

# Analysis of Longevity from Muscle dTORC1 Effector Flies

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These studies evaluate the effects of knockdown of several dTORC1 effectors, including Autophagy genes (*Atg5*, *Atg8a* and *Atg8b*) and the SREBP1 ortholog *Hlh106*. This data is located in /Users/davebridges/Documents/Source/DrosophilaMuscleFunction/Lifespan and was most recently updated on Tue Feb 9 16:17:34 2016.

## Experimental Design

This script was most recently run on Tue Feb 9 16:17:35 2016. There has been a total of **1117** deaths, with **1113** of natural causes and **1109** of identifiable genotypes excluding accidental deaths. The oldest fly recorded so far was 155 days old at time of death.

## Gene Level Analysis

### Number of Flies Examined

The total number of deaths for each cross and genotype, removing deaths that were accidental or not due to natural causes, the data is shown in the table below:

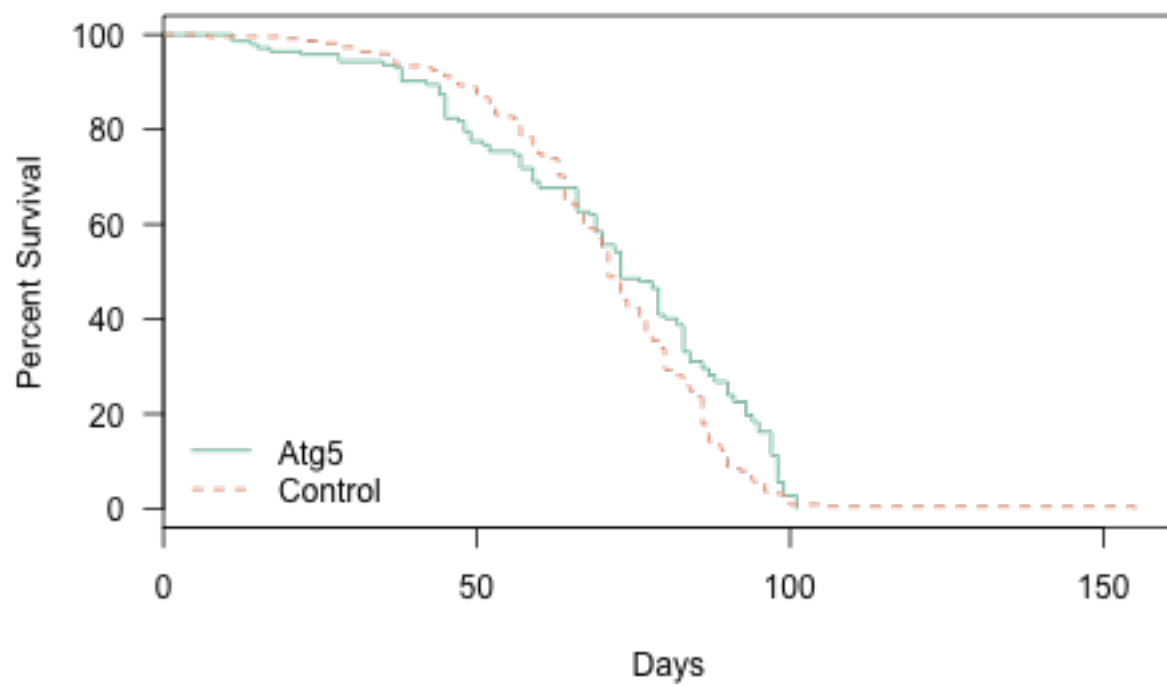
Table 1: Total Natural Deaths by Gender for Each Gene and Genotype

UAS	Gene	female	male
25975	HLH106	44	22
27551	Atg5	61	81
27554	Atg8b	54	46
34073	HLH106	57	64
34340	Atg8a	10	47
36304	Control	124	101

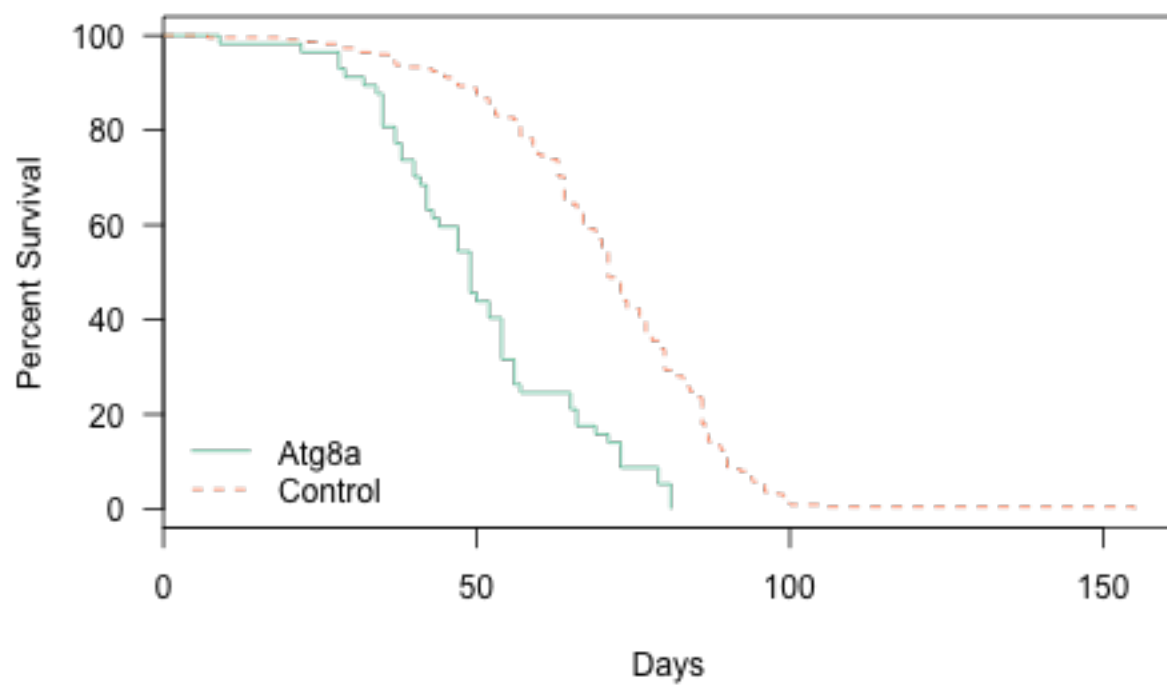
## Survival Analysis

All of these are relative to the reference Genotype which is the knockdown (GAL4/shRNA). The key packages used in this The summary statistics from this analysis are shown in the tables below:

