



Additional file 5. Q-Q plots for males.

The black line indicates the expected  $P$ -value distribution. Red circles show the distribution of the original genotype-phenotype association; blue circles show the distribution of associations accounting for any relatedness in the DGRP. (a) Night sleep. (b) Day sleep. (c) Night bout number. (d) Day bout number. (e) Night average bout length. (f) Day average bout length. (g) Waking activity. (h) Night sleep  $CV_E$ . (i) Day sleep  $CV_E$ . (j) Night bout number  $CV_E$ . (k) Day bout number  $CV_E$ . (l) Night average bout length  $CV_E$ . (m) Day average bout number  $CV_E$ . (n) Waking activity  $CV_E$ .