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Molecular and Cellular Pharmacology
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Primary fields of research

Throughout my academic career, I have been focusing on the regulation of vascular tone in health and disease (diabetes, stroke, hypertension, congestive Heart Failure, age-related changes and migraine). Coronary arteries are densely innervated by sensory nerve endings containing calcitonin gene-related peptide (CGRP). CGRP is a potent naturally occurring 37 amino acid vasodilatory neuropeptide which is released from the perivascular sensory nerve endings in the wall of flow regulating intramural coronary arteries during hypoxia and by low pH levels in the myocardium, thus suggesting a vasodilatory role under ischemic conditions. Receptor subtypes for CGRP, the intracellular signaling pathways and the mechanism behind CGRP-induced desensitization and neuronal reuptake are still under investigation in both resistance and conductance arteries of different species including human. So far, these studies clearly demonstrate a higher CGRP receptor density in resistance arteries (internal lumen diameter $\leq 200 \mu\text{m}$) compared to larger conductance arteries (internal lumen diameter greater than $200 \mu\text{m}$), indicating that receptor distribution, calcium handling, ion channels, and second messengers may be finely adjusted within the circulatory system, probably reflecting the physiological demands on the vascular segments. CGRP receptor consists of three components, calcitonin receptor-like receptor (CLR), a specific chaperone called receptor activity modifying protein 1 (RAMP1), and receptor component protein (RCP). A novel family of chaperone proteins, called RAMPs (RAMP1, RAMP2, and RAMP3) were identified as proteins escorting CLR to the plasma membrane to generate either CGRP (when associated with RAMP1) or adrenomedullin receptors (when associated with RAMP2 or RAMP3). CLR belongs to class B of the G protein-coupled receptor (GPCR) family and is linked to Gs protein. It was recently reported that the small non-peptide CGRP receptor antagonists (olcegepant and telcagepant) act by blocking access of CGRP to the peptide-binding cleft at the interface of CLR and RAMP1. Our recent studies on isolated human subcutaneous arteries clearly show that key components of the CGRP receptor (CLR and RAMP1) are located on both smooth muscle and endothelial cells. Despite the presence of functional endothelium in these human vessels (verified by functional studies using carbachol, substance P and bradykinin), the contribution of the endothelium to CGRP-induced vasodilation seems to be insignificant. Perhaps, the CGRP receptors located on the endothelium have different biological effects than being directly involved in the vasomotor control or the density of CGRP receptors are significantly higher on smooth muscle cells compared with the endothelium. Recent studies have shown that CGRP acts as a pro-angiogenic growth factor by increasing the secretion of vascular endothelial growth factor and expression of focal adhesion kinase, thereby contributing to remodelling. In addition, our most recent results on this topic show a synergism or possible interplay between smooth muscle Kv7.4/7.5 channels and CGRP receptor signaling in isolated human subcutaneous arteries so that CGRP-induced vasodilatation becomes more potent and prolonged. These studies will shed light on the complexity of CGRP receptor pharmacology as well as its complex signalling pathway, thereby helping us understand its physiology as well as its role under different circulatory complications such as stroke, ischemia, hypertension and migraine.

Education

Master of Science in Pharmacy (Cand. Pharm.), Royal Danish School of Pharmacy, September 1987 - February 1993.

Academic degree

Ph.D., Royal Danish School of Pharmacy, 21. December 2000: "Characterization of Calcitonin Gene-Related Peptide (CGRP) receptor subtype and function in rat coronary arteries". PhD-study has resulted in 6 Peer-reviewed publications in well reputed journals.

PhD-education was exclusively financed by external grants (self-financing):

June 1996, research grant covering lab running expenses (50.000 D.kr.) received from Danish Heart Association (96-1-3-64-22386).

October 1996, research grant covering lab running expenses (25.000 D.kr.) received from Novo Nordisk foundation.

June 1997, research grant covering 6 months salary received from Danish Heart Association (97-1-1-15-22503).

October 1998, research grant covering lab running expenses (30.000 D.kr.) received from Novo Nordisk foundation.

December 1998, research grant covering 18 months salary received from Danish Heart Association (98-2-2-19-22636).

December 1999, research grant covering lab running expenses (75.000 D.kr.) received from Danish Heart Association

(99-2-2-34-22741).

