



OCTOBER 5TH - 7TH 2017 • ZAGREB • CROATIA



7TH INTERNATIONAL CONGRESS "VETERINARY SCIENCE AND PROFESSION"

BOOK OF ABSTRACTS



7TH
INTERNATIONAL
CONGRESS

“VETERINARY SCIENCE AND PROFESSION”

//// OCTOBER 5TH - 7TH 2017 ////

//// ORGANIZER

University of Zagreb
Faculty of Veterinary Medicine

ORGANIZING COMMITTEE

President

Zoran Vrbanac

Vice-presidents

Nika Brkljača Bottegaro
Nevijo Zdolec

LOCAL ORGANIZING COMMITTEE

Damir Agičić, Jasna Aladrović, Iva Benvin, Diana Brozić, Ivan Forgač,
Anđelko Gašpar, Alen Hrastnik, Maja Lukač, Nino Maćešić, Mario Ostović,
Nikica Prvanović - Babić, Lada Radin, Nevenka Rudan, Krešimir Severin,
Magda Sindičić, Zrinka Štritof, Jelena Šuran, Ivana Tlak Gajger,
Ivan Vlahek, Lana Vranković, Ivona Žura Žaja, Slavko Žužul

INTERNATIONAL ORGANIZING COMMITTEE

Sanja Aleksić-Kovačević, Tibor Bartha, Otto Doblhoff-Dier, Nihad Fejzić,
Andrej Kirbiš, Danijela Kirovski, Vanja Krstić, Jana Mojžišova, Lazo
Pendovski, Vladimir Petkov, Foteini Samartzi, Muhamed Smajlović, Breda
Jakovac Strajn, Martin Tomko, Igor Ulčar, Gorazd Vengušt, Petra Winter,
Petra Zrimšek

SCIENTIFIC COMMITTEE

Goran Bačić, Ljubo Barbić, Željko Cvetnić, Tomislav Dobranić, Petar Džaja,
Martina Đuras, Anamaria Ekert Kabalin, Željko Grabarević, Juraj Grizelj,
Andrea Gudan-Kurilj, Boris Habrun, Danijela Horvatek Tomić,
Dean Konjević, Josip Kos, Josip Madić, Alemka Markotić, Dražen Matičić,
Vesna Matijatko, Zoran Milas, Marko Samardžija, Alen Slavica, Nenad Turk,
Romana Turk, Tatjana Vilibić-Čavlek, Ksenija Vlahović

Cataloguing-in-Publication data available in the Online Catalogue of the National and University Library in Zagreb under CIP record 000973547.

ISSN 978-953-8006-13-5

All abstracts published in this Book of Abstracts have been reviewed by an international scientific board.

//// IMPRESSUM

Editors in-Chief

Nika Brkljača Bottegaro, Nevijo Zdolec, Zoran Vrbanac

Editorial Board

Dean Konjević, Krešimir Severin, Jelena Šuran, Nenad Turk

Reviewers

Jasna Aladrović, Ana Beck, Goran Bačić, Ljubo Barbić, Maja Belić, Nika Brkljača Bottegaro, Mirna Brkljačić, Diana Brozić, Hrvoje Capak, Martina Crnogaj, Željko Cvetnić, Tatjana Vilibić-Čavlek, Tomislav Dobranić, Petar Džaja, Martina Đuras, Ivan Folnožić, Emil Gjurčević, Tomislav Gomerčić, Jelena Gotić, Željko Grabarević, Juraj Grizelj, Andrea Gudan-Kurilj, Josipa Habuš, Suzana Hađina, Marko Hohšteter, Danijela Horvatek Tomić, Zdravko Janicki, Lorena Jemeršić, Tugomir Karadjole, Ivana Kiš, Dean Konjević, Josip Kos, Nikša Lemo, Martina Lojkić, Maja Lukač, Nino Maćešić, Josip Madić, Franjo Martinković, Dražen Matičić, Vesna Matijatko, Maja Maurić, Zoran Milas, Andrija Musulin, Mario Ostović, Marina Pavlak, Selma Pintarić, Boris Pirkić, Nikica Prvanović-Babić, Nevenka Rudan, Marko Samardžija, Krešimir Severin, Magda Sindičić, Alen Slavica, Ozren Smolec, Damir Stanin, Kristina Starčević, Vilim Starešina, Marko Stejskal, Vladimir Stevanović, Zvonko Stojević, Branka Šeol Martinec, Iva Šmit, Zrinka Štritof, Jelena Šuran, Nenad Turk, Romana Turk, Hrvoje Valpotić, Gorazd Vengušt, Silvijo Vince, Ksenija Vlahović, Dražen Vnuk, Lana Vranković, Zoran Vrbanac, Nevijo Zdolec, Tatjana Živičnjak, Ivona Žura Žaja

Congress Secretary

Martina Jović

Language Revision

Janet Tuškan, prof.

Publisher

Faculty of Veterinary Medicine, University of Zagreb
10000 Zagreb, Heinzelova 55

Graphic design

Ivan Badanjak

Printed by

Tiskara Zelina d.d.

THYROID HORMONES AFFECT THE PROLIFERATION AND/OR MOBILIZATION OF BULGE STEM CELL POPULATION

Tijana Lužajić¹, Ivan Milošević¹, Jelena Danilović Luković², Danica Marković¹,
Sandra Milošević¹, Milica Kovačević Filipović³, Anita Radovanović¹

¹ Department of Histology and Embryology, Faculty of Veterinary Medicine, University of Belgrade, Serbia

² Department of Biomedical Sciences, State University of Novi Pazar, Serbia

³ Department of Pathophysiology, Faculty of Veterinary Medicine, University of Belgrade, Serbia

Thyroid hormones (TH) play a pivotal role in the development of mammalian skin, and are necessary for both the initiation and maintenance of hair growth. Adult hypothyroid rats showed impaired epidermal proliferation, hair growth and wound healing. Stem cells (SCs) located at the bulges of the hair follicles are responsible for hair cycling, and contribute to the regeneration of the new epidermis after wounding. Therefore a reduction in the number or function of bulge stem cells could be a cause of disturbed skin reepithelization and hair follicle maintenance. We hypothesized that a decrease in TH during prenatal development would affect the bulge stem cell population.

Subclinical hypothyroidism was induced with propylthiouracil through drinking water in a dose of 1.5 mg/l in pregnant Albino Oxford rats, from the first day of gravidity and during lactation. The control group was untreated. Five, seven-day-old pups were euthanized and skin samples were taken from the dorsal part of their bodies. The number of hair follicles was estimated on an area of 1mm² of dermis. For the immunohistochemical study, proliferating cell nuclear antigen (PCNA) (Santa Cruz Biotechnology) and NANOG (Thermo Scientific) antibodies were used. The number of PCNA and NANOG positive cells was estimated on the area of 1mm² of hair follicle.

The number of hair follicles was reduced and the expression of PCNA was decreased in the cells of the inner and outer sheath of hair follicles in the hypothyroid pups compared to the controls. They also had an increased number of NANOG positive bulge cells which we presume are multipotent SCs.

Decreased expression of PCNA demonstrates low proliferation and increased expression of NANOG, which may be explained in two ways: 1) the inhibited differentiation of putative SCs and/or 2) the reduction of mobilization of these cells to the epidermis or sebaceous gland. Our results confirm that the lack of TH influences the formation of hair follicles in early infantile rat pups.