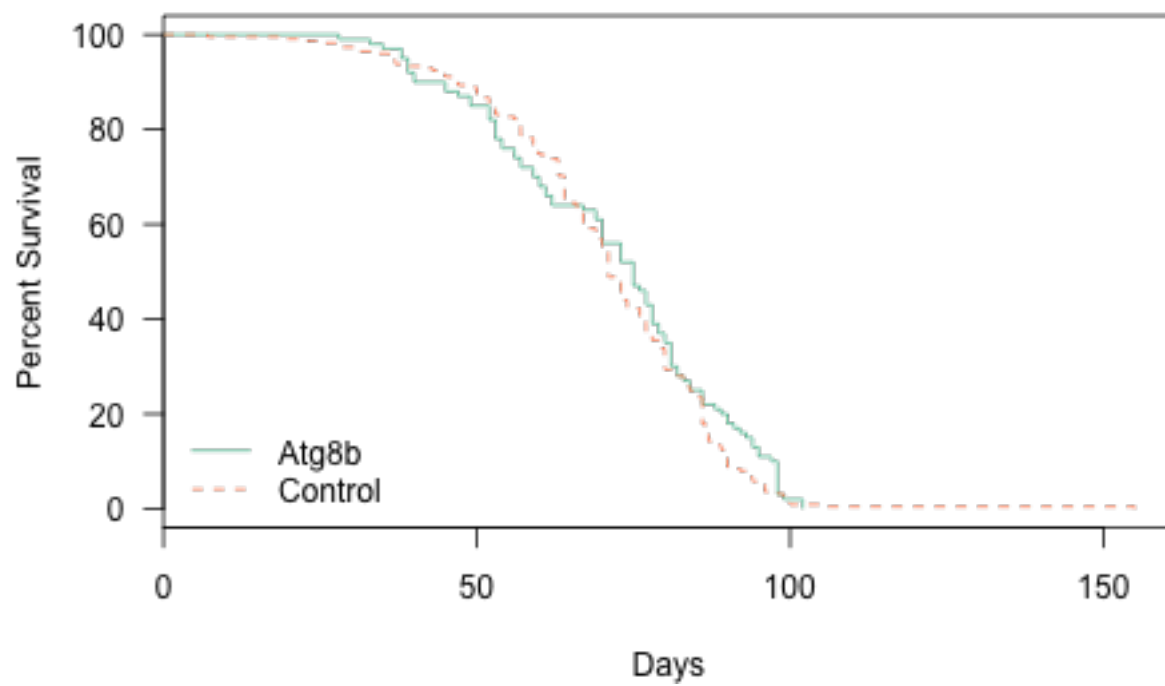
### Survival of Atg5 with 24B-GAL4 Driver



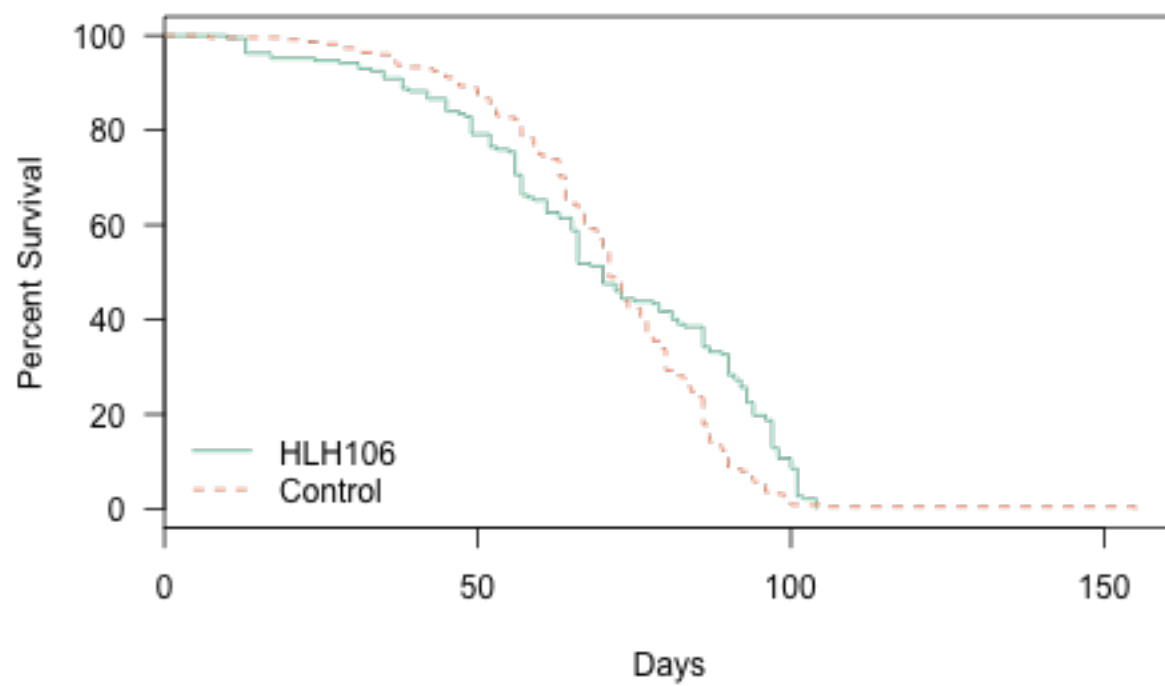
### Survival of Atg8a with 24B-GAL4 Driver



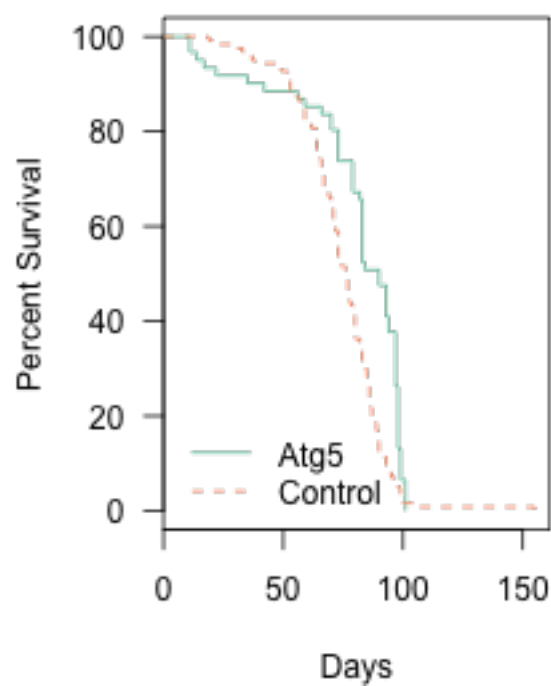
### Survival of Atg8b with 24B-GAL4 Driver



