Study	Link:	Publication Year:	Species:	Temperature:	Brain Location (in situ vs ex situ vs other):	Initial preservation:	General microscopy method:	Immunostaining primarily:	Visualization method specifics:	Brain Region:	Cell Type:	Time Point:	Structural Feature:	Additional outcome specifier, if any:	Decomposition outcome:	Pilot Round?	Pilot Grade:	Decomposition Grade - Grader 1:	Decomposition Grade - Grader 2:	Random choice for multiple grades from grader 2:	Decomposition Grade - Grader 3:	Consensus grade:
Airaksinen 1991	https://pubmed.n	1991	Rat	2 hours at RT, then stored at 4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for histamine	Not recorded	Not recorded	48 hours	General cell membrane	0 hour PMI controls were perfusion fixed, compared to immersion fixed brains after the PMI.	"The number of histamine-IR cell bodies found in rats RI and R2 was the same as in the perfusion-fixed controls. **Most of the cell bodies were strongly immunoreactive,** whereas some of the cells (about 20%) were moderately immunoreactive, while still **clearly visible against the immunonegative background** (data not shown). The pattern of histamine-IR fibers in the rats RI and R2 was similar, and **like that in the perfusion-fixed controls.**"	No	NA	1	0	0	NA	0
Anderson 1996	https://pubmed.n	1996	Human	Room temperature	Ex situ, in a humified chamber	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for terminal deoxynucleotidyl transferase (tdt)	Frontal cortex	Neuron	24 hours	General cell membrane		"At 24 hr PMD, **a large increase in the number of TdT-positive cells and dense process staining was evident. Numerous large and small accumulations of TdT labeling were present in the neuropil**. These areas could reflect TdT labeling attributable to **cell lysis,** caused by either **postmortem necrosis or secondary necrosis in apoptotic cells**. At this time point, the quality of cellular TdT labeling appeared more **homogeneous and agranular or diffuse than that observed earlier, although what we have termed apoptotic-like nuclei based on morphological characteristics were still present.** Many of the labeled pyramidal-type cells in layers III and V appeared to be **increased in size.**" Also Figure 5.	No	NA	1	2-3	2	NA	2
Ansari 1975	https://pubmed.n	1975	Cow	23°C	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Occipital lobe	Oligodendrocyte	24 hours	Myelin		"Electron micrograph from unfrozen bovine brain incubated for 24 h at 23°C showing **abundant dense-line material and mostly compact myelin lamellae.** There is, however, **spotty lamellar separation (arrow),** a feature not seen in the uninicubated material." Also Figure 5.	No	NA	1	1	1	NA	1
Ansari 1976b	https://pubmed.n	1976	Human	Room temperature	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	White matter	Oligodendrocyte	2 hours	Myelin		"On electron microscopic examination, white matter that was incubated for 2 h at room temperature prior to fixation, showed **sporadic areas of lamellar separation, a feature not seen in the uninicubated material.** This lamellar separation was similar to but not as extensive as that described earlier in white matter obtained at autopsy performed 8 h after death (2). No lamellar fragmentation or morphological alteration in dense-line material that could be attributed to incubation was seen." ... "Electron microscopic examination of the surgical material that was incubated for 2 h showed **lamellar separation along the interperiod line but no accompanying lamellar fragmentation was detected.** These findings are similar to those described in uninicubated autopsy material (2). In this autopsy material that showed lamellar separation but no lamellar fragmentation, subsequent incubations **did not result in any detectable loss of BP.** These observations with surgical and autopsy material would lend support to the postulated location of BP along the cytoplasmic surface of myelin lamellae (9). BP located in this area would not be exposed to extracellular acid proteinases by lamellar separation alone. An actual break in the continuity of myelin lamellae would be necessary in order for the proteinases to gain access to BP in this location."	No	NA	1	1	1	NA	1
Arsénio-Nunes 1973	https://pubmed.n	1973	Cat	Room temperature	In situ	Perfusion fixation	Electron microscopy	No	Morphological staining with osmium and uranyl acetate	Sensorimotor cortex	Multiple or no clear focus	30 minutes	General cell membrane		"At the end of cerebral ischaemia of 30 min, the most preeminent finding was a considerable **enlargement of both glial and neuronal processes in the molecular layer (Fig.2a).** In spite of the swelling, the **mitochondria, the myelin sheaths and the synapses were intact.** An **occasional swelling** of some processes of the neuropil was also observed in the other areas of the cortex, but these alterations were much less pronounced than in the molecular layer". At 90 minutes PMI, **severe swelling of astrocyte processes** in the molecular and second layer. "In the animals without blood recirculation after ischaemia a **severe swelling of cell processes** in the molecular (Fig.6a) and the second layer was observed. In contrast to ischaemia of 30 min, the **mitochondria were frequently damaged**. They appeared to be swollen and in some of them, the intramitochondrial cristae were broken. In the other layers of the cortex, **swelling of the perikarya of the astrocytes and their perivascular processes**, and of the profiles in the neuropil was frequently encountered. **The neurons, on the other hand, were relatively preserved**; the only change being an enlargement of the endoplasmic reticulum. The capillaries including the basement membrane were generally intact, and pinocytic vesicles were less frequently encountered than at the end of 30 min of ischaemia." Also Figure 3a and Figure 6a.	No	NA	1	1	1	NA	1
Arsénio-Nunes 1973	https://pubmed.n	1973	Cat	Room temperature	In situ	Perfusion fixation	Electron microscopy	No	Morphological staining with osmium and uranyl acetate	Sensorimotor cortex	Multiple or no clear focus	90 minutes	Capillaries		"The capillaries including the basemtnane were **generally intact**, and pinocytic vesicles were less frequently encountered than at the end of 30 min of ischaemia."	No	NA	1	1	1	NA	1
Arslan 2004	https://pubmed.n	2004	Multiple mammalian species	Room temperature	Ex situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin	Not recorded	Multiple or no clear focus	168 hours	General cell membrane		"The degree of autolysis observed in the brain tissues that had been stored at room temperature for two, four or seven days was slight, moderate and severe; **in the tissues stored for seven days the neurons and other structural components, such as glial cells and vessels, were completely lysed**"	No	NA	3	3	3	NA	3
Averback 1980	https://pubmed.n	1980	Rat	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Morphologically stained with thionin	Cerebellum	Granule cell	2 hours	Cell counts		Per Table, 2 hours is the first time point at which there **appears to be a significant decrease in measured granule cell counts.** "As depicted in the fig., measured cell densities have a clear relation with logarithm of time over the first 24 hr. **The mean cellular sectional area shows no significant trend over time; likewise the thickness of the boundaries of the granule cell layer is not diminished after 21 hr** (table)." ... "Within the 18-40°C range, in-situ and in-vitro preparations of human and rat show **no difference in effect or time trend** (Averback, unpublished observations)"	No	NA	3	2	2	NA	2
Averback 1980	https://pubmed.n	1980	Rat	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Morphologically stained with thionin	Cerebellum	Purkinje cell	24 hours	General cell membrane		"Purkinje cells show **advanced degeneration after 24 hr**, but serial measurements on all detected tangential patches reveal **no evidence of disappearance.**"	No	NA	2	2	2	NA	2
Babb 1988	https://pubmed.n	1988	Rat	Room temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for GAD (Glutamate Decarboxylase)	Hippocampus	Neuron	4 hours	General cell membrane		"GAD molecules apparently **diffused into cell bodies, axons, and dendrites,** where GAD is not so fully distributed". Also Figure 2.	No	NA	2	1	1	NA	1
Babb 1988	https://pubmed.n	1988	Rat	Room temperature	In situ	Immersion fixation	Electron microscopy	Yes, immunostaining primarily	Immunostaining for GAD along with osmium tetroxide staining	Hippocampus	Neuron	30 minutes	Synapse		"Note that even with a 30-minute delay after death and immersion fixation, there is **preservation of GAD-IR mitochondria, vesicles, and cytoplasmic organelles** comparable to those with intravital perfusion fixation". Also Figure 5.	No	NA	0	0	0	NA	0
Badonić 1992	https://europepm	1992	Dog	Not recorded	In situ	Not recorded	Light microscopy	No	Stained with 1% methylene blue	Frontal cortex	Neuron	3 hours	General cell membrane		"In the material of experimental animals **some changes could be observed after 3 hours in the half-thin slices**. These changes are typical for common autolysis. In the cells the nuclei and nucleoli were present, too. However, the nuclei were obviously **hyperchromatic and homogenous.** In the neuroplasm there were **small isolated vacuoles**, yet granules of the Nissl substance could not be identified (Fig. 2), certain **"triangulation" of some neurons** could be observed as well. **Light artificial spaces were visible** around the neurons."	No	NA	2	1	1	NA	1
Blair 2016	https://pubmed.n	2016	Human	After autopsy, 4°C	Ex situ	Immersion fixation	Light microscopy	No	Nissl stain (cresyl violet)	Hippocampus	Neuron	46.5 hours	General cell membrane	Median longest PMI across the case series.	"Morphologically, **minimal tissues or cellular changes are noted with increased PMI by Nissl stain** ... The tissue samples fixed after the initial PMI and then up to an additional 49 h at 4°C exhibited **no striking changes in neuronal morphology using routine Nissl stain**"	No	NA	0	0	0	NA	0
Blair 2016	https://pubmed.n	2016	Human	After autopsy, 4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for NeuN	Hippocampus	Neuron	46.5 hours	General cell membrane	Median longest PMI across the case series.	"Immunostaining Case E shows that **both pyramidal neurons and dentate gyrus neurons show the expected neuronal localization of NeuN at all PMI times**... the variation of NeuN immunostaining and immiblotting between the two cases shown in Fig 1 likely represent individual patient variability and disease state, and not PMI, as has been suggested previously"	No	NA	0	0	0	NA	0
Blair 2016	https://pubmed.n	2016	Human	After autopsy, 4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for α-tubulin	Hippocampus	Neuron	46.5 hours	Axon	Median longest PMI across the case series.	"**Axonal processes of neurons remained immunoreactive for α-tubulin after 48 h in 3/6 cases (Fig 2A)**, and neurofilament proteins were still readily detectable with extended PMI, though some loss of intensity is apparent ... Neuronal cell bodies and processes are immunostained using antibodies to alpha tubulin and neurofilament proteins even at longer PMI times"	No	NA	1	0-1	1	NA	1
Blair 2016	https://pubmed.n	2016	Human	After autopsy, 4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for neurofilament	Hippocampus	Neuron	46.5 hours	Axon	Median longest PMI across the case series.	"Axonal processes of neurons remained immunoreactive for α-tubulin after 48 h in 3/6 cases (Fig 2A), and **neurofilament proteins were still readily detectable** with extended PMI, though some **loss of intensity is apparent ...** Neuronal cell bodies and processes are immunostained using antibodies to alpha tubulin and neurofilament proteins even at longer PMI times"	No	NA	1	1	1	NA	1
Blair 2016	https://pubmed.n	2016	Human	After autopsy, 4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for GFAP	Hippocampus	Astrocyte	46.5 hours	General cell membrane	Median longest PMI across the case series.	"GFAP is one of the common markers for astrocytosis. Immunocytochemistry with a GFAP antibody **did not show significant changes** in astrocyte staining with increased PMI... For instance, **GFAP, a marker protein for astrocytes, is unaffected by increased PMI.**"	No	NA	0	0	0	NA	0
Blair 2016	https://pubmed.n	2016	Human	After autopsy, 4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for collagen IV	Hippocampus	Endothelial cell	46.5 hours	Basement membrane	Median longest PMI across the case series.	"In addition, an antibody to collagen IV showed **equivalent staining intensity of vessels even at the longest PMI...** Overall tissue morphology is maintained such that **neuronal structures and the vasculature are not disrupted.**"	No	NA	0	0	0	NA	0
Boekhoorn 2006	https://pubmed.n	2006	Rat	Room temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for doublecortin	Hippocampus	Neuron	1 hour	Dendrite		"In tissue obtained from perfused brains, DCX IR was strongly expressed throughout the SGZ, where it extensively labeled neuronal cell bodies as well as their dendrites (Fig. 8B), traversing the GCL and reaching into the molecular layer (Fig. 8A). **After 1 h of PMD, a clear reduction was already apparent in DCX IR. The reduction was particularly apparent in the dendritic component (Figs. 8C, D and F), showing further progression with increased PMD**. Furthermore, **weaker soma staining** was detectable (Figs. 8D and G) at 8 and 12 h of PMD"	No	NA	2	1	1	NA	1
Boekhoorn 2006	https://pubmed.n	2006	Rat	Room temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for doublecortin	Hippocampus	Neuron	8 hours	Dendrite		"Representative illustration of a DCX-positive neuron in the rat dentate gyrus (immersion fixed) after a 1 h postmortem delay. A**prominent reduction in immunoreactivity** is apparent, not only in the soma, but even more so in the dendrites. (D) DCX immunoreactivity of a rat brain with a PMD of 8 h, **showing only some DCX staining of the soma (arrows) remaining in the GCL, yet very little, if any, dendritic staining remains present.**""	No	NA	3	2	2	NA	2
Boekhoorn 2006	https://pubmed.n	2006	Rat	Room temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for doublecortin	Hippocampus	Neuron	1 hour	Soma		"In tissue obtained from perfused brains, DCX IR was strongly expressed throughout the SGZ, where it extensively labeled neuronal cell bodies as well as their dendrites (Fig. 8B), traversing the GCL and reaching into the molecular layer (Fig. 8A). After **1 h of PMD, a clear reduction** was already apparent in DCX IR. The reduction was particularly apparent in the dendritic component (Figs. 8C, D and F), showing further progression with increased PMD. Furthermore, **weaker soma staining was detectable (Figs. 8D and G) at 8 and 12 h of PMD**"	No	NA	1	1	1	NA	1
Boekhoorn 2006	https://pubmed.n	2006	Rat	Room temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for doublecortin	Hippocampus	Neuron	12 hours	Soma		"**At 12 h PMD, DCX soma staining is very weak** in rat brain, while an additional, granular staining pattern is apparent in the SGZ and hilus (arrows). "	No	NA	2	2	2	NA	2
Boekhoorn 2006	https://pubmed.n	2006	Rat	Room temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for doublecortin	Hippocampus	Neuron	44 hours	Soma		"**At 12 h of PMD**, most DCX-positive cells in the SGZ had **further shrunken in size**, whereas **a smaller amount of cells was detectable at a PMD of 44 h**."	No	NA	3	2-3	2	NA	2
Bywater 1962	https://pubmed.n	1962	Rhesus monkey	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Silver staining	Multiple or no clear focus	Multiple or no clear focus	20 minutes	General cell membrane		"On the other hand it must be emphasized that perfusion should always be attempted, and that perfusion **20 minutes after death** shows only **minute** changes and is **hardly distinguishable** from material perfused immediately (after death). It proves that the changes which must occur within the first 20 minutes are at **submicroscopical** level for they can be revealed with the electron microscope but are **not yet discernible** with our ordinary methods of microscopy."	No	NA	0	0	0	NA	0
Bywater 1962	https://pubmed.n	1962	Rhesus monkey	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Silver staining	Multiple or no clear focus	Multiple or no clear focus	1 hour	General cell membrane		"For practical reasons it must be emphasized that a **post mortem interval of 1 hour** followed by perfusion shows such **artefacts which are comparable to those found in material immersed immediately after death.**" ... "The difference between perfused and immersed material is very **obvious** due to the **considerable shrinkage of neurons** which in turn leads to a **heavy impregnation of the cell** and the appearance of a pericellular space. This in turn causes the **retraction of the cell body** from pericellular structures which **makes synaptic studies difficult to execute**. The differences of neuronal structure when perfused or immersed can be easily judged when comparing Fig. 5 with Fig. 3. Fig.5 exhibits too-heavily impregnated motor neurons, wide pericellular spaces and the detachment of pericellular structures, and the concave outline of the cell is clearly shown."	No	NA	1	1	1	NA	1
Bywater 1962	https://pubmed.n	1962	Rhesus monkey	Room temperature	In situ	Immersion fixation	Light microscopy	No	Silver staining	Multiple or no clear focus	Multiple or no clear focus	4.5 hours	General cell membrane		"Figs 6 & 7 illustrate the **progress in autolytic changes** caused by a post mortem interval of 4.5 hours. At this stage **gross distortion of naurons, large pericellular spaces** and the occurence of **vacuoles** inside the cell are striking." ... "Showing **shrinkage of Betz cells** (left), and of a ventral horn cell (right). At this stage the **dendrites begin to curl up in a corkscrow manner**". Also Figure 7	No	NA	2	3	3	NA	3
Cammermeyer 1978	https://pubmed.n	1978	Multiple species, including rat, rabbit, cat, dog, and monkey	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Multiple morphological stains	Multiple or no clear focus	Neuron	5 minutes	General cell membrane		"The flow of an adequate amount of saline to flush the blood vessels, as judged by the clear appearance of the fluid escaping from the right auricle, takes approximately one minute, and the flow time for Bouin's solution is a little longer. Under these circumstances the entire procedure is terminated in 3-5 rain. If the time of action of the fixative is delayed, **numerous solitary dark neurons may develop,** as observed when the flow of saline is delayed 5 or 10 min intentionally, or it is prolonged because of **obstruction of blood vessels with air emboli, lowering of the perfusion bottles, or introduction of excessive amounts of saline.**"	No	NA	2	1	1	NA	1
Choe 1995	https://pubmed.n	1995	Dog	Not recorded	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Ventral anterior nucleus of the thalamus	Neuron	1 hour	General cell membrane		"Electron microscopic findings 1 hour after death included (Figure 6) **nuclear pyknosis and perikaryal condensation, undulatory nuclear membrane, several cytoplasmic vacuoles, swollen mitochondria, and dilated endoplasmic reticulum.**"	No	NA	1	1	1	NA	1
Choe 1995	https://pubmed.n	1995	Dog	Not recorded	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Ventral anterior nucleus of the thalamus	Neuron	24 hours	General cell membrane		"Cytoplasm was filled with very **large vacuoles. Cellular organelles were destroyed completely**." Also Figure 8	No	NA	2	2	2	NA	2
Choe 1995	https://pubmed.n	1995	Dog	Not recorded	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Ventral anterior nucleus of the thalamus	Neuron	1 hour	Myelin		"The **myelin sheaths appeared to be irregular, with concentric unravelling**"	No	NA	1	1	1	NA	1

Study	Link:	Publication Year:	Species:	Temperature:	Brain Location (in situ vs ex situ vs other):	Initial preservation:	General microscopy method:	Immunostaining primarily:	Visualization method specifics:	Brain Region:	Cell Type:	Time Point:	Structural Feature:	Additional outcome specifier, if any:	Decomposition outcome:	Pilot Round?	Pilot Grade:	Decomposition Grade - Grader 1:	Decomposition Grade - Grader 2:	Random choice for multiple grades from grader 2:	Decomposition Grade - Grader 3:	Consensus grade:
Choe 1995	https://pubmed.n	1995	Dog	Not recorded	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Ventral anterior nucleus of the thalamus	Neuron	24 hours	Myelin		"Myelin sheaths show **wide areas of network-like formations with marked degeneration.**" Also Figure 8	No	NA	2	3	3	NA	3
D'Andrea 2017	https://pubmed.n	2017	Rat	4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for MAP2	Cerebrum	Neuron	2 hours	General cell membrane		"Arrows shows MAP2-positive neurons without apparent MAP2-positive dendritic processes."... "By contrast to the radial orientation of the MAP2-positive neuronal dendrites in the routinely fixed cortical rat brains (Fig. 1), the **patterns of the MAP2 immunolabeling in the under-fixed and delayed-fixed cortical rat brains lacked normal cortical architecture** (Figs. 2 and 3); the **neurons appeared degenerative** and extended MAP2-positive processes were absent. Some of the neurons had prominent MAP2 immunolabeling in the perikaryon as if the **MAP2 that was in the extended dendritic processes had relocated to the cell body** (arrows). The neurons also appeared **detached from each other** to form isolated cells **surrounded by empty spaces.** We also assessed the average intensity of MAP2 immunolabeling using a semiquantitative scoring system (Fig. 4). The average intensity of MAP2 immunolabeling in the fixed tissues was moderate to strong (2.5–3.0) and relatively consistent. By contrast, the **average intensity of MAP2 immunolabeling in the unfixed and delayed-fixed tissues was negative to weak.**" Also Figure 3	No	NA	3	2	2	NA	2
D'Andrea 2017	https://pubmed.n	2017	Rat	4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for MBP	Cerebrum	Oligodendrocyte	48 hours	General cell membrane		"By contrast to our observations for MAP2, the **distribution and intensity of the MBP appeared to be unaffected by the various fixation conditions.**" ... "Moderate to strong MBP immunolabeling was detected consistently in all immediately fixed, unfixed, and delayed-fixed tissues. We observed similar results for GFAP immunolabeling in the same CNS tissues (data not shown)." Also Figure 7	No	NA	0	0	0	NA	0
D'Andrea 2017	https://pubmed.n	2017	Rat	4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for GFAP	Cerebrum	Astrocyte	48 hours	General cell membrane		"By contrast to our observations for MAP2, the distribution and intensity of the MBP appeared to be unaffected by the various fixation conditions." ... "Moderate to strong MBP immunolabeling was detected consistently in all immediately fixed, unfixed, and delayed-fixed tissues. We **observed similar results for GFAP immunolabeling in the same CNS tissues** (data not shown)."	No	NA	0	0	0	NA	0
Dachet 2021	https://pubmed.n	2021	Human	24°C	Ex situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin	Temporal lobe	Neuron	2 hours	General cell membrane		"At 2 h, we observed a **decrease of nuclear staining for NeuN** and neuronal **swelling**." Also Figure 4	Yes	1	1	NA	NA	NA	1
Dachet 2021	https://pubmed.n	2021	Human	24°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for NeuN	Temporal lobe	Neuron	24 hours	General cell membrane		"Between 4–8 h a majority of the neurons were swollen with a marked reduction in nuclear NeuN staining and by 12 h the neurons demonstrated loss of nuclear detail on H&E and NeuN staining was markedly reduced. **At 24 h staining by NeuN showed that a majority of neurons were degraded.**" Also Figure 4	Yes	3	3	NA	NA	NA	3
