

# Innovating Animal Behavior Testing Solutions

Integrated / Professional / Experienced / Efficient

**Protheragen** has a professional animal behavioral experiment platform, which can save your time and provide high quality experiment results.

✉ info@protheragen.us

☎ 1-631-533-2057

📍 101-4 Colin Dr, Holbrook, NY 11741, USA





# Table of Contents

About Protheragen	3
Animal Behavioral Testing Services	6
Cognitive and Memory Behavior Tests	7
Emotional Related Behavior Tests	9
Motor Behavior Tests	11
Pain Related Behavior Tests	13
Featured Research Models	15
Applications of Animal Behavioral Tests	16



## Who Are We

# About Protheragen

**Protheragen** is a dedicated research service provider, offering a professional animal behavior testing platform and advanced data recording and analysis systems. We deliver a wide range of behavioral testing services to support your research needs, ensuring efficiency and high-quality experimental outcomes.



### High quality multiple behavioral testing services

The Behavioral testing services we offered covering learning and memory, emotion, movement and pain, which can be used for neurological disease research and drug screening assessments.



### Accurate data recording and analysis system

Accurate animal behavior detection instruments and behavior analysis software provide you with perfect experimental results.



### One-stop services

We can provide our customers with one-stop services, including the evaluation of experimental protocols, testing, and the analysis and delivery of results.





## “ Our Mission

**Protheragen** aims to provide researchers with reliable, precise, and comprehensive animal behavior testing services, advancing scientific understanding and enabling the development of innovative treatments for emotional, motor, and pain-related conditions.

## Our Vision ”

**Protheragen** is committed to becoming a global leader in animal behavior research services, empowering discoveries to improve human and animal health through cutting-edge technology, expertise, and a commitment to excellence.



# Our Capabilities

## ✓ Advanced Laboratory Facilities

Our laboratory serves as the foundation of our research capabilities, equipped with cutting-edge technologies to ensure precision and reproducibility.

## ✓ Comprehensive Behavioral Testing Capabilities

We offer a wide range of animal behavioral testing services, covering cognitive, emotional, motor, and pain-related studies.

## ✓ Expertise and Team Excellence

Our team of seasoned professionals combines expertise in behavioral science, pharmacology, and neuroscience to deliver high-quality research services.



# Animal Behavioral Testing Services

Category	Tests			Applications
Cognitive and Memory Behavior Tests	<b>Cognitive Behavioral Tests</b> <ul style="list-style-type: none"><li>• Morris Water Maze Test</li><li>• Eight-Arm Maze Test</li><li>• T Maze Test</li><li>• Barnes Maze Test</li></ul>	<b>Learning and Memory Behavioral Tests</b> <ul style="list-style-type: none"><li>• Object Recognition Test</li><li>• Fear Conditioning Test</li><li>• Active and Passive</li><li>• Avoidance Test</li></ul>		Evaluating learning abilities, memory retention, and cognitive function in neurological and therapeutic research.
Emotional Related Behavior Tests	<b>Anxiety Tests</b> <ul style="list-style-type: none"><li>• Open Field Test</li><li>• Marble Burying Test</li><li>• Elevated Plus Maze Test</li><li>• Vogel Conflict Test</li><li>• Light-Dark Transition Test</li><li>• Hole Board Test</li></ul>	<b>Depression Tests</b> <ul style="list-style-type: none"><li>• Forced Swimming Test</li><li>• Tail Suspension Test</li><li>• Learned Helplessness Test</li><li>• Novelty-Suppressed Feeding Test</li><li>• Sucrose Preference Test</li><li>• Three-Chamber Sociability Test</li></ul>	<b>Stress Tests</b> <ul style="list-style-type: none"><li>• Chronic Restraint Stress Model</li><li>• Chronic Unpredictable Mild</li><li>• Stress Model</li><li>• Sleep Interruption Model</li><li>• Chronic Social Defeat Stress Model</li></ul>	Assessing anxiety, depression, and stress-related behaviors for drug efficacy and psychological disorder models.
Motor Behavior Tests	<b>Fatigue Behavior Tests</b> <ul style="list-style-type: none"><li>• Treadmill Test</li><li>• Grip Strength Test</li><li>• Loaded Swimming Test</li></ul>	<b>Motor Coordination and Balance Tests</b> <ul style="list-style-type: none"><li>• Beam Balance Test</li><li>• Rotarod Test</li><li>• Pole Test</li><li>• Inverted Screen Test</li><li>• Rearing Cylinder Test</li><li>• Ladder Rung Walking Test</li><li>• Gait Analysis Test</li></ul>		Evaluating motor coordination, balance, fatigue resistance, and muscle strength for neurological and muscular studies.
Pain Related Behavior Tests	<b>Stimulating Pain Tests</b> <ul style="list-style-type: none"><li>• Cold Hot Plate Test</li><li>• Von Frey Test</li><li>• Tail Flick Test</li><li>• Hargreaves Test</li></ul>	<b>Non-Stimulating Pain Tests</b> <ul style="list-style-type: none"><li>• Incapacitance Analgesia Test</li><li>• Foot Volume Measurement</li></ul>		Measuring pain sensitivity, analgesic effects, and inflammation in pain management and therapeutic research.



