**Supplementary File 2. Mapping statistics of Ribo-Seq and matched mRNA-Seq libraries**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sample** | **Species\*** | **Library type** | **Total reads (M)** | **After quality control (M) \*\*** | **Unique mapping rate (%)** | **Multiple mapping rate (%)** |
| **0-2 h embryos** | *D. melanogaster* | mRNA-Seq | 61.01 | 52.74 | 93.14 | 2.84 |
| **2-6 h embryos** | *D. melanogaster* | mRNA-Seq | 59.44 | 52.07 | 93.26 | 3.24 |
| **6-12 h embryos** | *D. melanogaster* | mRNA-Seq | 53.56 | 45.11 | 92.33 | 3.09 |
| **12-24 h embryos** | *D. melanogaster* | mRNA-Seq | 61.18 | 50.64 | 91.89 | 4.31 |
| **Third-instar larvae** | *D. melanogaster* | mRNA-Seq | 58.28 | 45.46 | 88.53 | 6.09 |
| **P7-8 pupae** | *D. melanogaster* | mRNA-Seq | 52.99 | 41.16 | 92.65 | 4.46 |
| **Female adult heads** | *D. melanogaster* | mRNA-Seq | 21.48 | 16.87 | 93.00 | 3.27 |
| **Male adult heads** | *D. melanogaster* | mRNA-Seq | 16.32 | 14.18 | 91.17 | 4.24 |
| **Female adult bodies rep1** | *D. melanogaster* | mRNA-Seq | 16.84 | 11.20 | 88.83 | 5.76 |
| **Female adult bodies rep2** | *D. melanogaster* | mRNA-Seq | 24.94 | 19.37 | 88.73 | 6.00 |
| **Male adult bodies rep1** | *D. melanogaster* | mRNA-Seq | 19.79 | 16.01 | 91.62 | 6.39 |
| **Male adult bodies rep2** | *D. melanogaster* | mRNA-Seq | 11.24 | 7.64 | 89.86 | 6.69 |
| **0-2 h embryos** | *D. melanogaster* | Ribo-Seq | 64.81 | 51.96 | 90.36 | 6.31 |
| **2-6 h embryos** | *D. melanogaster* | Ribo-Seq | 53.14 | 41.19 | 69.47 | 16.92 |
| **6-12 h embryos** | *D. melanogaster* | Ribo-Seq | 66.24 | 46.76 | 86.02 | 8.94 |
| **12-24 h embryos** | *D. melanogaster* | Ribo-Seq | 63.7 | 47.45 | 88.96 | 6.30 |
| **Third-instar larvae** | *D. melanogaster* | Ribo-Seq | 39.53 | 22.13 | 58.83 | 6.82 |
| **P7-8 pupae** | *D. melanogaster* | Ribo-Seq | 41.53 | 20.33 | 80.92 | 5.51 |
| **Female adult heads** | *D. melanogaster* | Ribo-Seq | 63.94 | 39.90 | 94.39 | 2.92 |
| **Male adult heads** | *D. melanogaster* | Ribo-Seq | 58.22 | 23.87 | 93.36 | 3.24 |
| **Female adult bodies rep1** | *D. melanogaster* | Ribo-Seq | 44.11 | 19.85 | 84.20 | 6.36 |
| **Female adult bodies rep2** | *D. melanogaster* | Ribo-Seq | 41.95 | 18.73 | 70.74 | 11.33 |
| **Male adult bodies rep1** | *D. melanogaster* | Ribo-Seq | 42.56 | 18.98 | 79.39 | 8.65 |
| **Male adult bodies rep2** | *D. melanogaster* | Ribo-Seq | 39.52 | 28.66 | 81.19 | 6.93 |
| **0-2 h embryos** | *D. simulans* | mRNA-Seq | 19.92  | 18.33  | 90.85  | 5.82  |
| **2-6 h embryos** | *D. simulans* | mRNA-Seq | 13.88  | 7.47  | 88.32  | 7.46  |
| **6-12 h embryos** | *D. simulans* | mRNA-Seq | 21.13  | 18.64  | 89.26  | 7.06  |
| **12-24 h embryos** | *D. simulans* | mRNA-Seq | 16.17  | 13.96  | 87.77  | 8.47  |
| **Third-instar larvae** | *D. simulans* | mRNA-Seq | 17.56  | 12.69  | 89.88  | 6.57  |
| **P7-8 pupae** | *D. simulans* | mRNA-Seq | 23.87  | 19.04  | 89.92  | 5.62  |
| **Female adult heads** | *D. simulans* | mRNA-Seq | 17.13  | 15.11  | 89.70  | 6.39  |
| **Male adult heads** | *D. simulans* | mRNA-Seq | 17.72  | 15.96  | 90.73  | 6.15  |
| **Female adult bodies** | *D. simulans* | mRNA-Seq | 21.64  | 15.37  | 85.24  | 9.20  |
| **Male adult bodies** | *D. simulans* | mRNA-Seq | 21.54  | 17.34  | 87.45  | 8.84  |
| **0-2 h embryos** | *D. simulans* | Ribo-Seq | 63.38  | 49.48  | 80.09  | 10.81  |
| **2-6 h embryos** | *D. simulans* | Ribo-Seq | 53.46  | 38.09  | 77.27  | 13.72  |
| **6-12 h embryos** | *D. simulans* | Ribo-Seq | 57.76  | 43.84  | 81.58  | 10.81  |
| **12-24 h embryos** | *D. simulans* | Ribo-Seq | 50.55  | 35.05  | 83.55  | 8.21  |
| **Third-instar larvae** | *D. simulans* | Ribo-Seq | 67.69  | 35.40  | 86.44  | 7.10  |
| **P7-8 pupae** | *D. simulans* | Ribo-Seq | 61.74  | 40.45  | 87.45  | 4.76  |
| **Female adult heads** | *D. simulans* | Ribo-Seq | 62.52  | 26.18  | 86.51  | 4.58  |
| **Male adult heads** | *D. simulans* | Ribo-Seq | 65.07  | 28.99  | 89.62  | 3.96  |
| **Female adult bodies** | *D. simulans* | Ribo-Seq | 59.47  | 12.91  | 83.01  | 5.72  |
| **Male adult bodies** | *D. simulans* | Ribo-Seq | 53.55  | 18.35  | 87.44  | 5.61  |
|  |  |  |  |  |  |  |

\* The mRNA-seq and Ribo-Seq datasets for *D. melanogaster* were previously generated from Zhang *et al.* (Hong Zhang et al., 2018). The datasets for *D. simulans* were generated in this study.

\*\* After removing the reads mapped to rRNA, miscRNA (snoRNA, snRNA, rRNA, tRNA), the yeast genome, and the Wolbachia genome.