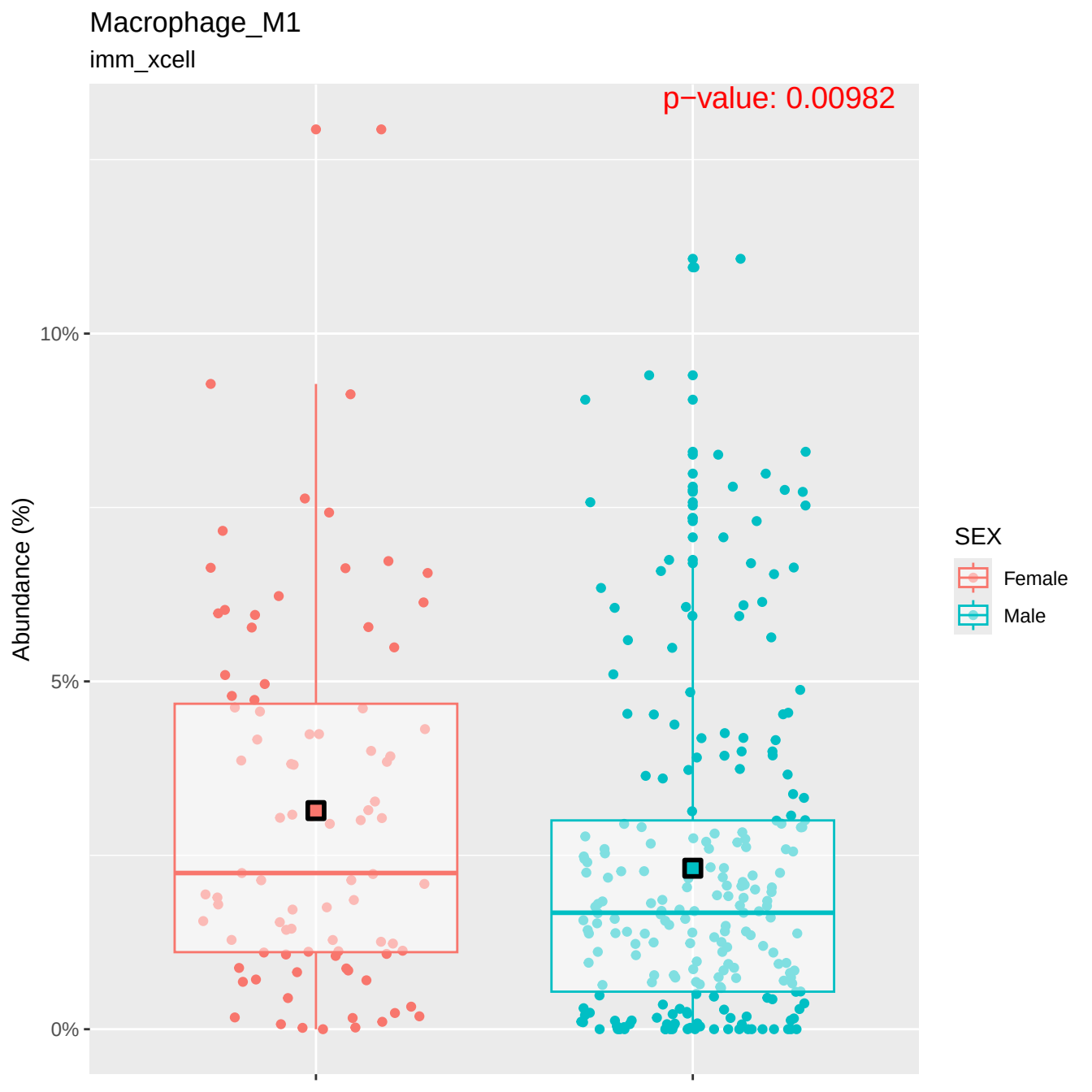

Eosinophil
imm_xcell
p−value: 0.425
1.2%
0.8%
0.4%
0.0%
Abundance (%)
SEX
Female
Male

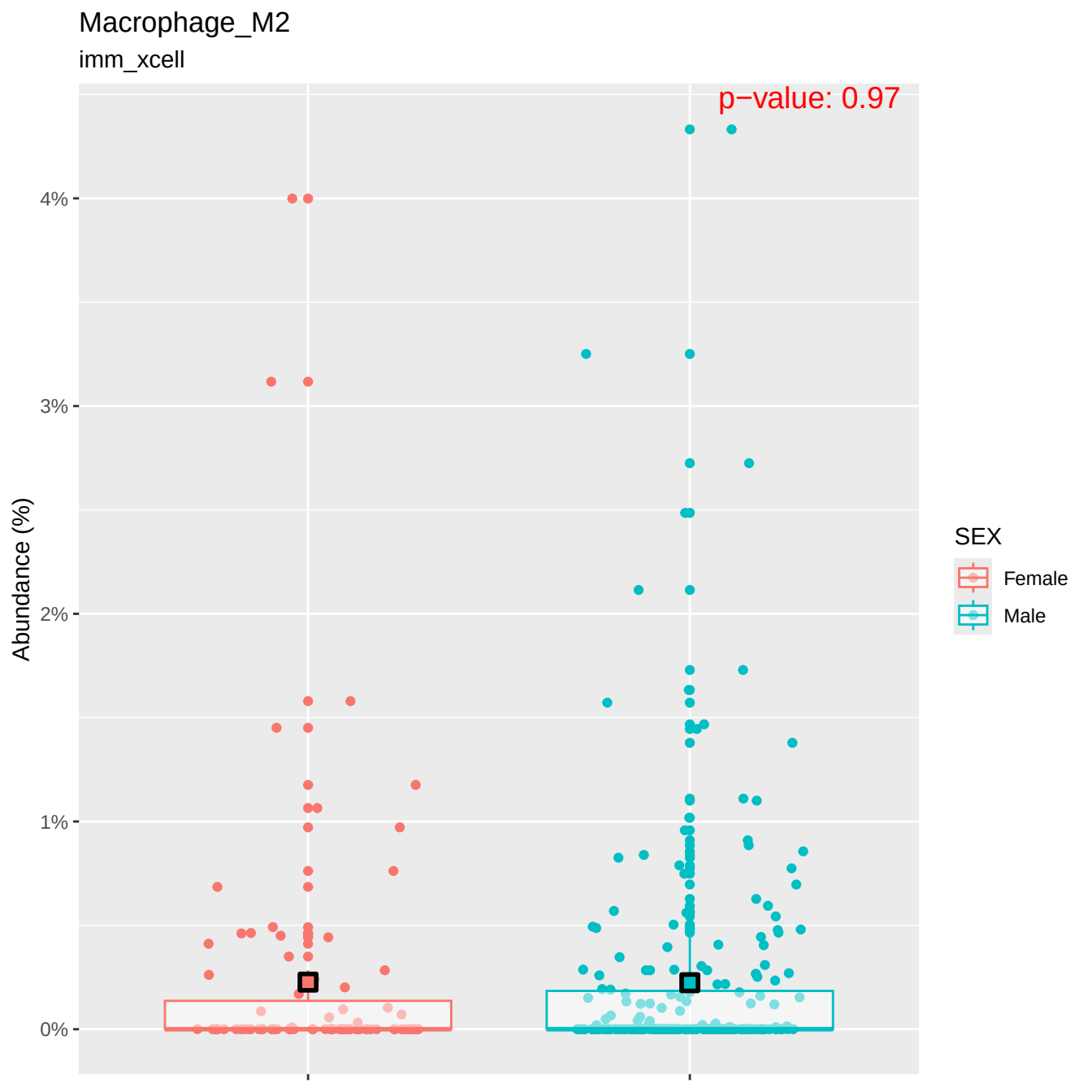

Cancer_associated_fibroblast
imm_xcell
p−value: 0.0316
25%
20%
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

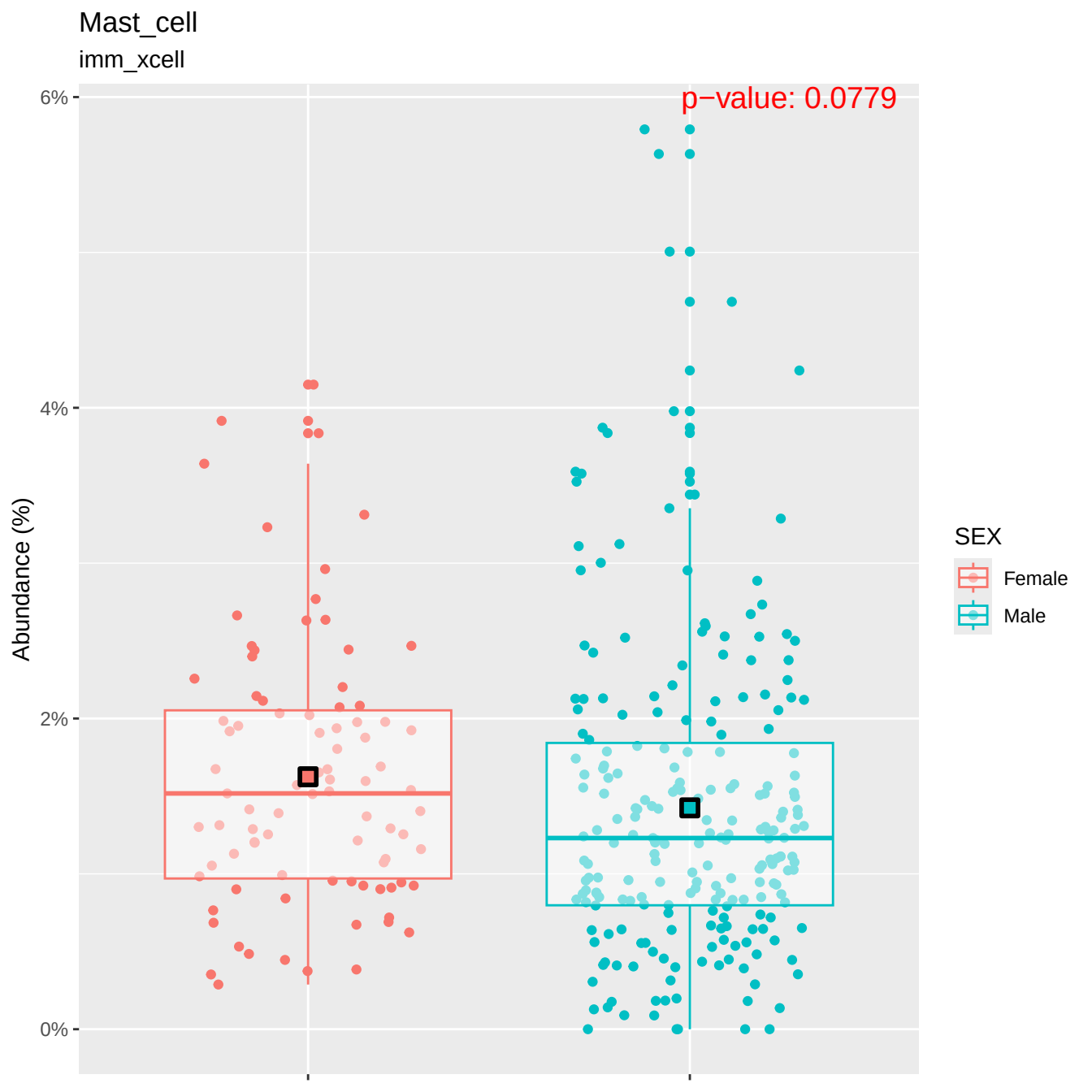

Granulocyte−monocyte_progenitor
imm_xcell
p−value: 0.171
Abundance (%)
9%
6%
3%
0%
SEX
Female
Male

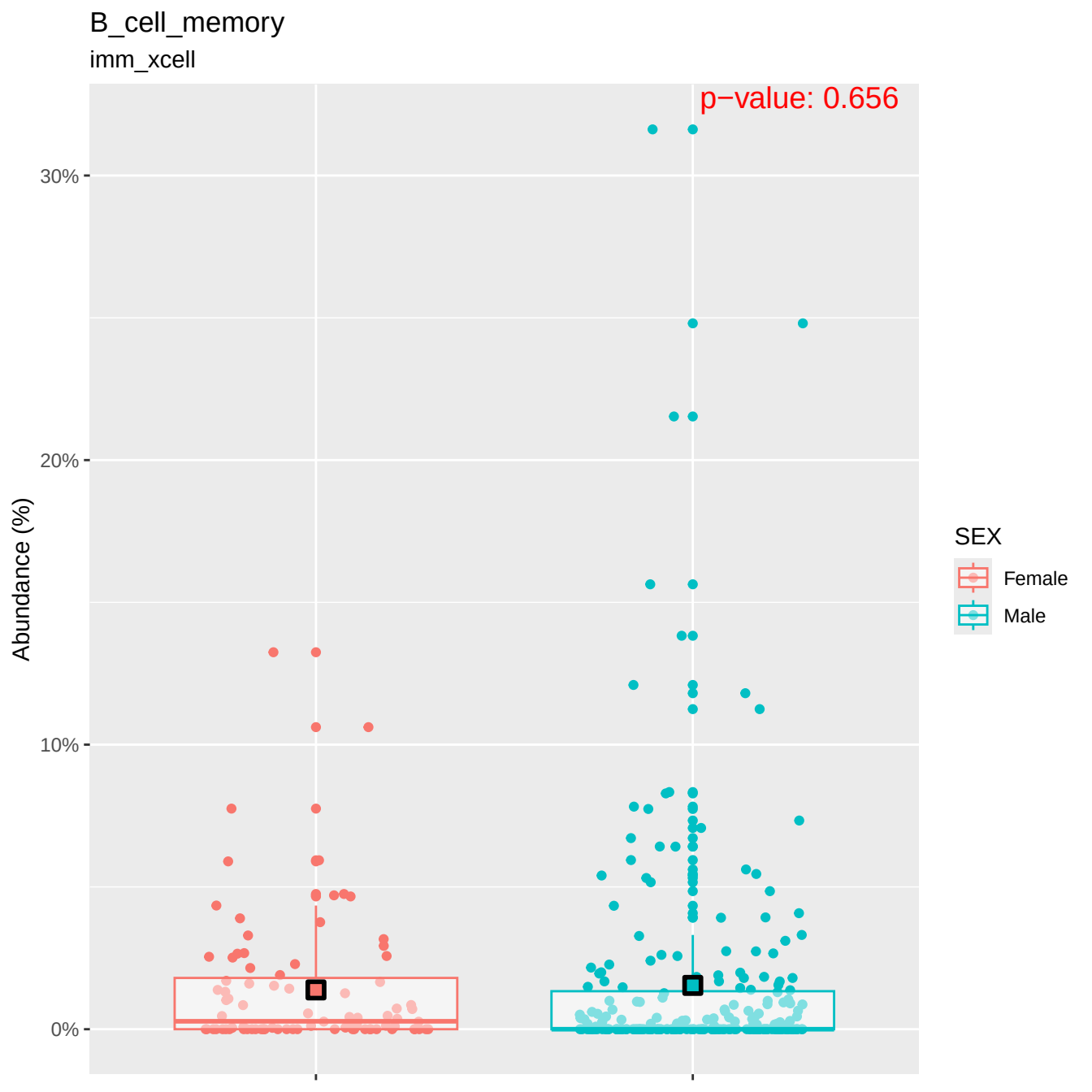
Hematopoietic_stem_cell
imm_xcell
p−value: 0.785
40%
30%
20%
10%
0%
Abundance (%)
SEX
Female
Male


Macrophage
imm_xcell
p−value: 0.0351
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

