Table S3: Statistical comparison between the directional persistent probabilities of different genotypes. In the table, the first column indicates a pair of genotypes and the second column shows the result of the χ^2 test for comparing $P(r, \theta)$ for the two genotypes.

Two genotypes	Statistical test
$gprk1^{KO9a}$, w^{1118}	$\chi^2 = 16844$, $p < 0.001$, $df = 488$
$gprk1^{KO9a}$, $norpA^7$	$\chi^2 = 36520$, $p < 0.001$,df=490
$gprk1^{KO9a}$, rut^{2080}	$\chi^2 = 10347$, $p < 0.001$, $df = 382$
w^{1118}, $norpA^7$	$\chi^2 = 42468$, $p < 0.001$, $df = 474$
w^{1118}, rut^{2080}	$\chi^2 = 18147$, $p < 0.001$, $df = 372$
$norpA^7$, rut^{2080}	$\chi^2 = 86413$, $p < 0.001$, $df = 375$
Canton-S, rut^{2080}	$\chi^2 = 3.1289e + 007$, $p < 0.001$, $df = 573$
Canton-S, w^{1118}	$\chi^2 = 2.1182e + 009$, $p < 0.001$, $df = 555$
Canton-S, $norpA^7$	$\chi^2 = 1.7497e + 008$, $p < 0.001$, $df = 560$
Canton-S, $gprk1^{KO9a}$	$\chi^2 = 5.3981e + 007$, $p < 0.001$, $df = 539$