# Abstract

Serum and glucocorticoid-regulated kinase 1 (SGK1) is an enzyme which is encoded by the *sgk1* gene. This is a dimer. Generally, SGK1 belongs into the protein kinases, but its structure is somehow different from the other protein kinases, especially in the reaction center, which is related to its activity. SGK1 belongs to the subfamily of serine/threonine kinases. This kinase is activated by insulin or growth factors via phosphatidylinositol-3-kinase (PI3K) and mammalian rapamycin mTORC2. SGK1 plays an important role in inflammatory processes, the proliferation and apoptosis. In heart it helps to increase the abundance of proteins, which has affect on the morphology of ion channels and $Na^+/K^+$-ATPase. The *sgk1* gene plays an important role in cellular stress response. This kinase activates potassium, sodium, chloride and calcium channels, which suggests about the involvement in the regulation of processes such as the cell survival, neuronal excitability and renal sodium excretion. Currently, the most discussed roles of SGK1 are in the heart, kidneys, brain, lungs and gastrointestinal tract. In recent years, it was found that SGK1 has different expression and regulation during the developmental stages and pathological conditions such as hypertension, diabetic neuropathy, ischemic trauma and neurodegenerative diseases.



**Key words: SGK1, heart, ion channels, ischemia, hypertension, cellular stress**