## Featured Services

# Cognitive and Memory Behavior Tests

Cognitive and memory behavior tests are designed to evaluate **learning abilities**, **memory retention**, and **cognitive function** in animal models. These tests provide valuable insights into the neurological processes underlying cognition and the effects of therapeutic interventions.

### Cognitive Behavioral Tests

- Morris Water Maze Test
- Eight-Arm Maze Test
- T Maze Test
- Barnes Maze Test

### Learning and Memory Behavioral Tests

- Object Recognition Test
- Fear Conditioning Test
- Active and Passive Avoidance Test

## Workflow of Cognitive and Memory Behavior Tests



Inquiry



Project Planning



Experiment Design



Test Execution



Data Analysis

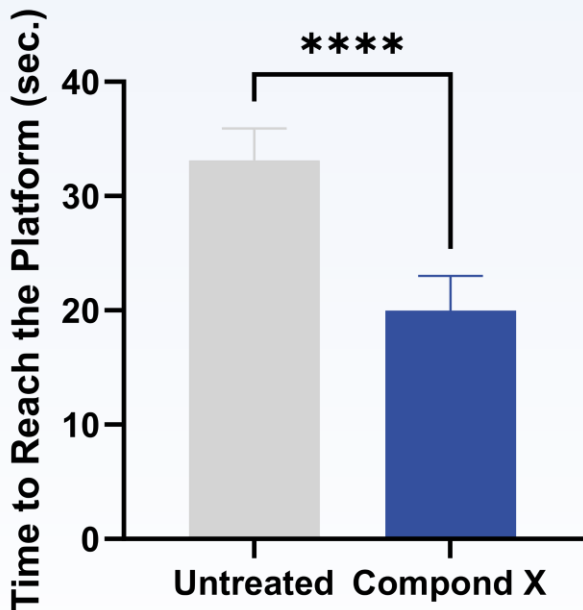


Result Delivery

# Case Study of Cognitive and Memory Behavior Tests

## Morris Water Maze

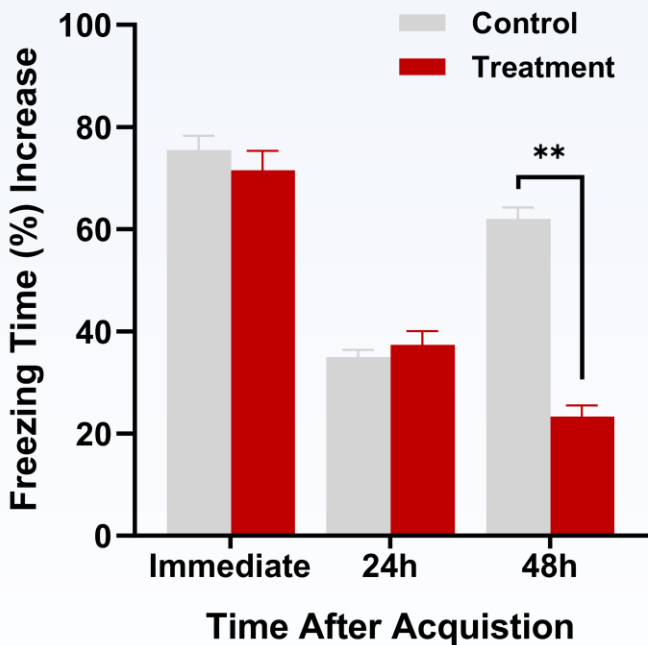
Protheragen offers comprehensive Morris water maze testing services to assess spatial learning and memory in animal models. Our results, which include significant improvements in platform search times, highlight the reliability of our testing protocols for evaluating cognitive function and the effects of novel compounds on memory.



**Fig1.** Effect of treatment on platform search time in the Morris water maze test. Data are presented as mean + SEM. \*\*\*\*  $p < 0.001$ .

