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Bc. Thesis Review

Author: **Linda Merglová**

Title: **"The transcriptional regulation by the nuclear receptor NHR-25 in *Caenorhabditis elegans*"**

AR Presenting Bc. thesis is focused on elucidating the function of the nuclear receptor NRH-25 in a canonical genetic model organism *C. elegans*. The NHR-25 belongs to a family of nuclear receptors in *C. elegans* and its function at the molecular and cellular level is poorly understood. Thus unraveling the mode of action of this important developmental regulator would significantly improve our understanding of fascinating developmental processes.

The presented thesis consists of Aim of the Study, Introduction, Materials and Methods, Results, Discussion, and References. The Aim of the Study clearly states the major goals of the thesis. In the chapter Introduction, the author briefs us with the classical genetic model organism *C. elegans* and summarizes our current knowledge about transcriptional factors emphasizing the nuclear receptors. It also introduces an intriguing molecular process called dsRNA interference and its tremendous power in functional genetic studies. The chapter Materials and Methods describes in detail all methods used in the presented work including *C. elegans* culturing, DNA cloning and amplification, PCR, DNA sequencing, transformation of worms, RNAi, and microscopy. The major achievements of the research are then listed in the chapter Results and discussed in the final chapter of the thesis. All the aforementioned chapters are supplemented by 23 references of literature. I appreciate the thesis was written in English and I found only few misprints and typing errors, although some sentences would benefit from a stylistic improvement.

I have the following, mostly minor, comments and/or questions to the presented thesis:

1. On the page 6 the author states that "...*C. elegans*... was the first model organism to be fully sequenced." I believe that *E. coli* is also a model organism and its full sequence became available several years earlier.

2. Besides the first paragraph the all remaining text on page 16 does not belong to the chapter Results and should be included in the section Introduction or Discussion.

3. On page 17, section 2.7.2 I miss an information which bacterial strain was used for transformation.

4. On the same page, section 2.8 the author mentions the use of DIC and Nomarski microscopy. I'd like to know what are the principles of the two methods and what are the major differences between them.

5. In the section 3.2 the author states that cloning of a control insert was unsuccessful. I'd like to hear some comments why, and what approaches could be used to overcome this problem.

6. The magnifications given for all microscopic images are not correct. They probably represent the magnifications of the microscope objectives used but do not correspond to the actual magnifications of the presented images. This can be clearly seen for instance in the Fig. 3.8 . With the stated magnification 10x the L4 stage of the wild type worm would be almost 2 cm long.

In the summary of this review I would like to state that I am fully convinced the presented thesis fulfils all postulations imposed upon the Bc. thesis and I recommend it to be accepted as a partial fulfillment of the requirements for the Bc. degree at the Faculty of Biological Sciences of the University of South Bohemia in Ceske Budejovice.

In Ceske Budejovice, June 1, 2007

Ivo Sauman