FUNCTIONAL NEUROANATOMY OF MORPHINE-INDUCED ABSTINENCE, TOLERANCE, AND SENSITISATION

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Statement of Authorship

This thesis is submitted to the University of Sydney in fulfilment of the requirement for the degree of Doctor of Philosophy. All experiments were performed by the author except where acknowledged. The text presented in this thesis is original unless otherwise stated.

Signature____________________ Date___________________

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Abbreviations

3V third ventricle

ac anterior commissure

AC anterior cingulate

AcbC nucleus accumbens core

AcbSh nucleus accumbens shell

ANOVA analysis of variance

AStr amygdalostriatal transition zone

BG basal ganglia

BLA basolateral amygdala

BST bed nucleus of the stria terminalis

BSTld lateral-dorsal bed nucleus of the stria terminalis

BSTv ventral bed nucleus of the stria terminalis

CALB calbindin

cAMP cyclic-AMP

cc corpus callosum

CeA central nucleus of the amygdala

CeC capsular central amygdala

CeL lateral central amygdala

CeM medial central amygdala

CGRP calcitonin gene-related peptide

CM centromedial thalamus

CRF corticotropin releasing factor

CRH corticotropin releasing hormone

ct commissural stria terminalis

CTX cortex

D1 dopamine type 1 receptor

D2 dopamine type 2 receptor

dl dorsolateral striatum

dm dorsomedial striatum

DOR delta-opioid receptor

dPAG dorsal periaqueductal gray

ENK enkephalin

FRA Fos-related-antigen

GABA Gamma-Aminobutyric Acid

GP globus pallidus

HPA-axis hypothalamic pituitary adrenal-axis

IC intercalated cell groups

IF interfascicular nucleus

IL infralimbic cortex

IL-1β interleukin 1β

i.p. intraperitoneal

IP interpeduncular nucleus

IPAC interstitial nucleus of the posterior limb of the anterior commisure

IPACl lateral interstitial nucleus of the posterior limb of the anterior commisure

IPACm medial interstitial nucleus of the posterior limb of the anterior commisure

IR immunoreactivity

lPAG lateral periaqueductal gray

KOR kappa-opioid receptor

LA lateral amygdala

LPB lateral parabrachial nucleus

LC locus coeruleus

LH lateral hypothalamus

LV lateral ventricle

M/- morphine/no injection control

M/M morphine/morphine

M/N5 morphine/naloxone (5mg/kg)

M/N0.05 morphine/naloxone (0.05mg/kg)

MOR mu-opioid receptor

M/S morphine/saline

ot optic tract

PAG periaqueductal gray

PB phosphate buffer

PBT-X phosphate buffer containing 2% normal horse serum/0.2% Triton-X-100

PB parabrachial nucleus

PBS phosphate buffer saline

pDyn prodynorphin

PFC prefrontal cortex

PPN pedunculopontine nucleus

PrL prelimbic cortex

PV paraventricular thalamus

PVN paraventricular nucleus of the hypothalamus

NeuN anti-neuronal nuclei

NHS normal horse serum

NMDA *N*-Methyl-D-aspartate

NTS nucleus of the solitary tract

RVM rostral ventromedial medulla

S/- saline/no injection control

s.c. subcutaneous

SEM standard error of the mean

SI substantia innominata

SId dorsal substantia innominata

S/N5 saline/naloxone (5mg/kg)

S/N0.05 saline/naloxone (0.05mg/kg)

SN substantia nigra

SNc substantia nigra pars compacta

SNr substantia nigra pars reticulata

SpC spinal cord

S/S saline/saline

Str striatum

TH tyrosine hydroxylase

THAL thalamus

vl ventrolateral striatum

VLM ventrolateral medulla

vlPAG ventrolateral periaqueductal gray

vm ventromedial striatum

VP ventral pallidum

VTA ventral tegmental area.

Publications

Peer reviewed manuscripts:

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