Supplementary Table 2a. *Staphylococcus aureus* protein A (Spa) amino acid sequence: amino acid substitution localization.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Strain | Protein  accession number | Aa number | Query  Cover  (%) | Per.  Ident  (%) | Amino acid substitutions | | | | | | | | | |
| Protein region | | | | | | | | | |
| S | D | | | A | C | | | | |
| 13 | 99 | 104 | 120 | 199 | 292 | 332 | 339 | 419 | 461 |
| NCTC8325-4 | AAA26676.1 | 524 | 100 | 100 | M | N | Q | A | S | T | N | N | G | D |
| NCTC 8325 | SQF72440.1 | 516 | 100 | 98,47 | M | N | Q | A | S | T | N | N | G | D |
| Newman | BAF66327.1 | 520 | 97 | 96,76 | ***L*** | N | Q | A | S | T | N | N | G | D |
| Col | AAW38738.1 | 508 | 100 | 96,56 | M | N | Q | A | S | T | N | N | G | D |
| FPR3757 | ABD22331.1 | 508 | 100 | 96,56 | M | N | Q | A | S | T | N | N | G | D |
| N315 | BAB41326.1 | 492 | 100 | 82,25 | M | N | Q | A | S | ***N*** | ***K*** | ***G*** | G | D |
| MRSA252 | CAG39140.1 | 516 | 100 | 96,97 | M | ***K*** | Q | ***E*** | ***A*** | T | N | N | G | D |
| MW2 | BAB93949.1 | 450 | 100 | 92,94 | M | N | Q | A | S | T | N | ***G*** | ***N*** | D |
| 55/2053 | EEV05371.2 | 442 | 100 | 79,01 | M | ***K*** | Q | ***E*** | ***A*** | T | N | N | G | D |
| Bmb9393 | AGP27111.1 | 418 | 83 | 83,33 | M | ***K*** | Q | ***E*** | ***A*** | T | N | N | G | D |
| Be62 | ALY21933.1 | 438 | 100 | 75,76 | ***L*** | ***K*** | Q | ***E*** | ***A*** | T | N | N | G | D |
| TW20 | CBI48007.1 | 426 | 100 | 75,95 | M | ***K*** | Q | ***E*** | ***A*** | T | N | N | G | D |
| JKD6008 | ADL64170.1 | 438 | 100 | 75,57 | ***L*** | ***K*** | ***R*** | ***E*** | ***A*** | T | N | N | G | D |
| T0131 | WP\_000728717.1 | 418 | 100 | 82,42 | M | ***K*** | ***R*** | ***E*** | ***A*** | T | N | N | G | ***A*** |
| Z172 | AGY88223.1 | 426 | 100 | 75,95 | M | ***K*** | Q | ***E*** | ***A*** | T | N | N | G | D |
| V521 | WP\_000728706.1 | 426 | 100 | 75,95 | M | ***K*** | Q | ***E*** | ***A*** | T | N | N | G | D |
| SA943 | RAM47916.1 | 418 | 100 | 82,42 | M | ***K*** | ***R*** | ***E*** | ***A*** | T | N | N | G | ***A*** |

Note: domain localization is indicated in strain NCTC 8325-4 according to (Uhlen M, 1984): 1-39 aa - signal sequence (S); 40-93 aa – E domain; 94-150 aa - D domain; 156-213 aa - A domain; 214-274 aa - B domain; 275-342 aa - C domain; 339-441 aa - X-variable region; 469-524 aa - C-terminus, including LPxTG motif (490-494 aa) peptidoglycan attachment region.

Тable S2b. *Staphylococcus aureus* protein A (Spa) amino acid sequence: localization of insertions and deletions.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Strain | Protein  accession number | Insertions | Deletions | | | | | | | | | | | | |
| S | Domains EDBAC (IgG binding region) | | X - region | | | | | | | | | | |
| 1-12 | **130-187** | 226-283 | 344-362 | 336-343 | 344-375 | 354-369 | 357-372 | **360-407** | 380-395 | 388-395 | 397-409 | 393-409 | 398-405 |
| NCTC8325-4 | AAA26676.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| NCTC8325 | WP\_000728764.1 | - | - | - | - | **+** | - | - | - | - | - | - | - | - | - |
| Newman | BAF66327.1 | **+** | - | - | - | - | - | **+** | - | - | - | - | - | - | - |
| Col | AAW38738.1 | - | - | - | - | - | - | - | - | - | - | **+** | **+** | - | - |
| FPR3757 | ABD22331.1 | - | - | - | - | - | - | - | - | - | - | - | - | **+** | - |
| N315 | BAB41326.1 | - | - | - | - | - | - | **-** | **+** | - | - | - | - | - | - |
| MRSA252 | CAG39140.1 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| MW2 | BAB93949.1 | - | - | **+** | - | - | **+** | - | - | - | - | - | - | - | - |
| 55/2053 | EEV05371.2 | - | ***+*** | - | - | - | - | - | - | - | **+** | - | - | - | **+** |
| Bmb9393 | AGP27111.1 | - | ***+*** | - | **+** | - | - | - | - | - | **+** | - | - | - | **+** |
| Be62 | ALY21933.1 | **+** | ***+*** | - | - | - | - | **+** | - | - | **+** | - | - | - | **+** |
| TW20 | CBI48007.1 | **-** | ***+*** | - | - | - | - | **+** | - | - | **+** | - | - | - | **+** |
| JKD6008 | ADL64170.1 | **+** | ***+*** | - | - | - | - | **+** | - | - | **+** | - | - | - | **+** |
| T0131 | WP\_000728717.1 | - | ***+*** | - | - | - | - | **-** | - | **+** | **-** | - | - | - | **-** |
| Z172 | AGY88223.1 | - | ***+*** | - | - | - | - | **+** | - | - | **+** | - | - | - | **+** |
| V521 | WP\_000728706.1 | - | ***+*** | - | - | - | - | **+** | - | - | **+** | - | - | - | **+** |
| SA943 | RAM47916.1 | **-** | ***+*** | - | - | - | - | **-** | **-** | **+** | **-** | - | - | - | - |

Note: The presence of deletions is marked with a cross on a light gray background.