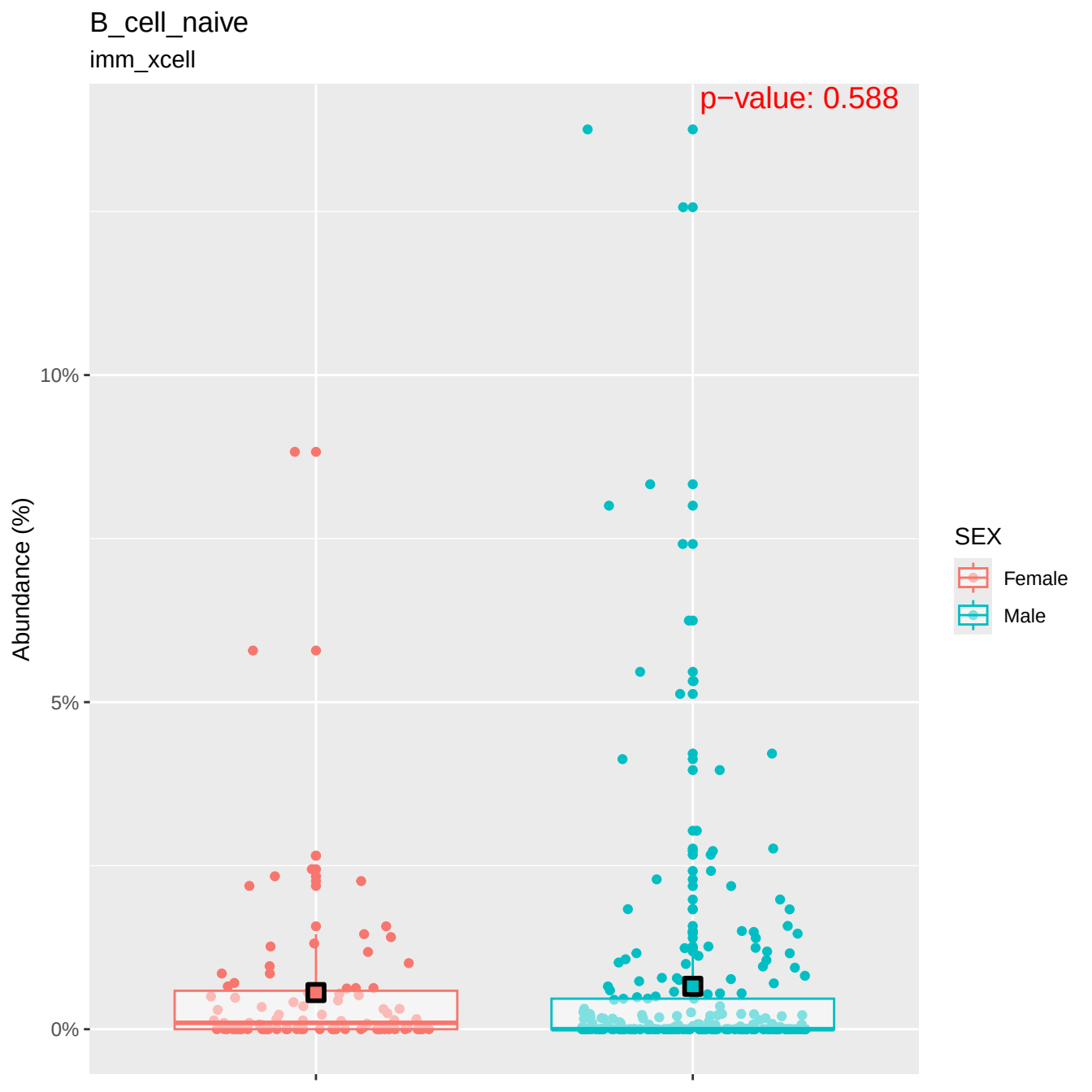

Macrophage_M1
imm_xcell
p−value: 0.00982
10%
5%
0%
Abundance (%)
SEX
Female
Male

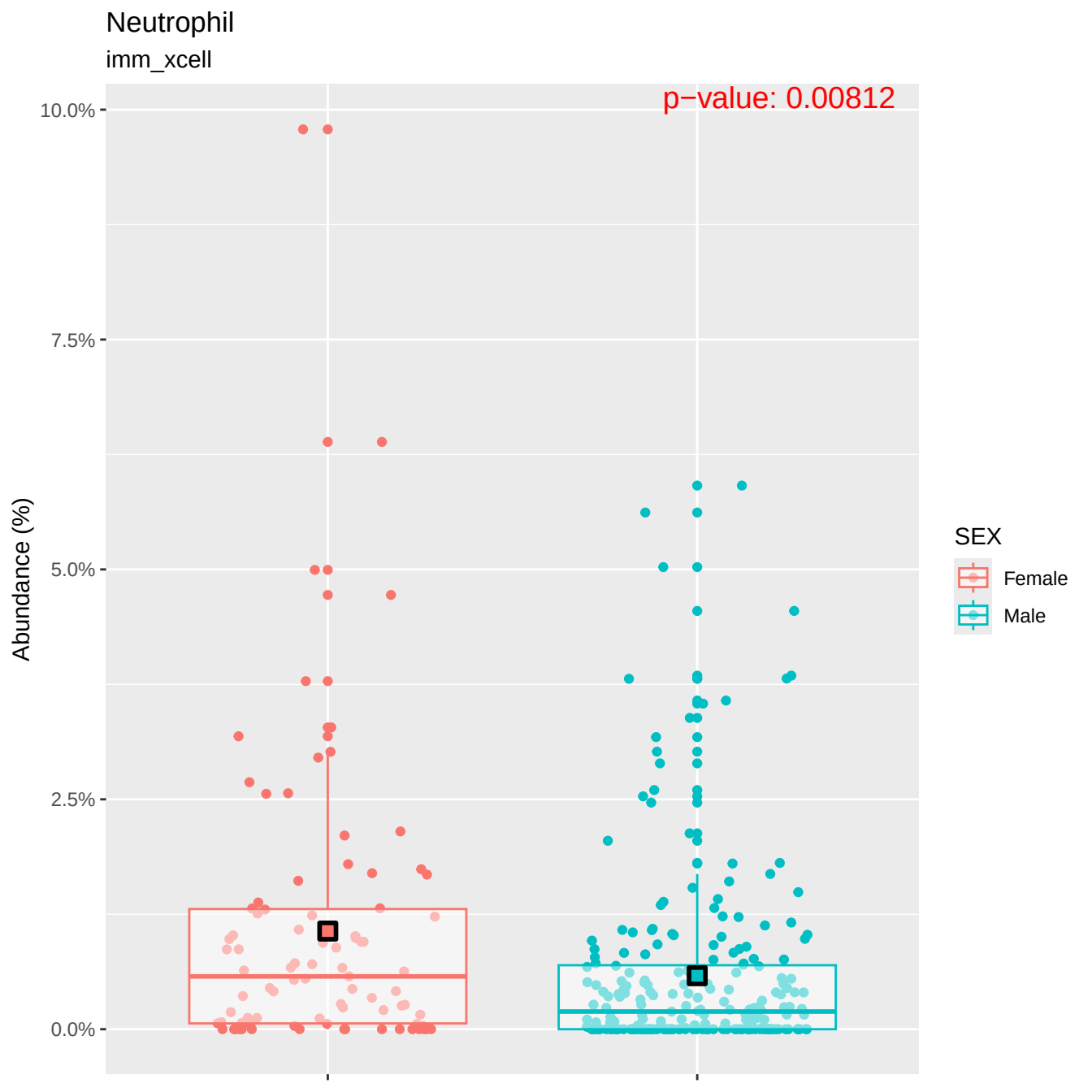

Macrophage_M2
imm_xcell
p−value: 0.97
Abundance (%)
4%
3%
2%
1%
0%
SEX
Female
Male

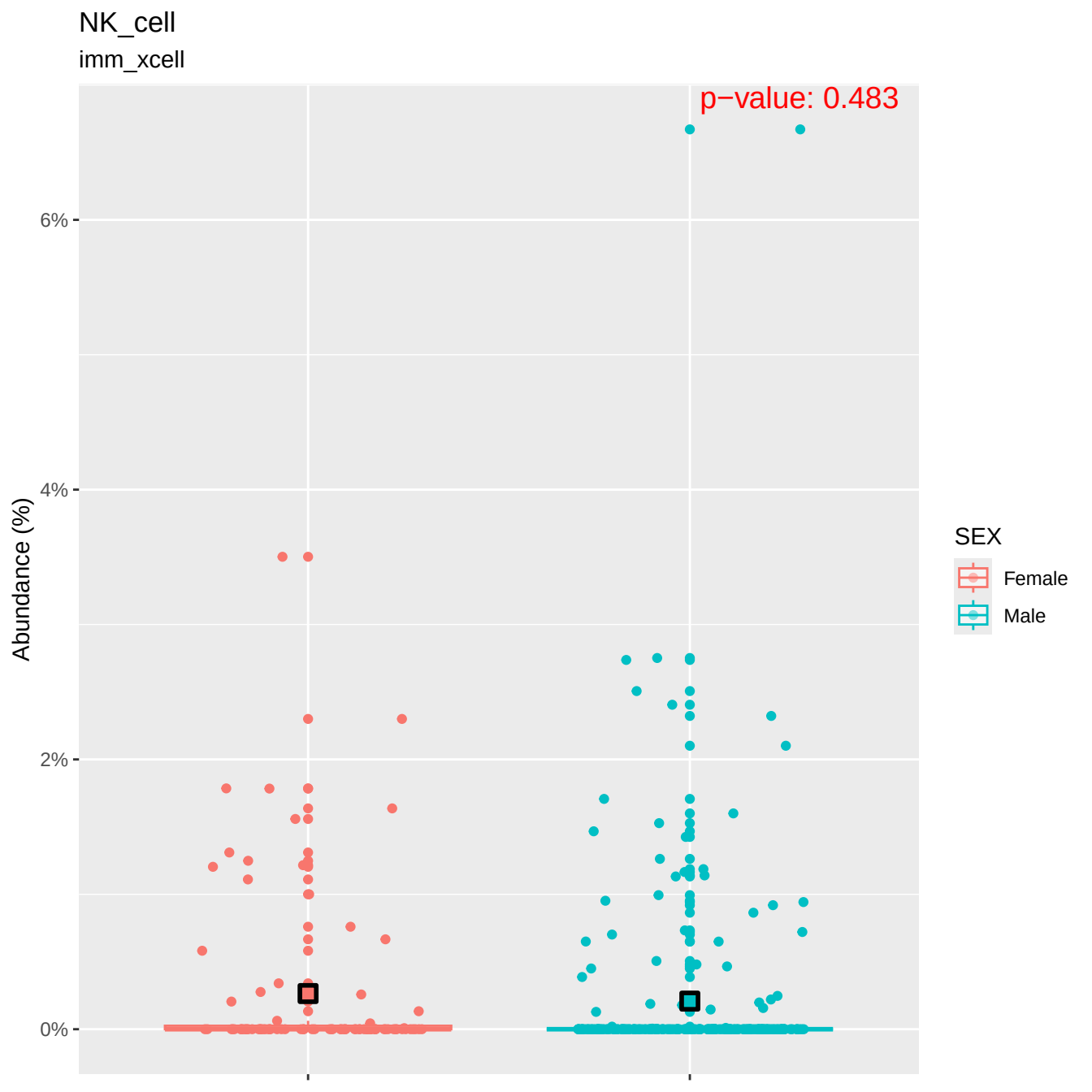

Mast_cell
imm_xcell
p−value: 0.0779
6%
4%
2%
0%
Abundance (%)
SEX
Female
Male

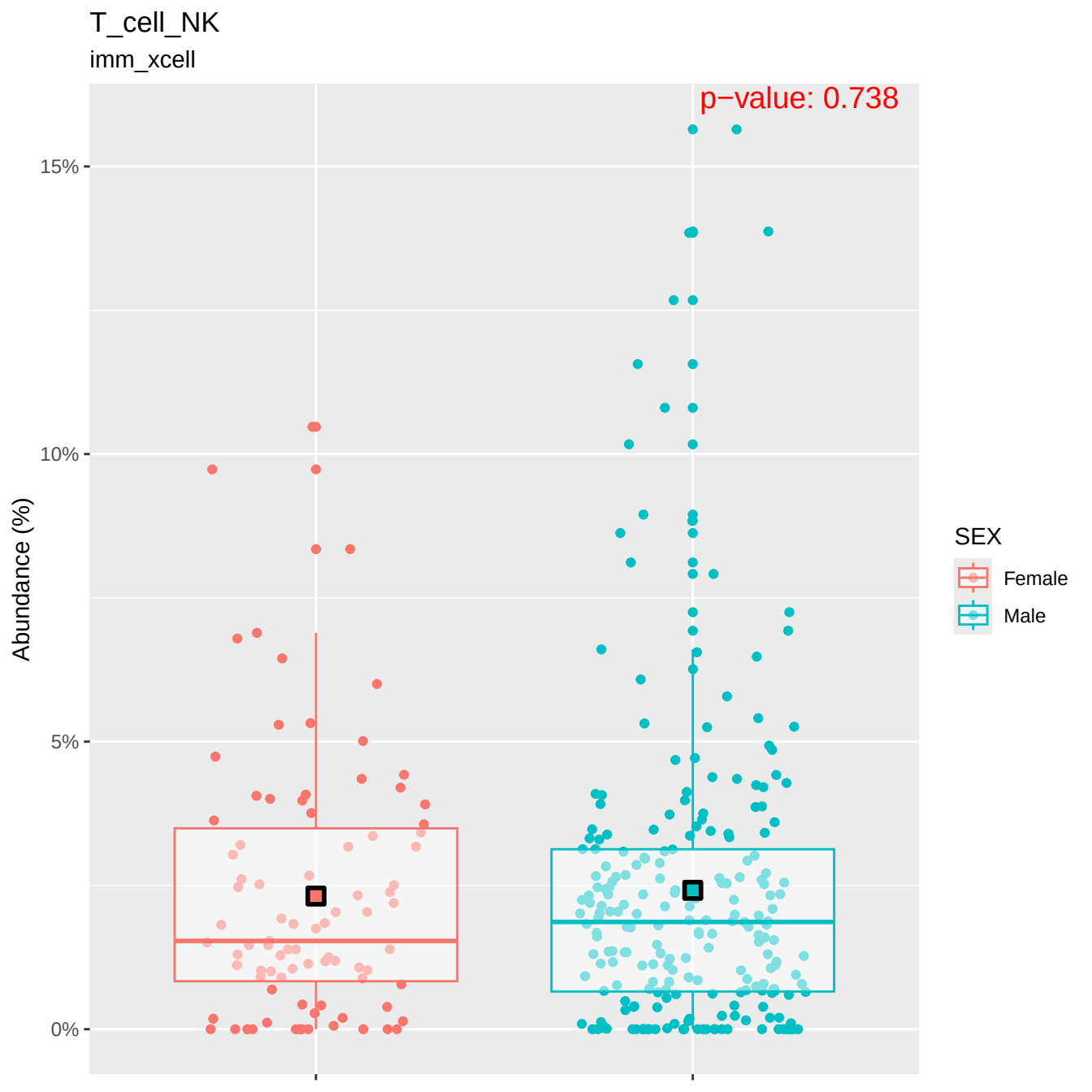

B_cell_memory
imm_xcell
p−value: 0.656
30%
20%
10%
0%
Abundance (%)
SEX
Female
Male

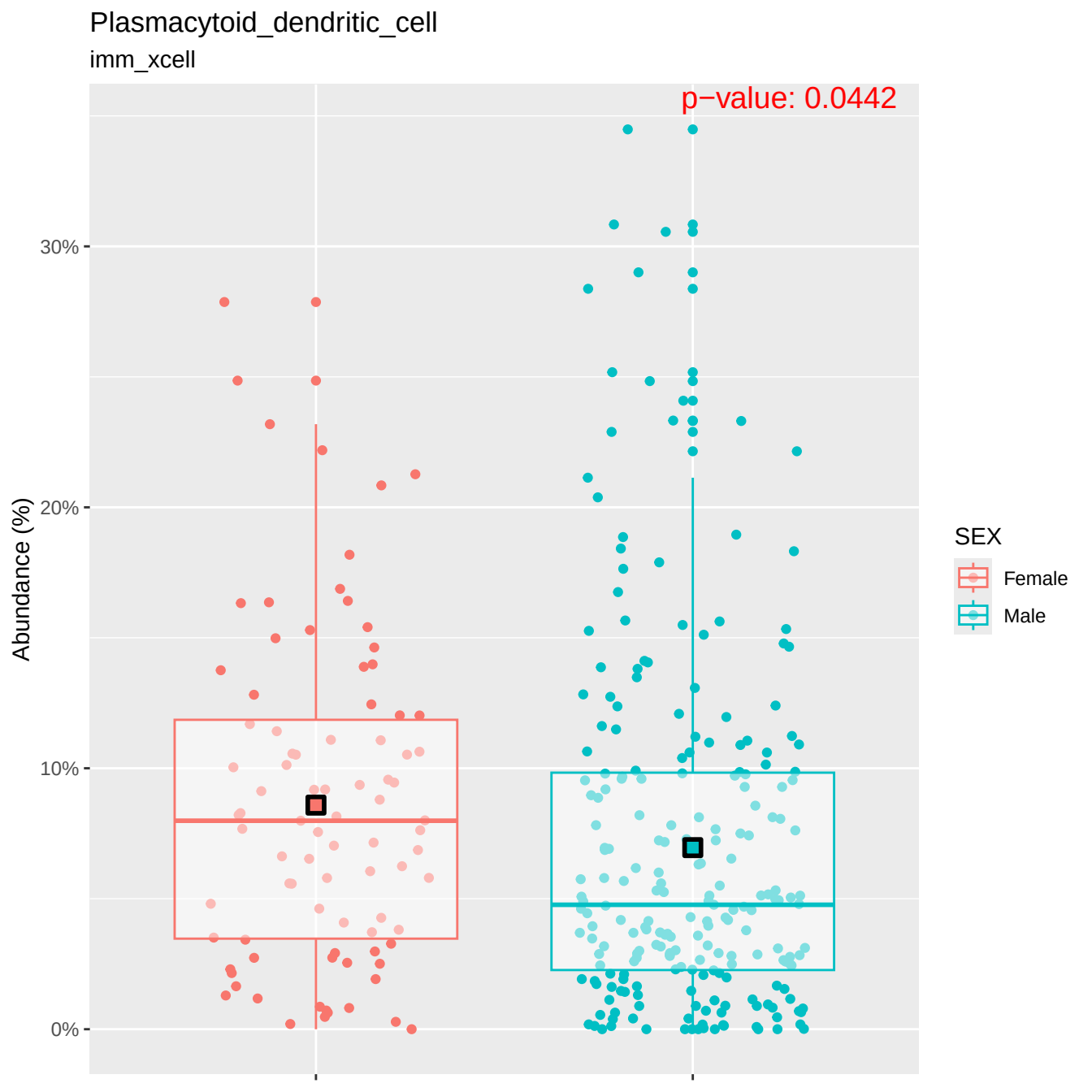
Monocyte
imm_xcell
p−value: 0.00251
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

