

## Supplemental material

**Supplemental Table 1.** Predicted antigenic epitopes of human collagen VII.

| Start - End | Score | Sequence                                                     | Region |
|-------------|-------|--------------------------------------------------------------|--------|
| 4 - 24      | 1.239 | RLLVAALCAGILAEAPRVRAQ                                        | NC1    |
| 121 - 148   | 1.225 | AAILHVADHVFLPQLARPGVPKVCILIT                                 | NC1    |
| 1244 - 1254 | 1.223 | PEPCPVYCPKG                                                  | NC1    |
| 2826 - 2839 | 1.214 | SQLHAVPVLRVSHA                                               | NC2    |
| 660 - 669   | 1.213 | TYQVAVSVLR                                                   | NC1    |
| 748 - 802   | 1.193 | EYTVHVRAHVAGVDGPPASVVVRTAPEPVGRVS<br>RLQILNASSDVLRLITWVGVTGA | NC1    |
| 1154 - 1168 | 1.193 | RQHVPGVMVLLVDEP                                              | NC1    |
| 455 - 469   | 1.192 | EPPQKVVLPSDVTRY                                              | NC1    |
| 1038 - 1061 | 1.191 | PEASVTQTPVCPRGLADVFLPHA                                      | NC1    |
| 291 - 313   | 1.186 | SVRLRGLRPLTEYQVTVIALYAN                                      | NC1    |
| 855 - 863   | 1.184 | PVSIVVTTP                                                    | NC1    |
| 2885 - 2911 | 1.183 | CTAYTLRWYHRAVTGSTEAHPFVYGG                                   | NC2    |
| 836 - 849   | 1.178 | GGVSYSVRVTALVG                                               | NC1    |
| 1072 - 1109 | 1.177 | TRRVLERLVLALGPLGPQAVQVGLLSYSHRPSPL<br>FPLN                   | NC1    |
| 1541 - 1552 | 1.174 | DPAVVGPAVAGP                                                 | C      |
| 597 - 611   | 1.173 | TPLAVPGLRVVVSDA                                              | NC1    |
| 2926 - 2937 | 1.171 | ERRCPPRVVQSQ                                                 | NC2    |
| 192 - 227   | 1.169 | SDFFFFVNDFSILRTLPLVSRRVCTTAGGVPVTR<br>P                      | NC1    |
| 675 - 683   | 1.168 | PAAVIVART                                                    | NC1    |
| 865 - 879   | 1.165 | EAPPALGTLHVQRG                                               | NC1    |
| 340 - 353   | 1.161 | AHSLVAVRSVPGA                                                | NC1    |
| 686 - 707   | 1.157 | LGPVRTVHVTQASSSVTITWT                                        | NC1    |
| 481 - 514   | 1.152 | RLTYTLLEGHEVATPATVVPTGPELPVSPVTDL                            | NC1    |
| 1012 - 1035 | 1.152 | SQRVTGLEPGVSYIFSLTPVLDGV                                     | NC1    |
| 26 - 46     | 1.151 | RERVCTRLYAADIVFLLDGS                                         | NC1    |
| 2799 - 2822 | 1.148 | SQHCACQGQFIASGSRPLPSYAAD                                     | NC2    |
| 2299 - 2306 | 1.148 | GQAVVGLP                                                     | C      |
| 2750 - 2761 | 1.146 | ERVVGAPGVPGA                                                 | C      |
| 929 - 939   | 1.146 | QYRVRLSVLGP                                                  | NC1    |
| 585 - 592   | 1.145 | SASVLTVR                                                     | NC1    |
| 165 - 176   | 1.139 | GQGVKLFVGIK                                                  | NC1    |

