



SURFE²R 96SE

Automated Transporter Screening



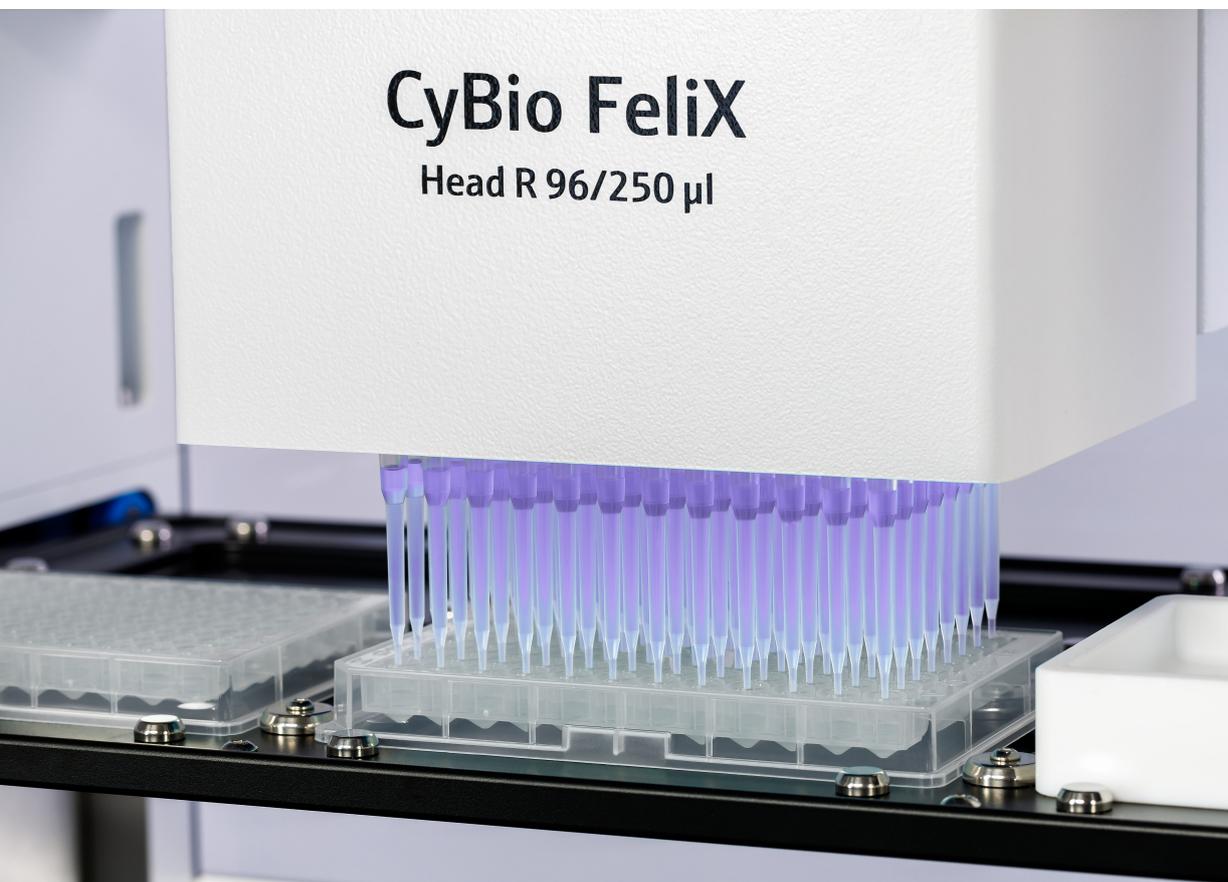
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SSM-based screening of transporters, pumps and ligand-gated ion channels

The SURFE²R 96SE (surface electrogenic event reader) is the only commercially available platform for higher throughput solid supported membrane (SSM) -based electrophysiology on the market.