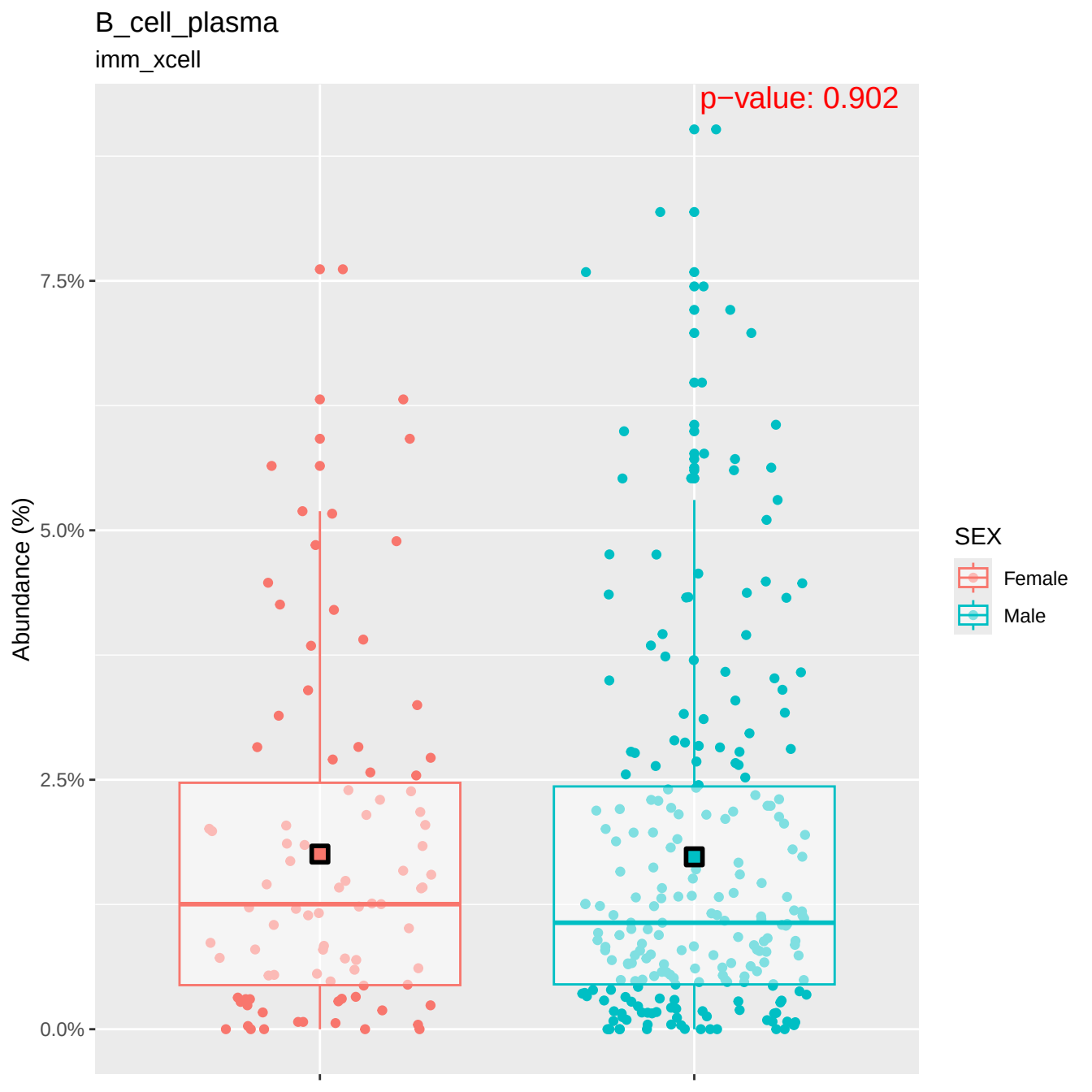

B_cell_naive
imm_xcell
p−value: 0.588
10%
5%
0%
Abundance (%)
SEX
Female
Male

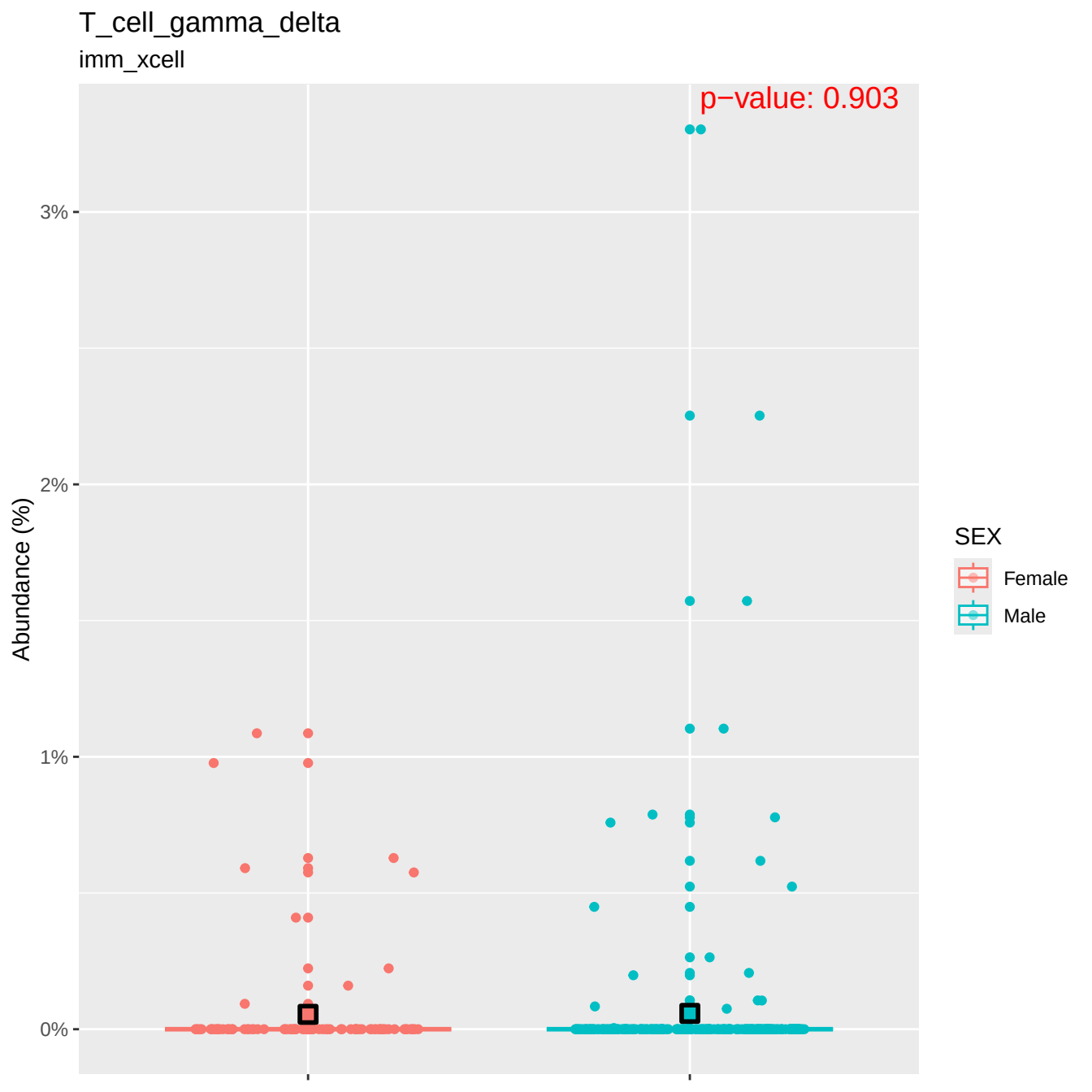

Neutrophil
imm_xcell
p−value: 0.00812
10.0%
7.5%
5.0%
2.5%
0.0%
Abundance (%)
SEX
Female
Male

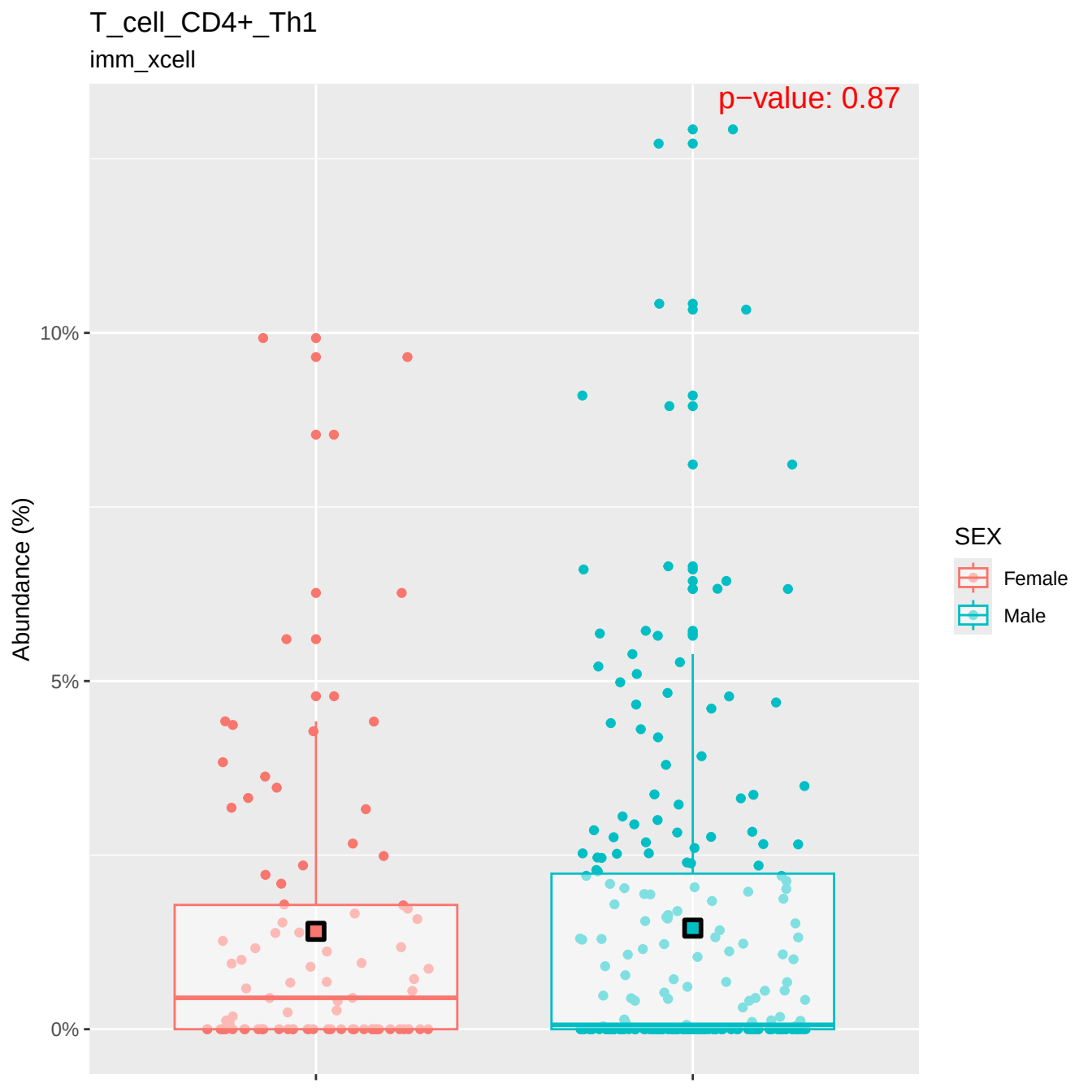

NK_cell
imm_xcell
p−value: 0.483
6%
4%
2%
0%
Abundance (%)
SEX
Female
Male

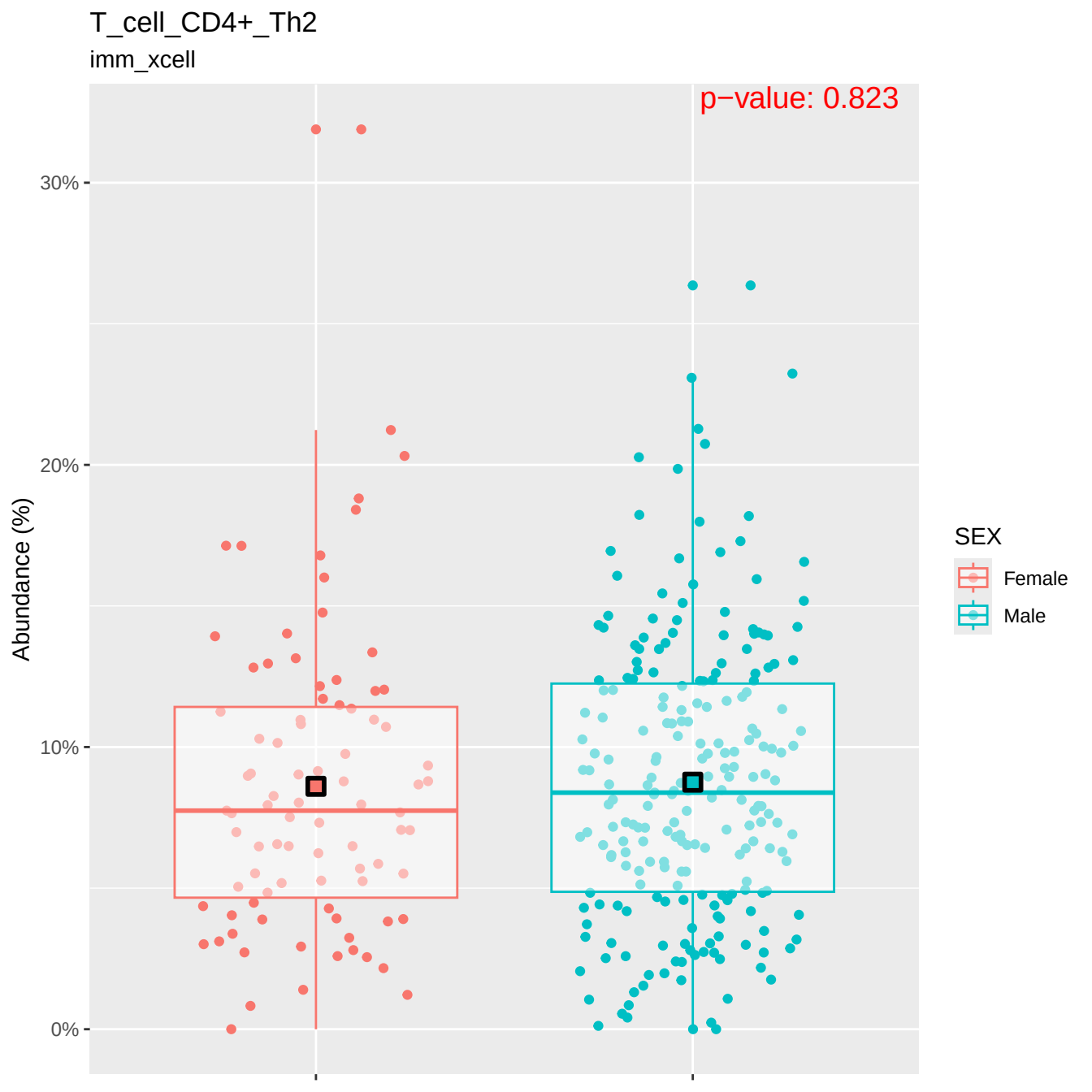

T_cell_NK
imm_xcell
p−value: 0.738
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

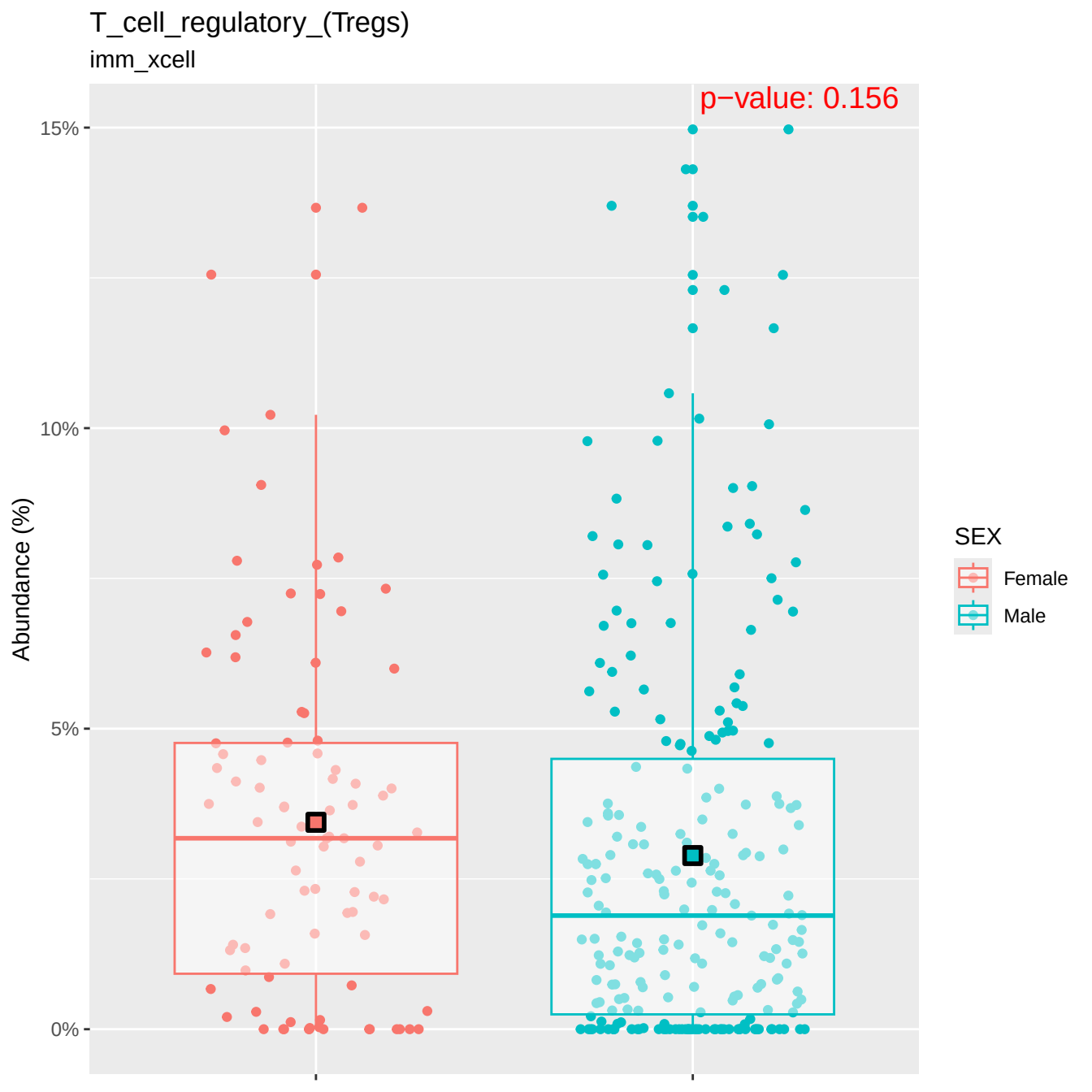

Plasmacytoid_dendritic_cell
imm_xcell
p−value: 0.0442
30%
20%
10%
0%
Abundance (%)
SEX
Female
Male

