Application of a glutamate microsensor to brain tissue

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10.1 Abbreviations

Å	angstrom (10^{-10} meter)
AA	ascorbic acid
AA-ox	ascorbate oxidase
achBP	acetylcholine binding protein
aCSF	artificial cerebrospinal fluid
Ag/AgCl	silver / silverchloride
AMPA	α-amino-3-hydroxy-5-methylisoxazole-4-propionic acid
ANP	artrial natriuretic peptide
AP	anterior-posterior
ATP	adenosine 5'-triphosphate
AUC	area under the curve
BDNF	brain derived neurotrophic factor
Bkg	background microsensor
BSA	bovine serum albumin
^{13}C	isotope of carbon
Ca^{2+}	calcium
$[Ca^{2+}]_i$	intracellular calcium concentration
$CaCl_2$	calcium chloride
CA1-3	cornu ammonis 1-3 (hippocampal subregion)
Cd^{2+}	cadmium
CF	carbon fiber
CFE	carbon fiber electrode
Cl^-	chloride
CNS	central nervous system
CO_2	carbon dioxide
CPG	(s)-4-carboxyphenylglycine
CSF	cerebrospinal fluid
CV	cyclic voltammogram
CX43	connexion-43
CZS	centraal zenuw stelsel
DET	direct electron transfer
DG	dentate gyrus (hippocampal subregion)
DIDS	4,4'-diisothiocyanoatostilbene-2,2'-disulphonic acid
DOPAC	3,4-dihydroxyphenylacetic acid

E^o	standard redox potential
EC_{50}	concentration at 50 % of the maximum effect
EAAC1	excitatory amino acid carrier 1
EAAT	excitatory amino acid transporter
ECF	extracellular cerebrospinal fluid
ET	electron transfer
FAD	flavin adenine nucleotide; oxidized state
$FADH_2$	flavin adenine nucleotide; reduced state
FIA	flow injection analysis
GABA	γ-aminobutyric acid
GBSS	Gey's balanced salt solution
GLAST	glutamate-asparte transporter
GLT1	glutamate transporter 1
$[Glu]_0$	basal extracellular glutamate concentration
Glu	glutamate microsensor
Glu-ox	glutamate oxidase
$Glu\text{-}ox_{FAD}$	FAD center in its oxidized state attached to Glu-ox
$Glu\text{-}ox_{FADH2}$	Reduced state of the FAD center ($FADH_2$) attached to Glu-ox
GluR	glutamate receptor
GPCR	G-protein coupled receptor
GS	glutamine synthetase
HCA	homocysteic acid
HEPES	[4-(2-hydroxyethyl)-1-piperazineethane-sulfonic acid]
HETE	20-hydroxyeicosatetraenoic acid
5-HIAA	5-hydroxy-indole-3-acetic acid
HMPG	4-hydroxy-3-methoxy-phenylglycol
HPLC	high pressure liquid chromatography
HPLC-FD	high pressure liquid chromatography coupled to fluorometric detection
hr	hour
HRP	horseradish peroxidase
5-HT	5-hydroxytryptamine
HVA	4-hydroxy-3-methoxy-phenylacetic acid
iGluR	ionotropic glutamate receptor
$Ins(1,4,5)P_3$	inositol-1,4,5-triphosphate
K^+	potassium
$[K^+]$	concentration of potassium
KA	kainate

KCl	potassium chloride
LTD	long term depression
LTP	long term potentiation
LTX	α-latrotoxine
µm	micrometer
µM	micromolar
mGluR	metabotropic glutamate receptor
Mg^{2+}	magnesium
$MgSO_4$	magnesium sulphate
min	minute
ML	medial-lateral
MSO	methionine sulfoximine
mV	millivolt
Na^+	sodium
NaCl	sodium chloride
NAD	β-nicotinamide dinucleotide
NADH	β-nicotinamide adenine dinucleotide, reduced state
$NADH_2$	β-nicotinamide adenine dinucleotide, reduced state
NADP	β-nicotinamide adenine dinucleotide phosphate
NADPH	β-nicotinamide adenine dinucleotide phosphate, reduced state
$NaHCO_3$	sodium hydrogen carbonate
NaH_2PO_4	sodium dihydrogen phosphate
NKCC1	sodium-potassium-chloride cotransporter
nl	nanoliter
NMDA	N-methyl-D-aspartic acid
NMP	N-methylphenazin
NMR	nuclear magnetic resonance
O_2	oxygen
pO_2	dissolved oxygen level
β-ODAP	β-N-oxalyl-α,β-diamino-propionic acid
Opti-MEM	optimized Eagle's minimal essential medium
pA	picoampere
pA / µM	sensitivity of the microsensor expressed in picoamperes per micromolar
PAG	phosphate activated glutaminase
PEA	phosphatidylethanolamine
PEDGE	poly (ethylene glycol) diglycidylether
PEI	polyethyleneimine

pH	- log [H^+]
PLC	phospholipase C
PPD	poly (o-phenylenediamine)
POs-EA	poly (vinylpyridine) backbone complexed with osmium (bipyridine)chloride groups and quarternized with ethylamine groups (“osmium redox polymer”)
Pt	platinum
Pt/Ir	platinum / iridium
PQQ	pyrroloquinoline quinone
$P2X_7$	purinerge $2X_7$
SCP	standard cleaning procedure
SD	standard deviation
SDS–PAGE	sodium dodecyl (lauryl) sulphate - polyacrylamide gel electrophoresis
sec	second
SEM	standard error of the mean
SEMM	scanning electron microscopic micrograph
SLMV	synaptic-like microvesicle
Str	striatum
$_{DL}$-TBOA	$_{DL}$-threo-β-benzyloxyaspartate
TCA	tricarboxylic acid
TCNQ	tetracyanoquinodimethane
TNFα	tumor necrosis factor α
Tr	response time
TTF	tetrathialfulvalene
TTX	tetrodotoxine
UA	uric acid
UP	ultra purified water
VD	ventral-dorsal
VRACs	volume-regulated anion channels
VSOACs	volume sensitive organic anion channels