Dachet 2021	https://pubmed.n	2021	Human	24°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for CD68	Temporal lobe	Microglia	12 hours	Microglia process		"[B]etween 2–4 h **microglia became activated** with **increased process outgrowth** peaking at 12 h." Also Figure 4	Yes	2	2	NA	NA	NA	2
Dachet 2021	https://pubmed.n	2021	Human	24°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for GFAP	Temporal lobe	Astrocyte	12 hours	Astrocyte process		"In parallel, astrocytes stained with GFAP remained small and non-reactive until 4 h with non-overlapping processes after which GFAP showed a **highly heterogeneous staining pattern** suggesting that some **astrocytes were undergoing an outgrowth of processes that continued through 12 h**". Also Figure 4	Yes	2	2	NA	NA	NA	2
Dachet 2021	https://pubmed.n	2021	Human	24°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for GFAP	Temporal lobe	Astrocyte	24 hours	General cell membrane		"At 24 H, small GFAP-positive nodules measuring roughly 5 μm in diameter were seen and **astrocyte cell bodies were no longer identifiable** compatible with protein degradation observed in previous studies". Also Figure 4	Yes	3	3	NA	NA	NA	3
De Groot 1995	https://pubmed.n	1995	Rat	6 hours at room temperature, then stored at 4°C for the remainder of the time	In situ	Immersion fixation	Light microscopy	No	Hematoxylin and eosin stain	Cerebral and cerebellar brain regions	Multiple or no clear focus	6 hours	Blood vessels		"**Retraction artifacts** appeared around blood vessels after a PMD of 6 h, around the perikarya of neurons in the cerebral cortex and around the cells of Purkinje in the cerebellar cortex at PMDs 12 h and 18 h"	No	NA	1	1	1	NA	1
De Groot 1995	https://pubmed.n	1995	Rat	6 hours at room temperature, then stored at 4°C for the remainder of the time	In situ	Immersion fixation	Light microscopy	No	Hematoxylin and eosin stain	Cerebral cortex	Neuron	12 hours	General cell membrane		"Retraction artifacts appeared around blood vessels after a PMD of 6 h, around the **perikarya of neurons in the cerebral cortex** and around the cells of Purkinje in the cerebellar cortex **at PMDs 12 h and 18 h**"	No	NA	1	1	1	NA	1
De Groot 1995	https://pubmed.n	1995	Rat	6 hours at room temperature, then stored at 4°C for the remainder of the time	In situ	Immersion fixation	Light microscopy	No	Hematoxylin and eosin stain	Cerebellar cortex	Purkinje cell	18 hours	General cell membrane		"Retraction artifacts appeared around blood vessels after a PMD of 6 h, around the perikarya of neurons in the cerebral cortex and **around the cells of Purkinje in the cerebellar cortex at PMDs 12 h and 18 h**"	No	NA	1	1	1	NA	1
De Groot 1995	https://pubmed.n	1995	Rat	6 hours at room temperature, then stored at 4°C for the remainder of the time	In situ	Freezing	Light microscopy	Yes, immunostaining primarily	Immunostaining for GFAP	Cerebral and cerebellar brain regions	Astrocyte	12 hours	Bergmann fibers		"Using GFAP as a marker to identify astrocytes, it appeared that, after a PMD of 12 h, **the tissue structure of the grey matter of the cerebellum and cerebrum was noticeably damaged.** In the **cerebellar molecular layer the thin, parallel, straight, radially arranged GFAP-positive Bergmann fibers were frequently interrupted.** Not all GFAP-positive fibers projected to the leptomeninges anymore." ... **"Radial glia in the grey matter of the cerebellum were frequently interrupted."** ... "Nevertheless, with increasing PMD intervals the quality of the cell and tissue structure was **still sufficient for effective immunohistochemical characterization."**	No	NA	3	2	2	NA	2
De Groot 1995	https://pubmed.n	1995	Rat	6 hours at room temperature, then stored at 4°C for the remainder of the time	In situ	Freezing	Light microscopy	Yes, immunostaining primarily	Immunostaining for GFAP	Cerebral and cerebellar brain regions	Astrocyte	18 hours	Stellate fibrous astrocytes		"On the other hand, the **fibrous astrocytes that are located in the white matter and the cerebellar granular layer kept their stellate, process-bearing morphology at all investigated PMDs**" ... "Intensely stained GFAP-positive fibrous astrocytes after a PMD of 18 h that kept their stellate-process-bearing morphology" Also Figure 2	No	NA	0	0	0	NA	0
De Groot 1995	https://pubmed.n	1995	Rat	6 hours at room temperature, then stored at 4°C for the remainder of the time	In situ	Freezing	Light microscopy	Yes, immunostaining primarily	Immunostaining for ED1	Cerebral and cerebellar brain regions	Multiple or no clear focus	12 hours	Blood vessels		"Furthermore, **basal laminae of several blood vessels and leptomeninges were separated from the adjacent brain parenchyma and retraction artifacts arise with a PMD longer than 6 h** ... immunohistochemical staining for ED1 of a frozen section from the cerebellum of a rat with acute EAE after a PMD of 12 h. Intensely stained ED1-positive brain macrophages (thick arrows) in a perivascular infiltrate of which the basal lamina was separated from the adjacent white matter (WM)"	No	NA	1	1	1	NA	1
De Groot 1995	https://pubmed.n	1995	Rat	6 hours at room temperature, then stored at 4°C for the remainder of the time	In situ	Freezing	Light microscopy	Yes, immunostaining primarily	Immunostaining for ED1	Cerebral and cerebellar brain regions	Inflammatory cell	18 hours	Inflammatory cells		"The morphology of the inflammatory cells was **not markedly changed** with increasing PMD intervals."	No	NA	0	0	0	NA	0
de Ruiter 1983	https://pubmed.n	1983	Guinea pig	4°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain, rapid Golgi silver impregnation	Neocortex	Medium to large layer V pyramidal neurons	1.5 hours	Dendrite		"We found a **reduction in the density of spines from 1.5 h postmortem**. The total length of the basal dendritic tree **appeared to be reduced from 4 h postmortem**. Our results were in full accordance with the description of Williams et al. in morphological respects (Fig. 3), making it possible to relate their results to our figures. Our supposition that the spine is the structure most susceptible to fixation delay was confirmed. The **length of the arborization** is also susceptible to fixation delay. The **dendritic tree shows not only morphological change, but also partial impregnation.** When changes in shape are found, counting of spines or measuring the length of the dendritic tree must be considered unreliable."	No	NA	3	1	1	3	3
De Santis 2020	https://pubmed.n	2020	Rat	Not recorded	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for pCREB	Cerebral cortex	Multiple or no clear focus	24 hours	General cell membrane		"Moreover, in brain hemispheres fixed by immersion with a postmortem delay of 24-48 hours, **pCREB immunoreactivity was scarce**. In fact, scattered labeled neurons were **limited to the superficial layers**, whereas meningeal and glial cells were the most consistent findings (Figure 1D)." ... "Section from perfused animal (B) shows an intense pCREB ir in neuronal nuclei in all cortical layers, while sections from brain fixed by immersion immediately (C) and after 24 h from the sacrifice (D) highlight **the dramatic reduction of ir and the appearance of labeled meningeal and glial cells**" ... "Moreover, a **progressive decrease of staining with residual labeled cells only in the superficial cortical layers and few scattered glial cells was observed when fixation (by immersion) was delayed at 24 and 48 hours after animal sacrifice**." Also Figure 1C	No	NA	3	1-2	2	NA	2
de Siqueira 2016	https://pubmed.n	2016	Rat	25°C (buried in soil)	In situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin	Not recorded	Neuron	24 hours	General cell membrane		"Histopathological analysis of the brains of the exhumed animals that were experimentally exposed to aldicarb revealed **congestion and hemorrhaging in the meninges and brain, maintenance of the integrities of blood cells and neurons, and discrete tissue autolysis within 24 h post-mortem.** At 3 days post-mortem, autolysis and neuronal degeneration were present."	No	NA	1	2	2	NA	2
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Multiple or no clear focus	13.5 hours	General cell membrane	Higher storage temperature	"Some images looked better than the 9.0-hour images" ... "Cytoplasm has **large vacuoles** and appearance of **empty "ghost" structures**"	No	NA	2	1	1	NA	1
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Multiple or no clear focus	21 hours	General cell membrane	Higher storage temperature	"There was **progressive damage to membranes**" ... "The damage to cell membranes increased with ischemic duration. Pronounced loss of structure only appeared to be present in the 36- and 81-hour normothermic ischemia images." [Implying that pronounced loss of structure was not present at 21 hours.]	No	NA	2	1	1	NA	1
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Multiple or no clear focus	81 hours	General cell membrane	Higher storage temperature	**"Intensified osmiophilia, membrane rupture, decomposition of organelles, and large edematous areas."** ... "Fragments of cell membranes **remained recognizable.** There was extensive **lysis** of mitochondria and leaking of internal structure... Many areas appeared flooded and lacked recognizable structure." ... **"Near-complete disintegration of structure** appeared to occur after several days at normothermic temperatures but took several months at 0°C."	No	NA	3	3	3	NA	3
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Neuron	3.86 hours	Synapse	Higher storage temperature	"Synapses were **still identified**"	No	NA	0	0	0	NA	0
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Neuron	6 hours	Synapse	Higher storage temperature	This is listed as the time point of "**synapse degradation**" in Table 2.	No	NA	1	1	1	NA	1
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Neuron	13.5 hours	Synapse	Higher storage temperature	This is listed as the time point distinguishing the end of "Clear distinction between pre and postsynaptic structures **replaced by dark, blurry, synaptic clefts** (normothermic ischemia)" in Figure 4.	No	NA	2	1	1	NA	1
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Neuron	21 hours	Synapse	Higher storage temperature	"The increase of dispersed electron-dense areas made it **more difficult to distinguish between synaptic and nonsynaptic adjacent structures.**"	No	NA	3	2	2	NA	2
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Oligodendrocyte	3.86 hours	Myelin	Higher storage temperature	"Some **thinning of the myelin sheaths** was seen."	No	NA	1	1	1	NA	1
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Oligodendrocyte	13.5 hours	Myelin	Higher storage temperature	"Myelin sheaths remained **recognizable in general, but some were thinner and unraveled.**" ... "Unraveling of myelin sheaths". Also Figure S7.	No	NA	1	1-2	2	NA	1
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Oligodendrocyte	21 hours	Myelin	Higher storage temperature	"An increasing number of myelin sheaths **lacked definition and some had exterior damage.**"	No	NA	2	2	2	NA	2
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Oligodendrocyte	81 hours	Myelin	Higher storage temperature	"Myelin sheaths were in **advanced states of unraveling**" ... "unwinding of myelin sheaths."	No	NA	3	3	3	NA	3
de Wolf 2020	https://pubmed.n	2020	Rat	0°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Multiple or no clear focus	72 hours	General cell membrane	Lower storage temperature	"Increased **cytoplasm fragmentation** with **vacuoles, pale nuclei**, and organelles." Also Figure S13.	No	NA	1	1	1	NA	1
de Wolf 2020	https://pubmed.n	2020	Rat	0°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Multiple or no clear focus	1460 hours	General cell membrane	Lower storage temperature	Time point listed as "**Advanced Necrosis**" in Table 2... "General **loss of structure, membrane, and myelin decomposition.**" ... "Structural integrity of mitochondria, myelinated axons, and cell nucleus was variable with **some mostly intact and others in advanced states of disintegration**. The variation was such that some 2-month images showed more structure than the 1-month images."	No	NA	3	3	3	NA	3
de Wolf 2020	https://pubmed.n	2020	Rat	0°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Neuron	24 hours	Synapse	Lower storage temperature	"Organelles, nuclei, nucleoli, axons, and synapses were still **recognized without difficulty.**"	No	NA	1	0	0	NA	0

Study	Link:	Publication Year:	Species:	Temperature:	Brain Location (in situ vs ex situ vs other):	Initial preservation:	General microscopy method:	Immunostaining primarily:	Visualization method specifics:	Brain Region:	Cell Type:	Time Point:	Structural Feature:	Additional outcome specifier, if any:	Decomposition outcome:	Pilot Round?	Pilot Grade:	Decomposition Grade - Grader 1:	Decomposition Grade - Grader 2:	Random choice for multiple grades from grader 2:	Decomposition Grade - Grader 3:	Consensus grade:
de Wolf 2020	https://pubmed.n	2020	Rat	0°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Neuron	48 hours	Synapse	Lower storage temperature	"Synapses and axons **remained visible.**"	No	NA	1	0	0	NA	0
de Wolf 2020	https://pubmed.n	2020	Rat	0°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Neuron	168 hours	Synapse	Lower storage temperature	"Synapses were **difficult to detect.**" Time point of **"Synapse Degradation"** in Table 2.	No	NA	3	2	2	NA	2
de Wolf 2020	https://pubmed.n	2020	Rat	0°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Oligodendrocyte	168 hours	Myelin	Lower storage temperature	"In many of the images, the myelin sheaths were **dark and well defined.**"	No	NA	1	0	0	NA	0
de Wolf 2020	https://pubmed.n	2020	Rat	0°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Oligodendrocyte	336 hours	Myelin	Lower storage temperature	"**Washed out myelin** sheaths and extensive **edema** around capillaries were observed." Time point of **"Myelin Fragmentation"** in Table 2.	No	NA	2	2	2	NA	2
de Wolf 2020	https://pubmed.n	2020	Rat	0°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Oligodendrocyte	730 hours	Myelin	Lower storage temperature	"There was a sharp **decrease in recognizable myelin** sheaths."	No	NA	3	3	3	NA	3
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Multiple or no clear focus	6 hours	General cell membrane	Higher storage temperature	"General membrane **damage started to appear**"	No	NA	1	0	0	NA	0
de Wolf 2020	https://pubmed.n	2020	Rat	37°C	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Frontal cortex	Multiple or no clear focus	9 hours	General cell membrane	Higher storage temperature	"Membrane **damage became more pronounced**" ... "Cytoplasm has large **vacuoles** and appearance of **empty "ghost" structures**"	No	NA	2	1	1	NA	1
Dixon 1964	https://pubmed.n	1964	Rabbit	36.5°C	In situ	Immersion fixation	Light microscopy	No	Multiple complex methods of rolling, fixation, and staining	Cerebellar vermis	Multiple or no clear focus	5 hours	Myelinated axon		"**Well preserved myelinated nerve fibres are visible** in rolled films of cerebellum. Incubation up to 5 hrs post mortem causes **no detectable disintegration in the structure of the fibres**. In fact, films of incubated cerebellum stained by ES provide clearer preparations for the demonstration of nerve fibres than similar films from fresh tissue."	No	NA	0	0	0	NA	0
Dixon 1964	https://pubmed.n	1964	Rabbit	36.5°C	In situ	Immersion fixation	Light microscopy	No	Multiple complex methods of rolling, fixation, and staining	Cerebellar vermis	Purkinje cell	5 hours	General cell membrane		**Intact contour of Purkinje cells**, which is easier to visualize in the postmortem tissue, potentially due to softening of the cell. "Films from incubated dead animals stained by ES-PFM differ from similarly stained fresh films in their constant content of **well defined Purkinje cells.** Fig. 3 d shows a sharply contoured Purkinje cell with a prominent apical dendrite in a film from the cerebellum of a rabbit kept at 37– for 5 hrs after death." ... "The spectacular appearance of sharply defined Purkinje cells in the films strikingly differentiates dying cerebellum from the fresh tissue."	No	NA	0	0	0	NA	0
Eggan 2007	https://pubmed.n	2007	Macaque monkey	0°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for CB1	Neocortex	Neuron	24 hours	Axon		"High-power, brightfield photomicrographs of CB1-IR axons in layer 5 of monkey (A, B) and human (C) prefrontal cortex area 46 demonstrating the effect of PMI on axon morphology. (A) In a perfused monkey with no PMI, CB1-IR boutons are relatively small, and the axons have distinct intervaricose axon segments. (B) **In a nonperfused monkey after a 24-h PMI, boutons appear larger and intervaricose axon segments less well defined.**" ... "These morphological differences appeared to reflect a postmortem effect. In unperfused monkey tissue with different postmortem delays before fixation, the **intervaricose segments of CB1-IR axons became less distinct and boutons became more swollen with longer delays".** Also Figure 13.	No	NA	1	1	1	NA	1
Finnie 2016	https://pubmed.n	2016	Mouse	23°C	In situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin; immunostaining for NFP, GFAP, and IBA1	Cerebellar cortex	Purkinje cell	16 hours	General cell membrane		"Purkinje cells resemble those in brains fixed immediately after death."	No	NA	0	0	0	NA	0
Finnie 2016	https://pubmed.n	2016	Mouse	23°C	In situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin; immunostaining for NFP, GFAP, and IBA1	Cerebellar cortex	Purkinje cell	72 hours	General cell membrane		"A few Purkinje cells show **cytoplasmic microvacuolation or cytoplasmic shrinkage** and nuclear hyperchromasia"	No	NA	1	1	1	NA	1
Finnie 2016	https://pubmed.n	2016	Mouse	23°C	In situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin; immunostaining for NFP, GFAP, and IBA1	Cerebellar cortex	Granule cells	96 hours	General cell membrane		"Granular layer is much **less compact with pyknotic/karyorrhectic nuclei** widely separated by **clear, non-staining spaces.**"	No	NA	3	1	1	3	3
Finnie 2016	https://pubmed.n	2016	Mouse	23°C	In situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin; immunostaining for NFP, GFAP, and IBA1	Cerebellar cortex	Purkinje cell	96 hours	General cell membrane		"Purkinje cells, at this time, are **unequivocally altered in appearance**, with some **shrinkage and multivacuolated, amphophilic cytoplasm**. Nuclei are often hyperchromatic and there is sometimes a perinuclear clear space"	No	NA	2	2	2	NA	2
Finnie 2016	https://pubmed.n	2016	Mouse	23°C	In situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin; immunostaining for NFP, GFAP, and IBA1	Cerebellar cortex	Microglia	168 hours	General cell membrane		"Microglial Iba1 expression is largely unaltered until about 7 days, after which time it **diminishes markedly.** Reactive hypertrophy/hyperplasia is not found."	No	NA	1	1	1	NA	1
Finnie 2016	https://pubmed.n	2016	Mouse	23°C	In situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin; immunostaining for NFP, GFAP, and IBA1	Cerebellar cortex	Purkinje cell	336 hours	General cell membrane		"Purkinje cells have homogeneous, eosinophilic cytoplasm (homogenization), of varying staining intensity. A **'ghost-like' appearance** is evident when nuclei disappear or are barely discernible and the **cytoplasm is pale-staining and cell boundaries indistinct**"	No	NA	3	3	3	NA	3
Finnie 2016	https://pubmed.n	2016	Mouse	23°C	In situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin; immunostaining for NFP, GFAP, and IBA1	Cerebellar cortex	Astrocyte, oligodendrocyte	336 hours	General cell membrane		"Most **astrocytes and oligodendrocytes in molecular layer have disappeared**, leaving only an occasional pyknotic or karyorrhectic nucleus."	No	NA	3	3	3	NA	3
Garcia 1978	https://pubmed.n	1978	Rat	Room temperature	In situ	Perfusion fixation or immersion fixation	Light microscopy	No	Morphological staining with hematoxylin and eosin	Cerebral cortex	Multiple or no clear focus	6 hours	General cell membrane	0 hour PMI cases were perfusion fixed, compared to 6 hour PMI cases that were immersion fixed.	"Complete, irreversible ischemia (6 h) at room temperature led to **neuronal chromatin clumping, soma degree of nuclear swelling and pallor of cytoplasmic nucleoli acids (Fig. 2).** There was no sponginess of neuropil and no "dark" neurons were observed in any of the sections examined." ... **"Pallor of neuronal perikaryon** (arrows), halo around capillaries and neurons is accompanied by diffuse irregularities of neuropil" Also Figure 2	No	NA	1	1	1	NA	1
Gärtner 1998	https://pubmed.n	1988	Rat	37°C	Ex Situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining with anti-tau antibodies BR134, AT100, AT270	Cortex	Neuron	30 minutes	General cell membrane		"A postmortem interval of 30 min **did not influence the intensity and distribution of reactivity** detected by BR134 and the mabs AT100 and AT270 ... The results of this study indicate that postmortem delay of fixation and/or preparation of tissue must be considered in the assessment of immunohistochemical and biochemical data on tau-proteins. The in vivo localization of tau-protein was found in the axonal as well as somatodendritic compartment at least up to a 30-min postmortem interval."	No	NA	0	0	0	NA	0
Gärtner 1998	https://pubmed.n	1988	Rat	37°C	Ex Situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining with anti-tau antibody 12E8	Cortex	Neuron	30 minutes	General cell membrane		**"Labeling of Mossy fibers is reduced** after immersion-fixation (B), and is **hardly detectable** after a 30-min postmortem interval" ... "Further **decreased staining of mossy fibers**, labelling of neuronal somata remains unchanged". Also Figure 2.	No	NA	2	0	0	NA	0
Gärtner 1998	https://pubmed.n	1988	Rat	37°C	Ex Situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining with anti-tau antibodies PHF-1 and AT8	Cortex	Neuron	30 minutes	General cell membrane		"After a postmortem delay of fixation **immunoreactivity is completely lost**". Also Figure 3.	No	NA	3	2	2	NA	2
Gärtner 1998	https://pubmed.n	1988	Rat	37°C	Ex Situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining with anti-tau antibody Tau-1	Cortex	Neuron	30 minutes	General cell membrane		"Effects of postmortem delay and fixation conditions on the distribution of phosphorylated tau detected with the mab Tau-1 in the hippocampus. Compared to staining obtained after perfusion-fixation (A), an **increasing labeling of neuronal perikarya is observed after immersion-fixation (B) and a postmortem delay of 30 min**"	No	NA	1	1	1	NA	1
Geddes 1995	https://pubmed.n	1995	Rat	Placed in 37°C liquid, left at room temperature for 6 h, and then placed in a refrigerator at 4°C.	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for various neurofilament proteins	Hippocampus	Neuron	4 hours	General cell membrane	Same general observations for multiple neurofilaments, so combined together.	"One hour after death, perikaryal immunostaining was observed with each of the anti-NF antibodies. This was evident in select neurons in each hippocampal region but was most prominent in CA1 s. oriens. **A greater number of neurons exhibited enhanced perikaryal immunostaining 4 h and 8 h after death** (Fig. 3). At these later time points, **loss of NF-M immunostaining in the outer 2/3 of the dentate gyrus molecular layer was observed**, as well as CAl s. lacunosum-moleculare (Fig. 1). With antibodies against nonphosphorylated neurofilament epitopes, **loss of neuropil staining was evident in CA1 s. radiatum and s. oriens, and in the CA3/hilar region** (Fig. 3). Immunostaining with antibodies against phosphorylated NF-H (SMI-31 and NE 14) was **intensified in a band surrounding the CA1 and CA3 pyramidal cells and in the innermost portion of the dentate gyrus molecular layer, but was decreased in other regions including CA1 s. radiatum and s. oriens** (Fig. 3). "... "[P]erikaryal accumulation of both phosphorylated and nonphosphorylated neurofilament epitopes."	No	NA	2	2	2	NA	2
