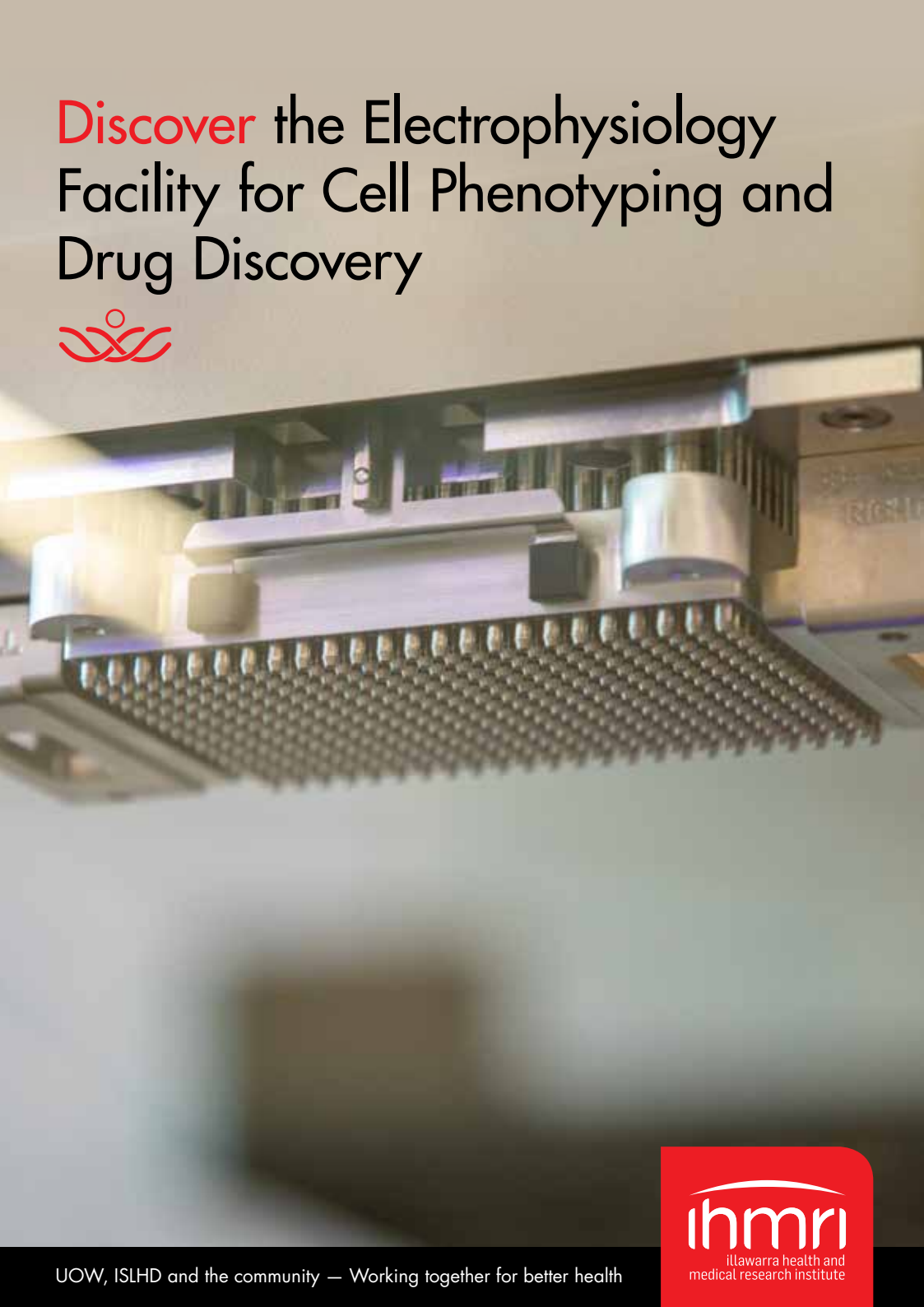
Discover the Electrophysiology Facility for Cell Phenotyping and Drug Discovery



UOW, ISLHD and the community — Working together for better health

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Photo by Paul Grabowski

Message from Distinguished Professor David J. Adams

Executive Director and CEO, Illawarra Health and Medical Research Institute

IHMRI's Electrophysiology Facility for Cell Phenotyping and Drug Discovery (E-Phys core) features the state-of-the-art patch-clamp robot, the Nanion SyncroPatch 384PE. This high-throughput (HT) automated patch clamp system allows researchers to measure electrical activity in up to 384 single living cells at a time, and their responses to different drugs. This speeds up the process of cell analysis and significantly reduces laboratory times for researchers. This facility represents a quantum leap in productivity for biosciences in this country, which will potentially give the Australian pharmaceutical industry a competitive global edge. It will also help bring together biophysicists, cell biologists, chemists, pharmacologists and physiologists in the Sydney region to augment and accelerate existing research projects. The SyncroPatch 384PE was funded by an Australian Research Council Linkage, Infrastructure, Equipment and Facilities Grant awarded in 2017 to a partnership of scientists from IHMRI, the University of Sydney, the University of New South Wales and the Victor Chang Cardiac Research Institute. The E-Phys core was officially opened by Australia's Chief Scientist Dr Alan Finkel AO in November 2018.

