Proangiogenic actors: From the uterus to peripheral arterial disease?

Nirvana Sadaghianloo, MD, PhD, Nice, France

In their study, Wolf et al¹ elegantly show that once again the circulatory system and the immune system are globally intertwined. By examining the function of natural killer (NK) cells in the uterus, whose potent proangiogenic role is known in the secretory phase of menstruation and during pregnancy,² they were able to show their proangiogenic potential on endothelial cells through tubule formation. While in the functioning of the female body, the intercellular communication is done via proangiogenic cytokines, the present study unveils an unexpected molecular pathway via the secretion of Ephrin-B2, ligand of the Eph-B4 tyrosine kinase receptor present on the surface of endothelial cells. As the interactions of this signaling pathway are well-known in the determination of the arterial or venous phenotype of vascular cells, this discovery opens an additional exploratory field on angiogenesis.^{2,3} Furthermore, the authors were able to induce nonuterine NK cells to secrete this ligand.¹ This gives hope for the induction of NK or other immune cells, ex vivo or in vivo on targeted

territories.⁴ Subject to the applicability of these results in vivo, one can imagine the induction of this pathway locally to treat critical limb ischemia, but also other ischemic territories and organs such as the brain or the kidney.

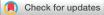
The opinions or views expressed in this commentary are those of the authors and do not necessarily reflect the opinions or recommendations of the JVS: Vascular Science or the Society for Vascular Surgery.

REFERENCES

- K.Wolf, E.B. Crawford, N.M. Wartan, S.K. Schneiderman, V. E. Riehl, S.V. Dambaeva, et al. Ephrin-B2-expressing Natural Killer cells induce angiogenesis. J Vasc Surg Vasc Sci. .
- Sojka DK, Yang L, Yokoyama WM. Uterine natural killer cells: to protect and to nurture. Birth Defects Res 2018;110:1531-8. doi: 10.1002/bdr2.1419.
- Wolf K, Hu H, Isaji T, Dardik A. Molecular identity of arteries, veins, and lymphatics. J Vasc Surg 2019;69:253-62. doi: 10.1016/j.jvs.2018.06.195.
- Radomska-Leśniewska DM, Bialoszewska A, Kaminski P. Angiogenic properties of NK cells in cancer and other angiogenesis-dependent diseases. Cells 2021;10:1621. doi: 10.3390/cells10071621.

2666-3503

https://doi.org/10.1016/j.jvssci.2022.10.003



From the Department of Vascular Surgery, Centre Hospitalier Universitaire Côte d'Azur, Université Côte d'Azur.

Author conflict of interest: none.

Correspondence: Nirvana Sadaghianloo, MD, PhD, Chirurgie Vasculaire, Hôpital Pasteur 1, 30 Voie Romaine, 06000 Nice, France (e-mail: sadaghianloo.n@ chu-nice.fr).

The editors and reviewers of this article have no relevant financial relationships to disclose per the JVS-Vascular Science policy that requires reviewers to decline review of any manuscript for which they may have a conflict of interest. JVS–Vascular Science 2022;3:363

Copyright © 2022 by the Society for Vascular Surgery. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (http:// creativecommons.org/licenses/by-nc-nd/4.0/).