

## **Abstract**

*Giardia intestinalis* is a widespread intestinal parasite that causes diarrhea in human and other vertebrate hosts. Although, fully sequenced genome of *G. intestinalis* has been published, very little is known about the regulation of gene expression. Together with the tetraploid genome, this complicates the use of many common reverse genetics methods. The aim of this thesis was to develop new molecular tools that can be used to alter gene expression in *G. intestinalis*. For the purposes of this work, new vectors for tetracycline-inducible gene expression including T7 promoter and endogenous oct promoter were designed. Furthermore, *cwp1* gene knock-out was created using CRISPR-Cas9 technology. In order to modify mechanisms of double strand break repair, expression of two key components of bacterial NHEJ pathway – LigD and Ku – was introduced into cells of *G. intestinalis*.