**Supplemental Materials.**

**Supplemental Table S1**

TCGA cervical cancer patient characteristics.

| Clinical characteristics | | Total (296) | % |
|---|---|---|---|
| Age (y) | ≥ 60 | 57 | 19.26 |
| | < 60 | 239 | 80.74 |
| Clinical Stage | I | 93 | 49.47 |
| | II | 53 | 28.19 |
| | III | 23 | 12.23 |
| T Classification | T1 | 86 | 50.59 |
| | T2 | 61 | 35.88 |
| | T3 | 13 | 7.65 |
| | T4 | 10 | 5.88 |
| N Classification | N0 | 90 | 74.38 |
| | N1 | 31 | 25.62 |
| Hysterectomy Performed Type | Radical Hysterectomy | 154 | 91.12 |
| | Simple Hysterectomy | 6 | 3.55 |
| | Other | 9 | 5.33 |
| Keratinizing | Keratinizing squamous cell carcinoma | 52 | 31.33 |
| | Non-keratinizing squamous cell carcinoma | 114 | 68.67 |
| Lymphovascular Invasion | Absent | 71 | 46.10 |
| | Present | 83 | 53.90 |
| Measure of Response | Complete Response | 83 | 74.77 |
| | Partial Response | 9 | 8.11 |
| | Radiographic Progressive Disease | 16 | 14.41 |
| | Stable Disease | 3 | 2.70 |
| Neoplasm Histologic Grade | G1 | 13 | 7.78 |
| | G2 | 82 | 49.10 |
| | G3 | 71 | 42.51 |
| | G4 | 1 | 0.60 |
| Distant Metastasis | Positive | 31 | 10.47 |
| | Negative | 265 | 89.53 |
| Locoregional Recurrence | Positive | 11 | 3.72 |
| | Negative | 285 | 96.28 |
| Menopause Status | Peri(6-12 months since last menstrual period) | 25 | 10.64 |
| | Pre (<6 months since LMP AND no prior bilateral ovariectomy AND not on estrogen replacement) | 127 | 54.04 |
| | Post (prior bilateral ovariectomy OR >12 mo since LMP with no prior hysterectomy) | 83 | 35.32 |
| Status | With tumor | 74 | 31.22 |
| | Tumor free | 163 | 68.78 |

**Supplemental Table S2**

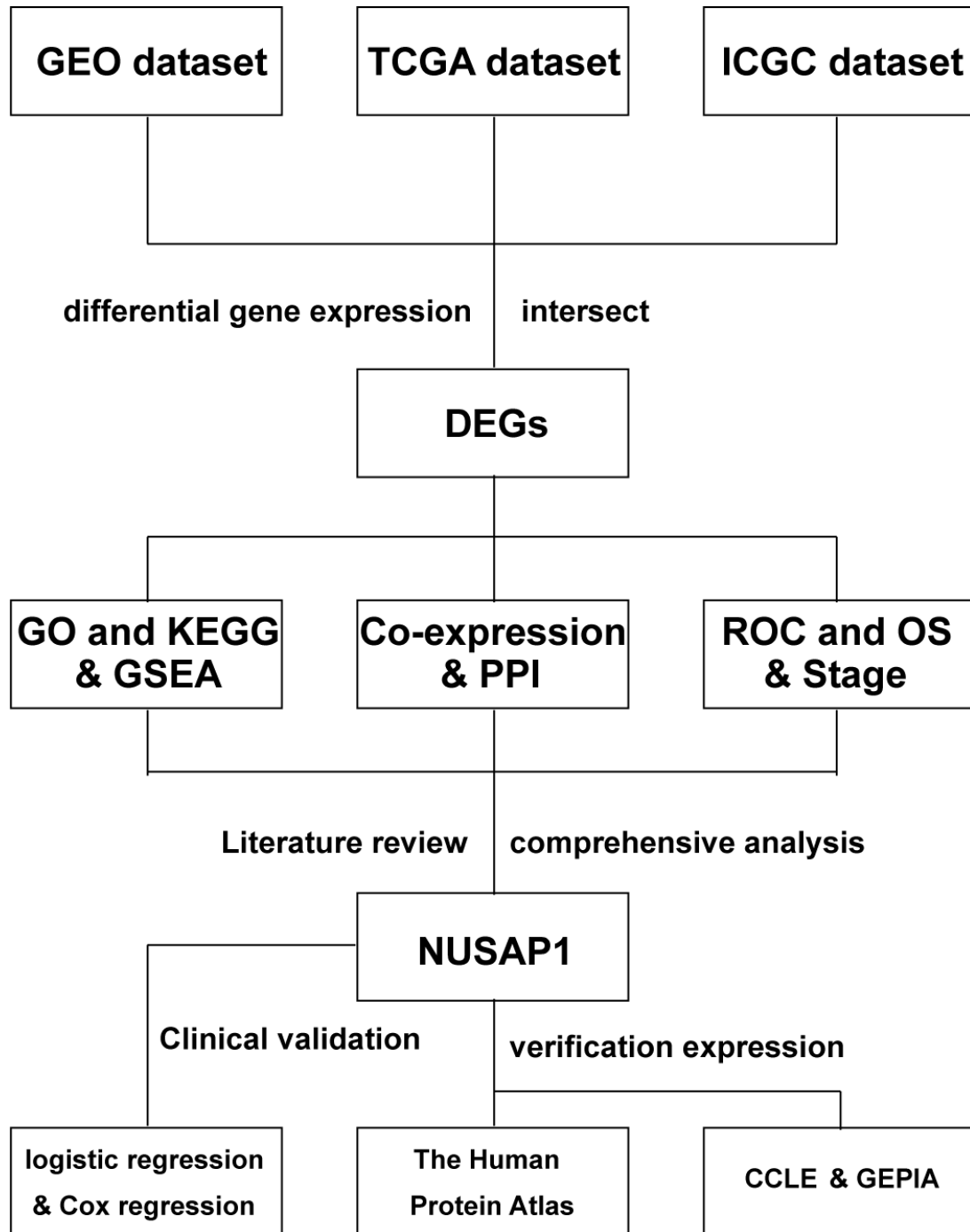**TABLE S2.** NUSAP1 expression* related to clinical pathological characteristics (logistic regression).