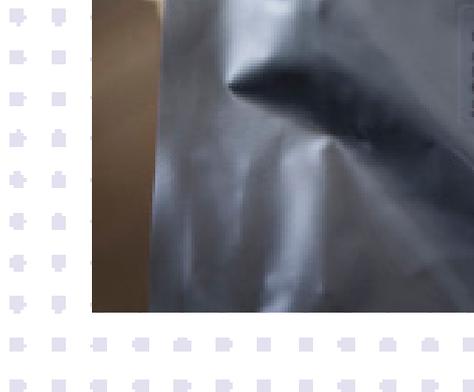
Functional and direct recordings of electrogenic membrane transport is measured in real-time with high sensitivity and high temporal resolution.

Any membrane can be accessed for recordings, ranging from isolated membrane vesicles from native tissues or cultured cells, organellar membranes to transporters reconstituted in proteoliposomes. The SURFE²R 96SE allows for a data throughput matching secondary screening and characterization of compounds targeting transporters, symporters, exchangers, uniporters and pumps and from ligand-gated and leak ion channels.



Key features at a glance

- | | | | |
|----------|---|----------|--|
| 1 | Real-time transporter recordings | 5 | Up to 10,000 data points per day |
| 2 | Parallel recordings from 96 wells | 6 | High success rates >95 % |
| 3 | No need for labels, radioactivity or fluorescence | 7 | Low sample consumption |
| 4 | High sensitivity & temporal resolution | 8 | >100 validated targets from diverse membrane sources |



Matching your transporter screening needs

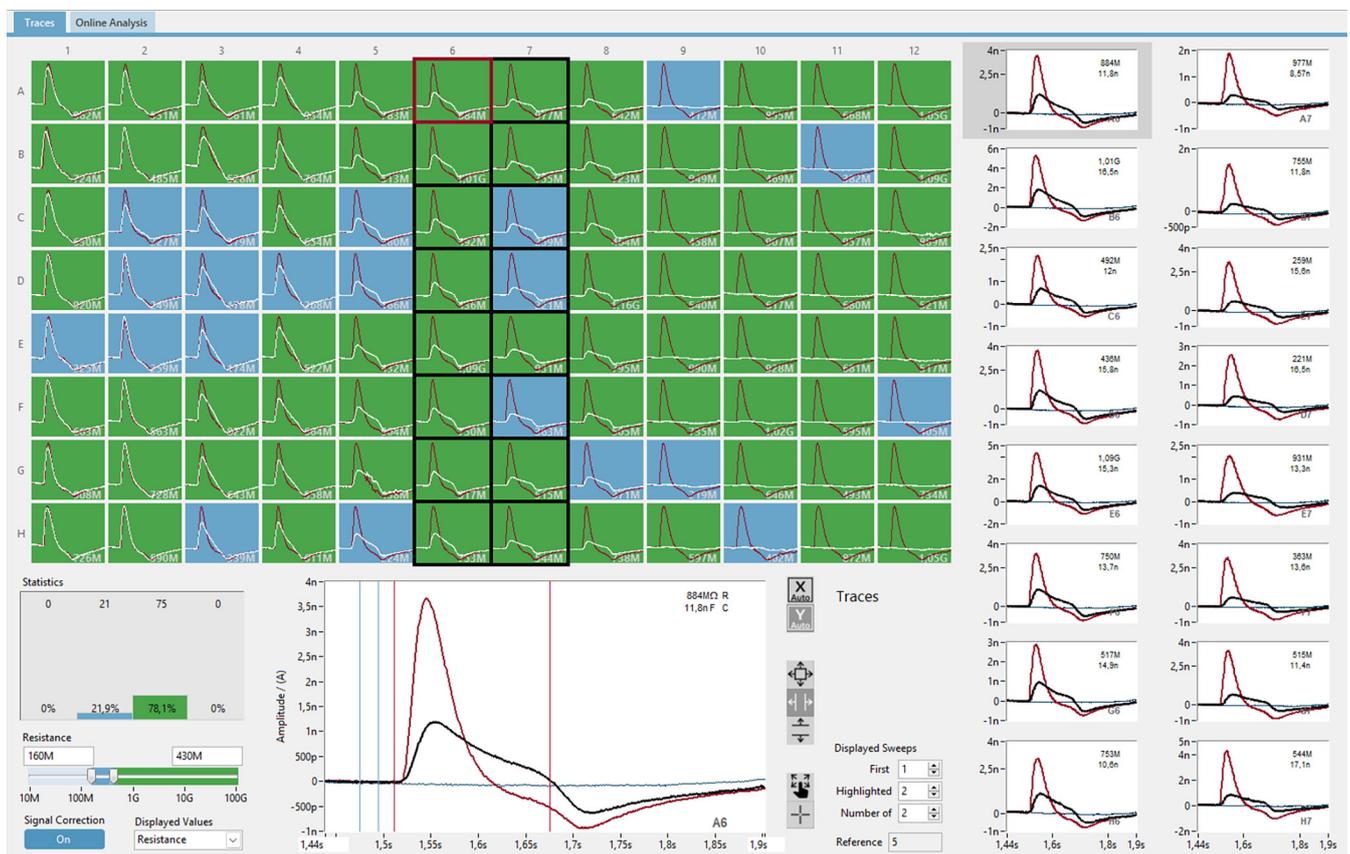
Transporter screening and characterization