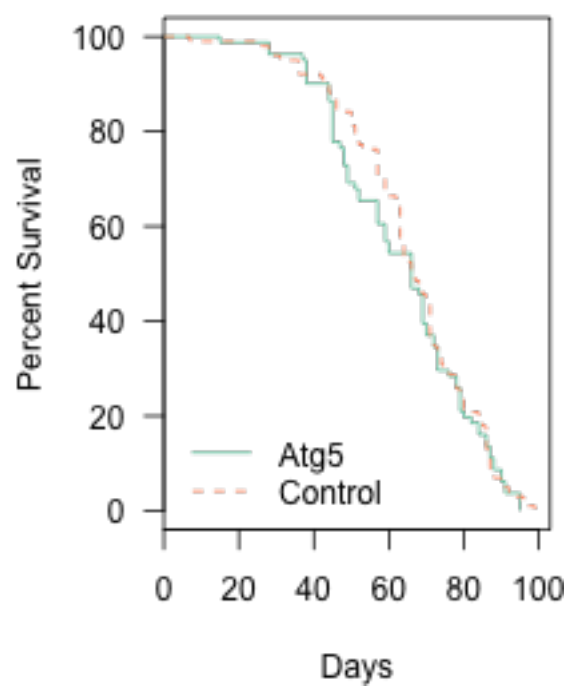
### Survival of HLH106 with 24B-GAL4 Driver



