cardiovascular
ecg
pulmonary
isolated hearts & tissues
telemetry
eeg and cns

software & hardware for pharmacology & toxicology
software & hardware for pharmacology & toxicology

**cardiovascular studies**

**pressure and pressure/volume catheters** Millar

Using signal from Millar catheter, iox software monitors blood pressure or performs in-depth pv loop analysis.

» Mikro-tip pressure catheter from 1 F to 7 F
» single and multiple high-fidelity pressure and volume measurement
» small and large animals

**flowmeters** Transonic

To perform acute or chronic blood flow measurement, we combine Transonic transit-time technology flowmeters and dedicated iox software analyzers.

» vascular and perfusion flows
» available system for telemetry on large animal

**isolated organs studies**

**emkaBATH4**

To study the contractile properties of tissues, such as aorta, trachea & papillary muscles:

» 4 baths with transducers and amplifiers
» bath temperatures adjusted and controlled electronically
» automated bath filling/emptying
» automated motorized tissue tensioning and lengthening
» add-ons to study microvessels with diameter from 100 μm to 1 mm and up to 3.5 mm long

**isolated heart studies**

**langendorff and working heart systems**

Compact set-up available for studying isolated hearts from rabbits, guinea pigs, rats or mice:

» 3 perfusion modes (constant flow, constant pressure and post charge)
» up to 3 physiological liquids can be perfused
» left ventricular pressure (lvp) measurement
» electrode and amplifier for ECG monitoring
» electrical stimulation
» extra sensors for temperature measurement

**our privileged partners**

To provide complete solutions, we have established strong partnerships with leading research instrument manufacturers:

Millar  Kent Scientific  transonic  Scireq
iox, data acquisition and real-time analysis for in-vivo and in-vitro studies

iox acquires, analyzes, displays, controls and stores data generated during an experiment.

**Aquisition & analysis**
- up to 64 inputs (10Hz to 100kHz)
- record of DSI™ telemetry implants, through easyMATRIX
- real-time signal analysis and display, trend graphs
- data tables, event logbook
- protocols as experimental guideline or automation
- external device control

**Specific analyzers for real time processing of:**
- blood pressure & flow, pulse pressure, left ventricular pressure
- ecg
- pressure/volume loops, pressure/distance
- ventricular wall thickness or segment length
- respiratory flow, penh, cough and apnea detection
- lung resistance/compliance
- slow & rhythmic contractile tissue
- EEG, EMG
- power spectrum analysis and also nerve activity, etc.
- synchronized video recording and review

ecgAUTO, advanced post-processing analysis software

Performs fast, reliable, in-depth ECG and non-ECG analysis.

Analyzes normal or abnormal ECG complexes, from any species on any lead, using shape recognition techniques. This technique uses a library of reference waveforms, built by the user for his specific needs.

Analysis is carried out on segments of data («steps») defined by protocol linked to original experimental markers.

**Powerful, fast, reliable ECG analysis**
- beat-by-beat calculation
- any species, any lead
- detection of arrhythmia and abnormal events
- inter- and multi-lead processing
- automated multi-file analysis
- predefined/customizable QTc formulas

**Comprehensive review features**
- full list of detected beats, trend graphs
- average beats and statistical values per step
- holter-type calibrated print-outs
- full log of beat edit operations
- synchronized video review

**Advanced features**
- subject specific QT correction
- HRV (heart rate variability) analysis
- isolated p-wave detection
- reads non emka data file formats, including DSI™ telemetry data files

**Non-ECG data**
- blood pressure/flow, Left Ventricular Pressure
- monophasic Action potential
- EEG/EMG including FFT, sleep scoring and epilepsy detection
- respiratory data, NIBP

datanalyst, data post-processing software

datanalyst processes calculated parameters from files generated by iox. Data from an unlimited number of experiments is pooled together. Fast and versatile data extraction is performed automatically.

**Data reduction**
- pools subjects into single study
- full experiment review
- identifies protocol events
- exclusion of artefacts

**Extraction of key data**
- edits event markers
- automated extraction using protocols
- finds min, max, area, kinetics...
- results as graphs & tables

**Reporting**
- distributes subjects in groups
- performs simple statistics computes EC50
- versatile text format export

studyDESIGNER, data base tool for your studies

studyDESIGNER is a high level tool to organize and automate data recording, analysis, control and archiving on large toxicology or safety pharmacology studies.

During recording sessions studyDESIGNER automatically drives iox and ecgAUTO software to record and analyze data and send calculated parameters to its data base.

