This bachelor thesis summarizes current knowledge of haploid embryos that are used for haploid embryonic stem cell derivation. The subject matter of this background research are production methods of haploid blastocysts of mice (Mus musculus) and the particularities of their development.
Haploid blastocysts can be prepared parthenogenetically, gynogenetically or androgenetically. The development of haploid embryos is substantially different from the development of diploid embryos. The division of blastomeres is delayed by several hours and the success rate of development to blastocysts is low. The reason for the impaired development of haploid embryos is hypothesized to be improper activation and/or non-standard gene expression. The follow-up study that utilizes the Primo Vision monitoring system is described in the experimental part.
Knowledge of this topic is crucial to raising the effectiveness of haploid blastocyst production and derivation of stable haploid embryonic stem cell lines for further biological and medical research.