

Abstract

Amyotrophic lateral sclerosis (ALS, also known as Lou Gehrig's disease) is a progressive neurodegenerative disorder. It affects upper and lower motor neurons in the brain motor cortex, the brain stem and the spinal cord, causing their death, which results in denervation of voluntary muscles. Progressive muscle weakness and atrophy throughout the entire body gradually leads to worsening of the ability to move, speak, chew, swallow and eventually breath. Ultimately it results in affected individual's death due to respiratory muscle failure. Although first identified in 1869, no cure for ALS has been yet found. While early studies focused mainly on the research of motor neurons themselves, the attention has shifted towards glial cells in the past two decades. Glial cells are essential for proper neuron functioning and survival and it appears that they play a major role in ALS progression. The goal of this thesis is to review and summarize findings on the role of glial cells in ALS over the last years, focusing on four specific types of glial cells, namely astrocytes, microglia, oligodendrocytes and NG2-glia.

Key words: amyotrophic lateral sclerosis, ALS, motor neuron, glia, astrocyte, microglia, oligodendrocyte, NG2-glia