Ansættelse

Associate Professor, Department of Drug Design and Pharmacology, Faculty of Health and Medical Sciences, University of Copenhagen, 1. April 2004 - present.

Previous employments

1. February 2001 - 31. March 2004: Assistant Professor, Dept. of Pharmacology, The Danish University of Pharmaceutical Sciences.
4. July 2000 - 31. January 2001: Amanuensis, Dept. of Pharmacology, Royal Danish School of Pharmacy.
1. April 1997 - 29. February 1998: Student advisor for foreign students, Royal Danish School of Pharmacy.
1. July 1995 - 30. December 1995: Clinical data management and monitoring, Medical Department, IPSEN Scandinavia A/S.
15. August 1994 - 30. June 1995: Department of Regulatory Affairs, IPSEN Scandinavia A/S.
11. April 1994 - 11. August 1994: Pharmacist responsible for aseptic and sterile manufacturing of drugs, Bispebjerg Hospital Pharmacy.

Teaching experience

Over 25 years of teaching experience in the field of Pharmacology covering wide range of areas: Cardiovascular Pharmacology, Endocrinology, Receptor Pharmacology and Intracellular Signalling Pathways, and Pharmacokinetics and -Dynamics.

Supervision of students: Supervised approx. 60 Master students and 15 PhD-students.

Administrative responsibilities at the Departmental and Faculty level

Member of didactic committee at the Faculty of Pharmaceutical Sciences and Chairman of the teaching committee at the Department of Pharmacology and Pharmacotherapy, Faculty of Pharmaceutical Sciences, University of Copenhagen: from January 2008 - March 2012.

August 2012 - May 2019: Member of the committee for Research and Innovation (FIU) at the Dept. of Drug Design and Pharmacology, University of Copenhagen.

January 2017 - December 2019: Course director for "Organ pharmacology", Bachelor course for Pharmacy students at the 4th semester.

Scientific productivity (ORCID: 0000-0002-4561-0326)

Full bibliography (including contribution to book chapters) contains **104** academic publications of which **87** are Peer-reviewed scientific articles (Web of Science: H-index: 22; total citations (without self-citations): 1155. Number of first authorships = 13. Number of last authorships = 15. Number of corresponding authorships = 20.

Review of book chapters (basic- and specialized pharmacology) in Mogens Vyberg book of "Patologi og Farmakologi 3rd edition" ISBN: 978-8762809536.

Academic awards and nominations

Recipient of the award for the best teacher of the year in both **2005** and **2008** at Faculty of Pharmaceutical Sciences (PharmaSchool), University of Copenhagen.

In November 2012, after the merger between PharmaSchool and the Faculty of Health Science, I was nominated among 10 top candidates for receiving the annual HARALD teaching award at the University of Copenhagen.

Scientific focus areas

- 1- Neurovascular Pharmacology (cardiovascular and cerebrovascular)
- 2- Hypertension, Obesity and Diabetes.
- 3- Cardiac Pain and Migraine
- 4- Receptor pharmacology: G-protein coupled receptor pharmacology, desensitization and signalling pathway
- 5- Pharmacokinetics and pharmacodynamics (PK-PD studies)

Organizer of scientific meetings

1- Coorganizer (together with associate prof. Bjarne Fjalland) of IUPHAR Teaching Section in Copenhagen, Denmark: Pre-Conference Satellite Meeting to WorldPharma2010, Faculty of Pharmaceutical Sciences, University of Copenhagen, 17.-18. July 2010.

2- Coorganizer (together with prof. Lars Edvinsson and associate prof. Inger Jansen Olesen) of The 4th International Symposium on Calcitonin gene-related peptide (CGRP 2001), The Royal Danish School of Pharmacy, September 28-30, 2001. Meeting report has been published in Trends in Pharmacological Sciences, 2002, 23(2): 51-53.

Member of scientific societies

- 1- British Pharmacological Society (BPS).
- 2- Scandinavian Physiological Society (SPS).
- 3- The Danish Society of Toxicology and Pharmacology (DSTF).
- 4- Danish Cardiovascular Research Academy (DaCRA).

Expert referee work

1- British Journal of Pharmacology, 2- European Journal of Pharmacology, 3- Vascular Pharmacology, 5- PLOS ONE, 6- Basic and Clinical Pharmacology and Toxicology, 7- Trends in Cardiovascular Medicine, 8- Clinical Pharmacology and Therapeutics, 9- Neuroscience Letters, 10- Nanotoxicology.