Gonzalez-Riano 2017	https://pubmed.n	2017	Mouse	Room temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for NeuN	Hippocampus	Neuron	0.5 hours	General cell membrane		"[T]here was a **clear decrease in NeuN immunostaining in the stratum pyramidale of CA3** close to the boundary with CA2 in animals from 30 min PT (Fig. 1d) onward that was more pronounced at 5 h PT"	No	NA	1	1	1	NA	1
Gonzalez-Riano 2017	https://pubmed.n	2017	Mouse	Room temperature for 2 hours followed by 3 h at 4°C in a fridge	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for NeuN	Hippocampus	Neuron	5 hours	General cell membrane		"[T]here was **a clear decrease in NeuN immunostaining** in the stratum pyramidale of CA3 close to the boundary with CA2 in animals from 30 min PT (Fig. 1d) onward that was **more pronounced at 5 h PT**"	No	NA	1	1	1	NA	1
Gonzalez-Riano 2017	https://pubmed.n	2017	Mouse	Room temperature for 2 hours followed by 3 h at 4°C in a fridge	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for SMI-32	Hippocampus	Neuron	5 hours	General cell membrane		"In the brain of animals fixed by immersion after different post-mortem periods, a **similar pattern of SMI-32 immunostaining of cell somata and processes to that of perfused brains** was found (Supplementary Fig. S3)."	No	NA	0	0	0	NA	0
Gonzalez-Riano 2017	https://pubmed.n	2017	Mouse	Room temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for Calbindin-D28K	Hippocampus	Neuron	0.5 hours	General cell membrane		"[T]here were **marked changes including increases and decreases in the labeling of elements** (cell bodies, neuronal processes or puncta) depending on the hippocampal region and layer examined in immersion-fixed tissue from 30 min to 5 h PT as compared to tissue from perfused animals. These changes occurred **after 30 min in the case of CB-immunostaining** and NADPH-d histochemical staining and after 2 h in the case of PV. For example, among other changes, there was a clear reduction in the labeling of PV-immunostaining processes and an increase in the NADPH- d staining in the stratum pyramidale of CA1 and CA3, after 2 h in the case of PV and after 30 min in the case of NADPH-d histochemical staining.	No	NA	2	0	0	NA	0
Gonzalez-Riano 2017	https://pubmed.n	2017	Mouse	Room temperature	In situ	Immersion fixation	Light microscopy	No	Histochemical staining for NADPH-d	Hippocampus	Multiple or no clear focus	0.5 hours	General cell membrane		"[T]here were marked changes including increases and decreases in the labeling of elements (cell bodies, neuronal processes or puncta) depending on the hippocampal region and layer examined in immersion-fixed tissue from 30 min to 5 h PT as compared to tissue from perfused animals. These **changes occurred after 30 min in the case of CB-immunostaining and NADPH-d histochemical staining** and after 2 h in the case of PV. For example, among other changes, there was a clear reduction in the labeling of PV-immunostaining processes and an **increase in the NADPH- d staining in the stratum pyramidale of CA1 and CA3**, after 2 h in the case of PV and after 30 min in the case of NADPH-d histochemical staining.	No	NA	2	0	0	NA	0
Gonzalez-Riano 2017	https://pubmed.n	2017	Mouse	Room temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for Parvalbumin	Hippocampus	Neuron	2 hours	General cell membrane		"[T]here were marked changes including increases and decreases in the labeling of elements (cell bodies, neuronal processes or puncta) depending on the hippocampal region and layer examined in immersion-fixed tissue from 30 min to 5 h PT as compared to tissue from perfused animals. These changes occurred after 30 min in the case of CB-immunostaining and NADPH-d histochemical staining and **after 2 h in the case of PV.** For example, among other changes, there was **a clear reduction in the labeling of PV-immunostaining processes** and an increase in the NADPH- d staining in the stratum pyramidale of CA1 and CA3, **after 2 h in the case of PV** and after 30 min in the case of NADPH-d histochemical staining.	No	NA	2	0	0	NA	0
Gonzalez-Riano 2017	https://pubmed.n	2017	Mouse	Room temperature for 2 hours followed by 3 h at 4°C in a fridge	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for vGlut1, vGlut2, and vGAT	Multiple or no clear focus	Neuron	5 hours	General cell membrane		"Although no quantification of either the terminals or intensity of immunostaining was performed, **these patterns of vGlut1 and vGlut2 immunostaining were similar between immersion-fixed tissue with different PT and tissue from perfused animals**" ... "These patterns of vGAT immunostaining were again similar between immersion- fixed tissue and tissue from perfused animals ... Also note the **apparent absence of changes in the distribution of vGlut1, vGlut2 and vGAT between the brains fixed with different procedures and PTs**"	No	NA	0	0	0	NA	0
Gonzalez-Riano 2017	https://pubmed.n	2017	Mouse	Room temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for GAD-65	Multiple or no clear focus	Neuron	0.5 hours	General cell membrane		"Furthermore, we used immunohistochemistry for the **65-kDa isoform of the GABA-synthesizing enzyme glutamic acid decarboxylase (GAD-65), which is particularly prominent in axon terminals**, whereas **no or very few labeled cell bodies are immunostained** (Esclapez et al. 1994). This pattern of GAD-65 immunostaining was observed in tissue from perfused animals (Fig. 3a, c), whereas in immersion-fixed tissue from 30 min to 5 h, **numerous labeled cell bodies were observed in the hippocampus (Fig. 3b, d)** as well as in many other brain regions (not shown)"	No	NA	2	1	1	NA	1

Study	Link:	Publication Year:	Species:	Temperature:	Brain Location (in situ vs ex situ vs other):	Initial preservation:	General microscopy method:	Immunostaining primarily:	Visualization method specifics:	Brain Region:	Cell Type:	Time Point:	Structural Feature:	Additional outcome specifier, if any:	Decomposition outcome:	Pilot Round?	Pilot Grade:	Decomposition Grade - Grader 1:	Decomposition Grade - Grader 2:	Random choice for multiple grades from grader 2:	Decomposition Grade - Grader 3:	Consensus grade:
Gonzalez-Riano 2017	https://pubmed.n	2017	Mouse	Room temperature for 2 hours followed by 3 h at 4°C in a fridge	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for WFL	Multiple or no clear focus	Multiple or no clear focus	5 hours	Extracellular matrix		"We found that **WFA labelling of perineuronal net-like structures is well preserved in immersion-fixed tissue** with the different PT and similar to that in brains from perfused animals (Supplementary Figs. S3 and S6). This suggests that the **integrity of the extracellular matrix surrounding PV-positive GABAergic neurons is not significantly altered during the first 5 h PT."**	No	NA	0	0	0	NA	0
Gonzalez-Riano 2017	https://pubmed.n	2017	Mouse	Room temperature for 2 hours followed by 3 h at 4°C in a fridge	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for GFAP	Multiple or no clear focus	Astrocyte	5 hours	General cell membrane		**"No general differences in the labeling of these two populations of glial cells were found in the most neocortical and hippocampal regions** between the perfusion-fixed tissue and tissue fixed by immersion after different PT"	No	NA	0	0	0	NA	0
Gonzalez-Riano 2017	https://pubmed.n	2017	Mouse	Room temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for Iba1	Multiple or no clear focus	Microglia	2 hours	General cell membrane		**"No general differences in the labeling of these two populations of glial cells were found in the most neocortical and hippocampal regions** between the perfusion-fixed tissue and tissue fixed by immersion after different PT ... However, **morphological differences in Iba1-ir microglial cells were found** between perfusion-fixed tissue and tissue that was immersion-fixed from 2 to 5 h in those regions in which a **decrease in the neuronal expression of NeuN** was noted, including the retrosplenial cortex and the CA3 hippocampal field (Fig. 4c, d). Here, in line with the morphological descriptions of microglial cells in different pathological conditions (Soltys et al. 2001; Kabadi et al. 2012) (Zhan et al. 2008), in the present study Iba1-ir cells showed a **proinflammatory phenotype** ranging from hypertrophic microglia (with larger cell bodies and thick, retracted pro-cesses) to bushy microglia (with numerous but short and poorly ramified processes of different diameters forming thick bundles around their enlarged cell bodies)"	No	NA	2	1-2	2	NA	2
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Multiple or no clear focus	6 hours	General cell membrane		"Some of the **cell bodies of the medial and lateral habenular nuclei appear slightly swollen.** The cell membrane can be determined in most cells, however, there are **distinct spaces around most cell bodies** and among fibers of the neuropil." ... "**vacuoles** in the cytoplasm, and irregularities of the cell membrane in some cells."	No	NA	1	1	1	NA	1
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Multiple or no clear focus	6 hours	Neuropil		"The **spaces in the neuropil accentuate each fiber as an individual unit**. The neuropil fibers appear more prominent not only because of the **interfiber spaces,** but because they appear to **stain more intensely than normal neuropil**"	No	NA	1	1	1	NA	1
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Multiple or no clear focus	12 hours	General cell membrane	Reference time of 6 hours PMI	"Cell bodies of the medial and lateral nuclei show only **slight changes from the six hour sample.** More cells have **vacuoles** and the previously existing vacuoles have become enlarged." ... "The irregularities of the cell membrane appear as **vacuoles in or near the periphery of the cell, or as invaginations of the cell membrane** (fig. 5)." ... "Spaces around the cell bodies (pericellular) and in the neuropil (interfiber) are becoming more evident."	No	NA	1	1	1	NA	1
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Multiple or no clear focus	12 hours	Neuropil	Reference time of 6 hours PMI	"**Spaces around the cell bodies** (pericellular) and in the neuropil (interfiber) are becoming more evident."	No	NA	1	1	1	NA	1
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Multiple or no clear focus	18 hours	General cell membrane		"The **cell border is indistinct** in most cells, and the **pericellular spaces are prominent**"	No	NA	2	2	2	NA	2
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Multiple or no clear focus	24 hours	General cell membrane		"The cell membrane of cells in the medial and lateral nuclei is **indistinct** for the most part."	No	NA	2	2	2	NA	2
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Multiple or no clear focus	36 hours	General cell membrane		"The cell bodies are slightly **swollen** and the cytoplasm contains extremely **coarse granulations. Cell membranes are highly irregular and in some cells appear almost ruptured."**	No	NA	2	3	3	NA	3
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Multiple or no clear focus	36 hours	Neuropil		"**Spaces in the neuropil** and around the cell bodies are prominent, and the neuropil has also **lost some of its staining ability.**"	No	NA	2	1	1	NA	1
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Multiple or no clear focus	48 hours	Neuropil		"The neuropil is **fragmented** and stains lightly."	No	NA	3	3	3	NA	3
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Multiple or no clear focus	48 hours	General cell membrane		"The cell border can be seen in some cells, but is **highly irregular** in others (fig. 9)."	No	NA	3	2	2	NA	2
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Oligodendrocyte	6 hours	Myelin		"**Individual myelinated fibers are easier to define** because of the appearance of **interfiber spaces** in the tract and in the adjacent tissue. There is little change in the myelin sheath, although some fibers show **discrete light areas within the myelin (Fig. 1)**. The general contour of the myelin remains unaltered."	No	NA	0	1	1	NA	1
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Neuron	6 hours	Axon		"The **appearance of spaces** in the tract and in the surrounding tissue helps to **accentuate individual axons**. Axons centrally located in the tract can be defined at this stage. The axons have **lost some of their irregular or wavy pattern but still maintain a constant diameter.** A few axis cylinders have light areas within the axoplasm."	No	NA	1	1	1	NA	1
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Oligodendrocyte	12 hours	Myelin		"The structure of the myelin tube around the axon has **not changed significantly from the six hour sample.** A few fibers have occasional **slight dilations of the axon area.** Light irregular areas can be noted in the myelin sheath (fig. 1)."	No	NA	1	1	1	NA	1
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Neuron	12 hours	Axon		**"No progressive change in the axis cylinder** can be noted. A few axons of large diameter have areas of **slight dilation and constriction** accompanied by **occasional light areas within the axoplasm"**	No	NA	1	1	1	NA	1
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Oligodendrocyte	18 hours	Myelin		"Little progressive change is noted in the myelin tube structure from the 12 hour sample. A few fibers show a **slight swelling of the myelin in some areas,** and the axis cylinder area is shated over in some fibers."	No	NA	1	1	1	NA	1
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Neuron	18 hours	Axon		"Only **slight changes are noted in the large diameter axons.** There is a tendency for them to become **irregular and have alternating dark and light areas.** Segments of **dilation and constriction** are also evident in some axons."	No	NA	1	1	1	NA	1
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Oligodendrocyte	24 hours	Myelin		"The **myelin tube is slightly swollen and irregular**, and light areas can be seen in the substance of the myelin. It is becoming **progressively difficult to distinguish individual fiber units of the tract**, and in a few fibers the **myelin tube appears jagged and irregular**. The overall architecture of the fibers has not changed significantly since 18 hours post-mortem."	No	NA	1	2	2	NA	2
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Neuron	24 hours	Axon		"No progressive changes can be noted in the axis cylinder that differ from those discussed for 18 hour samples. The **occasional dilations and constrictions previously noted are present**, and the alternating light and dark areas are also noted. Previous reports (Ugo, '27) of the relatively slow post-mortem alterations of the axis cylinder and neurofibrils are verified by this study."	No	NA	1	1	1	NA	1
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Oligodendrocyte	36 hours	Myelin		"**Gross structural changes in the myelin tube are still not observed.** Previously observed alternating light and dark areas are noted, and the axis cylinders area is slightly shaded over in most fibers, and the shaded axonal area is also showing areas of dilation and constriction (fig. 1). It is noted that the **myelin sheath undergoes slow post-mortem alteration.**"	No	NA	1	2	2	NA	2
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Neuron	36 hours	Axon		"A **strikingly characteristic structural change** is noted in the axis cylinder at this stage. Almost every axon, regardless of diameter size, **demonstrates short, discrete loops (fig. 1).** Most axons also have **alternating light and dark areas** as well as areas of **dilation and constriction of the axon.**"	No	NA	2	2	2	NA	2
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Oligodendrocyte	48 hours	Myelin		"The **myelin tube is swollen, almost to the point of completely obliterating the axonal area of some fibers** (Fig. 1). Even though the myelin tube is considerably swollen the **general configuration is relatively unaltered,** supporting the previous report of Kreiner (38-40). The previously noted light areas in the myelin are **still recognizable.**" ... "The myelin tube becomes slightly swollen and shows light and dark areas, however, it retains a **relatively normal configuration** even up to 48 hours post-mortem."	No	NA	2	2	2	NA	2
Haines 1968	https://pubmed.n	1968	Dog	25°C	In situ	Immersion fixation	Light microscopy	No	Morphological stain with luxol fast blue - cresyl echt violet	Habenular nuclei	Neuron	48 hours	Axon		"A few axons have **lost the loops so characteristic of 36 hour post-mortem samples, but the loops are still present in most fibers** to some degree. The alternating light and dark areas are present, and occasional **dilations** can be noted in some axons." ... **"Axonal changes are also relatively minor.** After six hours there is a tendency for the oligodendrocyte nuclei and axons to stain with a progressive degree of clarity and intensity. At 36 hours all axons show a variable degree of irregularity and looping, and the axoplasm of the axon has become finely granular by 48 hours post-mortem. The **axolemma, as well as the borders of the myelin tube, retain their integrity throughout the time span of this study.** The slow post-mortem alteration of fibers reported in this research have been previously observed by Ugo (27) and Kreiner ('39-40)."	No	NA	2	2	2	NA	2
Hausmann 2007	https://pubmed.n	2007	Human	Room temperature	Ex situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin	Cerebellar cortex	Purkinje cell	30 hours	General cell membrane		"Tissue samples that had been stored at room temperature up to 30 h after removal at autopsy showed **average numbers of Purkinje cells** (PC total) ranging between 8.25 and 9.00 PC/unit (Table 3), with a comparable **high proportion of intact Purkinje cells** (63–75%). The cell numbers and the average sizes of Purkinje cell bodies (535–603 μm2) were **comparable to that in the control group.**"	No	NA	0	0	0	NA	0
Hausmann 2007	https://pubmed.n	2007	Human	Room temperature	Ex situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin	Cerebellar cortex	Purkinje cell	46 hours	General cell membrane		**"Significantly reduced cell numbers and shrunken cell bodies** could be detected in specimens stored for at least 46 h at room temperature before fixation in formaldehyde solution (Fig. 5). The majority of **Purkinje cells were characterized by the loss of nuclear staining and "pale" cytoplasm** (Fig. 6)." Also Figure 6.	No	NA	3	2-3	3	NA	3
Hayes 1991	https://pubmed.n	1991	Monkey	Brains immersed in cold PBS	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for SS28_(1-12)	Superior frontal cortex	Neuron	0.5 hours	Axon		"The laminar **distribution of SS28_(1-12) immunoreactive fibers** following a 0.5 hour post-mortem interval **closely resembled that of perfused monkey** (compare Figs. 7A and 8A). Layer I had the densest innervation, layer IV the least, and distinct radial fibers could be seen throughout layers III-V. After a 1 hour post-mortem interval, fiber density was somewhat reduced overall, but radial fibers remained distinct. At 2 hours, a further reduction in fiber density was apparent, and fewer radial fibers were seen (Fig. 8B). A similar pattern of SS28_(1-12) immunoreactivity was present following a 4 hour post-mortem interval. However, at 8 hours there was a dramatic drop in overall fiber density, and most of the radial fibers were no longer visible (Fig. 8C). This loss of immunoreactivity between the 4 hour and 8 hour post-mortem intervals was also evident in inferior temporal and primary visual cortices."	No	NA	0	0	0	NA	0
Hayes 1991	https://pubmed.n	1991	Monkey	Brains immersed in cold PBS	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for SS28_(1-12)	Superior frontal cortex	Neuron	8 hours	Axon		"The laminar distribution of SS28_(1-12) immunoreactive fibers following a 0.5 hour post-mortem interval closely resembled that of perfused monkey (compare Figs. 7A and 8A). Layer I had the densest innervation, layer IV the least, and distinct radial fibers could be seen throughout layers III-V. After a 1 hour post-mortem interval, fiber density was somewhat reduced overall, but radial fibers remained distinct. At 2 hours, a further reduction in fiber density was apparent, and fewer radial fibers were seen (Fig. 8B). A similar pattern of SS28_(1-12) immunoreactivity was present following a 4 hour post-mortem interval. However, **at 8 hours there was a dramatic drop in overall fiber density, and most of the radial fibers were no longer visible (Fig. 8C).** This loss of immunoreactivity between the 4 hour and 8 hour post-mortem intervals was also evident in inferior temporal and primary visual cortices."	No	NA	3	3	3	NA	3
Hayes 1991	https://pubmed.n	1991	Monkey	Brains immersed in cold PBS	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for SS28_(1-12)	Anterior cingulate white matter	Neuron	12 hours	Cell size		"In order to be certain that increased neuron size in human brains was not due solely to the post-mortem interval, the effect of the length of the post-mortem interval on neuron size was assessed in a third monkey brain. Following a 2 hour post-mortem interval, the mean cell area (118.2 ± 6.6 um2) was only slightly larger than that of perfused monkey (111.7 ± 4.8 um2). **At 12 hours, the mean area of labeled cells (144.1 ± 8.1 um2) had increased to that seen in the 12 hour post-mortem sections from the two monkeys used for the species comparisons** (Table 4). No additional increase in neuron size was present following 24 hour (139.6 ± 9.6 um2) or 48 hour post-mortem intervals (135.5 ± 10.8 um2). Hence, **the increase in cell size due to the post-mortem interval is limited and cannot account fully for the observed species difference"**	No	NA	1	1	1	NA	1
Hetzel 1980	https://pubmed.n	1980	Rat, rabbit	Room temperature	Not recorded	Immersion fixation	Electron microscopy	No	Visualized with scanning electron microscopy and transmission electron microscopy	Ependymal layer of the lateral ventricular wall	Ependymal cell	0.25 hours	General cell membrane		"The small protrusions seen by SEM consist of **membrane-surrounded cytoplasmic material.** Many **intercellular gaps between the ependymal cells are enlarged**, but cell junctions (zonulae occludentes and zonulae adhaerentes) between the cells (Fig. 2) remain narrow and closed, the **cells are not separated from each other.** The subependymal layer makes a **slightly spongy impression**, the cytoplasm of the subependymal cells appears to be clearer and **more vacuolated** than the cytoplasm of ependymal cells."	No	NA	1	1	1	NA	1
Hetzel 1980	https://pubmed.n	1980	Rat, rabbit	Room temperature	Not recorded	Immersion fixation	Electron microscopy	No	Visualized with scanning electron microscopy and transmission electron microscopy	Ependymal layer of the lateral ventricular wall	Ependymal cell	1 hour	General cell membrane		"A great number of cells are now **arched like blisters into the ventricular cavity.** Many of the **tufts of cilia have changed considerably**. The single cilia of a tuft are no longer separated from each other but are **congated and clotted together** (Fig. 6). This fusing begins at the basal part of the cilia where they leave the ependymal cell surface. The clumping continues toward the tips of the tuft. Ultimately, **cilia are no longer recognizable and instead there is an elongated mass which sinks down onto the ependymal surface.** Primarily, cilia are still seen as contours within that mass, but **in later stages the clumped tuft of cilia has completely melted with the ependymal cell."**	No	NA	3	2	2	NA	2

