

Sperm Cells, an Efficient Shuttle for the Intergenerational Epigenetic Memory

Chianese R and Pierantoni R

Corresponding author: Chianese R, Department of Experimental Medicine Section "F. Bottazzi", University of Campania "Luigi Vanvitelli", Via Costantinopoli 16, 80138 Naples, Italy, Tel: +39 081 5667536; Fax: +39 081 5667617; E-mail: rosanna.chianese@unina2.it

Received date: Nov 18, 2016; **Accepted date:** Nov 21, 2016; **Published date:** Nov 25, 2016

Copyright: © 2016 Chianese R, et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

Keywords: Fertility, synergistic encounter, fusion of spermatozoa and oocyte

is a key feature for the perpetuation of the species

Spermatogenesis is a highly orchestrated process allowing the X] YfYbH]U]cb of spermatogonial stem cells into mature sperm, through the succession of spermatogonia self-renewal, meiosis and post-meiotic maturation events. Infertility could result from the interruption of any of these processes due to the disturbance of endocrine, paracrine and autocrine communications along the Hypothalamus-Pituitary-Gonadal (HPG) axis. Actually, gonadal functions are also supported by an intricate intragonadal network of regulators that works in syntony with HPG axis [1-4]. Beyond testis, spermatozoa (SPZ), released from the germinal epithelium as functionally immature, travel along the epididymis-a long convoluted tubule connecting rete testis to the vas deferens, composed of three main anatomical regions (caput, corpus and caudal), with a considerable segment to segment variation. YfYz they encounter a novel extracellular milieu that modulates their biochemical composition and their functionality, thus allowing their maturation. Of great interest for reproductive biologists is to understand the way that epididymal epithelial cells-highly specialized cells in protein secretion-communicate to SPZ along their journey. In this respect, a central component of such a communication is epididymosomes. Ym are a population of 50-150 nm vesicles-heterogeneous in their lipid/protein composition and density-released through an apocrine secretory mechanism [5]. Intriguingly, these vesicles not only coordinate the activity of the X] YfYbH] epididymal segments, but-thanks to their ability to form intimate associations with sperm membrane-they convey to SPZ a rich and complex protein and non-coding RNA (especially microRNA/miRNA and tRNA fragments) landscape [6].

Small non-coding single stranded miRNAs-endogenously produced by the cell, following several steps of maturation, directed by the nuclear Drosha and then by the cytosolic Dicer [7] are able to bind to target mRNA inhibiting their translation into proteins. MicroRNAs are a valid tool of intercellular communications, since the need to be disseminated into extracellular i]Xg to reach target cells. In their journey, miRNA may be associated to cam Maepididymal ion"

