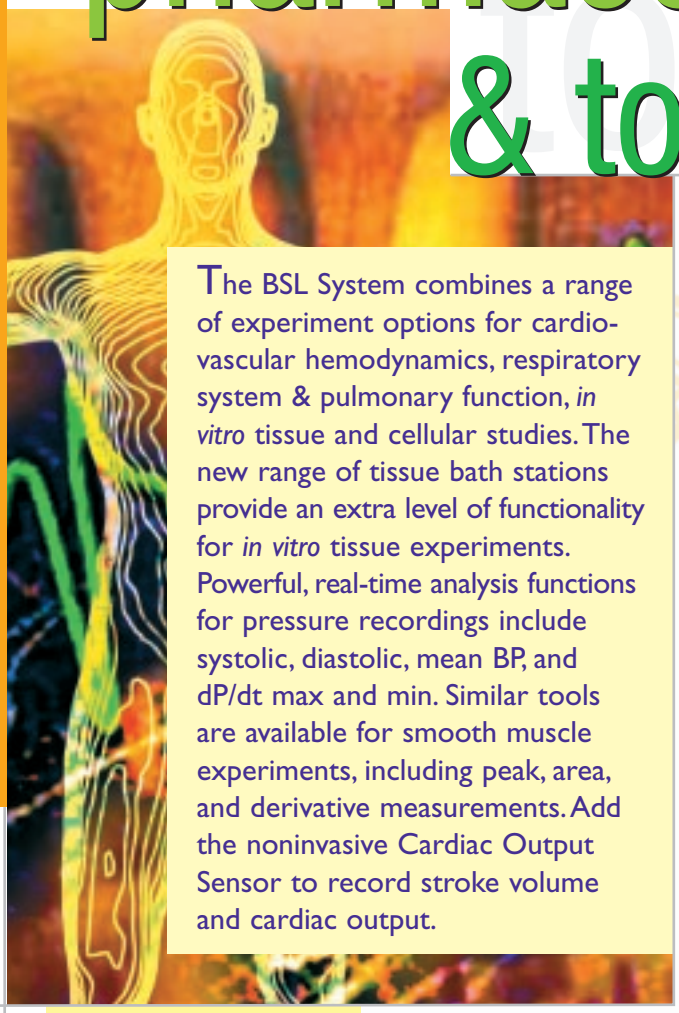
pharmacology & toxicology



The BSL System combines a range of experiment options for cardiovascular hemodynamics, respiratory system & pulmonary function, *in vitro* tissue and cellular studies. The new range of tissue bath stations provide an extra level of functionality for *in vitro* tissue experiments. Powerful, real-time analysis functions for pressure recordings include systolic, diastolic, mean BP, and dP/dt max and min. Similar tools are available for smooth muscle experiments, including peak, area, and derivative measurements. Add the noninvasive Cardiac Output Sensor to record stroke volume and cardiac output.

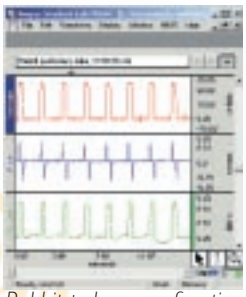
features

- 32 lessons targeted for Pharmacology & Toxicology
- ECG, EEG, EGG, EOG & EMG
- Temperature
- Tissue Bath Station with integrated heating circulator
- Stimulator (direct or field)
- Cardiac Output (via bioimpedance)
- Dose Response Studies
  - Smooth Muscle
  - Cardiac Muscle
  - Skeletal Muscle
- Epithelial Transport
- Ion Transport/Ussing Chamber Measurements
- Gas Analysis Module
- Blood Pressure
- Isolated Heart/Lung
- Isolated Muscle
- Nerve Activity

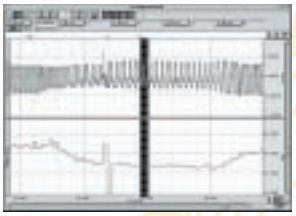
Suitable for inquiry-based, active learning in 2-yr. & 4-yr. programs, medical schools, and nursing programs

Respiratory & Pulmonary Function

The BSL lessons include measurements of tidal volume, inspiratory capacity, expiratory capacity, functional residual capacity, vital capacity, total lung capacity, forced expiratory volume and maximal voluntary ventilation. The new Gas Analysis Module provides a powerful tool for metabolic studies. Measure expired O_2 and CO_2 with lessons for VO_2 max, respiratory exchange ratio, and basal or resting metabolic rate. Perform metabolic, respiratory and pulmonary measurements on a variety of species.