The SURFE²R 96SE facilitates screening and characterization of compounds acting on transporters, pumps, ligand-gated and leak channels. High success rates and in-well quality control options confer efficient dose response analysis or single point screening of compounds modulating transporter activity.

Hit validation

With a throughput of up to 10,000 data points per day, the SURFE²R 96SE is a versatile tool for hit validation with the unique feature of accessing proteins residing in their native membrane environment, including organelles.

Powerful software for recordings and analysis based on the SyncroPatch software.



Efficient data handling and export

SURFControl is a powerful graphical user interface for quick and easy setup of recording parameters and experimental protocols.

- Compound and experimental details stored with datapoints
- Real time plot of results
- In-well QC options
- Color-coding of recording wells based on QC parameters
- Raw data and analysis results in the same window

DataControl accelerates data analysis by quick and easy loading of recorded files and user-defined analysis templates.

- Analysis performed with a few mouse clicks (IC₅₀, EC₅₀ values etc.)
- Data analysis templates display results within seconds
- Instant re-calculation upon parameter changes
- Heat maps for intuitive overview of compound effects
- Customized data export
- Word or pdf-reporting



DataControl 96

Scroll through the data, select a data analysis template or fit parameters. Results, compound information and QC parameters are exported in a user-defined export format, ready for further database integrations.

Broad range of validated targets

Primary active transporters / Ion pumps

ATPases

NaK-ATPase
HK-ATPase
SERCA (Ca²⁺)
v-ATPase (H⁺)
FoF1-ATPase (H⁺)
Kdp-ATPase (K⁺)
CopA (Cu²⁺)
ATP7A/B (Cu²⁺)
ATP8A2 (Flippase)
VrPPase

Redox-driven ion pumps

Complex I
Respiratory chain complex I/III
Respiratory chain complex II/III
Cytochrome c-oxidase
Respiratory chain complexes I/III/V

Light-driven ion pumps

Bacteriorhodopsin (BR)
Rhodopsin OR1
Rhodopsin-2 (KR2)
Halorhodopsin (HR)
Acerhodopsin
Channelrhodopsin 1/2 (ChR)

Channels + Pores

Gramicidine
P2X2
nAChR
A/M2
UCP1 (Slc25a7)
TRPC5
TRPA1
AQP6
KtrAB
TMEM175

Uniporters + Symporters + Exchangers

Inorganic ions

NhaA/B (2Na⁺/1H⁺)
NhaP/NHA2 (1Na⁺/1H⁺)
NCX1/mjNCX (3Na⁺/Ca²⁺)
ecClc/Clc-3/5/7/K (Cl⁻/H⁺)
NirC (NO₂⁻/H⁺)
afAmt1-3/ksAmt5/ecAmtB (NH₄⁺)
NeRh50 (NH₄⁺)
SulP/DauA (bicarbonate)
NIS (2Na⁺/I⁻)
NaPi-IIb (Na⁺/PO₃²⁻)
MntH2 (Mn(II), Zn(II), Co(II), Cd(II))
YiiP (metals)

