**Supplementary File 1**

**A: Yeast Whole Genome Bisulfite Sequencing Data**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| NAME | STRAIN | GROWTH PHASE | READ LENGTH | # READS | MAPPED READS | MAPPABILITY (%) |
| EV strain 1 | W303 | stationary phase | 50 | 5618700 | 4238470 | 75.44 |
| EV\_strain 2 | BY4741 | stationary phase | 50 | 5693179 | 4184515 | 73.50 |
| EV strain 3 | W303 | stationary phase | 100 | 18656763 | 13587923 | 72.83 |
| EV\_strain 4 | W303 | stationary phase | 100 | 18334345 | 13334549 | 72.73 |
| 3b\_exp | W303 | exponential growth | 100 | 30969585 | 20311078 | 65.58 |
| 3b strain 1 | W303 | stationary phase | 100 | 30168485 | 19944982 | 66.11 |
| 3b strain 2 | W303 | stationary phase | 100 | 16815631 | 12460190 | 74.10 |
| 3b strain 3 | W303 | stationary phase | 100 | 18976985 | 14054606 | 74.06 |
| 3b strain 4 | W303 | stationary phase | 100 | 15158680 | 11099360 | 73.22 |
| 3b strain 5 | W303 | stationary phase | 50 | 10538019 | 8543601 | 81.07 |
| 3b strain 6 | W303 | stationary phase | 50 | 11206761 | 9269664 | 82.71 |
| 3b strain 7 | BY4741 | stationary phase | 50 | 11155426 | 8762918 | 78.55 |
| 3b strain 8 | BY4741 | stationary phase | 50 | 8821778 | 7240328 | 82.07 |

**B: Yeast MNase Sequencing Stats**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NAME | STRAIN | GROWTH PHASE | TYPE | READ LENGTH | # READS | MAPPED READS | | MAPPABILITY (%) | |
| EV strain 1 | W303 | stationary | naked-DNA | 50 | 18421958 | | 17828771 | | 96.78 |
| 3b strain 1 | W303 | stationary | naked-DNA | 50 | 19889834 | | 19215569 | | 96.61 |
| EV strain 1 | W303 | stationary | MNase-digested chromatin | 50 | 18746212 | | 18061975 | | 96.35 |
| 3b strain 1 | W303 | stationary | MNase-digested chromatin | 50 | 18536100 | | 17957774 | | 96.88 |

**C: Yeast mRNA Sequencing Stats**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| NAME | STRAIN | GROWTH PHASE | READ LENGTH | # READS | MAPPED READS | MAPPABILITY (%) |
| EV strain 3 | W303 | stationary phase | 50 | 17028551 | 14576036 | 85.60 |
| EV\_strain 4 | W303 | stationary phase | 50 | 16542825 | 13793873 | 83.38 |
| 3b strain 2 | W303 | stationary phase | 50 | 16739897 | 13835362 | 82.65 |
| 3b strain 3 | W303 | stationary phase | 50 | 16534790 | 13435040 | 81.25 |
| 3b strain 4 | W303 | stationary phase | 50 | 15793246 | 13140669 | 83.20 |

**D: Yeast ChIP Sequencing Stats**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| NAME | SALT (mM) | STRAIN | GROWTH PHASE | READ LENGTH | # READS | MAPPED READS | MAPPABILITY (%) |
| polII | 140 | W303 | stationary | 50 | 13558635 | 9428180 | 69.5 |
| DNMT3b | 140 | W303 | stationary | 50 | 11345100 | 7548780 | 66.5 |
| H3K4me1 | 500 | W303 | stationary | 50 | 18396633 | 13745135 | 74.7 |
| H3K4me3 | 500 | W303 | stationary | 50 | 15892023 | 12360992 | 77.8 |
| H3K36me3 | 500 | W303 | stationary | 50 | 16039999 | 12993099 | 81.0 |
| INPUT\_1 | 140 | W303 | stationary | 50 | 18552692 | 13700075 | 73.8 |
| INPUT\_2 | 500 | W303 | stationary | 50 | 15269649 | 8392024 | 55.0 |

**E: Yeast Whole Genome Bisulfite Sequencing Data for mutant strains**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| NAME | STRAIN | GROWTH PHASE | READ LENGTH | # READS | MAPPED READS | MAPPABILITY (%) |
| set1Δ replicate 1 | BY4741 | stationary phase | 50 | 12825798 | 10723394 | 83.6 |
| set1Δ replicate 2 | BY4741 | stationary phase | 50 | 9443269 | 7989638 | 84.6 |
| set2Δ replicate 1 | BY4741 | stationary phase | 50 | 10521217 | 8621585 | 81.9 |
| set2Δ replicate 2 | BY4741 | stationary phase | 50 | 11537314 | 9252601 | 80.2 |
| dot1Δ replicate 1 | W303 | stationary phase | 50 | 11307035 | 9018367 | 79.8 |
| dot1Δ replicate 2 | W303 | stationary phase | 50 | 10711735 | 8624989 | 80.5 |

**F: Whole Genome Bisulfite Sequencing in mouse**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NAME | | TIME | READ LENGTH | | # READS | | MAPPED READS | | MAPPABILITY (%) | |
| E13.5 | E13.5 | | | 50 | | 244054365 | 175922769 | 72.1 | |
| E16.5 | E16.5 | | | 100 | | 1080044130 | 750630672 | 69.5 | |
| P2.5 | P2.5 | | | 100 | | 621842708 | 416532028 | 67.0 | |

**G: ChIP Sequencing Stats in mouse**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| NAME | | TIME | READ LENGTH | | # READS | | MAPPED READS | | | MAPPABILITY (%) |
| E16.5 INPUT | E16.5 | | | 50 | | 103447430 | | 37359661 | 36.1 | |
| E16.5 K36me3 IP | E16.5 | | | 50 | | 72711515 | | 28013262 | 38.5 | |