International relations

- 1- Professor Susan Brain BSc PhD, King's College London, UK.
- 2- Professor David R. Poyner, School of Life and Health Sciences, Aston University, UK.
- 3- Professor Moein Moghimi, School of Pharmacy, Newcastle University, UK.
- 4- Professor Robert D. Foreman, PhD, University of Oklahoma Health Sciences Center (OUHSC), College of Medicine, Department of Physiology, Oklahoma City, USA.
- 5- Professor Patrick Sexton, Monash Institute of Pharmaceutical Sciences, Faculty of Pharmacy and Pharmaceutical Sciences, Monash University, Australia.
- 6- Professor Lars Edvinsson, Internal Medicine, Experimental Vascular Research, Lund University, Lund, Sweden.
- 7- Prof. Carlos M. Villalón, Departamento de Farmacobiología, Cinvestav-IPN (Sede Sur), Col. Granjas-Coapa, Deleg. Tlalpan, C.P. 14330 Ciudad de México, MEXICO

Peer reviewed publications

2023:

87. Sams A, Haanes KA, Holm A, Kazantzi S, Mikkelsen LF, Edvinsson L, Brain S, **Sheykhzade M.** Heterogeneous vasomotor responses in segments from Göttingen Minipigs coronary, cerebral, and mesenteric artery: A comparative study. *Vascul Pharmacol.* 2023 Sep 18;107231. doi: 10.1016/j.vph.2023.107231.

2022:

86. Edvinsson, J.C.A., Maddahi, A., Christiansen, I.M., Reducha, P.V., Warfvinge, K., **Sheykhzade, M.**, Edvinsson, L., Haanes, K.A. (2022). Lasmiditan and 5-Hydroxytryptamine in the rat trigeminal system; expression, release and interactions with 5-HT₁ receptors. *J Headache Pain.* 2022 Feb 17;23(1):26. doi:10.1186/s10194-022-01394-z.

85. Lassen, M.L., Wissenberg, M., Byrne, C., **Sheykhzade, M.**, Hurry, P.K., Schmedes, A.V., Kjær, A., Hasbak, P. (2022). Image-derived and physiological markers to predict adequate adenosine-induced hyperemic response in Rubidium-82 myocardial perfusion imaging. *J Nucl Cardiol.* 2022 Feb 11. doi: 10.1007/s12350-022-02906-9.

84. Lassen, M.L., Byrne, C., **Sheykhzade, M.**, Wissenberg, M., Hurry, P.K., Schmedes, A.V., Kjær, A., Hasbak, P. Gender differences and caffeine impact in adenosine-induced hyperemia. *J Nucl Med.* 2022 Mar; 63(3): 431-437. doi: 10.2967/jnumed.121.261970.

2021:

83. Edvinsson J.C., Reducha, P.V., **Sheykhzade, M.**, Warfvinge, K., Haanes, K.A., Edvinsson, L. Neurokinins and their receptors in the rat trigeminal system: Differential localization and release with implications for migraine pain. *Mol Pain.* 2021 Jan-Dec; 17:17448069211059400.

82. Coskun, H., Elbahi, F.A., Al-Karagholi, M.A., Ghanizada, H., **Sheykhzade, M.** and Ashina, M. (2021). The Effect of KATP Channel Blocker Glibenclamide on CGRP-Induced Headache and Hemodynamic in Healthy Volunteers. *Front. Physiol.*, 2021 Jun 11; 12: 652136. doi: 10.3389/fphys.2021.652136. eCollection 2021.

81. Ramshini, E., **Sheykhzade, M.**, Dabiri, S., Shabani, M. (2021). Cannabinoid CB1 receptor mediates METH-induced electrophysiological and morphological alterations in cerebellum Purkinje cells. *Hum Exp Toxicol.* 2021 Jun;40(6):940-951. doi:10.1177/0960327120975448.

80. Dreier, R., Abdolalizadeh B., Asferg, C.L., Hölmich, L.R., Buus, N.H., Forman, J.L., Andersen, U.B., Egjford, M., **Sheykhzade, M.**, Jeppesen, J.L. (2021). Effect of increased potassium intake on the renin-angiotensin-aldosterone system

and subcutaneous resistance arteries: a randomized crossover study. *Nephrol Dial Transplant*. 2020 Jun 29;gfaa114. doi: 10.1093/ndt/gfaa114.

