**Supplemental Table 1.** Patient demographics for LUAD and LUSC cohorts. N/A indicates that the data were not available.

|                  | LUAD (n=18) | LUSC (n=17) |
|------------------|-------------|-------------|
|                  | Mean ± SD   | Mean ± SD   |
| Age (years)      | 67.7 ± 6.3  | 70.9 ± 8.6  |
| Sex              |             |             |
| Male             | 8           | 10          |
| Female           | 9           | 7           |
| N/A              | 1           | 0           |
| Body Weight (kg) | 71.2 ± 13.1 | 75.6 ± 15.2 |
| Stage            |             |             |
| I                | 6           | 7           |
| II               | 1           | 8           |
| III              | 4           | 2           |
| IV               | 1           | 0           |
| N/A              | 6           | 0           |
| Race             |             |             |
| Black            | 2           | 4           |
| White            | 10          | 13          |
| N/A              | 6           | 0           |
**Supplemental Table 2.** Proteomic analyses in patients with LUSC and LUAD, sorted by unadjusted p-value for comparisons between high and low VAT in LUSC and LUAD, along with high and low tumor glucose uptake in LUSC and LUAD.

High vs. Low VAT in LUSC

| Protein       | low_vat_mean | high_vat_mean | log2FC | T-Statistic | P-Value |
|---------------|--------------|---------------|--------|-------------|---------|
| DIRAS3        | -0.088       | 0.030         | 0.119  | -3.598      | 0.009   |
| BAX           | 0.089        | 0.564         | 0.475  | -3.253      | 0.011   |
| EEF2          | 0.440        | -0.144        | -0.585 | 2.847       | 0.019   |
| PI3KP85       | 0.328        | 0.078         | -0.250 | 2.570       | 0.030   |
| ACC_pS79      | -0.039       | -0.571        | -0.532 | 2.604       | 0.031   |
| XBP1          | -0.092       | -0.394        | -0.301 | 2.513       | 0.034   |
| VEGFR2        | 0.151        | 0.753         | 0.601  | -2.537      | 0.041   |
| CABL          | -0.161       | 0.081         | 0.242  | -2.299      | 0.052   |
| CASPASE7CLEAVEDD198 | 0.635 | 0.068         | -0.567 | 2.257       | 0.055   |
| NOTCH1        | -0.124       | 0.187         | 0.311  | -2.172      | 0.058   |

High vs. Low VAT in LUAD

| Protein                        | low_vat_mean | high_vat_mean | log2FC | T-Statistic | P-Value |
|--------------------------------|--------------|---------------|--------|-------------|---------|
| PKCPANBETAI_pS660              | 0.836        | 0.166         | -0.729 | 4.093       | 0.003   |
| GSK3ALPHABETA_pS21S9           | 0.283        | -0.499        | -0.782 | 3.623       | 0.005   |
| MTOR_pS2448                    | 0.394        | -0.113        | -0.507 | 3.950       | 0.007   |
| RAB11                          | -0.054       | 0.309         | 0.363  | -3.382      | 0.007   |
| X1433ZETA                      | -0.256       | 0.106         | 0.362  | -3.533      | 0.007   |
| X4EBP1                         | -0.581       | -0.096        | 0.485  | -3.386      | 0.008   |
| INPP4B                         | 0.178        | 1.180         | 1.002  | -3.362      | 0.010   |
| S6_pS235S236                   | 0.855        | 0.000         | -0.855 | 3.351       | 0.012   |
| GSK3_pS9                       | 0.231        | -0.475        | -0.706 | 3.496       | 0.012   |
| JAK2                           | 0.428        | 0.026         | -0.401 | 3.044       | 0.014   |
## High vs. Low Tumor Glucose Uptake in LUSC

| Protein         | low_tgu_mean | high_tgu_mean | log2FC | T-Statistic | P-Value |
|-----------------|--------------|---------------|--------|-------------|---------|
| TFRC            | 0.293        | 1.374         | 1.082  | -3.728      | 0.006   |
| ASNS            | 0.041        | 0.696         | 0.655  | -2.655      | 0.036   |
| CYCLINE1        | -0.505       | 0.143         | 0.648  | -2.448      | 0.051   |
| PAXILLIN        | 0.117        | 0.571         | 0.455  | -2.271      | 0.053   |
| PTEN            | 0.398        | -0.174        | -0.572 | 2.423       | 0.055   |
| BCL2            | 0.753        | -0.092        | -0.846 | 2.232       | 0.056   |
| P27             | 0.464        | -0.049        | -0.512 | 2.241       | 0.060   |
| COG3            | -0.320       | -0.503        | -0.183 | 2.261       | 0.076   |
| ETS1            | -0.491       | -0.930        | -0.439 | 2.012       | 0.079   |
| RAB25           | -0.233       | -0.648        | -0.416 | 1.952       | 0.096   |

## High vs. Low Tumor Glucose Uptake in LUAD

| Protein         | low_tgu_mean | high_tgu_mean | log2FC | T-Statistic | P-Value |
|-----------------|--------------|---------------|--------|-------------|---------|
| X4EBP1          | -0.487       | 0.063         | 0.551  | -4.293      | 0.002   |
| FOXO3A_pS318S321| 0.081        | -0.175        | -0.256 | 4.487       | 0.002   |
| MTOR_pS2448     | 0.254        | -0.222        | -0.476 | 4.336       | 0.003   |
| GSK3ALPHABETA   | -0.202       | -0.044        | 0.158  | -4.013      | 0.004   |
| S6_pS235S236    | 0.626        | -0.192        | -0.818 | 3.420       | 0.007   |
| ERALPHA         | -1.296       | -1.822        | -0.526 | 3.741       | 0.007   |
| X1433ZETA       | -0.184       | 0.223         | 0.406  | -3.373      | 0.009   |
| MAPK_pT202Y204  | 0.776        | -0.339        | -1.115 | 3.578       | 0.010   |
| STAT3_pY705     | 0.773        | 0.089         | -0.684 | 2.837       | 0.019   |
| TUBERIN_pT1462  | -0.059       | -0.297        | -0.238 | 3.061       | 0.023   |