## Fear Conditioning Test

Our fear conditioning model offers a reliable platform to evaluate associative learning and memory in animals, ideal for assessing the cognitive effects of treatments on fear-related behaviors. Advanced monitoring systems measure freezing behavior to provide insights into memory formation and retention.



**Fig2.** Effect of treatment on freezing behavior in the fear conditioning model. Data are presented as mean + SEM. \*\*  $p < 0.01$ .



# Emotional Related Behavior Tests

Emotional-related behavior tests are designed to evaluate emotional states such as **anxiety**, **depression**, and **fear** in animal models. These tests provide valuable insights into the mechanisms underlying emotional regulation and their impact on behavior, aiding in the understanding of mental health and neurological conditions.



## Anxiety Related Behavior Tests

- Open Field Test
- Marble Burying Test
- Elevated Plus Maze Test
- Vogel Conflict Test
- Light-Dark Transition Test
- Hole Board Test

## Depression Related Behavior Tests

- Forced Swimming Test
- Tail Suspension Test
- Learned Helplessness Test
- Novelty-Suppressed Feeding Test
- Sucrose Preference Test
- Three-Chamber Sociability Test

## Stress Related Behavior Tests

- Chronic Restraint Stress Model
- Chronic Unpredictable Mild Stress Model
- Sleep Interruption Model
- Chronic Social Defeat Stress Model

# Case Study of Emotional Related Behavior Tests

## Forced Swimming Test

**Protheragen** provides reliable forced swimming test services to assess depression-like behavior and stress responses in animal models. In a recent case study, results demonstrated a significant reduction in immobility time in the test group compared to controls, highlighting the sensitivity and reliability of our methods for evaluating stress-induced behavioral adaptations.

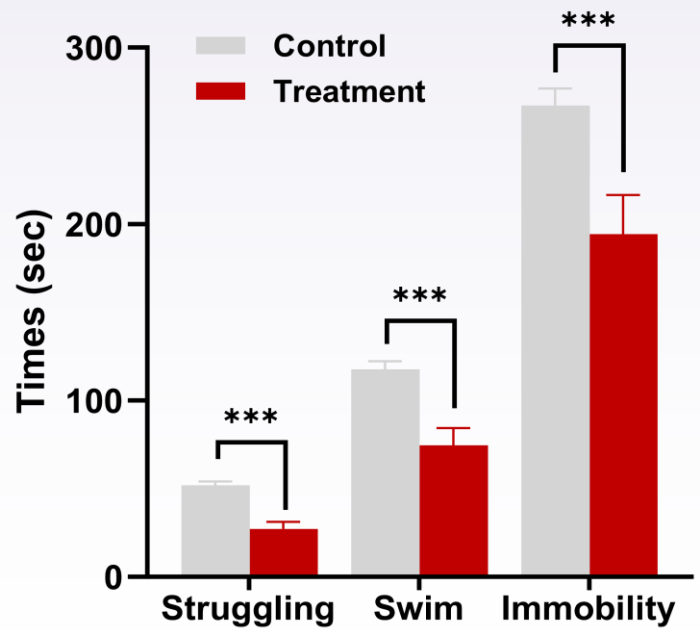


Fig3. Effect of treatment on immobility time in the forced swimming test. Data are presented as mean + SEM. \*\*\* p < 0.001.

## Elevated Plus Maze Test

In the case study of elevated plus maze test , treatment significantly increased time spent in open arms, highlighting the test’s sensitivity in assessing anxiety and exploratory behavior. Using this proven method, **Protheragen** delivers standardized protocols and precise analysis to ensure reliable, reproducible results for your research.