79. Dreier, R., Andersen, U.B., Forman, J.L., **Sheykhzade, M.**, Egffjord, M., Jeppesen, J.L. (2021). Effect of Increased Potassium Intake on Adrenal Cortical and Cardiovascular Responses to Angiotensin II: A Randomized Crossover Study. *J Am Heart Assoc*. 2021 Apr 19:e018716. doi: 10.1161/JAHA.120.018716.

78. Beck, L., Pinilla, E., Arcanjo, D.D.R., Hernanz, R., Prat-Duran, J., Petersen A.G., Köhler, R., **Sheykhzade, M.**, Comerma-Steffensen, S., Simonsen, U. (2021). Pirfenidone Is a Vasodilator: Involvement of Kv7 Channels in the Effect on Endothelium-Dependent Vasodilatation in Type-2 Diabetic Mice. *Front Pharmacol*. 2021 Jan 12;11:619152.

2020:

77. Ramshini, E., **Sheykhzade, M.**, Dabiri, S., Shabani, M. (2020). Cannabinoid CB1 receptor mediates METH-induced electrophysiological and morphological alterations in cerebellum Purkinje cells. *Hum Exp Toxicol*. 2020 Nov 28;960327120975448. doi: 10.1177/0960327120975448.

76. Beck, L., Su, J., Comerma-Steffensen, S., Pinilla, E., Carlsson, R., Hernanz, R., **Sheykhzade, M.**, Danielsen, C.C., Simonsen, U. (2020). Endothelial Dysfunction and Passive Changes in the Aorta and Coronary Arteries of Diabetic db/db Mice. *Front. Physiol*. 2020 Jun 23, Article 667, 11:1-17. doi: 10.3389/fphys.2020.00667.

75. Dreier, R., Abdolalizadeh, B., Asferg, C.L., Hölmich, L.R., Buus, N.H., Forman, J.L., Andersen, U.B., Egffjord, M., **Sheykhzade, M.**, Jeppesen, J.L. (2020). Effect of increased potassium intake on the renin-angiotensin-aldosterone system and subcutaneous resistance arteries: a randomized crossover study. *Nephrol Dial Transplant*. 2020 Jun 29;gfaa114. doi: 10.1093/ndt/gfaa114.

74. Edvinsson, J.C.A., Grell, A.S., Warfvinge, K., **Sheykhzade, M.**, Edvinsson, L., Haanes, K.A. (2020). Differences in pituitary adenylate cyclase-activating peptide and calcitonin gene-related peptide release in the trigeminovascular system. *Cephalalgia*. 2020 Jun 2;333102420929026. doi: 10.1177/0333102420929026.

73. Sohn, I., **Sheykhzade, M.**, Edvinsson, L., Sams, A. (2020). The effects of CGRP in vascular tissue - classical vasodilation, shadowed effects and systemic dilemmas. *Eur J Pharmacol*. 2020 May 19; 881:173205. doi:10.1016/j.ejphar.2020.173205.

72. Le, T.L., Jagd Grell, A.S., **Sheykhzade, M.**, Warfvinge, K., Edvinsson, L., Sams, A. (2020). CGRP in rat mesenteric artery and vein -receptor expression, CGRP presence and potential roles. *Eur J Pharmacol*. 2020;173033. doi:10.1016/j.ejphar.2020.173033.

71. Zhu, J., Pedersen, M.D., Ahmed, L.S., Abdolalizadeh, B., Grell, A.S., Berg, J.O., Thulstrup, P.W., Franzyk, H., Edvinsson, L., Sams, A., **Sheykhzade, M.**, Hansen, P.R. (2020). Fluorescent Analogues of Human α -Calcitonin Gene-Related Peptide with Potent Vasodilator Activity. *Int J Mol Sci*. 21(4): E1343. doi: 10.3390/ijms21041343.

2019:

70. Edvinsson, J.C.A., Warfvinge, K., Krause, D.N., Blixt, F.W., **Sheykhzade, M.**, Edvinsson, L., Haanes, K.A. (2019). C-fibers may modulate adjacent A δ -fibers through axon-axon CGRP signaling at nodes of Ranvier in the trigeminal system. *J Headache Pain*. 20(1):105. doi: 10.1186/s10194-019-1055-3.

