

**Supplementary Table 1**

| <i>Saccharomyces cerevisiae</i> |         |                        | <i>Arabidopsis thaliana</i>    |          |                        |
|---------------------------------|---------|------------------------|--------------------------------|----------|------------------------|
| Amino acid                      | E-value | Over/under represented | Amino acid                     | E-value  | Over/under represented |
| A                               | 6.9     |                        | A                              | 0.098    |                        |
| D                               | 4.3     |                        | D                              | *8.8e-16 | over                   |
| E                               | 0.74    |                        | E                              | *5e-05   | over                   |
| G                               | 13      |                        | G                              | *3e-05   | under                  |
| H                               | 9.6     |                        | H                              | 11       |                        |
| K                               | 5.9     |                        | K                              | 1.3      |                        |
| L                               | na      |                        | L                              | 0.99     |                        |
| N                               | *0.0021 | over                   | N                              | *1.7e-07 | over                   |
| P                               | 5       |                        | P                              | *0.00011 | under                  |
| Q                               | 3.3     |                        | Q                              | 9.6      |                        |
| R                               | 13      |                        | R                              | 9.3      |                        |
| S                               | *0.049  | under                  | S                              | *0.00017 | under                  |
| T                               | 13      |                        | T                              | 14       |                        |
| <i>Caenorhabditis elegans</i>   |         |                        | <i>Drosophila melanogaster</i> |          |                        |
| Amino acid                      | E-value | Over/under represented | Amino acid                     | E-value  | Over/under represented |
| A                               | 2.7     |                        | A                              | *1.1e-09 | under                  |
| D                               | 12      |                        | D                              | 8.2      |                        |
| E                               | 6.1     |                        | E                              | *0.0055  | over                   |
| G                               | 12      |                        | G                              | 0.49     |                        |
| H                               | 11      |                        | H                              | 10       |                        |
| K                               | 5.1     |                        | K                              | 15       |                        |
| L                               | 9.3     |                        | L                              | 9.2      |                        |
| N                               | 2       |                        | N                              | *0.035   | over                   |
| P                               | 5.4     |                        | P                              | *4.5e-06 | under                  |
| Q                               | 1.6     |                        | Q                              | *1.7e-06 | over                   |
| R                               | 0.17    |                        | R                              | 15       |                        |
| S                               | 16      |                        | S                              | 4.8      |                        |
| T                               | 0.051   |                        | T                              | *0.015   | under                  |

| <i>Mus musculus</i> |          |                        | <i>Homo sapiens</i> |          |                        |
|---------------------|----------|------------------------|---------------------|----------|------------------------|
| Amino acid          | E-value  | Over/under represented | Amino acid          | E-value  | Over/under represented |
| A                   | *0.023   | under                  | A                   | 1.3      |                        |
| D                   | 2.3      |                        | D                   | 0.13     |                        |
| E                   | 2.6      |                        | E                   | 0.21     |                        |
| G                   | 15       |                        | G                   | 12       |                        |
| H                   | 2.8      |                        | H                   | 0.96     |                        |
| K                   | 0.33     |                        | K                   | 0.1      |                        |
| L                   | *0.038   | under                  | L                   | 1.7      |                        |
| N                   | 0.31     |                        | N                   | 0.46     |                        |
| P                   | *1.2e-05 | under                  | P                   | *5.2e-09 | under                  |
| Q                   | *7.9e-35 | over                   | Q                   | *4.5e-22 | over                   |
| R                   | 9.7      |                        | R                   | 15       |                        |
| S                   | 13       |                        | S                   | 11       |                        |
| T                   | 10       |                        | T                   | 7.8      |                        |