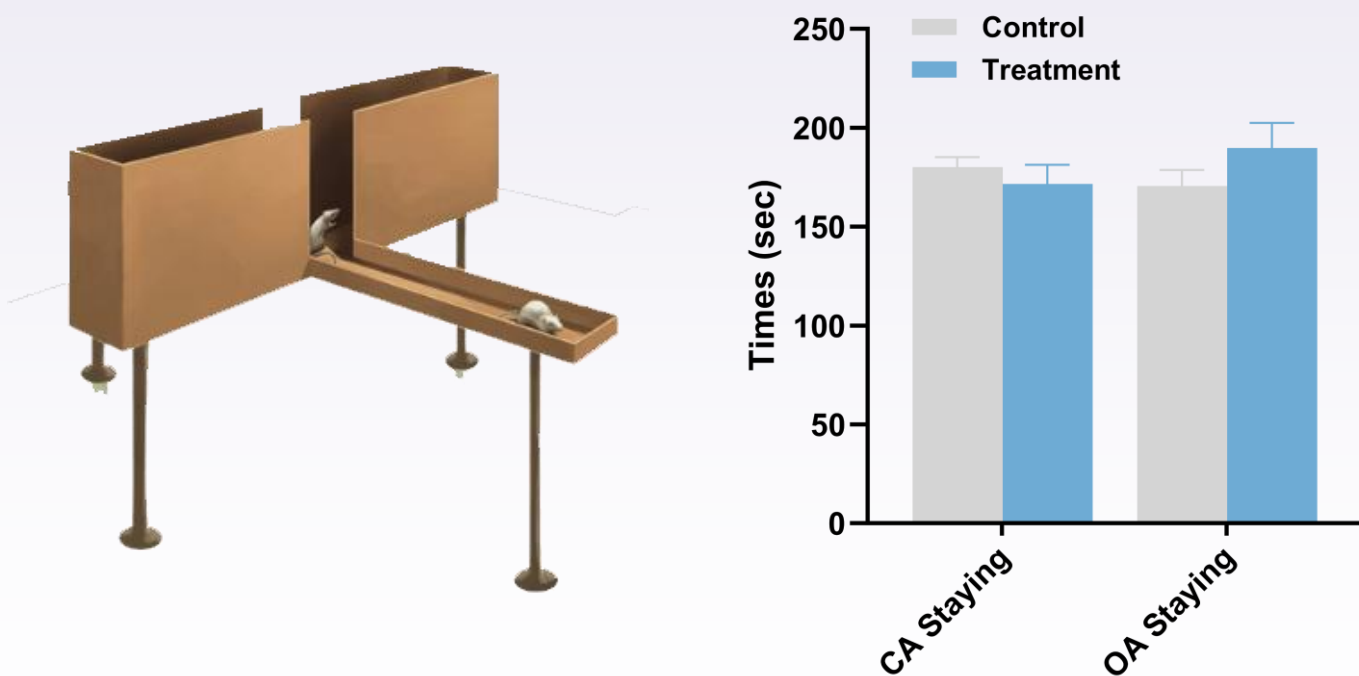


Fig4. Effect of treatment on time spent in open and closed arms in the Elevated Plus Maze Test. Data are presented as mean ± SEM. \*p < 0.05.



# Motor Behavior Tests

Motor behavior tests provide valuable insights into the **neurological and muscular systems**, helping to evaluate motor impairments, disease progression, and functional recovery. At **Protheragen**, we offer standardized testing protocols and precise data analysis to ensure reliable and reproducible results, supporting your research in motor function and related therapeutic evaluations.

## Fatigue Behavior Tests

- Treadmill Test
- Grip Strength Test
- Loaned Swimming Test



- **Fatigue Evaluation:** Assess endurance and mechanisms of chronic fatigue.
- **Therapies Optimization:** Support drug testing and performance improvement.

## Motor Coordination and Balance Behavior Tests

- Beam Balance Test
- Rotarod Test
- Pole Test
- Inverted Screen Test
- Rearing Cylinder Test
- Ladder Rung Walking Test
- Gait Analysis Test



