

Communication

Y/X-Chromosome-Bearing Sperm Shows Elevated Ratio in the Left but not the Right Testes in Healthy Mice

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Abstract: The sex chromosomes play central roles in determining the sex of almost all of the multi-cellular organisms. It is well known that meiosis in mammalian spermatogenesis produces ~50% Y- and ~50% X-chromosome-bearing sperm, a 1:1 ratio. Here we first reveal that the X-chromosome-encoded miRNAs show lower expression levels in the left testis than in the right testis in healthy mice using bioinformatics modeling of miRNA-sequencing data, suggesting that the Y:X ratio could be unbalanced between the left testis and the right testis. We further reveal that the Y:X ratio is significantly elevated in the left testis but balanced in the right testis using flow cytometry. This study represents the first time the biased Y:X ratio in the left testis but not in the right testis is revealed.

Citation: Hu, C.; Shi, J.; Chi, Y.; Yang, J.; Cui, Q. Y/X-Chromosome Bearing Sperm Shows Elevated Ratio in the Left but not the Right Testes in Healthy Mice. *Life* **2021**, *11*, 1219. <https://doi.org/10.3390/life11111219>

Keywords: X-chromosome-bearing sperm; Y-chromosome-bearing sperm; sex chromosome

Academic Editors: Yudong Cai and Tao Huang

Received: 1 October 2021

Accepted: 31 October 2021

Published: 11 November 2021

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Supplementary Materials:

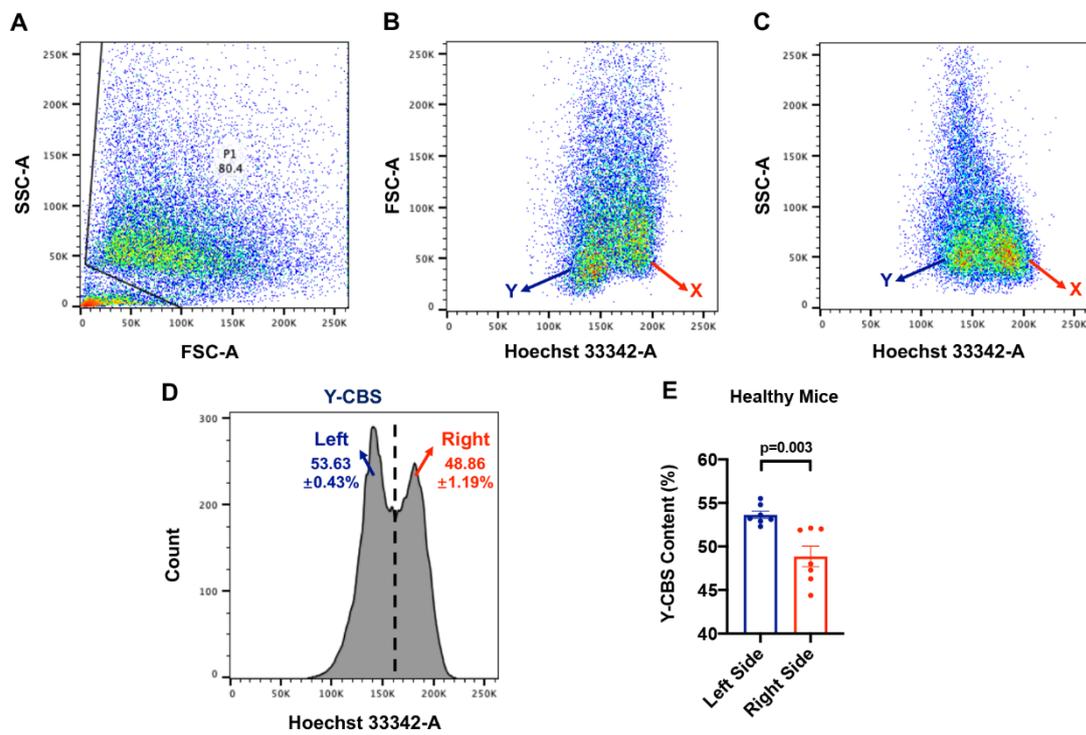


Figure S1. Results from flow cytometry of mice sperm stained with Hoechst 33342.