

Review on Diploma Thesis of *Mr. Sompob Saralamba*:

### **Molecular Dynamics Simulations Of HIV Reverse Transcriptase In Complex With Potential Inhibitors.**

In the thesis, author deals with very interesting topics studying possible inhibition of the HIV RT enzyme. The interaction of DNA/RNA oligomers with side chains of protein amino acids were simulated in presence of HIV-RT inhibitors PMEA and PMPA. For the comparison regular AMP molecular complex were also included in the simulations.

In the theoretical introduction it can be seen that Mr. Saralamba mastered the necessary tool for MD experiments. Also, the biophysical background is explained adequately in theoretical parts of the thesis.

As to Results and Discussion part, first the RMS deviations are mentioned. Here I have a question. Was the system somehow “preprocessed” – equilibrated. From the graphs in appendix C, some systems do not exhibit stable behavior. Moreover at the beginning unbalanced increase is usually noticeable.

In Chapter 7 on page 49 in first paragraph the role of Tyr115 is described, which prevents the base incorporation. However, this is not seen from any graph (and there are really many of them) or maybe I do not understand that.

In the end of third paragraph on the same page, it is claimed that terminal adenine is flipping but from Figure D9 (not 8 as written) it looks like last-but-one guanine undergoes some changes... or at least no changes for terminal adenine are apparent.

Another comment touches last short paragraph on page 50 where the phosphodiester links are mentioned. This small piece of discussion is connected with 18 ! pages and 23 graphs per page. I do not understand why all the graphs are added (even in appendix) if not discussed at all. We are aware of the difficulty of such calculations even without several tons of such “supplementary material” or whatever was the reason for including them.

The Chapter 8, I would expect to be the heard of the thesis. It is however, represented only by 12 lines and two figures of appendix. Moreover labels of individual graphs in Figures G1 and G2 are nowhere presented (or at least I have not found them) so that I could not “unscramble” their meaning. This is really pity.

I am also missing a list of used abbreviations.

In the thesis only a limited number of typos is present.

There is no doubt that a great deal of important work is presented in the thesis. Unfortunately I have to take into account also the form of presentation of the achieved results.

Therefore I suggest a penalty for above listed arguments – classifying the diploma thesis as “**velmi dobrý**”.

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