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**REVIEW**

Of the PhD thesis by Magda Lewandowska, MSc, entitled

“Variation of Polish and Lithuanian gene pool over time

– alleles predisposing to infectious diseases”

This thesis presented for review has been done at the Department of Molecular Biology, Medical University of Łódź, the first Polish research center for the study of ancient DNA, founded and headed by Prof. Henryk W. Witas whose work I am familiar with, whom I wish to thank for the honor of choosing me as one of the reviewers.

I was pleased to receive and read this thesis as the work and the subject reflects my own interest but over 10 years ago when we looked at the NRAMP1 (*SLC11A1*) gene as it was then known work the candidate has acknowledged when she cited our paper. We only did a preliminary feasibility study as at the time the cost were high and the equipment was not yet advanced as it is today. The study on review takes this area of research forward in a very positive way. The thesis will I am certain be of use by future researches as it contains much useful data and the methodology.

The method of text preparation is consistent and characteristic for experimental work. It includes a theoretical part, a description of applied methodology, results and their discussion as well as an abstract with main conclusions. One can also find a list of publications by M. Lewandowska, MSc. The work is supplemented with seven concise appendices, with 20 figures and 18 tables all of which are relevant and well presented.

I have in my review of the thesis suggested that the candidate may like to use an extra figure one I used in a paper she cited it is not essential but may help clarify one of the points she makes. The graphical side of the thesis has been developed appropriately.

There are 9 sections to this thesis that spans 137 pages including the appendixes in my review I have made a number of changes to the text but the vast majority reflect changes in the use of English grammar and none reflect changes to methodology or content.

* **The abstract** is concise precise and well written and should encourage the reader to look further into the thesis.
* **The introduction** (1) is good there is on spot where I believe giving a further reference may help but it is up to the candidate.
* **Ancient DNA** (2) is very comprehensive and it details clearly the problems encountered in aDNA work and provides an excellent summary of the early work in this field. I particularly liked the sections on preservation and degradation. Here Table one is something I will ask permission to use in future lectures as it is comprehensive simple enough to be understood. The technological part of sample preparation DNA amplification leading to authentication is well written and easily understood.
* **Genetics and Infectious Diseases** (3) this section is very well presented with good references and an easily understandable explanation. The description of the genes she will be studying is excellent.
* **Population genetics** (4) well presented easily understood I was particularly impressed with the section relating to detecting signals of natural selection this was very well written and comprehensive.
* **Aim of the study** (5**)** Concise and precise.
* **Material and Methods** (6) This is the most difficult section but she has done an excellent job. Explaining the technology she used particularly the statistical analysis. The number of samples analysed is large and this adds credence to her results I have seen a number of such analyses that have not been acceptable because too few samples were analysed thus making the results statistically non acceptable.
* **Results (7)** The tables used give a clear picture of the findings.
* **Discussion (8)** It is lengthy but I could not see how to shorten it easily.
* **Conclusion** (9) Sums up the work in an excellent manner.
* **The bibliography** is well chosen with good references.

The comments and suggestions mentioned above do not diminish the merits of and my positive opinion about the PhD dissertation of Magda Lewandowska, MSc. The dissertation meets all the requirements of a doctoral theses being a comprehensive and competent approach to the problem. The reviewed work contains elements of scientific novelty achieved through application of appropriate research methods.

Taking into account the research concept and the cognitive value brought in by the results, I submit to the High Council of the Faculty of Biomedical Sciences and Postgraduate Education a request to admit Magda Lewandowska, MSc, to further stages of the doctoral defense.

Yours sincerely



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