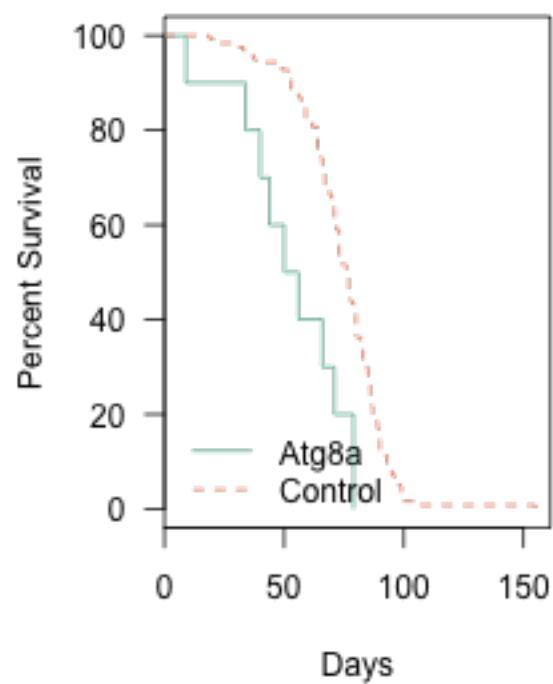
**Atg5 female**



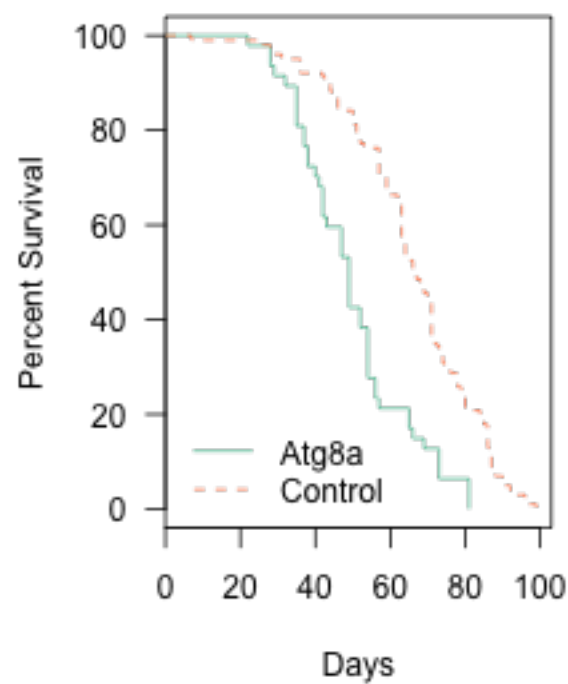
**Atg5 male**



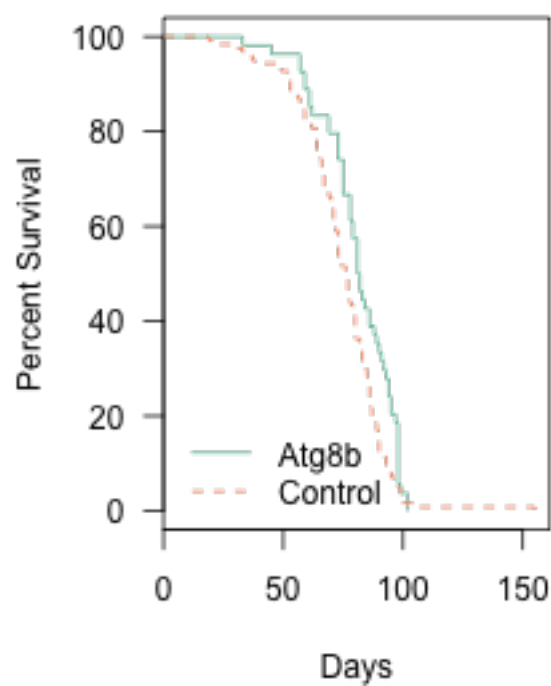
**Atg8a female**



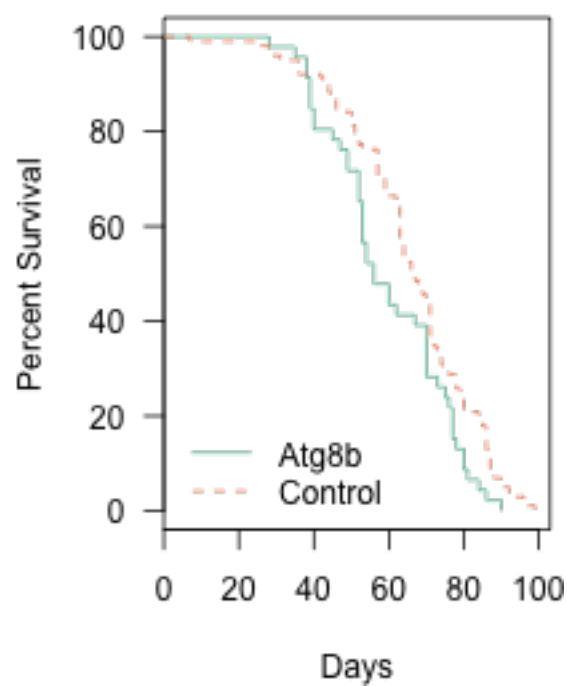
**Atg8a male**



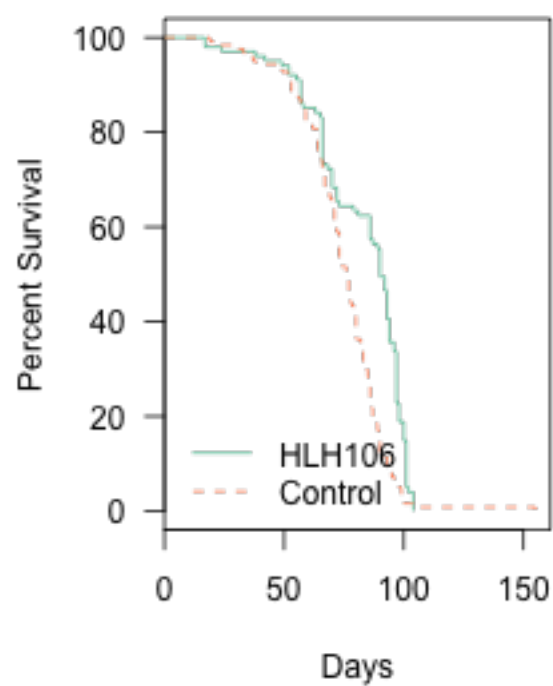
**Atg8b female**



**Atg8b male**



**HLH106 female**



**HLH106 male**

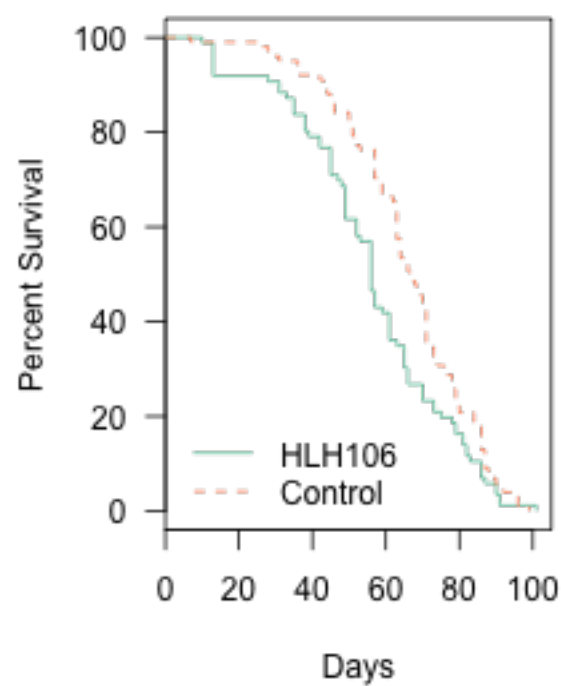


Table 2: Gene Level Tests for 24B-Gal4 Drivers

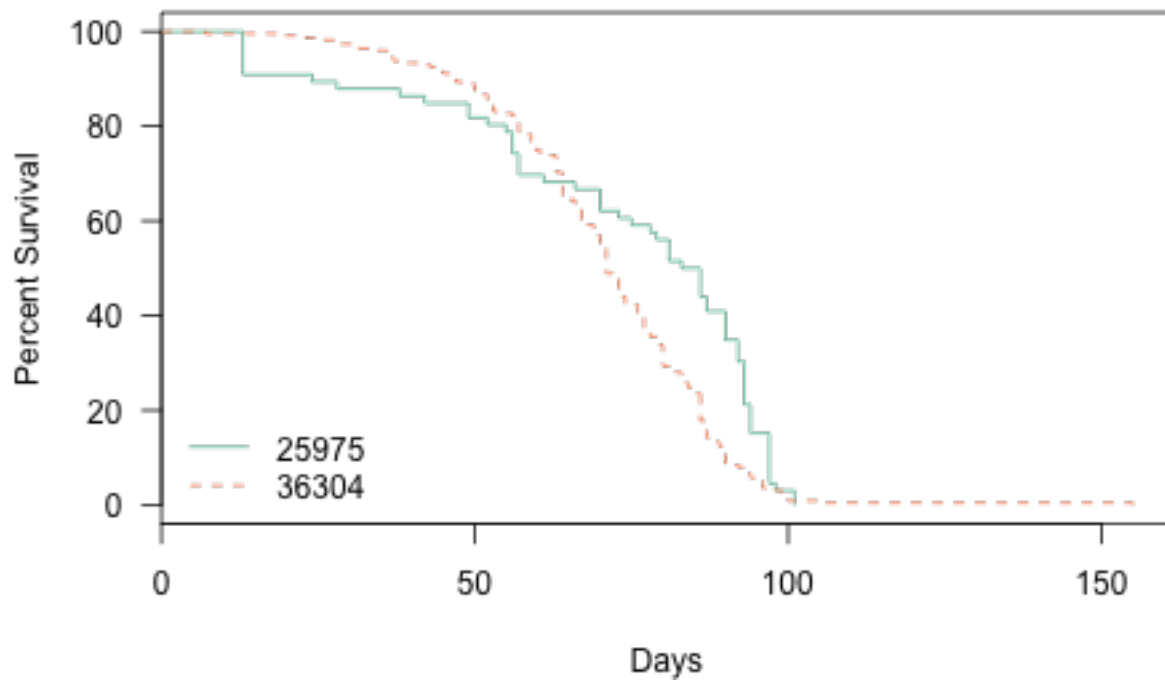
	n	logtest.p	waldtest.p	sctest.p
Atg5	367	0.0208122	0.0218350	0.0215273
Atg8a	282	0.0000000	0.0000000	0.0000000
Atg8b	325	0.2681544	0.2719850	0.2716462
HLH106	412	0.0032338	0.0033468	0.0032504
Control	NA	NA	NA	NA

