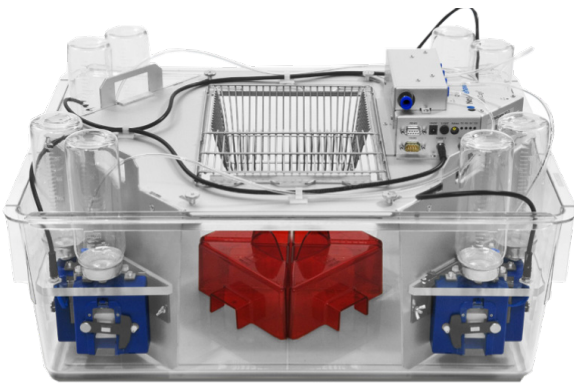# A new analysis/visualization tool and statistical analysis package for data generated by the IntelliCage
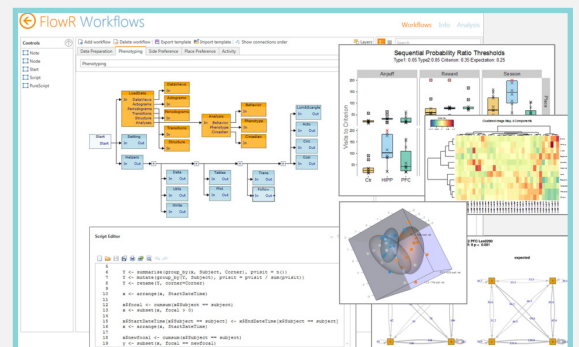
IntelliCage

IntelliCage stands as a groundbreaking screening system for neurological and behavioral research, targeting conditions such as Autism, Alzheimer's, Dementia, or Depression within group-housed rodents. It facilitates automated data collection over extended periods, accommodating a vast number of socially interacting animals, up to 128. The once-daunting task of visualizing and analyzing the extensive data amassed through IntelliCage is now seamlessly managed by FlowR. This innovative platform offers structured workflows, guiding researchers from experiment design to comprehensive statistical analysis, empowering them to navigate and derive insights from their data easily and efficiently.

FlowR

FlowR offers a user-friendly graphical interface that translates R-script units into visually organized statistical workflows. Users can navigate the analysis process effortlessly, eliminating the need for programming efforts. With a simple mouse click, both data visualization and statistical analysis become easily accessible, streamlining the analytical experience.
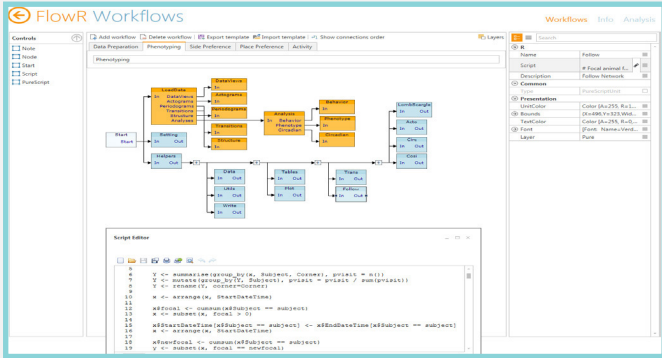
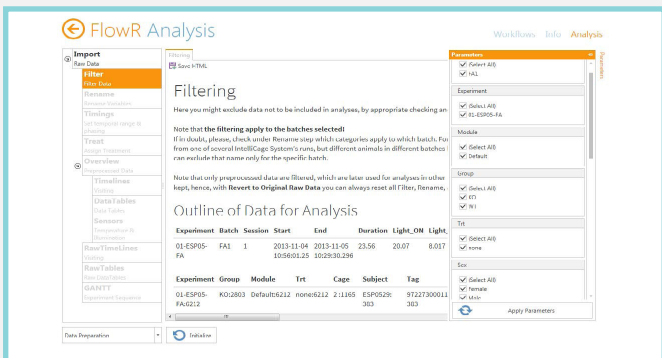### Elimianate the need for...

- Tedious data pre-processing
- Programming skills in R
- Knowledge of statistical jargon or graphical visualization programs
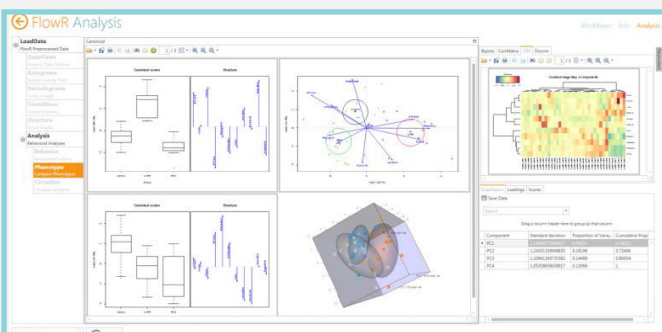
Workflows within a bundle

FlowR bundles contain customized sets of structured workflow trees translating into R-script units to extract the most meaningful parameters in regard to your hypotheses. Starting with the design of your experiment, FlowR-workflows take you all the way to the appropriate statistical analysis. With a full version of FlowR, you can develop any kind of analysis-UI yourself, not requiring more than inserting R-scripts into the graphically organized units of a workflow.

FlowR-workflow, defining an independent route of analysis. The graphical UI allows for a meaningful hierarchical structuring of the analysis flow, enabling you to get at the results without any concern about analysis structure.

Once you've imported your original raw data, effortlessly manage them using FlowR's parameter panel. Rename, filter, and clip your data to prepare for analysis, eliminating the need for any tedious intermediate steps!

Outputs of single workflow steps are displayed in the Analysis window. This allows for a structured overview on descriptive, exploratory or sophisiticated inferential statistical measures, at every step of your analysis. Outputs are html, csv, or pdf formatted text, tables, and graphs, which can all be moved and handled at will, and saved individually at any time.

As an IntelliCage User, you can greatly benefit from the FlowR-IntelliCage Basic bundle

The IC+basic Bundle offers tailored workflows for general **Data Preparation**, **Phenotyping**, **Activity**, **Side-and Place Preference**, empowering you to:

- **Explore subjects' performance in the cages**

    - Check cage usage
    - Monitor total consumption

- **Scrutinize animals' behavioral patterns**

    - Describe and compare group pheno- and chronotypes
    - Reveal social structure among cage-mates
    - Determine drug application or any other intervention effect

- **Infer conditioning success based on Place/Side preferences, for many tasks applied in the IntelliCage**

    - Reference memory (e.g., Place/Reversal)
    - Working memory (e.g., Patrolling, Chaining, Side Alternation)
    - Non-spatial alternation (e.g., Attentional Shift using audiobox)
    - Compound Preference (e.g., Taste Novelty)
    - Emotionality (e.g., Anxiety, Fixed Ratio)
      ... and more

*Customized analyses for anything else you desire (Impulsivity, Aversion,…) are available on special request.