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615A
Dynamic Muscle Control and Analysis Software: LabBook

an integrated software package for data collection, control and analysis of muscle contractile experiments

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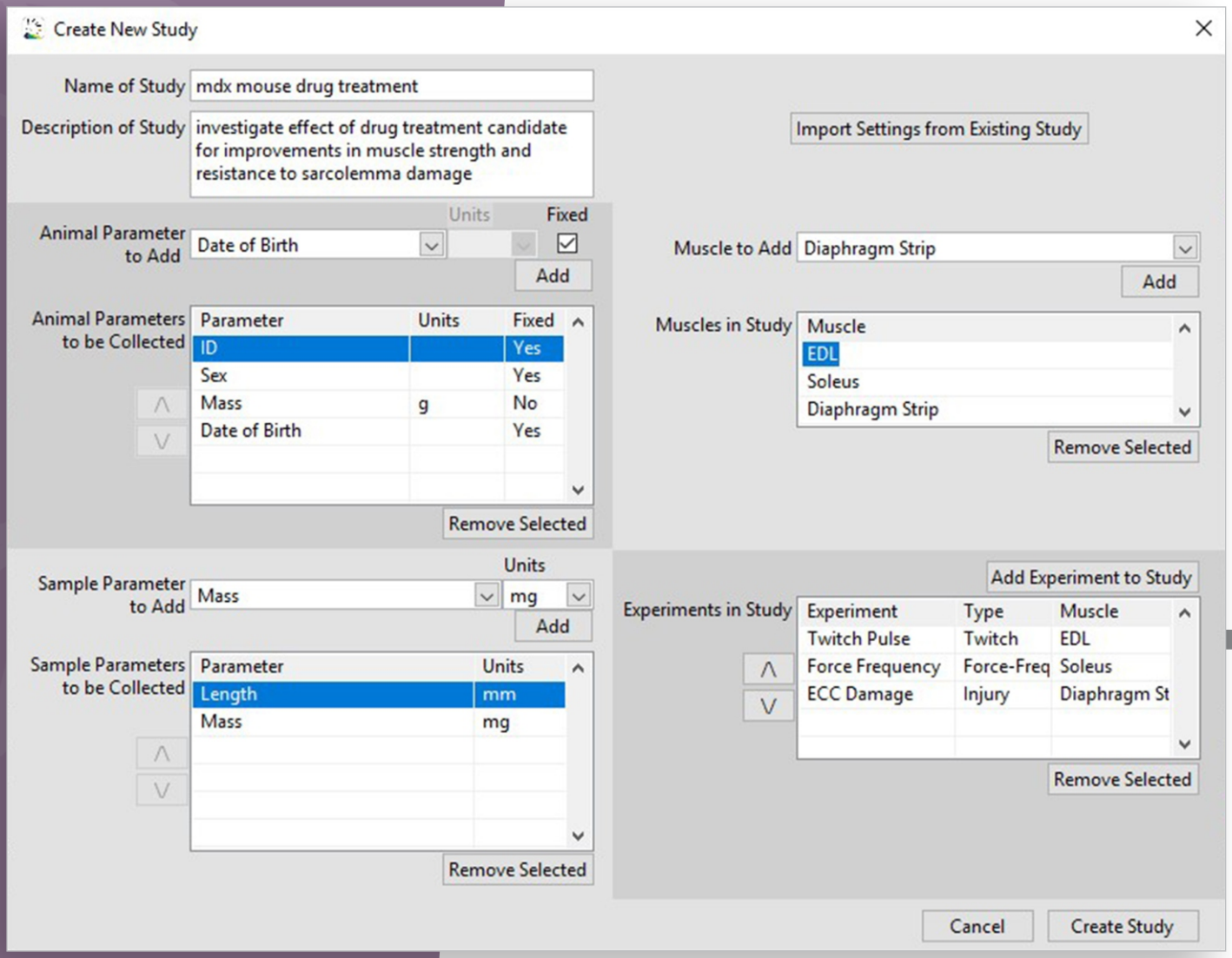

DMC LabBook allows scientists to plan, control, collect and analyse data in one simple platform...

The 615A Dynamic Muscle Control and Analysis with High Throughput software suite (DMC LabBook / DMA-HT) combines our three LabVIEW executable programs into one powerful software package. Researchers now have an integrated solution to handle data collection, control and analysis functions of muscle contractile experiments.

DMC LabBook has an intuitive and easy-to-use graphical interface that guides the user through multi-step procedures for typical muscle mechanics experiments. Data collection is highly streamlined, with prompts to enter pertinent parameters about the animal, sample and experimental protocol before data is collected. This eliminates the need for handwritten lab notes. This information is easily searchable and simplifies the process of organizing data records. DMC LabBook includes a live data monitor of the current length and force to visualize real-time data output without the need to load data files.

Dynamic Muscle Analysis (DMA) and High-throughput (DMA-HT) software provide analysis of recorded data using the DMC LabBook program. DMA features an easy-to-use graphical user interface and powerful analysis functions that calculate muscle, work-loop and time-derivative data. All data can be plotted and analyzed within the program's many windows. DMA-HT is a module for DMA that automates the analysis of large data sets when performing force-frequency, force-time, position-time or fatigue analysis experiments.

Features

- integrated solution for data acquisition, management and analysis
- unique, searchable database of study parameters
- guided procedure for standard muscle experiments
- the power to analyze hundreds of data files in seconds
- complete control of force, length and stimulation
- work loop, time derivative and line fitting modules

1 Plan 2 Control 3 Collect 4 Analyse

Standard Experiments

- Isometric Twitch
- Isometric Tetanus
- Force-Frequency
- Fatigue
- Eccentric Contraction Induced Muscle Injury
- Force-Velocity
- Tetanic Afterload
- Passive Stiffness
- Active Stiffness
- Work Loop
- Power Production
- Gait Modelling

Standard Analysis Functions

- Maximum / Minimum Force
- Integration (AUC)
- Average Rate of Contraction / Relaxation
- Maximum Rate of Contraction / Relaxation
- Time to Peak Tension
- Half Relaxation Time
- Time to Percentage of Contraction / Relaxation
- Velocity of Shortening
- Work Loop

Select Publications

Suppression of oxidative stress by resveratrol after isometric contractions in gastrocnemius muscles of aged mice.

Ryan MJ, Jackson JR, Hao Y, et al. *J Gerontol A Biol Sci Med Sci.* (2010) Aug;65(8):815-31. PMID: 20507922

Mathematical model for isometric and isotonic muscle contractions.

Vita, R. D., Grange, R., Nardinocchi, P., & Teresi, L. *J Theor Biol.* (2017) Jul 21;425:1-10. PMID: 28483567

C57BL/6 neuromuscular healthspan scoring system.

Graber, Ted G. et al. *J Gerontol A Biol Sci Med Sci* (2013) Nov; 68(11): 1326–1336. PMID: 23585418

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