Study	Link:	Publication Year:	Species:	Temperature:	Brain Location (in situ vs ex situ vs other):	Initial preservation:	General microscopy method:	Immunostaining primarily:	Visualization method specifics:	Brain Region:	Cell Type:	Time Point:	Structural Feature:	Additional outcome specifier, if any:	Decomposition outcome:	Pilot Round?	Pilot Grade:	Decomposition Grade - Grader 1:	Decomposition Grade - Grader 2:	Random choice for multiple grades from grader 2:	Decomposition Grade - Grader 3:	Consensus grade:
Hilbig 2004	https://pubmed.n	2004	Mouse	Multiple storage temperatures: 4°C, 22°C, and 36°C followed by stepwise cooling	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining and histochemistry for multiple markers	Multiple or no clear focus	Multiple or no clear focus	6 hours	General cell membrane		**"Neuronal vacuolation and vascular retraction** were found in nearly all sections, whereas autolytic white matter vacuolation was an exceptional case at that time point but was more frequently observed later on."	No	NA	1	1	1	NA	1
Hilbig 2004	https://pubmed.n	2004	Mouse	Multiple storage temperatures: 4°C, 22°C, and 36°C followed by stepwise cooling	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for GFAP	Corpus callosum	Astrocyte	24 hours	General cell membrane		"Glial structures of the corpus callosum were **stable** during the investigated post-mortem delay."	No	NA	0	0	0	NA	0
Hilbig 2004	https://pubmed.n	2004	Mouse	Multiple storage temperatures: 4°C, 22°C, and 36°C followed by stepwise cooling	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for GFAP	Multiple or no clear focus	Astrocyte	8 hours	Blood vessels		**Redistribution of GFAP to pericytes in walls of blood vessels and pial surface.** "Comparison of GFAP expression in cortical areas of the mouse brains at different post-mortem times as revealed by both light and fluorescence microscopy showed an **increase in GFAP-immunoreactivity at 8h post-mortem** in both the light and the fluorescence micrographs when compared to the previous time points (Fig. 2). Presence of GFAP in the brains of mice stored for more than 8 h was restricted to the pial surface" ... **"GFAP labeling is increased at 8h post-mortem in both the light and fluorescence micrographs."** Also Figure 2	No	NA	2	1	1	NA	1
Hilbig 2004	https://pubmed.n	2004	Mouse	Multiple storage temperatures: 4°C, 22°C, and 36°C followed by stepwise cooling	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for GFAP	Multiple or no clear focus	Astrocyte	8 hours	General cell membrane		"Comparison of GFAP expression in cortical areas of the mouse brains at different post-mortem times as revealed by both light and fluorescence microscopy showed **an increase in GFAP-immunoreactivity at 8h post-mortem** in both the light and the fluorescence micrographs when compared to the previous time points" Also Figure 2.	No	NA	1	1	1	NA	1
Hilbig 2004	https://pubmed.n	2004	Mouse	Multiple storage temperatures: 4°C, 22°C, and 36°C followed by stepwise cooling	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for WFA	Multiple or no clear focus	Multiple or no clear focus	4 hours	Extracellular matrix		**Decreased immunolabeling intensity based on Table 1/2. "The extracellular matrix of the glial–neuron interface seems to be stable up to 12 h post-mortem (Fig. 3).** The WFA binding to the fine cellular processes which are usually demarcated as sharply delineated structures **became more and more obscured and accompanied by an increasing amount of background-like staining.** Nevertheless, the specific intracortical distribution pattern including **the area-specific patterns of cortical lamination remained preserved during all time points** and experimental conditions studied. The results showed that WFA-labeling could be used for the demarcation and identification of functional, anatomical cortical areas following post-mortem delay. Comparing the results revealed after perfusion fixation to those revealed by immersion fixation immediately after death, **features differed only in the extent of background staining."** Also Figure 3	No	NA	1	0	0	NA	0
Hilbig 2004	https://pubmed.n	2004	Mouse	Multiple storage temperatures: 4°C, 22°C, and 36°C followed by stepwise cooling	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for WFA	Multiple or no clear focus	Multiple or no clear focus	12 hours	Extracellular matrix		Much decreased immunolabeling intensity based on Table 1/2. "The extracellular matrix of the glial–neuron interface seems to be stable up to 12 h post-mortem (Fig. 3). The WFA binding to the fine cellular processes which are usually demarcated as sharply delineated structures **became more and more obscured and accompanied by an increasing amount of background-like staining**. Nevertheless, the specific intracortical distribution pat- tern including the **area-specific patterns of cortical lamination remained preserved during all time points and experimental conditions studied**. The results showed that WFA-labeling could be used for the demarcation and identification of functional, anatomical cortical areas following post-mortem delay. Comparing the results revealed after perfusion fixation to those revealed by immersion fixation immediately after death, **features differed only in the extent of background staining."** Also Figure 3	No	NA	2	1	1	NA	1
Hilbig 2004	https://pubmed.n	2004	Mouse	Multiple storage temperatures: 4°C, 22°C, and 36°C followed by stepwise cooling	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for WFA	Multiple or no clear focus	Multiple or no clear focus	24 hours	Extracellular matrix		**Based on Table 1/2, staining seems to be absent at 24 hours. "**The extracellular matrix of the glial–neuron interface seems to be stable up to 12 h post-mortem (Fig. 3). The WFA binding to the fine cellular processes which are usually demarcated as sharply delineated structures became more and more obscured and accompanied by an increasing amount of background-like staining. Nevertheless, the specific intracortical distribution pat- tern including the area-specific patterns of cortical lamination remained preserved during all time points and experimental conditions studied. The results showed that WFA-labeling could be used for the demarcation and identification of functional, anatomical cortical areas following post-mortem delay. **Comparing the results revealed after perfusion fixation to those revealed by immersion fixation immediately after death, features differed only in the extent of background staining."** Also Figure 3	No	NA	3	2	2	NA	2
Hilbig 2004	https://pubmed.n	2004	Mouse	22°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for SMI32	Multiple or no clear focus	Neuron	6 hours	Dendrite		**Decreased immunohistochemical signal noted at 6 h in Table 2.** "Details of the dendritic tree were visible until a post-mortem delay of 12h"	No	NA	1	1	1	NA	1
Hilbig 2004	https://pubmed.n	2004	Mouse	22°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for SMI32	Multiple or no clear focus	Neuron	12 hours	Dendrite		**Absent immunohistochemical signal noted at 12 h in Table 2, also per the text:** "Details of the dendritic tree were visible until a post-mortem delay of 12h" ... "With increasing post-mortem delay **the presence of detectable SMI 32 in neurons decreased and a granular- like staining of debris or desintegrated dendritic neurofilaments increased,** resulting in a picture similar to that found in the focus of ischemic, cortical lesions in experimental animals (Bishop et al., 1998). The same time course for these post-mortem alterations was found in both groups of mice stored at constant temperatures (4 or 22°C)."	No	NA	3	2	2	NA	2
Hilbig 2004	https://pubmed.n	2004	Mouse	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for synaptophysin	Multiple or no clear focus	Neuron	8 hours	Synapse		"The detection of a clearly localized synaptophysin immunoreactivity was impossible after 4 h post-mortem in the brains stored at 22°C and the brains which were cooled step-by-step, whereas **the brains stored at 4°C lost their synaptophysin immunoreactivity after 12h post-mortem.**" Also Table 1	No	NA	0	0	0	NA	0
Hilbig 2004	https://pubmed.n	2004	Mouse	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for synaptophysin	Multiple or no clear focus	Neuron	12 hours	Synapse		"The detection of a clearly localized synaptophysin immunoreactivity was impossible after 4 h post-mortem in the brains stored at 22°C and the brains which were cooled step-by-step, whereas **the brains stored at 4°C lost their synaptophysin immunoreactivity after 12h post-mortem.**" Also Table 1	No	NA	1	1	1	NA	1
Hilbig 2004	https://pubmed.n	2004	Mouse	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for synaptophysin	Multiple or no clear focus	Neuron	24 hours	Synapse		"The detection of a clearly localized synaptophysin immunoreactivity was impossible after 4 h post-mortem in the brains stored at 22°C and the brains which were cooled step-by-step, whereas **the brains stored at 4°C lost their synaptophysin immunoreactivity after 12h post-mortem.**" Also Table 1	No	NA	3	2	2	NA	2
Hilbig 2004	https://pubmed.n	2004	Mouse	22°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for synaptophysin	Multiple or no clear focus	Neuron	4 hours	Synapse		**"The detection of a clearly localized synaptophysin immunoreactivity was impossible after 4 h post-mortem in the brains stored at 22°C and the brains which were cooled step-by-step,** whereas the brains stored at 4°C lost their synaptophysin immunoreactivity after 12h post-mortem." Also Table 2	No	NA	1	2	2	NA	2
Hilbig 2004	https://pubmed.n	2004	Mouse	22°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for synaptophysin	Multiple or no clear focus	Neuron	6 hours	Synapse		**"The detection of a clearly localized synaptophysin immunoreactivity was impossible after 4 h post-mortem in the brains stored at 22°C and the brains which were cooled step-by-step,** whereas the brains stored at 4°C lost their synaptophysin immunoreactivity after 12h post-mortem." Also Table 2	No	NA	3	2	2	NA	2
Hilbig 2004	https://pubmed.n	2004	Mouse	22°C	In situ	Immersion fixation	Light microscopy	No	Histochemistry for NAPDH-d	Multiple or no clear focus	Neuron	8 hours	Dendrite		"NADPH-d activity in neurons were only scarcely present following 8h post-mortem delay. Somata of NADPH-d active neurons appeared varicose. Their **dendritic processes were fragmented.**" ... "The fine processes of interneurons expressing the neuronal isoform becomes reduced and **the extension of their widespread processes were lost within 8h.** "	No	NA	3	3	3	NA	3
Hukkanen 1987	https://pubmed.n	1987	Human	4°C	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	White matter	Oligodendrocyte	6 hours	Myelin	Lower storage temperature	"The myelin changes occuring in the present study were **relatively slight during the first 6 hr especially those occurring at +4°C.**" ... "The **staining properties of myelin are decreased** and at **focal areas the myelin sheaths show marked degeneration** (large arrow- heads)" Also Figure 2.	No	NA	1	1	1	NA	1
Hukkanen 1987	https://pubmed.n	1987	Human	4°C	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	White matter	Oligodendrocyte	24 hours	Myelin	Lower storage temperature	"Myelin sheaths were only **partially degenerated** in contrast to the **marked degenerative changes in the axoplasm.**"	No	NA	1	2	2	NA	2
Hukkanen 1987	https://pubmed.n	1987	Human	25°C	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	White matter	Oligodendrocyte	6 hours	Myelin	Higher storage temperature	"After 6 hr the **changes resembled those seen after 24 hr at +4°C.**"	No	NA	1	2	2	NA	2
Hukkanen 1987	https://pubmed.n	1987	Human	25°C	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	White matter	Oligodendrocyte	24 hours	Myelin	Higher storage temperature	**"Myelin sheaths were disrupted** and **myelin lamellae formed network-like structures** which were most pronounced in the periaxonal region but occasionally occupied the whole myelin sheath."	No	NA	2	3	3	NA	3
Hunziker 1977	https://pubmed.n	1977	Cat	Not recorded	In situ	Freezing	Light microscopy	No	Capillaries visualized by alkaline phosphatase activity	Parietal region of the suprasylvian gyrus	Endothelial cells	22 hours	Capillaries		**"Significantly decreased volume fraction and shortened capillary length** per unit cortex volume, together with increased surface-to-volume fraction, indicate in the animal experiment a **shorter and less twisted cortical capillary nat 22 hours postmortem**. This reflection is supported by a **diminished number of capillary fragments per test area**. The observed parameter changes are thought to be also a consequence of water loss and tissue autolysis." ... "Though not significantly different from the intravitam condition, the number of capillary fragments per test area tends to decrease 30 sec and 22 hours postmortem."	No	NA	1	3	3	2	2
Ikuta 1963	https://pubmed.n	1963	Human	37°C or 45°C	Ex situ, immersed in either ventricular fluid or isotonic sodium chloride solution	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin	Cerebellum	Granule cells	12 hours	General cell membrane		"Mild but definite **uniform distintegration of granular layer**". Also Figure 2.	Yes	1	1	NA	NA	NA	1
Ikuta 1963	https://pubmed.n	1963	Human	37°C	Ex situ, immersed in ventricular fluid	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin	Cerebellum	Granule cells	24 hours	General cell membrane		"Almost **complete loss of granular cells**" Also Figure 3.	Yes	3	3	NA	NA	NA	3
Ikuta 1963	https://pubmed.n	1963	Human	37°C	Ex situ, immersed in ventricular fluid	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin	Cerebellum	Non-granule cells	24 hours	General cell membrane		**"Remarkable presence of molecular and Purkinje cell layers**. Note lack of glial response or vascular changes." Also Figure 3.	Yes	1	1	NA	NA	NA	1
Ikuta 1963	https://pubmed.n	1963	Human	4°C	Ex situ, immersed in ventricular fluid	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin	Cerebellum	Granule cells	48 hours	General cell membrane	Tissue stored at 4°C in ventricular fluid. Unclear what the outcome is in the 60°C condition, so not included.	"Another interesting result was obtained with tissue stored at 4°C in ventricular fluid. Such **tissue failed to show any changes in the granular cells** even after 24 to 48 hours of refrigeration. Figure 5 demonstrates almost no **appreciable alteration of the granular cells** in tissue which was kept in ventricular fluid at 4°C, for 48 hours." Also Figure 5	Yes	0	0	NA	NA	NA	0
Irving 1997	https://pubmed.n	1997	Rat	Stored at close to 37°C for 6 hours, then refrigerator temperature	In situ	Immersion fixation	Light microscopy	No	Hematoxylin and eosin stain	Multiple or no clear focus	Neuron	24 hours	General cell membrane		"At 24 h postmortem, **neuronal perikarya had become eosinophilic within the cortex and hippocampus**. This pattern progressed following 48 and 72 h postmortem when the nucleus had undergone triangulation and perikarya had become shrunken and decreased in number. CA1 region of the hippocampus showed loss of perikarya following 72 h postmortem."	Yes	0	0	NA	NA	NA	0
Irving 1997	https://pubmed.n	1997	Rat	Stored at close to 37°C for 6 hours, then refrigerator temperature	In situ	Immersion fixation	Light microscopy	No	Hematoxylin and eosin stain	Multiple or no clear focus	Neuron	48 hours	General cell membrane		"At 24 h postmortem, neuronal perikarya had become eosinophilic within the cortex and hippocampus. This pattern progressed following 48 and 72 h postmortem when **the nucleus had undergone triangulation and perikarya had become shrunken and decreased in number.** CA1 region of the hippocampus showed loss of perikarya following 72 h postmortem."	Yes	3	3	NA	NA	NA	3
Irving 1997	https://pubmed.n	1997	Rat	Stored at close to 37°C for 6 hours, then refrigerator temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for tau with the Tau 1 antibody	Multiple or no clear focus	Neuron	4 hours	General cell membrane		"In the control animals, the pattern of Tau 1 staining (Fig. 2) in all the brain areas examined was similar to those described previously (Binder et al., 1985; Papasozomens and Binder, 1987), i.e., immunoreactivity was localized to the axonal compartment of neurons where 7 is dephosphorylated at this epitope. This is in contrast to Schwab et al. (1994), who report increased perikaryal and decreased axonal Tau 1 staining in immersion fixed controls compared to perfusion-fixed controls. However, **4 h postmortem, increased Tau 1 immunoreactivity was detected within neuronal perikarya throughout the cortex (Fig. 2).**"	Yes	2	2	NA	NA	NA	2
Irving 1997	https://pubmed.n	1997	Rat	Stored at close to 37°C for 6 hours, then refrigerator temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for tau with the TP70 and TP007 antibodies	Multiple or no clear focus	Neuron	4 hours	General cell membrane		"In contrast to the changes in Tau 1 immunoreactivity within the cortex, **TP70 (Fig. 3) and TP007 (Fig. 4) immunoreactivity was unchanged in neuronal perikarya following 4h postmortem** with increased immunoreactivity detected within a few cells 24 h postmortem, as compared to control tissue."	Yes	0	0	NA	NA	NA	0

Study	Link:	Publication Year:	Species:	Temperature:	Brain Location (in situ vs ex situ vs other):	Initial preservation:	General microscopy method:	Immunostaining primarily:	Visualization method specifics:	Brain Region:	Cell Type:	Time Point:	Structural Feature:	Additional outcome specifier, if any:	Decomposition outcome:	Pilot Round?	Pilot Grade:	Decomposition Grade - Grader 1:	Decomposition Grade - Grader 2:	Random choice for multiple grades from grader 2:	Decomposition Grade - Grader 3:	Consensus grade:
Irving 1997	https://pubmed.n	1997	Rat	Stored at close to 37°C for 6 hours, then refrigerator temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for tau with multiple antibodies	Multiple or no clear focus	Neuron	24 hours	General cell membrane		"In the control animals, the pattern of Tau 1 staining (Fig. 2) in all the brain areas examined was similar to those described previously (Binder et al., 1985; Papasozomenos and Binder, 1987), i.e., immunoreactivity was localized to the axonal compartment of neurons where 7 is dephosphorylated at this epitope. This is in contrast to Schwab et al. (1994), who report increased perikaryal and decreased axonal Tau 1 staining in immersion fixed controls compared to perfusion-fixed controls. However, 4 h postmortem, increased Tau 1 immunoreactivity was detected within neuronal perikarya throughout the cortex (Fig. 2). **This increased immunoreactivity was more prominent 24 h postmortem, although the number of immunostained cells was decreased (Fig. 2).**" "In control animals, MAP5 immunoreactivity was detected within neuropil and perikarya throughout the areas examined. Four hours following death (Fig. 6), similar to MAP2, immunoreactivity was decreased with neuropil in layers 2 and 4 of the cortex and increased within perikarya. **At 24h postmortem, neuropil staining was further decreased in all layers, and cellular staining was reduced both in frequency and intensity compared to 4h (Fig. 6).**"	Yes	3	3	NA	NA	NA	3
Irving 1997	https://pubmed.n	1997	Rat	Stored at close to 37°C for 6 hours, then refrigerator temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for MAP2	Cerebral cortex	Neuron	4 hours	Dendrite	Focus on cerebral cortex as the outcomes are similar in other regions.	"Following 4h postmortem delay, **perikaryal staining was increased slightly within layer 5 of the cortex, and dendritic staining was decreased in layers 2 and 4**, giving the cortex a distinctive striped appearance (Fig. 5). Twenty-four hours post-mortem, staining of perikarya was increased, whereas dendritic staining in layers 2 and 4 was further decreased (Fig. 5). This pattern developed until 72 h postmortem when dendritic staining was almost lost." Also Figure 5.	Yes	2	2	NA	NA	NA	2
Irving 1997	https://pubmed.n	1997	Rat	Stored at close to 37°C for 6 hours, then refrigerator temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for MAP2	Cerebral cortex	Neuron	24 hours	Dendrite	Focus on cerebral cortex as the outcomes are similar in other regions.	"Following 4h postmortem delay, perikaryal staining was increased slightly within layer 5 of the cortex, and dendritic staining was decreased in layers 2 and 4, giving the cortex a distinctive striped appearance (Fig. 5). Twenty-four hours post-mortem, **staining of perikarya was increased, whereas dendritic staining in layers 2 and 4 was further decreased** (Fig. 5). This pattern developed until 72 h postmortem when dendritic staining was almost lost." Also Figure 5.	Yes	3	3	NA	NA	NA	3
Irving 1997	https://pubmed.n	1997	Rat	Stored at close to 37°C for 6 hours, then refrigerator temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for MAP5	Cerebral cortex	Oligodendrocyte	72 hours	General cell membrane	Latest time delay studied is 72 hours. Neuropil outcome not included for MAP5 as the postmortem effects on cell morphometry reported were considered ambiguous.	**"Immunoreactivity within these cells increased further at 24 h postmortem**, and this pattern and intensity of stain in these cells were maintained at all further postmortem delays"	Yes	1	1	NA	NA	NA	1
Itayoma 1980	https://pubmed.n	1980	Rat	5 hours at RT, then stored at 4°C	In Situ	Freezing	Light microscopy	Yes, immunostaining primarily	Immunostaining for myelin basic protein	Multiple or no clear focus	Oligodendrocyte	20 hours	Myelin	Freezing-based preservation	"If freezing was delayed (Group 5), Vi- bratome sections contained intensely stained, rounded oligodendroglia with partially stained nuclei and few visible processes (Fig 3D). **Myelin sheaths in these sections were only faintly stained, and the overall tissue preservation was worse**"	No	NA	3	2	2	NA	2
Itoyama 1980	https://pubmed.n	1980	Rat	5 hours at RT, then stored at 4°C	In Situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for myelin basic protein	Multiple or no clear focus	Oligodendrocyte	20 hours	Myelin	Fixation-based preservation	"BP-stained oligodendroglia and myelin sheaths in sections of brains from 7-day-old rats in Group 2 **closely resembled those observed in developing human cortex** (compare Figs 3B and 1A). Overall **tissue preservation was satisfactory even though some myelin sheaths were tortuous and vacuolated.**"	No	NA	1	0-1	1	NA	1
Jenkins 1979	https://pubmed.n	1979	Cat	37°C	In situ	Perfusion fixation	Light microscopy	No	Morphologically stained with toulidine blue	Cerebral cortex	Multiple or no clear focus	5 minutes	Neuropil		"[T]he neuropil of the upper 3 layers of the cerebral cortex appeared **vacuolated and distended.**" In 15 minute PMI group, similar finding: "Marked chromatin clumping was observed in all glia, while the neuropil of all brain regions appeared distended and enlarged."	No	NA	1	1	1	NA	1
