**Supplementary Table 1: Bioinformatics analysis to compare oral cancer vaccine candidates**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***SN*** | **Protein** | ***CL\**** | ***TM\**** | ***Stability*** | ***AI\**** | ***GRAVY*** | ***Antigenicity*** | ***Allergen*** | ***Toxic*** | ***SI/PI*** |
| 1 | P53 | 1 | 0 | 73.59 | 59.28 | -0.756 | 0.5678 | N | N | 1.85/0.81 |
| 2 | NOTCH1 | 1 | 1 | 50.19 | 57.82 | -0.42 | 0.4484 | Y | N | 1.85/0.31 |
| 3 | p16INK4a | 1 | 0 | 51.73 | 67.36 | -0.04 | 0.5464 | N | N | 2.5/0.42 |
| 4 | p14ARF | 1 | 0 | 48.51 | 91.35 | -0.352 | 0.4864 | N | N | 2.35/0.39 |
| 5 | STAT3 | 1 | 0 | 48.22 | 83.45 | -0.403 | 0.5561 | N | N | 1.25/0.21 |
| 6 | CCND1 | 1 | 0 | 57.71 | 92.92 | -0.185 | 0.4524 | N | N | 1.0/0.17 |
| 7 | mTOR | 1 | 0 | 40.86 | 95.17 | -0.193 | 0.5123 | N | N | 3.0/0.5 |
| 8 | akt1 | 1 | 0 | 35.27 | 71.69 | -0.575 | 0.5632 | N | N | 2.25/0.38 |
| 9 | akt2 | 1 | 0 | 45.41 | 75.13 | -0.493 | 0.5161 | N | N | 1.75/0.29 |
| 10 | HPV16-E6 | 1 | 0 | 76.14 | 68.48 | -0.778 | 0.5227 | N | N | 2.0/0.33 |
| 11 | HPV16-E7 | 1 | 0 | 63 | 78.57 | -0.405 | 0.3721 | N | N | 2.0/0.33 |
| 12 | HPV18-E6 | 1 | 0 | 66.88 | 78.99 | -0.63 | 0.6837 | Y | N | 2.0/0.33 |
| 13 | HPV18-E7 | 1 | 0 | 67.13 | 86.38 | -0.379 | 0.4592 | N | N | 2.25/0.38 |
| 14 | MAGE-A3 | 1 | 0 | 63.69 | 83.31 | -0.231 | 0.447 | N | N | 1.75/0.29 |
| 15 | HER2 | 1 | 0 | 57.55 | 146.79 | 0.551 | 0.2739 | N | N | 4.0/0.67 |
| 16 | KRAS | 1 | 0 | 38.56 | 85.03 | -0.432 | 0.5909 | N | Y | 2.0/0.33 |
| 17 | RAB2A | 1 | 0 | 33.94 | 79.25 | -0.354 | 0.6354 | N | Y | 2.75/0.46 |
| 18 | RB1 | 1 | 0 | 47.85 | 86.78 | -0.406 | 0.6243 | N | N | 1.0/0.17 |
| 19 | FASLG | 1 | 0 | 63.3 | 76.94 | -0.289 | 0.4556 | N | N | 3.0/0.5 |
| 20 | MAPK1 | 1 | 0 | 39.71 | 95.94 | -0.287 | 0.5182 | N | N | 1.0/0.17 |
| 21 | MAPK3 | 1 | 0 | 43.06 | 91.64 | -0.314 | 0.5837 | N | N | 0.25/0.04 |
| 22 | HLA-A2 | 1 | 0 | 32.16 | 52.02 | -0.916 | 0.6098 | N | N | 2.25/0.38 |
| 23 | NFKB-1 | 1 | 0 | 38.15 | 84.74 | -0.3339 | O.59 | N | N | 2.0/0.33 |
| 24 | PDCD1 | 1 | 1 | 60.52 | 72.43 | -0.328 | 0.4527 | N | N | 1.5/0.25 |
| 25 | PDL1 | 1 | 1 | 34.46 | 94.41 | -0.226 | 0.4653 | N | N | 2.0/0.33 |
