BIOMEMBRANES IN FOCUS
Tools · Experience · Results
In 2004, a group of researchers experienced in the biophysical analysis of biomembranes, electrophysiology and fluorescence spectroscopy, shared ideas on how to make this work more efficient. Since that day, Ionovation has created tools to give easy access to biomembrane systems, enhance productivity, and enable novel types of experiments.

Today, Ionovation offers analytical systems (IonoTec) for the automated generation of membranes and the incorporation of protein and lipid components (IonoChem). A dedicated set of consumables (IonoTools) guarantees maximum efficiency and customers benefit from a wealth of experience, training, and dedicated service offers (IonoVision).

Ionovation technology offers the full potential of electrophysiology on biomembrane substitutes (lipid bilayers or BLMs) for beginners and experts. The benefit of full access to both sides of a membrane is combined with the ease of automated bilayer generation, protein insertion, experiment conduction, and advanced data analysis. Ionovation’s unique combination with a broad range of microscopy techniques provides new insights. Membrane organisation and dynamics, the incorporation and orientation of biomolecules, and many aspects of membrane transport and ionic currents are now easily accessible.
Membrane Biophysics

Get new insights on

- structure-function relationships
- lipid raft dynamics
- membrane active peptides
- transporters and pores
- organelle and bacterial ion channels
- porins and toxins
- plant channels
- fatty acid flip-flop
- membrane stability
- protein insertion kinetics
- TIM, TOM, VDAC, KcsA, etc.

IonoTec instrumentation offers

- the power of bilayer experiments in any lab
- automated membrane generation and validation
- membrane integrity monitoring
- electronic and visual control
- easy compound addition and fusion
- full perfusion of both compartments
- automated data acquisition
- disposable chambers
- ready to use complete solutions
When ions cross the membrane ...

The Ionovation Compact brings the power of high content bilayer electrophysiology to just any lab. The highly flexible benchtop system integrates many years of experience with channels, pores, transporters, or membrane vesicles from numerous membrane preparations.

With the automated bilayer production and experiment control, all you need for successful research is your target molecule, regardless of origin. Measure and analyse ion currents with predefined protocols or design your own. Simple and fast replacement of the disposable chambers guarantees quality experiments and excludes contamination.

Beyond your ion channel work the Ionovation Compact can help you to elucidate membrane properties or toxicity effects.
Options for protein insertion

- fusion of vesicles from any membrane preparation
- fusion of liposomes with single protein load for minimum background
- direct incorporation of amphiphilic compounds, e.g. toxins
- fusion of detergent solubilised proteins
- cell free expression of membrane proteins
An innovative view on the membrane ...

The IonoVation Explorer is an easy to use add-on to inverted microscopes and opens the door to new types of experiments. This versatile tool generates a horizontal membrane automatically and combines high resolution microscopy and single molecule spectroscopy with state-of-the-art electrophysiology.

Applicable optical methods depend solely on the type of microscope and range from simple membrane observation to high resolution imaging and single molecule techniques like FRET, FCS, FiDA/PCH, etc.

The proprietary Explorer Slides with their low volume dual perfusion chambers save on valuable samples and reagents and guarantee maximum yield.
In addition to the capabilities of the Ionovation Compact, the Ionovation Explorer allows you to

- relate ligand binding directly to ion flux
- quantify lateral diffusion and aggregation of membrane components
- single particle tracking
- follow the insertion of biomolecules into the membrane
- monitor transfer of uncharged molecules through the membrane
Ionovation provides novel solutions for biomembrane research and membrane biophysics. Our enabling offer includes the following components:

**Ionotec**
Instrumentation and hardware for biomembrane research
- Ionovation Compact
- Ionovation Explorer

**Ionotools**
Disposable chambers and accessories to ensure reproducible experiments with ease
- Compact Chambers
- Explorer Slides
- Electrodes
- Accessories

**Ionochem**
Ready to use reagents and kits to standardise and speed up your experiments, and specialty chemistry
- Lipids
- Controls
- Proteins
- Detergents

**Ionovision**
Use our experience for your biomembrane research
- Training courses
- Service measurements
- Collaborative projects

Visit [www.ionovation.com](http://www.ionovation.com) for the current list of application notes and literature references. For further information please contact us.