Abstract

Prorenin receptor (PRR) plays in the human organism an important role. It is involved in the renin-angiotensin system (RAS), one of the body's major mechanisms important for maintaining the constant plasma concentration of electrolytes. PRR is being used as a therapeutic target for treatment of hypertension and other related diseases. Interestingly, recent studies suggest that PRR is also involved in the Wnt signalling pathway. The Wnt pathway is RAS-independent, evolutionary conserved processes mediating cell signalling. For these reasons, it is of high importance to have proper understanding of PRR function and possible consequences of its inhibition. A homolog of the gene encoding human PRR was found in the genome of the nematode *C. elegans*. The name of this gene is *R03E1.2*. In this thesis function of the gene *R03E1.2* in the model organism *C. elegans* was studied. Expression of *R03E1.2* during the *C. elegans* development was monitored with the use of quantitative PCR (qPCR). The gene *R03E1.2* is expressed throughout the development of the organism, but primarily during larval development. Localization of the protein R03E1.2 tissue expression *in vivo* was studied with the use of *C. elegans* lines expressing protein R03E1.2 tagged with green fluorescent protein (GFP). The protein R03E1.2 is mainly expressed in the apical membrane of the intestine, but its expression was also detected in the cytoplasmatic membranes of six head neurons. Posttranscriptional gene silencing caused by RNA interference (RNAi) was employed to simulate *R03E1.2* loss of function. It was found that the gene *R03E1.2* is required for proper early larval development. "(In Czech)"