| 26 | KI-67 | 1 | 0 | 56.32 | 59.37 | -0.957 | 0.6758 | N | N | 2.0/0.33 |
| 27 | TACD2 | 1 | 1 | 40.77 | 93.78 | -0.228 | 0.3756 | N | N | 1.35/0.23 |
| 28 | SLPI | 1 | 0 | 40.4 | 55.38 | -0.305 | 0.3009 | N | N | 2.25/0.38 |
| 29 | LCN2 | 1 | 0 | 33.53 | 89.6 | -0.245 | 0.3801 | N | N | 4.0/0.67 |
| 30 | THBS2 | 1 | 0 | 40.81 | 59.84 | -0.647 | O.5052 | N | N | 1.25/0.21 |
| 31 | ROS1 | 1 | 1 | 42.68 | 89.98 | -0.138 | 0.4836 | N | N | 2.0/0.33 |
| 32 | CXCL1 | 1 | 0 | 57.92 | 110.47 | 0.079 | 0.4319 | N | N | 1.6/0.27 |
| 33 | GLI1 | 1 | 0 | 65.34 | 54.79 | -0.703 | 0.6 | N | N | 1.5/0.25 |
| 34 | FOXM1 | 1 | 0 | 76.13 | 75.43 | -0.616 | 0.5 | N | N | 1.5/0.25 |
| 35 | TPX2 | 1 | 0 | 61.61 | 68.26 | -0.967 | 0.6 | N | N | 1.25/0.21 |
| 36 | CTLA4 | 1 | 2 | 55.1 | 99.69 | 0.296 | 0.7 | N | N | 3.0/0.5 |
| 37 | LYN | 1 | 0 | 37.21 | 79.04 | -0.503 | 0.5 | N | N | 1.75/0.29 |
| 38 | SKIL | 1 | 0 | 60.67 | 78.11 | -0.577 | 0.5 | N | N | 1.0/0.17 |
| 39 | CD70 | 1 | 0 | 55.19 | 96.99 | 0.001 | 0.2 | N | N | 1.5/0.25 |
| 40 | PTGS2 | 1 | 0 | 37.67 | 80.7 | -0.287 | 0.4 | N | N | 2.6/0.43 |
| 41 | PIK3CA | 1 | 0 | 48.41 | 91.36 | -0.306 | 0.5 | N | N | 1.0/0.17 |
| 42 | PARP1 | 1 | 0 | 37.22 | 79.13 | -0.536 | 0.6 | N | Y | 2.25/0.38 |
| 43 | PARP2 | 1 | 0 | 48.35 | 75.32 | -0.648 | 0.6 | N | Y | 2.0/0.33 |
| 44 | VEGFA | 1 | 0 | 56.22 | 62.77 | -0.673 | 0.6 | N | Y | 1.0/0.17 |
| 45 | KDR | 1 | 2 | 45.34 | 87.21 | -0.273 | 0.4 | N | N | 1.25/0.21 |
| 46 | PTGSE2 | 1 | 0 | 46.21 | 86.79 | -0.247 | 0.5 | N | N | 1.35/0.23 |
| 47 | FLT1 | 1 | 0 | 46.14 | 82.19 | -0.35 | 0.5 | N | N | 0.35/0.06 |
| 48 | GDF15 | 1 | 3 | 63.89 | 89.71 | -0.363 | 0.5 | N | Y | 1.25/0.21 |
| 49 | PDPN | 1 | 1 | 33.1 | 94.38 | 0.135 | 0.2 | N | Y | 5.0/0.83 |
| 50 | KI67 | 1 | 0 | 56.62 | 59.37 | -0.975 | 0.6 | N | N | 2.0/0.33 |
| 51 | IL-6 | 1 | 0 | 57.7 | 87.5 | -0.271 | 0.3 | N | N | 1.7/0.28 |
| 52 | IL-8 | 1 | 0 | 24.95 | 101.52 | -0.019 | 0.3 | N | N | 2.6/0.43 |
| 53 | SATB2 | 1 | 0 | 64.08 | 81.3 | -0.632 | 0.5 | N | N | 1.0/0.17 |
| 54 | VEGF-A | 1 | 0 | 61.06 | 52.68 | -0.858 | 0.7 | N | Y | 1.0/0.17 |

**\*TM- Transmembrane Analysis, AI- Aliphatic index, CL- Cellular Localization, Y-yes, N-no**