

1 **Figure S1: Prognostic value of the lysine methyltransferase family in patients with BCa.**

2 **A-M:** The overall survival and disease-free survival outcomes of 13 lysine methyltransferase in
3 TCGA-BLCA data (SETDB1, METTL21A, SETD1A, SETD8, NSD1, EHMT2, SMYD3, EZH2,
4 METTL22, SMYD2, SETD6, CAMKMT, SETD7).

5

6 **Figure S2: Correlation between lysine methyltransferase family and immunotherapy
7 response of patients with BCa.**

8 **A-L:** Correlations between 12 lysine methyltransferase and immunotherapy response of patients
9 with BCa in GSE173839 (SETDB1, METTL21A, SETD1A, NSD1, EHMT2, SMYD3, EZH2,
10 METTL22, SMYD2, SETD6, CAMKMT, and SETD7).

11

12 **Figure S3: SETD7 was negatively correlated with the BCa immunescore of GSE69795.**

13 **A.** Infiltration level of different immune cells in high- and low-SETD7 groups on the basis of
14 GSE69795 data. **B.** Correlation analysis of SETD7 and immunescore which was based on the
15 immune cell infiltration level of GSE69795 data. **C.** Expression of different immunomodulators in
16 high- and low-SETD7 groups on the basis of GSE69795 data. **D.** Expression of immune cells
17 effector genes in high and low SETD7 groups on the basis of GSE69795 data. **E.** Correlation
18 analysis between SETD7 and inhibitory immune checkpoints on the basis of GSE69795 data.