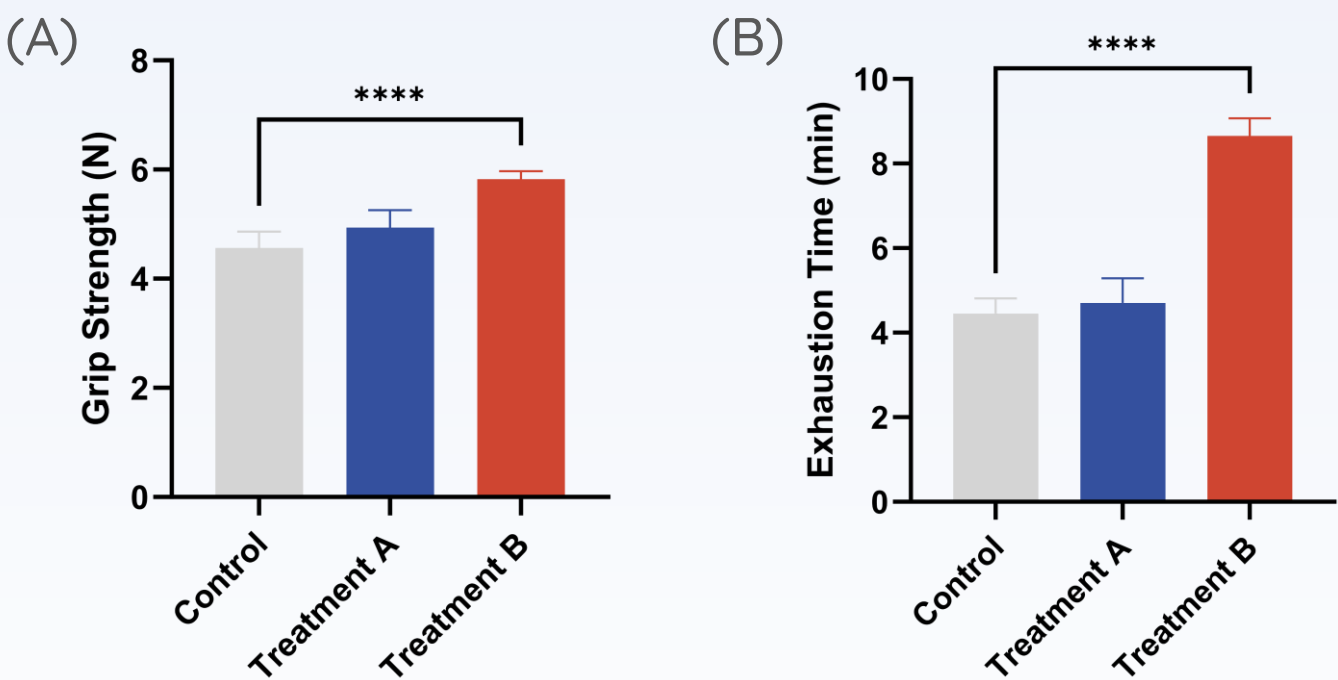
- **Motor Skills Evaluation:** Assess coordination and balance in disease models.
- **Neurological Research Support:** Study motor impairments in neurodegenerative diseases.
- **Drug Testing:** Measure treatment effects and track disease progression effectively.



# Case Study of Motor Behavior Tests

## Grip Strength Test & Loaded Swimming Test

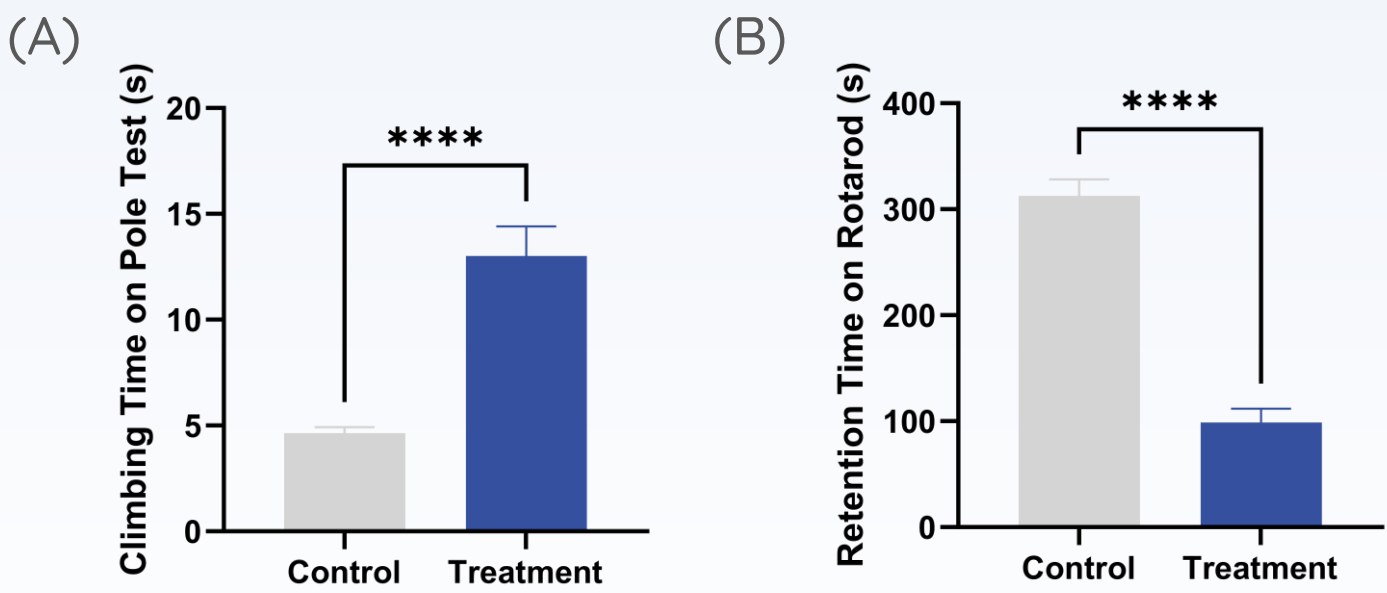
The grip strength test and loaded swimming test are established methods for evaluating muscle strength, endurance, and fatigue. Case studies have demonstrated their effectiveness in detecting changes in muscular performance and resistance. Protheragen provides accurate and reliable data for advanced muscle research.



