### Supplementary Tables

**Table 1. Comparison of confounding factors in different NSCLC stages before and after PSM**

| Clinicopathologic Features | Stage (before PSM) | Stage (after PSM) | P   | P   |
|----------------------------|--------------------|-------------------|-----|-----|
|                            | I-II | III |     | I-II | III |     |
| Ages                       | 0.305 | 0.213 |     |     |     |     |
| ≥65                        | 108  | 61  | 40  | 40  |     |     |
| <65                        | 122  | 54  | 53  | 53  |     |     |
| Gender                     | 0.208 | 0.097 |     |     |     |     |
| Male                       | 116  | 67  | 55  | 55  |     |     |
| Female                     | 114  | 48  | 38  | 38  |     |     |
| Smoking                    | 0.745 | 1.000 |     |     |     |     |
| Yes                        | 108  | 50  | 46  | 46  |     |     |
| No                         | 122  | 65  | 47  | 47  |     |     |
Table 2. The correlation of YTHDF3 expression with clinicopathologic features of NSCLC before and after PSM

| Clinicopathologic Features | YTHDF3 (before PSM) | YTHDF3 (after PSM) |
|----------------------------|----------------------|--------------------|
|                            | Low  | High | \( P \) | Low  | High | \( P \) |
| Stage                      |      |      |        |      |      |        |
| I-II                       | 69   | 161  | 0.000  | 20   | 73   | 0.000  |
| III                        | 12   | 103  | 3      | 90   |      |        |
Table 3. Comparison of confounding factors in different stages of Esophageal carcinoma before and after PSM

| Clinicopathologic Features | Stage (before PSM) | Stage (after PSM) |
|----------------------------|--------------------|-------------------|
|                            | I-II   | III | P       | I-II | III | P       |
|                            | n=35   | n=15|         | n=15 | n=15|         |
| Ages                       |        |     | 0.888   |       |     | 1.000   |
| ≥65                        | 17     | 7   | 7       | 7    | 7   |         |
| <65                        | 18     | 8   | 8       | 8    | 8   |         |
| Gender                     |        |     | 0.852   |       |     | 0.607   |
| Male                       | 20     | 9   | 9       | 9    | 9   |         |
| Female                     | 15     | 6   | 6       | 6    | 6   |         |
| Smoking                    |        |     | 0.998   |       |     | 1.000   |
| Yes                        | 16     | 7   | 7       | 7    | 7   |         |
| No                         | 19     | 8   | 8       | 8    | 8   |         |
Table 4. The correlation of YTHDF3 expression with clinicopathologic features of Esophageal carcinoma before and after PSM

| Clinicopathologic Features | YTHDF3 (before PSM) | YTHDF3 (after PSM) |
|----------------------------|---------------------|--------------------|
|                            | Low | High | P    | low | high | P    |
| Stage                      |     |      |      |     |      |      |
| I-II                       | 9   | 26   | 0.000| 2   | 13   |      |
| III                        | 1   | 14   |      | 1   | 14   |      |
| Clinicopathologic Features | Stage (before PSM) | Stage (after PSM) |
|----------------------------|--------------------|-------------------|
|                            | I-II   | III  | \( P \) | I-II  | III | \( P \) |
| Ages                       |        |      |        |        |      |        |
| ≥65                        | 10     | 3    | 0.146  | 3     | 3   | 0.227  |
| <65                        | 9      | 8    | 0.146  | 8     | 7   | 0.227  |
| Gender                     |        |      | 1.000  |        |      | 0.791  |
| Male                       | 11     | 7    | 1.000  | 3     | 6   | 0.791  |
| Female                     | 8      | 4    | 1.000  | 8     | 4   | 0.791  |
| Smoking                    |        |      | 1.000  |        |      | 0.754  |
| Yes                        | 12     | 7    | 1.000  | 7     | 6   | 0.754  |
| No                         | 7      | 4    | 1.000  | 4     | 4   | 0.754  |
| Clinicopathologic Features | YTHDF3 (before PSM) | YTHDF3 (after PSM) |
|----------------------------|---------------------|---------------------|
|                            | Low     | High    | $P$ | low | high | $P$ |
| Stage                      |         |         |     |     |      |     |
| I-II                       | 6       | 13      | 0.002 | 1   | 10   | 0.000 |
| III                        | 1       | 10      | 1    | 9   |      |     |
Figure S1. Clinical variables analysis of YTHDF3 in pan-cancer. (A) YTHDF3 expression level were regulated with clinical variables-stage (THCA, BRCA, ACC, CHOL, BLCA, READ, HNSC, KICH, ESCA, MESO, LUSC, COAD, LIHC, SKCM)
in TCGA human-cancer database; (B) The expression level of YTHDF3 gene were analyzed with clinical variables-Age (ESCA, CESC, ACC, KIRC, MESO, LUSC, BLCA, BRCA, LUAD, LIHC, LGG, LAML, DLBC, COAD, CHOL, PCPG, OV, PAAD, GBM, HNSC, KICH, SKCM, SARC, PRAD, STAD, UVM, UCEC, THYM, TGCT).
Figure S2. Kaplan-Meier survival curve based on YTHDF3 expression levels were analyzed in the Kaplan-Meier plotter database. (A) Comparison of different
expression levels of YTHDF3 gene in TCGA human cancer database from overall survival (Ovarian cancer, Lung cancer, Gastric cancer, Breast cancer). (B) Comparison of different expression levels of YTHDF3 gene in TCGA human cancer database from post-progression survival (Ovarian cancer, Lung cancer, Gastric cancer, Breast cancer).
**Figure S3.** ROC curve was established to estimate the value of *YTHDF3* mRNA expression as a biomarker in pan-cancer. (A-P: COADREAD, BRCA, LUAD, READ, PRAD, LUSC, KIRC, KICH, COAD, DLBC, CESC, ACC, OV, UCS, SKCM, THYM).
Figure S4. YTHDF3 associated with mutation were analyzed in the TCGA data source. (A) YTHDF3 CNV was linked to poor prognosis of overall survival (OS) for cancers of UVM, UCEC, KIRC and KIRP. (B) YTHDF3 CNV was linked to poor
prognosis of disease special survival (DSS) for cancers of UVM, UCEC, KIRC and KIRP, THYM and THCA.
Figure S5. (A) The relationship between YTHDF3 expression and microsatellite instability (MSI) in pan-cancer. (B) The relationship between YTHDF3 expression and tumor mutational burden (TMB) in pan-cancer.
Figure S6. The relationship between YTHDF3 expression and pan-cancer immune checkpoint genes.
Figure S7. The correlation between YTHDF3 and immune cells was extracted from the pan-cancer TCGA data source. Results are displayed with Lollipop Map (A: PRAD, B: THCA, C: CESC, D: SKCM, E: SARC, F: LUSC).