**Abstract:** Stroke is one of the most common causes of death and disability worldwide. It causes a disruption in the blood flow in the brain. It affects neurons, but also glial cells, which play important roles in the course of the disease. The aim of this bachelor thesis is to provide an overview of the possible therapeutic use of glial cells in ischemic stroke (focal cerebral ischemia). The work also provides an overview of the main types of glial cells in the central nervous system, describes the function of individual glia in the healthy brain and during ischemia, and focuses on their potential in neuroprotection and brain regeneration.