

# Martin W. Nicholson, Ph.D.

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1 669 307 1628 • mawnicho@gmail.com

## Personal Summary

I am a highly motivated, results-driven Ph.D. level Research Scientist with Postdoctoral and industry experience. I have more than 15 years bench-side experience and 2 years leading client-facing assay development.

## Professional Experience

### Head of Commercial Neural Products, NeuCyte, USA

2022 - Present

- Lead the commercial cell production team in the generation of iPSC-derived neuronal cell types for internal research and development projects and revenue generation through CRO services.
- Develop disease models in 2D and 3D for phenotype identification.
- Lead, design, and execute phenotypic assays for drug screening workflows.
- Data presentation to external clients and collaborators.

### Postdoctoral Scholar, Academia Sinica, Taiwan

2019 - 2022

*Project title: An Asian population-based high-throughput drug toxicity screen of human iPSC-derived cardiomyocytes and neurons*

- Scientific lead on a collaborative project employing human iPSC derivatives to develop a population-based high-throughput pre-clinical drug screening platform.
- *In vitro* differentiation of iPSCs (neurons, glial cells, cardiomyocytes, endothelial cells) and establish complex functional assays in both 2D and 3D organoid models.
- Responsible for experimental design across multiple sub-projects within a multi-disciplinary team assessing *in vitro* and *in vivo* drug toxicity.
- Written successful grant applications and published lab manuscripts.

### Freelance Specialist Editor, Cactus Communications

2018 - 2019

- Specialist Editor for the Life Sciences and Medicine division.
- Edit and format manuscripts to meet publication standards for scientists and medical doctors.
- I maintained an above-average Quality Index rating during my tenure.

### Doctoral Student, University College London, United Kingdom

2010 - 2018

*Thesis title: Diazepam-dependent modulation of GABAergic inhibitory synapses*

- Used biochemical approaches to elucidate a novel signaling pathway.
- Generate stable cell lines expressing GABA<sub>A</sub> receptors.
- Supervised M.Sc. students providing guidance throughout their projects.
- Managed the lab organization, procurement of consumables, and maintained equipment.
- Ph.D. student representative on the Research Degrees Committee.

### Departmental Technician, University College London, United Kingdom

2009 - 2018

- Taught in a new master's program where I developed and delivered the practical component of the course.
- Set-up and managed a flow cytometry facility and provided support to researchers in confocal microscopy.
- Radiation Protection Supervisor and conducted health and safety audits for the department.

## Education

Ph.D. Neuroscience, University College London, United Kingdom

2018

B.Sc. Biology & Spanish, Dalhousie University, Canada

2008

## Awards

Academia Sinica Postdoctoral Scholar

2021

Academia Sinica Postdoctoral Fellow

2019

## Languages

Chinese



Estonian



French



German



Spanish



## **Publications**

1. Lin CJ, Cheng YC, Chen HC, Chao YK, **Nicholson MW**, Yen ECL, Kamp TJ, Hsieh PCH. Commensal gut microbiota-derived acetate and propionate enhance heart adaptation in response to cardiac pressure overload in mice. *Theranostics*. 2022 Oct 17;12(17):7319-7334.
2. **Nicholson MW**, Huang CY, Wang JY, Ting CY, Cheng YC, Chan DZH, Lee YC, Hsu CC, Hsu YH, Chang CMC, Hsieh ML, Cheng YY, Lin YL, Chen CH, Wu YT, Hacker TA, Wu JC, Kamp TJ, Hsieh PCH. Cardio- and Neurotoxicity of Selected Anti-COVID-19 Drugs. *Pharmaceuticals (Basel)*. 2022 Jun 20;15(6):765.
3. **Nicholson MW**, Ting CY, Chan DZH, Cheng YC, Lee YC, Hsu CC, Huang CY, Hsieh PCH. Utility of iPSC-Derived Cells for Disease Modeling, Drug Development, and Cell Therapy. *Cells*. 2022 Jun 6;11(11):1853.
4. Huang CY, **Nicholson MW**, Wang JY, Ting CY, Tsai MH, Cheng YC, Liu CL, Chan DZH, Lee YC, Hsu CC, Hsu YH, Yang CF, Chang CMC, Ruan SC, Lin PJ, Lin JH, Chen LL, Hsieh ML, Cheng YY, Hsu WT, Lin YL, Chen CH, Hsu YH, Wu YT, Hacker TA, Wu JC, Kamp TJ, Hsieh PCH. Population-based high-throughput toxicity screen of human iPSC-derived cardiomyocytes and neurons. *Cell Rep*. 2022 Apr 5;39(1):110643.
5. Chen CY, Lee DS, Choong OK, Chang SK, Hsu T, **Nicholson MW**, Liu LW, Lin PJ, Ruan SC, Lin SW, Hu CY, Hsieh PCH. Cardiac-specific microRNA-125b deficiency induces perinatal death and cardiac hypertrophy. *Sci Rep*. 2021 Jan 27;11(1):2377.
6. Petrache AL, Khan AA, **Nicholson MW**, Monaco A, Kuta-Siejkowska M, Haider S, Hilton S, Jovanovic JN, Ali AB. Selective Modulation of  $\alpha 5$  GABA<sub>A</sub> Receptors Exacerbates Aberrant Inhibition at Key Hippocampal Neuronal Circuits in *APP* Mouse Model of Alzheimer's Disease. *Front Cell Neurosci*. 2020 Nov 11;14:568194.
7. Huang CY, Li LH, Hsu WT, Cheng YC, **Nicholson MW**, Liu CL, Ting CY, Ko HW, Syu SH, Wen CH, Yan Z, Huang HP, Su HL, Chiang PM, Shen CN, Chen HF, Yen BLJ, Lu HE, Hwang SM, Chiou SH, Ho HN, Wu JY, Kamp TJ, Wu JC, Hsieh PCH. Copy number variant hotspots in Han Taiwanese population induced pluripotent stem cell lines - lessons from establishing the Taiwan human disease iPSC Consortium Bank. *J Biomed Sci*. 2020 Sep 4;27(1):92.
8. Huang CY, Liu CL, Ting CY, Chiu YT, Cheng YC, **Nicholson MW**, Hsieh PCH. Human iPSC banking: barriers and opportunities. *J Biomed Sci*. 2019 Oct 28;26(1):87.
9. **Nicholson MW**, Sweeney A, Pekle E, Alam S, Ali AB, Duchon M, Jovanovic JN. Diazepam-induced loss of inhibitory synapses mediated by PLC $\delta$ /Ca<sup>2+</sup>/calcineurin signalling downstream of GABA<sub>A</sub> receptors. *Mol Psychiatry*. 2018 Sep;23(9):1851-1867.
10. Brown LE, **Nicholson MW**, Arama JE, Mercer A, Thomson AM, Jovanovic JN.  $\gamma$ -Aminobutyric Acid Type A (GABA<sub>A</sub>) Receptor Subunits Play a Direct Structural Role in Synaptic Contact Formation via Their N-terminal Extracellular Domains. *J Biol Chem*. 2016 Jul 1;291(27):13926-13942.
11. Brown LE, Fuchs C, **Nicholson MW**, Stephenson FA, Thomson AM, Jovanovic JN. Inhibitory synapse formation in a co-culture model incorporating GABAergic medium spiny neurons and HEK293 cells stably expressing GABA<sub>A</sub> receptors. *J Vis Exp*. 2014 Nov 14;(93):e52115.