

MMP Protease	mRNA expression in mouse brain (http://mouse.brain-map.org/)	mRNA expression in human cerebral cortex (The Human Protein Atlas)	Protein expression in human cerebral cortex (The Human Protein Atlas)	Comments and literature
MMP-1 (collagenase 1)	---†	---	ND	- Detected at low level in rodent cortex; upregulated by kainate (Jerusalimsky and Balaban, 2013) - Present at low level in human cortex (Leake et al., 2000)
MMP-2 (gelatinase A)	---†	+	+ (mainly neurons)	- In rat hippocampus expression is the highest during the first postnatal week but present also in adult brain (Aujla and Huntley, 2014); - Reviewed in Verslegers et al. (2013)
MMP-3 (stromelysin 1)	---†	---	+++ # (neurons, astrocytes and neuropil)	- Punctate expression in hippocampal slices, mainly in astrocytes (Wiera et al., 2017) - Expressed by Purkinje cells and Golgi cells in postnatal cerebellum (Van Hove et al., 2012b); - reviewed in Van Hove et al. (2012a)
MMP-7 (matrilysin)	---†	---	+ [#]	- High expression in neurons in the hippocampus under basal conditions (Le and Friedman, 2012)
MMP-8 (collagenase 2)	---†	---	---	- Below the level of detection in brain homogenates; but present in microglia after ischemia or neuroinflammation (Lee et al., 2014; Han et al., 2016)
MMP-9 (gelatinase B)	+†	---	---	- Expressed in the rodent brain in activity-dependent manner; reviewed in Dziembowska and Włodarczyk (2012); Verslegers et al. (2013); Kaczmarek (2016)
MMP-10 (stromelysin 2)	---†	---	ND	- Present in striatal cells, where it directly cleaves huntingtin and prevents cell death (Miller et al., 2010)
MMP-11 (stromelysin 3)	---†	---	---	

MMP-12 (macrophage elastase)	--- [†]	---	ND	- Produced by microglia and oligodendrocytes in vitro (Larsen and Yong, 2004); upregulated in vivo after axonal degeneration (Liao et al., 2015), neuroinflammation in the aged brain (Liu et al., 2013) and ischemia (Chelluboina et al., 2015)
MMP-13 (collagenase 3)	+++ [†]	---	ND	- Expressed at low level in mammalian brain, upregulated after ischemia (Cuadrado et al., 2009; Lu et al., 2009; Ma et al., 2016)
MMP-14 (MT1-MMP)	---	+	+ (neuropil and neurons)	- Upregulated after BDNF treatment in neuronal cultures (Cazzin et al., 2011) - Punctate distribution in hippocampal stratum pyramidale (Py et al., 2014)
MMP-15 (MT2-MMP)	+++	+	+++ (mainly neuropil)	- High level in oligodendrocytes in vitro and in optic nerve (Sharma et al., 2015)
MMP-16 (MT3-MMP)	+++	++	++ [#] (neurons and astrocytes)	- Present in cortical neurons (Ferraro et al., 2011) as well as in astrocytes (Yoshiyama et al., 1998)
MMP-17 (MT4-MMP)	+++ [†]	+++	ND	- High level of neuronal expression in cortex, hippocampus, substantia nigra (Rikimaru et al., 2007), cerebellum and striatum (Sharma et al., 2015)
MMP-19	--- [†]	---	+ [#]	- Expressed in microglia (van Horssen et al., 2006)
MMP-20 (enamelysin)	--- [†]	ND	ND	
MMP-21	--- [†]	---	++ [#]	- Expressed in embryonal neocortex (Marchenko et al., 2003)
MMP-23B	--- [†]	---	+ [#]	- Not detected in brain homogenates (Velasco et al., 1999)
MMP-24 (MT5-MMP)	+ [†]	+	+++ [#] (mainly neurons)	- Expression in the hippocampus, dentate gyrus, olfactory bulb (Jaworski, 2000) and cerebellum (Sekine-Aizawa et al., 2001) - Neuronal expression (Sharma et al., 2015), present also in dendritic spines (Monea et al., 2006)

