



Age-associated shift in rat dendritic cell T-helper polarizing capacity

Biljana Bufan¹, Zorica Stojić-Vukanić¹, Nevena Arsenović-Ranin¹, Duško Kosec², Ivan Pilipović², Milica Perišić², Jasmina Đikić³ and Gordana Leposavić^{3*}

¹ University of Belgrade-Faculty of Pharmacy, Department of Microbiology and Immunology, Serbia

² Institute of Virology, Vaccines and Sera "Torlak", Immunology Research Centre "Branislav Janković", Serbia

³ University of Belgrade-Faculty of Pharmacy, Department of Physiology, Serbia

Almost all cellular components of innate and adaptive immunity undergo age-related remodeling. The findings on age-related changes in human and mouse dendritic cells (DCs) are conflicting, whereas there is no data on the influence of aging on rat DCs. In attempt to fill this gap, freshly isolated splenic conventional OX62+ DCs from 3- (young) and 26-month-old (aged) Albino Oxford rats were examined for subset composition, cell surface expression of activation markers (CD80, CD86 and CD40 and MHC II molecules) and endocytic capacity using flow cytometric analysis (FCA). In addition, splenic OX62+ DCs isolated from rats of both ages were cultured in the presence or in the absence of LPS. These cells were examined for the activation marker and TNF- α , IL-6, IL-12, IL-23, TGF- β 1, IL-10 expression using FCA, and RT-PCR and ELISA, respectively. Moreover, the allostimulatory capacity of OX62+ DCs and allogeneic CD4+ T cell cytokine (IFN- γ , IL-4 and IL-17) production in MLR was quantified using FCA and ELISA, respectively. It was found that aging: i) in OX62+ DCs population leads to a shift in CD4+:CD4- cell ratio towards CD4- cells and ii) influences OX62+ DCs maturation capacity (judging by activation marker expression and efficiency of endocytosis) by affecting action of intrinsic (TNF- α and IL-10) and extrinsic regulatory factor expression. Furthermore, in LPS-matured OX62+ DCs from aged rats TNF- α , IL-12, IL-23 and IL-6 expression was increased, while IL-10 expression was diminished. Moreover, in MLR, OX62+ DCs from aged rats exhibited enhanced Th1/Th17 driving force and diminished allostimulatory capacity.

Acknowledgements

This work was supported by the Ministry of Education, Science and Technological Development of the Republic of Serbia [grant number 175050].

Keywords: rat, splenic conventional dendritic cells, Aging, Cytokine expression, Th polarization

Conference: 15th International Congress of Immunology (ICI), Milan, Italy, 22 Aug - 27 Aug, 2013. **Presentation Type:** Abstract **Topic:** Innate immunity

Citation: Bufan B, Stojić-Vukanić Z, Arsenović-Ranin N, Kosec D, Pilipović I, Perišić M, Đikić J and Leposavić G (2013). Age-associated shift in rat dendritic cell T-helper polarizing capacity. *Front. Immunol. Conference Abstract: 15th International Congress of Immunology (ICI)*. doi: 10.3389/conf.fimmu.2013.02.00138

Copyright: The abstracts in this collection have not been subject to any Frontiers peer review or checks, and are not endorsed by Frontiers. They are made available through the Frontiers publishing platform as a service to conference organizers and presenters.

The copyright in the individual abstracts is owned by the author of each abstract or his/her employer unless otherwise stated.

Each abstract, as well as the collection of abstracts, are published under a Creative Commons CC-BY 4.0 (attribution) licence

(<https://creativecommons.org/licenses/by/4.0/>) and may thus be reproduced, translated, adapted and be the subject of derivative works provided the authors and Frontiers are attributed.

For Frontiers' terms and conditions please see <https://www.frontiersin.org/legal/terms-and-conditions>. **Received:** 11 Mar 2013; **Published Online:** 22 Aug 2013.

* **Correspondence:** Prof. Gordana Leposavić, University of Belgrade-Faculty of Pharmacy, Department of Physiology, Belgrade, Serbia, gordana.leposavic@pharmacy.bg.ac.rs



[LOGIN / REGISTER](#)

[ABOUT](#)

[JOURNALS](#)

[RESEARCH TOPICS](#)

[ARTICLES](#)

[SUBMIT](#)

[LOGIN / REGISTER](#) [SUBMIT](#)

[News](#)

[Submit](#)

[Privacy Policy](#)

© 2007 - 2023 Frontiers Media S.A. All Rights Reserved