

CURRICULUM VITAE

Alexander Burashnikov, Ph.D.

Birthdate: August 12, 1963

Married: Wife: Elena N. Burashnikov
Daughter: Lidiya
Son: Ivan

Masonic Medical Research Laboratory
2150 Bleecker Street
Utica, NY 13501

Phone: (315) 735 2217 x 124
Fax: (315) 735 5648
E-mail: sasha@mmrl.edu

EDUCATION

The Kyrgyz State Institute of Physical Education, Bishkek, Republic of Kyrgyzstan	Sport physiology	1988 Degree: M.Sc.
Institute of Theoretical and Experimental Biophysics Russian Academy of Science, Puschino, Moscow region	Cardiac Electrophysiology	1994 Degree: Ph.D.
Masonic Medical Research Laboratory, Utica, NY. Postdoctoral Training	Cardiac Electrophysiology	1994-1997

POSITIONS HELD

1988-1991	Postgraduate student of the Institute of Physiology and Experimental Pathology of High Altitude of the Kyrgyz Academy of Science, Bishkek.
1991-1994	Junior Research worker of the Institute of Theoretical and Experimental Biophysics Russian Academy of Science, Puschino, Moscow region.
1994-1997	Postdoctoral Fellow, Experimental Cardiology, Masonic Medical Research Laboratory, Utica, NY.
1997-2000	Research Associate, Experimental Cardiology, Masonic Medical Research Laboratory, Utica, NY.
2000 -	Research Scientist I, Experimental Cardiology, Masonic Medical Research Laboratory, Utica, NY.

TOPICS OF RESEARCH

1986-1988	Sport physiology. Heart activity of sportsmen.
1989-1994	Experimental study of ischemic and reperfusion cardiac arrhythmias in isolated coronary perfused right ventricles of rat, rabbit, and guinea pig hearts.

- Since 1994 Basic cardiac electrophysiology and pharmacology. Investigation of electrophysiological heterogeneity in isolated canine cardiac tissues with microelectrode techniques.
- Since 1998 Investigation of electrical and pharmacological heterogeneity in isolated canine ventricular arterially-perfused wedge and its connections to ventricular arrhythmia
- Since 1999 Study of mechanisms of atrial arrhythmias and their pharmacological modulations in canine isolated arterially-perfused right and left atria.

PROFESSIONAL ACTIVITIES

AWARDS

The first place in the All-Union (USSR) Sport Physiology Olympiad in 1987 (theoretical section).

American Heart Association (NYS affiliate) Fellowship Grant 1998 – 2000.

“Hyperthermia-induced early afterdepolarizations, transmural dispersion of repolarization, and ventricular arrhythmias”.

American Heart Association (NYS affiliate) Scientist Development Grant 2000-2003.

“Dispersion of repolarization in canine atria and its contribution to atrial arrhythmias”

MEMBER: CARDIAC ELECTROPHYSIOLOGICAL SOCIETY (**CES**)

HEART RHYTHM SOCIETY

AMERICAN HEART ASSOCIATION (**AHA**)

MANUSCRIPT REVIEWER FOR: HEART RHYTHM, CIRCULATION, AMERICAN JOURNAL OF COLLEGE CARDIOLOGY, CARDIOVASCULAR RESEARCH, JOURNAL OF CARDIOVASCULAR ELECTROPHYSIOLOGY, PACE, JOURNAL OF MOLECULAR AND CELLULAR CARDIOLOGY.

LIST OF PUBLICATIONS

Papers, reviews, and book chapters:

1. **Burashnikov A**, Efimov IR, Fast VG, Karasaeva AX, Pertsov AM: Isolated coronary-perfused right ventricle of rat heart as a model of ischemia and reperfusion-induced arrhythmias. *Cardiology*, 1991; 31 (7):58-61 (in Russian).
2. Starmer CF, Krinsky VI, Tong FC, Romashko DN, Aliev RR, **Burashnikov A**, Stepanov MR: Role of channel blockade in promoting the initiation of rotating vortices in cardiac muscle. *IEEE, Proceedings of Computers in Cardiology*, 1992:55-58.