MMP-25 (MT6-MMP)	+†	---	+++ [#]	- Expressed in fetal rat brain (Bernal et al., 2005)
MMP-26 (matrilysin-2)	Only human protease	---	ND	
MMP-27	---†	---	--- [#]	
MMP-28 (epilysin)	---†	ND	ND	- mRNA not detected in rodent adult cortex and cerebellum (Bernal et al., 2005) - Expressed in mice in the developing and regenerating nervous system prior to myelination (Werner et al., 2007)

Table S1. Expression of different MMPs in mouse and human brain in non-pathological conditions. Only proteases present in human genome are considered. Pseudogene MMP23A is omitted. # indicates uncertain conclusion based on staining with single antibody, lack of # mark indicates testing with two or more different antibodies. ND – not determined. † indicates only single inconclusive experiment. When protein expression does not correspond to the presence of mRNA, the used antibody probably shows off-target specificity.

MMP Protease	mRNA expression in mouse brain (http://mouse.brain-map.org/)	mRNA expression in human cerebral cortex (The Human Protein Atlas)	Protein expression in human cerebral cortex (The Human Protein Atlas)	Comments and literature
ADAMTS1	---	-	-#	<ul style="list-style-type: none"> - Expressed in mouse and rat brain during development (Gunther et al., 2005) - mRNA present in adult mice hippocampus (Levy et al., 2015) - Increased expression in cortical somatostatin-positive interneurons after sensory experience (Mardinly et al., 2016)
ADAMTS2	+	+	+++	<ul style="list-style-type: none"> - Protein detected in cholecystokinin-positive cortical interneurons (Doyle et al., 2008)
ADAMTS3	---†	+	+++#	<ul style="list-style-type: none"> - Protein detected in rodent neonatal cerebellum (Sharma et al., 2015)
ADAMTS4	+++	+	+++#	<ul style="list-style-type: none"> - mRNA present in adult mice hippocampus (Levy et al., 2015) in neurons, astrocytes and oligodendrocytes (Sharma et al., 2015)
ADAMTS5	---†	---	+++#	<ul style="list-style-type: none"> - mRNA present in adult mice hippocampus (Levy et al., 2015) in neurons, astrocytes and oligodendrocytes (Sharma et al., 2015)
ADAMTS6	---†	---	---#	
ADAMTS7	---†	---	---	
ADAMTS8	---	+	+#	<ul style="list-style-type: none"> - Expressed specifically in PV positive interneurons (Rossier et al., 2015; Mardinly et al., 2016) and in cerebellar Purkinje cells (Dunn et al., 2006) - Increased expression in cortical PV interneurons after learning-related neuronal activity (Mardinly et al., 2016)

ADAMTS9	++†	+	+	- Present in developing mouse cerebral cortex (Jungers et al., 2005)
ADAMTS10	---†	+	+++#	- Expressed in the developing and adult brain (Somerville et al., 2004)
ADAMTS12	+†	+	+++#	
ADAMTS13	---†	+	++	- mRNA present in homogenates of mice brain (Cal et al., 2002; Wang et al., 2012) - Expressed in astrocytes and microglia in vitro (Tauchi et al., 2012)
ADAMTS14	---†	+	+#	- mRNA present in homogenates of mice brain (Cal et al., 2002)
ADAMTS15	---	+	ND	- Expressed specifically in PV positive interneurons (Levy et al., 2015; Rossier et al., 2015; Mardinly et al., 2016) - Present also in astrocytes (Sharma et al., 2015)
ADAMTS16	---	---	ND	- mRNA present in homogenates of mice brain (Cal et al., 2002)
ADAMTS17	+	+	ND	- Lack of mRNA in homogenates of mice brain (Cal et al., 2002)
ADAMTS18	---	+	+++#	- mRNA present in homogenates of mice brain (Cal et al., 2002; Wang et al., 2012)
ADAMTS19	+	---	ND	- Expressed in activity-dependent manner in cortex after sensory experience (Mardinly et al., 2016)
ADAMTS20	---†	ND	++	- Temporal brain expression during development (Rao et al., 2003)

Table S2. Expression of different ADAMTSs in mouse and human brain. Only proteases present in human genome are considered. # indicates uncertain conclusion based on staining with single antibody, lack of # mark indicates testing with two or more different antibodies. ND – not determined. † indicates only single inconclusive experiment. When protein expression does not correspond to the presence of mRNA, the used antibody probably shows off-target specificity.

