

**Male germ line stem cells:****Developmental and regenerative potential****Kyle E. Orwig and Brian P. Hermann****(eds), 2011****Humana Press – Springer Verlag****Heidelberg, Germany****Stem cell biology and regenerative medicine series****ISBN: 978-1-61737-972-7****279 pp – 43 figs – 139,95€**

One of the most significant hot topic in biology in the last decades is constituted by the many intriguing and interesting aspects that the stem cells biology is offering to the scientific community: from the basic researches to understand the meaning of stemness and the conceptual paradigms able to explain it till the most advanced clinical applications in regenerative medicine. Just for this simple reason a warm welcome to the last titles appeared in the series (*Stem cell biology and regenerative medicine series*) that the Humana Press is specifically devoting to the stem cell world.

The series, edited by Kurstad Turken, has already reached sixteen titles (<http://www.springer.com/series/7896>) and many thanks should be addressed to the staff that rendered it possible to publish the series, namely thanks to Paul Wehn. What is rendering attractive the volumes of this series is that they combine didactic presentations together with the most advanced tricks and methods to isolate, to culture, to expand, in one word to study, the different stem cells types and the way to induce pluripotency thanks to the use of several techniques to genetically reprogram terminally differentiated somatic cells. Thus, never as this is the case, a reviewer is justified to tell to his readers that these books are intended for both beginners and practised colleagues already active in the several topics covered by the stem cells biology. When coming to the male germ line stem cells we enter the history of biology and the Weismann ghost is looking at what we are investigating and which are the results we are, as a scientific community, able to add to

the genome generational passing history.

After having read all the chapters of this fascinating book that really provides comprehensive and authoritative information by leading colleagues I am sure August Weismann will be satisfied. Primordial germ cell kinetics, prospermatogonia and their renewal, the debate on how different type of spermatogonia A (single, paired, aligned) move towards spermatogonia B through renewal and incipient differentiation, the production of germ cells from embryonic stem cells, *in vivo* and *in vitro* studies and many many others topics are presented and distributed in three sections. The first is devoted to germline developmental potential, explaining the gene expression networking underneath pluripotency and the *in vitro* making of germ cells from human embryonic stem cells. The second part is totally devoted to the spermatogonial stem cells; it starts with a masterpiece chapter due to Dirk G. de Rooij exploring the various type of spermatogonia that can be recognized and the actual view of their multiplication: a never ended debate that even thanks to de Rooij's contribution is getting a clearer picture from the classical Monesi and Oakberg studies. Complementing the morphometric de Rooij review, the chapter by Olga Ocon-Grove and Jon M. Oatley presents all about we know on the molecular mechanisms regulating spermatogonial stem cell fate decisions.

A very detailed analysis of mouse spermatogenesis (a must!) is presented by Shosei Yoshida writing about the stem cell niche system in mouse spermatogenesis. The third final part is devoted to the clinic translational potential of the acquired results for the testicular regenerative medicine to preserve or rescue male fertility by both testicular xenografting, recovering of surviving spermatogonia and spermatogonial stem cell transplants after gonadotoxic therapies.

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