Table 3: Gene and Gender Level Tests for 24B-Gal4 Drivers

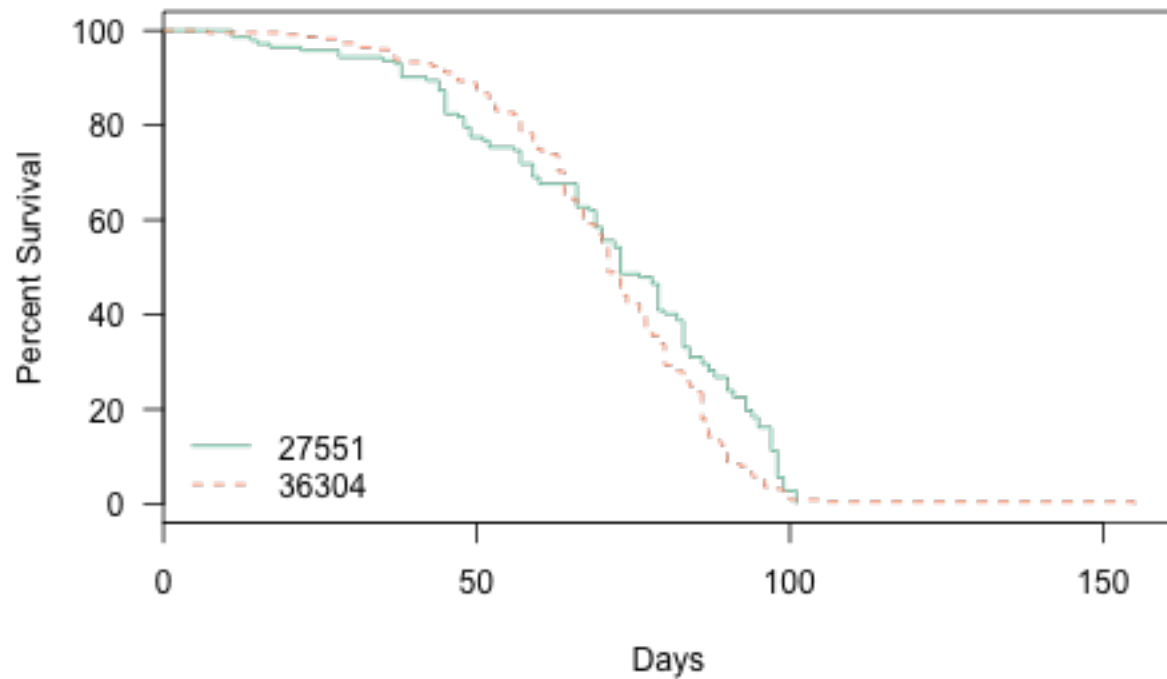
	n	logtest.p	waldtest.p	sctest.p
Atg5 male	182	0.562147821	0.561551164	0.561427958
Atg5 female	185	0.000078321	0.000118024	0.000095685
Atg8a male	148	0.000000252	0.000000051	0.000000015
Atg8a female	134	0.001739391	0.000273395	0.000107367
Atg8b male	147	0.017618991	0.014771812	0.014005598
Atg8b female	178	0.015224195	0.017577936	0.016912379
HLH106 male	187	0.013451588	0.012740739	0.012257140
HLH106 female	225	0.000001906	0.000002068	0.000001487

Analysis by shRNA Clone

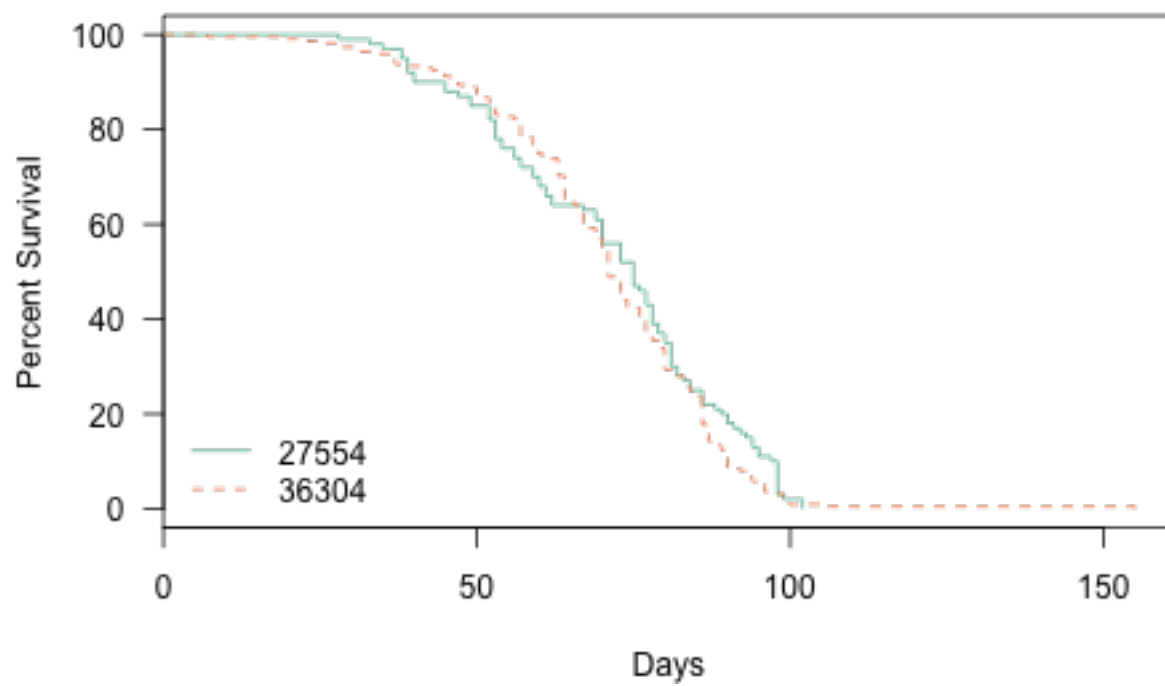
### Survival of 25975 with 24B-GAL4 Driver