**Fig5.** Effect of treatment on grip strength (A) and exhaustion time in the loaded swimming test (B).Data are presented as mean  $\pm$  SEM. \*\*\*\*p < 0.001.

## Pole Test & Rotarod Test

The pole test and rotarod test are widely used to assess motor coordination and neurological function. In case studies, these tests have demonstrated sensitivity in evaluating bradykinesia and endurance. Protheragen applies these proven methods with rigorous protocols, ensuring reliable and high-quality data to support advanced neurological and muscular research.



**Fig6.** Effect of treatment on climbing time in the Pole Test (A) and retention time in the Rotarod Test (B).Data are presented as mean  $\pm$  SEM. \*\*\*\*p < 0.001.



## Featured Services

# Pain Related Behavior Tests

Pain-related behavior testing is a critical tool in biomedical research, designed to evaluate **pain perception, sensitivity**, and the **efficacy** of therapeutic interventions in animal models. Protheragen offers professional pain behavior testing services, supported by advanced equipment and expert data analysis systems.

### Stimulating Pain Behavior Tests

- Cold Hot Plate Test
- Von Frey Test
- Tail Flick Test
- Hargreaves Test

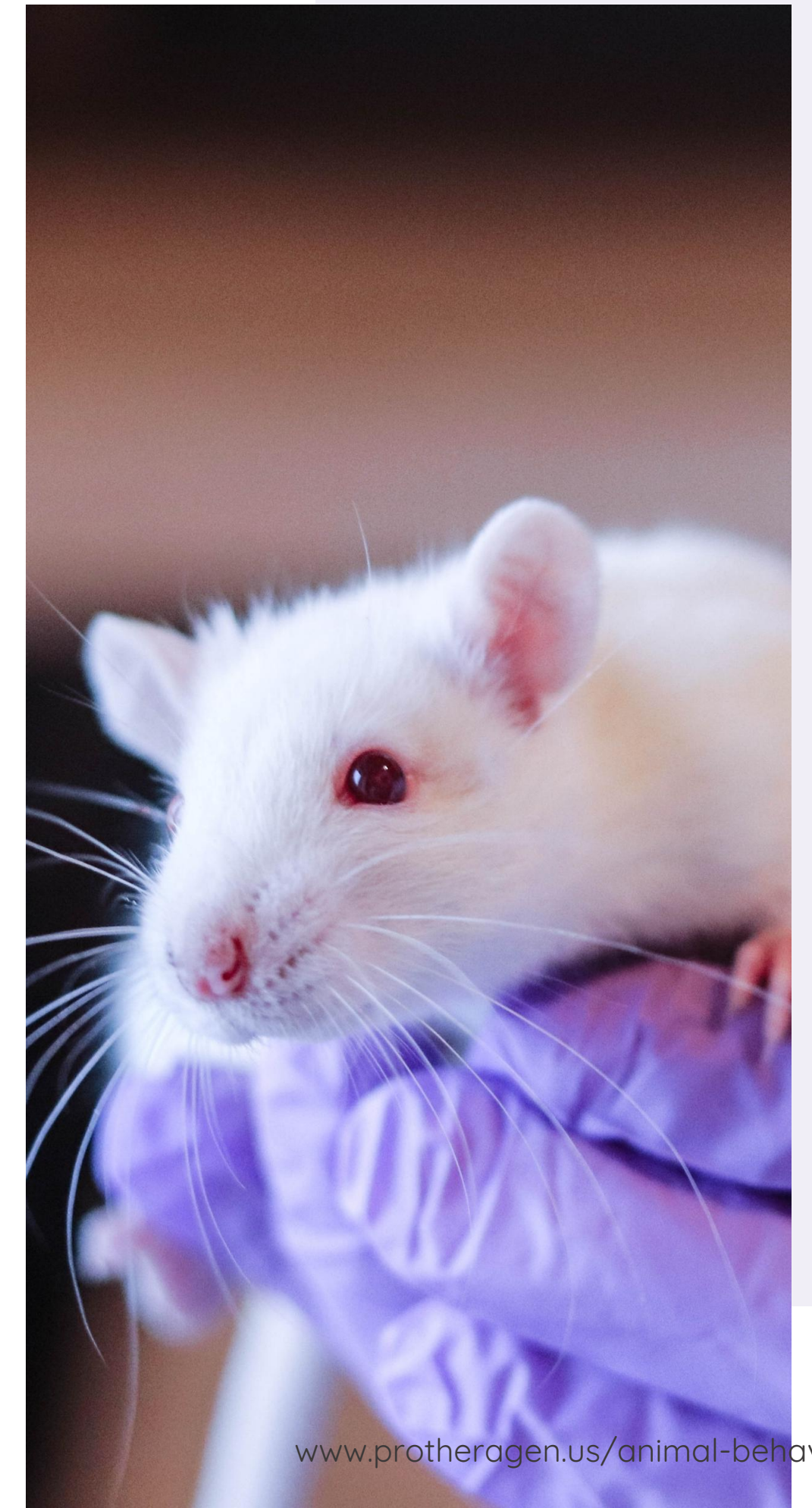
### Non-Stimulating Pain Behavior Tests

- Incapacitance Analgesia Test
- Foot Volume Measurement
- And More...



