

| Variable         |                          | Distribution   |
|------------------|--------------------------|----------------|
| Age at diagnosis | Years (Mean $\pm$ SD)    | 57.7 $\pm$ 9.5 |
| Gender           | Males                    | 46             |
|                  | Females                  | 11             |
| T stage          | 0                        | 4              |
|                  | 1                        | 13             |
|                  | 2                        | 29             |
|                  | 3                        | 5              |
|                  | 4                        | 6              |
| N stage          | 0                        | 11             |
|                  | 1                        | 13             |
|                  | 2                        | 31             |
|                  | 3                        | 2              |
| Smoking          | Never smoked             | 24             |
|                  | < 10 pack years          | 7              |
|                  | Probably < 10 pack years | 6              |
|                  | Probably > 10 pack years | 4              |
|                  | > 10 pack years          | 16             |
|                  | <i>Missing</i>           | 0              |
| Site (ICD-10)    | Oropharynx               | 54             |
|                  | Oral Cavity              | 1              |
|                  | Other                    | 2              |
| Total patients   |                          | 57             |

**Supplementary Table S1.** Clinical HPV(+) patient characteristics at diagnosis.

| Analyte              | Minimum | 25 <sup>th</sup> Perc. (pg/mL) | Median (pg/mL) | 75 <sup>th</sup> Perc. (pg/mL) | Maximum |
|----------------------|---------|--------------------------------|----------------|--------------------------------|---------|
| IL-6                 | .20     | 1.25                           | 1.87           | 2.80                           | 15.9    |
| s-gp130              | 40175   | 67944                          | 82014          | 88928                          | 108956  |
| s-IL6-R $\alpha$     | 5119    | 27041                          | 32860          | 37164                          | 47290   |
| IL1-RA               | 119     | 306                            | 381            | 581                            | 3185    |
| IL-31                | 19.4    | 57.56                          | 71.24          | 85.41                          | 132     |
| IL-33R $\alpha$ /ST2 | 76      | 14242                          | 17520          | 22920                          | 107876  |

**Supplementary Table S2:** Concentration and Quartile Values of Measured Cytokines and Soluble Cytokine Receptors. The table displays the actual concentration of quartile values (25<sup>th</sup> percentile, median and 75<sup>th</sup> percentile) as well as minimum and maximum values determined for the measured cytokines and soluble cytokine receptors in our assay. All values are reported in picograms per milliliter (pg/mL).