

| | A | R | N | D | C | Q | E | G | H | I | L | K | M | F | P | S | T | W | Y | V | B | Z | J | X |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| A | 4 | | | | | | | | | | | | | | | | | | | | | | | |
| R | -1 | 6 | | | | | | | | | | | | | | | | | | | | | | |
| N | -1 | 0 | 6 | | | | | | | | | | | | | | | | | | | | | |
| D | -1 | 0 | 2 | 6 | | | | | | | | | | | | | | | | | | | | |
| C | 0 | -3 | -2 | -4 | 13 | | | | | | | | | | | | | | | | | | | |
| Q | 0 | 2 | 1 | 1 | -3 | 5 | | | | | | | | | | | | | | | | | | |
| E | -1 | 1 | 1 | 3 | -4 | 2 | 5 | | | | | | | | | | | | | | | | | |
| G | 0 | -2 | 0 | 0 | -2 | -1 | -1 | 7 | | | | | | | | | | | | | | | | |
| H | -2 | 1 | 1 | 0 | -2 | 1 | 0 | -2 | 9 | | | | | | | | | | | | | | | |
| I | -1 | -3 | -4 | -5 | -1 | -3 | -4 | -4 | -3 | 5 | | | | | | | | | | | | | | |
| L | -1 | -3 | -4 | -5 | -1 | -3 | -4 | -4 | -3 | 2 | 4 | | | | | | | | | | | | | |
| K | -1 | 3 | 1 | 0 | -4 | 2 | 2 | -1 | 0 | -3 | -3 | 5 | | | | | | | | | | | | |
| M | 0 | -2 | -2 | -4 | 0 | -1 | -3 | -3 | -2 | 2 | 2 | -2 | 6 | | | | | | | | | | | |
| F | -2 | -3 | -3 | -5 | -1 | -3 | -4 | -4 | -1 | 1 | 2 | -4 | 1 | 7 | | | | | | | | | | |
| P | -1 | -1 | -1 | 0 | -3 | -1 | -1 | -1 | -1 | -3 | -3 | -1 | -3 | -3 | 9 | | | | | | | | | |
| S | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | -3 | -3 | 0 | -2 | -3 | 0 | 4 | | | | | | | | |
| T | 0 | 0 | 0 | 0 | -1 | 0 | 0 | -1 | -1 | -1 | -2 | 0 | -1 | -2 | -1 | 2 | 4 | | | | | | | |
| W | -2 | -2 | -3 | -4 | -2 | -3 | -4 | -3 | -1 | -1 | 0 | -3 | 0 | 3 | -3 | -3 | -3 | 13 | | | | | | |
| Y | -2 | -2 | -2 | -3 | -1 | -2 | -3 | -3 | 2 | -1 | 0 | -2 | 0 | 4 | -3 | -2 | -2 | 3 | 8 | | | | | |
| V | 0 | -3 | -3 | -4 | 0 | -2 | -3 | -3 | -3 | 3 | 2 | -3 | 1 | 0 | -2 | -2 | 0 | -2 | -1 | 4 | | | | |
| B | -4 | -3 | 0 | 0 | -6 | -2 | -1 | -3 | -3 | -7 | -7 | -2 | -6 | -7 | -4 | -2 | -3 | -7 | -5 | -7 | 0 | | | |
| Z | -4 | -2 | -2 | -1 | -7 | -1 | -1 | -4 | -3 | -7 | -6 | -1 | -5 | -7 | -4 | -3 | -3 | -6 | -5 | -6 | -5 | -1 | | |
| J | -4 | -6 | -7 | -8 | -4 | -6 | -7 | -7 | -6 | -1 | -1 | -6 | -1 | -1 | -6 | -6 | -4 | -4 | -4 | -1 | -10 | -9 | -1 | |
| X | -13 | -13 | -13 | -14 | -14 | -13 | -13 | -14 | -13 | -13 | -14 | -13 | -13 | -13 | -14 | -13 | -13 | -14 | -14 | -13 | -16 | -16 | -17 | -20 |

Additional figure 3: PFASUM43 matrix ($H = 0.3354$ bit) constructed from all Pfam seed alignments (version 29.0) with a 43% sequence similarity threshold.