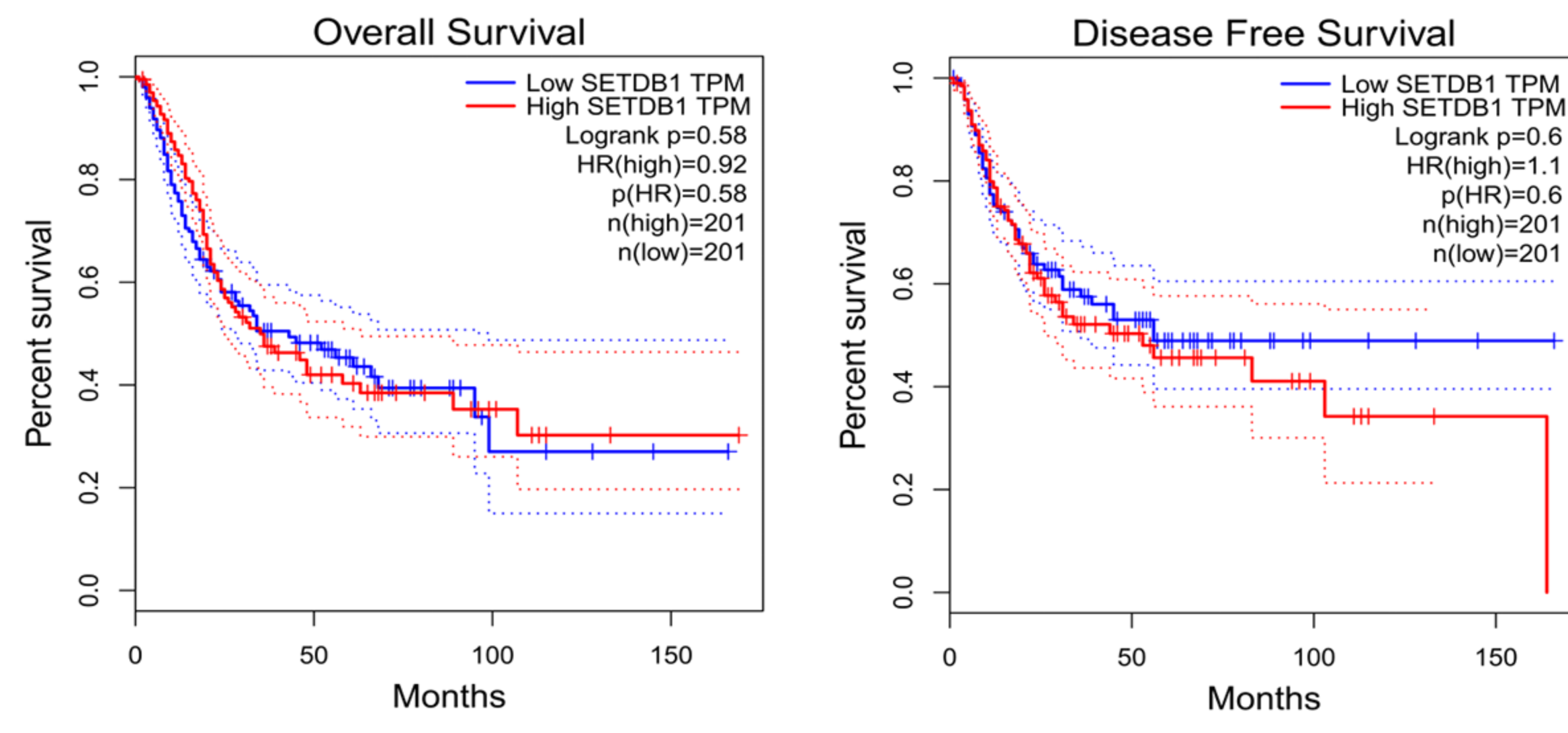
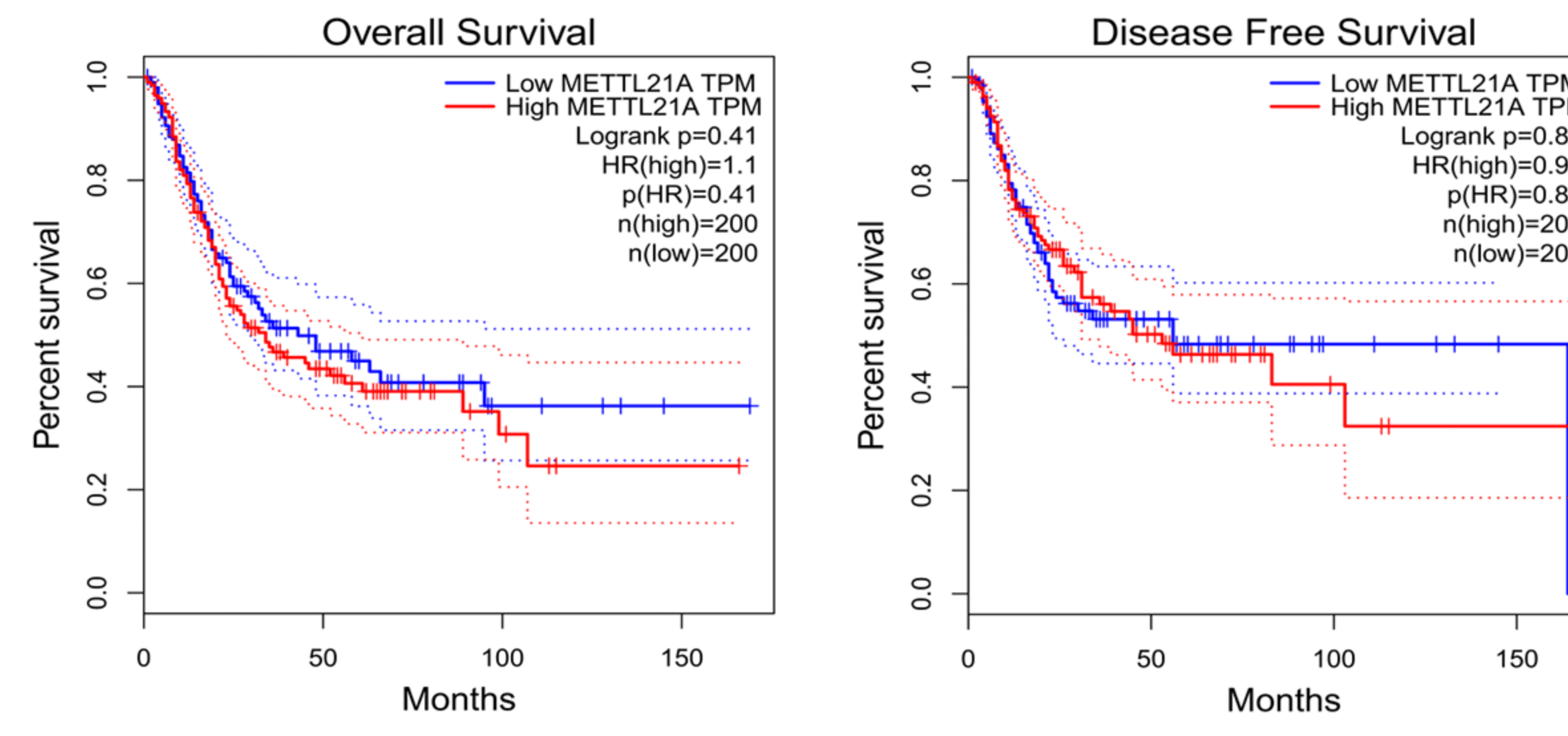
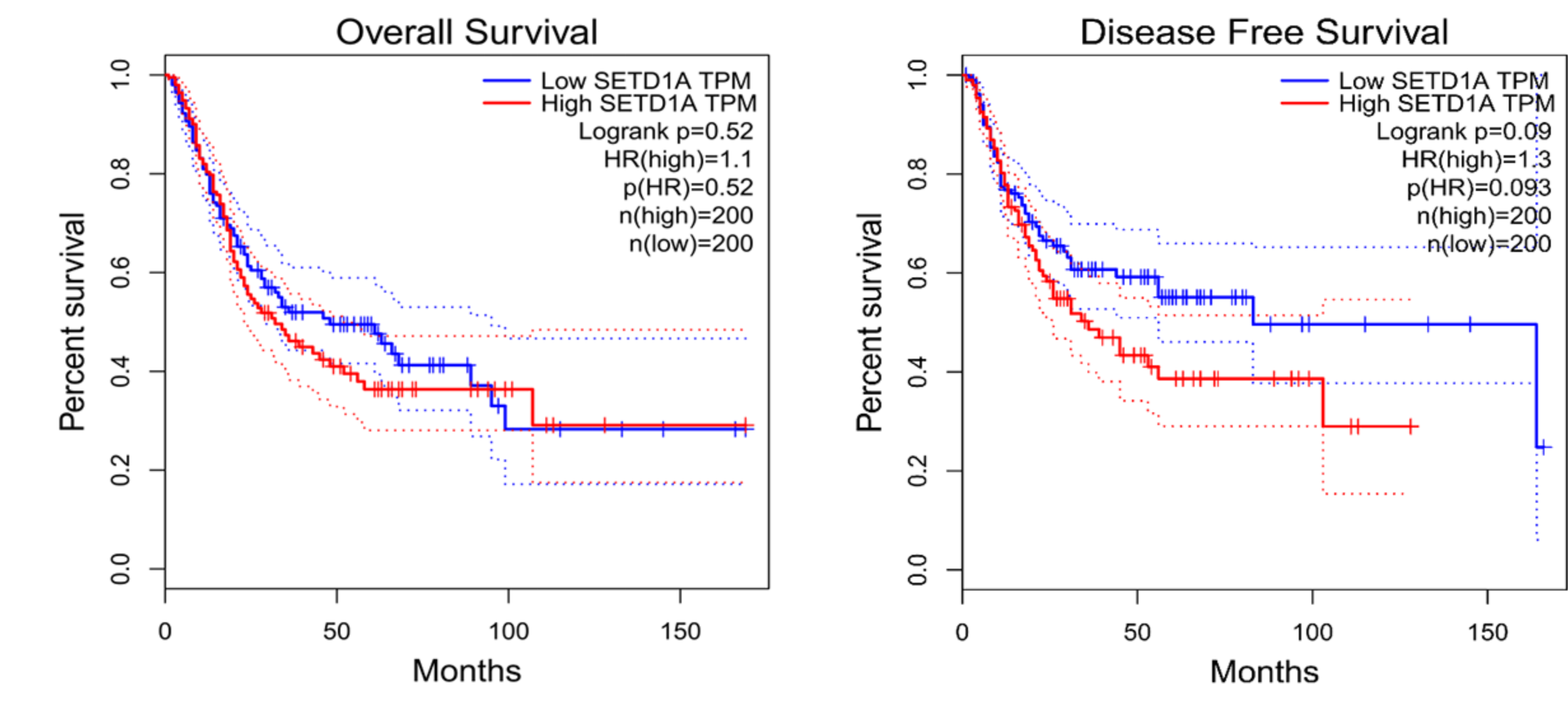
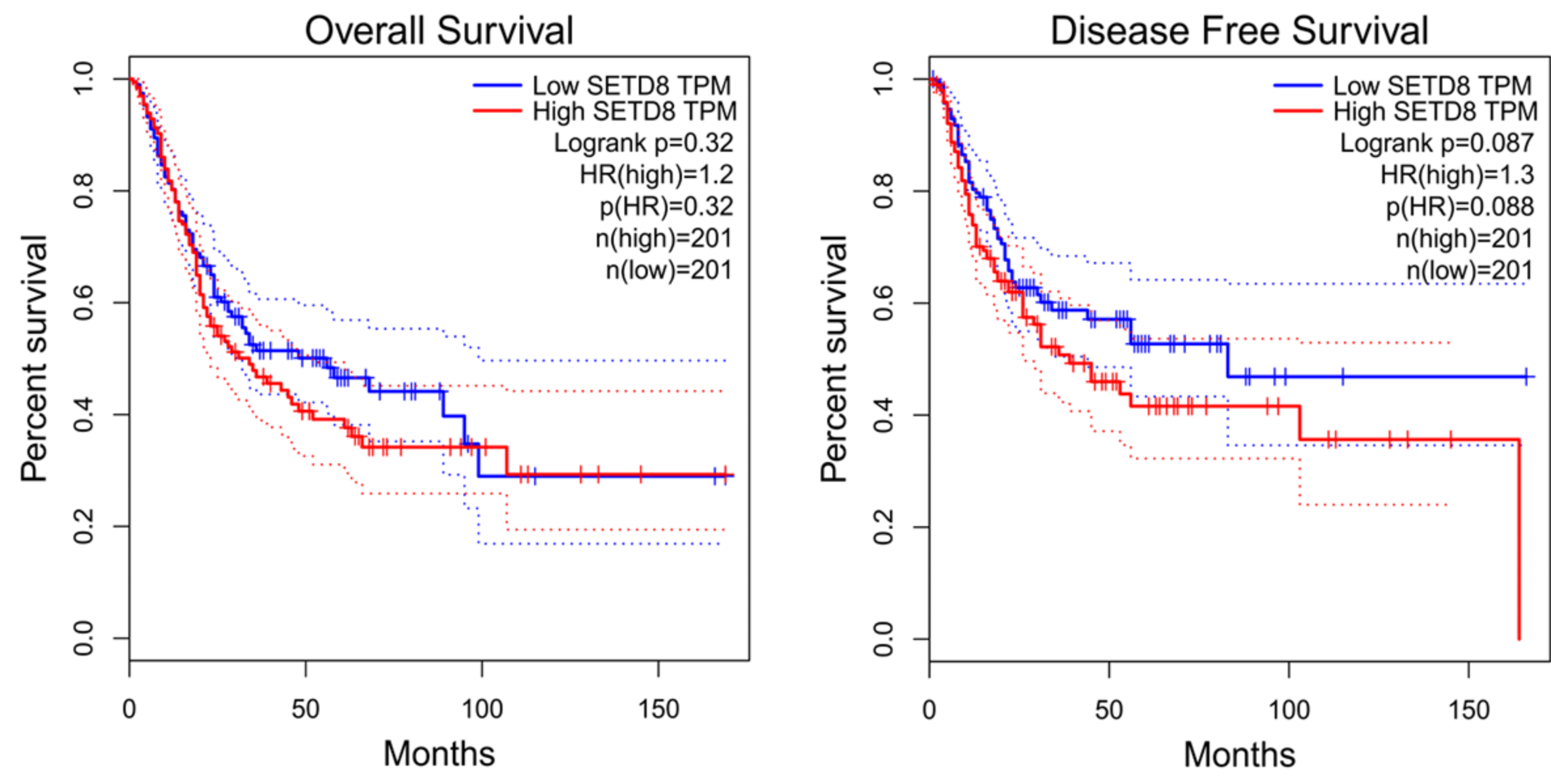
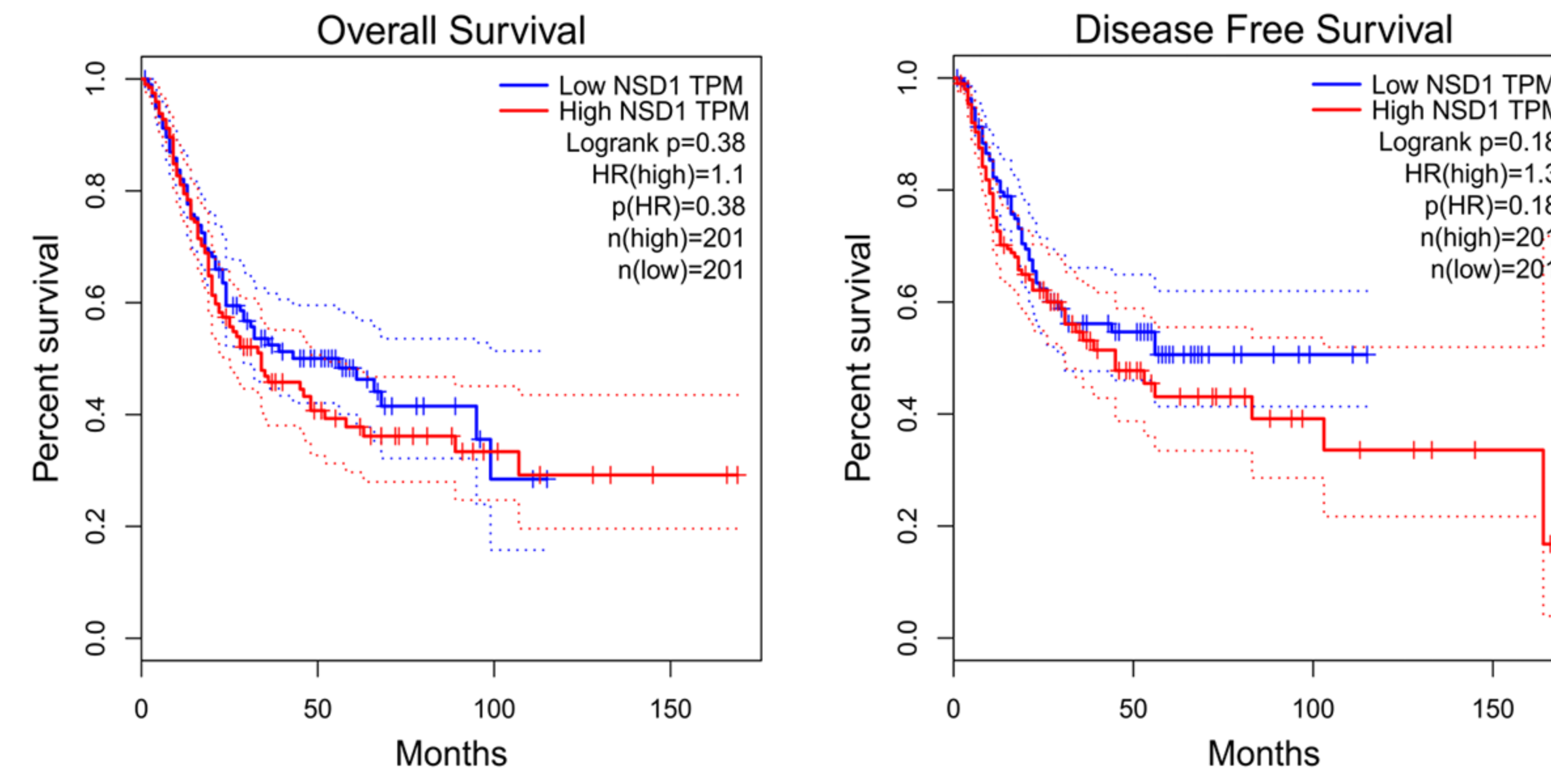
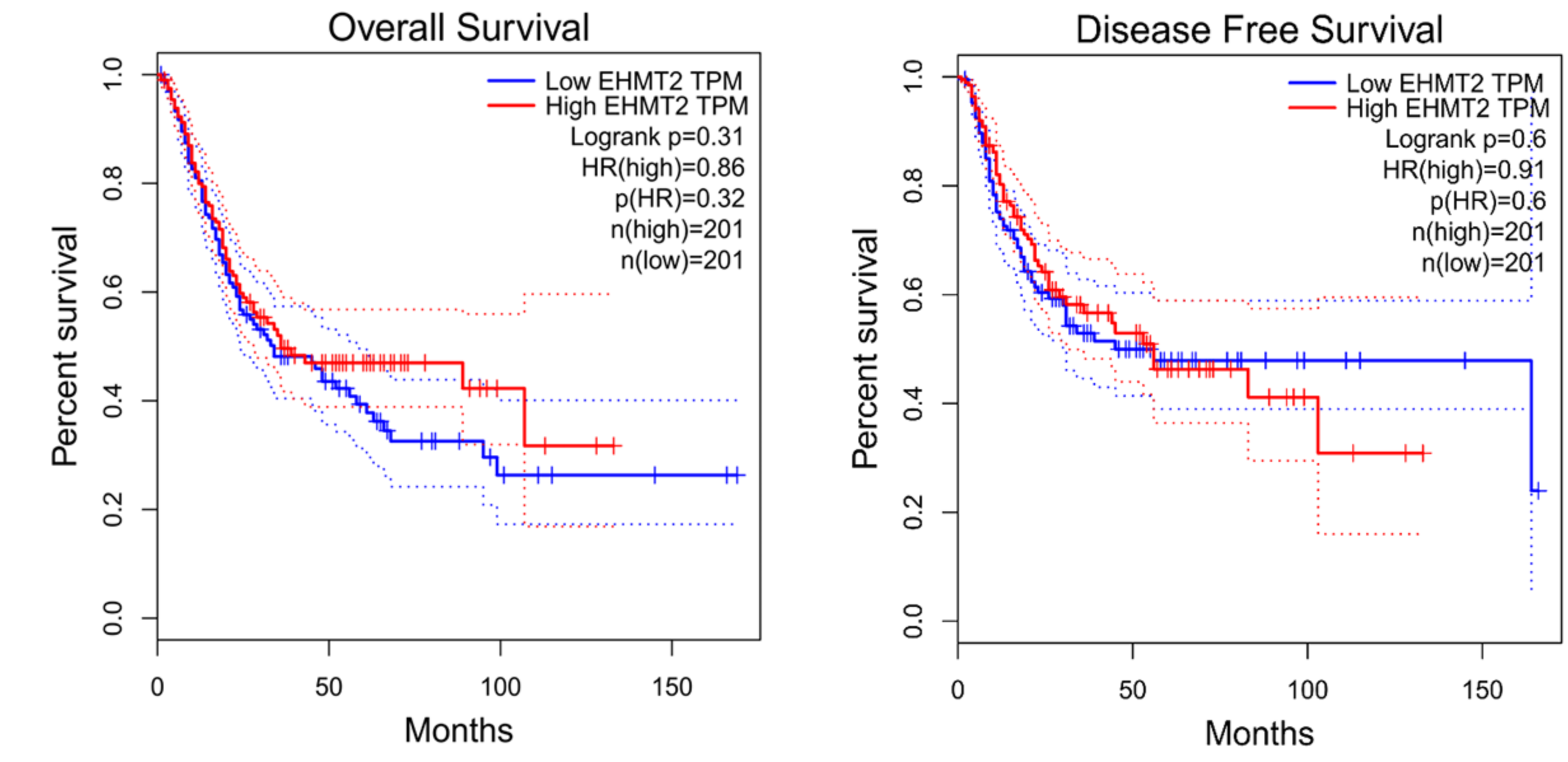
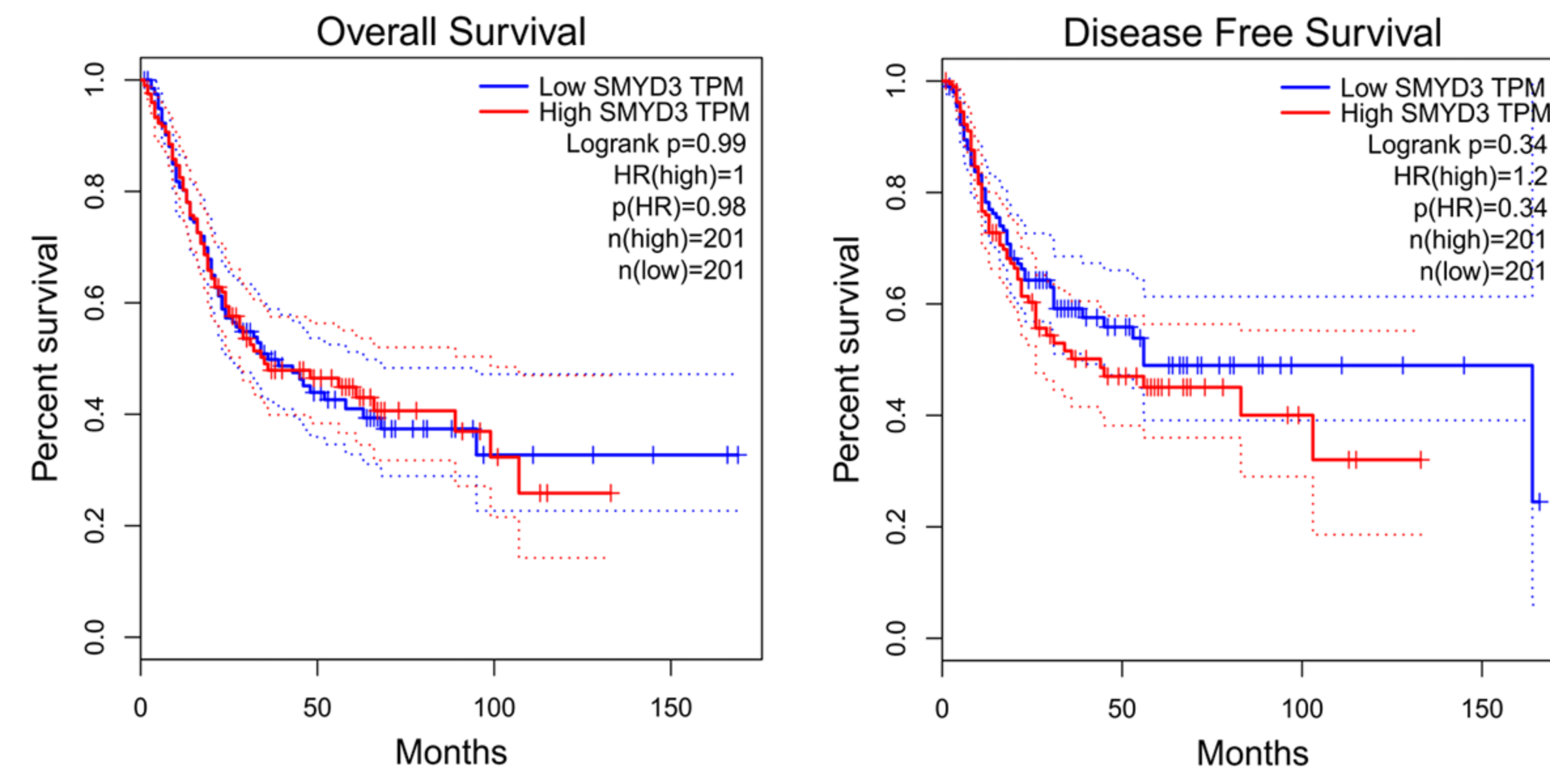
