

Labcare

Noldus
Information Technology

30
years
ADVANCING
BEHAVIORAL
RESEARCH
SINCE 1989



Innovative solutions for zebrafish research

*Powerful software tools, fully integrated labs, and expert consultancy.
Trust our 30 years of experience to make your project a success.*

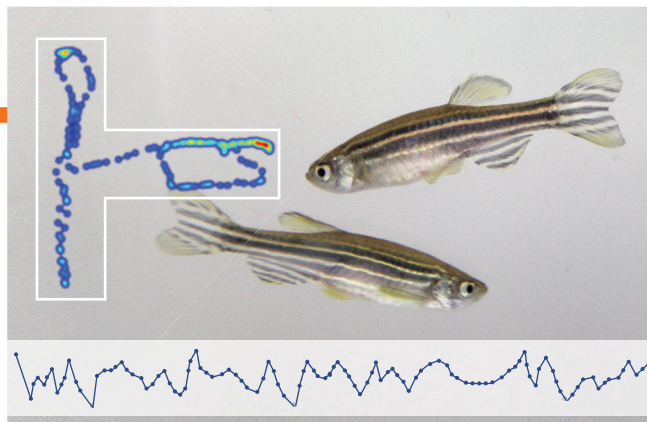
WWW.NOLDUS.COM

Noldus
Information Technology

EthoVision XT

- *Reliable tracking of any animal*
- *Cost-effective & easy-to-use software*
- *High-throughput & high-content testing*
- *Powerful analysis tools for insightful results*

EthoVision® XT is the most flexible and versatile system for highly accurate tracking, activity detection, and analysis of animal movement, activity, and behavior. A special algorithm for zebra-fish, combined with the multiple body points tracking algorithm, provides accurate data on swimming paths and patterns. You can track multiple fish together and automatically measure inter-fish distances (for shoal-density), as well as track in multiple tanks



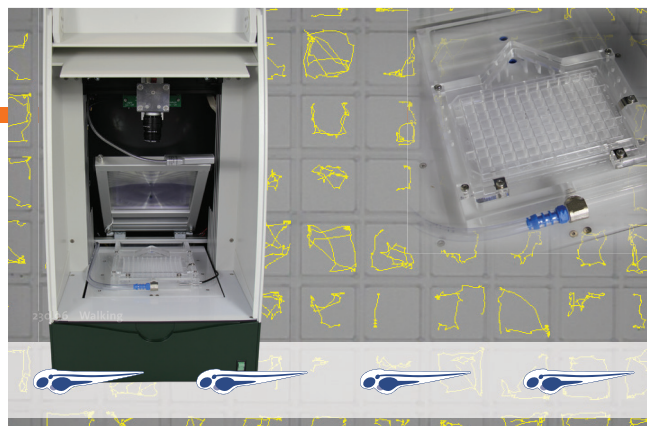
WWW.NOLDUS.COM/ETHOVISION

simultaneously. Because EthoVision XT is not limited to one specific kind of test, you can use it for multiple studies in the lab; from small to large aquaria, from T-maze to well plate, from activity measurements to learning tasks. The ideal tool!

DanioVision

- *Zebrafish larvae activity monitoring*
- *High-throughput research*
- *Controlled plug-and-play environment*
- *Powered by EthoVision XT*

DanioVision™ is a complete system designed for high throughput testing of zebrafish larvae or other small organisms. The Observation Chamber provides a controlled testing environment, with built-in IR backlit well-plate/petri dish/container holder, a high speed digital camera, specialized lens to prevent distortion in the well-plate, and a white light that is programmable in the software. There is also enough room in the cham-