### Our Advantages

- **Comprehensive Test Portfolio:** Wide range of tests tailored to both acute and chronic pain models.
- **Expert Analysis:** Experienced team delivers accurate and reproducible results with in-depth data interpretation.



# Case Study of Related Behavior Tests

## Hot Plate Test

The Hot Plate Test is a widely used method to assess pain response and thermal sensitivity in preclinical models. It has demonstrated sensitivity in evaluating analgesic efficacy and sensory function. Protheragen employs this validated method with strict protocols to provide reliable, high-quality data, supporting research in pain management and neurological studies.

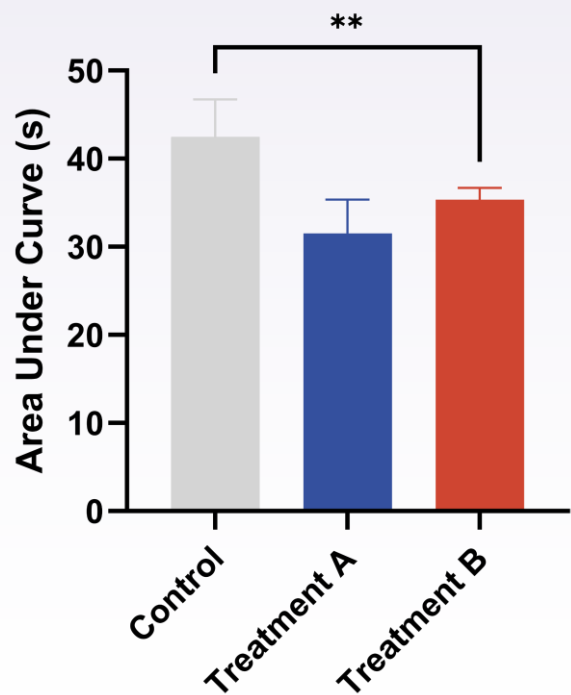


Fig7. Effect of treatment on pain response in the hot plate test. Data are presented as mean ± SEM. \*\*p < 0.01.

## Von Frey Test

The Von Frey Test is a widely used method in preclinical research for assessing mechanical sensitivity and pain thresholds. In case studies, this test has demonstrated effectiveness in detecting changes in sensory response and evaluating the efficacy of analgesic treatments. Protheragen provides testing services for preclinical research.

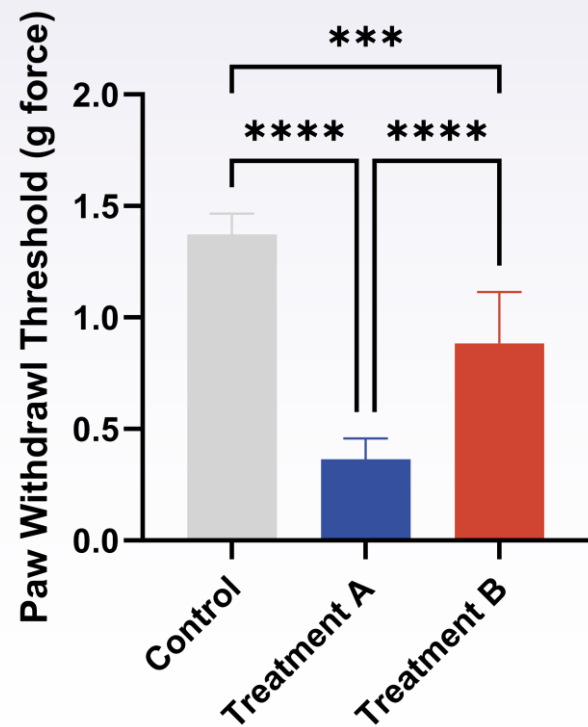


Fig8. Effect of treatment on mechanical sensitivity in the Von Frey test. Pain thresholds were measured to assess mechanical sensitivity. Data are presented as mean ± SEM. \*\*\*\*p < 0.001.