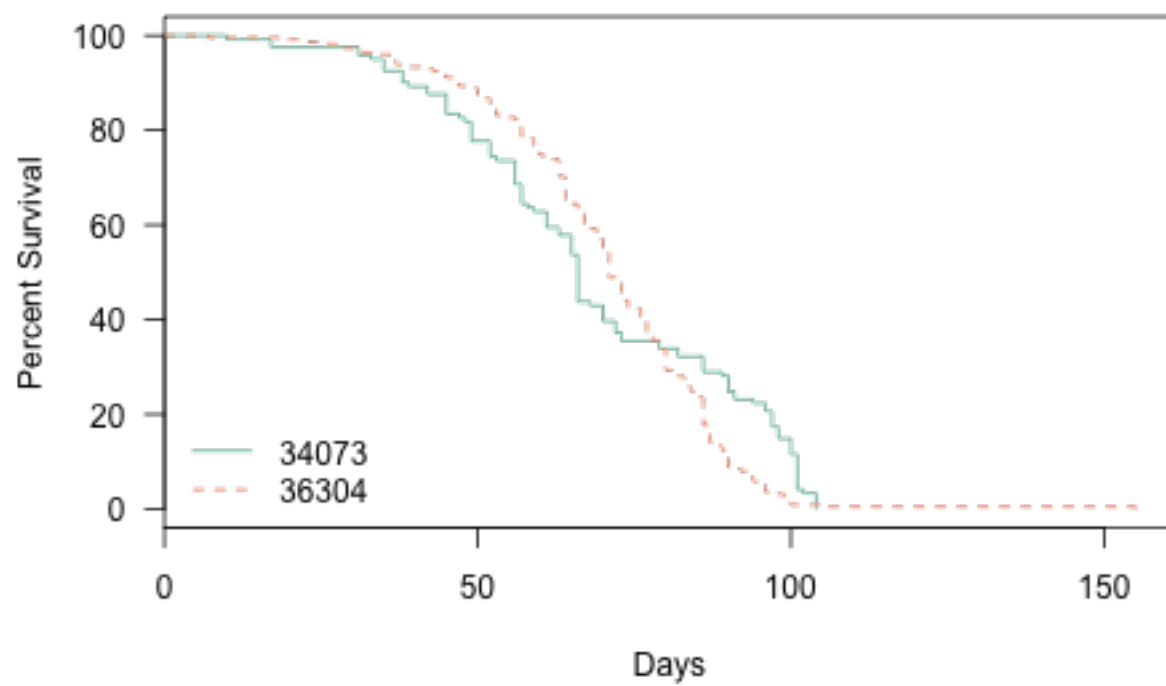
### Survival of 27551 with 24B-GAL4 Driver



**Survival of 27554 with 24B-GAL4 Driver**

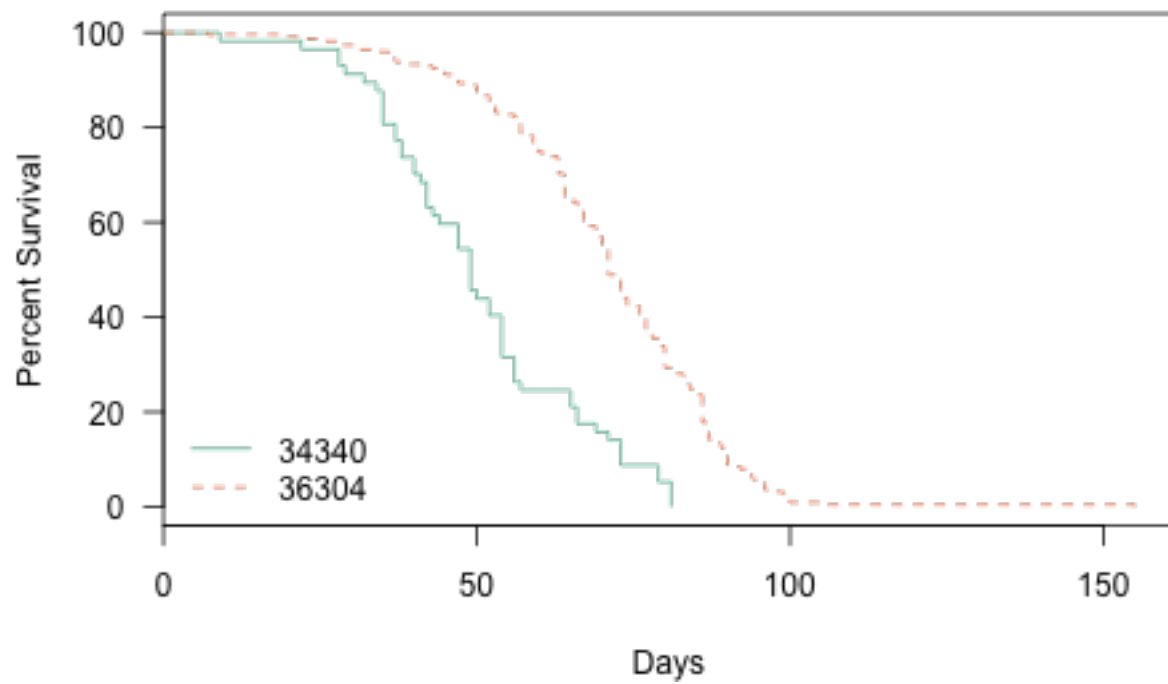


**Survival of 34073 with 24B-GAL4 Driver**

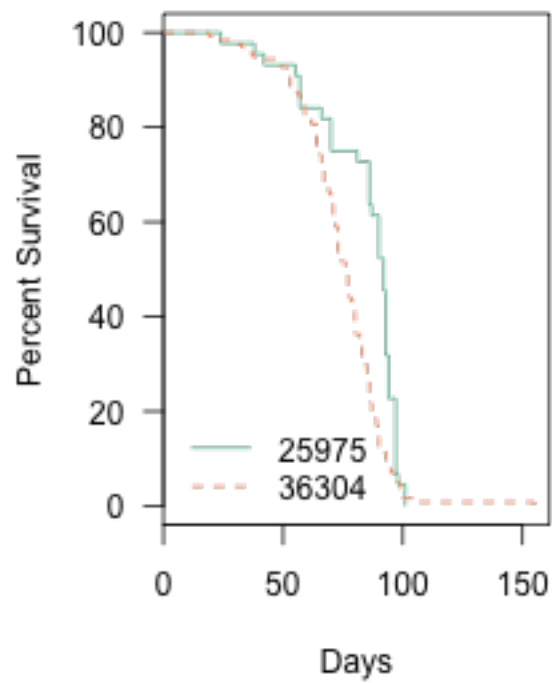




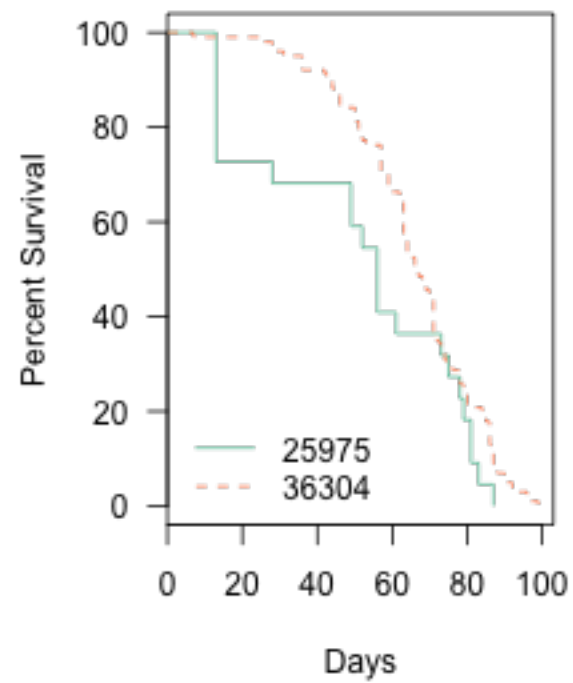
### Survival of 34340 with 24B-GAL4 Driver



