



“As we talked through the data and I understood all the controls in place, it became clear that the study was done in a manner that gave me confidence in the results. And that trust extends to if I wanted to do another study; I'd certainly have no problem coming back.”

– Dr. David Vollmer, Chief Scientific Officer, 4Life Research

Why InVivo Biosystems?

While rodent models are still the gold standard for drug development, they can be resource and time-intensive especially when they are used as longevity or anti-aging models (upwards of 2-3 years to complete and cost hundreds of thousands of dollars).

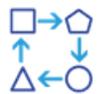
The cost and time requirement often preclude researchers from using rodent models for anti-aging studies. More and more researchers are looking into use of alternative models to include early stage in vivo hypothesis testing and re-evaluate the development pipeline prior to going to more regulated, more resource and time-intensive models.

Service Packages

Our in vivo Longevity Platform offers 3 service packages so you can choose the package(s) that best serves your needs.



Lifespan and Healthspan Analysis



Pathway and Mechanisms of Action
(MoA) Analysis



Compound assessment

Contact us



1-844-663-8749



invivobiosystems.com



support@invivobiosystems.com

What Data Do You Get?

Using our Longevity Platform, you can quickly and economically test a compound's ability to extend lifespan and healthspan with large sample sizes of live animals in less than 5 months and get answers to the following questions:

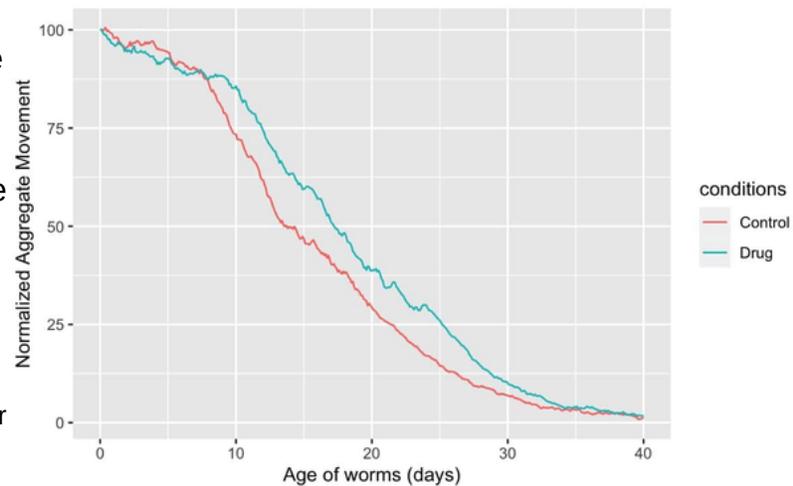
- Does my compound have a positive or negative effect on lifespan?
- How does my compound affect lifespan *and* healthspan?
- Which are the associated signaling pathways that attributed to the life extension?

You will receive all data in raw and analyzed form along with a final report containing experimental details and therapeutic hit rankings.

Service Offerings

- 1 Lifespan and healthspan analysis:** Produce lifespan and healthspan measurements by automatically monitoring an adult *C. elegans*' survival, morphology and movement using the data collected over the entire lifespan of the adult *C. elegans*.

Figure 1: Aggregate motility and morphology analysis over duration of lifespan. Representative data from worms treated with either vehicle (Control) or a compound that improves healthspan (Drug).



- 2 Pathway Analysis:** Identify the aging pathways that contribute to the observed lifespan extension using RNAseq or whole transcriptome sequencing (WTS) and give an indication of which aging pathways contribute to that lifespan extension including mitochondrial, oxidative stress, and DNA damage.

Figure 2: Mapping of gene expression data to longevity pathways in the KEGG database. Pathway shown represents changes of expression that might be observed under conditions of dietary restriction.

Pathway components are color coded based on the level of up or down regulation of treated samples versus control.

