**Title of the project:** Proprotein convertase subtilisin/kexin 9 (PCSK9) in the pathophysiology and treatment of dry age-related macular degeneration

**Grant Agency:** Ministry of Health  
**Project Number:** 17-29241A

**Principal Investigator:** Hana Langrová

**Co-investigators:** Bláha V, Lánská M, Bláha M., Studnička J, Stepanov A., Kujovská Krčmová L., Dvořáková H, Kvasnička J.

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<th><strong>Starting date:</strong> 01.04.2017</th>
<th><strong>Duration (years):</strong> 4</th>
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**Total funds allocated for project - Kč (thousands):** 9962

**Summary of 2018 results**

**Title of the presentation:** Proprotein convertase subtilisin kexin 9 (PCSK9) in the treatment with rheopheresis in age related macular degeneration  
**Authors:** Langrová H, Bláha V, Lánská M, Bláha M., Studnička J, Stepanov A., Veselá Š, Breznayová J, Burová M, Dvořáková H

Aim: The circulating liver-derived protein, proprotein convertase subtilisin/kexin type-9 (PCSK9), has emerged in the last decade as a major drug target in cardiovascular medicine. Hypotheses on the causes of age-related macular degeneration (AMD) indicate a possible role of lipoproteins. The aim of our study was to examine the dynamics of PCSK9 during therapy of AMD with rheopheresis

Methods and group of patients: 19 patients with dry form of AMD (9 females and 10 males, age 77.8±4.3, median 69) were treated with rheopheresis - 8 procedures for 10 weeks. The PCSK9 level was examined (Quantikine ELISA PCSK9 kit).

Results: The baseline patients' PCSK9 level was increased - median 192ng/L. Median in the controlled group was 136ng/L (p=0.02). The values are significantly reduced following the rheopheretic procedures (p<0.0001). The PCSK9 level correlates with the level of total cholesterol, it does not correlate with LDL, HDL cholesterol, fibrinogen, viscosity of plasma and blood, apolipoprotein B, IgM and alpha2-macroglobulin. The PCSK9 level is not significantly different in patients who succeeded with therapy compared to those who did not.

Conclusion: The acquired knowledge on PCSK9 dynamics in the treatment with rheopheresis verifies the theory on possible contribution of lipoprotein metabolism disorders in the development of AMD. Currently, when even the treatment with monoclonal antibodies against PCSK9 is available, they have not only theoretical but also practical clinical potential.

Acknowledgments: Supported by Ministry of Health AZV 17-29241A.

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