Sugars

SGLT1/2 (Na⁺/glucose)
MelB (Na⁺/melibiose)
LacY (H⁺/lactose)
FucP (H⁺/fucose)
XylE (H⁺/xylose)
GlcP (glucose)
STP10 (H⁺/glucose)

Amino acids + peptides

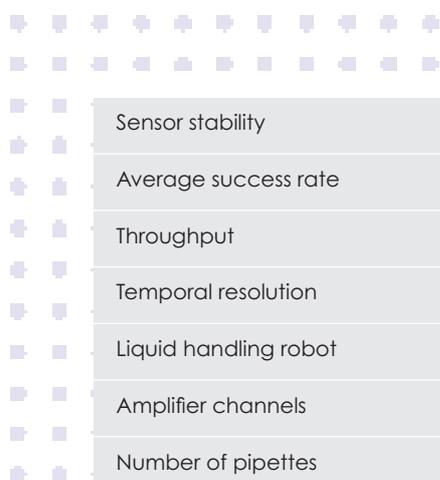
PepT1/PepT_St (di-/tri-peptides)
YdgR/DtpA (tri-peptides)
YhiP/DtpB (di-/tri-peptides)
PutP (Na⁺/proline)
GltP (Na⁺/glutamate)
GltK (Na⁺/aspartate)
EAAC1 (3Na⁺/glutamate)
PAT1 (H⁺/proline)
ArcD (arginine/ornithine exchange)
CAT-IIB (cationic amino acids)
GlyT1/2/B1 (Na⁺/glycine)
B0AT2 (Na⁺/neutral amino acids)
Cystin Transporter

Other organic ions

OCT1/2 (organic cations)
OATP1B1 (organic anions)
CNT1 (nucleosides)
ANT (ADP/ATP exchange)
GAT1 (Na⁺/GABA)
BetP (betaine)
CHT (choline)
LicB (choline)
NupC (H⁺/nucleoside)
PurT (H⁺/purine)
NaCT (Na⁺/citrate)
SugE/Gdx (guanidinium)
EmrE (small drugs)
MCT13 (monocarboxylates)
PfCRT (chloroquine/CQ)
DgoT (H⁺/galactonate)
Malate/lactate exchange
Bicarbonate transport

The SURFE²R 96SE includes

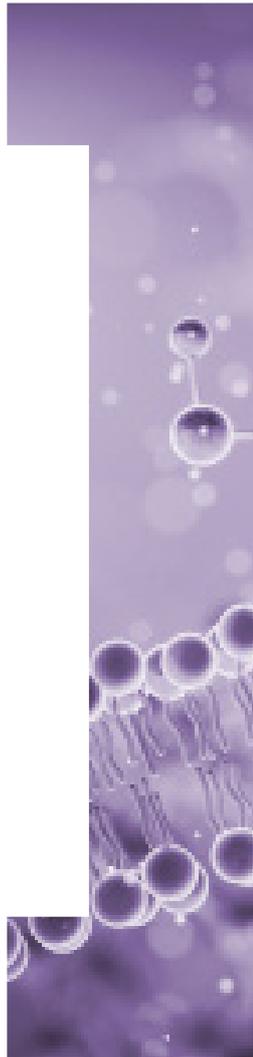
- Small footprint pipetting platform CyBio[®] Felix
- 96-channel low-noise amplifier
- 8 positions for different solutions (1 well to 96 well)
- Windows with SURFControl and DataControl software suite
- CyBio Composer plus pre-installed workflows
- SURFE²R 96SE sensor plates (96-well)
- 1 year warranty with further optional comprehensive service plans available
- Unmatched application and assay support



Specifications

Sensor stability	Hours–days
Average success rate	>95 %
Throughput	Up to 10,000 data points per day
Temporal resolution	ca. 5 ms
Liquid handling robot	CyBio [®] Felix
Amplifier channels	96
Number of pipettes	96
Protein consumption	0.1–1 µg protein per well (total protein)
Compound solution per well	50–200 µl

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