DOCTORAL CANDIDATE:	
DEGREE:	Philosophiae Doctor
FACULTY:	Faculty of Mathematics and Natural Sciences
DEPARTMENT:	Department of Biosciences
AREA OF EXPERTISE:	Molecular biology and informatics
SUPERVISORS:	Odd Stokke Gabrielsen, Ragnhild Eskeland and Ian Mills
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DISSERTATION TITLE:	*The Transcription Factor c-Myb -Investigation of its Genome-wide Occupancy and Activation Mechanisms*

Blood cells and brain cells are different because they have distinct genes turned on and off. Expression of the genes in the human genome is a highly complex process controlled by a group of proteins called transcription factors in concert with their helping partners. Different such factors operate in the blood and the brain controlling the same set of genes in a different manner. Disruption of this regulatory mechanism can have large consequences, resulting in development failure and cancer. The transcription factor c-Myb is of particular interest because it is involved in the development of blood and immune cells. In some cancers the activity of c-Myb is perturbed by other mutated proteins, making the transcription factor driving the disease without it self being altered.

In this thesis, Mads Bengtsen and colleagues have investigated c-Mybs binding to the human genome in a selection of blood and immune cell. In addition, they have explored how the helping partners affect the function of the transcription factor. The results of the study suggest that c-Myb has different roles dependent on the cell type. Further, they expanded the group helping partners for c-Myb and show that the partners can fine tune the function of the transcription factor by affecting the activity both positively and negatively.

The results obtained in this thesis add new insight to how c-Myb participates in normal development as well as in cancer. Furthermore, they can be used to understand, in a more generally sense, how transcription factors regulate the expression of genes in humans.