69. Warfvinge, K., Edvinsson, L., Pickering, D.S., **Sheykhzade, M.** (2019). The Presence of Calcitonin Gene-Related Peptide and Its Receptors in Rat, Pig and Human Brain: Species Differences in Calcitonin Gene-Related Peptide Pharmacology. *Pharmacology*. 104:332-341. doi: 10.1159/000502471.

68. Arildsen, L., Andersen, J.V., Waagepetersen, H.S., Nissen, J.B.D., **Sheykhzade, M.** (2019). Hypermetabolism and impaired endothelium-dependent vasodilation in mesenteric arteries of type 2 diabetes mellitus db/db mice. *Diab Vasc Dis Res*. 2019 Jul 31;1479164119865885. doi: 10.1177/1479164119865885.

67. Jensen, D.M., Løhr, M., **Sheykhzade, M.**, Lykkesfeldt, J., Wils, R.S., Loft, S., Møller, P. (2019). Telomere length and genotoxicity in the lung of rats following intragastric exposure to food-grade titanium dioxide and vegetable carbon particles. *Mutagenesis*. 34(2):203-214. doi: 10.1093/mutage/gez003.

66. Johansson, S.E., Abdolalizadeh, B., **Sheykhzade, M.**, Edvinsson, L., Sams, A. (2019). Vascular pathology of large cerebral arteries in experimental subarachnoid hemorrhage: Vasoconstriction, functional CGRP depletion and maintained CGRP sensitivity. *Eur J Pharmacol*. 846:109-118. doi:10.1016/j.ejphar.2019.01.007.

2018:

65. Kristiansen, S.B., Skovsted, G.F., Berchtold, L.A., Radziwon-Balicka, A., Dreisig, K., Edvinsson, L., **Sheykhzade, M.**, Haanes, K.A. (2018). Role of Pannexin and adenosine triphosphate (ATP) following myocardial ischemia/reperfusion. *Scand Cardiovasc J*. 52(6):340-343. doi: 10.1080/14017431.2018.1552793.

64. Jensen, D.M., Skovsted, G.F., Lykkesfeldt, J., Dreier, R., Berg, J.O., Jeppesen, J.L., **Sheykhzade, M.**, Loft, S., Møller, P. (2018). Vasomotor dysfunction in human subcutaneous arteries exposed ex vivo to food-grade titanium dioxide. *Food Chem Toxicol*. 120:321-327. doi: 10.1016/j.fct.2018.07.015.

63. **Sheykhzade, M.**, Abdolalizadeh, B., Koole, C., Pickering, D.S., Dreisig, K., Johansson, S.E., Abboud, B.K., Dreier, R., Berg, J.O., Jeppesen, J.L., Sexton, P.M., Edvinsson, L., Wootten, D., Sams, A. (2018). Vascular and molecular pharmacology of the metabolically stable CGRP analogue, SAX. *Eur. J. Pharmacol*. 829: 85-92.

62. Jensen, D.M., Christophersen, D.V., **Sheykhzade, M.**, Skovsted, G.F., Lykkesfeldt, J., Münter, R., Roursgaard, M., Loft, S., Møller, P. (2018). Vasomotor function in rat arteries after ex vivo and intragastric exposure to food-grade titanium dioxide and vegetable carbon particles. *Part Fibre Toxicol*. 15(1):12. doi:10.1186/s12989-018-0248-2.

2017:

