

# Behavior Sequencer

Phenotyping as you expect it to be

The *Behavior Sequencer* is the most advanced behavioral recognition system available.

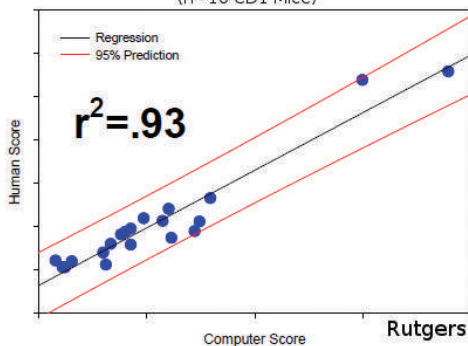
It combines BIOBSERVE's video tracking analysis with BEHAVIORAL INSTRUMENTS' vibration-based pattern recognition.

The *Behavior Sequencer* is an instrument chamber equipped with sensors that capture

- video
- vibration
- posture

Behaviors are determined by a pattern recognition algorithm that takes integrated data from these sensors and compares it to a reference list of behavioral patterns.

Scoring of Wet Mice for 10 minutes  
(n=10 CD1 Mice)



In our initial validation study conducted at Rutgers University (Department of Psychology)

twenty behaviors were scored by

two expert observers and the *Behavior Sequencer*. The graph on the left shows the correlation between human and Sequencer scoring across the behaviors. The system detects:

Still / Paw Lick / Nose Wash / Face Wash / Head / Wash / Cheek Rub / Leg Licking / Back Grooming / Tummy Grooming / Genital Grooming / Shimmy / Scratch / Orient Sniff / Orient Look / Orient Creep / Orient Shuffle / Rear Still / Rear Sniff / Rear Bob / Rear Climb / Circling / Head Stretch

In addition to the reference list that comes built-in, the user is able to train additional customized behaviors for automatic identification. Once the user visually identifies a behavior in training mode, the system can then add that behavior to the list of automatically scored behaviors.

With the full integration of video tracking and vibration analysis you get a set of synchronized data consisting of

- Video files
- Track analysis in zones and time bins
- Behavior sequences in zones and time bins

The data analysis provides statistics for each behavior which can be grouped by treatment. An easily exported and colorful ethogram for each animal provides an expressive visualization of scored behavior sequences. All data can be exported in various formats including Excel<sup>®</sup> and text files.