Jenkins 1979	https://pubmed.n	1979	Cat	37°C	In situ	Perfusion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Multiple or no clear focus	Astrocyte	5 minutes	Astrocyte process	Earliest time point measured.	"In contrast to slight cytoplasmic changes in neurons, **astrocytes manifested an array of cytoplasmic alterations.** Numerous **astrocytic processes were enlarged** and demonstrated an **increased electron lucency of the cytosol**. Additionally, the astrocytic granular (GER) and agranular (AER) **endoplasmic reticulum components were frequently dilated.** However, like the neurons, oligodendrocytes displayed little cytoplasmic change." Also noted in 15 minute group - "Yet, the **astrocytic processes and cell bodies were enlarged and marked dilation of the astrocytic AER and GER was observed.**" Also noted in 25 minute PMI group - "While the oligodendrocytes retained preservation of their cytoplasmic organelles, **astrocytes displayed numerous cytoplasmic alterations. All astrocytes and their processes were enlarged.**"	No	NA	1	1-2	2	NA	2
Jenkins 1979	https://pubmed.n	1979	Cat	37°C	In situ	Perfusion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Multiple or no clear focus	Multiple or no clear focus	25 minutes	General cell membrane	Longest time point measured.	"The **enlargement or swelling of neuronal somata and processes was minimal in the present investigation.** The only evidence indicating such a change was **a progressive decrease in the electron density of the neuronal cytoplasmic matrix** with insults of increasing duration. This observation is in agreement with previous ultrastructural studies of CCI without post- ischemic recirculation (Garcia et al., 1975; Kalimo et al., 1977). However, **relative to either neurons or oligodendrocytes a more dramatic enlargement of astrocytic cell bodies and processes was observed after 15 and 25min of CCI in this study.**"	No	NA	0	1	1	NA	1
Karlsson 1966	https://doi.org/10	1966	Rat	Not recorded	In situ	Perfusion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Multiple or no clear focus	Multiple or no clear focus	0.25 hours	Extracellular space		"After 5 minutes of circulatory arrest, most of the tissue blocks observed still exhibited about the same amount of extracellular space as found in the control material. After 15, 30, and 60 minutes of perfusion delay, however, **considerably more extracellular space was observed in almost all tissue blocks** (Figs. 1 and 2). The results are summarized in Table I. In any block, however, locations of practically no extracellular space (Figs. 4 and 9) were mixed with those exhibiting small-scale extracellular space (up to a few hundred angstroms) and large-scale extracellular space (more than a few hundred angstroms)."	No	NA	1	1	1	NA	1
Karlsson 1966	https://doi.org/10	1966	Rat	Not recorded	In situ	Perfusion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Multiple or no clear focus	Multiple or no clear focus	1 hour	General cell membrane		"It has been shown that the **triple-layered membrane structure persists up until at least 1 hour after exsanguination.** This must reflect a **fair stability of this structural representation of the membrane**. The myelin sheath appears also to have similar resistance, as very few changes were observed in the experimental group. Most cellular organelles do, however, change in the brain tissue due to the fixation delay after circulatory arrest." ... **"All membranous parts of the cells were found distinctly triple layered regardless of the duration of perfusion delay (Fig. 1). Occasional plasma membrane breaks were encountered.**"	No	NA	1	1	1	NA	1
Karlsson 1966	https://doi.org/10	1966	Rat	Not recorded	In situ	Perfusion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Multiple or no clear focus	Oligodendrocyte	1 hour	Myelin		"Except for infrequently occurring membrane separation defects in the myelin sheath after 60 minutes of perfusion delay, the **myelin structure appeared quite resistant to the metabolic disturbances**"	No	NA	1	0	0	NA	0
Karlsson 1966	https://doi.org/10	1966	Rat	Not recorded	In situ	Perfusion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Multiple or no clear focus	Neuron	1 hour	Synapse		"**Little change was observed in membrane-associated synapse material**" ... "With increasing time of perfusion delay, fewer and flattened oblong synaptic vesicles (Fig. 1) appeared in the experimental group of animals. **Little change was observed in membrane-associated synapse material.** Sometimes an **increased synaptic plasma membrane separation** was observed together with the **increase in extracellular space, but also the reverse situation was encountered.**"	No	NA	1	0-1	1	NA	1
Koenig 1952	https://pubmed.n	1952	Guinea pig	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Nissl staining (thionin)	Multiple or no clear focus	Neuron	0.5 hours	General cell membrane		"It should be noted that in all the sections studied, except those of the 23 hours post mortem series **there was a variable number of apparently unaltered cells which decreased in frequency as the time interval between death and fixation increased**" ... **"[M]oderate swelling of the cell"** ... "There were already perceptible changes in the brain and spinal cord at this early stage as compared with control sections. These **changes were limited to the cytoplasm of the nerve cells** and consisted chiefly of a **moderate swelling of the cell, a slight fragmentation of Nissl bodies, and a reduction of cytoplasmic basophilia.**"	No	NA	1	1	1	NA	1
Koenig 1952	https://pubmed.n	1952	Guinea pig	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Nissl staining (thionin)	Multiple or no clear focus	Neuron	1 hour	General cell membrane		"The changes here were **qualitatively similar to those in the one-half hour brain and quantitatively more advanced**. In some cells, the marginal cytoplasm was clear"	No	NA	1	1	1	NA	1
Koenig 1952	https://pubmed.n	1952	Guinea pig	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Nissl staining (thionin)	Multiple or no clear focus	Neuron	2 hours	General cell membrane		"The **Nissl bodies were more fragmented than at the one hour stage** and cytoplasmic basophilia was further diminished."	No	NA	1	1-2	2	NA	1
Koenig 1952	https://pubmed.n	1952	Guinea pig	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Nissl staining (thionin)	Multiple or no clear focus	Neuron	3 hours	General cell membrane		"The cells were **markedly swollen**" ... **"Vacuoles were present in occasional cells** of the red nucleus and the ventral horn of the spinal cord."	No	NA	1	1	1	NA	1
Koenig 1952	https://pubmed.n	1952	Guinea pig	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Nissl staining (thionin)	Multiple or no clear focus	Neuron	4 hours	General cell membrane		"The alterations were of about the **same order of magnitude as in the three hour brain**"	No	NA	1	1	1	NA	1
Koenig 1952	https://pubmed.n	1952	Guinea pig	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Nissl staining (thionin)	Multiple or no clear focus	Neuron	7.5 hours	General cell membrane		"The **neurons were slightly more severely altered** than in the three and four hours brains."	No	NA	1	2	2	NA	2
Koenig 1952	https://pubmed.n	1952	Guinea pig	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Nissl staining (thionin)	Multiple or no clear focus	Neuron	10 hours	General cell membrane		"The nerve cells in the red nucleus and the oculomotor nucleus were **little changed from those in the seven and one-half hours brain**"	No	NA	1	2	2	NA	2
Koenig 1952	https://pubmed.n	1952	Guinea pig	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Nissl staining (thionin)	Frontal cortex	Pyramidal cell	10 hours	General cell membrane		"[T]he pyramidal cells of the frontal cortex were in a **very poor state of preservation. The cell and nuclear outlines were indistinct,** and the cells appeared washed out. **Cytoplasmic vacuoles** were present in many cells"	No	NA	2	3	3	NA	3
Koenig 1952	https://pubmed.n	1952	Guinea pig	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Nissl staining (thionin)	Multiple or no clear focus	Neuron	23.5 hours	General cell membrane		"The nerve cells in all the groups studied, with but occasional exceptions, were **extremely altered. Cell margins were hazy** ... In many cells there was an amorphous granular lightly staining cytoplasm. **Dendritic and axonal processes often stained a diffuse blus for considerable distances.** Vacuoles were common."	No	NA	2	3	3	NA	3
Krinke 2001	https://pubmed.n	2001	Rat	Room temperature	Not recorded	Immersion fixation	Light microscopy	No	Morphologically stained with fluoro-jade B	Multiple or no clear focus	Neuron	16 hours	General cell membrane		"Fluoro-jade stain identified the **necrotic neurons** sensitively and selectively in the **perfusion-fixed tissue** (fig. 2). In the brain tissue fixed by immersion immediately after death, necrotic neurons emitted selective fluoro-jade fluorescence, but additionally to it the red blood cells were positive as well and, like in the HE stain, the **presence of erythrocytes hampered the recognition of positive neurons** (fig. 4). Following 4 hour autolysis, the fluoro-jade stain of necrotic neurons was still positive, but after 16 hour autolysis, **neither the previously positive areas, nor any other brain areas emitted positive fluorescence, except the unspecific fluorescence of red blood cells**"	No	NA	3	2	2	NA	2
Lavenex 2009	https://pubmed.n	2009	Rhesus monkey	4°C	In situ	Immersion fixation	Light microscopy	No	Nissl staining (thionin)	Hippocampal formation	Neuron	48 hours	General cell membrane	Comparison of PMIs of up to 48 hours with 2 hours in immersion fixed tissue.	"[A]lthough our analyses **did not show that soma size was further affected by increasing postmortem intervals**... cell somas... could be more easily distinguished from each other particularly at longer postmortem intervals".	No	NA	1	0	0	NA	1
Lavenex 2009	https://pubmed.n	2009	Rhesus monkey	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for SMI-32 (Neurofilament H non-phosphorylated)	Hippocampal formation	Neuron	48 hours	General cell membrane	Comparison of PMIs of up to 48 hours with 2 hours in immersion fixed tissue.	"Analysis of SMI-32 immunoreactivity patterns in the hippocampal formation... **no differences due to the varying postmortem intervals until immersion-fixation** (i.e., patterns of staining in tissue immersion-fixed after 2 h resembled those in tissue immersion-fixed after 48 h)"	No	NA	0	0	0	NA	0
Lavenex 2009	https://pubmed.n	2009	Rhesus monkey	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for acetylcholinesterase	Hippocampal formation	Neuron	48 hours	General cell membrane	Comparison of PMIs of up to 48 hours with 2 hours in immersion fixed tissue.	**"AChE distribution** in the hippocampal formation appeared to be **largely unaffected by postmortem interval or immersion-fixation** (Figure 4A,B). There were, however, a few differences. First, the **overall staining intensity appeared decreased** throughout the brain. Although regional staining patterns remained unchanged, and the density of AChE-positive fibers did not seem to be affected, the **staining intensity of individual fibers was weaker.**"	No	NA	1	1	1	NA	1
Lavenex 2009	https://pubmed.n	2009	Rhesus monkey	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for calretinin	Hippocampal formation	Neuron	48 hours	Dendrite	Comparison of PMIs of up to 48 hours with 2 hours in immersion fixed tissue. Calbindin has no degradation between 2 and 48 hours, but clearly significant between 0 hour perfusion fixed and 2 hour immersion fixed tissue, so unable to grade.	"The varicose dendrites of the heavily stained neurons in the stratum pyramidale of CA1 were **not as clearly defined** in immersion-fixed tissue (Figure 8E, F), and the **degree of degradation correlated with postmortem interval**. Specifically, **dendrite staining was coarser**, appearing as a series of discontinuous clumps rather than a series of beads linked by a continuous fiber. This phenomenon was also observed in the molecular layer of the dentate gyrus and throughout the other hippocampal regions. The somas of the large multipolar cells located in the rostral polymorphic layer of the dentate gyrus were much less intensely stained in immersion-fixed tissue (Figure 8C, D), but as there was a high degree of inter-individual variability it was not possible to determine whether there was a correlation between postmortem interval and staining intensity. This was similarly the case for the calretinin-immunoreactive pyramidal neurons in layer V of areas Er and Ei. In contrast, the immunostaining of the small, round cell somas observed throughout the hippocampal formation did not appear to be affected by immersion-fixation or postmortem interval"	No	NA	2	2	2	NA	2
Lavenex 2009	https://pubmed.n	2009	Rhesus monkey	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for somatostatin	Hippocampal formation	Neuron	48 hours	Axon	Comparison of PMIs of up to 48 hours with 2 hours in immersion fixed tissue.	"Immunoreactive, grapelike clusters of apparently large, **axonal varicosities were commonly observed in immersion-fixed monkey tissue** (Figure 9D), as has been previously observed only in human tissue (Amaral et al., 1988). These grapelike clusters of large varicosities were observed in tissue immersion-fixed **even after 24 or 48 hours postmortem**, even though **fiber clarity decreased with increased postmortem interval** in other hippocampal regions, such as the outer molecular layer of the dentate gyrus."	No	NA	2	1	1	NA	1
Li 2012	https://pubmed.n	2012	Mouse	Room temperature	In Situ, following head disection	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for different glutamate transporter proteins with different antibodies	Multiple or no clear focus	Astrocyte	12 hours	Astrocyte domain		"[W]hen the sections were examined at higher magnification (Fig. 3), it was evident that the **loss of labeling observed with the antibodies to the termini** (anti-B12 and anti-B563) **did not occur evenly in all cells**. There was a **patchy loss of labeling.** At 12 hr (Fig. 3), some patches had **unchanged labeling, some had increased labeling, and some were completely devoid of labeling.** The staining pattern looked like a mosaic of tiles with different colors and with diameters at around 50 μm. This corresponds to the reported sizes of astrocyte domains in mice (Oberheim et al. 2009). (An astrocyte domain is the volume of tissue defined by the branches extending from one astrocyte. There is limited overlap between neighboring astrocyte domains."	No	NA	3	1	1	3	3

Study	Link:	Publication Year:	Species:	Temperature:	Brain Location (in situ vs ex situ vs other):	Initial preservation:	General microscopy method:	Immunostaining primarily:	Visualization method specifics:	Brain Region:	Cell Type:	Time Point:	Structural Feature:	Additional outcome specifier, if any:	Decomposition outcome:	Pilot Round?	Pilot Grade:	Decomposition Grade - Grader 1:	Decomposition Grade - Grader 2:	Random choice for multiple grades from grader 2:	Decomposition Grade - Grader 3:	Consensus grade:
Lindenberg 1956	https://pubmed.n	1956	Cat	37°C	Ex situ	Immersion fixation	Light microscopy	No	Morphological staining with cresyl violet or thionine	Multiple or no clear focus	Neuron	0.5 hours	General cell membrane		"The **first cellular change could be observed after about 30 minutes.** The larger pyramidal cells showed a **mild swelling of the cell body**." ... "In cells of the small karyochrome type, a similar swelling could be found; occasionally, **small vacuole-like transparencies** had already developed in the protoplasm (Fig. 8)."	Yes	1	1	1	1	NA	1
Lindenberg 1956	https://pubmed.n	1956	Cat	37°C	Ex situ	Immersion fixation	Light microscopy	No	Morphological staining with cresyl violet or thionine	Multiple or no clear focus	Neuron	6 hours	General cell membrane		"By the time the unfixed brain tissue had been in the incubator for 6 hours, **considerable cellular changes had developed.** They consisted of two types which, in many cells, were more or less combined. The first type was characterized by formation of "**vacuoles**," the content of which was **not stainable.** These vacuoles developed within the protoplasmic strands, enlarged, and eventually coalesced, **destroying the original structure of the cell body**." Also Figure 9/10.	Yes	2	2	2	2	NA	2
Lindenberg 1956	https://pubmed.n	1956	Cat	37°C	Ex situ	Immersion fixation	Light microscopy	No	Morphological staining with cresyl violet or thionine	Multiple or no clear focus	Neuron	12 hours	General cell membrane		"In tissues kept unfixed in the incubator for 12 hours, the changes were more pronounced" ... "Those cells which suffered mainly from vacuolization during the first 6 hours of anoxia still displayed a **foamy appearance**, but **their outlines were usually no longer recognizable (Fig. 12)."**	Yes	3	3	3	3	NA	3
Lindenberg 1956	https://pubmed.n	1956	Cat	37°C	Ex situ	Immersion fixation	Light microscopy	No	Morphological staining with cresyl violet or thionine	Multiple or no clear focus	Neuron	48 hours	General cell membrane		"Beyond a period of 12 hours, the **changes proceeded at a slower rate**. After 48 hours, the typical picture of Spielmeyer's **"'ischemic'" alteration of nerve cells had developed in most cells** (Figs. 15 and 16). As a rule, the **nuclei were shrunken, often triangular, and indistinct in outline**. In some cells, however, the nucleus was either **disintegrated** or surprisingly well preserved. The protoplasm was **homogeneous and pale, and showed signs of previous swelling or of various degrees of shrinkage.** There was pyknosis or karyorrhexis of the accompanying glial nuclei. The cells which had developed extensive vacuolization **were almost dissolved and only a small spot was found as the remainder of the nucleus.**"	Yes	3	3	3	3	NA	3
Lindenberg 1956	https://pubmed.n	1956	Cat	18°C	Ex situ	Immersion fixation	Light microscopy	No	Morphological staining with cresyl violet or thionine	Multiple or no clear focus	Neuron	12 hours	General cell membrane	Storage at 18°C	"It was considerably retarded if the tissues were kept at 18° C. At that temperature **the first signs of homogenization and vacuolization did not become noticeable until about 12 hours after death.**"	Yes	1	1	1	1	NA	1
Lindenberg 1956	https://pubmed.n	1956	Cat	37°C	Ex situ	Immersion fixation	Light microscopy	No	Morphological staining with cresyl violet or thionine	Multiple or no clear focus	Neuron	18 hours	General cell membrane	Cats exposed to premortem hypoxia for at least 60 minutes prior to death	"The **longer the premortal hypoxia lasted, the fewer were the changes in the nerve cells**. After a premortal hypoxia of about 60 minutes, the **cells fixed 30 minutes after death did not differ from their equivalent pictures** shown in Figures 1 to 4. Even if kept unfixed in the incubator at 37° C. **For 12 hours, they underwent no changes** (Figs. 26 to 29). The presence of a few putrefactive bacteria had no influence on the cell structure (Fig. 27). In tissues kept unfixed in saline solution at 37° C. for 18 hours, the cells still showed no **disintegration of their structure** (Fig. 30). With **increasing interval between death and fixation, however, there was a slow decrease in staining property.** The general structure of the cells, however, and their nuclei remained essentially unchanged (Fig. 31). The accompanying glia showed no signs of pyknosis or karyorrhexis."	Yes	0	0	1	1	NA	1
Liu 1995	https://pubmed.n	1995	Human	4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for synaptophysin	Frontal cortex	Neuron	36 hours	Synapse		"The synaptophysin immunoreactivity appeared as granules within the cortical neuropil and not within perikarya, apparently reflecting the distribution of synapses. In all cases **the staining was present only in grey matter while the white matter underlying the cortical layers and the vascular and glial cells were unstained**. The neuronal cytoplasm displayed a **very light granular reaction** which might represent the synaptophysin just synthesized in the cell. The granular staining pattern was abolished on control sections in which the primary antibody was replaced by nonimmune mouse serum. In all samples studied, we noted minimal if any background artifact. **Increase in postmortem delay affected the staining intensity only at 48 and 72 h postmortem.**" ... "In the normal group, OD obtained 1, 8, 12, 24 and 36 h after death were essentially the same (table 1). The slight decrease of the OD at these time points was statistically not significant. How ever, OD at 48 and 72 h postmortem decreased signifi cantly compared to the OD at 1, 8, 12,24 or 36 h postmor tem (table 1)"	No	NA	0	0	0	NA	0
Magnusson 1989	https://pubmed.n	1989	Rat	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for taurine	Hippocampus	Most classes of cells except dentate basket cells and certain interneurons	6 hours	General cell membrane		"Some of the rat brains which experienced a 6-hour delay to fixation demonstrated a **loss of Tau2 staining** in the DG and CA1 region." Also Table 1.	No	NA	3	2	2	NA	2
Magnusson 1989	https://pubmed.n	1989	Rat	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for taurine	Dentate gyrus	Basket cells in the dentate and interneurons within stratum oriens, pyrami- dal cell layer, and molecular layer of CA1	24 hours	General cell membrane		"Interneurons within stratum oriens, pyramidal cell layer, and molecular layer of CA1 **retained their immunostaining capacity for Tau2** after a 24-hour delay to fixation (Fig. 7C). Dentate basket cells were also stained in all three 24-hour-delay rats (Fig. 7D)"	No	NA	1	0-1	0	NA	1
Merino-Serrais 2020	https://pubmed.n	2020	Mouse	Not recorded	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for calbindin	Hippocampus	Pyramidal cells	5 hours	General cell membrane		"**No changes in the general pattern of distribution of CB immunostaining** throughout the CA1 pyramidal cell layer were observed in either human or mouse brains with PT up to 5 h" ... "Furthermore, we observed a **lower immunostaining intensity in cell bodies, neuronal processes and neuropil in immersion-fixed mouse tissue extracted after 2 h up to 5 h PT** (Fig. 4F and J), as compared to tissue from perfused animals (Fig. 4D and H) or immersion-fixed mouse brain 0 h 0 min PT (Fig. 4E and I)."	No	NA	1	1	1	NA	1
Monroy-Gomez 2020	https://pubmed.n	2020	Mouse	Room temperature (approximately 22 °C)	In situ	Immersion fixation	Light microscopy	No	Hematoxylin and eosin stain	Multiple or no clear focus	Multiple or no clear focus	6 hours	Blood vessels		"Effects of postmortem degradation were evident after hour six, where **vascular dilatation in the tissue and the beginning of chromatin condensation were observed.**"	Yes	1	1	NA	NA	NA	1
Monroy-Gomez 2020	https://pubmed.n	2020	Mouse	Room temperature (approximately 22 °C)	In situ	Immersion fixation	Light microscopy	No	Hematoxylin and eosin stain	Cerebellum	Multiple or no clear focus	12 hours	Neuropil		"At 12 h postmortem (C), the **tissue degradation process is clear**; **granulation of the neuropil** does not allow the observation of dendrites". Also Figure 1C.	Yes	3	3	NA	NA	NA	3
Monroy-Gomez 2020	https://pubmed.n	2020	Mouse	Room temperature (approximately 22 °C)	In situ	Immersion fixation	Light microscopy	No	Hematoxylin and eosin stain	Cerebellum	Purkinje cell	12 hours	Purkinje cell membrane		"At 12 h postmortem (C) ... **Dissolution of cytoplasm and neuronal nucleus in some Purkinje cells is also noted.** Well-preserved Purkinje cells can be seen in the box, one of them with an eosinophilic inclusion in the cytoplasm (arrowhead)." Also Figure 1C.	Yes	1	1	NA	NA	NA	1
Monroy-Gomez 2020	https://pubmed.n	2020	Mouse	Room temperature (approximately 22 °C)	In situ	Immersion fixation	Light microscopy	No	Hematoxylin and eosin stain	Cerebellum	Purkinje cell	30 hours	General cell membrane		"Tissue with 30 h of postmortem degradation. Notice the **loss of integrity and the autolysis in Purkinje cells** with an absence of eosinophilic inclusions". Also Figure 1D.	Yes	3	3	NA	NA	NA	3