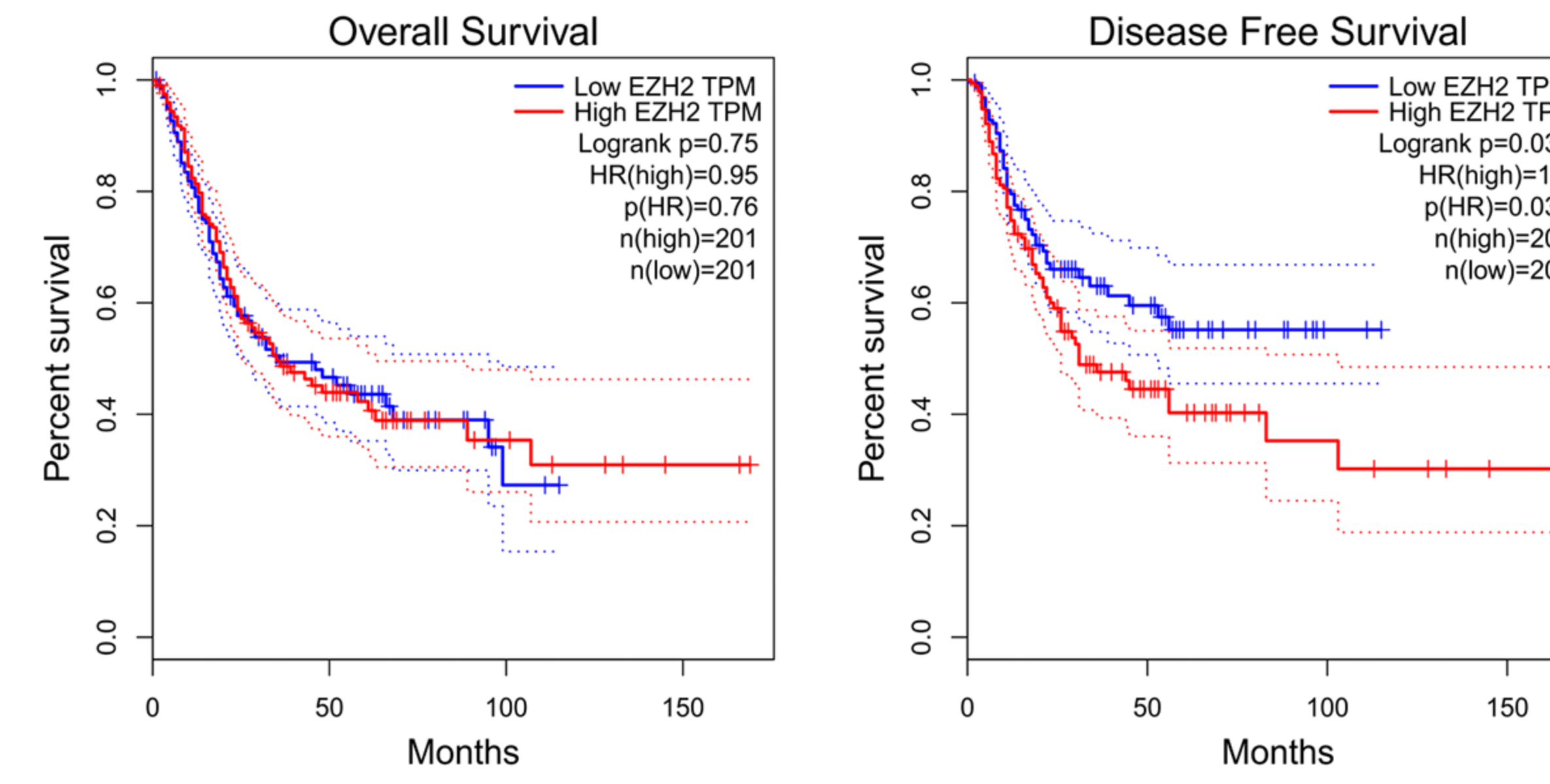
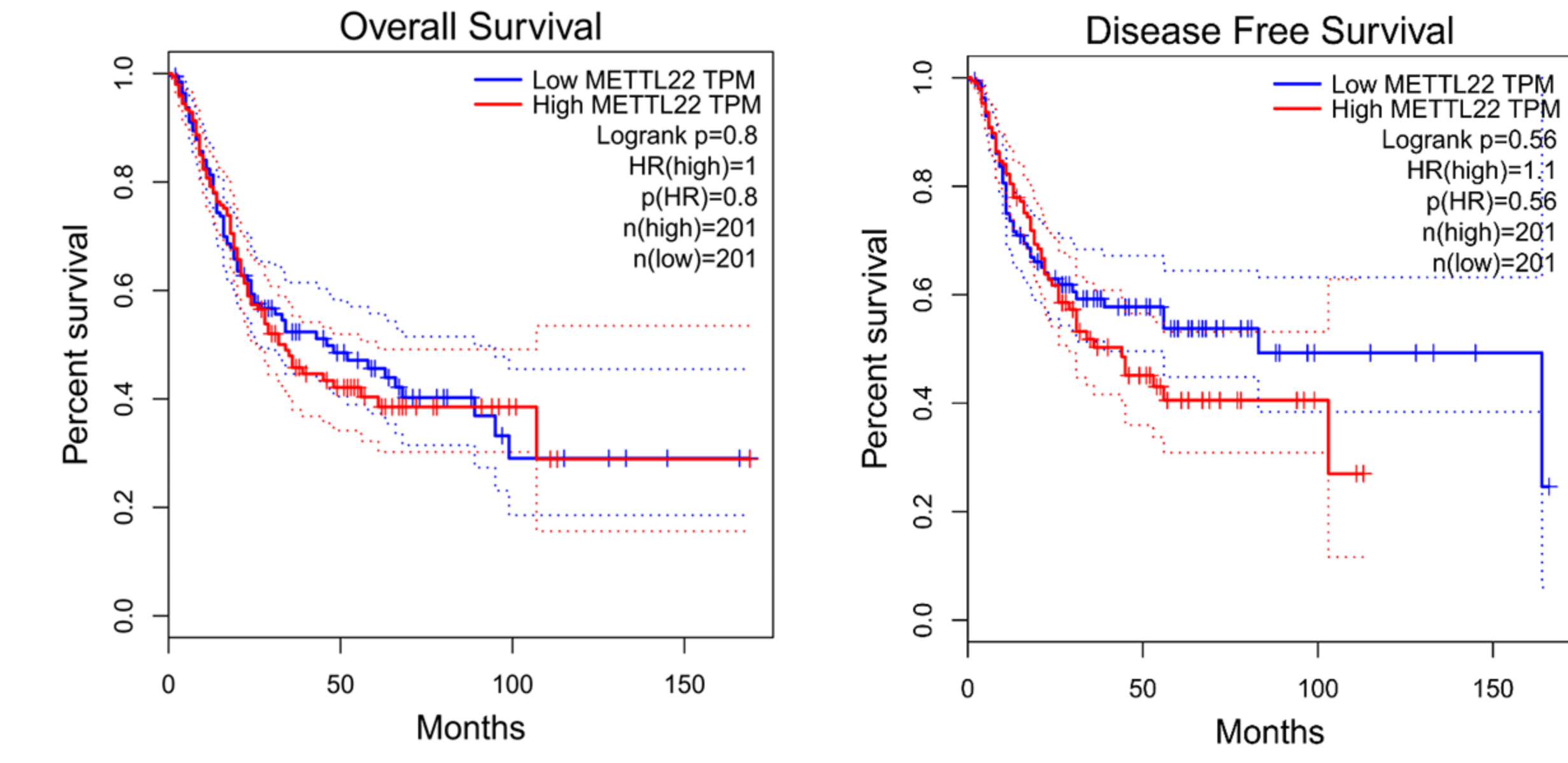
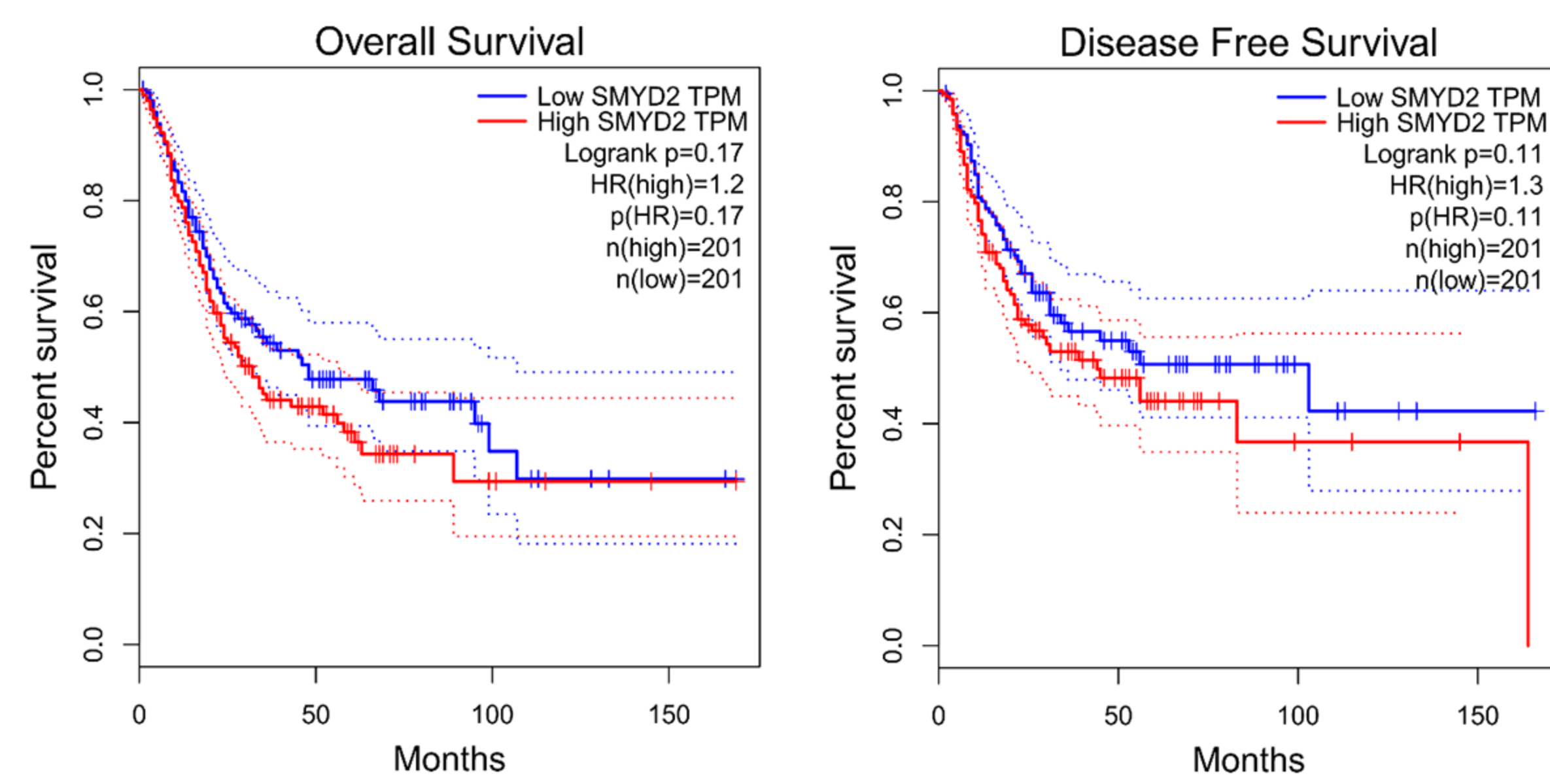
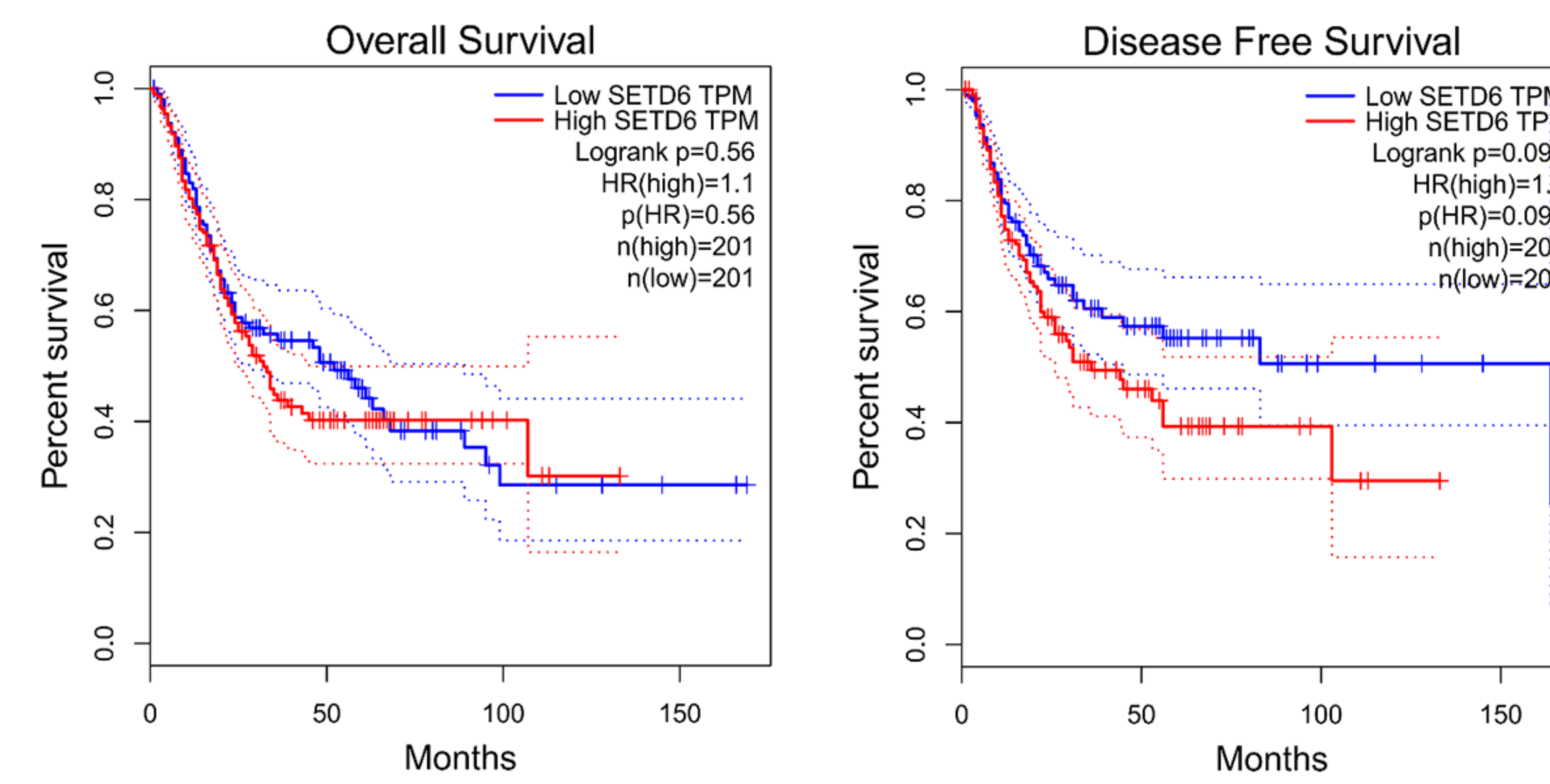
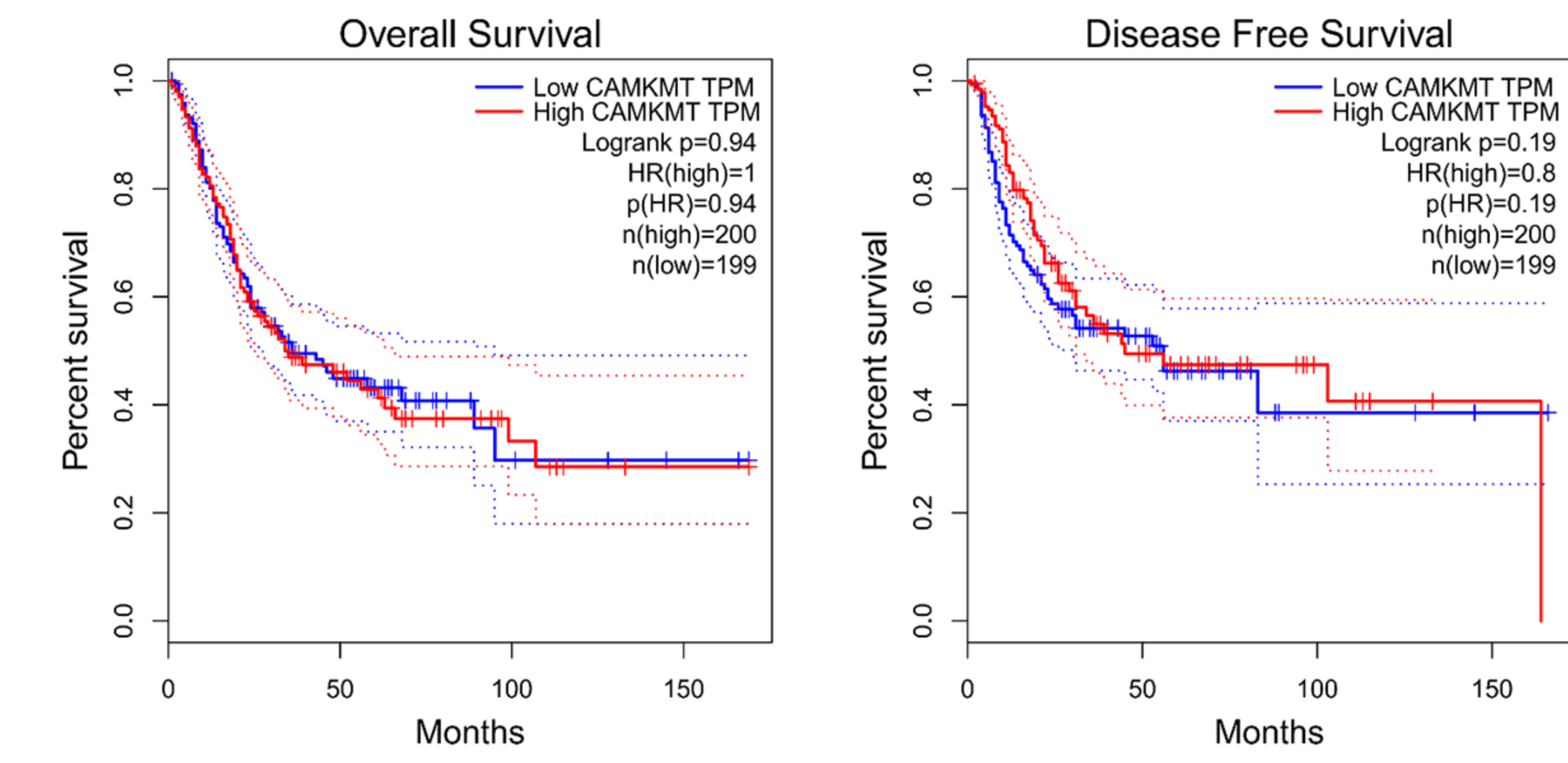
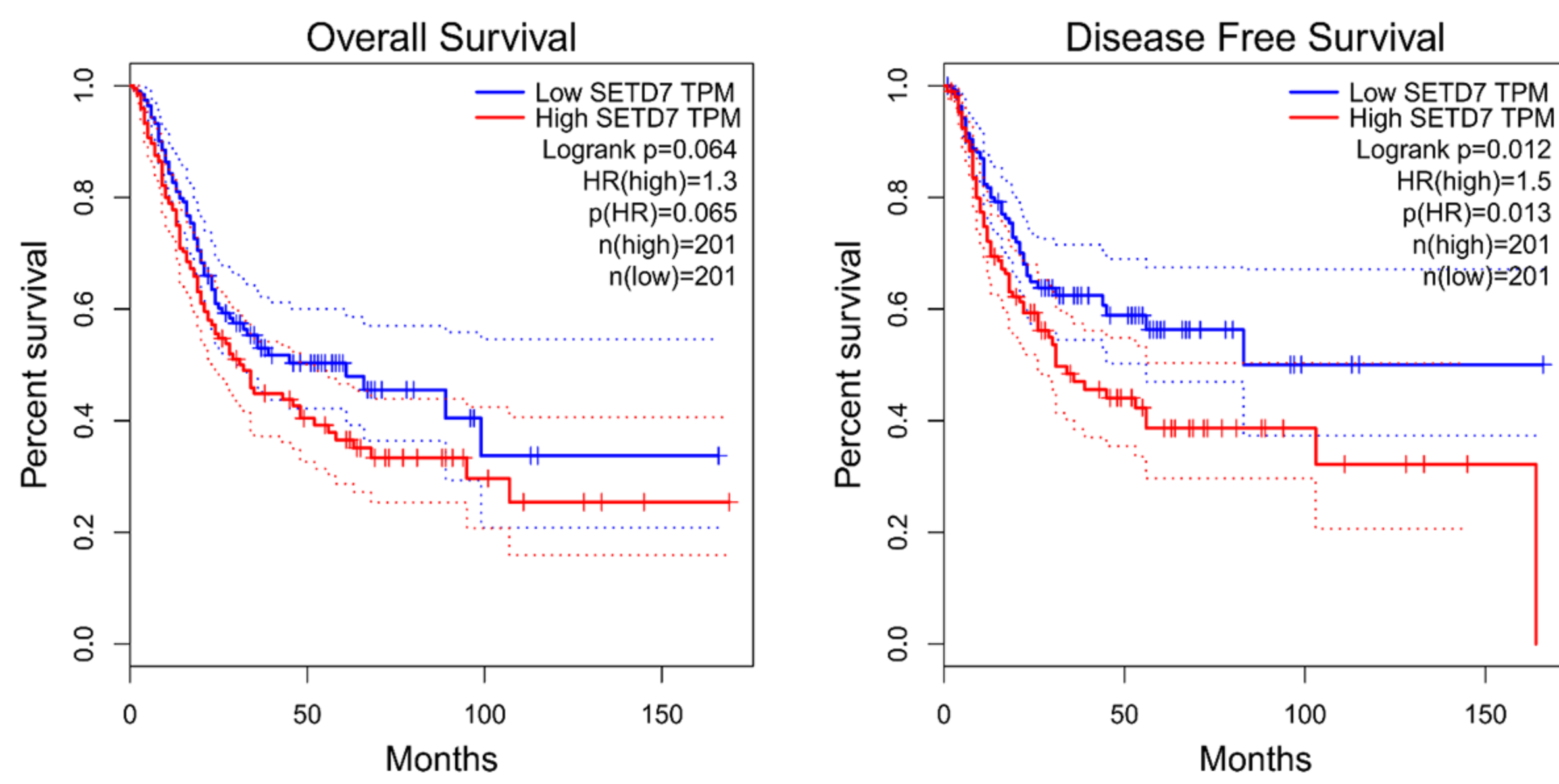
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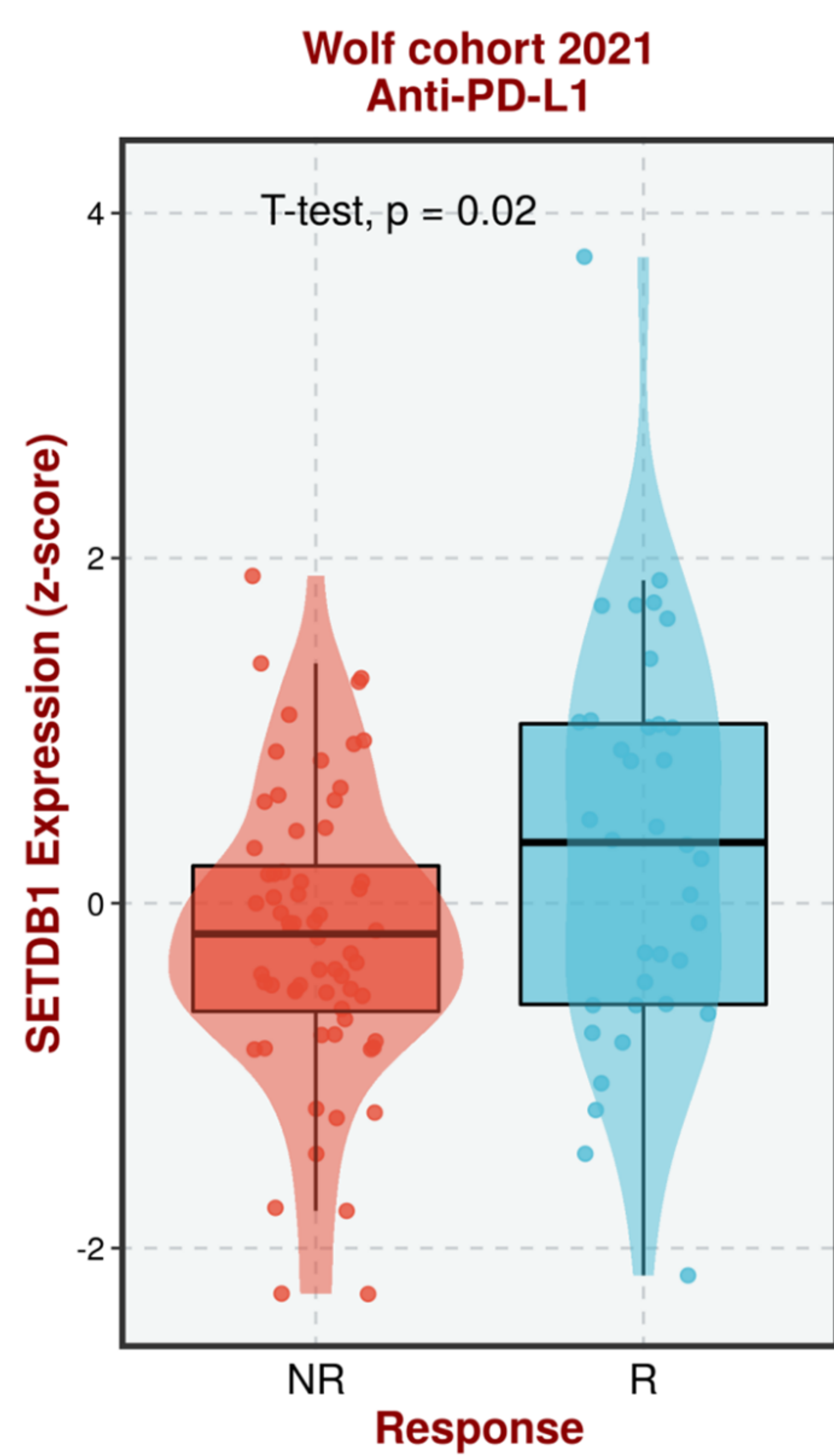