61. Kristiansen, S.B., **Sheykhzade, M.**, Edvinsson, L., Haanes, K.A. (2017). Changes in vasodilation following myocardial ischemia/reperfusion in rats. *Nitric Oxide*. 70:68-75.
60. Haanes, K.A., Kristiansen, S.B., **Sheykhzade, M.**, Edvinsson, L. (2017). Endothelin receptor-mediated Ca(2+) signaling in coronary arteries after experimentally induced ischemia/reperfusion injury in rat. *J Mol Cell Cardiol*. 111:1-9.
59. Erdling, A., **Sheykhzade, M.**, Edvinsson, L. (2017). Differential inhibitory response to telcagepant on α CGRP induced vasorelaxation and intracellular Ca(2+) levels in the perfused and non-perfused isolated rat middle cerebral artery. *J Headache Pain*. 18(1):61.
58. **Sheykhzade, M.**, Amandi, N., Pla, M.V., Abdolalizadeh, B., Sams, A., Warfvinge, K., Edvinsson, L., Pickering, D.S. (2017). Binding and functional pharmacological characteristics of gepant-type antagonists in rat brain and mesenteric arteries. *Vascul Pharmacol*. 90:36-43.
57. Outzen, E.M., Zaki, M., Mehryar, R., Abdolalizadeh, B., Sajid, W., Boonen, H.C., Sams, A., **Sheykhzade, M.** (2017). LPS, but not Angiotensin II, Induces Direct Pro-Inflammatory Effects in Cultured Mouse Arteries and Human Endothelial and Vascular Smooth Muscle Cells. *Basic Clin Pharmacol Toxicol*. 120(4):335-347.
56. Sekeroglu, A., Jacobsen, J.M., Jansen-Olesen, I., Gupta, S., **Sheykhzade, M.**, Olesen, J., Bhatt, D.K. (2017). Effect of PGD2 on middle meningeal artery and mRNA expression profile of L-PGD2 synthase and DP receptors in trigeminovascular system and other pain processing structures in rat brain. *Pharmacol Rep*. 69(1):50-56.

2016:

55. Eriksen, V.R., Abdolalizadeh, B., Trautner, S., Greisen, G., **Sheykhzade, M.** (2016). Mechanical and vasomotor properties of piglet isolated middle cerebral artery. *Pharmacology Research & Perspectives*. 5(1): e00279.
54. Blædel, M., Sams, A., Boonen, H.C., **Sheykhzade, M.** (2016). Increased Contractile Response to Noradrenaline Induced By Factors Associated with the Metabolic Syndrome in Cultured Small Mesenteric Arteries. *Pharmacology*. 97(1-2):48-56.
53. Spray, S., Rasmussen, M.N., Skovsted, G.F., Warfvinge, K., **Sheykhzade, M.**, Edvinsson, L. (2016). Reduced Mechanical Stretch Induces Enhanced Endothelin B Receptor-mediated Contractility via Activation of Focal Adhesion Kinase and Extra Cellular-regulated Kinase 1/2 in Cerebral Arteries from Rat. *Basic Clin Pharmacol Toxicol*. 119(1): 68-77.
52. Christophersen, D.V., Jacobsen, N.R., Jensen, D.M., Kermanizadeh, A., **Sheykhzade, M.**, Loft, S., Vogel, U., Møller, P. (2016). Inflammation and Vascular Effects after Repeated Intratracheal Instillations of Carbon Black and Lipopolysaccharide. *PLoS One*. 11(8):e0160731.
51. Kirchhoff, J.E., Diness, J.G., Abildgaard, L., **Sheykhzade, M.**, Grunnet, M., Jespersen, T. (2016). Antiarrhythmic effect of the Ca(2+)-activated K (SK) channel inhibitor ICA combined with either amiodarone or dofetilide in an isolated heart model of atrial fibrillation. *Pflugers Arch*. 468(11-12):1853-1863.

2015:

50. Outzen, E.M., Zaki, M., Abdolalizadeh, B., Sams, A., Boonen, H.C., **Sheykhzade, M.** (2015). Translational value of mechanical and vasomotor properties of mouse isolated mesenteric resistance-sized arteries. *Pharmacology Research & Perspectives*. 3(6): e00200.
49. Blædel, M., Sams, A., Boonen, H.C., **Sheykhzade, M.** (2015). Increased Contractile Response to Noradrenaline Induced By Factors Associated with the Metabolic Syndrome in Cultured Small Mesenteric Arteries. *Pharmacology*. 97(1-2):48-56.
48. Diness, J.G., Kirchhoff, J.E., **Sheykhzade, M.**, Jespersen, T., Grunnet, M. (2015). Anti-arrhythmic effect of either negative modulation or blockade of small conductance Ca²⁺ activated K⁺ channels on ventricular fibrillation in guineapig Langendorff perfused heart. *J Cardiovasc Pharmacol*. 66(3):294-299.
47. Taskin, B., vonSchoubye, N.L., **Sheykhzade, M.**, Bastlund, J.F., Grunnet, M., Jespersen, T. (2015). Biophysical characterization of Kv3.1 potassium channel activating compounds. *Eur J Pharmacol*. 758:164-170.
46. Løhr, M., Folkmann, J.K., **Sheykhzade, M.**, Jensen, L.J., Kermanizadeh, A., Loft, S., Møller, P. (2015). Hepatic oxidative stress, genotoxicity and vascular dysfunction in lean or obese zucker rats. *PLoS One*. 10(3):e0118773.
45. Svalø, J., **Sheykhzade, M.**, Nordling, J., Matras, C., Bouchelouche, P. (2015). Functional and Molecular Evidence for Kv7 Channel Subtypes in Human Detrusor from Patients with and without Bladder Outflow Obstruction. *PLoS One*. 10(2):e0117350.
44. Kirchhoff, J.E., Goldin Diness, J., **Sheykhzade, M.**, Grunnet, M., Jespersen, T. (2015). Synergistic anti-arrhythmic effect of combining inhibition of Ca(2+)activated K(+) (SK) channels and voltage-gated Na(+) channels in an isolated heart model of atrial fibrillation. *Heart Rhythm*. 12(2): 409-418.