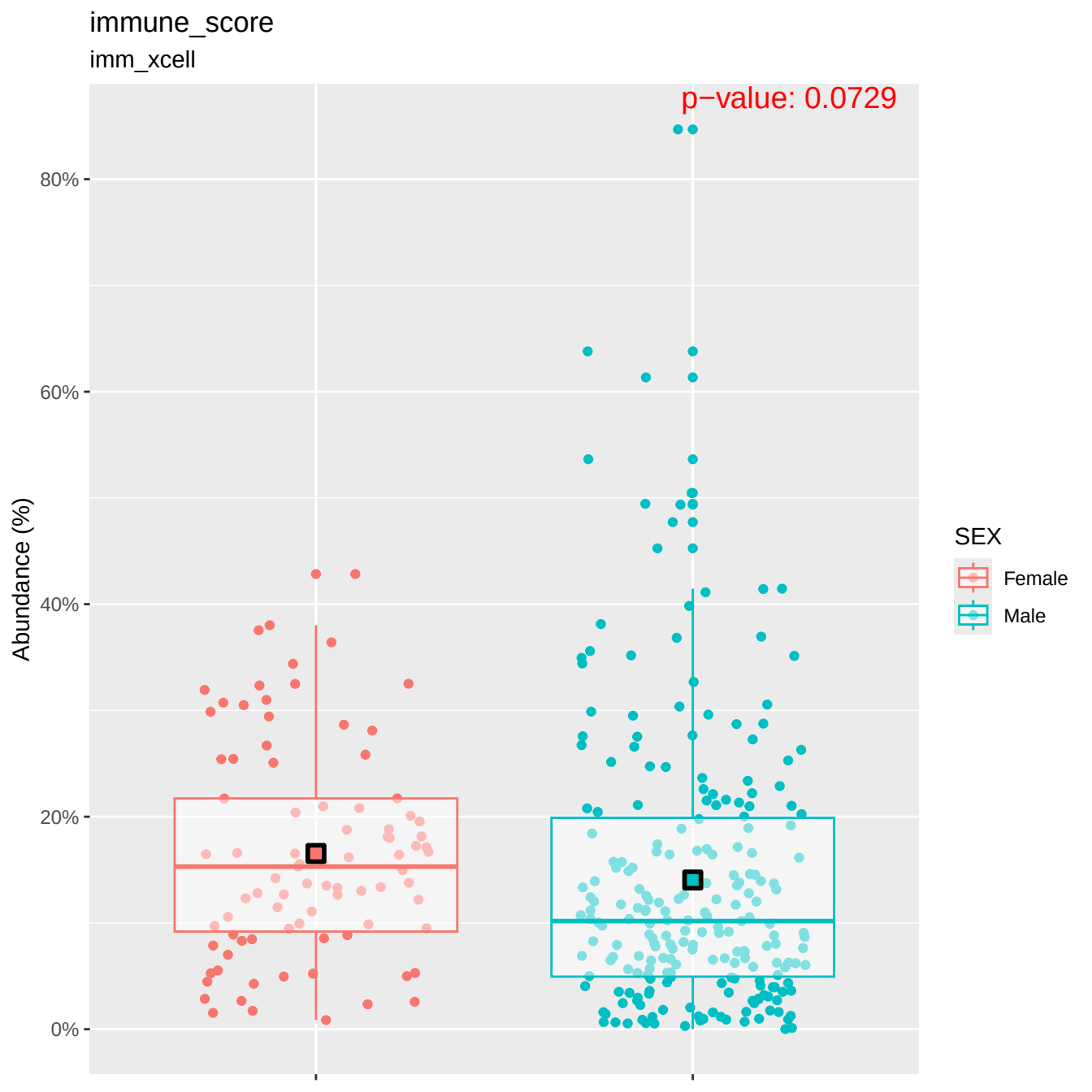

B_cell_plasma
imm_xcell
p−value: 0.902
Abundance (%)
7.5%
5.0%
2.5%
0.0%
SEX
Female
Male

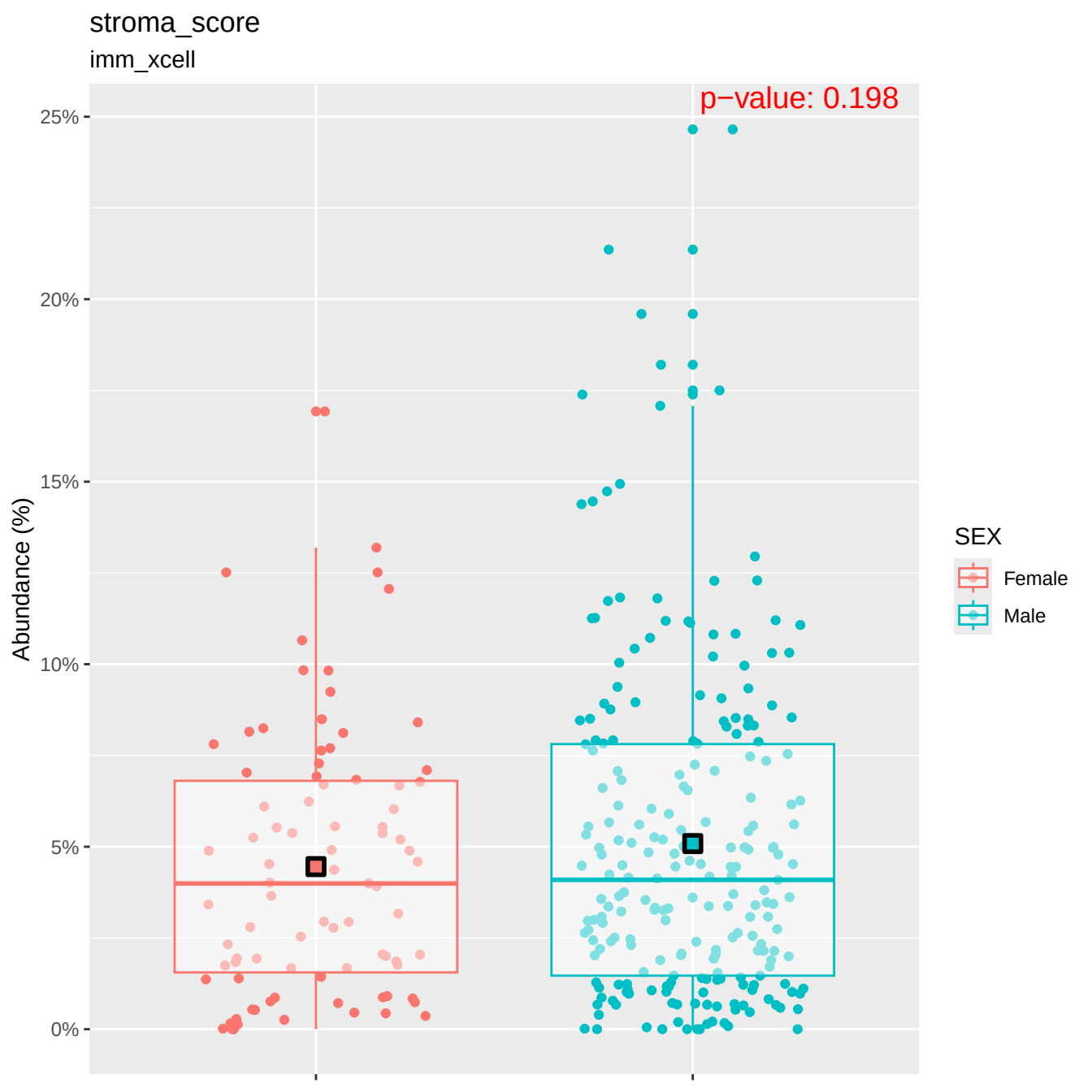

T_cell_gamma_delta
imm_xcell
p−value: 0.903
3%
2%
1%
0%
Abundance (%)
SEX
Female
Male


T_cell_CD4+_Th1
imm_xcell
p−value: 0.87
Abundance (%)
10%
5%
0%
SEX
Female
Male

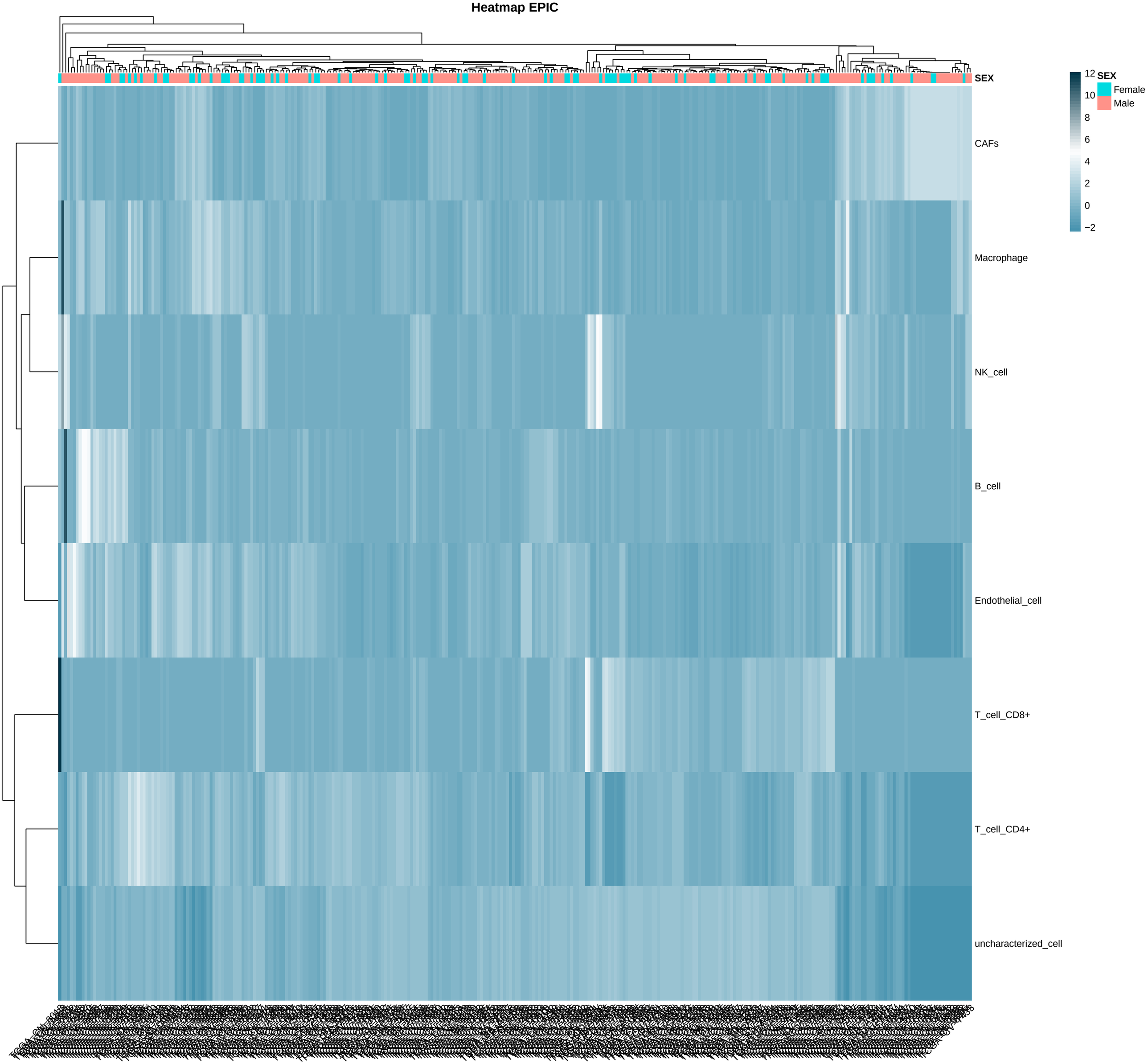

T_cell_CD4+_Th2
imm_xcell
p−value: 0.823
30%
20%
10%
0%
Abundance (%)
SEX
Female
Male

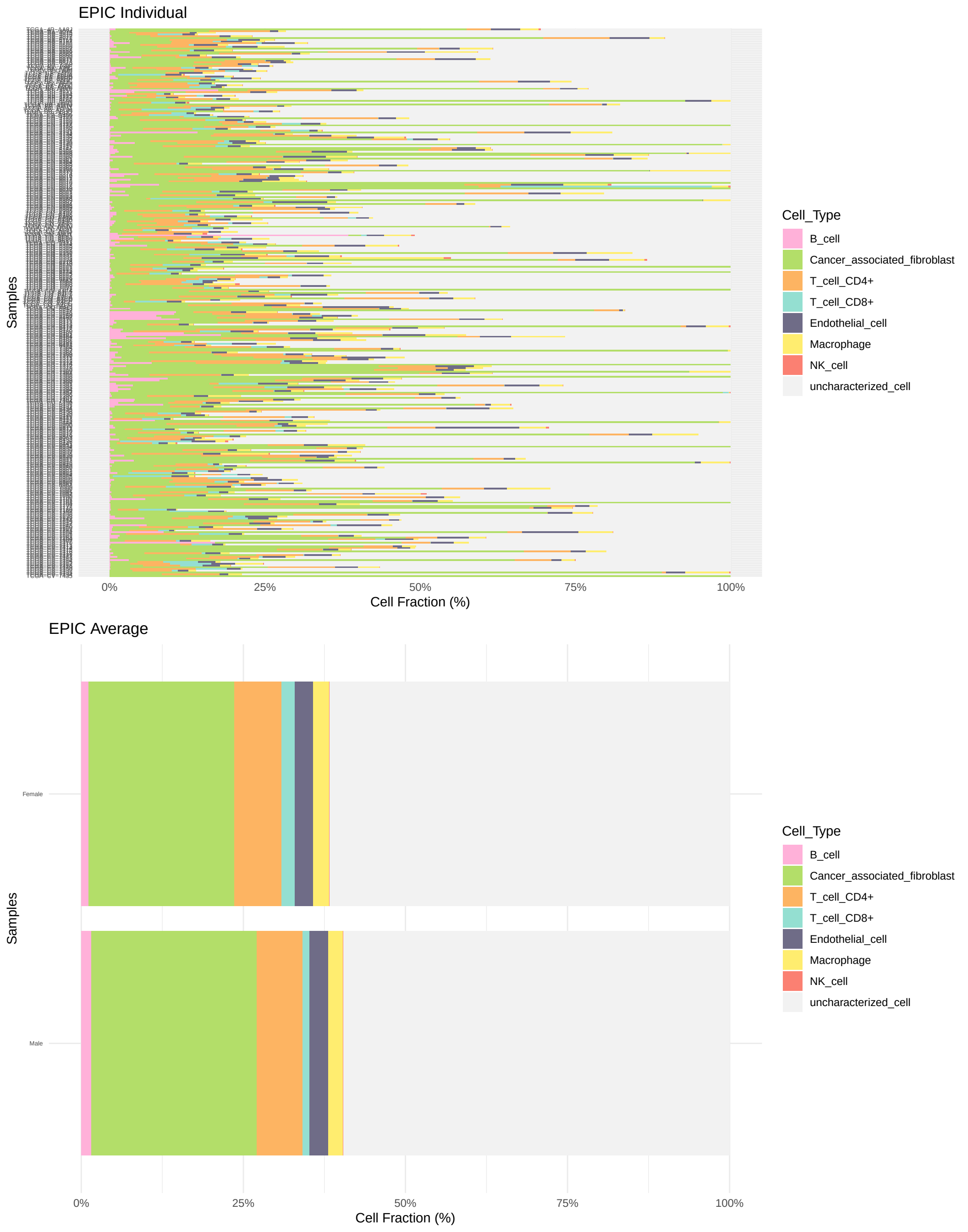

T_cell_regulatory_(Tregs)
imm_xcell
p−value: 0.156
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