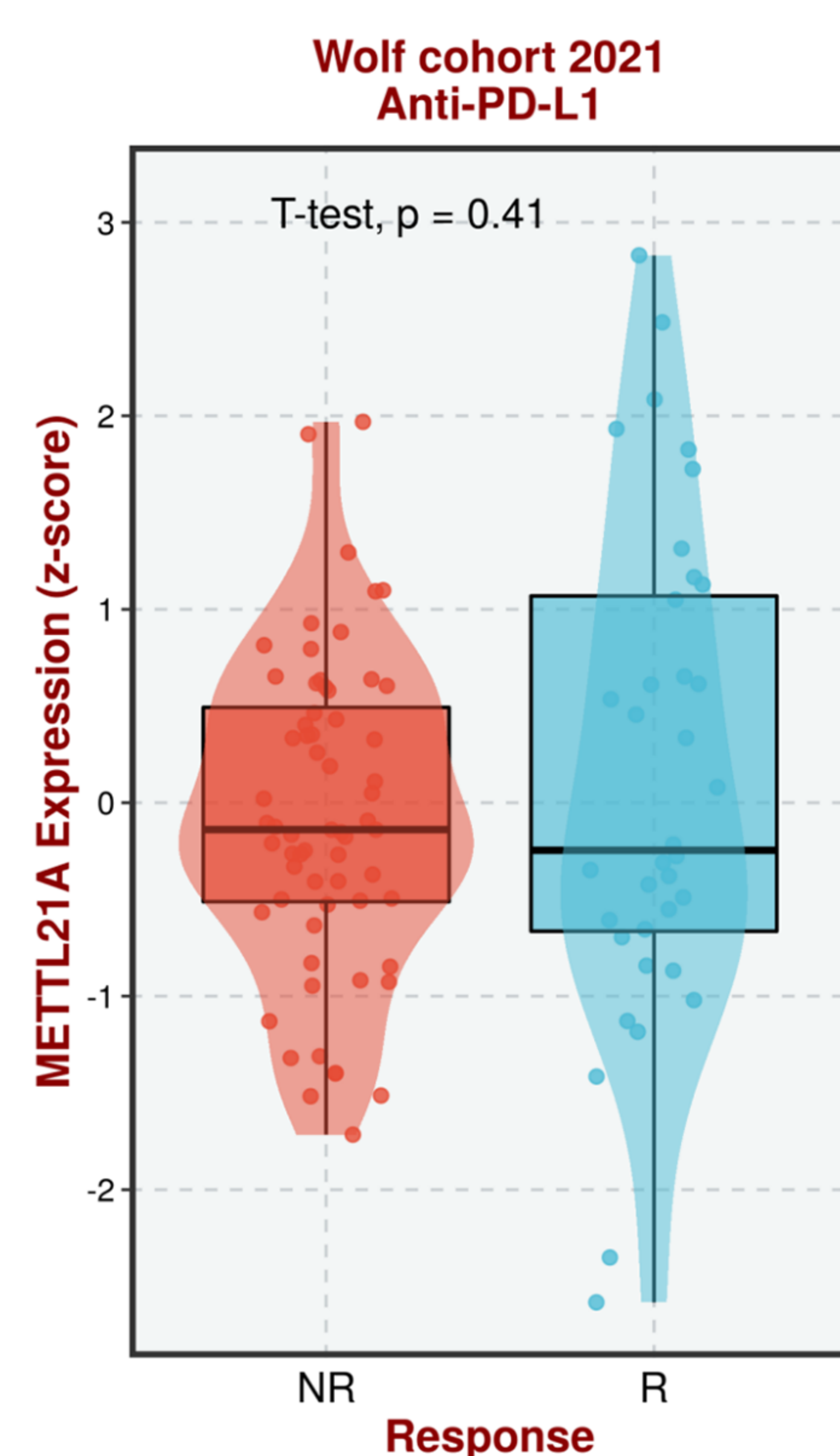
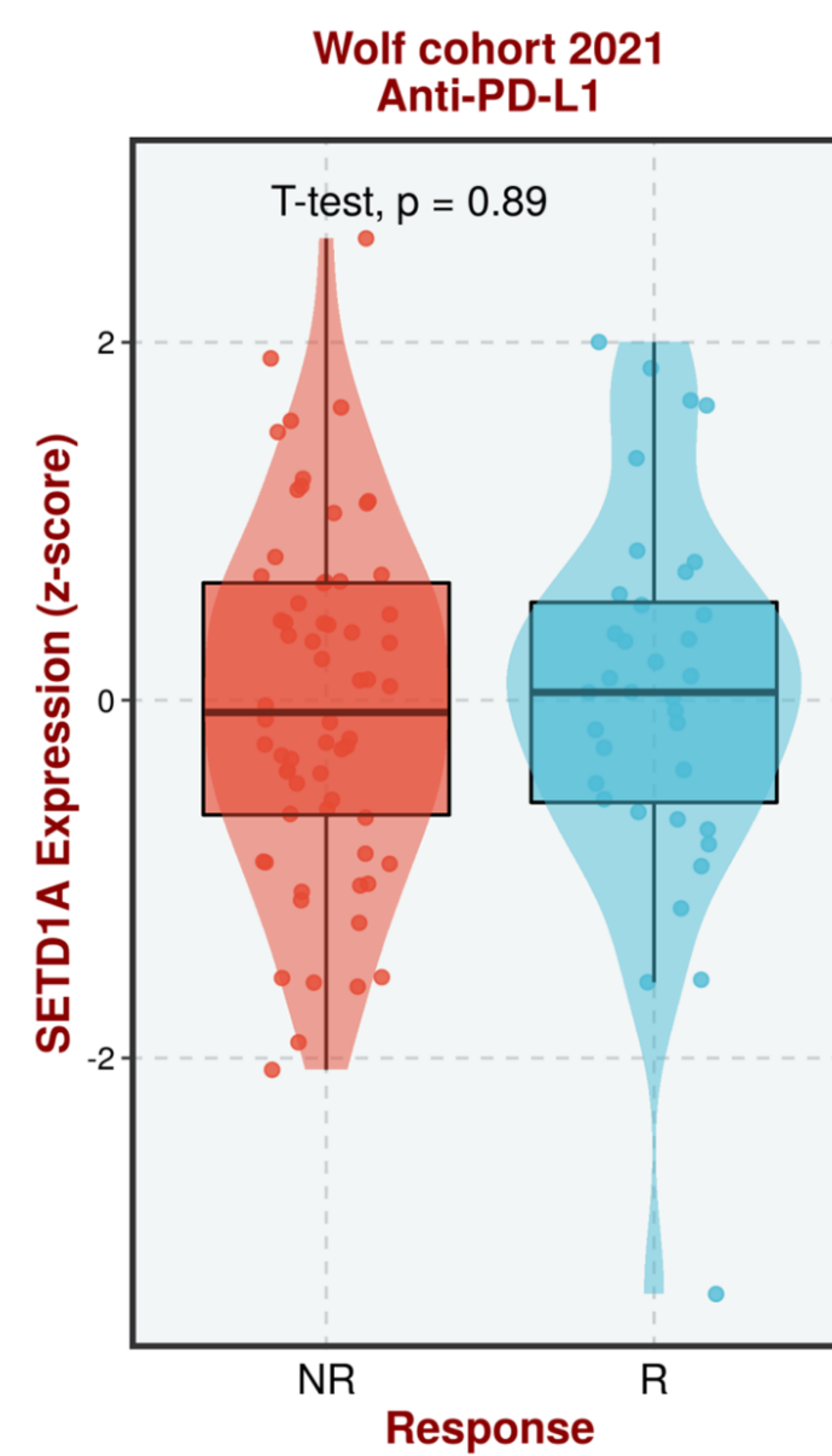
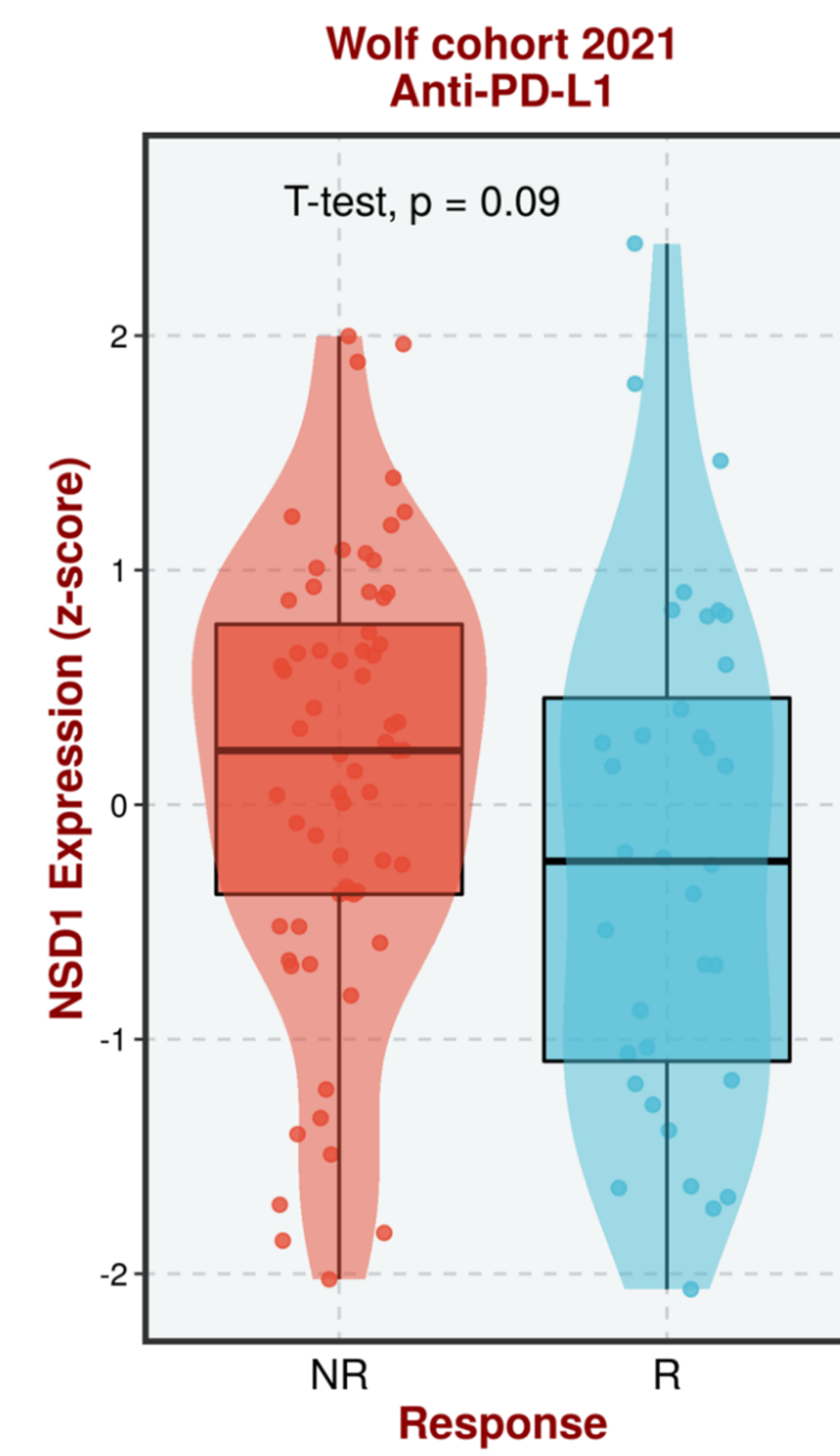
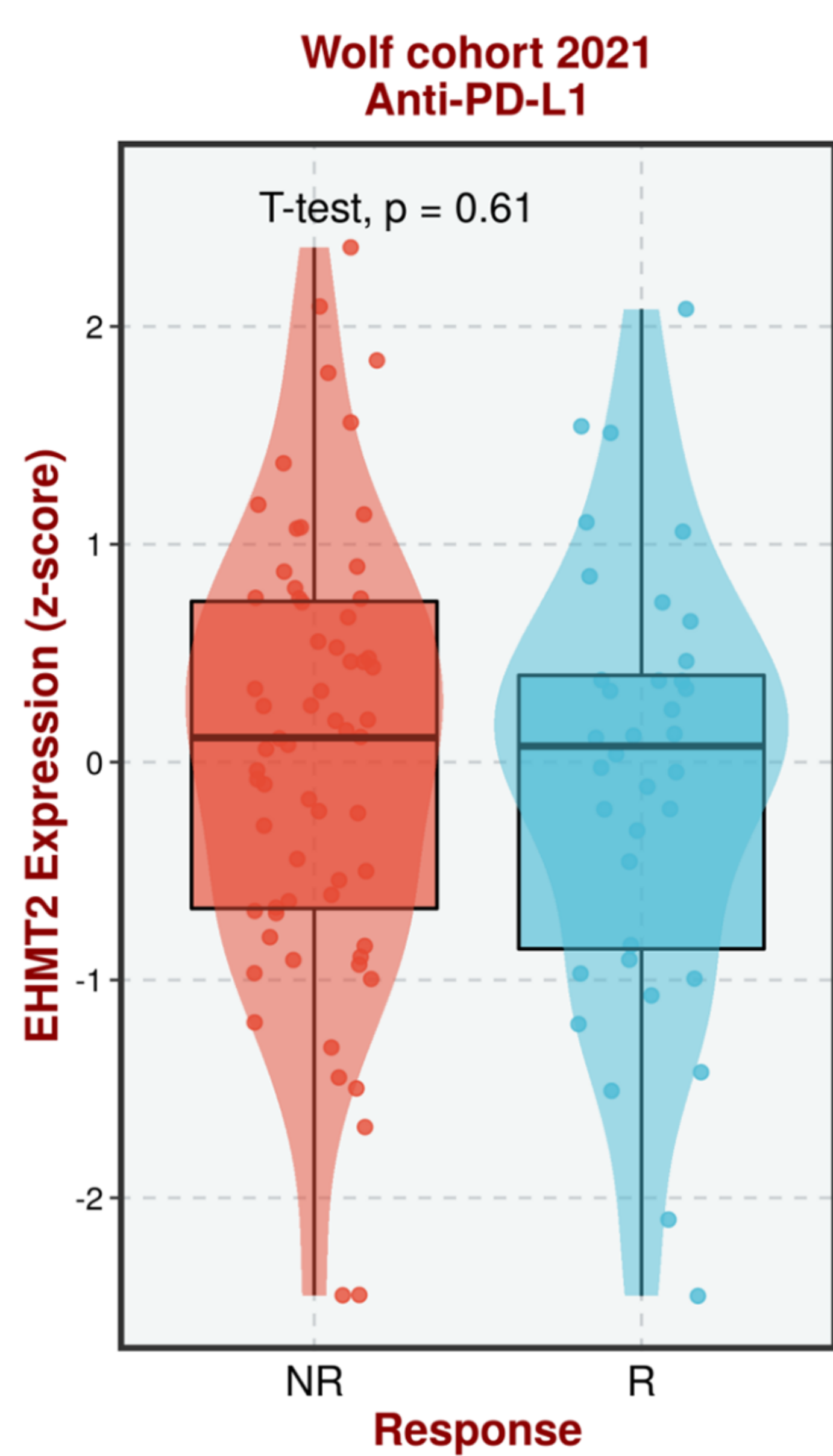
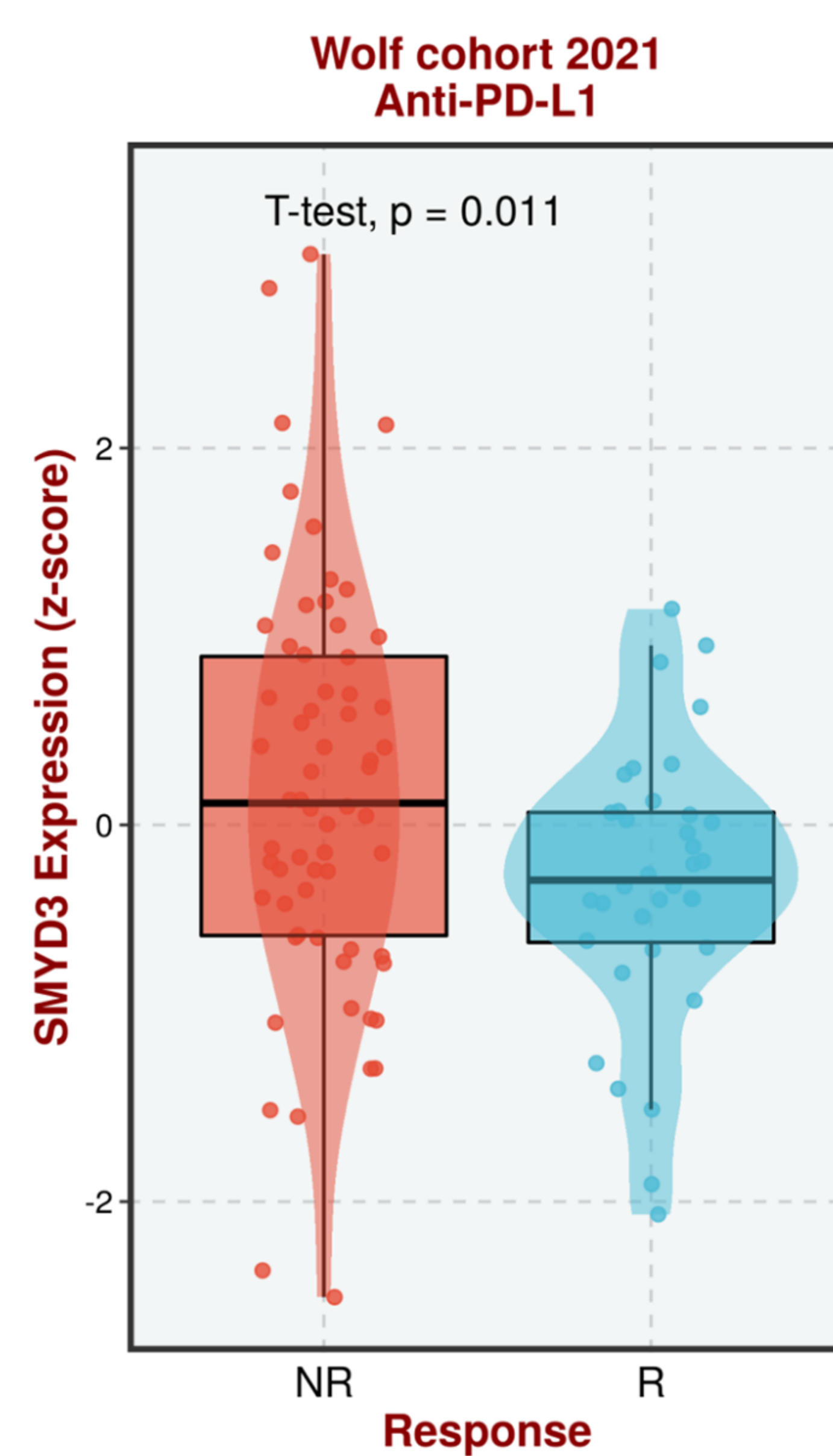
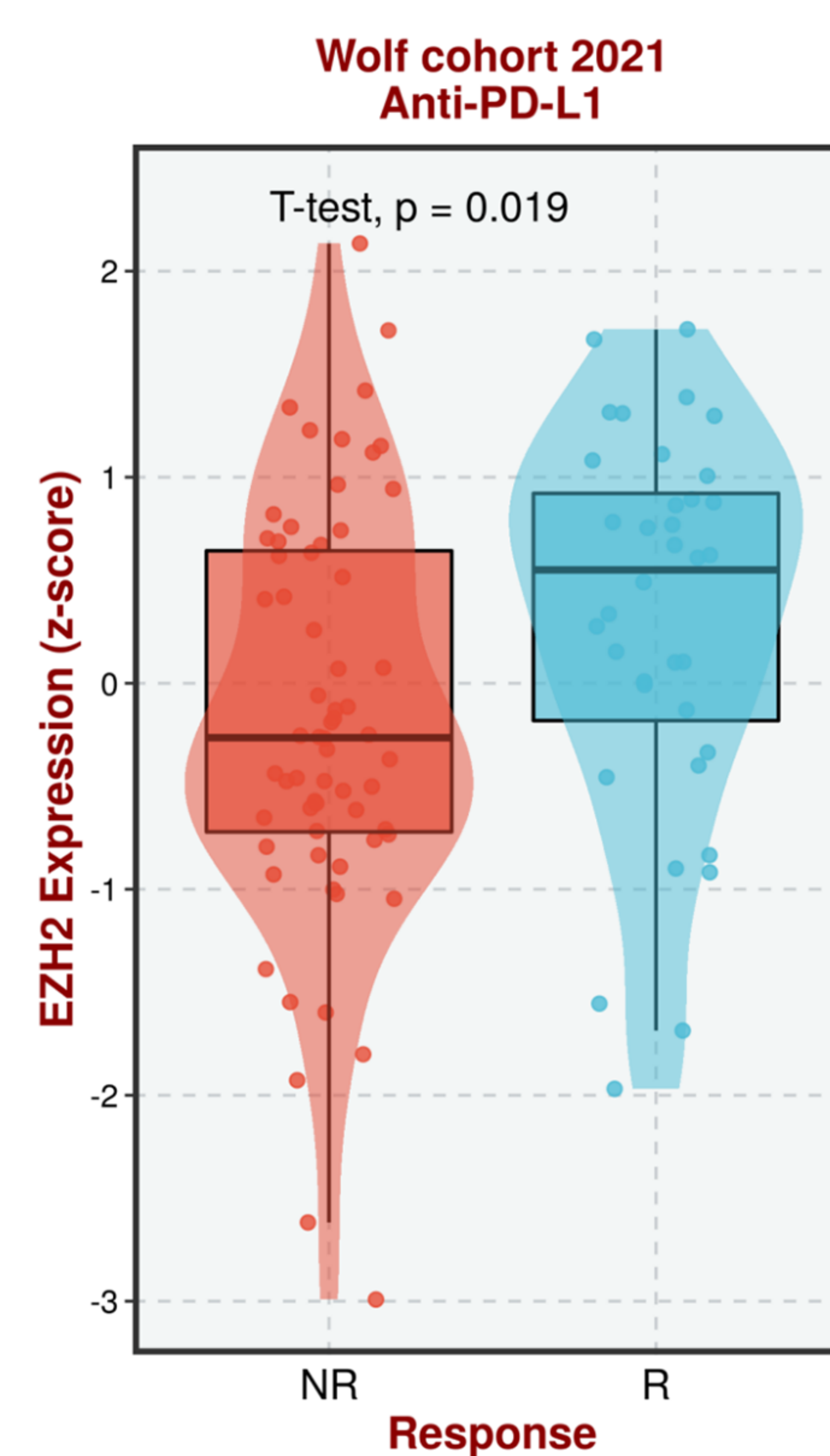
