

| | A | C | D | E | F | G | H | I | K | L | M | N | P | Q | R | S | T | V | W | Y |
|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|---|
| A | 4 | | | | | | | | | | | | | | | | | | | |
| C | 0 | 9 | | | | | | | | | | | | | | | | | | |
| D | -2 | -3 | 6 | | | | | | | | | | | | | | | | | |
| E | -1 | -4 | 2 | 5 | | | | | | | | | | | | | | | | |
| F | -2 | -2 | -3 | -3 | 6 | | | | | | | | | | | | | | | |
| G | 0 | -3 | -1 | -2 | -3 | 6 | | | | | | | | | | | | | | |
| H | -2 | -3 | 1 | 0 | -1 | -2 | 8 | | | | | | | | | | | | | |
| I | -1 | -1 | -3 | -3 | 0 | -4 | -3 | 4 | | | | | | | | | | | | |
| K | -1 | -3 | -1 | 1 | -3 | -2 | -1 | -3 | 5 | | | | | | | | | | | |
| L | -1 | -1 | -4 | -3 | 0 | -4 | -3 | 2 | -2 | 4 | | | | | | | | | | |
| M | -1 | -1 | -3 | -2 | 0 | -3 | -2 | 1 | -1 | 2 | 5 | | | | | | | | | |
| N | -2 | -3 | 1 | 0 | -3 | 0 | -1 | -3 | 0 | -3 | -2 | 6 | | | | | | | | |
| P | -1 | -3 | -1 | -1 | -4 | -2 | -2 | -3 | -1 | -3 | -2 | -1 | 7 | | | | | | | |
| Q | -1 | -3 | 0 | 2 | -3 | -2 | 0 | -3 | 1 | -2 | 0 | 0 | -1 | 5 | | | | | | |
| R | -1 | -3 | -2 | 0 | -3 | -2 | 0 | -3 | 2 | -2 | -1 | 0 | -2 | 1 | 5 | | | | | |
| S | 1 | -1 | 0 | 0 | -2 | 0 | -1 | -2 | 0 | -2 | -1 | 1 | -1 | 0 | -1 | 4 | | | | |
| T | -1 | -1 | 1 | 0 | -2 | 1 | 0 | -2 | 0 | -2 | -1 | 0 | 1 | 0 | -1 | 1 | 4 | | | |
| V | 0 | -1 | -3 | -2 | -1 | -3 | -3 | 3 | -2 | 1 | 1 | -3 | -2 | -2 | -3 | -2 | -2 | 4 | | |
| W | -3 | -2 | -4 | -3 | 1 | -2 | -2 | -3 | -3 | -2 | -1 | -4 | -4 | -2 | -3 | -3 | -3 | -3 | 11 | |
| Y | -2 | -2 | -3 | -2 | 3 | -3 | 2 | -1 | -2 | -1 | -1 | -2 | -3 | -1 | -2 | -2 | -2 | -1 | 2 | 7 |

Figure 6.3: *BLOSUM62* substitution matrix used for protein sequence alignment. Rows and columns represent aminoacids in a single letter alphabet