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Rosario, june 16th 2022

Dear Barbora Stachová
Department of Science and Research
CHARLES UNIVERSITY
FACULTY OF MEDICINE IN PILSEN

Please find below my report as reviewer on the dissertation of Hedvika Řimnáčová entitled "Post-Translational Modifications of Nuclear and Non-Nuclear Proteins in Spermatozoa".

The dissertation is original, and deals with the necessity of developing new sperm quality markers and approaches, in order to improve in vitro conditions for better gamete preparation, manipulation, and thus, improving ART outcomes. The dissertation is very well writing, clear and concise. Every experiment is conducted with a clear rational, and in a hypothesis driven manner. I find no weak points related to design, experiments or conclusion driven from the data.
The dissertation topic is very original. Although the therapeutic effect of H2S on cell survival has been discussed previously, the mechanism of action of H2S has not been addressed yet. This dissertation sheds light onto the protective effect of H2S, that could act as a strong basis to develop efficient H2S-based treatment. It is important to state that the group headed by Dr Nevoral has detected all H2S-releasing enzymes in spermatozoa and described persulfidation of sperm proteins for the first time.
After evaluating the dissertation, I can say that the expected aims of the dissertation have been achieved.
I **recommend the dissertation for defense**.

Best regards,

Dario Krapf, Ph.D.
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