Entomology-2013

International Conference on Entomology

September 4-6, 2013 Orlando-Florida, USA

Early stages of oogenesis in *Thermobia domestica* (Insecta, Zygentoma)

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Abstract

The female reproductive system of apterous insect, *Thermobia domestica* is composed of paired ovaries that consist of 5 markedly elongated ovarioles. The individual ovariole has three discernible elements: terminal filament, germarium and a vitellarium. The most apical part of the germarium - a part where initial stages of oogenesis occur - is filled with relatively small germline cells with nuclei surrounded by a narrow rim of a cytoplasm. All the organelles within a cytoplasm are distributed approximately uniformly. The “older” oocytes that are located more posteriorly are larger. Their nuclei are spherical and comprise heterochromatin aggregations and small nucleoli. In the cytoplasm, numerous ribosomes, elements of RER and mitochondria are present. In addition to these organelles, in each oocyte single aggregates of mitochondria and Golgi stalks is present. Similar aggregates are characteristic for young oocytes of many animal species and are referred to as Balbiani bodies or mitochondrial clouds. The Balbiani body plays a crucial role in establishing the polarity of the oocyte by transporting germ plasm and its germinal granules to a vegetal oocyte pole. It is possible that prominent Balbiani bodies found in germline cells of *Thermobia domestica* play a similar role in determining oocyte and future embryo axes.

The study was supported by a research grant IP2011 057171 from the Ministry of Science and Higher Education under a program Iuventus Plus

Biography

Waclaw Tworzydlo has completed his PhD from Jagiellonian University, Krakow, Poland where now he is working on an assistant professor position at the Department of Developmental Biology and Morphology of Invertebrates. He has published more than 10 papers about structure of female reproductive system and oogenesis in insects. Vast majority of his papers focused on dermapteran ovaries.