WWW.NOLDUS.COM/DANIOVISION

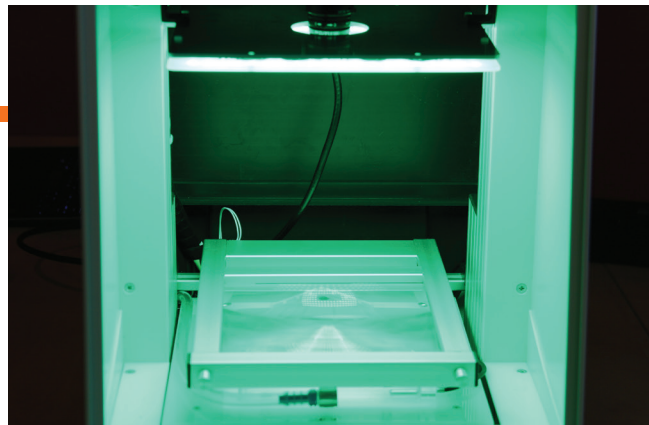
ber for add-ons such as the Tapping Device, colored/white LED Toplight Unit, Optogenetics equipment, or other custom options. Tracking occurs with a fully functional version of EthoVision XT, which can be used for other tracking experiments as well.

Labcare

Toplight Unit

- *Add-on for DanioVision Observation Chamber*
- *Stimulus light from above*
- *Two options in one: colored or white LED sides*
- *Programmed and controlled by EthoVision XT*

The Toplight Unit is an add-on component for the DanioVision Observation Chamber. The lights provide illumination above the well-plate or arena, and do not obscure the view of the camera. For multifunctional purposes, one side consists of white LEDs, while the other contains red, green and blue LEDs. Compared to the standard white light included in the Observation Chamber, this Toplight Unit provides a more 'natural' position of light. As



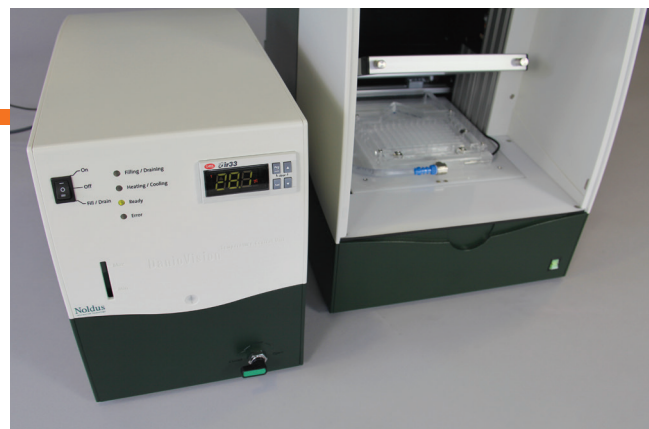
WWW.NOLDUS.COM/DANIOVISION

zebrafish see color and different strains show different color preferences, the Toplight Unit allows you to easily incorporate color stimulation into your experiments. You can pick the colors that best fit the aims of your study and zebrafish strain.

Temperature Control Unit

- *Control temperature of water surrounding the well plate*
- *Easy to install component for DanioVision*
- *Eliminates the need for climatized rooms*
- *Cooling and heating options*

Temperature has a large effect on zebrafish larvae behavior; unless this is the focus of your study, varying temperatures can have a big influence of the validity of your data. The Temperature Control Unit prevents this by controlling the temperature of the water that surrounds the well-plate in the DanioVision Observation Chamber. It is a flow-through system that does not disturb your animals and allows you to either cool or heat the water.



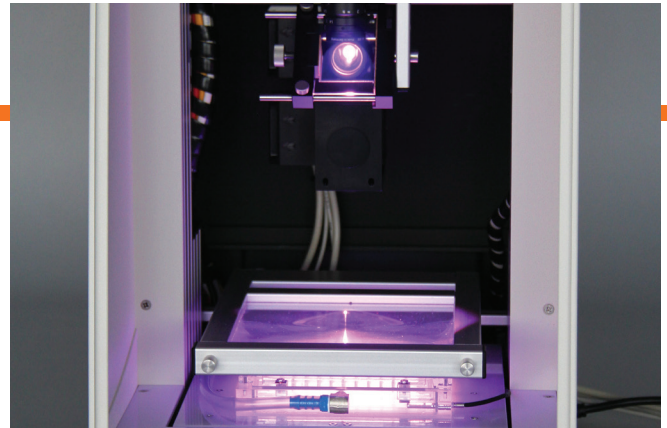
WWW.NOLDUS.COM/DANIOVISION

The unit is compact and can be placed next to the Observation Chamber or on the floor. To hook it up, simply connect two water tubes and two cables, set the desired temperature, and you are good to go!

