

9th Yazd International Congress and Student Award on Reproductive Medicine with 4th Congress of Reproductive Genetics

Oral Presentations

O-46

Testicular expression of TDRD1, TDRD5, TDRD9, and TDRD12 in azoospermia

Babakhanzadeh E^{1, 2}, Khodadadian A¹, Rostami S³, Alipourfard I^{4, 5}, Aghaei M¹, Nazari M¹, Hosseinnia M⁶, Vahidi Mehrjardi MY^{1, 2}, Jamshidi Y⁷, Ghasemi N^{1, 8}.

1. Department of Medical Genetics, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

2. Medical Genetics Research Center, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

3. Department of Cellular and Molecular Biology, Faculty of Science, Azarbaijan Shahid Madani University, Tabriz, Iran.

4. Center of Pharmaceutical Sciences, Faculty of Life Sciences, University of Vienna, Vienna, Austria.

5. School of Pharmacy, Faculty of Sciences, University of Rome Tor Vergata, Rome, Italy.

6. Department of Biology, Faculty of Science, University of Guilan, Rasht, Iran.

7. Genetics Centre, Molecular and Clinical Sciences Institute, St George's University of London, London, UK.

8. Abortion Research Center, Yazd Reproductive Sciences Institute, Shahid Sadoughi University of Medical Sciences, Yazd, Iran.

Email: nghansemi479@gmail.com

Background: Tudor domain-containing proteins (TDRDs) play a critical role in piRNA biogenesis and germ cell development.

Objective: piRNAs, small regulatory RNAs, act by silencing of transposons during germline development and it has recently been shown in animal model studies that defects in *TDRD* genes can lead to sterility in males.

Materials and Methods: Here we evaluate gene and

protein expression levels of four key TDRDs (TDRD1, TDRD5, TDRD9 and TDRD12) in testicular biopsy samples obtained from men with obstructive azoospermia (OA, n = 29), as controls, and various types of non-obstructive azoospermia containing hypospermatogenesis (HP, 28), maturation arrest (MA, n = 30), and Sertoli cell-only syndrome (SCOS, n = 32) as cases. One-way ANOVA test followed by Dunnett's multiple comparison post-test was used to determine inter-group differences in *TDRD* gene expression among cases and controls.

Results: The results showed very low expression of *TDRD* genes in SCOS specimens. Also, the expression of TDRD1 and *TDRD9* genes were lower in MA samples compared to OA samples. The expression of TDRD5 significantly reduced in SCOS, MA and HP specimens than the OA specimens. Indeed, TDRD12 exhibited a very low expression in HP specimens in comparison to OA specimens. All these results were confirmed by Western blot technique.

Conclusion: TDRDs could be very important in male infertility, which should be expressed in certain stages of spermatogenesis.

Key words: Spermatogenesis, Non-Obstructive Azoospermia, piRNAs, *TDRD* genes.

The original full text of this abstract has been published in *BMC Medical Genetics* 2020; 21(1): 1-7. <https://doi.org/10.1186/s12881-020-0970-0>.

How to cite this article: Babakhanzadeh E, Khodadadian A, Rostami S, Alipourfard I, Aghaei M, Nazari M, Hosseinnia M, Vahidi Mehrjardi MY, Jamshidi Y, Ghasemi N. Testicular expression of TDRD1, TDRD5, TDRD9 and TDRD12 in azoospermia. *BMC Medical Genetics* 2020; 21(1): 1-7.