Monroy-Gomez 2020	https://pubmed.n	2020	Mouse	Room temperature (approximately 22 °C)	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for rabies antigen	Multiple or no clear focus	Pyramidal neuron and Purkinje cell	30 hours	General cell membrane		"Cortical pyramidal neurons at 30 h postmortem. There is a **loss of neurons in some areas due to degradation, but in others, the intense immunoreactivity of the soma and of the apical dendrite is preserved**. Also Figure 2D, "At 30 h postmortem (D), the tissue presents degradation, but immunoreactivity is preserved in the soma". Also Figure 3D.	Yes	3	3	NA	NA	NA	3
Monroy-Gomez 2020	https://pubmed.n	2020	Mouse	Room temperature (approximately 22 °C)	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for rabies antigen	Cerebellum	Purkinje cell	6 hours	General cell membrane		"Cerebellum with 6 h of postmortem degradation, where **several viral inclusions** (arrowheads) and **morphology delimitation of the Purkinje cells are observed** (arrow)". Also Figure 2B.	Yes	0	0	NA	NA	NA	0
Monroy-Gomez 2020	https://pubmed.n	2020	Mouse	Room temperature (approximately 22 °C)	In situ	Immersion fixation	Light microscopy	No	Morphological staining with toluidine blue	Cerebral cortex	Multiple or no clear focus	6 hours	Neuropil		**"Effects of tissue degradation were evident at 6 h postmortem** when the beginning of **autolysis, chromatin condensation, nucleus retraction, and granulation of the neuropil** were observed (Figure 4B). These histological changes were more accentuated with a greater postmortem time". Also Figure 4B.	Yes	1	1	NA	NA	NA	1
Monroy-Gomez 2020	https://pubmed.n	2020	Mouse	Room temperature (approximately 22 °C)	In situ	Immersion fixation	Light microscopy	No	Morphological staining with toluidine blue	Cerebral cortex	Neuron	30 hours	General cell membrane	Morphological staining	"Tissue fixed at 30 h postmortem where the granular neuropil (np) dominates, **loss of neuronal morphology by autolysis and nuclei retraction.**" Also Figure 4C.	Yes	3	3	NA	NA	NA	3
Monroy-Gomez 2020	https://pubmed.n	2020	Mouse	Room temperature (approximately 22 °C)	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for rabies antigen	Cerebral cortex	Neuron	30 hours	General cell membrane	Immunostaining	"Sample of material fixed at 30 h postmortem processed for pre-embedding immunomicroscopy in Durcupan. **The viral antigens immunoreactivity delimits the profile of the soma in infected neurons despite the autolysis.**" Also Figure 4D.	Yes	2	2	NA	NA	NA	2
Monroy-Gomez 2020	https://pubmed.n	2020	Mouse	Room temperature (approximately 22 °C)	In situ	Electron microscopy	No	Morphological staining with osmium tetroxide		Cerebral cortex	Neuron	30 hours	General cell membrane	Electron microscopy	"D) Ultrastructural images of nervous tissue processed at 30 h postmortem. (C) **Neuropil (np) degradation is noteworthy, as well as that of a neuron presenting nucleus retraction (n) and autolysis.**" Also Figure 5.	Yes	2	2	NA	NA	NA	2
Monroy-Gomez 2020	https://pubmed.n	2020	Mouse	Room temperature (approximately 22 °C)	In situ	Immersion fixation	Electron microscopy	Yes, immunostaining primarily	Immune electron microscopy for rabies antigen	Not recorded	Neuron	30 hours	General cell membrane	Immuno-electron microscopy	"With the immune electron microscopy, it became evident **the viral antigens distribution on the neuronal cytoplasm until 30 h postmortem**, which was revealed by the reaction between the diaminobenzidine and the osmium tetroxide (Figure 6)". Also Figure 6.	Yes	2	2	NA	NA	NA	2
Mori 1991	https://pubmed.n	1991	Rat	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining with anti-rat IgG and anti-rat albumin	Cortex	Multiple or no clear focus	48 hours	Blood vessels		"Upon fixation 48 hours after death, **intense and diffuse background was observed in the entire sections, and no blood vessels could be seen. Most labeled neurons scattered in the cortices were more intensely stained than background, and contrasted with unlabeled cells which appeared blank** (Fig. 6)."	No	NA	3	3	3	NA	3
Mori 1991	https://pubmed.n	1991	Rat	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining with anti-rat IgG and anti-rat albumin	Cortex	Multiple or no clear focus	20 hours	Blood vessels	Old rats	**"In aged brains fixed immediately after decapitation, the distribution of IgG immunoreactivity was essentially similar to that of young brains fixed from 0 through 20 hours postmortem.** However, when fixation was carried out 2 hours after death, a few areas of focal leakage were present. Both perikarya and processes of neurons, but not their nuclei, were preferentially immunostained and were accompanied by moderate background (Fig. 5). Few glial cells were stained. In these regions, the microvessels could hardly be distinguished, whereas the fine network of microvessel immunoreactivity was well preserved in unaffected areas. Extravascular immunoglobulin was inIdependent of arterioles in distribution. **Upon fixation 20 hours after death, the extent of extravasation continued to increase. Many labeled neurons were scattered throughout the cortices and background became more widespread, though microvessels were still seen in some areas."**	No	NA	2	2-3	3	NA	3
Mori 1991	https://pubmed.n	1991	Rat	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining with anti-rat IgG and anti-rat albumin	Cortex	Multiple or no clear focus	2 hours	Blood vessels	Old rats	"In aged brains fixed immediately after decapitation, the distribution of IgG immunoreactivity was essentially similar to that of young brains fixed from 0 through 20 hours postmortem. However, **when fixation was carried out 2 hours after death, a few areas of focal leakage were present. Both perikarya and processes of neurons, but not their nuclei, were preferentially immunostained and were accompanied by moderate background (Fig. 5). Few glial cells were stained. In these regions, the microvessels could hardly be distinguished, whereas the fine network of microvessel immunoreactivity was well preserved in unaffected areas. Extravascular immunoglobulin was inIdependent of arterioles in distribution.** Upon fixation 20 hours after death, the extent of extravasation continued to increase. Many labeled neurons were scattered throughout the cortices and background became more widespread, though microvessels were still seen in some areas."	No	NA	1	2	2	NA	2
Nakabayashi 2021	https://www.sems	2021	Rat	21°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Confocal microscopy, immunostaining with anti-PSAP and anti-MAP2, and staining with DAPI as well	Hippocampus CA1	Neuron	3 hours	General cell membrane		"We found almost **no morphological changes** in the CA1 pyramidal at cells 3 h after death (Fig. 4a1–4)"	No	NA	0	0	0	NA	0
Nakabayashi 2021	https://www.sems	2021	Rat	21°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Confocal microscopy, immunostaining with anti-PSAP and anti-MAP2, and staining with DAPI as well	Hippocampus CA1	Neuron	6 hours	Dendrite		"The **density of basal dendrites started to decrease** by 6 h after death (Fig. 4b4). At this time point, the **apical dendrite width was decreased** but the **length and number were maintained** some of the secondary branches had disappeared 6 h after death (Fig. 4b1, b2)."	No	NA	3	1	1	2	2
Nakabayashi 2021	https://www.sems	2021	Rat	21°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Confocal microscopy, immunostaining with anti-PSAP and anti-MAP2, and staining with DAPI as well	Hippocampus CA1	Neuron	6 hours	Soma		"The morphology of the cell soma, as well as the expression levels and distribution pattern of PSAP, were **unchanged at 6 h after death** (Fig. 4b3)."	No	NA	0	0	0	NA	0
Nakabayashi 2021	https://www.sems	2021	Rat	21°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Confocal microscopy, immunostaining with anti-PSAP and anti-MAP2, and staining with DAPI as well	Hippocampus CA1	Neuron	12 hours	Dendrite		"The **density of basal dendrites was markedly reduced** by 12 h after death (Fig. 4c4). Additionally, the distal part of apical dendrites and the side branches had **almost disappeared** at 12 h after death"	No	NA	3	2	2	NA	3
Nakabayashi 2021	https://www.sems	2021	Rat	21°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Confocal microscopy, immunostaining with anti-PSAP and anti-MAP2, and staining with DAPI as well	Hippocampus CA1	Neuron	24 hours	Soma	Text bolded to emphasize that this outcome relates to the soma feature, and the statement about dendrite is there for context about the time point.	"We observed no basal or apical primary dendrites at 1 d after death, and only the stems of pyramidal neurons were maintained (Fig. 4d1, d2). **The nuclei had shrunk further, and the cell bodies became narrower** (Fig. 4d3)."	No	NA	1	2-3	2	NA	2

Study	Link:	Publication Year:	Species:	Temperature:	Brain Location (in situ vs ex situ vs other):	Initial preservation:	General microscopy method:	Immunostaining primarily:	Visualization method specifics:	Brain Region:	Cell Type:	Time Point:	Structural Feature:	Additional outcome specifier, if any:	Decomposition outcome:	Pilot Round?	Pilot Grade:	Decomposition Grade - Grader 1:	Decomposition Grade - Grader 2:	Random choice for multiple grades from grader 2:	Decomposition Grade - Grader 3:	Consensus grade:
Nakabayashi 2021	https://www.semi	2021	Rat	21°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Confocal microscopy, immunostaining with anti-PSAP and anti-MAP2, and staining with DAPI as well	Hippocampus CA1	Neuron	72 hours	Soma		"**Neuronal bodies had disappeared** at 3 d after death." Figure 5 schematic.	No	NA	3	3	3	NA	3
Nakabayashi 2021	https://www.semi	2021	Rat	21°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Confocal microscopy, immunostaining with anti-PSAP and anti-MAP2, and staining with DAPI as well	Hippocampus CA1	Neuron	168 hours	Soma		"**[C]ell bodies were entirely fragmented** at 7 d after death." Figure 5 schematic.	No	NA	3	3	3	NA	3
Oehmichen 1980	https://pubmed.n	1980	Rat	22°C	In situ	Immersion fixation or freezing	Light microscopy	No	Morphological staining of fixed tissue, for example H&E, or histochemical staining of frozen tissue	Multiple or no clear focus	Astrocyte	48 hours	General cell membrane		"Astrocytes however exhibit **relatively few changes. They are also striking because of the swelling**. Autolytic alterations are not reliably ascertainable with light microscopy."	No	NA	1	1	1	NA	1
Oehmichen 1980	https://pubmed.n	1980	Rat	22°C	In situ	Immersion fixation or freezing	Light microscopy	No	Morphological staining of fixed tissue, for example H&E, or histochemical staining of frozen tissue	Thalamus and reticular formation of the pons	Neuron	1 hour	General cell membrane		"The **body of the nerve cell swells**. The nucleus appears to be **inflated and is lightly colored. Decreased basophilia, increased clumping, as well as deterioration of the substance of Nissl and the nuclear chromatin is observed at the same time** (Fig. 2). Sometimes the nucleus becomes **dark and a double membrane is visible.** Intracytoplasmic **vacuoles**" . . "Nerve cells distinctly altered by **autolysis** first appear after a postmortal interval of 8 hours. At this time, they are observed almost exclusively in the reticular formation of the pons and singly in the medial and anteroventral (Fig. 1 a) thalamic nuclei. **Slight swelling and clumping of the cytoplasm may be observed after two hours or even as little as one hour."**	No	NA	1	1	1	NA	1
Oehmichen 1980	https://pubmed.n	1980	Rat	22°C	In situ	Immersion fixation or freezing	Light microscopy	No	Morphological staining of fixed tissue, for example H&E, or histochemical staining of frozen tissue	Reticular formation of the pons	Neuron	16 hours	General cell membrane		"Sixteen hours post mortem, all nerve cells in the reticular formation of the pons are **shrunken, swollen, or deteriorated by autolysis.**"	No	NA	2	2-3	2	NA	2
Oehmichen 1980	https://pubmed.n	1980	Rat	22°C	In situ	Immersion fixation or freezing	Light microscopy	No	Morphological staining of fixed tissue, for example H&E, or histochemical staining of frozen tissue	Cerebellum and cerebral cortex	Neuron	24 hours	General cell membrane		"The number of Purkinje's cells altered by autolysis increases 24 hours post mortem. The **molecular cell layer progressively detaches from the granular cell layer. The number of nerve cells altered by autolysis increases in the cerebral cortex** as well. Altered nerve cells are found primarily in the fourth and fifth layers of the neurons in the cerebral cortex, particularly lateral to the sulcus sagittalis."	No	NA	2	2-3	3	NA	3
Oehmichen 1980	https://pubmed.n	1980	Rat	22°C	In situ	Immersion fixation or freezing	Light microscopy	No	Morphological staining of fixed tissue, for example H&E, or histochemical staining of frozen tissue	Cerebellum	Neuron	40 hours	General cell membrane		"**Autolysis has destroyed almost all Purkinje's cells** after 40 hours post mortem."	No	NA	3	3	3	NA	3
Oehmichen 1980	https://pubmed.n	1980	Rat	22°C	In situ	Immersion fixation or freezing	Light microscopy	No	Morphological staining of fixed tissue, for example H&E, or histochemical staining of frozen tissue	Hippocampus major	Neuron	48 hours	General cell membrane		"The number of nerve cells with these autolytic alterations increases up to 48 hours post mortem. **Most nerve cells of the formation of the hippocampus major however are still morphologically intact at this time.**"	No	NA	1	2	2	NA	2
Pakkenberg 1964	https://pubmed.n	1964	Guinea pig, cow	4°C	Ex situ	Immersion fixation	Light microscopy	No	Stained with Einarson's gallocyanin method	Cerebral and cerebellar cortices	Multiple or no clear focus	5 hours	General cell membrane		"Tissue removed 5 hrs post mortem. **Many cells are seen to show loss of substance (holes) in the cytoplasm, and the same numbers of shrunken cells are seen as previously** [referring to the baseline time point of no PM]".	No	NA	1	1	1	NA	1
Pakkenberg 1964	https://pubmed.n	1964	Guinea pig, cow	4°C	Ex situ	Immersion fixation	Light microscopy	No	Stained with Einarson's gallocyanin method	Cerebral and cerebellar cortices	Multiple or no clear focus	24 hours	General cell membrane		"There is more pronounced loss of substance in the cytoplasm than in the previous case, and **a number of shrunken cells are seen.**"	No	NA	1	2	2	NA	2
Pakkenberg 1964	https://pubmed.n	1964	Guinea pig, cow	4°C	Ex situ	Immersion fixation	Light microscopy	No	Stained with Einarson's gallocyanin method	Cerebral and cerebellar cortices	Multiple or no clear focus	48 hours	General cell membrane		"The number of well-preserved cells is now limited. **Most of the cells show either shrinkage or loss of cytoplasmic substance**"	No	NA	2	2	2	NA	2
Pakkenberg 1964	https://pubmed.n	1964	Guinea pig, cow	4°C	Ex situ	Immersion fixation	Light microscopy	No	Stained with Einarson's gallocyanin method	Cerebral and cerebellar cortices	Multiple or no clear focus	72 hours	General cell membrane		"Tissue removed 3 days post mortem. **The cells likewise show either loss of cytoplasmic substance or shrinkage, and there are only a few well-preserved cells.**"	No	NA	2	2	2	NA	2
Pakkenberg 1964	https://pubmed.n	1964	Guinea pig, cow	4°C	Ex situ	Immersion fixation	Light microscopy	No	Stained with Einarson's gallocyanin method	Cerebral and cerebellar cortices	Multiple or no clear focus	96 hours	General cell membrane		"Tissue removed 4 days post mortem. **Innumerable shrunken and distorted cells are seen**, with only a few more or less well-preserved cells occasionally. Almost all the nuclei are obviously shrunken and pyknotic, so that **details cannot be distinguished. The structures appear to have partly disintegrated"**	No	NA	3	3	3	NA	3
Petit 1990	https://pubmed.n	1990	Rat	5°C	In situ	Immersion fixation	Electron microscopy	No	EPTA staining method	Dorsal motor-sensory cortex in the area of the anterior pole of the hippocampus	Neuron	6 hours	Synapse counts		"In the EPTA-stained tissue, synaptic density showed an initial non-significant slow steady drop beginning at 1 h, the earliest time examined (Fig. 3). **This drop became marked and reached significance at 6 h (P < 0.05).** By 10-15 h post-mortem, synaptic counts were down to approximately 30-40% of their initial levels."	No	NA	3	3	3	NA	3
Petit 1990	https://pubmed.n	1990	Rat	5°C	In situ	Immersion fixation	Electron microscopy	No	Osmium staining method	Dorsal motor-sensory cortex in the area of the anterior pole of the hippocampus	Neuron	1 hour	Synapse counts		"[I]n the osmium-stained tissue **synaptic counts showed an initial marked and significant drop by 1 h** (P < 0.01; Fig. 3). Following this initial drop, there was little change in synaptic counts until 15 h post-mortem at which time there was another marked drop."	No	NA	3	3	3	NA	3
Petit 1990	https://pubmed.n	1990	Rat	5°C	In situ	Immersion fixation	Electron microscopy	No	EPTA staining method	Dorsal motor-sensory cortex in the area of the anterior pole of the hippocampus	Neuron	1 hour	Synapse morphometry		"The data on synaptic structure are presented in Fig. 4. **No significant differences were noted in cleft width between any groups. Increases in pre- and postsynaptic length were observed in all post-mortem delay groups, with significant differences seen at the earliest delay** (P < 0.05; pre- at 1, 4 and 10 h; post- at 1 and 4 h). The increase, ranging from approximately 5 to 30%, appeared to **occur within the first hour post-mortem,** with little consistent change after that time. There were no consistent changes in maximal pre- or postsynaptic height, even after lengthy post-mortem delays. Virtually all post- mortem delay groups showed a **small increase in pre- and postsynaptic area.** This increase did not appear to be related to delay interval, and only reached significance in one group (P < 0.05 pre- at 4 h). As might be expected from an increase in synaptic length, there **was also an increase in pre- and postsynaptic perimeter** (P < 0.05; pre - at 1, 2 and 4h; post- at 1 and 4h). As with length, the increase appeared to occur within the first post-mortem hour with little consistent change past that time."	No	NA	1	1	1	NA	1
Quartu 2005	https://pubmed.n	2005	Rat	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for neurturin (NTN), persephin (PSP), and artemin (ART)	Multiple or no clear focus	Multiple or no clear focus	70 hours	General cell membrane		"The **anti-NTN serum revealed very little positive elements** in the rat hippocampus and fascia dentata, whereas it labeled neurones and fibers in other brain areas, such as the red nucleus and the lateral habenular nucleus (data not shown), where the **immunostaining persisted with similar aspect up to 70 h postmortem**. The anti-PSP serum stained a number of neurons in the hippocampus, fascia dentata, and subicular cortex with a localization partially overlapped by similar elements detected by the anti-ART serum. However, **it also labeled elements not stained by the anti-ART one**. Figs. 2A–D show PSP-like immunoreactive (LI) neurons in the dorsal subiculum at 0 (A), 24 (B), 48 (C), and 70 h postmortem (D). While the lightly stained numerous perikarya also were immunolabeled by the anti-ART serum, the bigger neurons strongly stained in the soma, somatic membrane and branched processes were undetectable with the anti-ART serum. Figs. 2E–H show the presence of ART-LI neurons in the hilar region at 0 (E), 24 (F), 48 (G), and 70 h postmortem (H). **Although suffering of a bad tissue preservation, the discrete localization of the immunolabeling for the three substances was easily recognizable and persisted with comparable aspect up to 70 h postmortem.**" Also Figure 2.	No	NA	1	2	2	NA	2
Raadsheer 1993	https://pubmed.n	1993	Rat	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for CRH	Hypothalamus	Multiple or no clear focus	24 hours	General cell membrane		"From the rat data it also seems that the **CRH staining intensity is not affected by differences in postmortem delay."**	No	NA	0	0	0	NA	0
Rees 1976	https://pubmed.n	1976	Cat	Physiologic temperature	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Marginal gyrus of the parietal lobe	Neuron	4 hours	Synapse		"The structure of the synaptic apposition is **highly resistant to post mortem changes and apart from the synaptic gap increasing in width from 22 to 25 nm, it showed no signs of disintegration 4 h (cat) to 5 1/2 h (monkey) after death.**" . . "In the monkey, it was still possible to find a number of terminals containing between 20 and 40 vesicles 5 1/2 h after death. A high percentage of these vesicles had a flattened profile. Flattening of vesicles could occur as a result of osmotic changes in the axon terminal (see Valdivia) or as a distortion effect from precipitated protein complexes in the surrounding axoplasm (see Gray)" . . "Occasional axon terminals in both the cat and the monkey appeared to be swollen. Swollen terminals were evident 1/2 h after death, but they did not increase greatly in number or degree of swelling with time after death."	No	NA	1	0-1	0	NA	1
Rees 1976	https://pubmed.n	1976	Monkey	Room temperature	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Occipital lobe	Neuron	5.5 hours	Synapse		"The structure of the synaptic apposition is highly resistant to post mortem changes and apart from the synaptic gap increasing in width from 22 to 25 nm, it showed no signs of disintegration 4 h (cat) to 5 1/2 h (monkey) after death." . . "In the monkey, it was **still possible to find a number of terminals containing between 20 and 40 vesicles 5 1/2 h after death. A high percentage of these vesicles had a flattened profile. Flattening of vesicles could occur as a result of osmotic changes in the axon terminal** (see Valdivia) or as a distortion effect from precipitated protein complexes in the surrounding axoplasm (see Gray)" . . "Occasional axon terminals in both the cat and the monkey appeared to be swollen. Swollen terminals were evident 1/2 h after death, but they did not increase greatly in number or degree of swelling with time after death."	No	NA	1	1	1	NA	1
Rees 1976	https://pubmed.n	1976	Cat	Physiologic temperature	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Marginal gyrus of the parietal lobe	Neuron	0.5 hours	Dendrite		"Occasional axon terminals in both the cat and the monkey appeared to be swollen. **Swollen terminals were evident 1/2 h after death, but they did not increase greatly in number or degree of swelling with time after death.** Dendritic and Astrocytic Processes. **Dendritic and astrocytic processes had a swollen appearance in the tissue fixed 1/2 h after death.** Astrocytic processes, particularly those surrounding blood vessels, were markedly swollen 2 h after death."	No	NA	1	1	1	NA	1
Rees 1976	https://pubmed.n	1976	Monkey	Room temperature	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Occipital lobe	Neuron	0.5 hours	Dendrite		"Occasional axon terminals in both the cat and the monkey appeared to be swollen. Swollen terminals were evident 1/2 h after death, but they did not increase greatly in number or degree of swelling with time after death. Dendritic and Astrocytic Processes. **Dendritic and astrocytic processes had a swollen appearance in the tissue fixed 1/2 h after death.** Astrocytic processes, particularly those surrounding blood vessels, were markedly swollen 2 h after death."	No	NA	1	1	1	NA	1
Rees 1976	https://pubmed.n	1976	Cat	Physiologic temperature	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Marginal gyrus of the parietal lobe	Neuron	0.5 hours	Astrocyte process		"Occasional axon terminals in both the cat and the monkey appeared to be swollen. Swollen terminals were evident 1/2 h after death, but they did not increase greatly in number or degree of swelling with time after death. Dendritic and Astrocytic Processes. **Dendritic and astrocytic processes had a swollen appearance in the tissue fixed 1/2 h after death.** Astrocytic processes, particularly those surrounding blood vessels, were markedly swollen 2 h after death."	No	NA	1	1	1	NA	1