Optogenetics Add-on

- *Add-on for DanioVision Observation Chamber*
- *Stimulate with two or three wavelengths (LED colors)*
- *Ideal for zebrafish larvae*
- *Programmed and controlled by EthoVision XT*

Because zebrafish larvae are transparent, the application of optogenetic stimulation is even more practical than in rodents, and far less invasive. With the Optogenetics Add-on, researchers can now very easily test the role of specific neurons in zebrafish larvae behavior. The add-on consists of an LED light source (Prizmatix) that can be installed in your DanioVision Observation Chamber. EthoVision XT allows for the control and programming



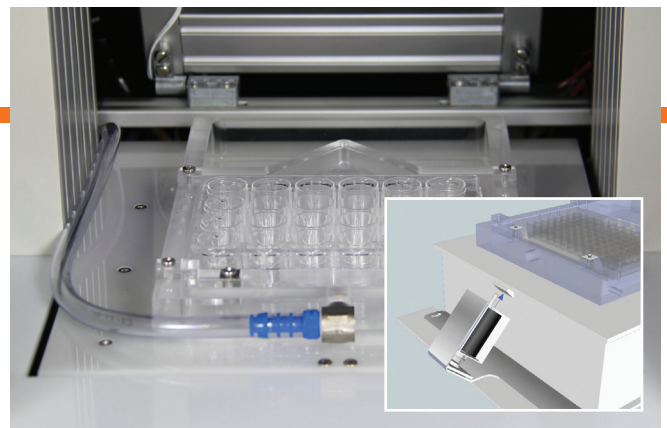
WWW.NOLDUS.COM/DANIOVISION

of the stimulation: you can set user-defined time conditions to trigger the LED light(s). In comparison to manual control, this offers far better temporal precision and adds efficiency to longitudinal studies.

Tapping Device

- *Add-on for DanioVision Observation Chamber*
- *Vibration stimulus to evoke a startle response*
- *Adjustable force and tapping rate*
- *Programmed and controlled by EthoVision XT*

Zebrafish larvae display a robust startle response which can be evoked by light or vibration. A light stimulus is part of the basic DanioVision Observation Chamber; the vibration stimulus can easily be added by installing the Tapping Device at the bottom of basin where your well plate or petri dish is placed. The taps cause vibration in the water and the intensity can be set at any of eight different levels. You can also adjust



WWW.NOLDUS.COM/DANIOVISION

the tapping rate to a maximum of three taps per second. The Tapping Device can be combined with the white light stimulus, and both are controlled via EthoVision XT software (included in the DanioVision system).

Track3D

- *Study swimming behavior in 3 dimensions*
- *Individual calibration for accurate results*
- *EthoVision XT add-on*
- *Accurate and cost-efficient solution*

When interested in the specific swimming patterns of your zebrafish, behavioral assessment in a 2-dimensional plane may be insufficient for your study. Track3D is a video-based system for automated tracking of animals in a 3D space. The 3D trajectory is based on a combination of two 2D tracks recorded by EthoVision XT via two separate high-resolution cameras. Calibration is an essential step in this procedure. To guarantee a highly accurate



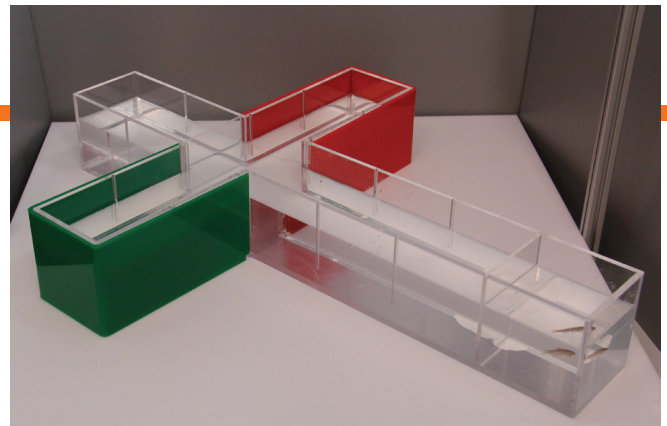
WWW.NOLDUS.COM/TRACK3D

calculation of the 3D trajectory, a custom calibration frame is built for the tank or arena in which your experiments take place. Track3D visualizes the resulting trajectory in a dynamic 3D image and calculates a number of movement-based parameters.