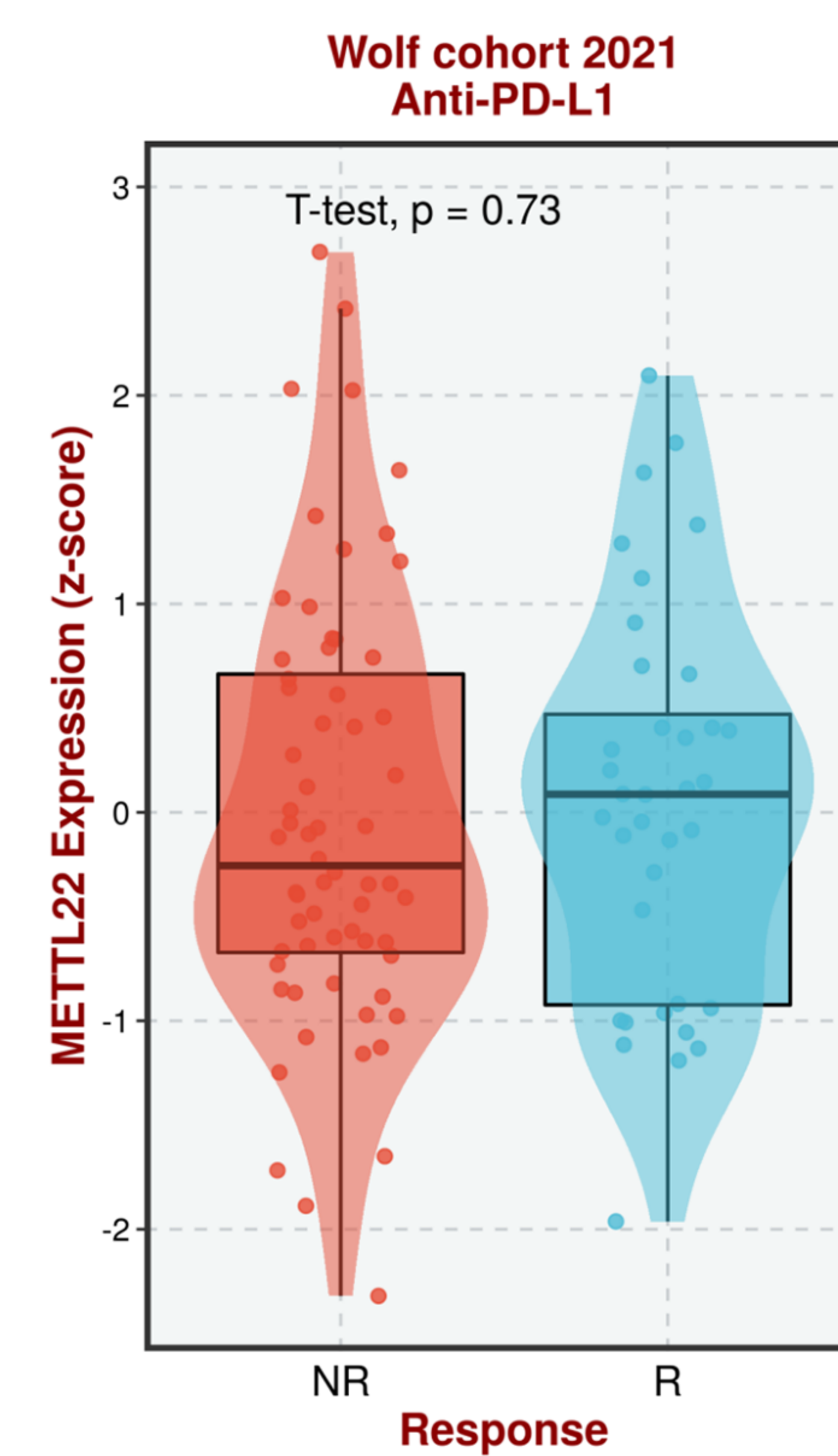
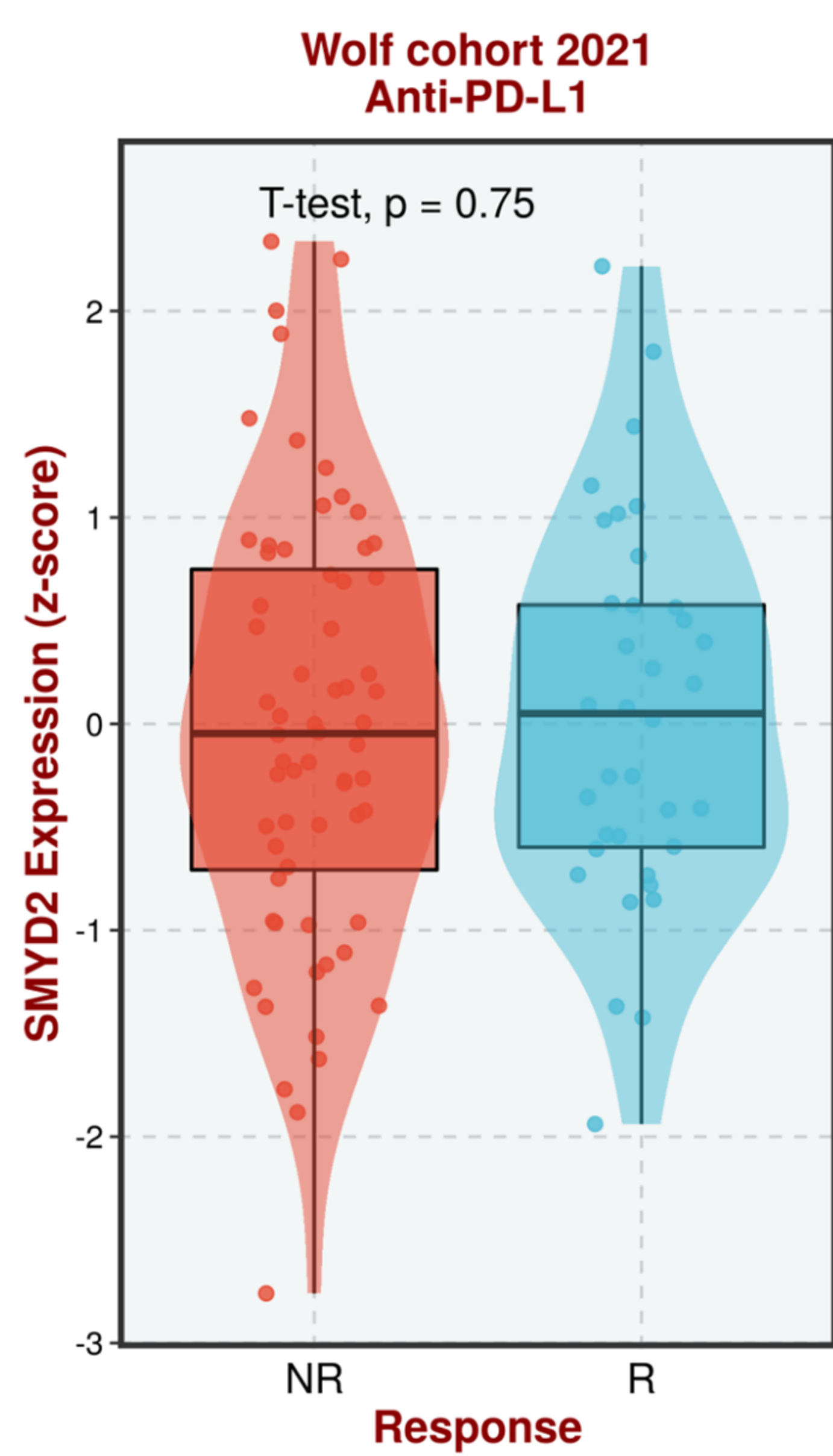
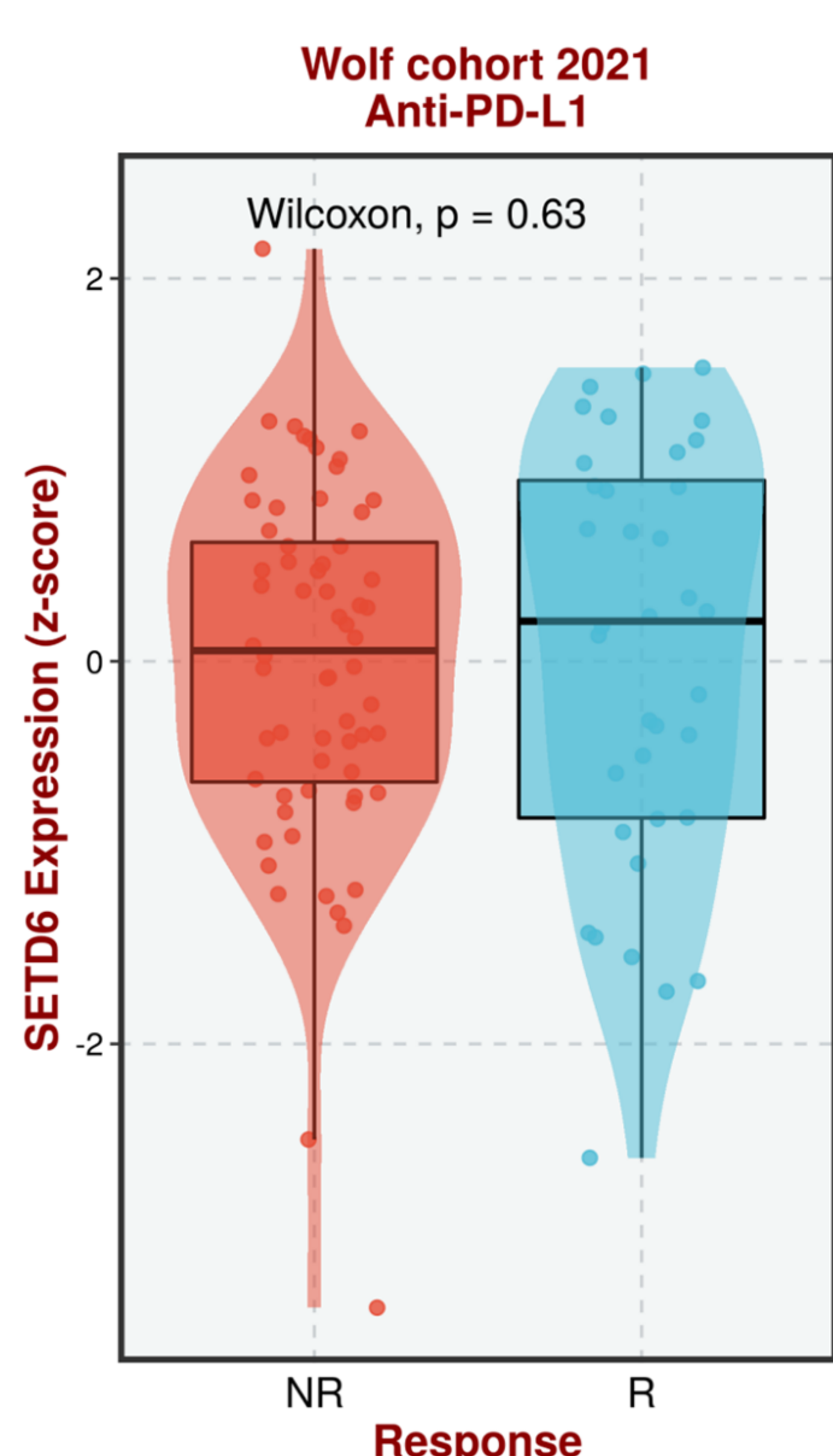
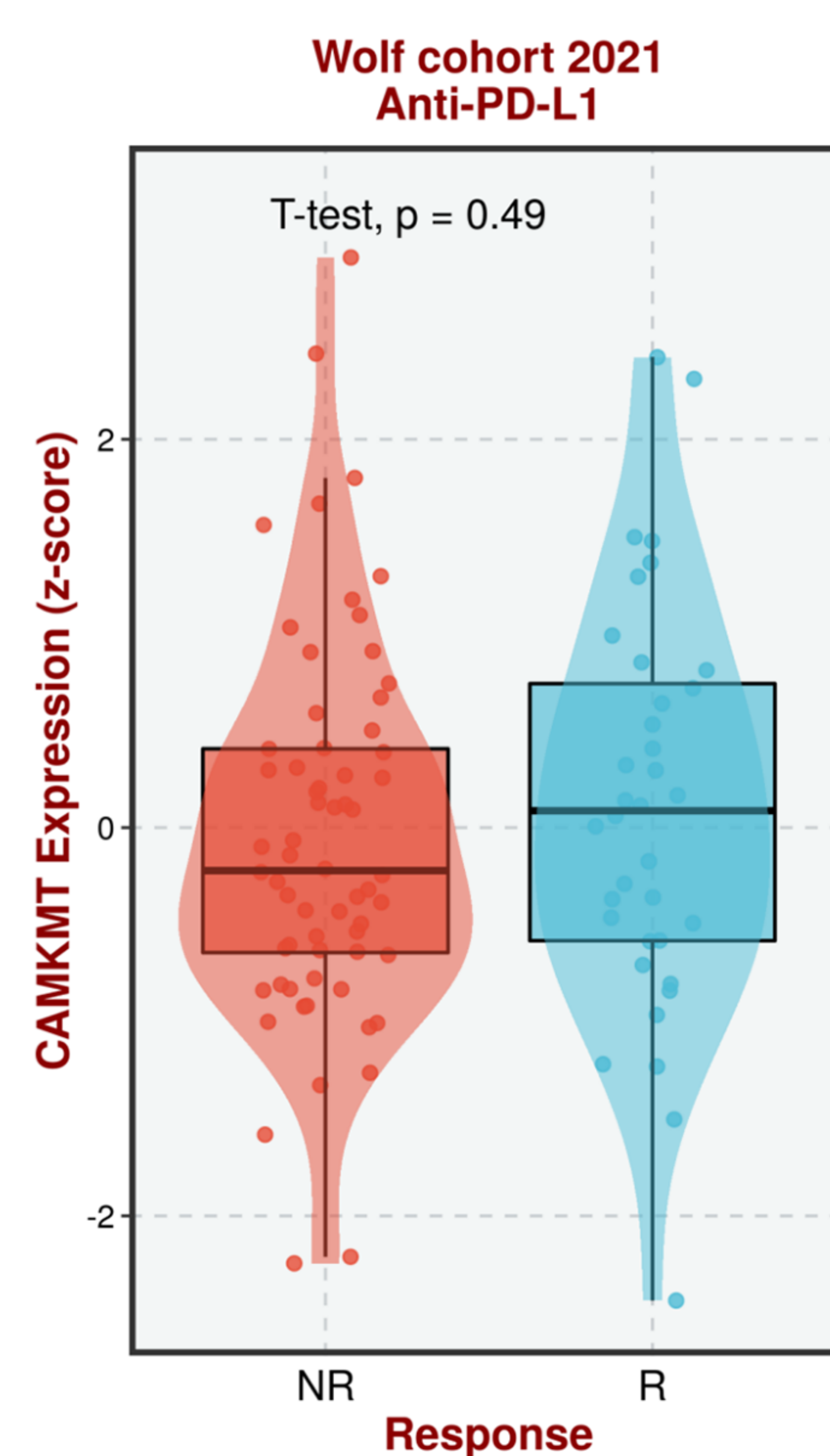
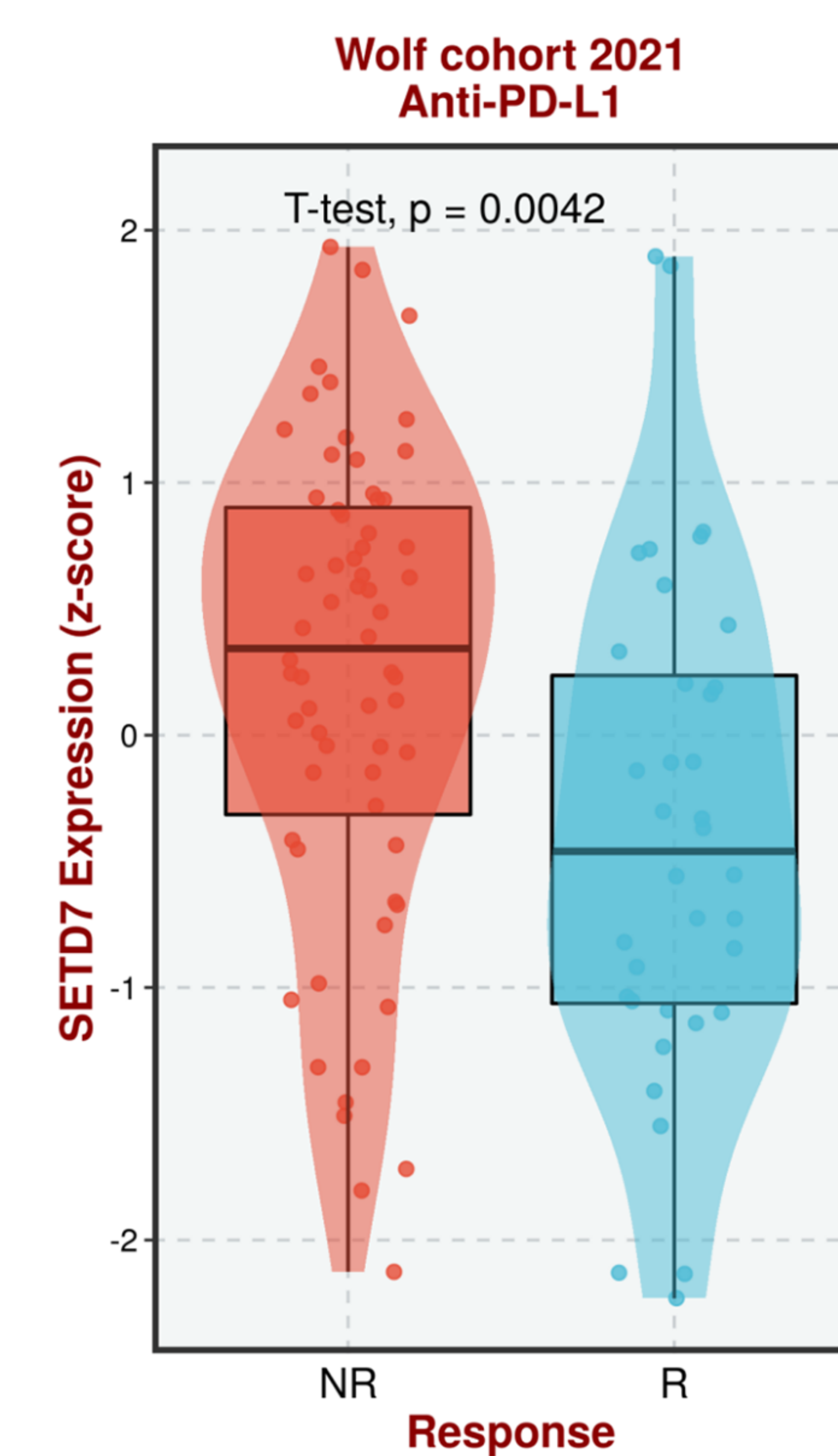
20 **Figure S4: Associations between SETD7 and immune cells infiltration in TCGA BLCA.**

