

Patch clamp electrophysiology and capillary electrophoresis–mass spectrometry metabolomics for single cell characterization

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SUPPORTING INFORMATION

Tables S1 and S2

Table S-1. Comparison of metabolites detected from microdissected nuclei versus cytoplasm.

Metabolite ID	Slice sections	Cytoplasm
spermine	+	+
spermidine	+	+
putrescine	+	+
histamine	+	+
agmatine	–	+
methyl-lysine	+	+
choline	+	+
homocarnosine	+	-
creatinine	+	+
ornithine	+	+
b-alanine	+	+
lysine	+	+
niacinamide	+	+
adenine	–	+
arginine	+	+
acetylcholine	+	–
GABA	+	+
histidine	+	+
6-aminocaproic acid	–	+
carnitine	+	+
guanine	–	+
pyridoxine	+	–
serotonin	+	–
synephrine	+	–
norepinephrine	+	–
5-MEODMT	+	–
glycine	+	+
creatine	+	+
alanine alanine	+	+
cytidine	+	–
adenosine	+	+
alanine	+	+
argininosuccinic acid	+	–
α -aminoisobutyric acid	+	–
sarcosine	–	+
valine	+	+
threonine	+	+
serine	+	+
leucine	+	+
isoleucine	+	+
cystathionine	+	+
asparagine	+	+
tryptophan	+	+
methionine	+	+
glutamine	+	+
citrulline	+	+
glutamate	+	+
phenylalanine	+	+
tyrosine	+	+
hypoxanthine	+	+
proline	+	+
dimethylglycine	+	+

cysteine	+	-
aspartic acid	+	+
betaine	+	+
proline betaine	-	+
4-hydroxyproline	+	-
inosine	+	-
o-phosphoryl ethanolamine	+	-
adenosine 5' monophosphate	+	-
cytidine 5' monophosphate	+	+
phosphocholine	+	-
taurine	+	-
glutathione	+	+
cAMP	+	-

Comparison of the identified metabolites that were detected from nuclei dissected from one of the 280- μm -thick thalamus sections used for the electrophysiology experiments versus those that were not detected. The nuclei and white matter tract analyzed were the ventral basal nucleus, the thalamic reticular nucleus and the internal capsule, respectively. The cytoplasm samples span all cell types used in this study. Detected (+); not detected (-).

Table S-2. Identified metabolites from all cytoplasm samples.

metabolite ID	n=	%
spermine	14	47
spermidine	24	80
putrescine	5	17
histamine	14	47
methyl-lysine	2	7
choline	20	67
creatinine	11	37
ornithine	26	87
b-alanine	3	10
lysine	26	87
niacinamide	1	3
adenine	25	83
arginine	17	57
GABA	12	40
histidine	28	93
6-aminocaproic acid	19	63
carnitine	12	40
guanine	4	13
epinephrine	4	13
glycine	7	23
creatine	21	70
alanine-alanine	5	17
adenosine	22	73
HEPES	29	97
alanine	11	37
sarcosine	7	23
valine	20	67
homoserine	7	23
serine	25	83
leucine	23	77
isoleucine	15	50
cystathionine	2	7
niacin	3	10
asparagine	3	10
tryptophan	14	47
methionine	5	17
glutamine	13	43
citrulline	15	50
glutamate	28	93
phenylalanine	25	83
tyrosine	24	80
hypoxanthine	7	23
proline	25	83
dimethylglycine	2	7
aspartic acid	22	73
betaine	9	30
proline betaine	8	27
cytidine 5' monophosphate	1	3
glutathione	11	37

Table showing the frequency of all identified metabolites detected from all cytoplasm samples presented in this study. The total number of cell cytoplasm samples was 30.