**defines subject and study structure**
- acquires data on subjects planned for current sessions or automatically according to predefined protocol
- analyses data automatically on all recordings or according to subject or phase
- reviews subject or global results
- generate on-demand/custom reports for any combination of group, phase, subject and all parameters
- archives results using customized database queries or through secured link to your LIMS or as customized reports
our hardware product line

pulmonary studies

for freely moving subjects
Whole-body plethysmograph for conscious animal:
» tower for swivel/tether system
» aerosol or gas exposure
» apnea, cough, sneeze detection
» temperature & humidity compensation

for conscious restrained subjects
Double-chamber plethysmograph for conscious animal:
» measurement of nasal and thoracic flows
» can be used with body chamber only (head-out config.)
» aerosol or gas exposure

large animal telemetry

for large animals (dogs, primates, pigs, sheep, rabbits)
Up to 17 signals produced simultaneously:
» 9 lead ECG
» 2 respiration belts signals
» 3 axis + total acceleration
» skin or core temperature
» blood pressure from 3 methods:
  - noninvasive with oscillometric cuff (NIBP)
  - semi invasive with vascular access port (VAP)
  - minimally invasive with batteryless implant (MIBP)

» only 1 receiver for 16 animals
» only 1 Ethernet cable per receiver
» 32 to 48 subjects per room, group or single housed
» 10m transmission range
» 48 to 72 hours on same batteries
» automated software configuration according to selected hardware
» remote on/off of individual transmitters and measurement option
» warning on lost electrode and low battery, with optional e-mail emission

software features include:
» data integrity and accountability
» electronic signature
» user management for user-specific access to software and functions
» audit trail to record all user operations in a noneditable file
» audit viewer for rapid review of audit trail
» Microsoft Excel® macros to export, filter and check the audit trail files.
» direct-link for secure data transfer to your in-house database or LIMS
inexpose

inexpose™ for exposing laboratory subjects to cigarette smoke, aerosolized liquids, solutions, suspensions, inhaled toxins, compounds, vapours, gases...:

- controlled delivery of multiple gas/toxin mixtures
- nose-only and whole-body exposure
- cigarette smoke exposure by automated and programmable 24-cigarette smoking robot

detailed measurement of respiratory mechanics with flexivent

- broadest range of measurements in a single platform
- Unique distinction between central & peripheral lung mechanics
- animals from 10 g to 40 kg
- volume or pressure-controlled mechanical ventilation
- Customized or standard pressure or volume manoeuvres

for anesthetized subjects

- measurements of pulmonary pressure and flow
- full pulmonary mechanics values (resistance and compliance...)
- aerosol exposure/control
- vital signs monitoring
- up to 16 animals recorded from iox acquisition software
- combination with cardiovascular signals (BP, ECG...)

See all our pulmonary solutions on pulmonary.emka.fr

rodent telemetry

rodentPACK for animals >200g

- miniature telemetry transmitter
- EEG, EMG, ECG and temperature acquisition
- acceleration and postural information
- suitable for sleep and epilepsy studies, ECG recordings, heart rate variability assessment, etc.
- allows group housing
- ideal alternative to swivels or implants
- implant animals with only electrodes and connect transmitter when recording is needed
- can be fitted with miniature ECG cable and skin electrodes, for noninvasive ECG measurement.

See all our telemetry solutions on telemetry.emka.fr

noninvasive ecg and blood pressure

nibpsnapshot for large animals

nibpsnapshot noninvasively measure:

- oscillometric blood pressure (NIBP)
- 7-lead ECG
- ideal for Toxicology center using large animals

CODATM for rodents

- noninvasive blood pressure from mice and rats
- 6 parameters measured simultaneously
- up to 8 rodents on the same system

See all our ecg solutions on ecg.emka.fr

noninvasive ecg and respiration

ecgTUNNEL for rodents

ecgTUNNEL houses mouse or rat, for plug-&-play acquisition of ecg and/or respiration parameters on conscious restrained rodents.

See all our ecg solutions on ecg.emka.fr
emka TECHNOLOGIES develops, manufactures and sells software and hardware for studies in pharmacology, safety pharmacology and toxicology.

Started in 1991, emka TECHNOLOGIES has developed a large customer base and a strong reputation for high quality products and services. We have installed more than 1500 software and/or hardware systems.

Our goal of ongoing improvement, defect-free products and our aim to become sharp research providers have lead us to bring you the following services:

On-site demonstration, installation, assistance & training:
- live demonstration in customer laboratory
- system installation
- assistance and training sessions
- fast and reliable support
- maintenance contracts
- on-site system validation service

On-site system validation for studies in GLP environment:
- several levels of service are available
- support to customer and/or third-party package
- sample plan and test script models package
- tailored models package
- full validation process package

We provide complete and integrated solutions for researchers performing different types of studies:
- cardiovascular (including pv loops)
- ecg
- pulmonary
- isolated heart & tissues
- telemetry
- eeg and cns

Our solutions answer S7A and S7B requirements.

CONTACT US!
for simple to very demanding projects, please call on us

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