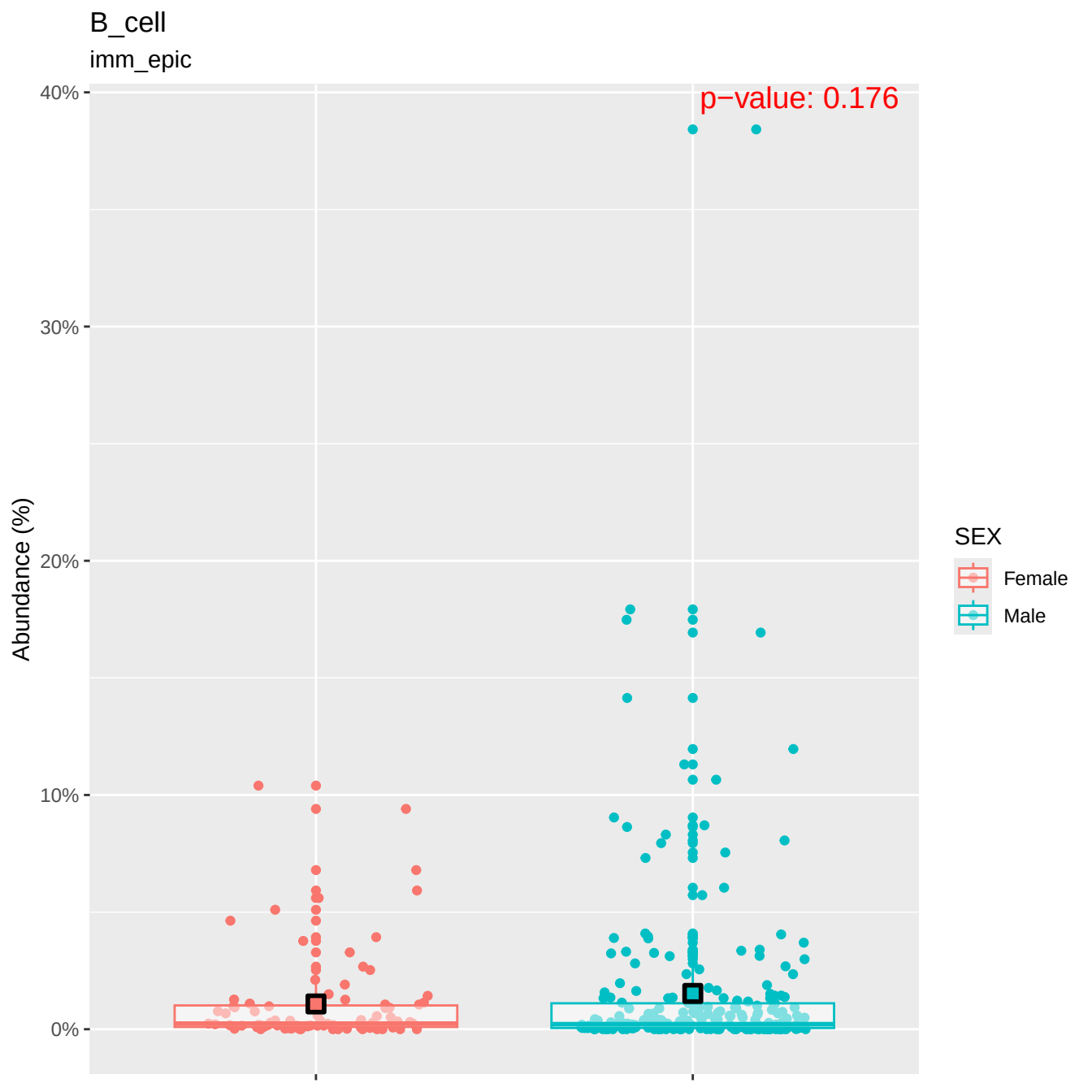

immune_score
imm_xcell
p−value: 0.0729
80%
60%
40%
20%
0%
Abundance (%)
SEX
Female
Male

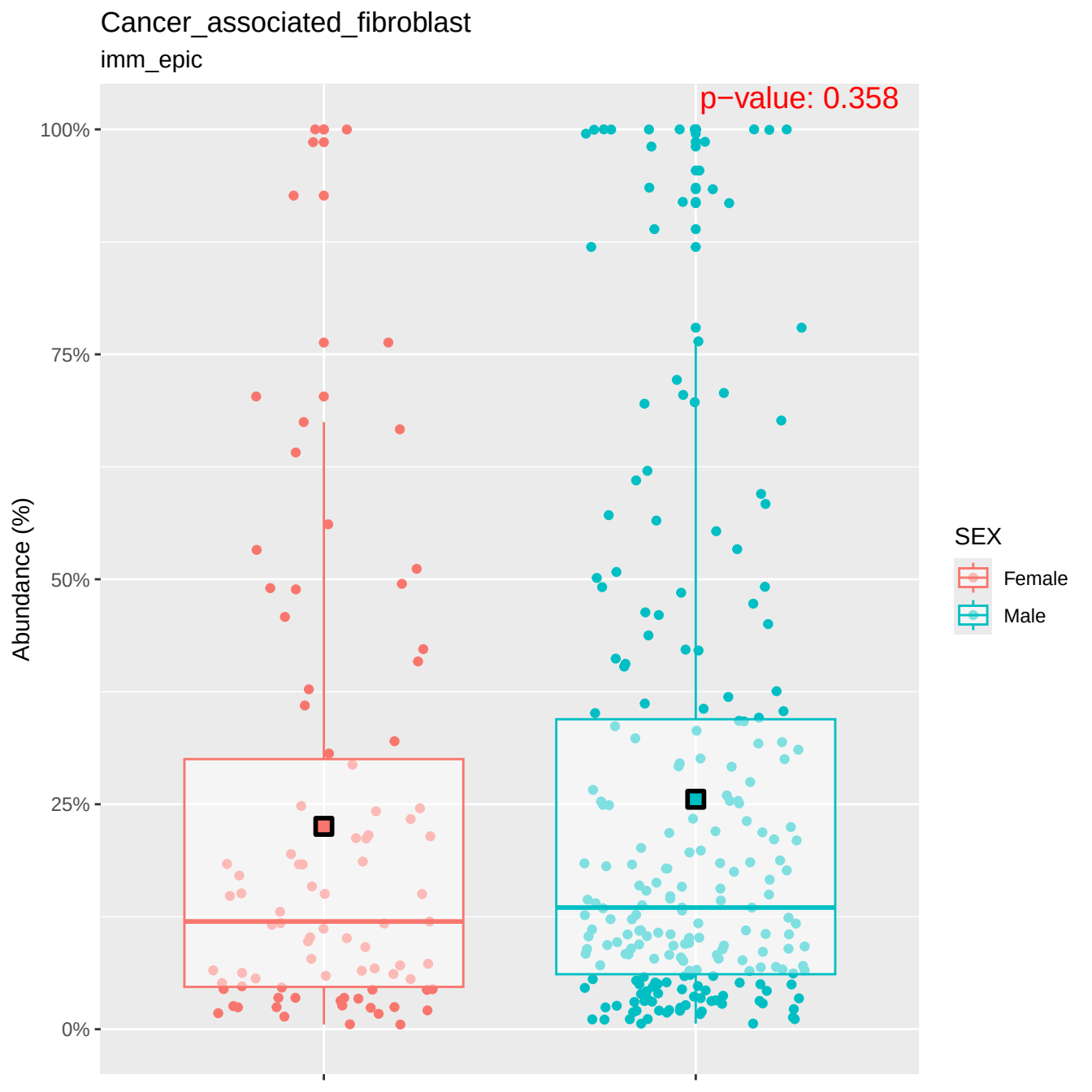

stroma_score
imm_xcell
p−value: 0.198
25%
20%
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

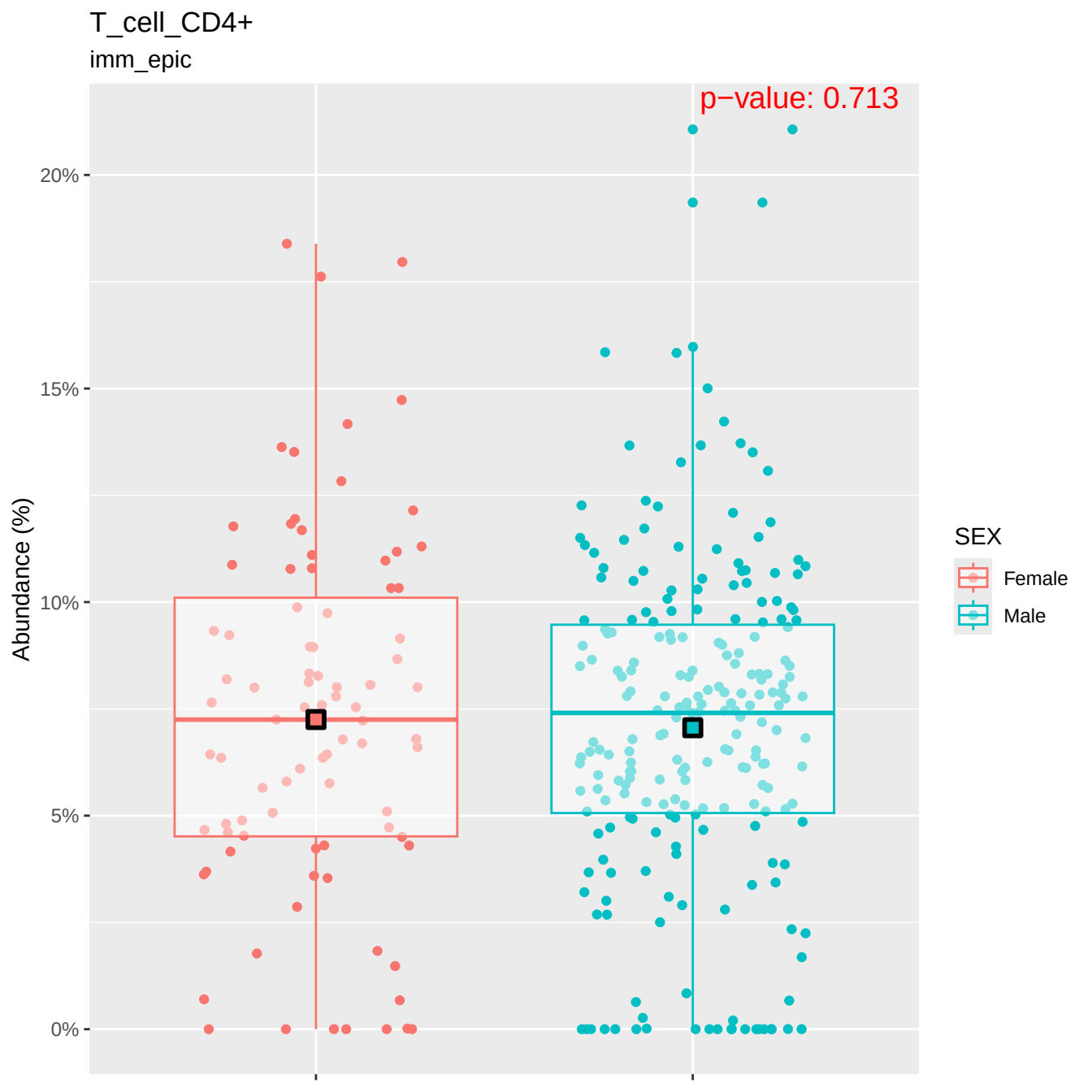
microenvironment_score
imm_xcell
p−value: 0.257
75%
50%
25%
0%
Abundance (%)
SEX
Female
Male

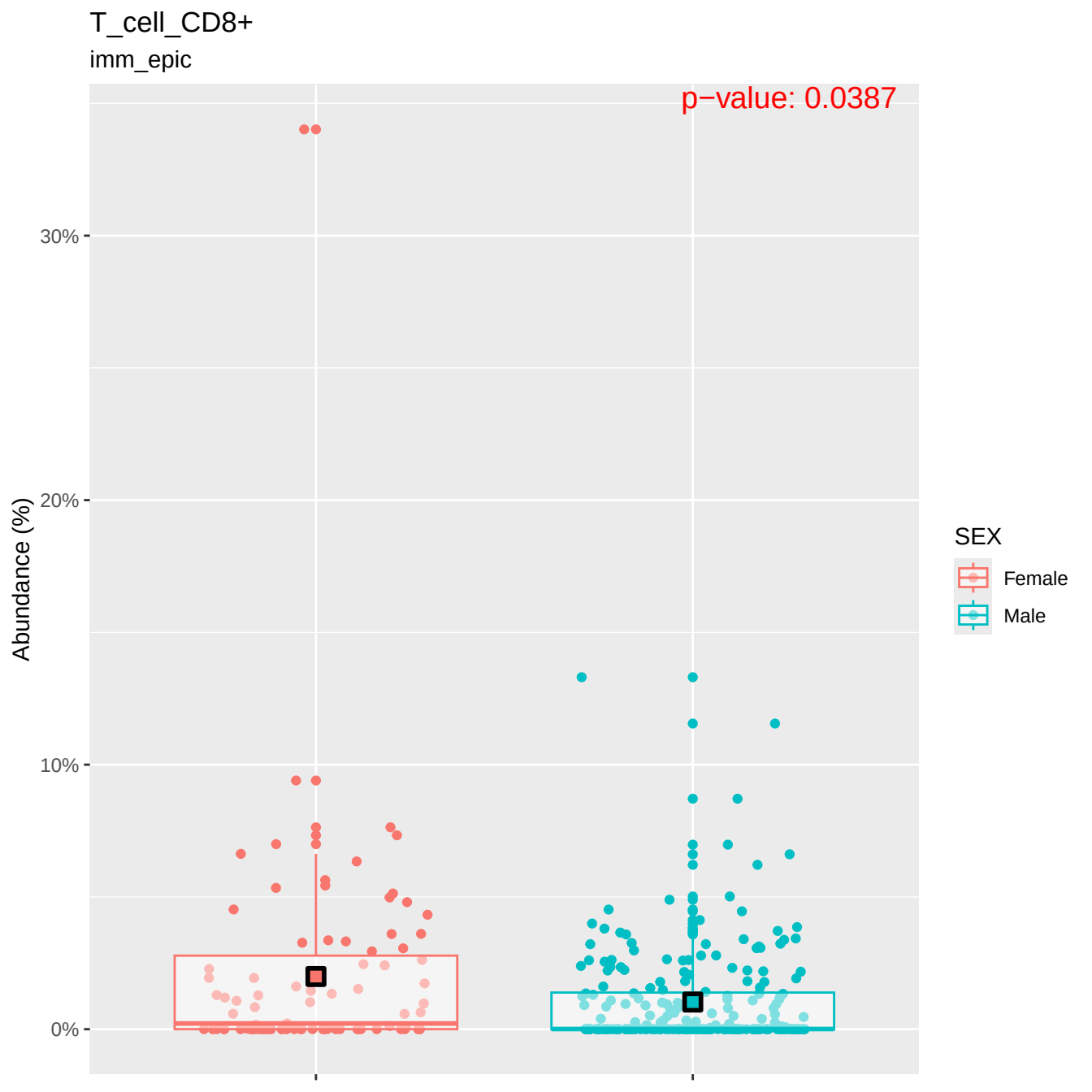

Heatmap EPIC
SEX
CAFs
Macrophage
NK_cell
B_cell
Endothelial_cell
T_cell_CD8+
T_cell_CD4+
uncharacterized_cell
12
10
8
6
4
2
0
−2
SEX
Female
Male

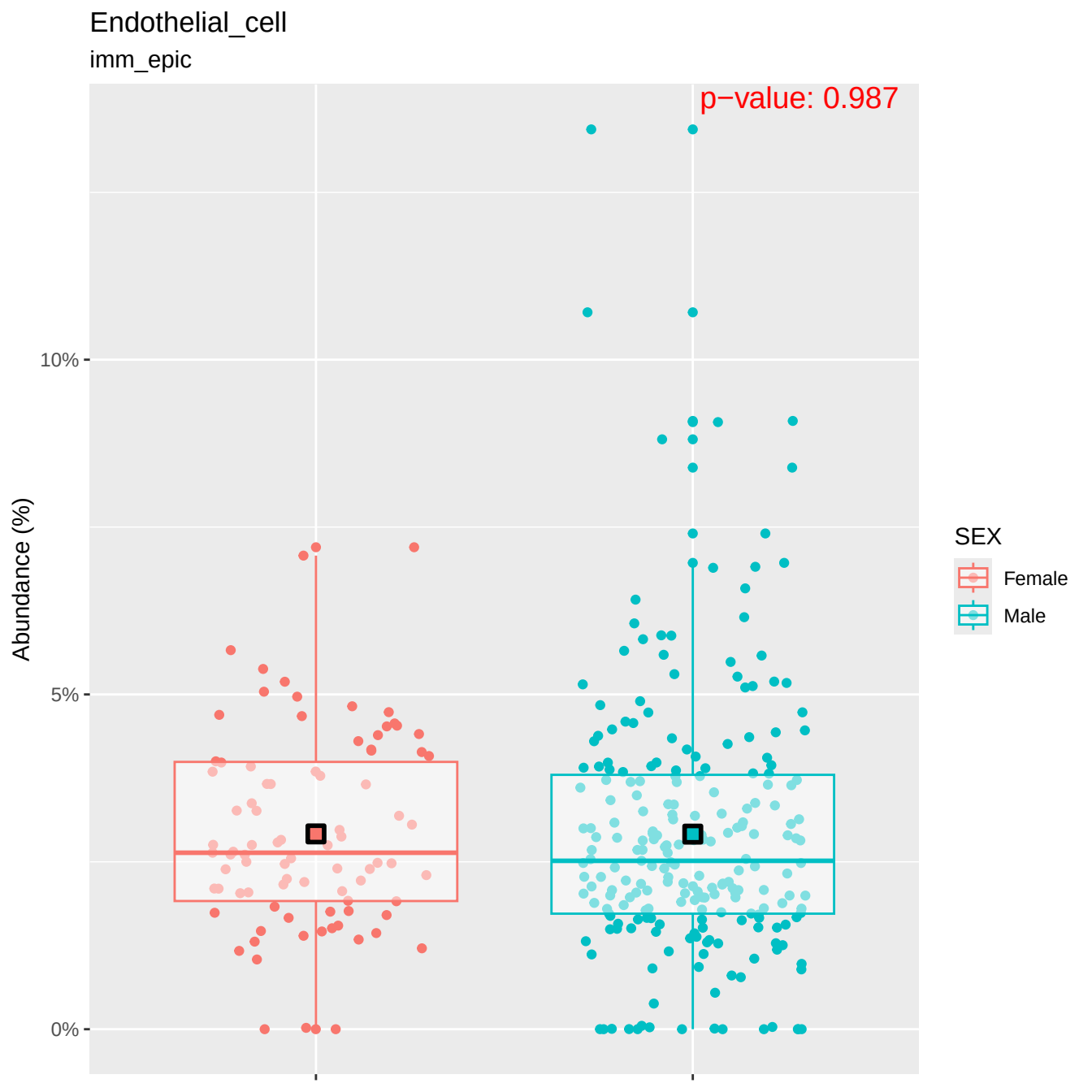

EPIC Individual
Samples
0%
25%
50%
75%
100%
Cell Fraction (%)
Cell_Type
B_cell
Cancer_associated_fibroblast
T_cell_CD4+
T_cell_CD8+
Endothelial_cell
Macrophage
NK_cell
uncharacterized_cell
EPIC Average
Samples
Female
Male
0%
25%
50%
75%
100%
Cell Fraction (%)
Cell_Type
B_cell
Cancer_associated_fibroblast
T_cell_CD4+
T_cell_CD8+
Endothelial_cell
Macrophage
NK_cell
uncharacterized_cell