3. **Burashnikov A**, Pertsov AM, Medvinsky AB, Krinsky VI: Investigation of the reperfusion-induced arrhythmias by mapping in an experimental model. *Cardiology*, 1993 33(1):52-55 (in Russian).
4. **Burashnikov A**, Medvinsky AB: The role of Ca ions entering cells upon reperfusion in the initiation and maintenance of reperfusion arrhythmias. *Biofizika*, 1994;39(6):1058-1062 (in Russian).
5. **Burashnikov A**, Efimova TB, Starmer CF, Medvinsky AB: Concentration-dependent pro and antiarrhythmic effect of procainamide in right rat ventricle. *Cardiology*, 1994;34(12): 53-55 (in Russian)
6. Sarancha DIu, Medvinskii AB, Kukushkin NI, Sidorov VV, Romashko DN, **Burashnikov A**, Moskalenko AV, Starmer CF. A system for computer visualization of excitation wave propagation in the myocardium. *Biofizika*, 1997;42:502-507 (in Russian).
7. **Burashnikov A**, Medvinsky AB, Kukushkin NI. The defining role of calcium entering cells during ischemia as the mechanism of initiation reperfusion arrhythmias. *Biofizika*, 1997;42:508-515 (in Russian).
8. **Burashnikov A**, Antzelevitch C. Acceleration-induced action potential prolongation and early afterdepolarizations. *J. Cardiovascular Electrophysiology*, 1998;9:934-948.
9. Antzelevitch C, Yan GX, Shimizu W, **Burashnikov A**. Electrical heterogeneity, the ECG, and cardiac arrhythmias. In: *Cardiac Electrophysiology, From Cell to Bedside*. Third edition, Zipes D.P. and Jalife J., Eds., W.B. Saunders Co, Philadelphia, 1999, pp. 222-238.
10. **Burashnikov A**, Antzelevitch C. Differences in response of four canine ventricular cell types to $\alpha 1$ adrenergic agonists. *Cardiovasc. Res.* 1999;43:901-908.
11. Antzelevitch C. Shimizu W, Yan G-X, Sicouri S, Weissenberger J, Nesterenko VV, **Burashnikov A**, Di Diego J, Saffitz J, Thomas GP. The M cell. Its contribution to the ECG and to normal and abnormal function of the heart. *J. Cardiovascular Electrophysiology*, 1999;10:1124-1152.
12. **Burashnikov A**, Antzelevitch C. Block of I_{Ks} does not induce early afterdepolarization activity but promotes β -adrenergic agonist-induced delayed afterdepolarization activity in canine ventricular myocardium. *J. Cardiovascular Electrophysiology*, 2000;11:458-465.
13. Antzelevitch C, **Burashnikov A**. Cardiac arrhythmias: Reentry and triggered activity. In *Heart Physiology and Pathophysiology*. Sperelakis N, Kurachi Y, Terzic A, and Cohen M. Eds. Academic Press, Sun Diego, 4th edition, 2000, 1153-1179.
14. Antzelevitch C, **Burashnikov A**. Mechanisms of Arrhythmogenesis. In *Cardiac Arrhythmias: Mechanism, Diagnostics and Management*. Podrid PJ and Kowey PR Eds. Williams&Wilkins, Baltimore, 2nd edition, 2001, 51-79.
15. **Burashnikov A**, Antzelevitch C. A prominent I_{Ks} in epicardium and endocardium contributes to the development of transmural dispersion of repolarization but protects against the development of early afterdepolarization. *J. Cardiovascular Electrophysiology*, 2002;13:172-177.
16. Antzelevitch C, **Burashnikov A**, Di Diego. J. Cellular and Ionic Mechanisms Underlying Arrhythmogenesis. In *Cardiac repolarization. Bridging Basic and Clinical Science*. I. Gussak and C. Antzelevitch, eds. Humana Press, NY, 2002:201-252.
17. **Burashnikov A**, Antzelevitch A. Re-induction of atrial fibrillation immediately after termination of the arrhythmia is mediated by late phase 3 early afterdepolarization-induced triggered activity. *Circulation*, 2003;107:2355-2360.