Rees 1976	https://pubmed.n	1976	Monkey	Room temperature	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Occipital lobe	Neuron	0.5 hours	Astrocyte process		"Occasional axon terminals in both the cat and the monkey appeared to be swollen. Swollen terminals were evident 1/2 h after death, but they did not increase greatly in number or degree of swelling with time after death. Dendritic and Astrocytic Processes. **Dendritic and astrocytic processes had a swollen appearance in the tissue fixed 1/2 h after death.** Astrocytic processes, particularly those surrounding blood vessels, were markedly swollen 2 h after death."	No	NA	1	1	1	NA	1
Rees 1976	https://pubmed.n	1976	Cat	Physiologic temperature	In situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Marginal gyrus of the parietal lobe	Neuron	1 hours	Myelin		"In the control material, **some of the myelin sheaths were well fixed while others showed separation and fragmentation of lamellae.** As myelin lamellae present a barrier to the penetration of fixative, thin sheaths were usually better fixed than thick ones. **Within 1 h of death, lamellar separation had become more pronounced and in some instances the lamellas had broken away from the sheath and formed loose membranous whorls within the axon and surrounding extracellular space.** Axons were frequently observed to have shrunken away from the surrounding sheath. All of these processes were accentuated with time after death although it was still possible to find several well fixed sheaths 4–5 1/2 h after death." "Monkey cortex immersed in fixative 4 h after death. Some of the sheaths are well fixed, others show marked separation of lamellae." Figure 4.	No	NA	1	2	2	NA	2
Rees 1976	https://pubmed.n	1976	Monkey	Room temperature	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Occipital lobe	Neuron	1 hours	Myelin		"In the control material, **some of the myelin sheaths were well fixed while others showed separation and fragmentation of lamellae.** As myelin lamellae present a barrier to the penetration of fixative, thin sheaths were usually better fixed than thick ones. **Within 1 h of death, lamellar separation had become more pronounced and in some instances the lamellas had broken away from the sheath and formed loose membranous whorls within the axon and surrounding extracellular space.** Axons were frequently observed to have shrunken away from the surrounding sheath. All of these processes were accentuated with time after death although it was still possible to find several well fixed sheaths 4–5 1/2 h after death." "Monkey cortex immersed in fixative 4 h after death. Some of the sheaths are well fixed, others show marked separation of lamellae." Figure 4.	No	NA	1	2	2	NA	2

Study	Link:	Publication Year:	Species:	Temperature:	Brain Location (in situ vs ex situ vs other):	Initial preservation:	General microscopy method:	Immunostaining primarily:	Visualization method specifics:	Brain Region:	Cell Type:	Time Point:	Structural Feature:	Additional outcome specifier, if any:	Decomposition outcome:	Pilot Round?	Pilot Grade:	Decomposition Grade - Grader 1:	Decomposition Grade - Grader 2:	Random choice for multiple grades from grader 2:	Decomposition Grade - Grader 3:	Consensus grade:
Routtenberg 1974	https://pubmed.n	1974	Rat	Not recorded	In situ	Perfusion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Hippocampus - dorsal lip of the dentate gyrus in the supragranular portion of the molecular layer	Neuron	1 minutes	Synapse	Technically they report that this outcome begins at "0 minutes", but it's not entirely clear how they are defining this relative to other studies, so categorizing the data point as beginning at the 1 minute time point they measured seems to make the most sense.	**Thickening of post-synaptic membrane; diminished concavity of the synapse; aggregation of spherical densities (intracellular).**	No	NA	1	2	2	NA	2
Scheuerle 1993	https://pubmed.n	1993	Mouse	Room temperature (25°C)	In situ	Not recorded	Light microscopy	No	Hematoxylin and eosin stain	Not recorded	Neuron	24 hours	General cell membrane		"Histologic analysis of hematoxylin/eosin (HE)-stained sections of brain tissue, obtained 24 h post-mortem showed that about **half the neurons were morphologically intact, while the other half showed nuclear fragmentation and disintegration (not shown).** Despite these autolytic changes, electron microscopy of isolated mt fractions **revealed preservation of the characteristic cristae structure** (Fig. 1). This was true of both "free" and synaptosomal mitochondria, that are derived mainly from neurons."	No	NA	3	3	3	NA	3
Schulz 1980	https://pubmed.n	1980	Cat	Not recorded	In situ	Freezing	Light microscopy	No	Morphological stain with cresyl violet	Cerebral cortex	Neuron	22 hours	General cell membrane		"For our purposes, the most important finding was the **very small, non-significant difference of size and form between intravital neurons and nerve cells 22 hours postmortem.**" . . . "With progressive autolysis at 5 hours and 22 hours after death, **dissolution of Nissl bodies (chromatolysis) and nuclei takes place** (Fig. IC and D) **cell staining becomes pale... The cytoplasm becomes lytic and disappears.** At a 22 hour postmortem interval, most of the neuronal nuclei undergo karyorrhexis (Fig. D)" + Figure 1.	No	NA	1	3	3	1	1
Schwab 1994	https://pubmed.n	1994	Rat	Stored at a temperature that that mimics the human brain cooling curve without refrigeration	In situ	Immersion fixation	Light microscopy	No	Morphological staining with cresyl violet	Hippocampus	Neuron	8 hours	General cell membrane	Longest time point studied	"The morphological appearance of neurons, as assessed by Cresyl violet staining, was **similar in perfused, immersion-fixed, and postmortem animals**"	No	NA	0	0	0	NA	0
Schwab 1994	https://pubmed.n	1994	Rat	Stored at a temperature that that mimics the human brain cooling curve without refrigeration	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for tau with tau-1 antibody	Hippocampus	Neuron	8 hours	Axon		"In the postmortem animals (Figs. 2,3), **tau-1 immunoreactivity was lost from axons and appeared to accumulate in the neuronal perikarya.** This became more prominent with increasing postmortem intervals, such that by 8 hours, the neuropil was very lightly stained whereas cellular immunoreactivity was intense. **Some axonal staining persisted in the mossy fibers and in a line along the inner one-third of the dentate gyrus molecular layer (DGML).** The cellular tau-1 staining in 8 hour postmortem tissues was granular and, in addition to the perikarya, tau-1 immunoreactivity was observed in the proximal portion of the apical dendrites and basal dendrites of some pyramidal neurons"	No	NA	3	2	2	NA	2
Schwab 1994	https://pubmed.n	1994	Rat	Stored at a temperature that that mimics the human brain cooling curve without refrigeration	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for MAP2	Hippocampus	Neuron	4 hours	Dendrite		"In the immersion-fixed control tissues, **MAP2 immunoreactivity was decreased in distal dendritas and enhanced in the neuronal cell bodies and proximal portions of both apical and basal dendrites.** The increase in cellular immunostaining was most pronounced in hilar neurons but was also evident in granule and pyramidal cells. Staining was also greatly decreased in the CA1 stratum oriens and in the molecular layer of the prosubiculum. These alterations progressed with increasing postmortem intervals (Fig. 7). **By 4 hours postmortem, staining had virtually disappeared from the DGML, and by 8 hours had disappeared from the granule cells.** Marked changes were observed in the subiculum where some neurons were intensely immunostained while pre- and parasubicular regions appeared devoid of both cellular and dendritic immunoreactivity. This was first observed in the parasubicular region and progressed towards prosubiculum/CA1 with increasing postmortem intervals. In the subicular neurons which remained immunostained in the 8 hour postmortem group, the dendrites were thickened and distorted"	No	NA	3	1	1	3	3
Schwab 1994	https://pubmed.n	1994	Rat	Stored at a temperature that that mimics the human brain cooling curve without refrigeration	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for MAP1B	Hippocampus	Neuron	1 hour	General cell membrane		"Altered MAPIB immunostaining in the rat hippocampal formation at various times postmortem. (A) In a perfused, control animal MAPIB immunoreactivity is observed in both axons and dendrites and lightly surrounds neuronal cell bodies. (B) **Following a postmortem interval of 1 hour, MAPIB immunostaining is enhanced in the cell bodies of granule, hilar, and pyramidal neurons and decreased in the neuropil.** This is more evident 4 hours postmortem (C), and by 8 hours (D), dendritic staining is largely absent, whereas axonal and somatic staining persist, except in the subicular region where somatic MAPIB immunoreactivity is lost." Also Figure 8	No	NA	1	1	1	NA	1
Schwab 1994	https://pubmed.n	1994	Rat	Stored at a temperature that that mimics the human brain cooling curve without refrigeration	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for MAP1B	Hippocampus	Neuron	8 hours	Dendrite		"Altered MAPIB immunostaining in the rat hippocampal formation at various times postmortem. (A) In a perfused, control animal MAPIB immunoreactivity is observed in both axons and dendrites and lightly surrounds neuronal cell bodies. (B) Following a postmortem interval of 1 hour, MAPIB immunostaining is enhanced in the cell bodies of granule, hilar, and pyramidal neurons and decreased in the neuropil. This is more evident 4 hours postmtem (C), and **by 8 hours (D), dendritic staining is largely absent, whereas axonal and somatic staining persist, except in the subicular region where somatic MAPIB immunoreactivity is lost." + Figure 8**	No	NA	3	2	2	NA	2
Serra 2005	https://pubmed.n	2005	Rat	4°C	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for GFRalpha-1, GFRalpha-2, GFRalpha-3 and Ret receptor molecules	Multiple or no clear focus	Neuron	72 hours	General cell membrane		"The anti-Ret, GFRalpha-1, GFRalpha-2, and GFRalpha-3 sera labelled a number of neurons in the hippocampus, fascia dentata and subicular cortex. **Although suffering of bad tissue preservation, the discrete localization of the immunolabelling for the four receptors was easily recognizable and persisted with comparable aspect up to 72 h post-mortem**" Also Figure 2	No	NA	1	2	2	NA	2
Sheleg 2008	https://pubmed.n	2008	Rat	Room temperature	In Situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin, Nissl stained (thionine)	Multiple or no clear focus	Neuron	24 hours	General cell membrane		"Absence of appreciable histological changes of the hippocampal neurons at 12 hours after warm cardiac arrest" . . . "Routine staining with H&E revealed **no appreciable histologic changes of the cortical, cerebellar, and hippocampal neurons within the study period**" . . . "Thionine (Nissl) staining demonstrated no evidence of nuclear breakdown, with retained nuclear integrity, and intact Nissl substance during the entire study interval. Nissl staining only showed tigrolysis in Purkinje cells and pyramidal cells in the hippocampus 12 hours after warm cardiac arrest. No hyper-chromatosis or pyknotic neurons were seen at 9 hours following cerebral anoxia at room temperature" . . . **"while H&E sections and sections stained with Thionine were fully devoid of autolytic changes up to 24 hours. Our results demonstrated a lack of autolytic damage to the same regions on both H&E and on Nissl staining.**"	No	NA	0	0-1	0	NA	0
Sheleg 2008	https://pubmed.n	2008	Rat	Room temperature	In Situ	Immersion fixation	Electron microscopy	No	Morphologically stained with hematoxylin and eosin, Nissl stained (thionine)	Multiple or no clear focus	Neuron	6 hours	General cell membrane		"Our results also showed **no ultrastructural changes related to autolysis of the cerebral neurons** (Purkinje cells, pyramidal neurons of the hippocampus) for 6 hours after warm cardiac arrest."	No	NA	0	0	0	NA	0
Shepherd 2009	https://pubmed.n	2009	Rat	Room temperature	Ex Situ, "on microscope slides inside sealed, humidified chambers to prevent tissue desiccation"	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin	Cortex	Multiple or no clear focus	4 hours	Neuropil		"By 4 hrs PMI, cortical slices developed some **perinuclear vacuolization and staining pallor to the neuropil**, but nuclear morphology remained preserved". Also Figure 6.	No	NA	1	1	1	NA	1
Shepherd 2009	https://pubmed.n	2009	Rat	Room temperature	Ex Situ, "on microscope slides inside sealed, humidified chambers to prevent tissue desiccation"	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin	Cortex	Multiple or no clear focus	12 hours	General cell membrane		"During the first 12 hours PMI, histology of cortical slices demonstrated **increasing neuronal retraction artifact, neuropil staining pallor and perinuclear vacuolization**" Also Figure 6.	No	NA	2	1-2	2	NA	2
Shibayama 1976	https://pubmed.n	1976	Rat	Room temperature	In situ	Perfusion fixation	Electron microscopy	No	Epoxy embedded sections stained with uranyl acetate and lead citrate	Hippocampus CA1	Oligodendrocyte	0.5 hours	Myelin		"The **myelin sheath is slightly disintegrated.** The lamellae are **partially distorted**". Also Figure 4.	No	NA	1	1	1	NA	1
Shibayama 1976	https://pubmed.n	1976	Rat	Room temperature	In situ	Perfusion fixation	Electron microscopy	No	Epoxy embedded sections stained with uranyl acetate and lead citrate	Hippocampus CA1	Oligodendrocyte	2 hours	Myelin		"Myelinated fibers. (MyF) are **slightly disintegrated**". Also Figure 6.	No	NA	1	1	1	NA	1
Shibayama 1976	https://pubmed.n	1976	Rat	Room temperature	In situ	Perfusion fixation	Electron microscopy	No	Epoxy embedded sections stained with uranyl acetate and lead citrate	Hippocampus CA1	Oligodendrocyte	7 hours	Myelin		"The **myelinated fibers is disrupted,** but synapses are relatively preserved." Also Figure 7.	No	NA	1	2	2	NA	2
Shibayama 1976	https://pubmed.n	1976	Rat	Room temperature	In situ	Perfusion fixation	Electron microscopy	No	Epoxy embedded sections stained with uranyl acetate and lead citrate	Hippocampus CA1	Neuron	7 hours	Synapses		"The myelinated fibers is disrupted, but **synapses are relatively preserved.**" Also Figure 7.	No	NA	1	0	0	NA	0
Shibayama 1976	https://pubmed.n	1976	Rat	Room temperature	In situ	Perfusion fixation	Electron microscopy	No	Epoxy embedded sections stained with uranyl acetate and lead citrate	Hippocampus CA1	Neuron	10 hours	Synapses		"Synaptic contacts are preserved, but **vesicles decreased.**"	No	NA	1	1	1	NA	1
Shibayama 1976	https://pubmed.n	1976	Rat	Room temperature	In situ	Perfusion fixation	Electron microscopy	No	Epoxy embedded sections stained with uranyl acetate and lead citrate	Hippocampus CA1	Neuron	7 hours	Neuropil		"The neuropil is a 3."	No	NA	3	3	3	NA	3
Shibayama 1976	https://pubmed.n	1976	Rat	Room temperature	In situ	Perfusion fixation	Electron microscopy	No	Epoxy embedded sections stained with uranyl acetate and lead citrate	Hippocampus CA1	Astrocyte	10 hours	General cell membrane		"An astrocyte, **swollen vesicles and vacuoles (V)** are shown."	No	NA	1	1	1	NA	1
Shibayama 1976	https://pubmed.n	1976	Rat	Room temperature	In situ	Perfusion fixation	Electron microscopy	No	Epoxy embedded sections stained with uranyl acetate and lead citrate	Hippocampus CA1	Astrocyte	1 hour	Astrocyte process		"Within 1-hour postmortem period, the **dilatation of the endoplasmic reticulum** in the neurons and the **swelling** of the **processes of astrocytes** were distinguishable." Figure 8.	No	NA	1	1	1	NA	1
Shibayama 1976	https://pubmed.n	1976	Rat	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Morphological staining with hematoxylin and eosin and Kluver-Barrera methods	Hippocampus CA1	Pyramidal neuron	1 hour	General cell membrane		"**Pyramidal neurons were slightly edematous**, especially in the region near the white matter"	No	NA	1	1	1	NA	1
Shibayama 1976	https://pubmed.n	1976	Rat	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Morphological staining with hematoxylin and eosin and Kluver-Barrera methods	Hippocampus CA1	Neuron	2 hours	General cell membrane		"Neurons undergone 2h postmortem **autolysis**. Slight **shrinkage of neurons** is shown." Also Figure 1B.	No	NA	1	1	1	NA	1
Shibayama 1976	https://pubmed.n	1976	Rat	Room temperature	In situ	Perfusion fixation	Light microscopy	No	Morphological staining with hematoxylin and eosin and Kluver-Barrera methods	Hippocampus CA1	Neuron	10 hours	General cell membrane		"Neurons undergone 10h postmortem autolysis. **Nuclei of neurons are slightly pyknotic** and **perineuronal spaces are partly disintegrated.**" Also Figure 1C.	No	NA	1	2	2	NA	2
Smit 1993	https://pubmed.n	1993	Human	4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for SMI-31	Cerebellum	Multiple or no clear focus	24 hours	General cell membrane	Reference time point of 4-7 hours PMI.	"Increase in postmortem delay **did not consistently affect staining intensity** and distribution, or a specific background staining."	No	NA	0	0	0	NA	0
Smit 1993	https://pubmed.n	1993	Human	4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for MNF	Cerebellum	Multiple or no clear focus	24 hours	General cell membrane	Reference time point of 4-7 hours PMI.	"Increase in postmortem delay led to **an increase in background staining**"	No	NA	1	1	1	NA	1
Smit 1993	https://pubmed.n	1993	Human	4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for BF-10	Cerebellum	Multiple or no clear focus	24 hours	General cell membrane	Reference time point of 4-7 hours PMI.	"Increase in postmortem delay led to a **decrease in intensity and distribution of immunoreactivity, whereas background staining was unaffected.**"	No	NA	2	1	1	NA	1
Smit 1993	https://pubmed.n	1993	Human	4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for SMI-32	Cerebellum	Multiple or no clear focus	24 hours	General cell membrane	Reference time point of 4-7 hours PMI.	"**The intensity and distribution of SMI-32 immunoreactivity** of Sensofix-fixed sections was **affected by increase in postmortem delay**, whereas sections fixed in Bouin or B5 were not."	No	NA	0	1	1	NA	1
Smit 1993	https://pubmed.n	1993	Human	4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for GFAP	Cerebellum	Astrocyte	24 hours	General cell membrane	Reference time point of 4-7 hours PMI.	"Postmortem autolysis did not affect staining intensity, but after 24 hours postmortem delay, sections of all cases, except case S90-322, showed staining of Purkinje cell perikarya" . . . **"With anti- GFAP MAb, even and consistent staining was obtained in Bouin- and B5-found tissues only.** With the other fixatives we could detect Bergmann fiber reactivity only in case S90- 320. As with anti-GFAP PAb, staining of Purkinje cell perikarya was noted after a postmortem interval of 24 hours."	No	NA	1	0	0	NA	0
Smit 1993	https://pubmed.n	1993	Human	4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for synaptophysin	Cerebellum	Neuron	24 hours	General cell membrane	Reference time point of 4-7 hours PMI.	"SY-38 immunoreactivity was in no case affected by a postmortem interval of 24 hours."	No	NA	0	0	0	NA	0
Smythies 1960	https://pubmed.n	1960	Dog	Room temperature	Ex situ	Immersion fixation	Light microscopy	No	Morphological staining by the Rio-Hortega double impregnation technique	Multiple or no clear focus	Multiple or no clear focus	1 hour	Neuropil		"The **neuropil here was dense**, but the fibers were somewhat **more irregular with occasional thickenings and irregularities** along their course."	No	NA	1	1	1	NA	1
Smythies 1960	https://pubmed.n	1960	Dog	Room temperature	Ex situ	Immersion fixation	Light microscopy	No	Morphological staining by the Rio-Hortega double impregnation technique	Multiple or no clear focus	Multiple or no clear focus	24 hours	Neuropil		"**[N]europil had almost completely fragmented** (or was no longer stainable)." . . . "A few fibres were still seen (P1: 1, fig. 3) coursing amid much debris - **small globular and irregular masses** staining to a variable degree but mainly rather faintly"	No	NA	3	2	2	NA	2

Study	Link:	Publication Year:	Species:	Temperature:	Brain Location (in situ vs ex situ vs other):	Initial preservation:	General microscopy method:	Immunostaining primarily:	Visualization method specifics:	Brain Region:	Cell Type:	Time Point:	Structural Feature:	Additional outcome specifier, if any:	Decomposition outcome:	Pilot Round?	Pilot Grade:	Decomposition Grade - Grader 1:	Decomposition Grade - Grader 2:	Random choice for multiple grades from grader 2:	Decomposition Grade - Grader 3:	Consensus grade:
Smythies 1960	https://pubmed.n	1960	Dog	Room temperature	Ex situ	Immersion fixation	Light microscopy	No	Morphological staining by the Rio-Hortega double impregnation technique	Multiple or no clear focus	Multiple or no clear focus	48 hours	Neuropil		"The **neuropil was almost completely fragmented** with many granules scattered between the cells but particularly surrounding the large pyramidal and Betz cells of the motor region."	No	NA	3	3	3	NA	3
Spacek 1982	https://pubmed.n	1982	Human	Not recorded	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Cerebral and cerebellar cortices	Astrocyte	5 hours	Astrocyte intercellular connections		"There are several reasons why the contact was so conspicuous and, in its fully differentiated form, easy to find: (1) **the contacting plasma membranes became thicker and electron-denser, (2) the intercellular distance became narrower, (3) fine paramembranous and intermembranous material appeared, and (4) ribosomes appeared in the paramembranous position.**" ... "we suggest that the RAC between cerebellar cortical astrocytes represents a quite unusual variant of an intercellular apposition which derived from an already pre-existing membrane contact between astrocytes during anoxia". Also Figure 10/11.	No	NA	1	1	1	NA	1
Spacek 1982	https://pubmed.n	1982	Mouse	Not recorded	In situ	Perfusion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Cerebral and cerebellar cortices	Astrocyte	2 minutes	Astrocyte intercellular connections		"There are several reasons why the contact was so conspicuous and, in its fully differentiated form, easy to find: (1) the contacting plasma membranes became thicker and electron-denser, (2) the intercellular distance became narrower, (3) fine paramembranous and intermembranous material appeared, and (4) ribosomes appeared in the paramembranous position." ... "we suggest that the RAC between cerebellar cortical astrocytes represents a quite unusual variant of an intercellular apposition which derived from an already **pre-existing membrane contact between astrocytes during anoxia**". Also Figure 10/11.	No	NA	1	0	0	NA	0
Sparks 1995	https://pubmed.n	1995	Human	Not recorded	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for ALZ-50	Frontal cortex	Neuron	24 hours	General cell membrane		"We have demonstrated that there is **no effect of postmortem interval on ALZ-50 pathology in human brain.** We prepared adjacent blocks of frontal cortex from a number of adult brains with short postmortem intervals and sequentially fixed the tissue samples starting at collection and every 3 hours up to a total of 24 hours' postmortem interval. For each individual, **there was no difference in the number of ALZ-50-immunoreactive neurons between adjacent sections of cortex over the period of time studied**"	No	NA	0	0	0	NA	0