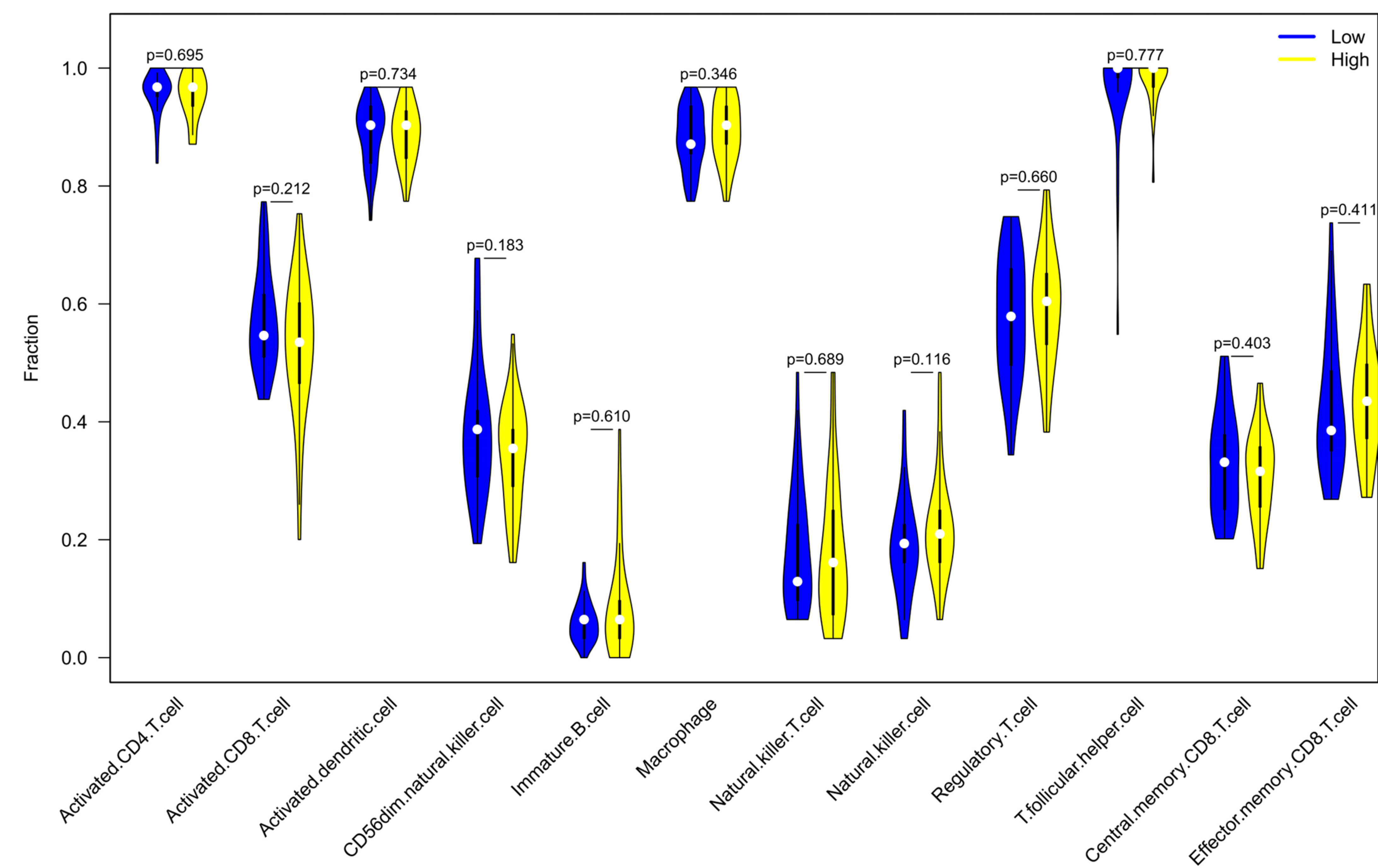
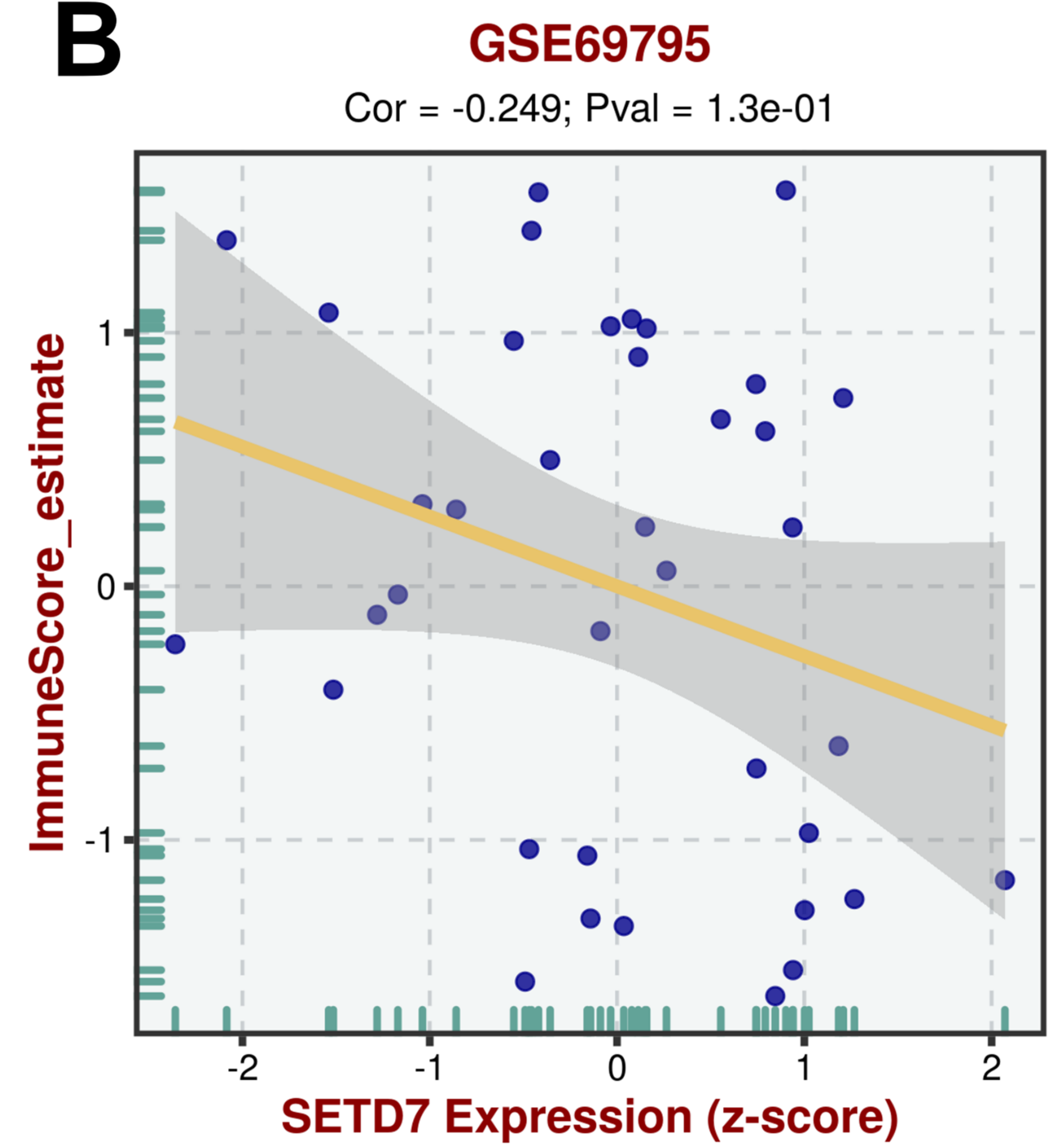
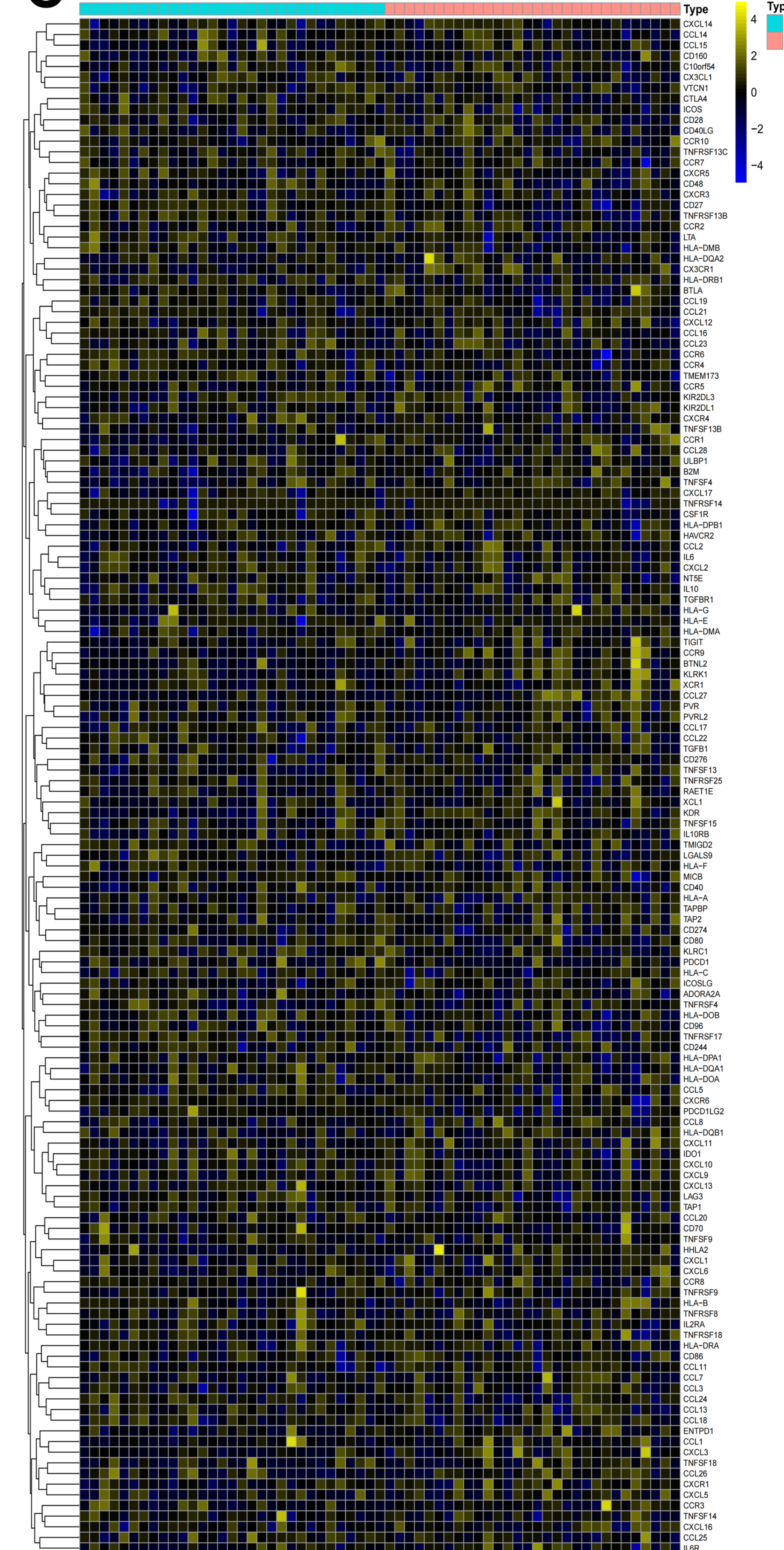
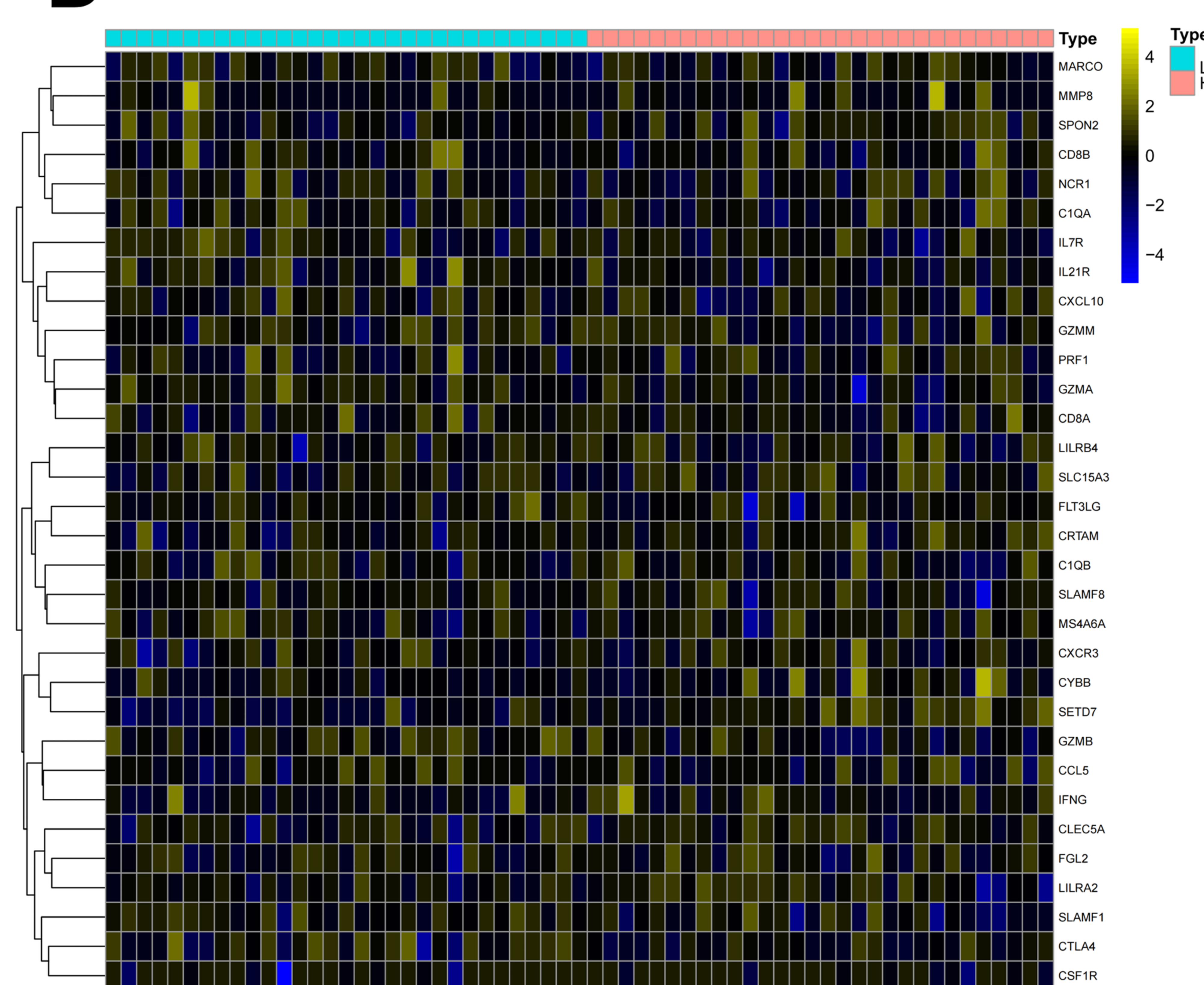
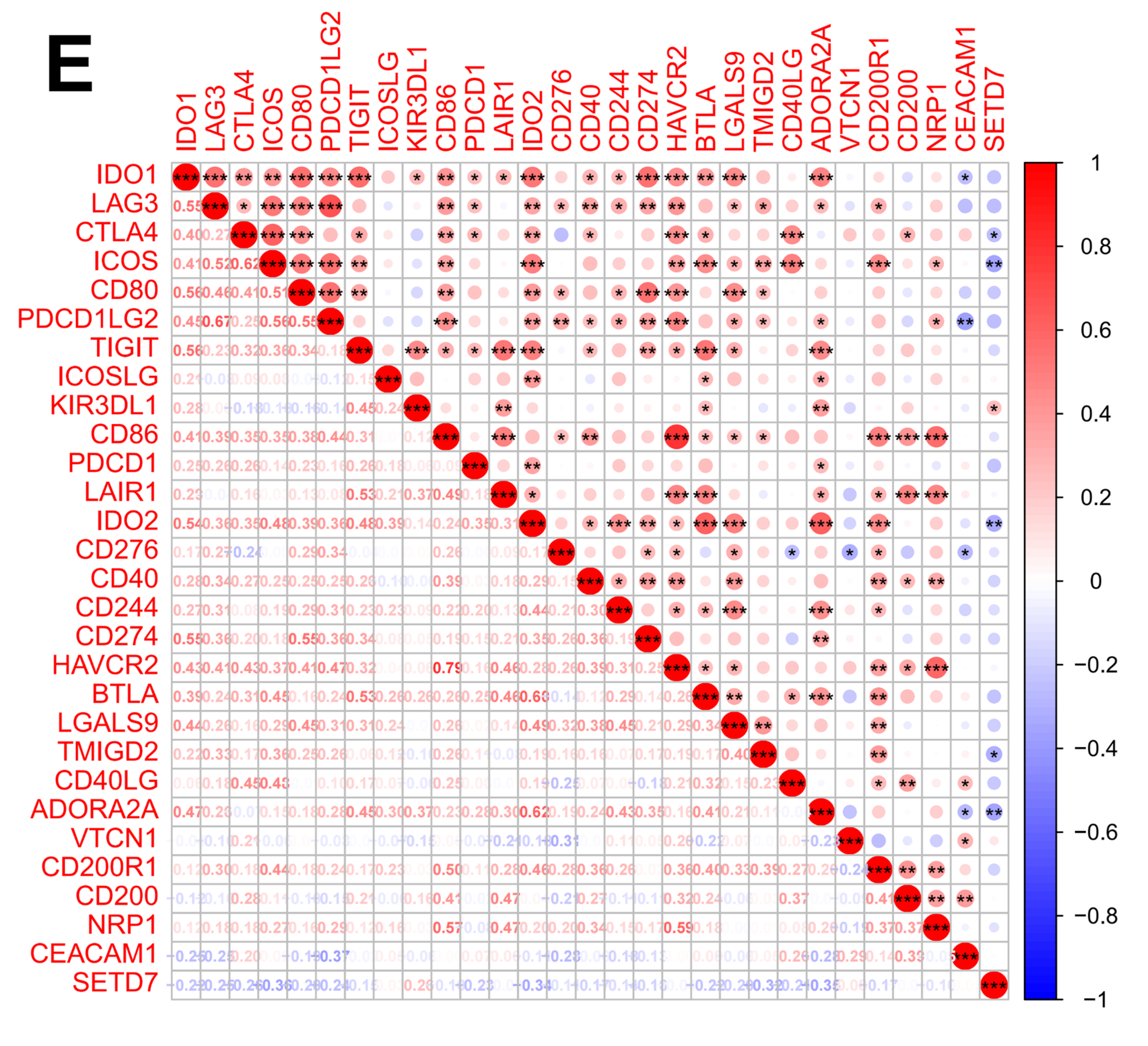
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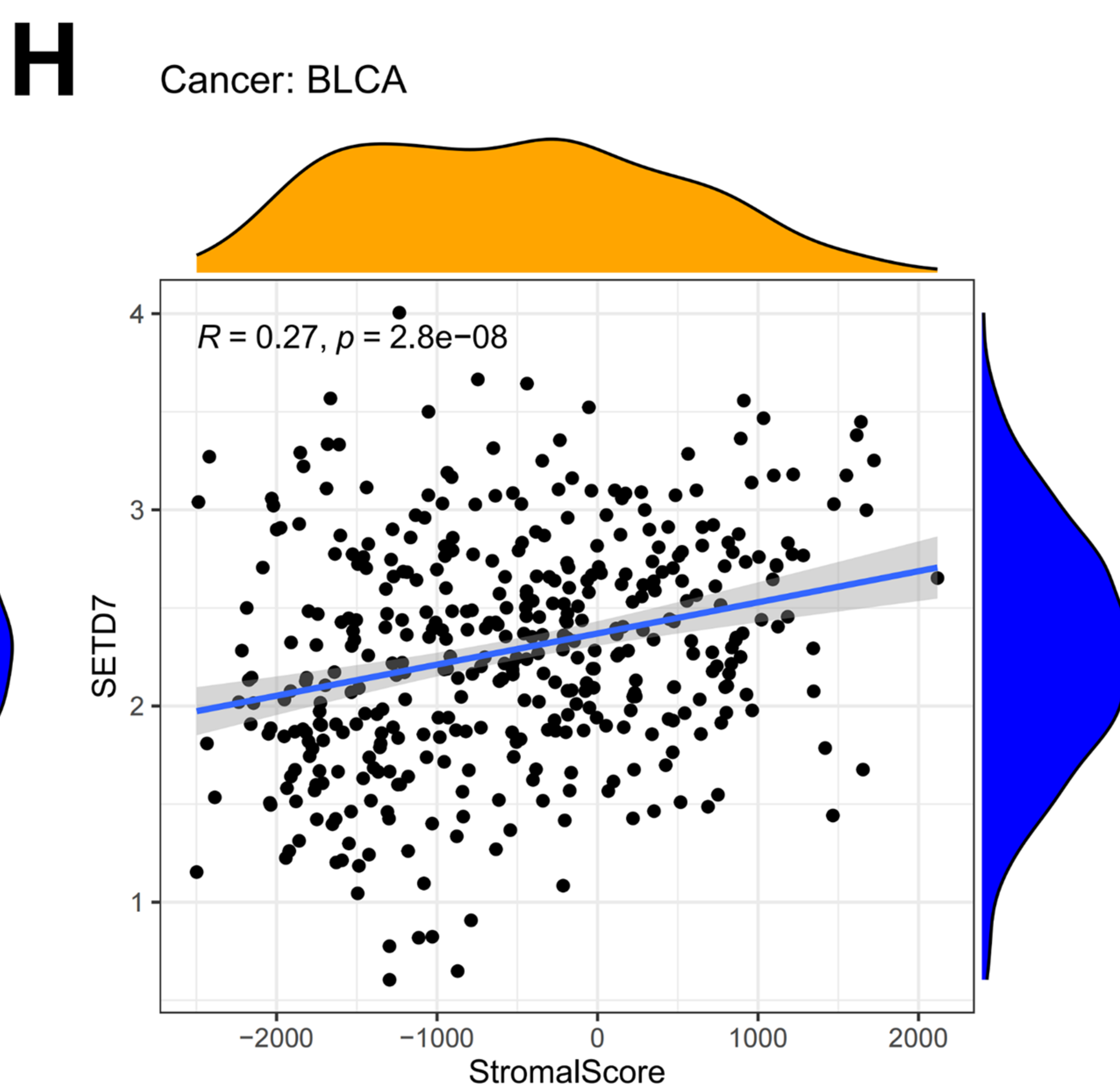
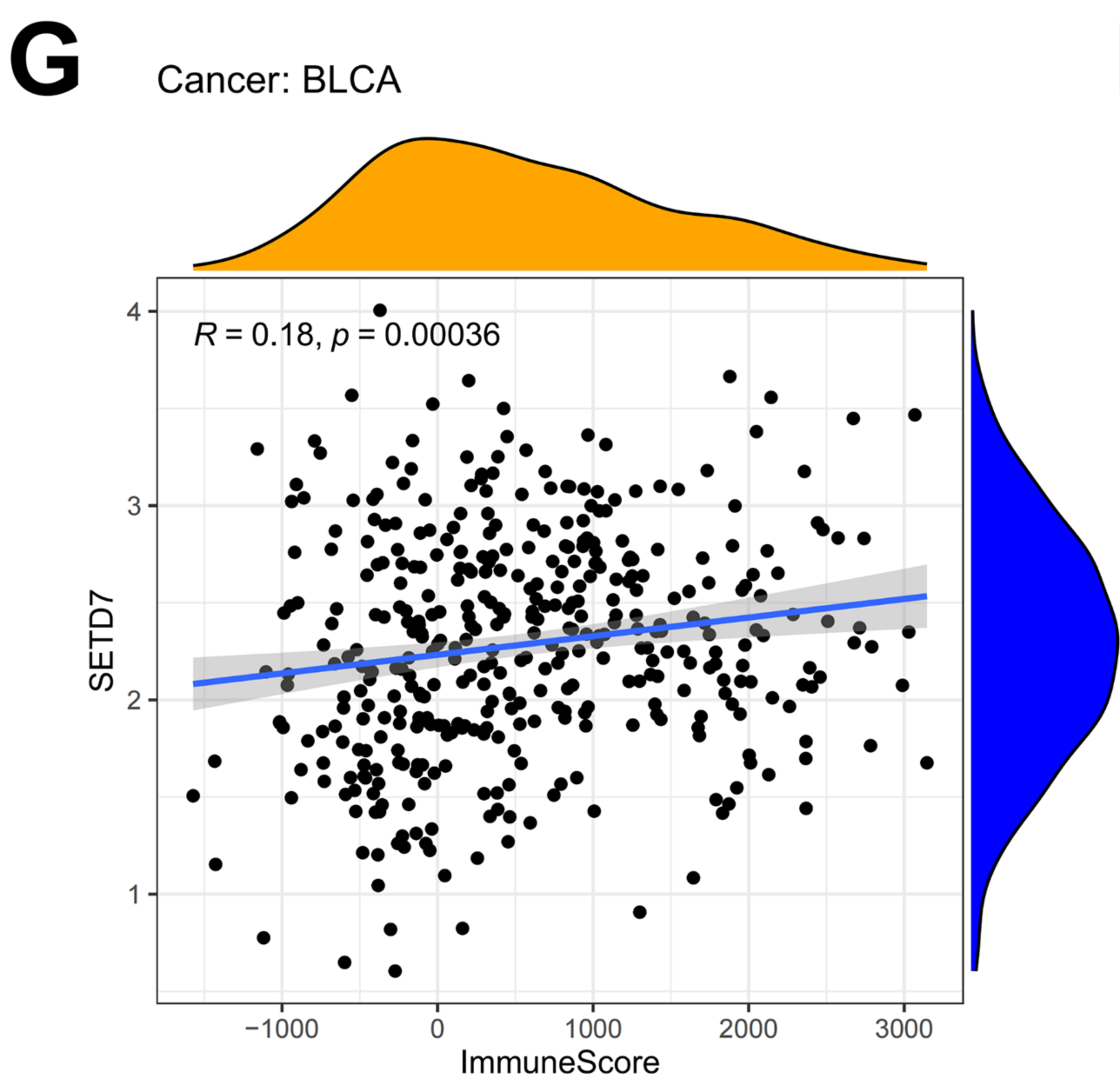