18. **Burashnikov A**, Mannava S, Antzelevitch C. Transmembrane Action Potential Heterogeneity in the Canine Isolated Arterially-perfused Right Atrium: Effect of I_{Kr} and I_{Kur}/I_{to} block. *Am.J.Physiol.*, 2004;286:H2393-H9400.
19. Antzelevitch C, Belardinelli L, Zygmunt AC, **Burashnikov A**, Di Diego JM, Fish JM, Cordeiro JM, Thomas G. Electrophysiological effects of ranolazine, a novel atrianginal agent with antiarrhythmic properties. *Circulation*, 2004;110:904-910.
20. Antzelevitch C, Belardinelli L, Wu L, Frazer H, Zygmunt AC, **Burashnikov A**, Di Diego JM, Fish JM, Cordeiro JM, Goodrow R, Scornik F, Perez G. Electrophysiologic properties and antiarrhythmic actions of a novel antianginal agent. *J. Cardiovascular Pharm Ther.*, 2004;9:S65-S83.
21. Nam G.B. **Burashnikov A**, Antzelevitch C. Cellular mechanisms underlying the development of catecholaminergic ventricular tachycardia. *Circulation*, 2005;111:2727-2733.
22. **Burashnikov A**, Antzelevitch C. Role repolarization restitution in the development of coarse and fine atrial fibrillation in the isolated canine right atria. *J. Cardiovascular Electrophysiology*, 2005;16:639-645.
23. **Burashnikov A**, Antzelevitch C. Mechanisms underlying the immediate re-induction of atrial fibrillation. Late phase 3 EAD-induced triggered activity and augmented dispersion of repolarization. ISHNE AF World-Wide Internet Symposium (www.af-symposium.org), 2005.
24. **Burashnikov A**, Antzelevitch C. Late phase 3 EAD. A unique mechanism contributing to initiation of atrial fibrillation. *PACE*, 2006;29:290-295.
25. **Burashnikov A**, Di Diego JM, Zygmunt AC, Belardinelli L, Antzelevitch C. Atrial-selective sodium channel block as a strategy for suppression of atrial fibrillation. Differences in sodium channel inactivation between atria and ventricles and the role of ranolazine. *Circulation*, 2007;116:1449-1457.
26. Antzelevitch C, **Burashnikov A**, Di Diego JM. Mechanisms of cardiac arrhythmias. In: *Electrical Diseases of the Heart: Genetics, Mechanisms, Treatments, Prevention*. I. Gussak and C. Antzelevitch, eds. Springer, London, 2008:65-132.
27. **Burashnikov A**, Di Diego JM, Zygmunt AC, Belardinelli L, Antzelevitch C. Atrial-selective sodium channel block as a strategy for suppression of atrial fibrillation. *Ann. N.Y. Acad. Sci.* 2008;1123:105-112.
28. **Burashnikov A**, Antzelevitch C. How do atrial-selective drugs differ from antiarrhythmic drugs currently used in the treatment of atrial fibrillation? *Journal of Atrial Fibrillation*, 2008;1:98-107.
29. **Burashnikov A**, Antzelevitch C. Atrial-selective Sodium Channel Blockers. Do they exist? *Journal of Cardiovascular Pharmacology*, 2008;52:121-128.
30. **Burashnikov A**, Antzelevitch C. Can inhibition of I_{Kur} promote atrial fibrillation? *Heart Rhythm* 2008;5:1304-1309.
31. **Burashnikov A**. Are there atrial selective/predominant targets for “upstream” atrial fibrillation therapy? *Heart Rhythm*, 2008;5:1294-95 (Editorial).
32. **Burashnikov A**, Shimizu W, Antzelevitch C. Fever accentuates transmural dispersion of repolarization and facilitates the development of early afterdepolarization and Torsade de Pointes under long QT conditions. *Circulation: Arrhythmias and Electrophysiology*. 2008;1:202-208.
33. **Burashnikov A**, Di Diego JM, Sicouri S, Ferreiro M, Carlsson L, Antzelevitch C. Atrial-selective effects of chronic amiodarone in the management of atrial fibrillation. *Heart Rhythm* 2008;5:1735-42.
34. **Burashnikov A**, Antzelevitch C. Mechanisms of Cardiac Arrhythmias and Conduction Disturbances. In: *Hurst’s The Heart Manual of Cardiology 12th Edition*. Eds.: O’Rourke RA, Walsh R, Fuster V. McGraw Hill, New York, 2009:95-103.

