Abstract

The homeostatic self-renewal of tissues in the adult mammal organism is maintained by stem-cell activity. The majority of tissue-specific stem cells are dispersed in a tissue in a low number. The small intestinal epithelium is a suitable model tissue for study of the stem cells because of its regular structure and rapid self-renewal. One of the first knowledge about the intestinal stem cell characteristics was obtained from the experiments with the mice embryonal aggregation chimeras and the transgenic chimeras. There were obtained a crucial role of the Wnt signalization pathway in the control of dynamics of the stem cells and contextual coherent finding of the unique molecular marker protein of the intestinal stem cells Lgr5. Subsequently, the genetically modified mice with "reporter" genes produced from the *Lgr5* locus became the main tool in the intestinal epithelial stem cell research. The views on dividing organization and particular identity of the intestinal stem cells are still controversial.

keywords: stem cells, crypt base cells, intestinal epithelium, chimera, the Wnt signaling pathway, Lgr5, reporter mouse strains