|              |       |                                          |          |
|--------------|-------|------------------------------------------|----------|
| 562 - 579    | 1.139 | LDDVQAGLSYTVRV SARV                      | NC1      |
| 1222 - 1239  | 1.138 | LDQAVSGLATALCQASFT                       | NC1      |
| 1577 - 1584  | 1.136 | PGLVLPGD                                 | C        |
| 57 - 72      | 1.136 | VRSFLEGLVLPFSGAA                         | NC1      |
| 392 - 406    | 1.134 | EVTVSTLFGRSVGPA                          | NC1      |
| 1210 - 1219  | 1.134 | VQTFFAVDDG                               | NC1      |
| 2874 - 2883  | 1.131 | DPCSLPLDEG                               | NC2      |
| 955 - 990    | 1.129 | PRVPSIELRVVDTSIDSVTLAWTPVSRASSYILSW<br>R | NC1      |
| 548 - 557    | 1.128 | ERTLVLPGSQ                               | NC1      |
| 377 - 385    | 1.126 | QGSVLLRDL                                | NC1      |
| 416 - 441    | 1.126 | SVEQTLRPVILGPTSILLSWNLVPEA               | NC1      |
| 1135 - 1149  | 1.125 | GTAVVTAHRYMLAPD                          | NC1      |
| 2522 - 2529  | 1.122 | SAVILGPP                                 | C        |
| 235 - 243    | 1.117 | PRDLVLSEP                                | NC1      |
| 521 - 534    | 1.116 | GQRRVRSWSPVPGA                           | NC1      |
| 2631 - 2637  | 1.112 | KGACGLD                                  | NC1      |
| 1182<br>1191 | 1.106 | ASGLNVVMLG                               | NC1      |
| 1968 - 1974  | 1.105 | GSFLPVP                                  | hinge    |
| 2384 - 2406  | 1.105 | PPGVKGDGLPGLPGAPGVVGFP                   | C        |
| 613 - 624    | 1.104 | RVRVAWGPPVPGA                            | NC1      |
| 74 - 85      | 1.103 | AQGVRFATVQYS                             | NC1      |
| 256 - 278    | 1.102 | SGPVTGYKVQYTPLTGLGQPLPS                  | NC1      |
| 2091 - 2098  | 1.101 | GPKVSVDE                                 | C        |
| 359 - 365    | 1.100 | TWRVL SG                                 | NC1      |
| 908 - 924    | 1.098 | QSRVLGPELSSYHLDGL                        | NC1      |
| 882 - 901    | 1.095 | SLRLRWEPVPRAQGFLHWQ                      | NC1      |
| 2372 - 2379  | 1.093 | GVGVPGSP                                 | C        |
| 1113 - 1120  | 1.093 | DLGIILQR                                 | NC1      |
| 536 - 544    | 1.092 | QYRIIVRST                                | NC1      |
| 1937 - 1949  | 1.085 | GSVPNVDRLL ETA                           | C, hinge |
| 1951 - 1959  | 1.084 | IKASALREI                                | hinge    |
| 714 - 723    | 1.082 | GYRVSWHSAH                               | NC1      |
| 2223 - 2232  | 1.082 | TGAVGLPGPP                               | C        |
| 2274 - 2289  | 1.082 | PGVPGSPGLPGPVGPK                         | C        |
| 1888 - 1898  | 1.082 | PPGLPGPVGPP                              | C        |

|             |       |                |     |
|-------------|-------|----------------|-----|
| 2319 - 2326 | 1.080 | AGDLVGEP       | C   |
| 245 - 253   | 1.080 | SQSLRVQWT      | NC1 |
| 153 - 163   | 1.079 | QDLVDTAAQRL    | NC1 |
| 737 - 743   | 1.077 | VAELDGL        | NC1 |
| 183 - 189   | 1.075 | LKRVASQ        | NC1 |
| 2243 - 2249 | 1.075 | SPGLPGQ        | C   |
| 2234 - 2241 | 1.074 | PSGLVGPQ       | C   |
| 1662 - 1668 | 1.074 | APGVRGP        | C   |
| 728 - 735   | 1.072 | SQLVSGEA       | NC1 |
| 1425 - 1431 | 1.063 | LPGLPGS        | C   |
| 2016 - 2022 | 1.063 | PPGLALG        | C   |
| 2574 - 2586 | 1.062 | AGLPGLRGLLGPQ  | C   |
| 2855 - 2863 | 1.062 | YSEYSVEEY      | NC2 |
| 1352 - 1358 | 1.061 | PGQVIGG        | C   |
| 1624 - 1629 | 1.055 | PGPVGP         | C   |
| 1508 - 1514 | 1.055 | LPGVAGR        | C   |
| 1705 - 1712 | 1.055 | PGRLVDTG       | C   |
| 997 - 1010  | 1.054 | QEVPGSPQTLPGIS | NC1 |
| 100 - 110   | 1.052 | GGDVIRAIREL    | NC1 |
| 1880 - 1886 | 1.049 | PGILGPQ        | C   |
| 2436 - 2442 | 1.049 | PGPLGPP        | C   |
| 1435 - 1441 | 1.048 | QGPVGPP        | C   |
| 2444 - 2451 | 1.048 | PPGSVGPP       | C   |
| 1265 - 1271 | 1.048 | RGQVGPP        | C   |
| 640 - 646   | 1.047 | SQTLPPD        | NC1 |
| 2190 - 2197 | 1.036 | APGLAGPA       | C   |
| 2176 - 2182 | 1.034 | PGPVGGH        | C   |
| 1174 - 1180 | 1.030 | FSPIREA        | NC1 |
| 1455 - 1460 | 1.029 | PGLPGQ         | C   |

<sup>1</sup>Antigenic sites with a score higher than 1 are shown; <sup>2</sup>NC1, noncollagenous domain 1; <sup>3</sup>NC2, noncollagenous domain 2; <sup>4</sup>C, collagenous domain