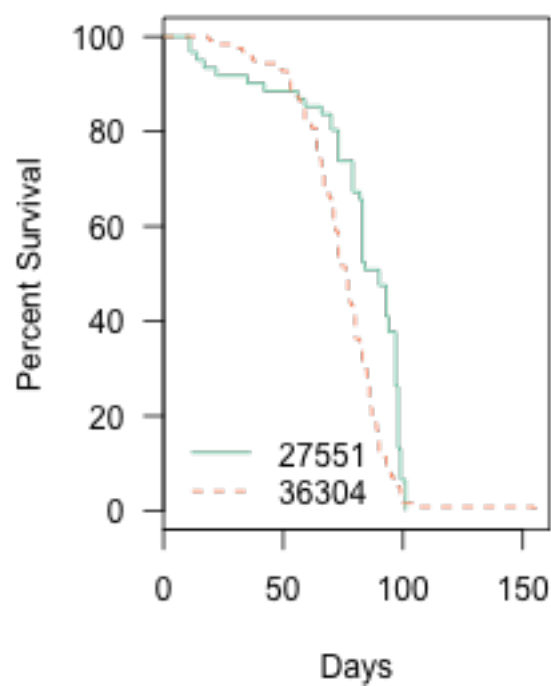
### 25975 female



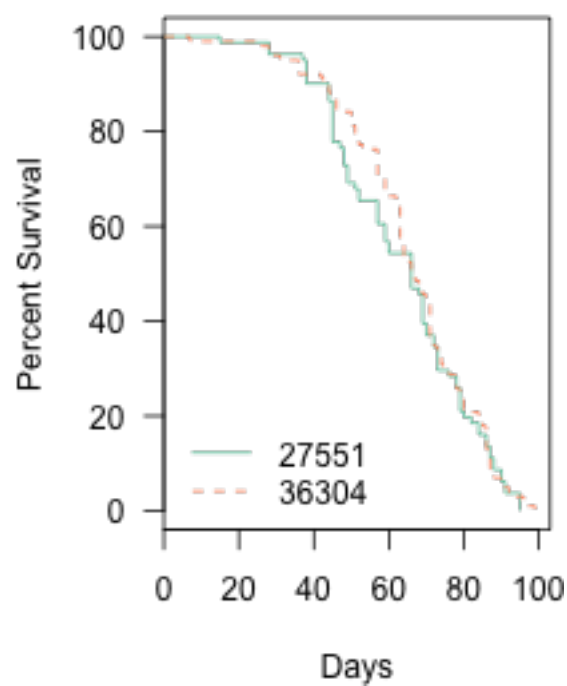
### 25975 male



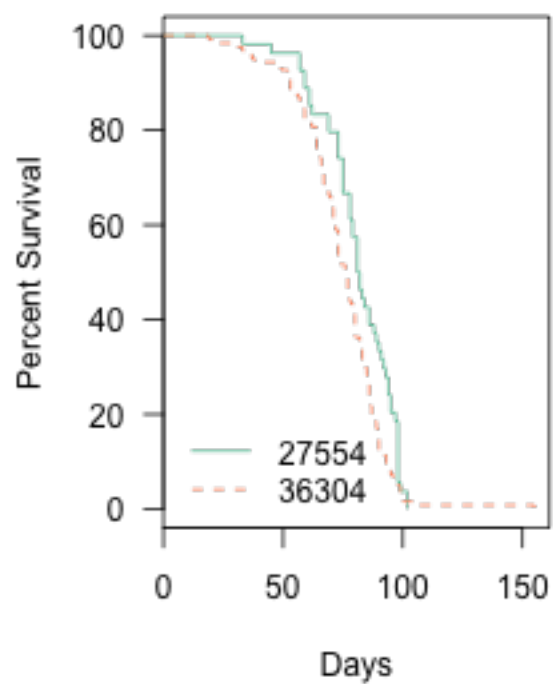
**27551 female**



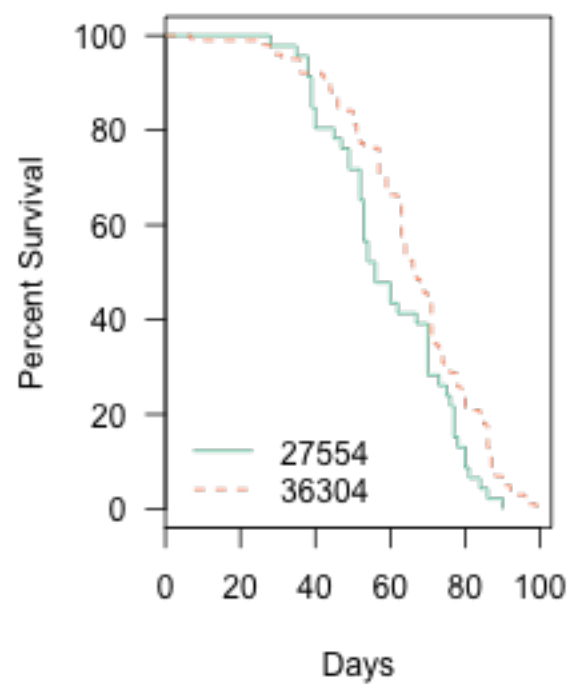
**27551 male**



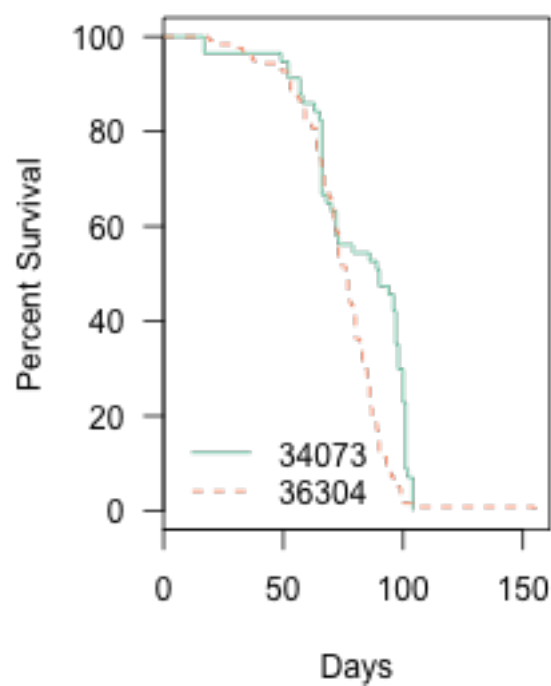
**27554 female**



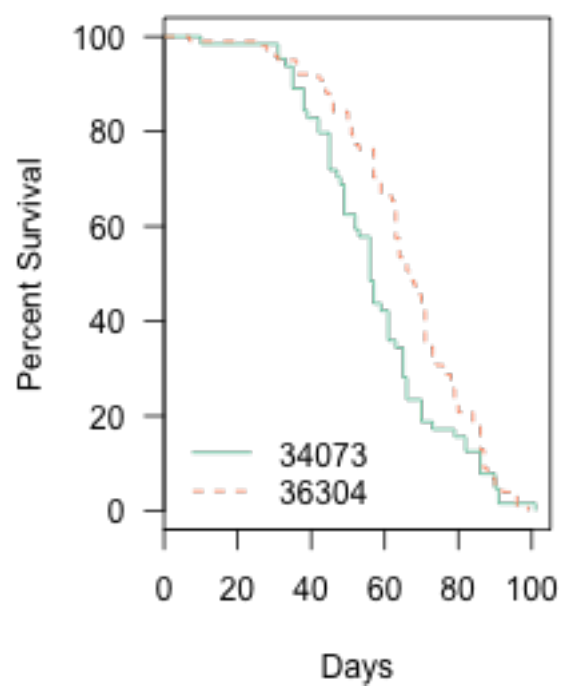
**27554 male**



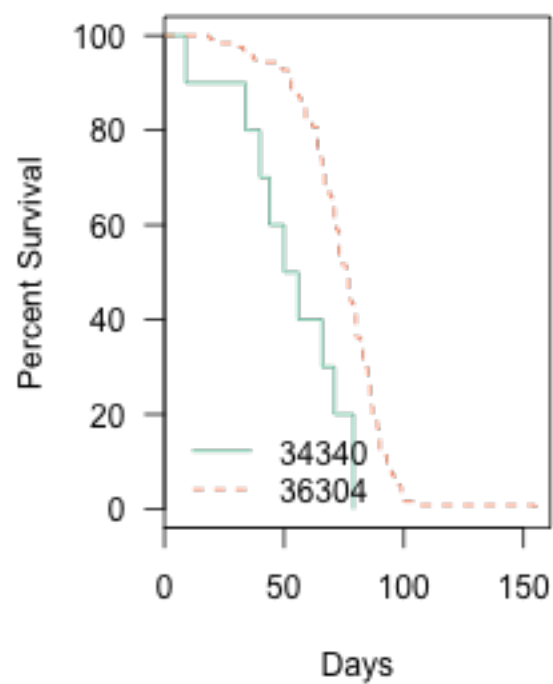
**34073 female**



**34073 male**



**34340 female**



**34340 male**

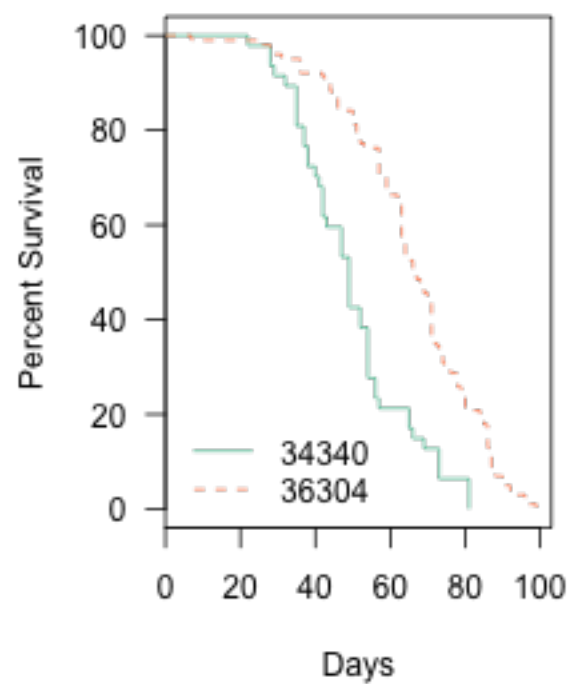


Table 4: UAS Level Tests for 24B-Gal4 Drivers

	n	logtest.p	waldtest.p	sctest.p
25975	291	0.0012544	0.0018383	0.0017014
27551	367	0.0208122	0.0218350	0.0215273
27554	325	0.2681544	0.2719850	0.2716462
34073	346	0.0581304	0.0607235	0.0603195
34340	282	0.0000000	0.0000000	0.0000000
36304	NA	NA	NA	NA

Table 5: UAS and Gender Level Tests for 24B-Gal4 Drivers

	n	logtest.p	waldtest.p	sctest.p
female 25975	168	0.000294054	0.000499263	0.000415450
male 25975	123	0.063911798	0.052066030	0.050012278
female 27551	185	0.000078321	0.000118024	0.000095685
male 27551	182	0.562147821	0.561551164	0.561427958
female 27554	178	0.015224195	0.017577936	0.016912379