Mazes

- *Specifically designed for zebrafish*
- *Many custom options available*
- *Great for video tracking with EthoVision XT*
- *Package deals available*

Several behavioral paradigms are successfully translated from rodent to adult zebrafish behavioral studies. Examples includes tests for learning and memory, anxiety, and social behavior. Noldus offers several mazes specifically designed for zebrafish. A good example is the multi-purpose zebrafish maze. Shaped like a cross, it can be sectioned off to create different set-ups, including a T-maze, plus maze, and social preference configura-



WWW.NOLDUS.COM/MAZES

tion. Combined with an infrared backlight and an infrared-sensitive camera, it is ideally suited for video tracking with EthoVision XT. If needed, Noldus is also able to create custom configurations for researchers!

The Observer XT

- Describe and score behavior in detail
- Build and share your ethograms
- Collect, integrate, analyze, and manage data
- Share the work and perform reliability analysis

Some studies require a more detailed look at behavior; manual observation is therefore best. This can be a laborious process, and The Observer[®] XT is here to help streamline the process. This user-friendly event logging software helps to collect, analyze, and present your data. It supports the entire workflow of a research project, from ethogram to presentation of the results. You can score live, and even on the go with Pocket Observer on



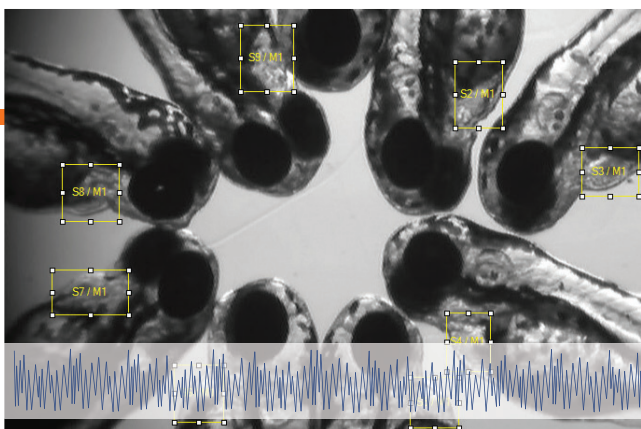
WWW.NOLDUS.COM/OBSERVER-ANIMAL

your smartphone. You can score from a single video, or multiple camera angles at once. Coding can be carried out continuously, or using instantaneous sampling, or a combination. You can also easily share the work with coding licenses.

DanioScope

- Video analysis of zebrafish embryos and larvae
- Easy and cost-effective all-in-one tool
- Non-invasive video based methods
- Activity, cardiology, flow, and morphology

DanioScope™ is a non-invasive and easy to use video-based software tool that allows you to assess and analyze zebrafish embryo and larva parameters. Embryos are automatically detected and their activity (e.g. tail coiling, convulsions) is automatically measured. To measure the heartbeat of all subjects, simply define the heart areas and DanioScope will extract the heartbeat of each one. Blood flow and gut flow activity can be



WWW.NOLDUS.COM/DANIOSCOPE

measured by indicating a circular area of interest, such as the diameter of a vein. Last but not least, still images can be used to monitor morphological parameters such as eye size, body length, malformations, or other user-defined parameters.

Labcare

Apoyando el desarrollo científico.

rosita.ruiz@labcare.cl **+56 9 7519 4592**

benilde.ardiles@labcare.cl **+56 9 5008 0525**

www.labcare.cl



Labcare



contacto@labcare.cl