MMP Protease	mRNA expression in mouse brain (http://mouse.brain-map.org/)	mRNA expression in human cerebral cortex (The Human Protein Atlas)	Protein expression in human cerebral cortex (The Human Protein Atlas)	Comments and literature
ADAM8 (CD 156)	---	+	+ [#]	- Protein present in neurons and oligodendrocytes (Schlomann et al., 2000) - Present in astrocytes and oligodendrocytes in vitro (Sharma et al., 2015)
ADAM9	--- [†]	+++	+++ [#] (neurons, astrocytes and neuropil)	- mRNA expressed in the hippocampus hypothalamus and in Purkinje neurons (Weskamp et al., 2002)
ADAM10	++ [†]	+	+ [#]	- Expressed in neurons in cerebral cortex, hippocampus and cerebellum (Marcinkiewicz and Seidah, 2000), present in dendritic spines (Malinverno et al., 2010) - Reviewed in (Saftig and Lichtenthaler, 2015)
ADAM12	--- [†]	+	+	- Expressed mainly in oligodendrocytes (Bernstein et al., 2004; Lendeckel et al., 2015)
ADAM15	+++ [†]	+	+++ [#] (neurons, astrocytes and neuropil)	- High expression in the whole brain (Ortiz et al., 2005)
ADAM17 (TACE)	--- [†]	+++	+++ (neuropil and neurons)	- Expressed in the whole brain, especially in neurons (Moro et al., 2003), also by oligodendrocytes in vitro (Palazuelos et al., 2014)
ADAM19	---	+	+ [#] (mainly neurons)	- Widely expressed in nearly every tissue examined (reviewed in Qi et al. (2009)) - Increased expression in cortical neurons after sensory experience (Mardinly et al., 2016)
ADAM20	Only human protease	---	--- [#]	- Not expressed in the CNS (Hooft van Huijsduijnen, 1998)

ADAM21	---†	---	---#	- Protein detected in the rodent subventricular zone (Yang et al., 2005)
ADAM28	---†	+	ND	- Not detected in the CNS (Oh et al., 2005)
ADAM30	---†	---	---#	- Expressed in neuron in human brain (Letronne et al., 2016)
ADAM33	---	+	+++#	- Expressed in the brain (Yoshinaka et al., 2002) e.g. in cortex, hippocampus and cerebellum (Gunn et al., 2002; Umland et al., 2003)
meprin α -subunit	---†	---	+	
meprin β -subunit	---†	---	---#	- Present and active in the CNS (Sterchi et al., 2008; Jefferson et al., 2011)
procollagen C-protease (Bone morphogenetic protein 1 , BMP1)	---†	+	+++#	
mammalian tolloid-like 1 protein	---	+	ND	- Abundant expression in cerebellum; present in restricted number of cells in hippocampus (Tamura et al., 2005; Sharma et al., 2015)
mammalian tolloid-like 2 protein	+†	+	ND	- mRNA detected in developing brain (Scott et al., 1999)
Astacin-like metallo-endopeptidase (ovastacin)	---†	---	+++#	
Leishmanolysin Like Peptidase	---†	+	+	- Expressed in spinal cord and striatum (Doyle et al., 2008)

Table S3. Expression of different adamalysins, astacins and leishmanolysin in mouse and human brain. Only proteases present in human genome and with proteolytic activity are considered. # indicates uncertain conclusion based on staining with single antibody, lack of # mark indicates testing with two or more different antibodies. ND – not determined. † indicates only single inconclusive experiment. When protein expression does not correspond to the presence of mRNA, the used antibody probably shows off-target specificity.

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