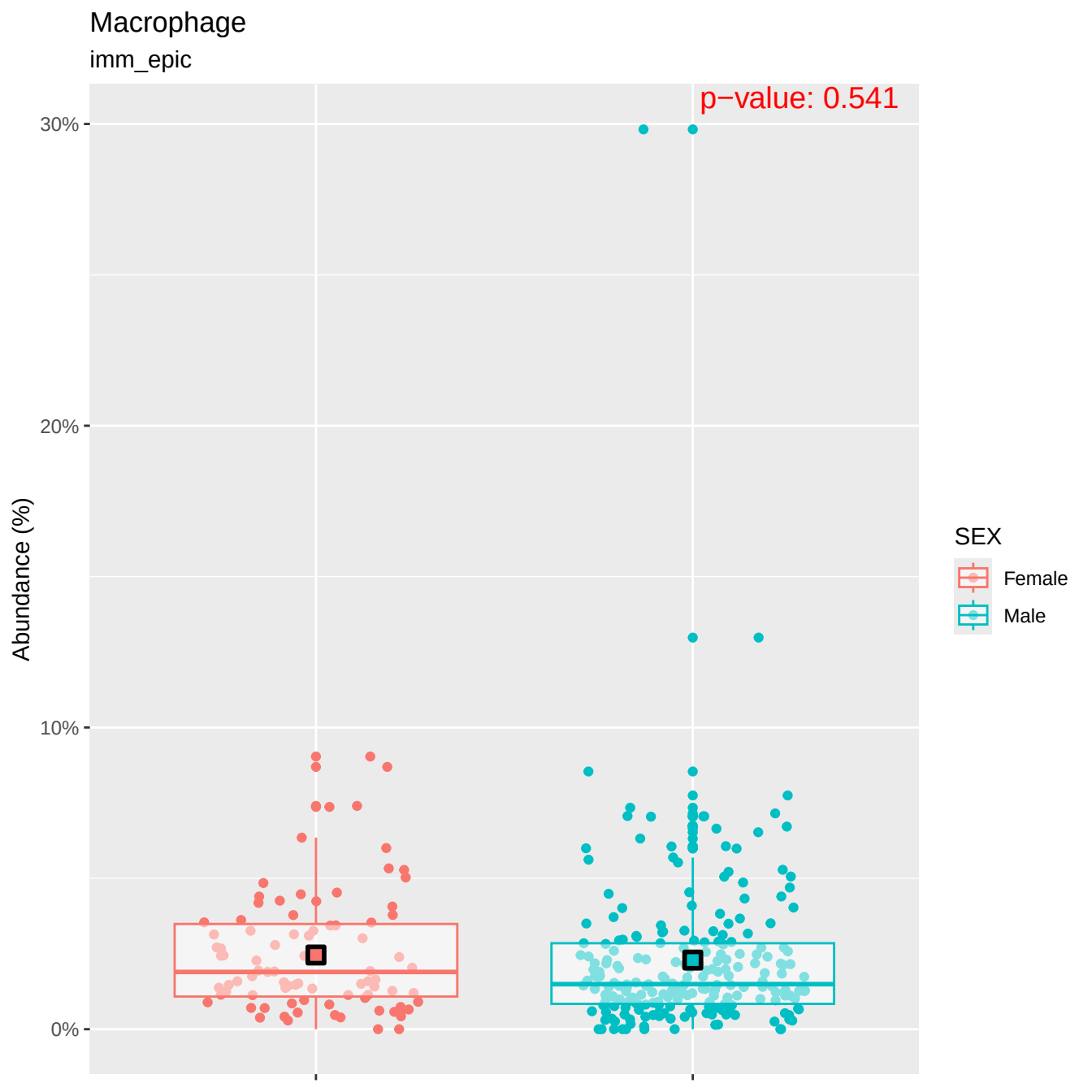

B_cell
imm_epic
p−value: 0.176
40%
30%
20%
10%
0%
Abundance (%)
SEX
Female
Male

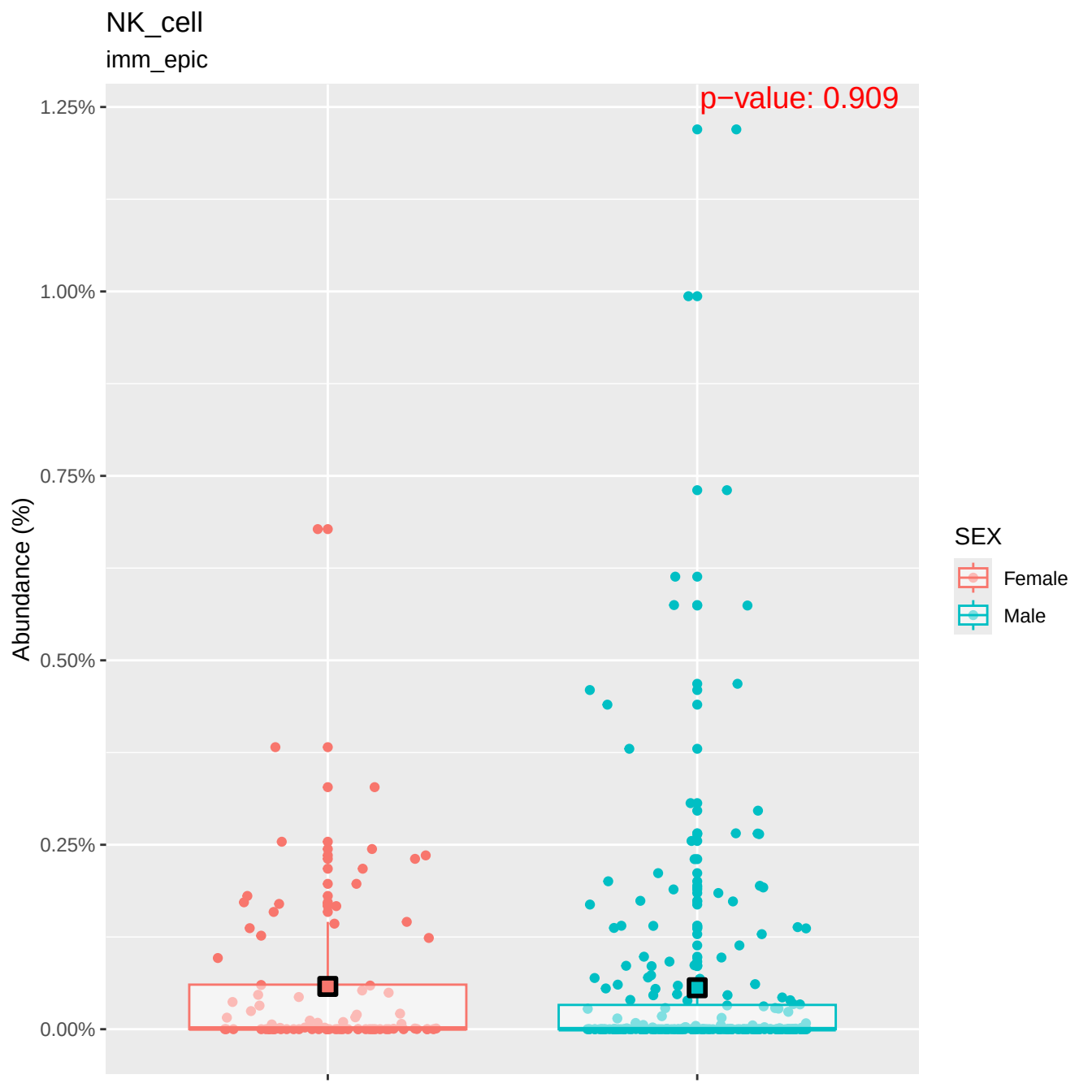

Cancer_associated_fibroblast
imm_epic
p−value: 0.358
100%
75%
50%
25%
0%
Abundance (%)
SEX
Female
Male

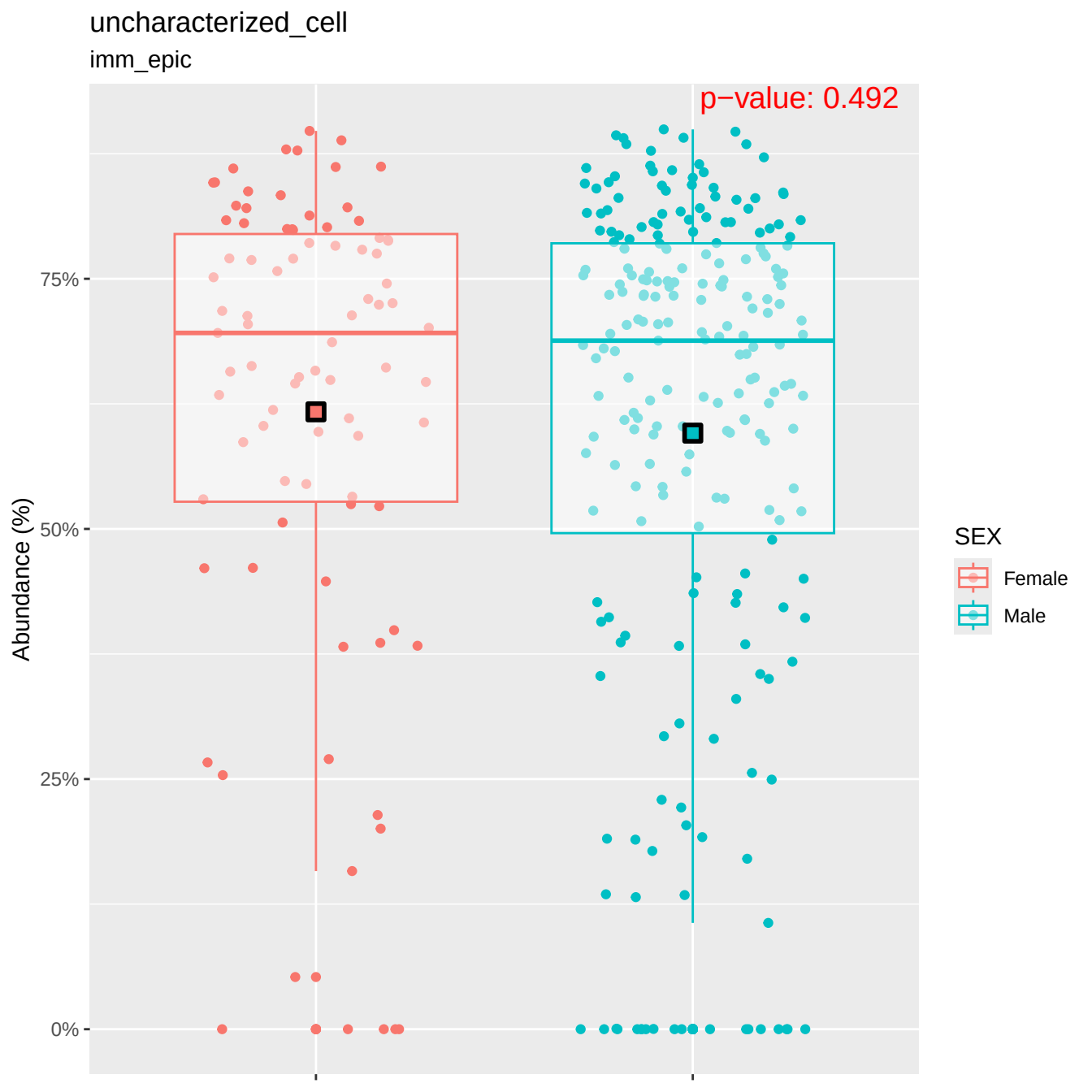

T_cell_CD4+
imm_epic
p−value: 0.713
20%
15%
10%
5%
0%
Abundance (%)
SEX
Female
Male

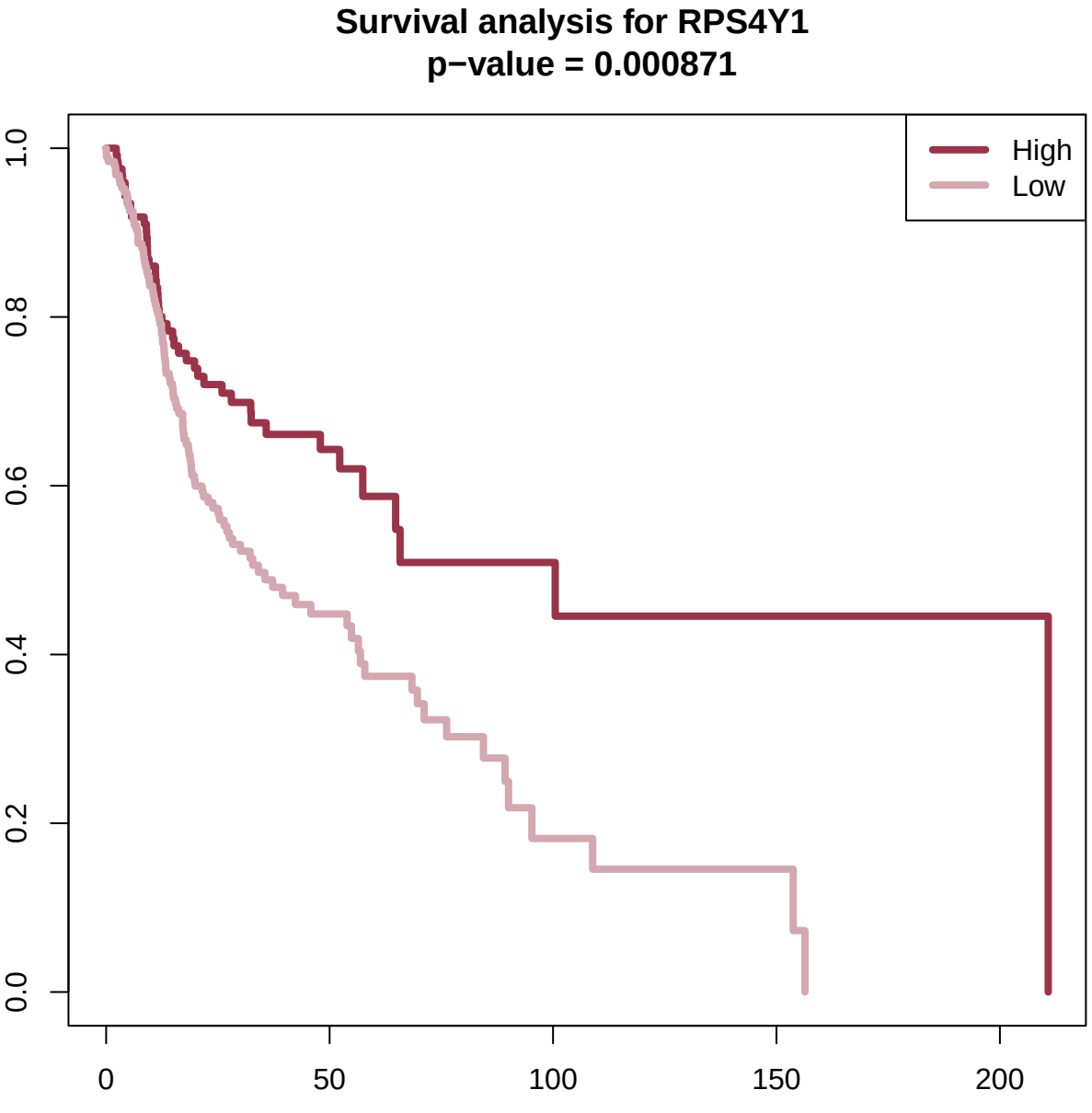

T_cell_CD8+
imm_epic
p−value: 0.0387
30%
20%
10%
0%
Abundance (%)
SEX
Female
Male