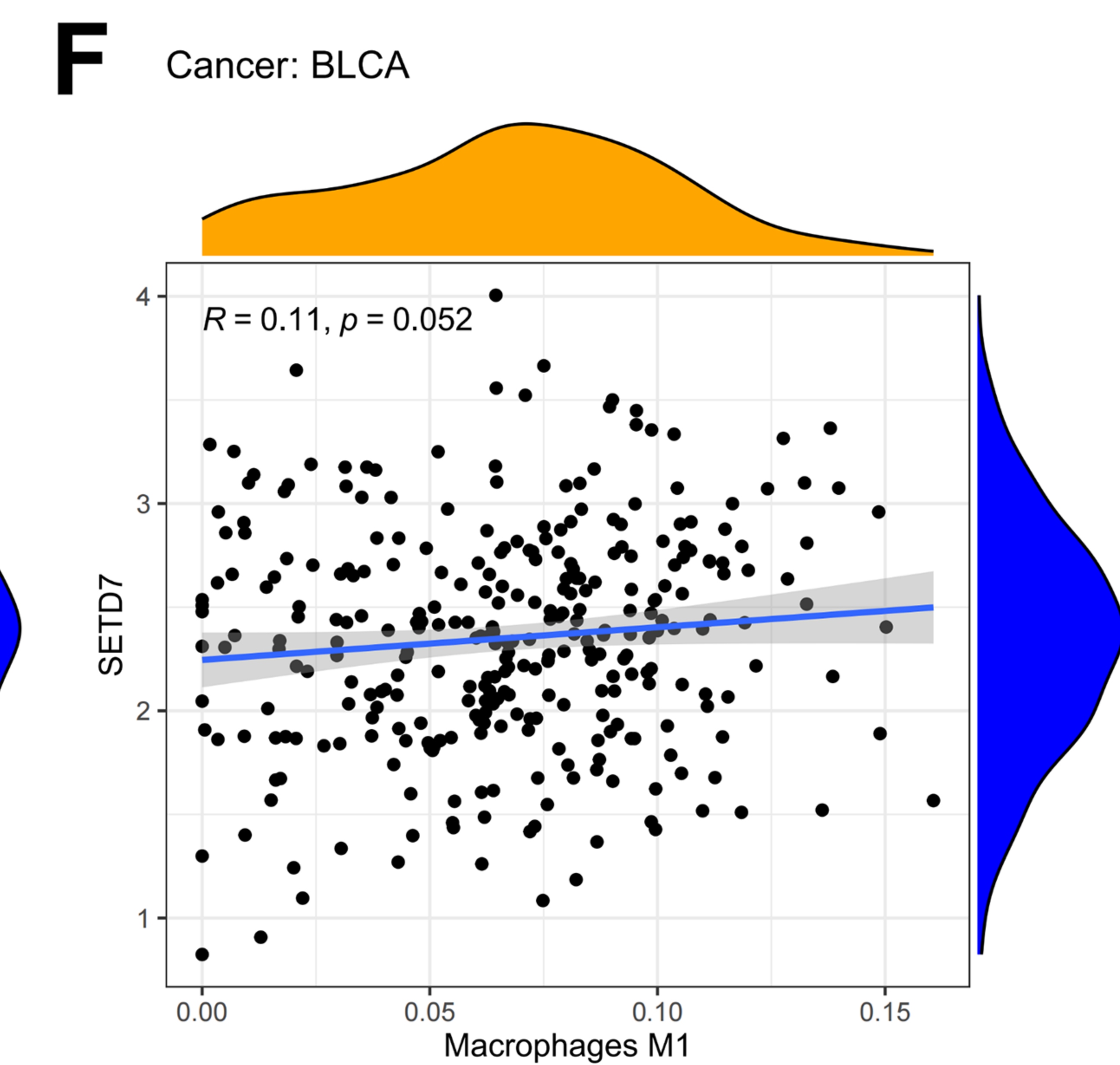
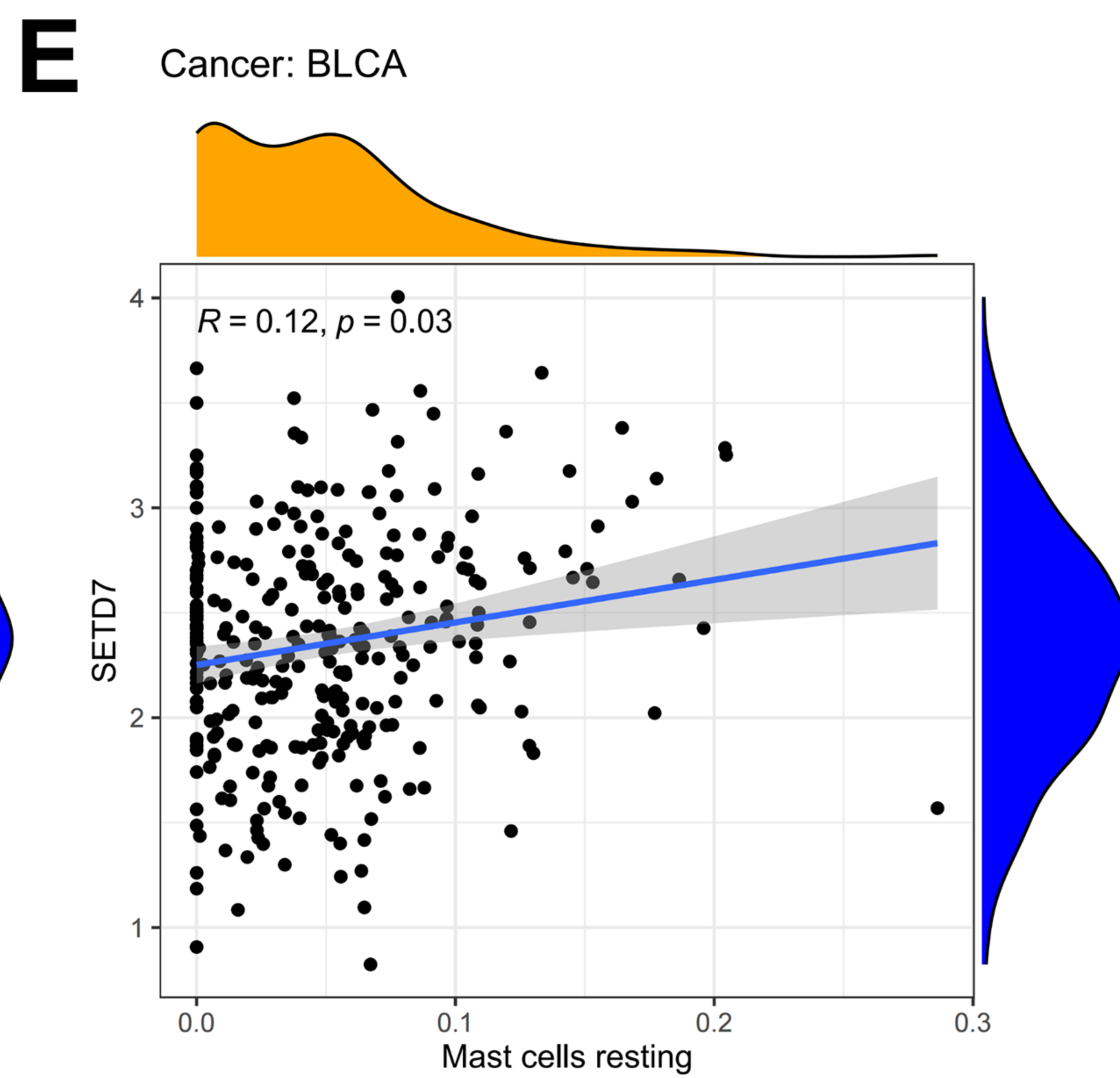
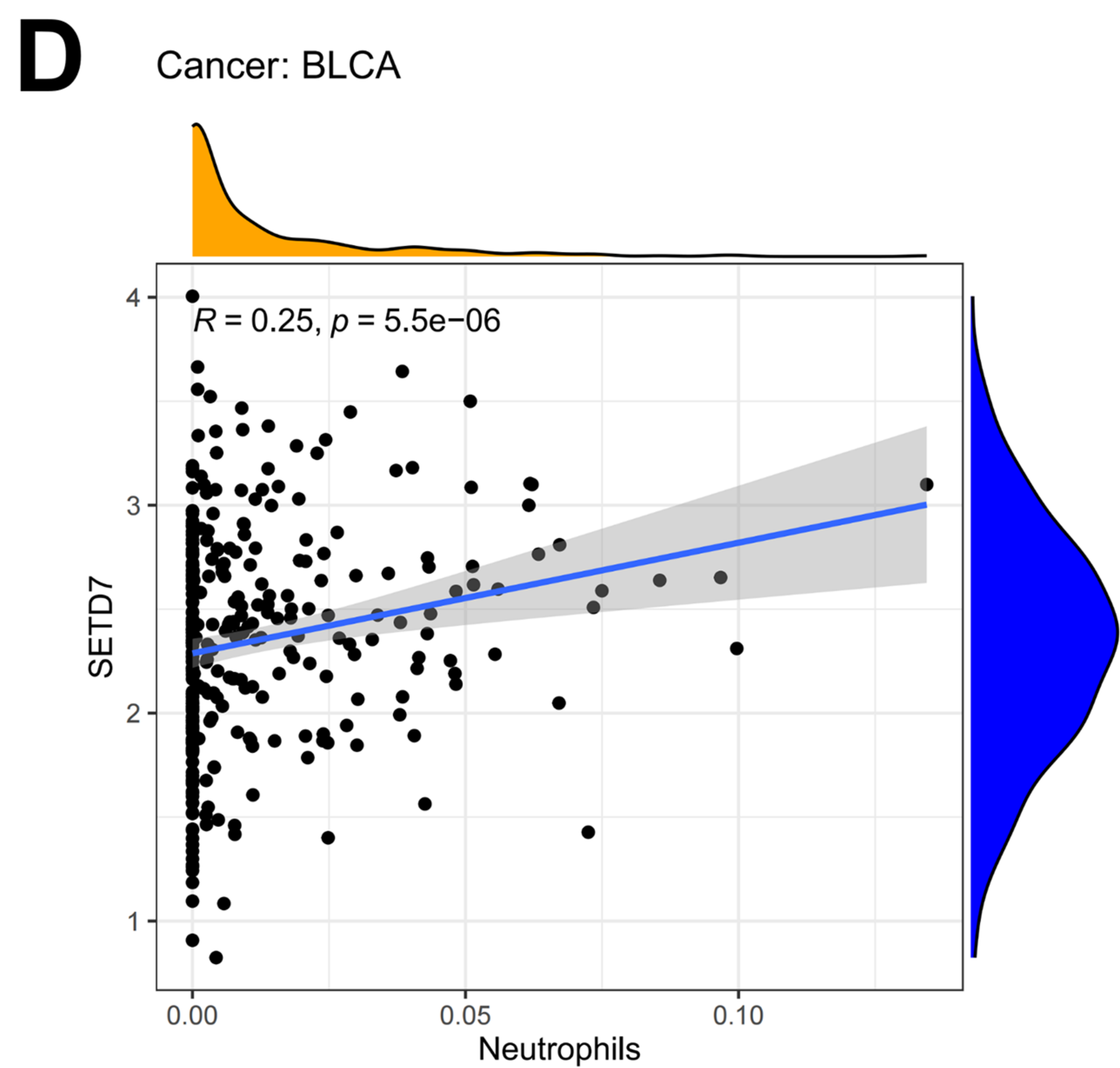
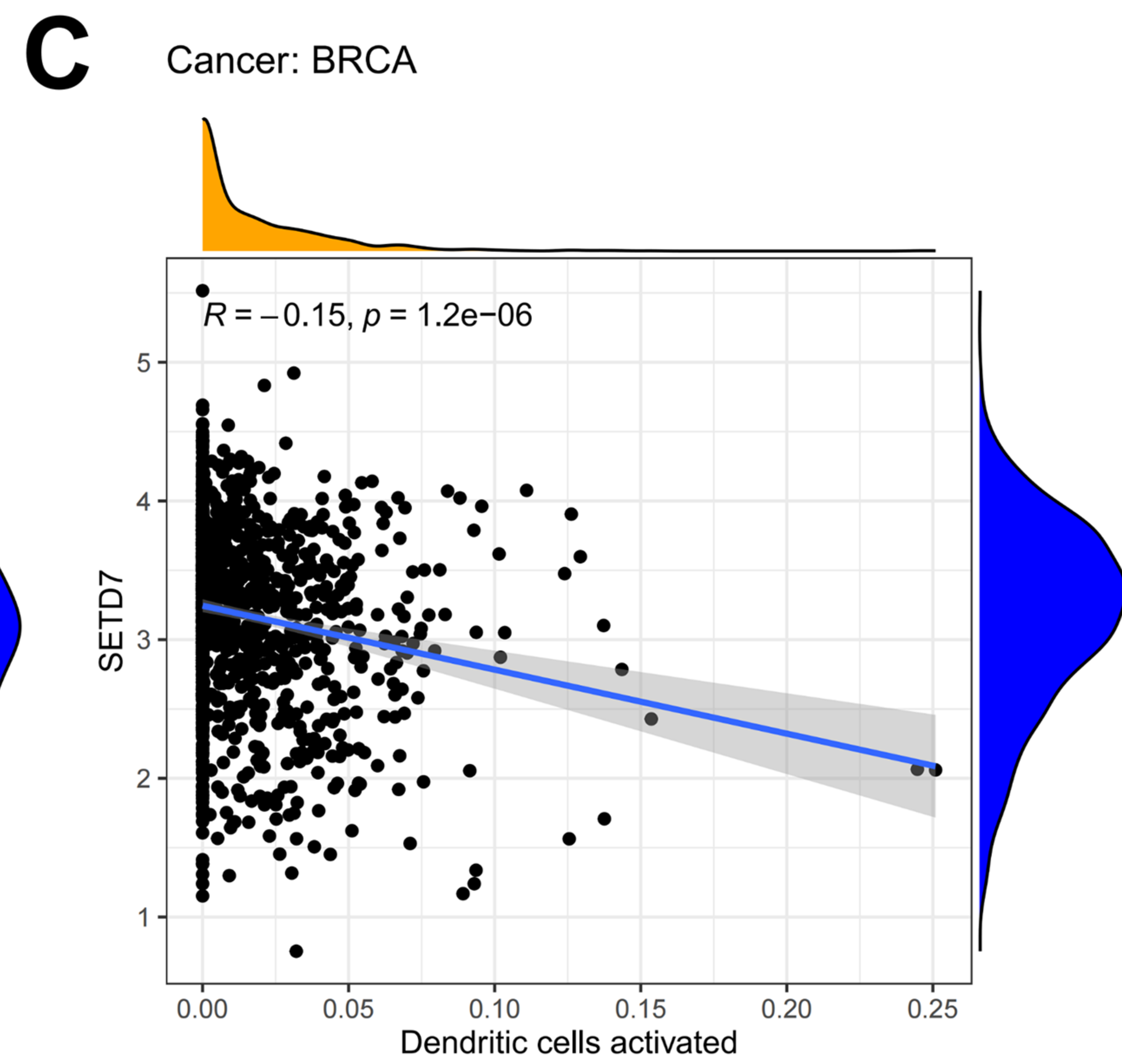
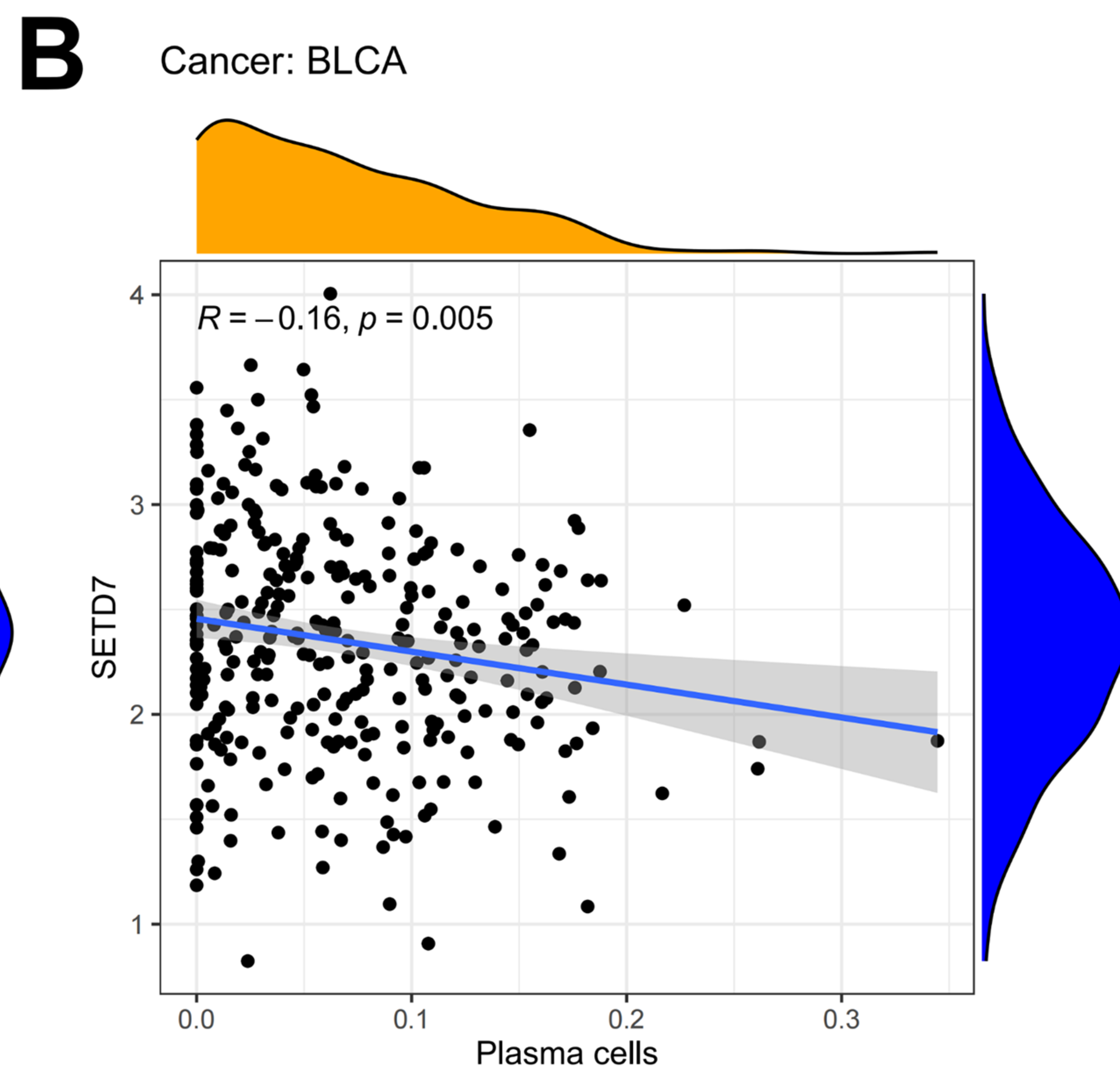
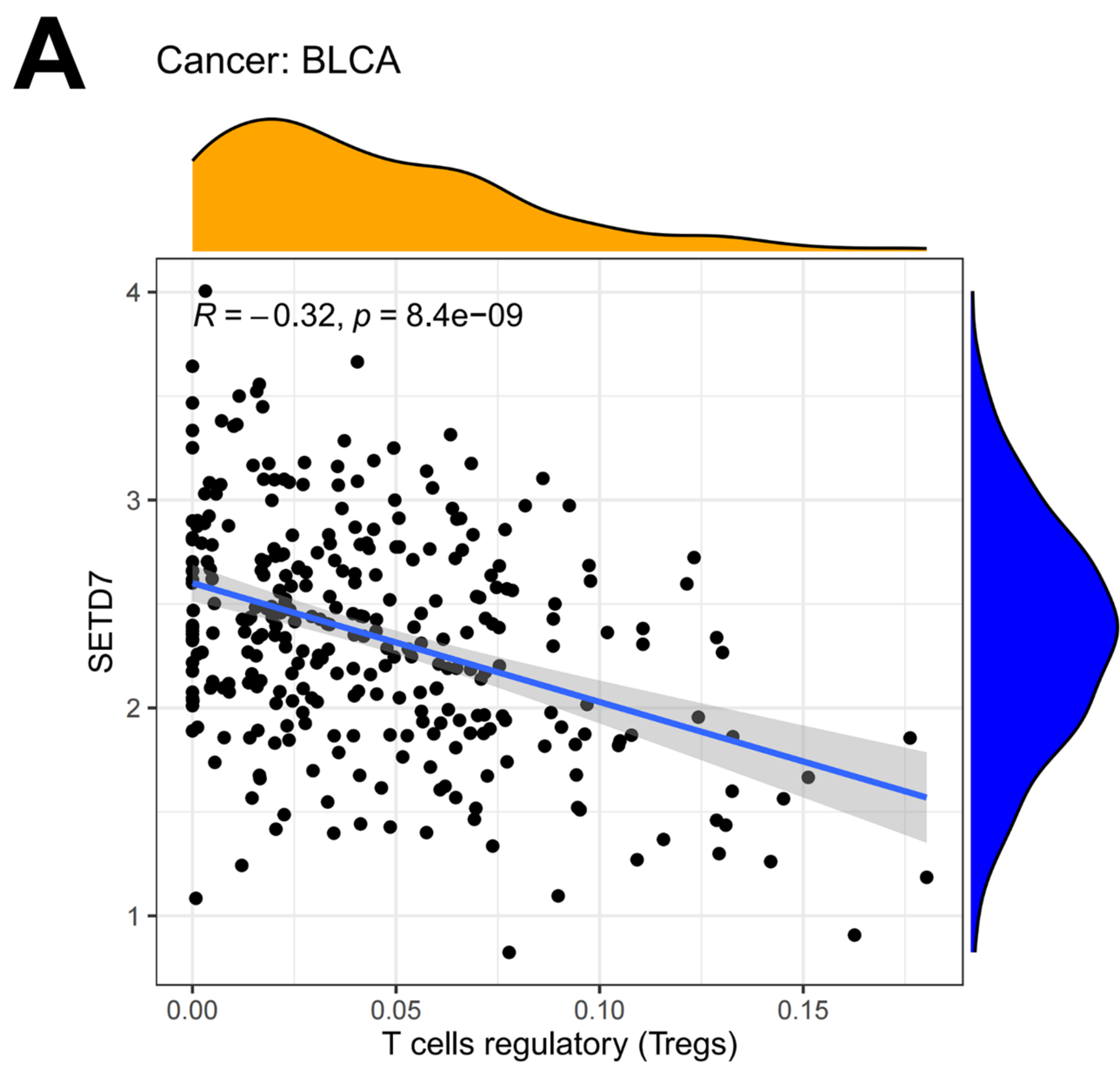
22 **Figure S5: The GO-GSEA and Hallmark-GSEA analyses of SETD7 in BCa.**