2014:

43. Tang, J., **Sheykhzade, M.**, Clausen, B.F., Boonen, H.C. (2014). Genetic fuzzy system predicting contractile reactivity patterns of small arteries. *CPT Pharmacometrics Syst Pharmacol*. 3:e108.
42. Boonen, H.C., Moesgaard, S.G., Birck, M.M., Christoffersen, B.O., Cirera, S., Heegaard, P.M., Højbøge, T.R., Jensen, L.J., Mortensen, A., Olsen, L.H., **Sheykhzade, M.**, Tang, J., Lykkesfeldt, J. (2014). Functional network analysis of obese and lean Göttingen mini pigs elucidates changes in oxidative and inflammatory networks in obese pigs. *Pflugers Arch*. 466(12):2167-2176.
41. Edvinsson, L., Ahnstedt, H., Larsen, R., **Sheykhzade, M.** (2014). Differential localization and characterization of functional calcitonin gene-related peptide receptors in human subcutaneous arteries. *Acta Physiol (Oxf)*. 210(4):811-822.
40. Skovsted, G.F., Kruse, L., Larsen, R., Pedersen, A.F., Trautner, S., **Sheykhzade, M.**, Edvinsson, L. (2014). Heart ischemia-reperfusion induces local upregulation of vasoconstrictor endothelin receptor type B in rat coronary arteries

downstream of occlusion. *Br J Pharmacol.*, 171(11):2726-38.

39. Hasbak, P., **Sheykhzade, M.**, Schifter, S., Edvinsson, L. (2014). Potentiated adrenomedullin-induced vasorelaxation during hypoxia in organ cultured porcine coronary arteries. *J Cardiovasc Pharmacol.*, 63(1):58-67.

38. Vesterdal, L.K., **Sheykhzade, M.**, Roursgaard, M., Jantzen, K., Folkmann, J.K., Loft, S., Moller, P. (2012). Pulmonary exposure to particles from diesel exhaust, urban dust or single-walled carbon nanotubes and oxidatively damaged DNA and vascular function in apoE^{-/-} mice. *Nanotoxicology*, 8:61-71.

2013:

37. Rasmussen, M.N., Hornbak, M., Larsen, S.S., **Sheykhzade, M.**, Edvinsson, L. (2013). Permanent Distal Occlusion of Middle Cerebral Artery in Rat Causes Local Increased ETB, 5-HT_{1B} and AT₁ Receptor-Mediated Contractility Downstream of Occlusion. *J Vasc Res.*, 50(5):396-409.

36. Erdling, A., **Sheykhzade, M.**, Maddahi, A., Bari, F., Edvinsson, L. (2013). VIP/PACAP receptors in cerebral arteries of rat: Characterization, localization and relation to intracellular calcium. *Neuropeptides*, 47(2): 85-92.

35. Ghorbani, M.L., Nyborg, N.C., Fjalland, B., **Sheykhzade, M.** (2013). Calcium Activity of Upper Thoracic Dorsal Root Ganglion Neurons in Zucker Diabetic Fatty Rats. *International Journal of Endocrinology*, 2013:532850.

34. Svalø, J., Bille, M., Parameswaran Theepakaran, N., **Sheykhzade, M.**, Nordling, J., Bouchelouche, P. (2013). Bladder contractility is modulated by K(v)7 channels in pig detrusor. *Eur. J. Pharmacol.*, 715(1-3):312-20.

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