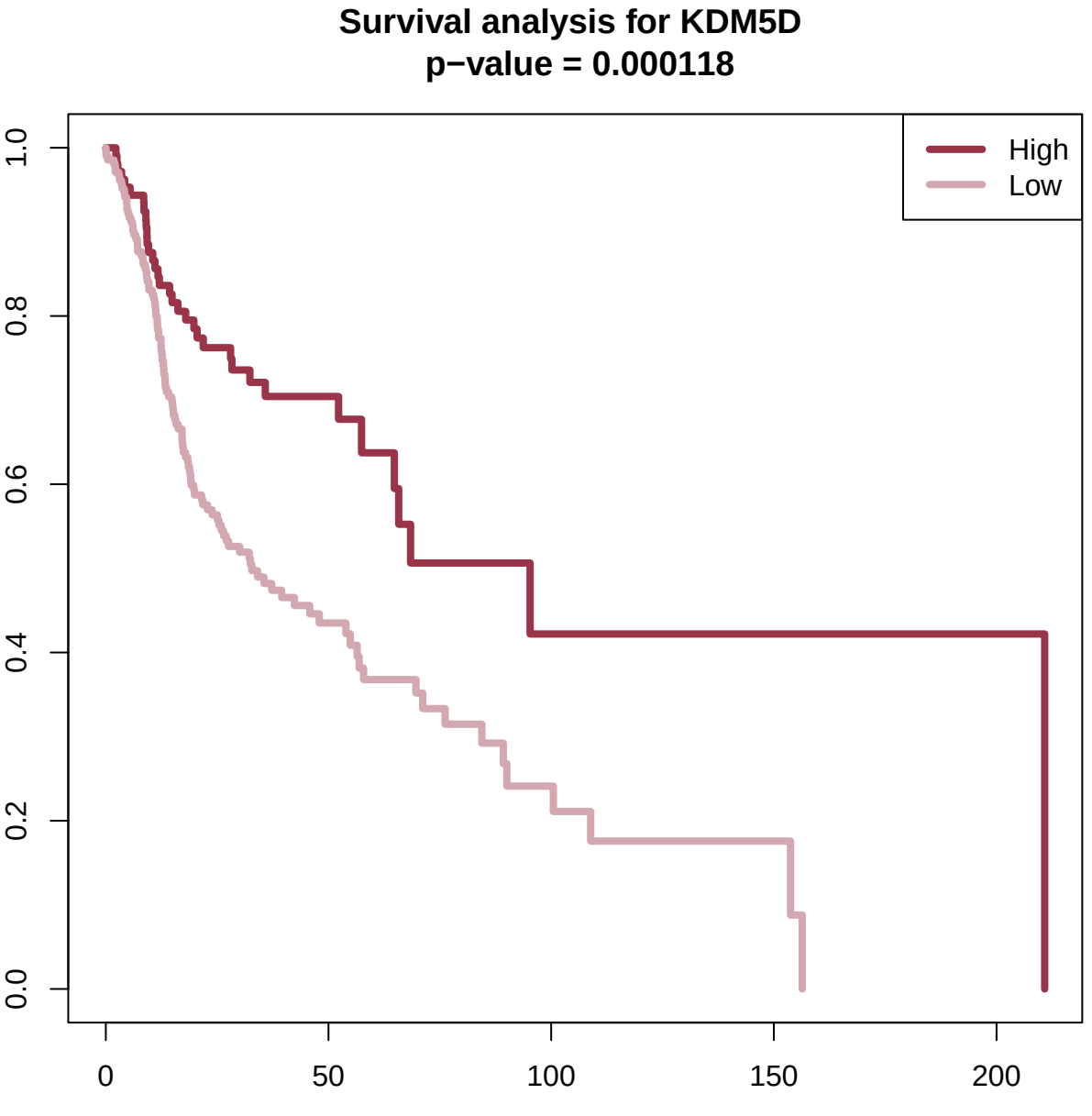

Endothelial_cell
imm_epic
p−value: 0.987
10%
5%
0%
Abundance (%)
SEX
Female
Male

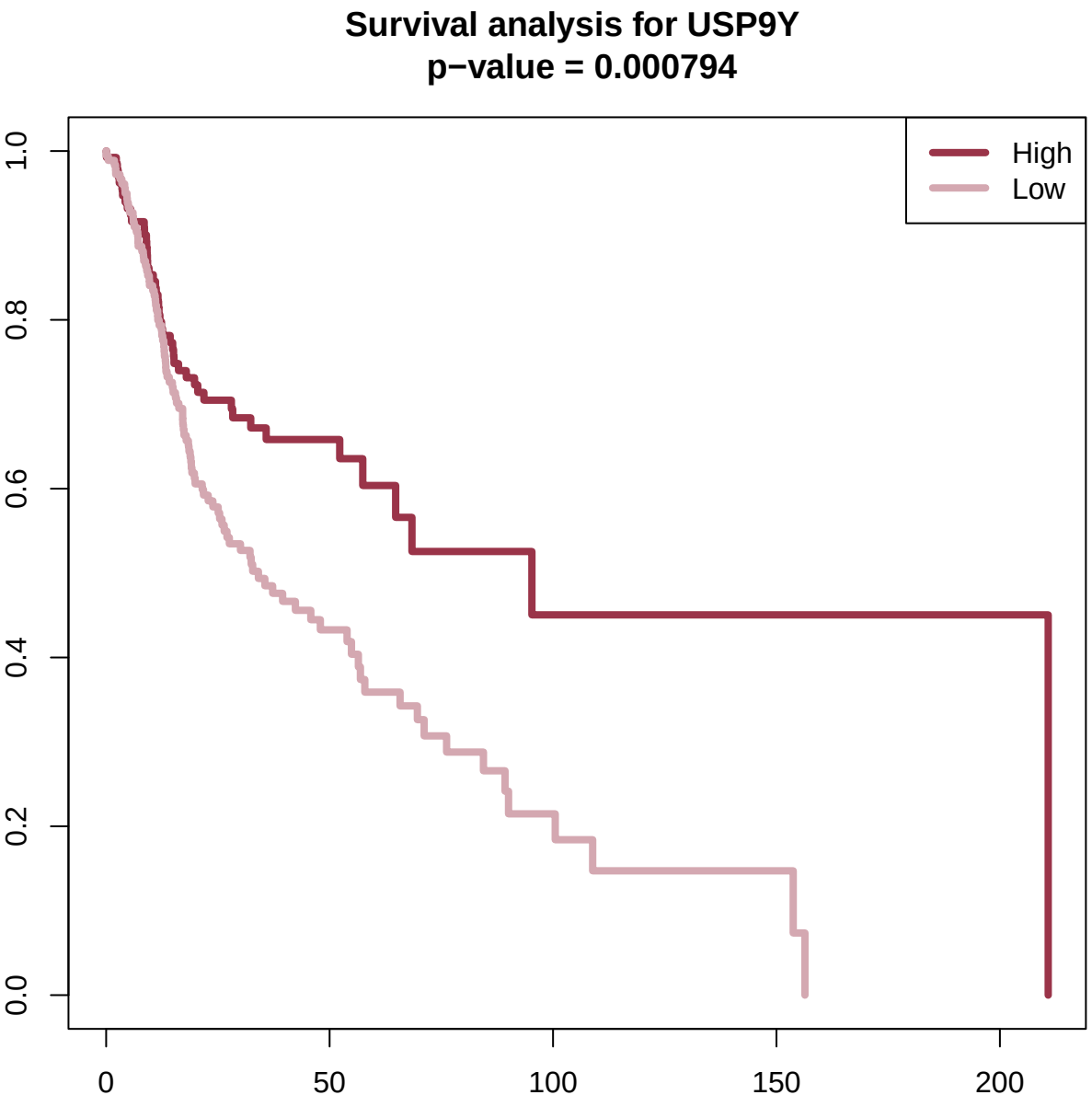

Macrophage
imm_epic
p−value: 0.541
30%
20%
10%
0%
Abundance (%)
SEX
Female
Male

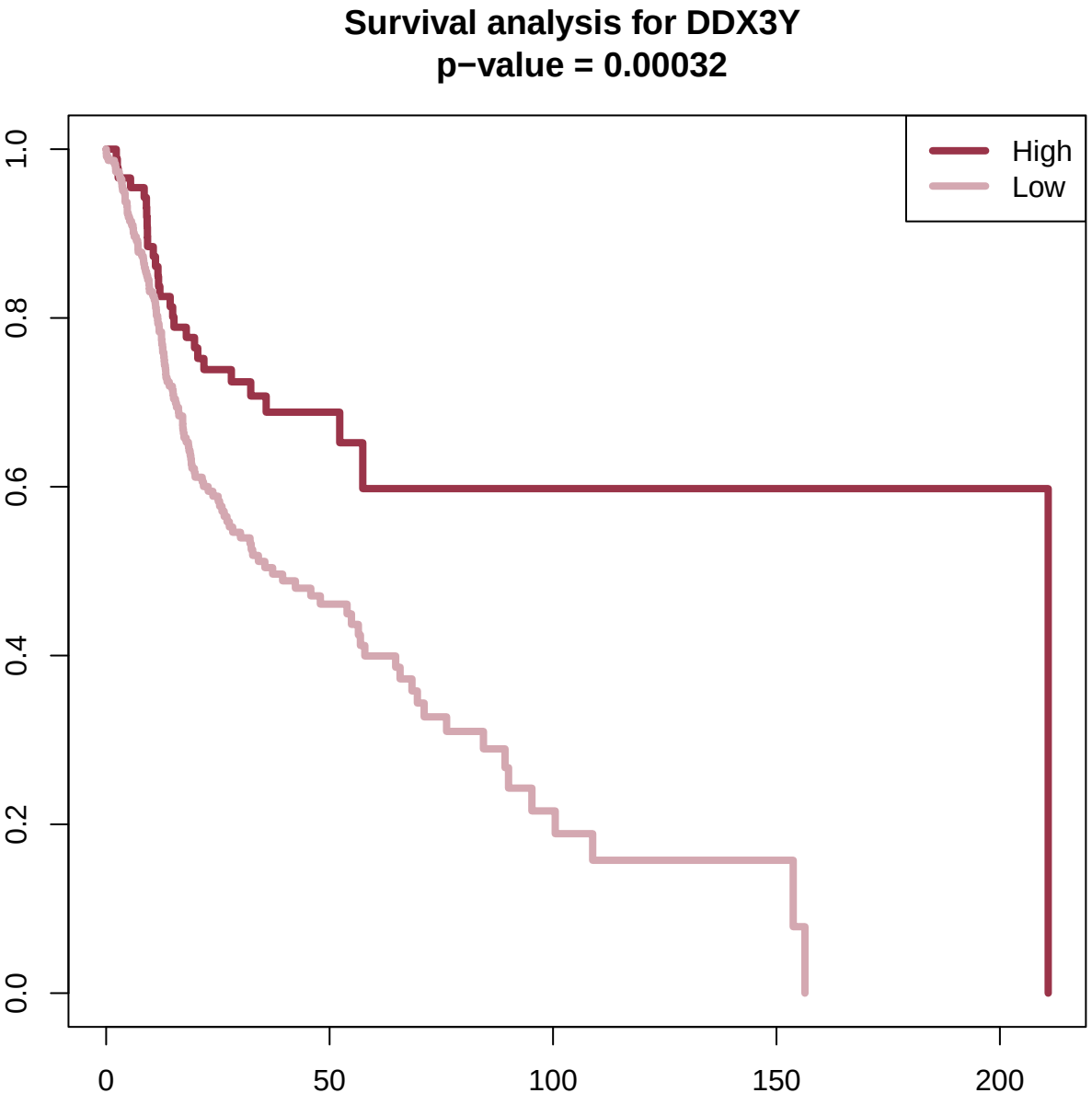

NK_cell
imm_epic
p−value: 0.909
1.25%
1.00%
0.75%
0.50%
0.25%
0.00%
Abundance (%)
SEX
Female
Male

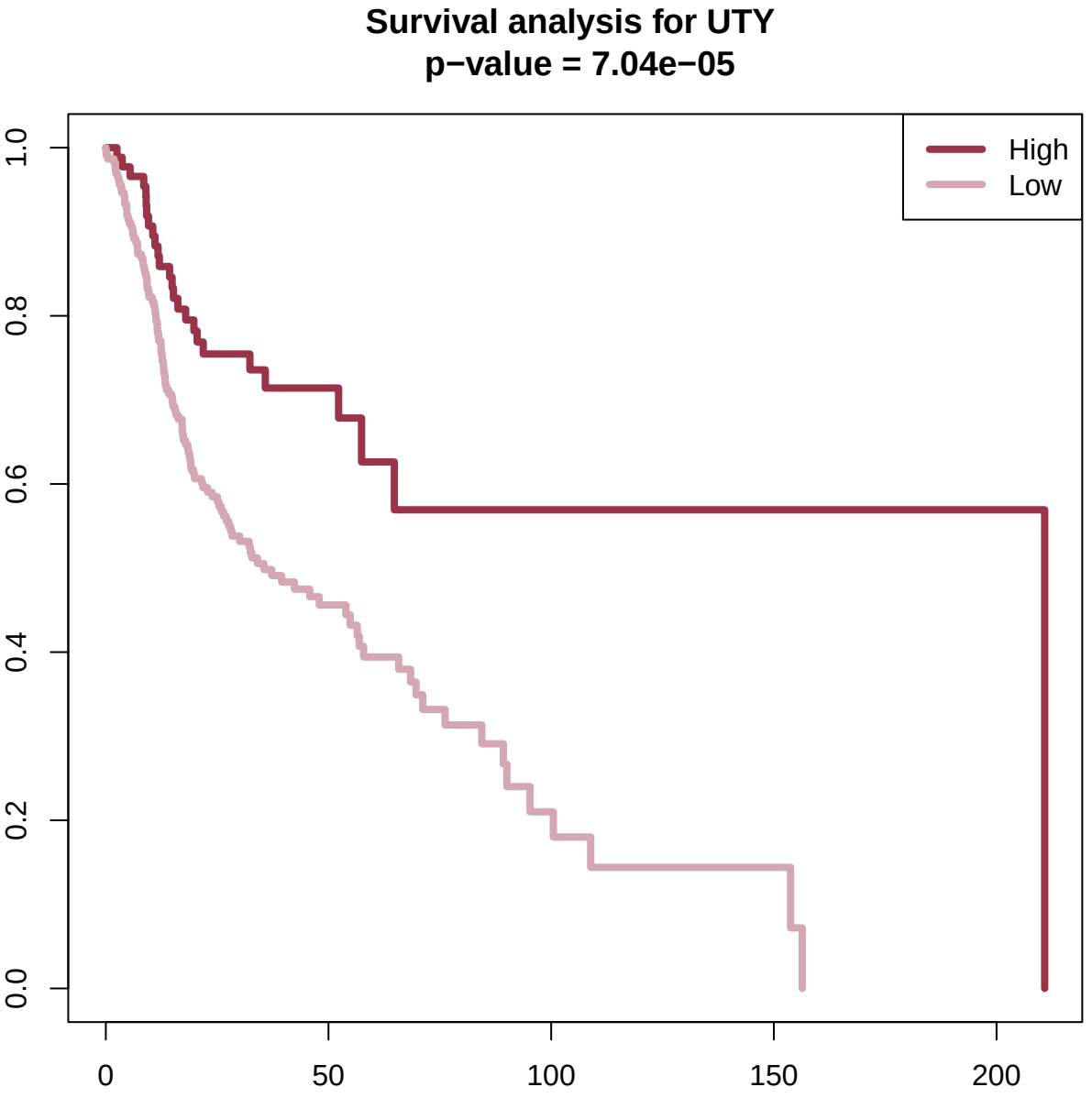

uncharacterized_cell
imm_epic
p−value: 0.492
75%
50%
25%
0%
Abundance (%)
SEX
Female
Male

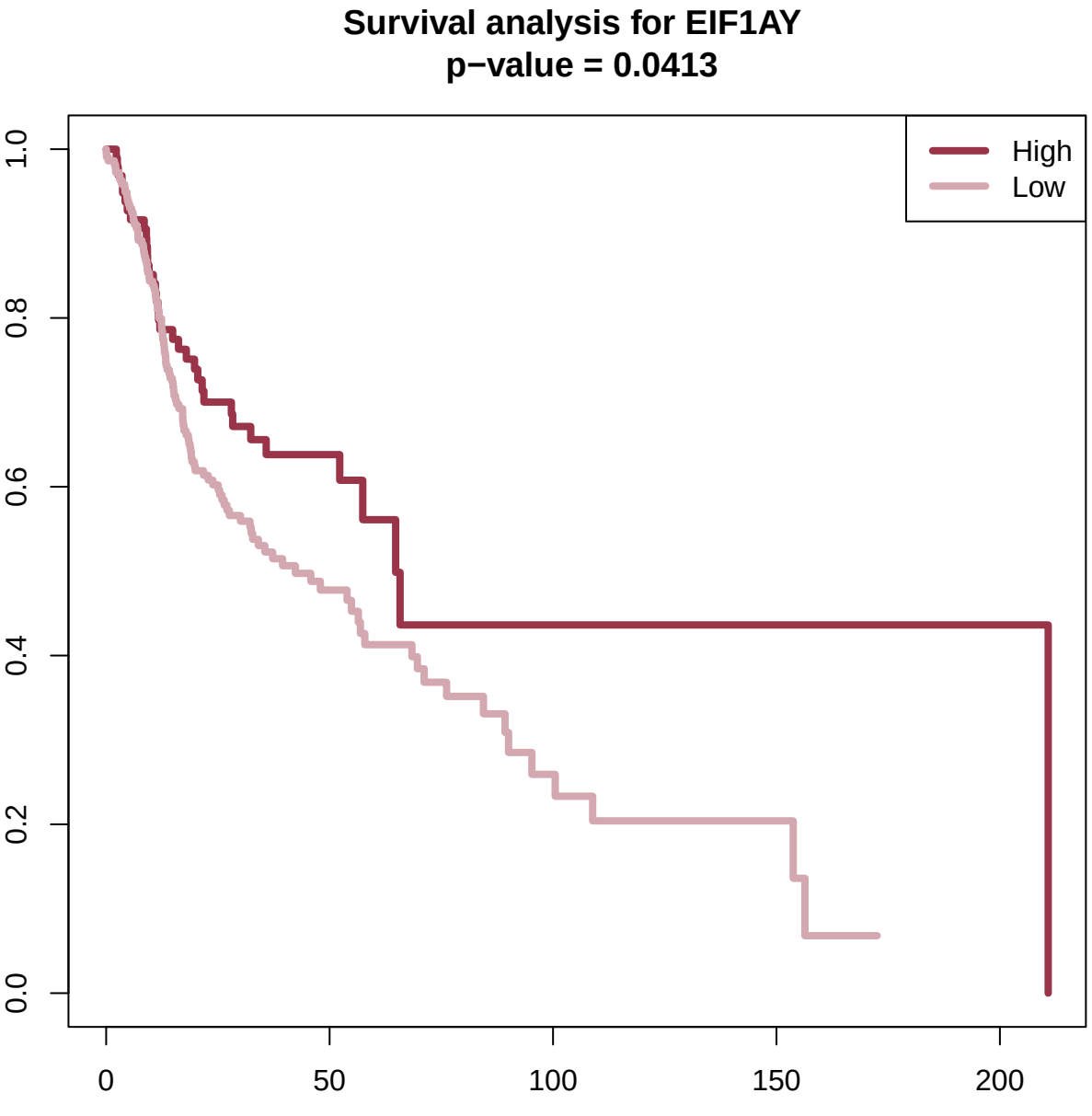

Survival analysis for RPS4Y1
p−value = 0.000871
High
Low
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200