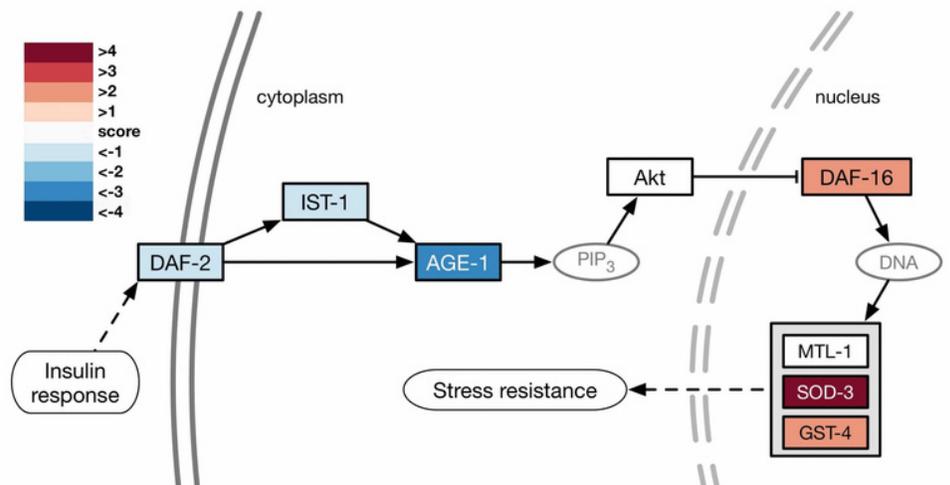
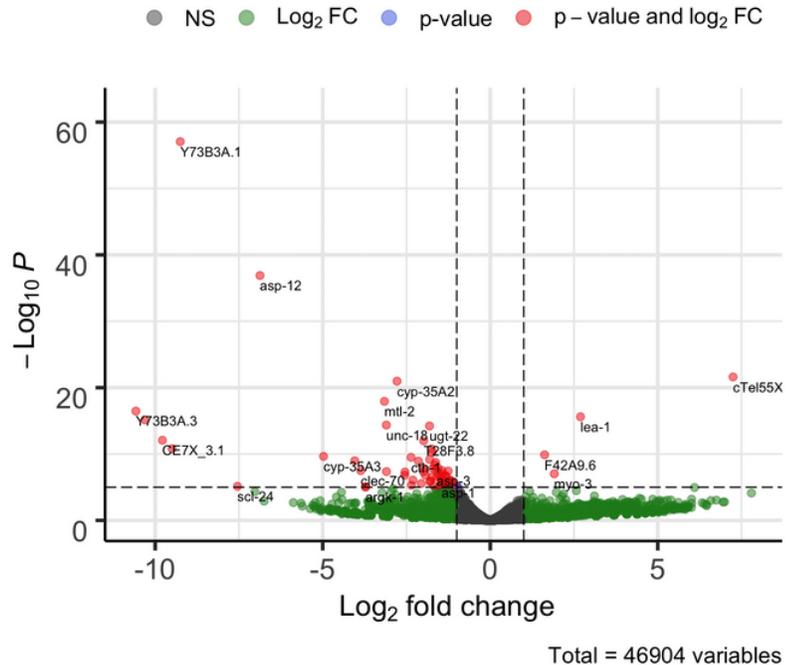


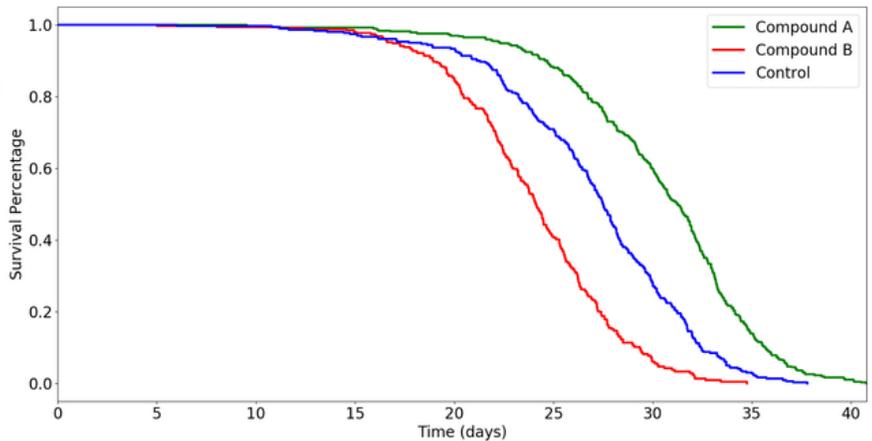
Figure 3: Measure changes in gene expression level. The gene *asp-12* is downregulated 117-fold ($p=1.3e-37$) in the day 10 Lu0128 treated samples compared with the day 10 untreated. The gene *lea-1* is upregulated 6.5-fold ($p=2.4e-16$) in the day 10 Lu0128 treated samples compared with the day 10 untreated.



3 Compound Assessment:

Determine a compound's ability to extend lifespan and healthspan within 5 months once an experiment starts.

Figure 4: Kaplan-Meier curve showing the effects of two compounds on the lifespan of a population of animals. Animals treated with Compound A have a significantly longer lifespan than the animals treated with vehicle control. Animals treated with Compound B have a shortened lifespan.



Additional Resources:

- [Worms on drugs: How well can *C. elegans* predict drug toxicity in mammals?](#)
- [Sample data report](#)
- [From worm to pre-clinical data - a case study](#)
- [Dr. Vollmer's Customer Story](#)