



Revolutionizing
Behavior Research



TailSuspScan

Features:

- Fully automated complete Tail Suspension Analysis
- Side-view based analysis for accurate analysis
- Real-time or offline
- Easy setup with design tools
- No user intervention required during experiment
- Detailed statistics about the activity that occurred during the experiment
- Automated Binned Data analysis
- Fully Validated with respect to human observation
- High-Throughput capable with 4 tail suspension arenas simultaneously
- Full color-analysis
- Detection and analysis of body parts to allow more flexibility for the user to define which activity is which
- Compensation for passive swinging motion due to inertia
- Result review, Visualization of Acquired Experiments
- Batch-mode allows user to run multiple videos successively without human intervention

Behaviors TailSuspScan can detect:

- Mobile
- Immobile
- Other

TailSuspScan is a component of our **DepressionScan Suite**. The Tail suspension test involves holding the animal by the tail, and suspending it dangling in the air. Observation is made with regard to animal's struggling and immobility. Human observation is tedious, time consuming, and expensive.

TailSuspScan automates the entire observation process of tail suspension experiment. It automatically detects not only the time the animal spends in an immobile state, but also the time animal is struggling. In addition, TailSuspScan has the capability to differentiate between active struggling mobility and passive swinging mobility. The latter can either be grouped into the Immobility category or grouped with the Mobility class, thus making the results of Immobility much more precise according to the user's protocol. Only the motion caused by active struggling behavior is captured as Mobility. Various settings are available that allow the user to adjust the definition of what is Immobility, Passive Mobility, and Active Mobility. We also manufacture the tail suspension apparatus for sale. Please contact us if you are interested in this apparatus also.



Illustration





TailSuspScan

(Continued from front)

Applications:

- Depression Analysis

Results:

- Objective Results
- Up to 3 classes of categorization
- Automatic Export to Excel
- Complete Experiment Database Management
- Summary of All Occurred Activity and their Durations
- Binned data at user-defined bin intervals
- Preset Start and Stop conditions for accurate interval data collection

Product Options:

- High-Throughput Option (H Option)
- Realtime Option (R Option)
- High-Throughput Realtime Option (HR Option)

Requirements:

- Windows-based PC
- Intel High-speed Processor
- Special Videocard for realtime analysis
- Large HDD space for storage
- Good lighting conditions and contrast with background
- IR-switchable camera or red-light for dark conditions

The tail suspension test is a highly variable test from lab to lab and accordingly, TailSuspScan has been designed to be very flexible. TailSuspScan allows the user to precisely set his/her definition of Mobility/Struggle and Immobility behaviors. The cornerstone of TailSuspScan is its unique ability to compensate for the passive swinging motion that arises after the animal has stopped struggling and switches to a passive state. Due the previous struggle activity, there is so much inertia built into the swinging motion that just because the animal gives up trying to struggle the animal is still moving quite actively. The correct categorization for most users for this type of passive swinging is Immobility. TailSuspScan allows the user to turn on the Motion Compensation Mode that considers whole body swinging as Immobility instead of Mobility. Mobility is detected only when the animal is contorting itself or moving very actively.

TailSuspScan software detects 3 separate classes of activity for this test. Our three classes of activity include Mobility (or Struggle), Immobility, and Other. Mobility class is the highly active class where the animal is moving actively or contorting its body. Immobility is the class where the animal or certain body parts show little or no movement, including Passive Swinging. Finally, the Other class is the “in-between” class where the animal is neither in Mobility state nor in Immobility state.

The following results section shows the durations in each of those 3 categories for 2 animals analyzed simultaneously. Up to 4 animals can be analyzed simultaneously with the High-Throughput Option. Realtime Option provides the ability to perform analysis in realtime while the video is compressed and saved to the hard-drive of the computer.

Results				
Result Type	Mobile	Immobile	Other	
Arena#1 Ranges:	106.17	73.80	20.30	
Arena#2 Ranges:	62.33	116.07	21.87	

TailSuspScan comes with a complete Experiment Data Management framework that allows users to maintain and group export results from multiple trials in an experiment. Group Export can summarize result data from all animals into a single Excel sheet for convenience. No more cutting and pasting! Other salient features include the ability to start and stop analysis at preset time/duration as well the ability to perform offline batch analysis where multiple videos can be successively analyzed by ForcedSwimScan without user intervention.

Unique Capabilities:

- Complete Hardware and Software Solution
- Analyzes 640x480 at 30 frames per sec
- Detects animals in low contrast also!
- Works with rodents of all colors/sizes
- Records video into storage during analysis
- Advanced flexibility to obtain the exact replication of human scoring methodology
- Motion Compensation to atone for passive swinging