Accepted Manuscript

New transcriptomic tools to understand testis development and functions

Estelle Lecluze, Bernard Jégou, Antoine D. Rolland, Frédéric Chalmel

PII: S0303-7207(18)30079-0

DOI: 10.1016/j.mce.2018.02.019

Reference: MCE 10199

To appear in: *Molecular and Cellular Endocrinology*

Received Date: 10 November 2017

Revised Date: 26 February 2018

Accepted Date: 27 February 2018

Please cite this article as: Lecluze, E., Jégou, B., Rolland, A.D., Chalmel, Fréé., New transcriptomic tools to understand testis development and functions, *Molecular and Cellular Endocrinology* (2018), doi: 10.1016/j.mce.2018.02.019.

New transcriptomic tools to understand testis development and functions

Estelle Lecluze[1], Bernard Jégou[1], Antoine D. Rolland[1,†], Frédéric Chalmel[1,†,*]

[1]Univ Rennes, Inserm, EHESP, Irset (Institut de recherche en santé, environnement et travail) - UMR_S1085, F-35000 Rennes, France

*Corresponding author

†These authors contributed equally to this work

Contact: frederic.chalmel@inserm.fr

Abstract

The testis plays a central role in the male reproductive system - secreting several hormones including male steroids and producing male gametes. A complex and coordinated molecular program is required for the proper differentiation of testicular cell types and maintenance of their functions in adulthood. The testicular transcriptome displays the highest levels of complexity and specificity across all tissues in a wide range of species. Many studies have used high-throughput sequencing technologies to define the molecular dynamics and regulatory networks in the testis as well as to identify novel genes or gene isoforms expressed in this organ. This review intends to highlight the complementarity of these transcriptomic studies and to show how the use of different sequencing protocols contribute to improve our global understanding of testicular biology.

Keywords

Testis; development; spermatogenesis; germ cells; RNA-sequencing; transcriptomics

Highlights

RNA-sequencing applied to testis biology

Abbreviations

BS-seq: bisulfite sequencing

CB: chromatoid body

ceRNAs: competing endogenous RNA