Technical specifications

Performance/feature	SyncroPatch 384PE
Average whole cell stability	> 30 minutes
Successful whole cell recordings	• ~ 85% (one-hole plates) • Up to 100% (multi-hole plates)
Throughput	~ 2500 data points per day
Seal resistance	> 1 GOhm
Series resistances	< 10 MOhm
Chip resistance	~ 0.5-5 MOhm (depending on the chip type Ω: L, M, H; Hole: 1x, 4x, 8x)
Perfusion time constant	< 50 ms
Minimum exposure time	< 1 s
Compatible liquid handline robots	Biomek FX (Beckman-Coulter)
Number of pipettes	384 + optional 8-channel pipettor
Temperature control	Yes, enabling experiments under physiological temperatures
Current clamp	Yes
Multi-hole patch clamp	Yes, different one-hole and multi-hole plates are available
Automated dose-response curve generation	Yes
Average measurement duration of one plate	20 minutes

The SyncroPatch 384PE at IHMRI

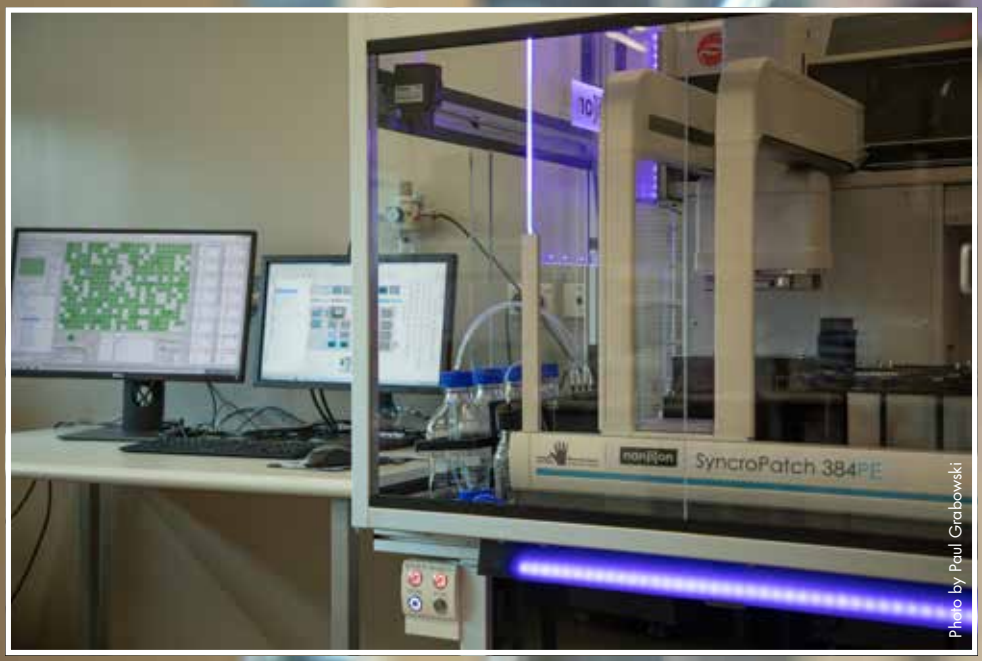

Photo by Paul Grabowski


Photo by Mark Newsham

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Background photo by Paul Grabowski

Hire the SyncroPatch 384PE

The SyncroPatch 384PE housed at IHMRI's E-Phys core is the only state-of-the-art HT electrophysiology robot available to all of the Australian scientific community.

Provide your sample and our expert electrophysiologist will customise and optimise the experimental details for the HT functional assays run in the 384PE.

IHMRI invites all researchers to utilise our facility, which is available for hire.

Price guide:	
$60 per hour	$400 per 384-cell PE-Chip

For more information, including a video of IHMRI's SyncroPatch in action, visit www.ihmri.org.au/electrophysiology-facility.

Patchliner

Also available in IHMRI's E-Phys core is the Nanion Patchliner, a fully automated planar patch clamp instrument that can record from up to 8 cells simultaneously.

This versatile piece of equipment is useful for routine and sophisticated assays. It can be used to screen cells prior to use on the SyncroPatch to help minimise the cost of consumables.

Contact

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Photo by Mark Newsham

About IHMRI

Working together for better health

The Illawarra Health and Medical Research Institute (IHMRI) is a not-for-profit charity that supports health and medical researchers in the Illawarra-Shoalhaven region of New South Wales.

We provide over 190 affiliated researchers with a range of services to help them find new insights into disease and illness, devise prevention strategies, and develop more effective treatments and health care services.

Due to the high incidence of chronic and age-related conditions in our region, such as diabetes and dementia, we encourage the community to take part in innovative research through clinical trials.

We promote and champion our researchers in our communities and beyond, to help raise awareness of their vital work and gather philanthropic support.

As an independent Medical Research Institute (MRI) we also help our partners, the University of Wollongong and the Illawarra Shoalhaven Local Health District, advance health and medical research in our region.

SUPPORT OUR RESEARCH

IHMRI is a not-for-profit registered charity that strives to enhance the wellbeing of people living in our communities. To make a donation, visit www.ihmri.org.au/make-a-donation.

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