# Featured Research Models

Protheragen provides professional **animal behavioral testing services** designed to support diverse research needs. Our services utilize advanced **animal models** to deliver accurate, reliable, and high-quality data for experimental and translational studies.



Fish

- Ideal model for brain function and neural development studies.
- Supporting genetic, toxicology, and drug research services.



Mice

- Key models for genetic, immunological, and neurological research.
- Essential for studying diseases and testing therapies.



Rat

- Frequently used in pharmacology, toxicology, and behavioral studies.
- Reliable for metabolic, cardiovascular, and neurological research.



Pig

- Excellent models for translational and metabolic research.
- Widely used in organ transplantation and biomedical studies.



Rabbit

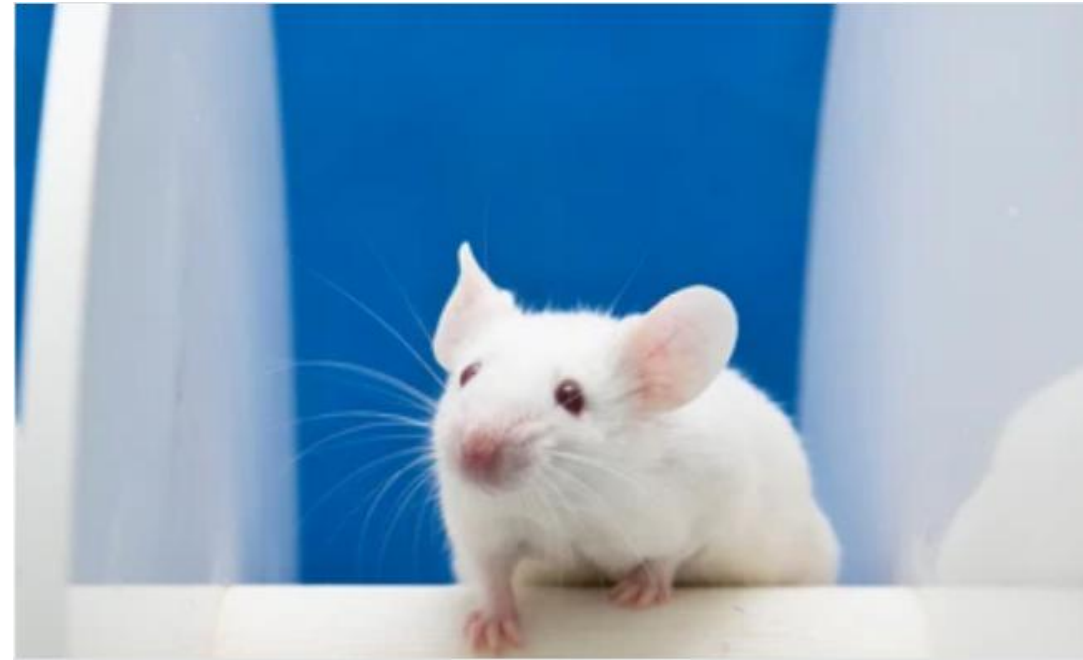
- Commonly applied in vaccine development and immunology.
- Ideal for ophthalmic, skin, and toxicity studies.

# Applications of Animal Behavioral Tests



## Neuroscience Research

- Brain Function Research
- Brain Injury Research



## Research on Animal Models of Neurological Diseases

- Animal Models of Neurodegenerative Diseases
- Animal Models of Psychiatric Diseases



## Screening and Safety Assessment of Neuropsychiatric Drugs

- Evaluation of Anti-Stroke Drugs
- Evaluation of Antipsychotic Drugs
- Evaluation of Anti-Aging Drugs



# Your Trusted Partner for Animal Behavior Testing



Professional Knowledge  
and Experience



Continuous Tracking of  
Cutting-Edge Technologies



Effective Teamwork and  
Communication



Comprehensive Support  
from Concept to Practice



High-quality After-sales  
Service



Extensive Experience in  
Drug Development

✉ [info@protheragen.us](mailto:info@protheragen.us)

☎ 1-631-533-2057

📍 101-4 Colin Dr, Holbrook, NY 11741, USA

[www.protheragen.us/animal-behavior](http://www.protheragen.us/animal-behavior)