23

A SETDB1**B** METTL21A**C** SETD1A**D** SETD8**E** NSD1**F** EHMT2**G** SMYD3**H** EZH2**I** METTL22**J** SMYD2**K** SETD6**L** CAMKMT**M** SETD7

A**SETDB1****B****METTL21A****C****SETD1A****D****NSD1****E****EHMT2****F****SMYD3****G****EZH2****H****METTL22****I****SMYD2****J****SETD6****K****CAMKMT****L****SETD7**

A**B****C****D****E**



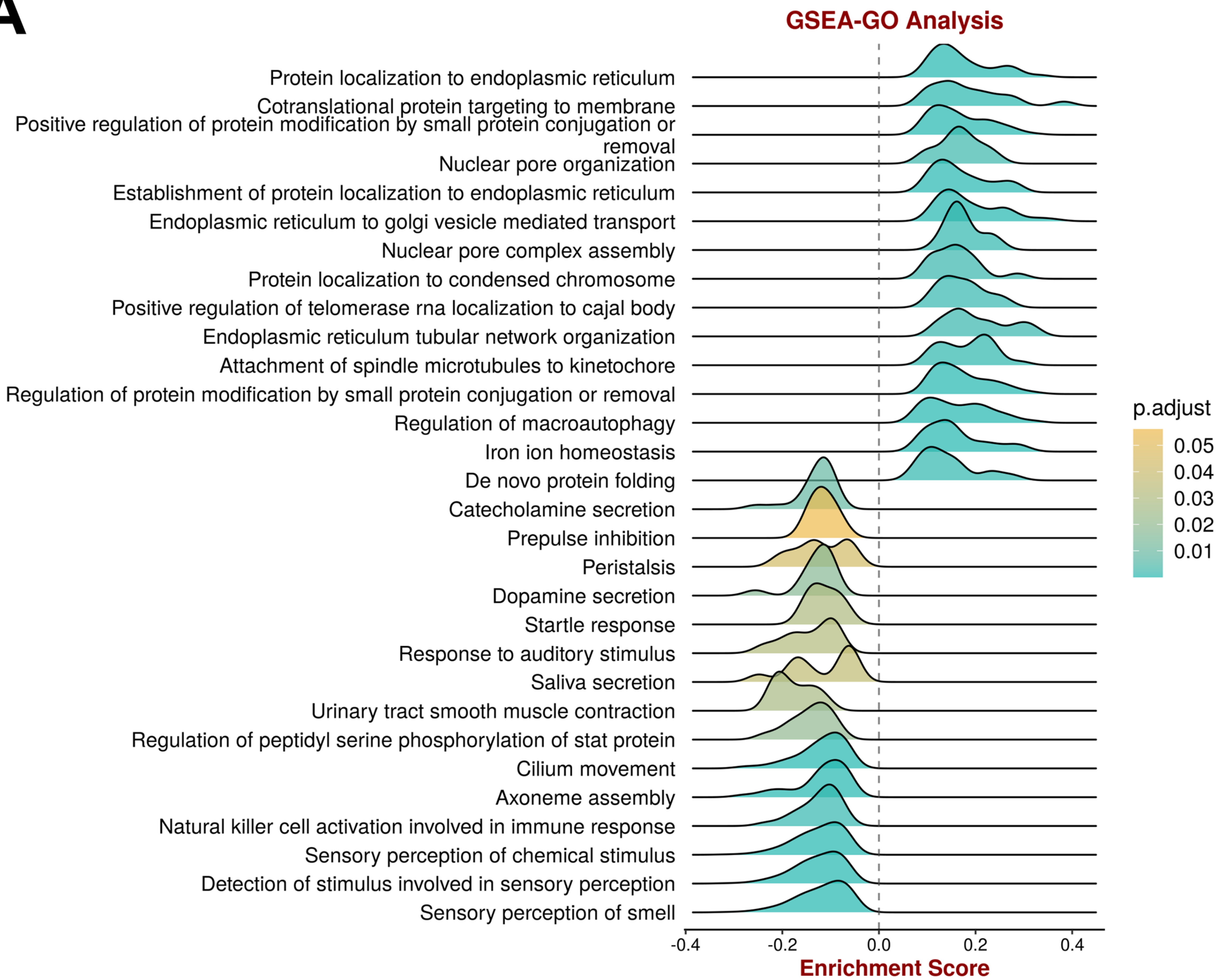
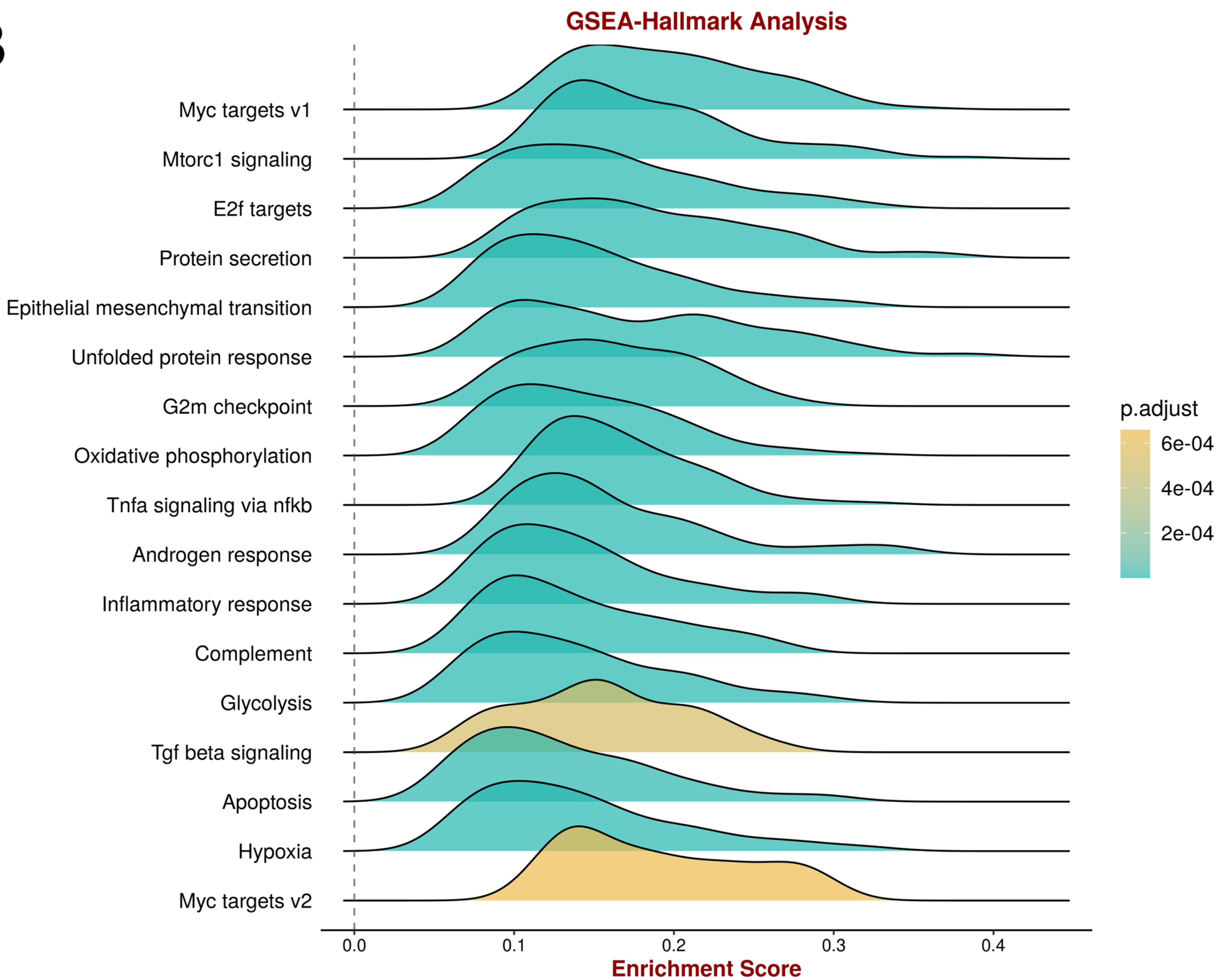
A**B**

Table S4: All PCR primers used in this research

| Primers | | Sequence (5'-3') |
|----------------|---------|------------------------------|
| SETD7 | Forward | 5'-ATGGATAGCGACGACGAGATG-3' |
| | Reverse | 5'-GCAGAACCCGTGCGGTAAT-3' |
| PD-L1 | Forward | 5'-TGGCATTGCTGAACGCATTT-3' |
| | Reverse | 5'-TGCAGCCAGGTCTAATTGTTTT-3' |
| β -Actin | Forward | 5'-CTCCATCCTGGCCTCGCTGT-3' |
| | Reverse | 5'-GCTGTCACCTTCACCGTTCC-3' |

Table S5: Differentially expressed chemokines, chemokine receptors, MHC molecules, and immunostimulators in high and low SETD7 groups of GSE69795.

| ID | logFC | AveExpression | P.Value |
|-----------|--------------|---------------|-------------|
| CD27 | -1.05843677 | 10.68337821 | 0.000476409 |
| KDR | 0.921726243 | 10.94967268 | 0.001037254 |
| CCL27 | 1.076677996 | 6.888451478 | 0.003797654 |
| CCR9 | 0.371974514 | 5.96194796 | 0.005139314 |
| CXCL17 | 0.922135828 | 13.56727185 | 0.005310415 |
| TNFRSF17 | -1.113525306 | 7.600444778 | 0.005756879 |
| TNFRSF13B | -0.837040918 | 11.36619321 | 0.009039589 |
| CX3CR1 | 0.861538602 | 8.406087679 | 0.010659964 |
| KLRK1 | 0.461059444 | 7.095738245 | 0.015614535 |
| CCR6 | -0.357586301 | 12.50209037 | 0.026900344 |
| HHLA2 | 0.283602898 | 5.447229856 | 0.033298687 |
| CXCR6 | -0.66946613 | 10.52301643 | 0.047939565 |
| CCR2 | 0.498545176 | 7.366932452 | 0.049446249 |

Table S6: Differentially expressed immune cell (CD8⁺T cell, NK cell, Macrophage, Th1 cell, and DC cell) related effector genes in high and low SETD7 groups of GSE69795.

| ID | logFC | AveExpression | P. Value |
|--------|--------------|---------------|-------------|
| SETD7 | 1.090535255 | 11.05232836 | 9.542E-06 |
| GZMB | -0.468495417 | 12.54022642 | 0.019992446 |
| GZMA | -0.481960831 | 12.19780344 | 0.024910009 |
| SLAMF1 | -0.701155072 | 8.632630496 | 0.03135724 |