



## Global Ischemia in Rats and Gerbils

### Scope of application

- Testing for neuroprotective/neuroregenerative compound actions *in vivo*
- Particularly relevant for compounds designed to reduce brain damage after heart attack, in transplantation surgery (heart, lung) and surgery on the upper main arteries (aorta, carotides)

### Models

#### *Transient 2-vessel occlusion in gerbils (Meriones unguiculatus)*

Quick and simple assay – Both common carotid arteries are clamped under anaesthesia.

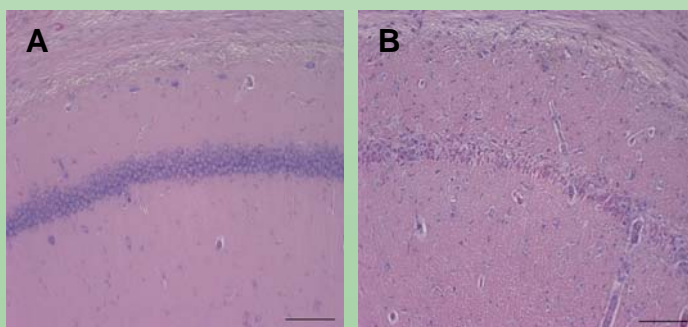
#### *Transient 2-vessel occlusion in rats*

Clamping of common carotid arteries is combined with systemic hypotension and monitoring of blood pressure, blood gases (pH, pCO<sub>2</sub>, pO<sub>2</sub>) and blood glucose.

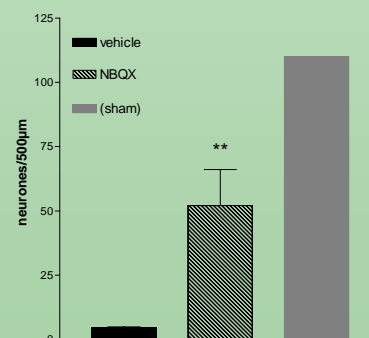
#### *4-vessel occlusion in rats*

Vertebral arteries are occluded by electrocauterisation and the common carotid arteries are clamped the next day.

In our standard procedure of global ischemia, brains are removed 7 days after the insult. Evaluation of damage is assessed by counting surviving neurons in hippocampal area CA1 after Fuchsin acid/Toluidine Blue or NeuroTrace staining.



Histological appearance of CA1-region 7 days after (A) sham-op and (B) ischemic insult. Bar = 100  $\mu$ m.



NBQX was applied 0.5, 10 and 30 min post ischemia in a dose of 30 mg/kg each. Results: In contrast to slice cultures NBQX significantly enhanced neuronal survival.