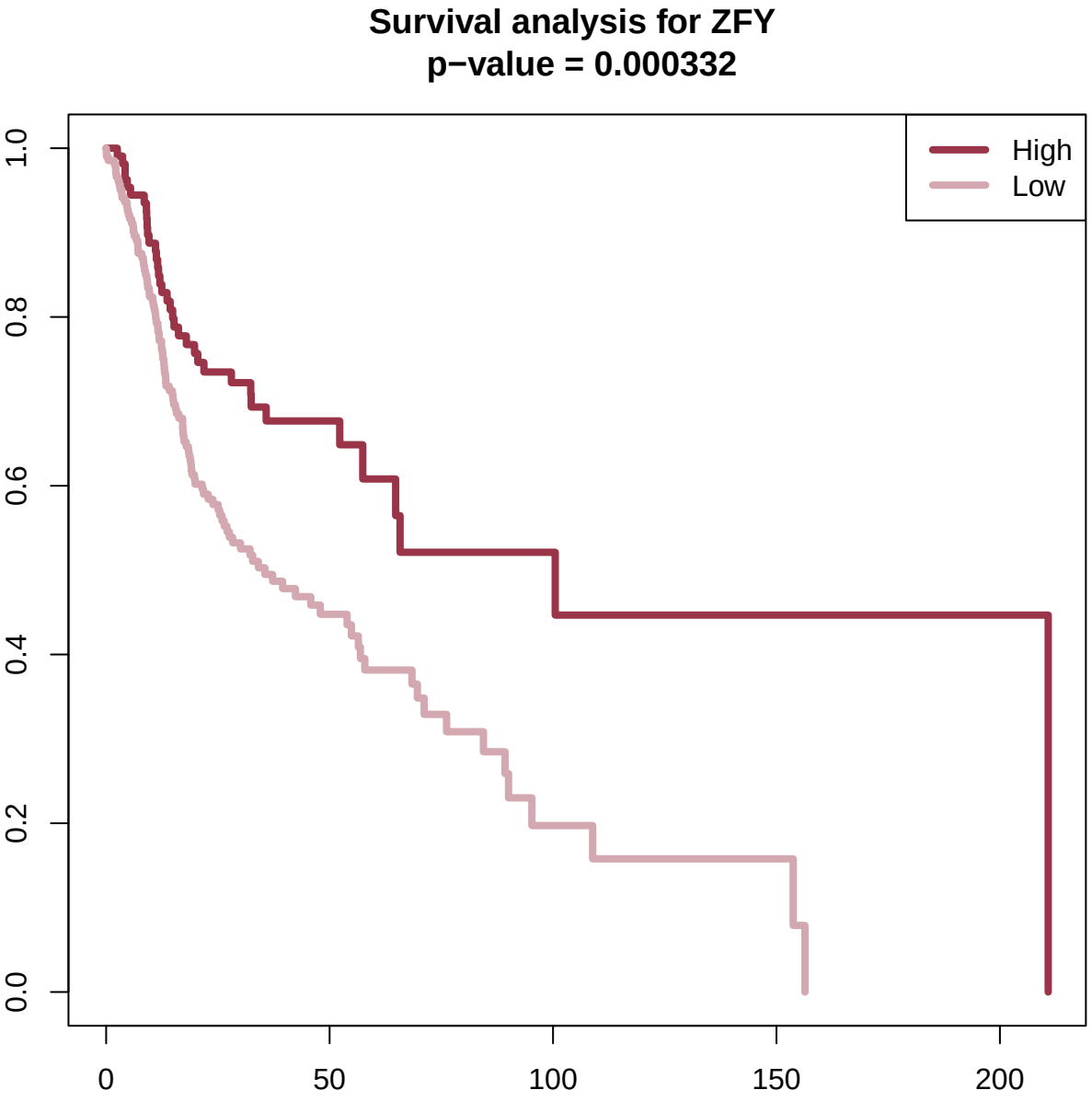

Survival analysis for KDM5D
p−value = 0.000118
High
Low
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200

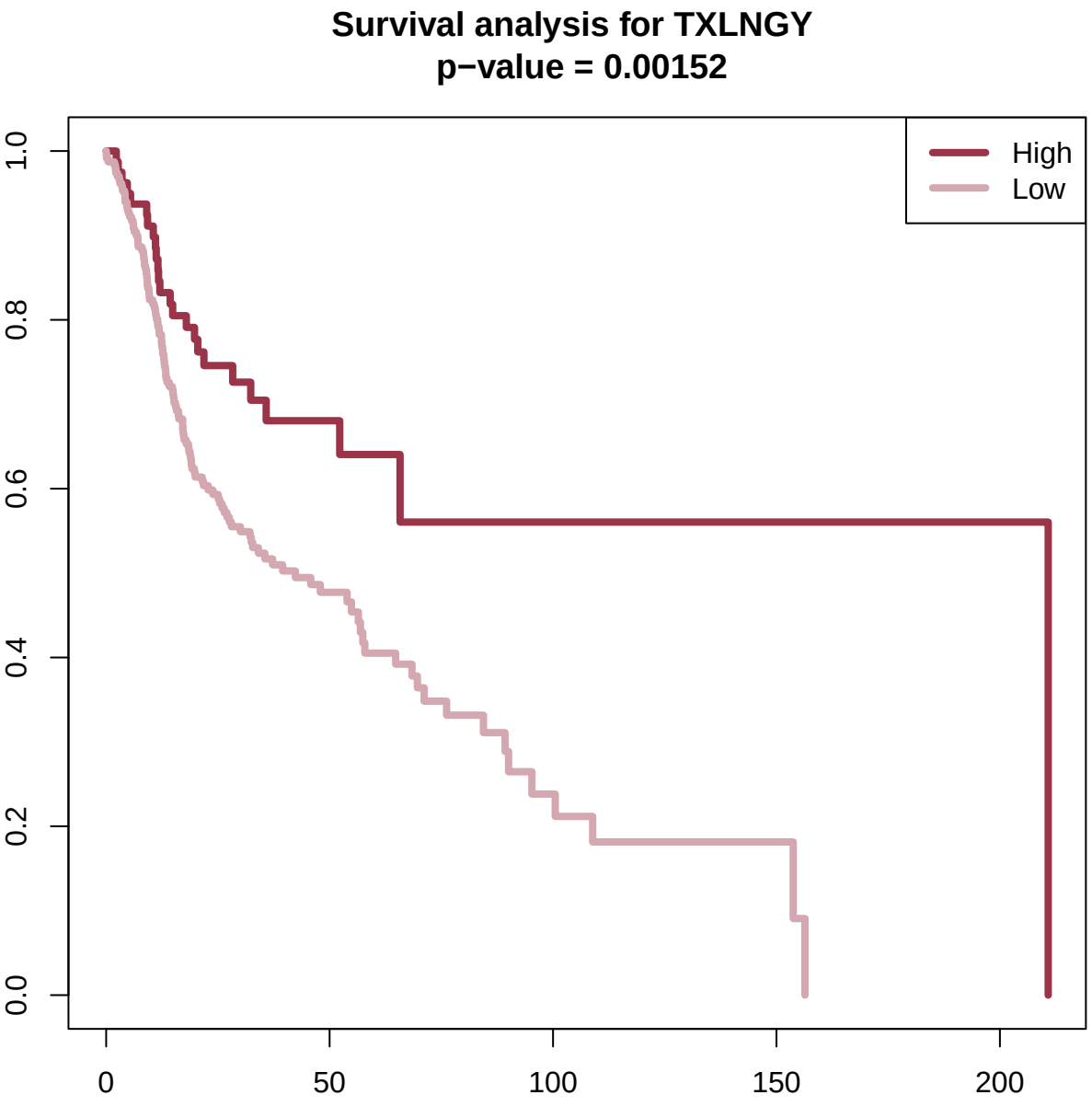

Survival analysis for USP9Y
p−value = 0.000794
High
Low
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200

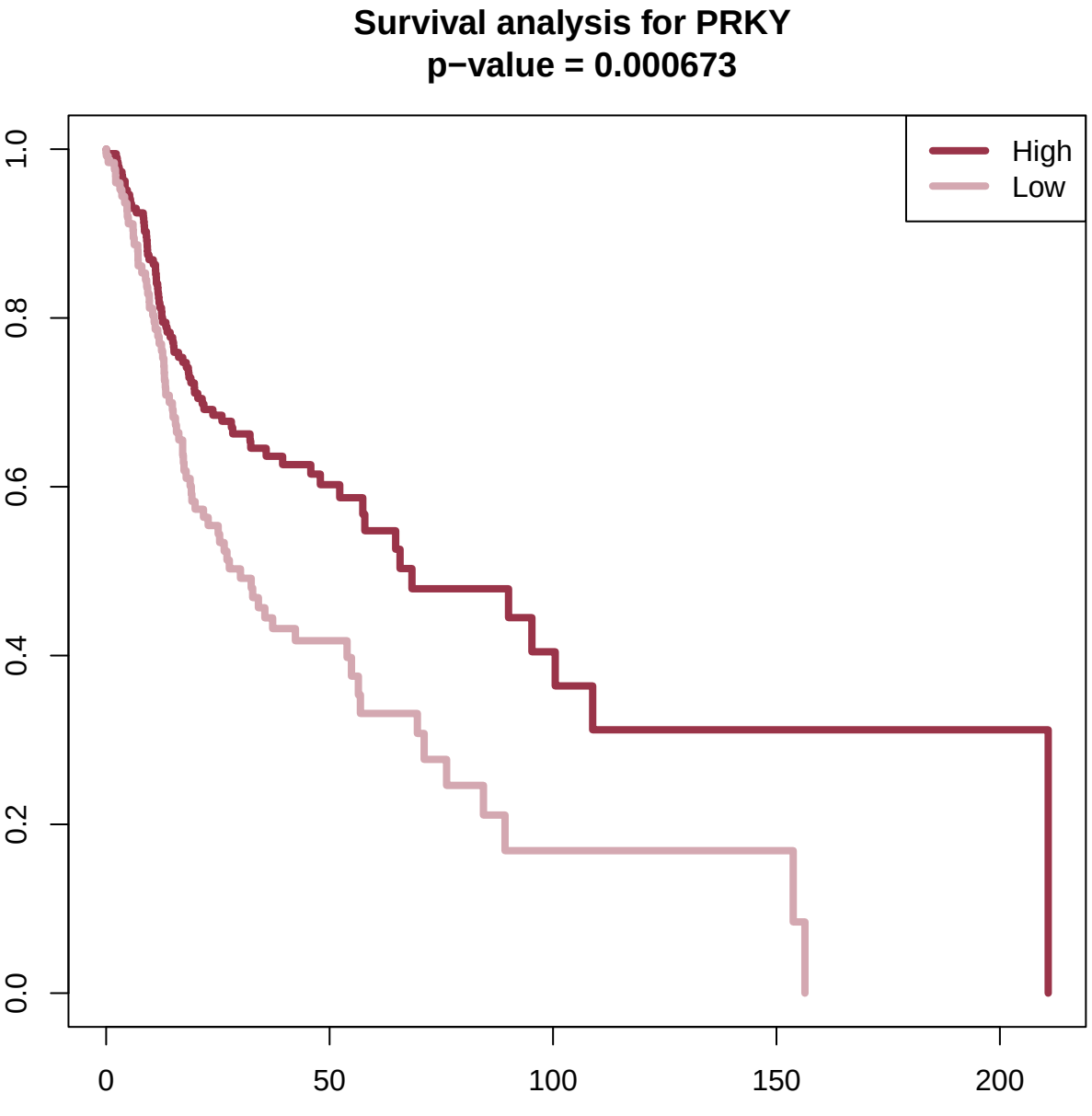

Survival analysis for DDX3Y
p−value = 0.00032
High
Low
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200

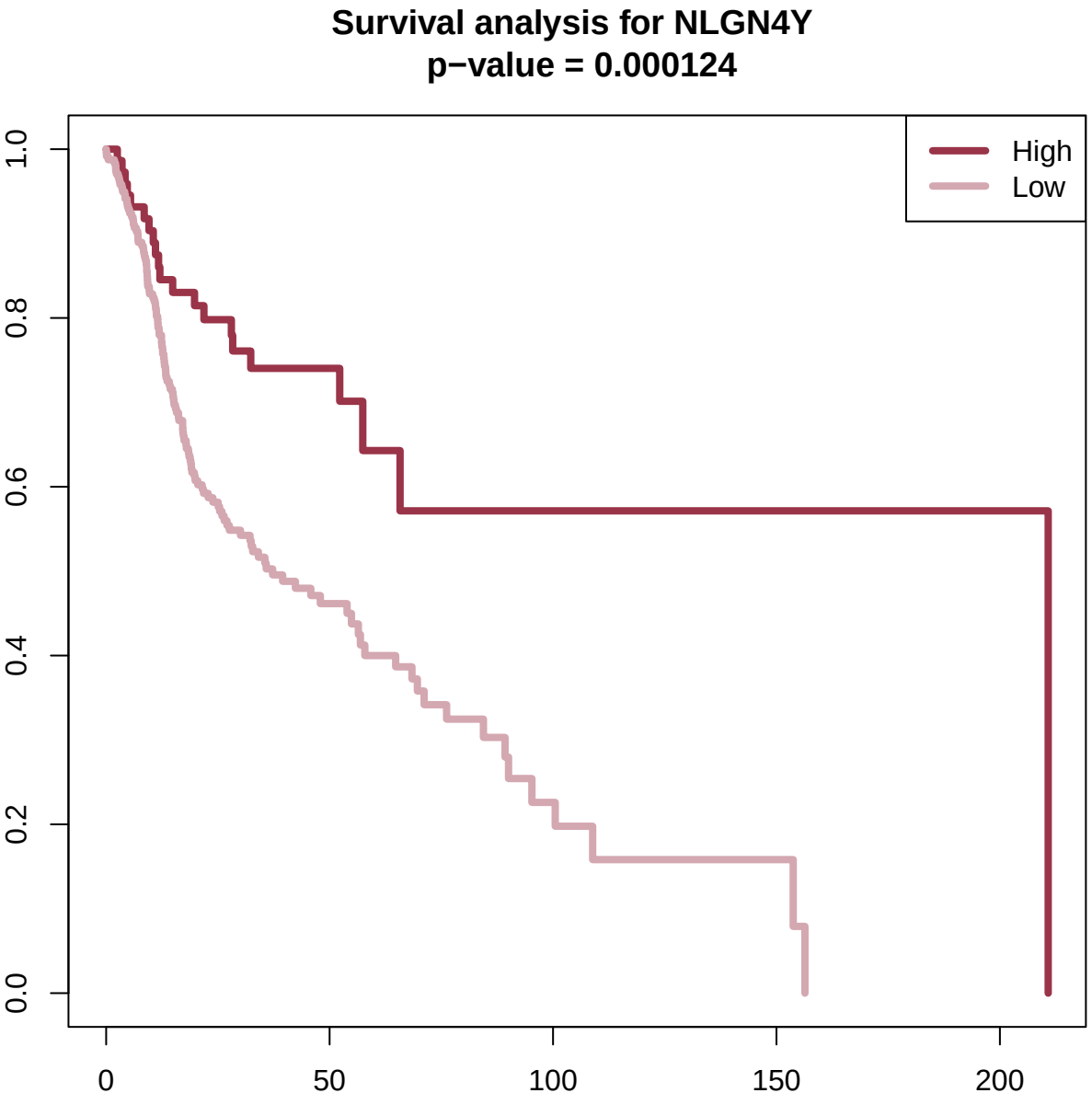

Survival analysis for UTY
p−value = 7.04e−05
High
Low
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200


Survival analysis for EIF1AY
p−value = 0.0413
High
Low
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200


Survival analysis for ZFY
p−value = 0.000332
High
Low
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200


Survival analysis for TXLNGY
p−value = 0.00152
High
Low
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200


Survival analysis for PRKY
p−value = 0.000673
High
Low
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200


Survival analysis for NLGN4Y
p−value = 0.000124
High
Low
1.0
0.8
0.6
0.4
0.2
0.0
0
50
100
150
200