Tafrali 2019	https://www.resei	2019	Pig	Room temperature	Not recorded	Fixation, delivery method unclear	Electron microscopy	No	Stained with osmium tetroxide, platinum blue, and lead citrate	Frontal white and grey matter	Neuron	3 hours	General cell membrane	They note that taking the brain out of the skull takes 1 hour, which should in practice add 1 hour PMI to each of their intervals.	**Decreased average maximum diameter of neurons,** increased average maximum diameter of astrocytes and oligodendrocytes reported in Table 5. Also **intracellular vacuolization** reported in all cell types.	No	NA	1	1	1	NA	1
Tafrali 2019	https://www.resei	2019	Pig	Room temperature	Not recorded	Fixation, delivery method unclear	Electron microscopy	No	Stained with osmium tetroxide, platinum blue, and lead citrate	Frontal white and grey matter	Multiple or no clear focus	12 hours	General cell membrane	They note that taking the brain out of the skull takes 1 hour, which should in practice add 1 hour PMI to each of their intervals.	At this time point, **there does not seem to be a significant further change in average maximum diameter**. Slight increase in vacuolization - 67% of cells have vacuolization, compared to 42.9% at 3 hours and 58.3% at 6 hours (Tab. 4). Regarding 12 hours PMI - "We saw strong **intracytoplasmic vacuolization** in some cells (Fig. 21), compared to earlier cells".	No	NA	1	1	1	NA	1
Tang 2001	https://pubmed.n	2001	Mammalian species (one dog, one cow, three pigs)	Room temperature for 6 h, basement room for 18 h, then 4°C	In situ	Immersion fixation	Electron microscopy	No	Ethanolic phosphotungstic acid staining	Neocortex	Neuron	48 hours	Synapse count		"The **apparent decrease of 3.9% in the numerical density of synapses** in the large mammals following a 2-day fixation delay was not significant" ... "The 2-day postmortem change of the numerical density of synapses in three pigs, one dog, and one cow was -1.7%, 5.0%, -4.7%, -8.2%, and -9.7%, respectively. The **average postmortem reduction of the numerical density of synapses in the five animal neocortices was 3.9%, which is not significant** ($2^6 = 0.18$)." "From the data obtained, it would appear that the **synapses of brain neocortex can be analyzed with a reasonable degree of accuracy in tissue fixed within a few days after death.**"	No	NA	0	0	0	NA	0
Tao-Cheng 2007	https://pubmed.n	2007	Mouse	Room temperature	In Situ	Perfusion fixed	Electron microscopy	No	Stained with osmium tetroxide and uranyl acetate	Multiple or no clear focus	Neuron	6.5 minutes	Synapse		"After delayed fixation, **cerebral cortical PSDs increased appreciably in thickness (Fig.1B), whereas Purkinje spine PSDs from the same mice increased only slightly in thickness** (Fig. 1D). Measurements ofthe average PSD thickness of asymmetric synapses from hippocampus, cerebral cortex, and cerebellar cortex (see Materials and Methods for details on sampling and measurements) showed **significant increases in thickness of 70%, 90%, and 23%, respectively**"	No	NA	1	1	1	NA	1
Tapia-González 2020	https://pubmed.n	2020	Mouse, Rat	Not recorded	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for secretagogin	Hippocampus	Neuron	5 hours	General cell membrane		"As shown in Figure 10 in general, the **pattern of immunostaining was similar in brains fixed by perfusion or by immersion after up to 5 hr** PT delay, in both rats (Figure10a–d) and mice (Figure10e–h). The only apparent difference was a **general decrease in the intensity of the labeling of Type II cells** " . "We have not found apparent differences in the general pattern of SCGN staining in the mouse or rat, up to 5 hr of PT. Nevertheless, we observed **a decreased intensity of the SCGN immunostaining at 2 hr PT, with this decrease becoming more evident at 5 hr PT in both species.** In rat hippocampus, there was a decrease in the type II SCGN-somata (lightly labeled cells) in CA1 and CA2 and in the subgranular zone of the DG. In mouse brain there was a decrease in the labeling of type II SCGN-somata in the granular cell layer of DG." • Figure 10	No	NA	1	1	1	NA	1
Terstege 2022	https://pubmed.n	2022	Rat	Room temperature	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Confocal microscopy with immunostaining for doublecortin	Hippocampus	Neuron	6 hours	General cell membrane	Perfusion fixation at 0 hour PMI compared to immersion fixation at 6 hour PMI	"We also qualitatively examined the appearance of doublecortin-labeled cells in each condition. Perfusion fixation resulted in labeled cells with clear morphology and consistent labeling, while **delayed fixation compromised morphological detail. Some cell bodies appear condensed (and subsequently brightly labeled)**. In others, the **normal pattern of cytoplasmic doublecortin labeling was present but often appeared weak and speckled following delayed perfusion, rendering identification of new neurons increasingly difficult.** These observations were supported by **decreased optical density of doublecortin staining** in the outer granule cell layer of the dentate gyrus (Fig. 1e). A significant age by fixation interaction was present in the quantified optical density of this region. This simple analysis does not distinguish between degraded dendritic labeling versus fewer labeled cells but adds support to the overall finding of an interaction between PMI and age in the detection of neurogenesis." Also Figure 6.	No	NA	3	1	1	3	3
Torres 1992	https://pubmed.n	1992	Rat	Room temperature	In situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for oxytocin (OT), vasopressin (AVP) and corticotropin releasing factor (CRF)	Hypothalamus	Multiple or no clear focus	6 hours	General cell membrane	0 hour PMI controls were perfused fixed, compared to 6 hour PMI cases were immersion fixed.	"The **integrity of the cells was well preserved**, with no apparent evidence of damage (pyknosis) or distortion... The topographical distribution of all labeled neurosecretory neurons was similar to that of prefixed brains. Within the PVN, neuronal perikarya of the magnocellular neurosecretory system were heavily labeled"	No	NA	0	0	0	NA	0
Torres-Platas 2014	https://pubmed.n	2014	Mouse	Room temperature for 11 hours, before being placed for 32 h at 4°C	In situ	Immersion fixation or freezing	Light microscopy	Yes, immunostaining primarily	Immunostaining for IBA1	Multiple or no clear focus	Microglia	43 hours	General cell membrane		"As in brains harvested and fixed at time of death, brains fixed after a PMI of 43 h displayed **ramified IBA1-IR microglia as the predominant phenotype in both gray and white matter.** Furthermore, these cells displayed **no noticeable degradation of their processes** (Figure 8). Some reactive and amoeboid IBA1-IR cells were also observed following this PMI (approximately 6% and 4%, respectively). These scarce cells were found in both cortical gray and white matter, but rarely in association with any particular structure, such as blood vessels." ... "**The great majority of IBA1-IR cells observed remained ramified, and did not display noticeable signs of degradation"** ... "In order to determine whether the presence of different microglial phenotypes in human tissues may have resulted at least partly from postmortem factors, we recreated similar PMI conditions in the mouse. Although we observed a slight increase in reactive IBA1-IR cells following a PMI of 43 hours compared to immediate harvesting of the brain following sacrifice, **the great majority (≥90%) of microglial cells remained of the ramified phenotype."** Also Figure 8.	No	NA	1	0	0	NA	0
Trojanowski 1989	https://pubmed.n	1989	Cow	4°C	Ex situ	Immersion fixation	Light microscopy	Yes, immunostaining primarily	Immunostaining for MAP2	Hippocampus	Neuron	24 hours	General cell membrane		**"MAP2 immunoreactivity did not change in intensity and distribution over PMIs of 0.5-24 h** (excluding the time required for the diffusion of fixatives into tissue, or for microwave irradiation), and the re-sponse of these tissues to enzymatic dephosphorylation also did not change during this time"	No	NA	0	0	0	NA	0
Tytell 1998	https://pubmed.n	1998	Rat	4°C	In situ	Immersion fixation	Light microscopy	No	Morphologically stained with hematoxylin and eosin; immunostaining for heat shock proteins and ubiquitin	Cerebellum	Neuron	24 hours	General cell membrane		"Illustration of the **similarity in appearance of rat cerebellum fixed immediately after death (left column) or following 24 h of storage at 4°C (right column)**. The upper pair of micrographs are of H&E-stained sections, and the lower pair were immunohistochemically stained with the anti-Hsc/Hsp70 antibody. The arrowheads in the lower micrographs indicate the occasional Purkinje cells ..." "The top pair of micrographs in Fig. 3 show the H&E-stained specimens at two postmortem intervals. **There is a slight loss of basophilia and corresponding increase in eosinophilia in all three layers shown, probably reflecting some breakdown of RNA.** For the anti-Hsc/Hsp70-immunostained specimens shown in the bottom pair of micrographs in Fig. 3, **there appeared to be a slight, overall decrease in the darkness of the immunoreaction, but the distribution and relative differences between the Purkinje cell staining and that of the granule cell and molecular layers remained the same."** Also Figure 3.	No	NA	1	1	1	NA	1
Van Nimwegen 1966	https://doi.org/10	1966	Rat	Room temperature	In situ	Perfusion fixation	Electron microscopy	No	Staining with osmium tetroxide and lead hydroxide	Cerebellum	Purkinje cell	30 minutes	General cell membrane		"At the resolving power of the present study, **no changes in the configuration of the cell surface membrane** can be seen."	No	NA	0	0	0	NA	0
Vrselja 2019	https://pubmed.n	2019	Pig	Room temperature	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	Stratum oriens of CA1 Hippocampus	Neuron	10 hours	Synapse		"Quantification of presynaptic vesicles showed that **the vesicular pool was maintained only in BEx and 1 h PMI conditions, but not in 10 h PMI"** ... "Robust structures such as myelin, adherence junctions, and post-synaptic densities were preserved across all conditions, but there was **evidence of vacuolization, cytoplasmic lysis, and membrane disruption in all groups, even in 1 h PMI controls"** Also Figure 6a.	No	NA	1	2	2	NA	2
Vrselja 2019	https://pubmed.n	2019	Pig	Room temperature	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	CA1 Hippocampus	Ependymal cell	10 hours	General cell membrane		"In 10 h PMI conditions ependymal cells have **a lightened cytoplasm with numerous vacuoles (v) and swollen mitochondria (yellow).** Although adherens junctions (aj) are preserved, the **cell membrane is destroyed in several places"**; Extended data Figure 9	No	NA	3	2	2	NA	2
Vrselja 2019	https://pubmed.n	2019	Pig	Room temperature	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	CA1 Hippocampus	Oligodendrocyte	10 hours	General cell membrane		"Under 1 h PMI, 10 h PMI, and CP conditions, **numerous cells in the hippocampal white matter contain segments of destroyed cytoplasm (pink), while oligodendrocytes have light cytoplasm with numerous vacuoles and swollen mitochondria (yellow).** In 10 h PMI samples, **mitochondria may not be visible, owing to extensive destruction"** ... "[M]ost oligodendrocytes in BEx-perfused brains contained structurally normal cytoplasm with demarcated rough endoplasmic reticulum and mitochondria with electron-dense matrices; this was **in contrast to the more marked cellular damage observed in control tissues"**	No	NA	2	2-3	2	NA	2
Vrselja 2019	https://pubmed.n	2019	Pig	Room temperature	Ex situ	Immersion fixation	Electron microscopy	No	Stained with osmium tetroxide, uranyl acetate, and lead citrate	CA1 Hippocampus	Multiple or no clear focus	10 hours	Myelinated axon		"Robust structures such as **myelin, adherence junctions, and post-synaptic densities were preserved across all conditions,** but there was evidence of **vacuolization, cytoplasmic lysis, and membrane disruption in all groups,** even in 1 h PMI controls... Overall, **myelinated axons (MA) show similar morphology across all experimental groups.**"	No	NA	0	0-1	1	NA	1
Wenzlow 2021	https://pubmed.c	2021	Horse	8°C or 22°C	Ex situ	Immersion fixation	Light microscopy	No	Hematoxylin and eosin stain	Cerebrum	Multiple or no clear focus	6 hours	Neuropil	While they collect multiple other time points for both temperatures, they don't specify any major differences from one another; instead, they more emphasize the end points. For neuropil vacuolization, they report that it starts at the 6 hour time point for both temperatures.	Fig Supp 5 shows that **vacuolization of neuropil begins to increase at 6 hours.** "Vacuolation of neuropil (Suppl. Fig. 5F) exhibited a **nonlinear** trend, with the best fit line corresponding to a square-root relationship with time (p=0.012)."	No	NA	1	1	1	NA	1
Wenzlow 2021	https://pubmed.c	2021	Horse	8°C or 22°C	Ex situ	Immersion fixation	Light microscopy	No	Hematoxylin and eosin stain	Cerebrum	Multiple or no clear focus	72 hours	Neuropil		Fig Supp 5 shows that **vacuolization of neuropil is not substantially more advanced at 72 hours than 6 hours.** Vacuolation of neuropil (Suppl. Fig. 5F) exhibited a nonlinear trend, with the best fit line corresponding to a square-root relationship with time (p=0.012)."	No	NA	1	2	2	NA	2
Wenzlow 2021	https://pubmed.c	2021	Horse	8°C or 22°C	Ex situ	Immersion fixation	Light microscopy	No	Hematoxylin and eosin stain	Cerebrum	Neuron	72 hours	General cell membrane		"Neuronal cytoplasmic swelling (Suppl. Fig. 5E) exhibited a significantly decreasing (p=0.014) linear relationship with time, suggesting **continuous shrinkage.**" ... "In general, most of the changes that we observed in the cerebrum were **subtle and were not present in large percentages of the fields examined"** ... "Such chronology of events was not observed in equine brains; all autolytic changes in the brain were subtle, and **no single most significant criterion stood out as a major marker of autolysis"**	No	NA	1	0-1	0	NA	1
Williams 1978	https://pubmed.n	1978	Mouse	4°C	In situ	Immersion fixation	Light microscopy	No	Golgi rapid impregnated pyramidal neurons	Forebrain	Pyramidal neuron	24 hours	Dendrite		"With fixation latencies of 24 hours, **few cellular elements are impregnated in the superficial layers.** The apical shafts of pyramidal neurons impregnated in the deep layers **appear truncated and are varicose"** ... "The dendrites of neurons demonstrating **more advanced autolytic changes appear truncated,** and varicosities occur more proximally. The **density of dendritic spines is reduced on varicose segments"** ... "[E]ven after fixation latencies as long as 24 hours **a few neurons with apparently normal spine density and morphology may occasionally be found**"	No	NA	3	2	2	NA	2

Study	Link:	Publication Year:	Species:	Temperature:	Brain Location (in situ vs ex situ vs other):	Initial preservation:	General microscopy method:	Immunostaining primarily:	Visualization method specifics:	Brain Region:	Cell Type:	Time Point:	Structural Feature:	Additional outcome specifier, if any:	Decomposition outcome:	Pilot Round?	Pilot Grade:	Decomposition Grade - Grader 1:	Decomposition Grade - Grader 2:	Random choice for multiple grades from grader 2:	Decomposition Grade - Grader 3:	Consensus grade:
Williams 1978	https://pubmed.n	1978	Mouse	4°C	In situ	Immersion fixation	Light microscopy	No	Golgi rapid impregnated pyramidal neurons	Forebrain	Pyramidal neuron	6 hours	Dendrite		"If fixation by immersion is delayed no more than 3 hours, there is no substantial change in the pattern of impregnation or the morphology of impregnated cellular elements in Golgi-rapid preparations (Table IV, Fig. 3). When **fixation is delayed for 6 hours or longer**, however, **degenerative changes supervene**. In addition, the selectivity and completeness of the impregnation become increasingly variable." ... "Low power photomicrographs of layers I-V of the adult mouse neocortex as seen with fixation within 5 minutes, 6 hours and 24 hours of death. Silver-chromate precipitate is seen at the pial surface. In tissue fixed by immersion within minutes of death, or after latencies of up to 6 hours, most impregnated cells are completely impregnated. The apical shafts of pyramidal neurons (arrows) are well demonstrated where they arborize in the superficial layers." ... "**Changes in spine density and morphology**. Despite delays in fixation for up to 6 hours, the **dendritic spines of impregnated cortical pyramids are generally of normal density and morphology** (Fig. 6). However, spines on the lightly impregnated basal and oblique dendritic branches mentioned above also appear to be impregnated incompletely with **thin stalks and barely visible terminal enlargements.** With delays beyond 6 hours, on the other hand, some spines appear abnormally thick with irregular expansions along their stalks. In some cases this appearance appears to be due to the coalescence of 2 or more filamentous spines." ... + Figure 6	No	NA	2	1	1	NA	1
Williams 1978	https://pubmed.n	1978	Mouse	4°C	In situ	Immersion fixation	Light microscopy	No	Golgi rapid impregnated pyramidal neurons	Forebrain	Pyramidal neuron	3 hours	Dendrite		"If fixation by immersion is delayed no more than 3 hours, **there is no substantial change in the pattern of impregnation or the morphology of impregnated cellular elements in Golgi-rapid preparations**"	No	NA	0	0	0	NA	0
Williams 1978	https://pubmed.n	1978	Mouse	4°C	In situ	Immersion fixation	Light microscopy	No	Golgi rapid impregnated pyramidal neurons	Forebrain	Pyramidal neuron	6 hours	Axon		"**Changes in axonal morphology.** Efferent axons and their collateral branches, as well as intracortical plexuses of thin, normally beaded axon terminals, are **well impregnated at all levels of the cortex** despite delays in fixation for as long as 6 hours. With greater latencies of fixation, axons are more lightly impregnated and beading becomes pronounced. Large axonal blebs, comparable to the "retraction bulbs" encountered after axonotomy (50), are not encountered. With latencies of more than 12 hours, axons in the superficial layers of the cortex impregnate less often than those in the deeper layers, and in some instances, axons do not impregnate at all (Fig. 3c)."	No	NA	0	0	0	NA	0
Williams 1978	https://pubmed.n	1978	Mouse	4°C	In situ	Immersion fixation	Light microscopy	No	Golgi rapid impregnated pyramidal neurons	Forebrain	Pyramidal neuron	12 hours	Axon	The first time point in the study for the outcomes referring to more than 6 hours is 12 hours.	"Changes in axonal morphology. Efferent axons and their collateral branches, as well as intracortical plexuses of thin, normally beaded axon terminals, are well impregnated at all levels of the cortex despite delays in fixation for as long as 6 hours. **With greater latencies of fixation, axons are more lightly impregnated and beading becomes pronounced.** Large axonal blebs, comparable to the "retraction bulbs" encountered after axonotomy (50), are not encountered. With latencies of more than 12 hours, axons in the superficial layers of the cortex impregnate less often than those in the deeper layers, and in some instances, axons do not impregnate at all (Fig. 3c)."	No	NA	2	1	1	NA	1
Williams 1978	https://pubmed.n	1978	Mouse	4°C	In situ	Immersion fixation	Light microscopy	No	Golgi rapid impregnated pyramidal neurons	Forebrain	Pyramidal neuron	24 hours	Axon	The first time point in the study for the outcomes referring to more than 12 hours is 24 hours.	"Changes in axonal morphology. Efferent axons and their collateral branches, as well as intracortical plexuses of thin, normally beaded axon terminals, are well impregnated at all levels of the cortex despite delays in fixation for as long as 6 hours. With greater latencies of fixation, axons are more lightly impregnated and beading becomes pronounced. Large axonal blebs, comparable to the "retraction bulbs" encountered after axonotomy (50), are not encountered. **With latencies of more than 12 hours, axons in the superficial layers of the cortex impregnate less often than those in the deeper layers, and in some instances, axons do not impregnate at all (Fig. 3c).**"	No	NA	3	2	2	NA	2
Williams 1978	https://pubmed.n	1978	Mouse	4°C	In situ	Immersion fixation	Light microscopy	No	Golgi rapid impregnated pyramidal neurons	Forebrain	Astrocyte	24 hours	Astrocyte process	The first time point in the study for the outcomes referring to more than 12 hours is 24 hours.	"With latencies longer than 12 hours, there are **varicose expansions in the processes of protoplasmic astrocytes** similar to those seen in the dendrites of neurons after delayed fixation."	No	NA	1	1	1	NA	1
Yeung 2010	https://pubmed.n	2010	Human	4°C	In situ	Immersion fixation	Light microscopy	No	Bielschowsky silver staining	Prefrontal cortex, inner layers	Neuron	730 hours	General cell membrane	Inner layers (IV - VI) of cortex	"The inner layers were **still quite compact even in these older specimens** (Figure 5) and higher power revealed impregnated pyramidal cells with branching as well as lucid morphology of other smaller interneurons and horizontal fibers (Figures 6 and 7). **Spicules were also evident on the fibers** (Figure 7). There were also **spaces that signified degeneration** (Figures 6 and 7)."	No	NA	2	1	1	NA	1
Yeung 2010	https://pubmed.n	2010	Human	4°C	In situ	Immersion fixation	Light microscopy	No	Bielschowsky silver staining	Prefrontal cortex, outer layers	Neuron	730 hours	General cell membrane	Outer layers (I - III) of cortex	"The outer layers (layer I–III) were still impregnated with silver, and one could still detect small- and medium-size pyramidal cells (Figure 1). **Degeneration, however, had already set in, with spaces appeared in this region. Situation became worse in the specimens of 70 years and older, with an increase of spaces in the outer layers of the brain (Figure 2).** In the specimens of 78 years old, dissolution of the nervous tissue was evident in the outer layers (Figure 3). Some pyramidal cells, however, still retained their shapes after silver impregnation and displayed ascending dendrites with spicules as well as axons and basal dendrites (Figure 3). In 80 years and older, a complete dissolution of the outer layers of the specimens was observed and only the cell bodies were impregnated"	No	NA	3	2	2	NA	2
Youssef 2019	https://www.rese	2019	Rat	Room temperature	In situ	Not recorded	Light microscopy	No	Morphological stain with hematoxylin and eosin stain; they also performed PCNA immunostaining, but outcomes for this not described independently	Multiple or no clear focus	Neuron	24 hours	General cell membrane		"At 24 hours the brain showed **degenerated nerve cells with hemorrhagic blood vessels.** The nerve cells cytoplasm was positive PCNA immunostaing while negative nuclear PCNA immunostaining." ... "Brain at 24 hours showed degenerated nerve cells with hemorrhagic (h) blood vessels." Also Figure 8.	No	NA	2	2-3	3	NA	3
Youssef 2019	https://www.rese	2019	Rat	Room temperature	In situ	Not recorded	Light microscopy	No	Morphological stain with hematoxylin and eosin stain; they also performed PCNA immunostaining, but outcomes for this not described independently	Multiple or no clear focus	Neuron	48 hours	General cell membrane	Outcome reported at 48-96 hours, taking the lower number.	"The brain at 48-96 hours showed **vacuolation, degeneration and liquification in the nerve cells**. ... In (Fig.9) brain at 48-96 hours showed vacuolation (v) and liquification in the nerve cells (d)" - Fig 9	No	NA	3	3	3	NA	3