male 27554	147	0.017618991	0.014771812	0.014005598
female 34073	181	0.000049950	0.000083672	0.000068421
male 34073	165	0.028979399	0.026531128	0.025760116
female 34340	134	0.001739391	0.000273395	0.000107367
male 34340	148	0.000000252	0.000000051	0.000000015
female 36304	NA	NA	NA	NA
male 36304	NA	NA	NA	NA

## Session Information

```
## R version 3.2.2 (2015-08-14)
## Platform: x86_64-apple-darwin13.4.0 (64-bit)
## Running under: OS X 10.11.3 (El Capitan)
##
## locale:
## [1] en_US.UTF-8/en_US.UTF-8/en_US.UTF-8/C/en_US.UTF-8/en_US.UTF-8
##
## attached base packages:
## [1] stats      graphics  grDevices  utils      datasets  methods   base
##
## other attached packages:
## [1] survival_2.38-3   RColorBrewer_1.1-2  tidyr_0.3.1
## [4] dplyr_0.4.3       lubridate_1.5.0     RCurl_1.95-4.7
## [7] bitops_1.0-6      knitr_1.11
##
## loaded via a namespace (and not attached):
## [1] Rcpp_0.12.2      assertthat_0.1    digest_0.6.8     R6_2.1.1
## [5] DBI_0.3.1        formatR_1.2.1     magrittr_1.5     evaluate_0.8
## [9] highr_0.5.1      stringi_1.0-1     lazyeval_0.1.10  rmarkdown_0.8.1
## [13] splines_3.2.2    tools_3.2.2       stringr_1.0.0    parallel_3.2.2
## [17] yaml_2.1.13      htmltools_0.2.6
```