Research Institute for Applied Neurosciences

Endothelin-1-induced Focal Ischemia in Rats (eMCAO)

Scope of application

- **Testing for neuroprotective/neuroregenerative compound actions *in vivo***
- **Relevant as a transient focal ischemia with a reduced reperfusion damage as compared to other MCAO models (thread model)**

Models

Focal cerebral ischemia is induced by occlusion of the middle cerebral artery (MCA) via intracerebral microinjection of endothelin-1 in rats

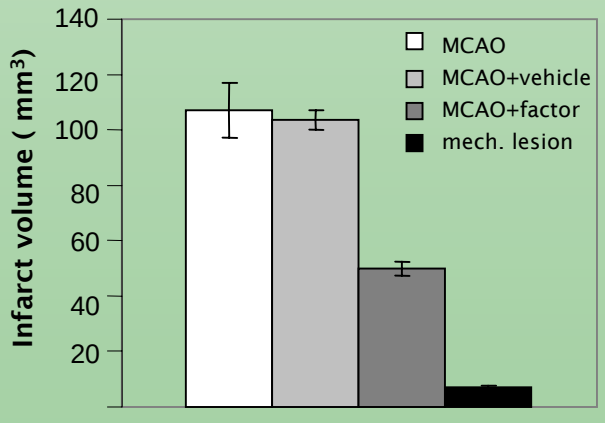
Occlusion can be carried out in ***anaesthetised animals*** (reduced trauma induced by guiding cannula) or

in ***awake, freely moving rats*** (prevents influences of anaesthesia)

Ischemic brain damage induced by this methods causes infarction in the lateral parts of the frontal cortex extending through parietal and insular cortex rostrally and through temporal and into occipital cortex caudally. In addition, there is infarction within dorsolateral portions of the caudate nucleus.

Compounds can be introduced by ***intraperitoneal, intracerebro-ventricular and intravenous injection*** at different time-points. The effect of these compounds can be measured by changes in the infarct area.

Focal cerebral ischemia-infarct areal (Fuchsin acid/Toluidine blue-staining)



Effects of a factor on infarct volume