| Clinical characteristic | Total(N) | Odds ratio in NUSAP1 expression | p-value |
|---|---|---|---|
| Age (continuous) | 296 | 0.993(0.975-1.011) | 0.437 |
| Stage (III-VI vs. I-II) | 188 | 0.465(0.247-0.873) | 0.017 |
| Status (with tumor vs. tumor free) | 296 | 0.794(0.443-1.421) | 0.437 |
| Distant Metastasis (negative vs. positive) | 296 | 0.860(0.387-1.911) | 0.711 |
| Locoregional Recurrence (negative vs. positive) | 296 | 1.114(0.289-4.304) | 0.875 |
| Uteri involvement (absent vs. present) | 118 | 1.524(0.407-5.710) | 0.532 |
| Hysterectomy performed (other vs. hysterectomy) | 169 | 0.581(0.138-2.438) | 0.458 |
| Keratinizing indicator (non-keratinizing vs. keratinizing) | 166 | 0.977(0.459-2.081) | 0.952 |
| BMI (continuous) | 256 | 1.019(0.981-1.059) | 0.330 |
| Lymphovascular invasion indicator (absent vs. present) | 154 | 1.318(0.610-2.850) | 0.482 |
| Grade (G2-G3 vs. G1) | 167 | 0.704(0.185-2.678) | 0.607 |

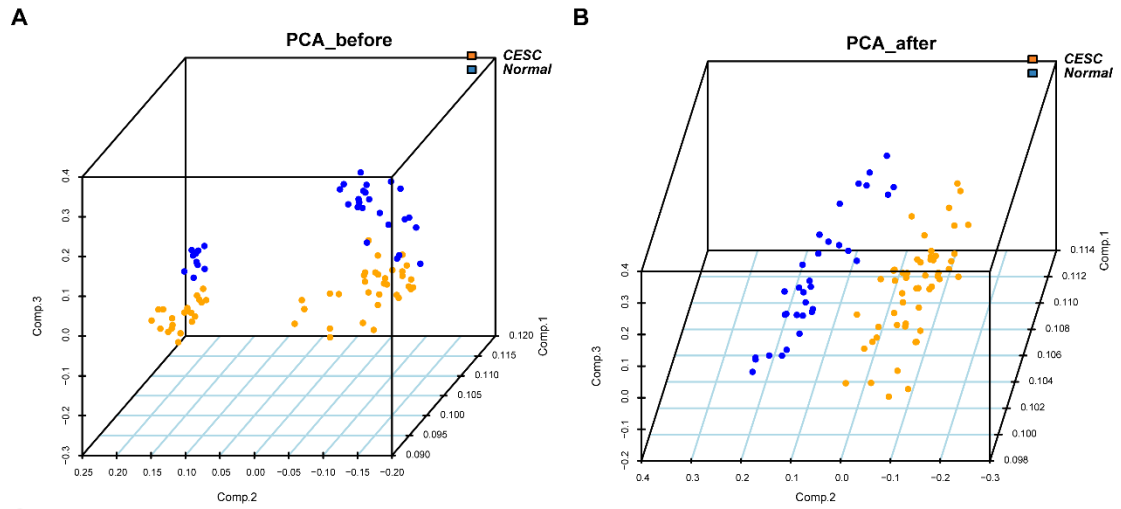* Categorical dependent variable, less or greater than the median expression level.

**Supplemental Table S3**

**TABLE 3.** a. Relationship between overall survival and clinicopathologic characteristics in TCGA patients analyzed with Cox regression. b. Multivariate survival model after variable selection.

| Clinicopathologic variable | HR (95% CI) | p-Value |
|---|---|---|
| a | | |
| Age (continuous) | 1.018(0.984-1.053) | 0.299 |
| Hysterectomy performed Type (other vs. hysterectomy) | 3.490(1.406-8.662) | 0.007 |
| Stage (III IV vs. I II) | 3.185(1.311-7.736) | 0.011 |
| Status (with tumor vs. tumor free) | 41.668(9.687-179.231) | 0.000 |
| Distant Metastasis (negative vs. positive) | 8.034(3.337-19.114) | 0.000 |
| Locoregional Recurrence (negative vs. positive) | 11.882(3.890-36.295) | 0.000 |
| BMI (continuous) | 0.930(0.340-2.544) | 0.887 |
| NUSAP1(low vs. high) | 0.422(0.178-1.001) | 0.050 |
| Grade (G2 G3 vs. G1) | 0.755(0.310-1.841) | 0.537 |
| b | | |
| Hysterectomy performed Type (other vs. hysterectomy) | 1.242(0.236-6.55) | 0.798 |
| Stage (III VI vs. I II) | 11.828(1.991-70.288) | 0.007 |
| Status (with tumor vs. tumor free) | 42.687(7.747-235.222) | 0.000 |
| Distant Metastasis (negative vs. positive) | 2.188(0.718-6.662) | 0.168 |
| Locoregional Recurrence (negative vs. positive) | 10.782(2.223-52.296) | 0.003 |
| NUSAP1 (high vs. low) | 0.128(0.041-0.401) | 0.000 |

**Supplemental Figure S1**

# Supplemental Figure S2

**A**

### PCA_before



**B**

### PCA_after



**C**

### Q-Q plot