Rabbit pulmonary function



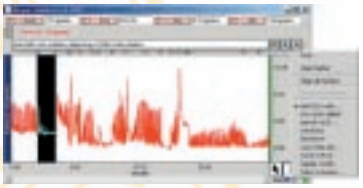
Frog heart rate response to drugs

Cardiovascular Hemodynamics

Lessons cover ECG (1- through 12-lead), cardiac output, and continuous blood pressure. A heart sounds lesson allows students to listen to and record heart sounds, while comparing them to the ECG complex. The frog heart lesson explores cardiac rate and contractile response using a range of drug doses. Students can analyze blood pressure signals in real time.

In vitro & Cellular Pharmacology

The new Tissue Bath Stations provide students with research-quality equipment in a modular, flexible configuration. The Visceral Smooth Muscle lesson guides students through the entire recording and analysis process. Students can also electrically stimulate tissue preparations, including field stimulation, with the BSL Stimulator. Interface with Ussing chambers for ion transport studies. Record and also analyze data from isolated heart and lung experiments. Use the Nerve Chambers (page 38) for compound action potential studies. The system can record monophasic action potentials and spontaneous nerve activity.



Drug effect and marker summary

New Tissue Bath

pharmacology & toxicology

The following hardware suggestions will enable you to perform a wide variety of applications targeted for **pharmacology & toxicology**. Use BIOPAC lessons or easily create your own experiments with the BSL *PRO* software included with each system. Order the core package or select items à la carte.

See **BSL Hardware** (page 23-40) for all available transducers, electrodes and accessories.

Pharmacology & Toxicology Core
BSLPHA-W (Win) or BSLPHA-M (Mac)

Basic BSL System (with BSLCBL8 substituted for SS2L)	BSLBSC, p. 8
Airflow Filters (10/pk)	AFT1, p. 34
Airflow Mouthpieces (10/pk)	AFT2, p. 34
Airflow Nose Clips (10/pk)	AFT3, p. 34
Airflow Transducer	SS11LA, p. 27
Pressure Transducer	SS13L, p. 27
Calibration Syringe (600 ml)	AFT6, p. 34
Force Transducer (200g)	SS65L, p. 31
Lead (unshielded) x 2	LEAD110, p. 36
Leads (shielded) x 2	LEAD110S-W/R, p. 36
Needle Electrodes x 3	EL452, p. 38
Nerve Chamber	NERVE2, p. 38
Recording Nerve Cable	BSLCBL4B, p. 39
Stimulator	BSLSTM, p. 25
Stimulator Nerve Cable	BSLCBL2A, p. 39
Stim. Electrodes for animals	ELSTM2, p. 38

Perform 31 or more lessons with this core package:

Muscular

A03	Frog Gastrocnemius
A05	Visceral Smooth Muscle
A11	Resting Potential from Crawdad Manual
A12	Membrane Potential (muscle)
A15	Earthworm Smooth Muscle
BSL1	Standard & Integrated EMG
H07	EMG Contractions—Active Learning
H27	Facial EMG
H34	EGG Electrogastrogram

Cardiovascular

A04	Frog Heart
A09	Turtle Heart
BSL5	Components of the ECG (Lead II)
BSL6	Leads I, II, III & Einthoven's Law
H08	Dive Reflex—Active Learning
H23	Signal Averaged ECG
H32	Heart Rate Variability

Pulmonary Function

BSL12	Pulmonary Function: Vol. & Capacities
BSL13	Pulmonary Flow Rates: FEV and MVV

Neurophysiology

A01	Frog Pith & Prep
A02	Frog Nerve
A06	Cockroach Nerve
A08	Earthworm Action Potential
A14	CPG Hornworm
BSL3	EEG Relaxation & Brain Rhythms
BSL4	Alpha Rhythms in the Occipital Lobe
BSL10	EOG Eye Movement, Saccades & Fixation
H10	EEG & Hemispheric Asymmetry
H12	EOG Saccades & Displacement
H13	Visual Tracking vs. Imagination
H14	Ocular Fixation while reading
H15	Ocular Fixation while viewing an image

See page 43 for a description of all available lessons.

Increase your lab options with...

Cardiac Output Sensor	SS31L, p. 29
O_2 & CO_2 Analysis Module	GASSYS2-EA, p. 34
Temperature Transducer—Immersible	SS8L, p. 28
Transducer Accessory Pack	BSLPHA-TA, p. 42