

Michelle Alejandra Sánchez Rivera

CURRICULUM VITAE

Centre for Discovery Brain Sciences

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EDUCATION

2017-2022 PhD in Neuroscience. University of Edinburgh.

Thesis title: Corticospinal Neurons in the Execution of Goal- Appropriate Actions

2016-2017 Masters by Research in Integrative Neuroscience. University of Edinburgh.

Class of award: Distinction.

Dissertation title: Description of a subcircuit of the Head Direction signal: direct connections between the anterior thalamus and the medial entorhinal cortex

2009-2016 Bachelor's Degree in Biology.

Universidad Nacional Autónoma de México (UNAM) Mark obtained: 9.6/10

Dissertation title: Interrelationship between different mechanisms of short-term plasticity in identified synapses

COURSES

2015 Bioinformatics Summer School.

Institute of Mathematics, UNAM Campus Querétaro.

2015 Mathematical Methods for Biology Summer School. Institute of Mathematics UNAM Campus Morelia.

2014 Mathematical Biology Autumn School. UNAM Campus Querétaro.

2012 Mathematical Biology Autumn School.

San Luis Potosí Autonomous University (UASLP).

RESEARCH EXPERIENCE

2017-present Centre for Discovery Brain Sciences, University of Edinburgh.
Supervised by Dr. Ian Duguid

Research focused on representations of movement in corticospinal neurons in the primary motor cortex, and the effects of dendritic integration on corticospinal output. Experience in techniques such as stereotactic surgery in rodents, development and implementation of rodent behavioural paradigms to study motor control, population and single-cell *in vivo* 2-photon calcium imaging using genetically encoded calcium indicators, *in vivo* opto- and chemogenetic (DREADDS) manipulations of neuronal activity.

2016-2017 Centre for Integrative Physiology, University of Edinburgh.
Supervised by Prof. Matt Nolan

Research topics included synaptic mechanisms involved in spatial navigation, and anatomical and functional mapping of neural circuits. Experience was acquired in stereotactic surgery in rodents, *in vitro* patch-clamp electrophysiology and optogenetics, and immunohistochemical tissue processing methods.

2012-2016 Department of Neurophysiology, National Institute of Psychiatry
"Ramón de la Fuente Muñiz"

Supervised by Dr. Citlali Trueta Segovia.

Research topics included synapse neurophysiology, theoretical and experimental models of short-term synaptic plasticity. Experience was acquired in invertebrate microdissection and *in vitro* electrophysiology using sharp electrodes.

PRESENTATIONS AND POSTERS

2022 Participation in the 6th Annual SIDB retreat, Edinburgh.

Poster: "Corticospinal neurons differentially encode goal-appropriate actions"

2022 Participation in the FENS Forum, Paris.

Poster: "Corticospinal neurons differentially encode goal-appropriate actions"

2020 Participation in the 4th Centre for Discovery Brain Sciences (CDBS) PhD Student Research Forum, Edinburgh.

Talk: "Functional mapping of corticospinal neurons in movement execution and withholding".

2019 Participation in the Neural Circuits & Behaviour Workshop, Spain.

Talk: "Functional mapping of corticospinal neurons in movement execution and withholding".

2014 Participation in the Mathematical Biology National Meeting, Mexico.
Poster: "Mechanisms that produce paired-pulse synaptic depression in an identified synapse".

2014 Participation in the XXIV Annual Research Meeting of the National Institute of Psychiatry.
Poster: "Mechanisms that produce paired-pulse synaptic depression in an identified synapse".

AWARDS AND PRIZES

2022 Allison Douglas Prize for best PhD thesis in the Centre for Discovery Brain Sciences, University of Edinburgh

2017-2019 Comisión Nacional de Ciencia Y Tecnología (CONACYT) scholarship for postgraduate studies abroad

2016 Comisión Nacional de Ciencia Y Tecnología (CONACYT) scholarship for postgraduate studies abroad