35. **Burashnikov A**, Antzelevitch C. Atrial selective sodium channel block for the treatment of atrial fibrillation. *Expert Opinion on Emerging Drugs*. 2009;14:233-249.
36. **Burashnikov A**, Antzelevitch C. New Pharmacological Strategies for the Treatment of Atrial Fibrillation. *Annals Noninvasive Electrocardiol*. 2009;14:290-300.
37. Antzelevitch C, **Burashnikov A**. Atrial selective sodium channel block as a novel strategy for the management of atrial fibrillation. *Ann. N.Y. Acad. Sci.* 2009 (in press).
38. Antzelevitch C, **Burashnikov A**. Atrial selective sodium channel block as a novel strategy for the management of atrial fibrillation. *Journal of Electrocardiology* 2009 (in press).
39. **Burashnikov A**, Antzelevitch C. What electrophysiological characteristics are desirable in a drug to suppress and prevent the recurrence of atrial fibrillation? *ISHNE Third-AF World-Wide Internet Symposium* (www.af-symposium.org), 2009.
40. **Burashnikov A**, Antzelevitch C. Novel pharmacological targets for the management of atrial fibrillation. In *Novel Therapeutic Targets for Antiarrhythmic Drugs*. Edited by G.E. Billman. John Willey & Sons, 2010:461-478.

Abstracts (AHA and NASPE/Heart Rhythm):

1. **Burashnikov A**, Antzelevitch C. α -agonists produce opposite effect on action potential duration in Purkinje and M cells isolated from the canine left ventricle. *PACE*, 1995;18:II-935.
2. **Burashnikov A**, Antzelevitch C. Acceleration-induced early afterdepolarizations and triggered activity. *Circ*.1995; 92:I-434.
3. **Burashnikov A**, Antzelevitch C. Mechanism of acceleration-induced early afterdepolarization activity and action potential prolongation in tissues isolated from M region of the canine ventricle. *PACE*, 1996;19:II-645.
4. **Burashnikov A**, Antzelevitch C. β Adrenergic stimulation produces transient action potential prolongation in canine ventricular M cells but not in Purkinje, epicardial, or endocardial cells when the contribution of I_{Kr} is reduced. *PACE*, 1996;19:II-639
5. **Burashnikov A**, Antzelevitch C. Mechanisms underlying early afterdepolarization activity are different in canine Purkinje and M cell preparations. Role of intracellular calcium. *Circulation*, 1996;94:I-527.
6. **Burashnikov A**, Antzelevitch C. Differences in response of four canine ventricular cell types to $\alpha 1$ adrenergic agonists. *PACE*, 1997;20:II-1115. *Featured Poster Presentation*
7. **Burashnikov A**, Shimizu W, Antzelevitch C. Can a febrile state contribute to the development of the long QT syndrome? Results of studies conducted in tissues and perfused wedge preparation isolated from the canine left ventricle. *PACE*, 1997;20:II-1115. *Featured Poster Presentation*.
8. **Burashnikov A**, Antzelevitch C. A combination of I_{Kr} , I_{Ks} , and I_{Ca} or I_{Na} block produces a relatively homogeneous prolongation of repolarization of cells spanning the canine left ventricular wall. *PACE*, 1997;20:II-1226.
9. **Burashnikov A**, Antzelevitch C. Failure of canine ventricular epicardial and endocardial cells to develop early afterdepolarization activity is due to the presence of a prominent I_{Ks} . *Circulation*, 1997;96:I-292.

10. **Burashnikov A**, Antzelevitch C. I_{Ks} block promotes β adrenergic agonist-induced delayed afterdepolarization activity in canine ventricular myocardium. *Circulation*, 1997;98:I-293.
11. **Burashnikov A**, Antzelevitch C. Temperature-dependence of early afterdepolarization activity in canine left ventricular M cell and Purkinje fiber preparations. *PACE* 1998;21:II-857, *Featured Poster Presentation*.
12. **Burashnikov A**, Antzelevitch C. I_{Ks} block produces action potential prolongation but not early afterdepolarization activity in canine ventricular myocardium. *Circulation*, 1998;98:I-814.
13. **Burashnikov A**, Antzelevitch C. Temperature modulates the ability of I_{Kr} , I_{Ks} , and I_{Ca} blockers to change action potential duration in canine ventricular myocardium. *PACE*, 1999;22:II-858.
14. **Burashnikov A**, Eddlestone GT, Bauder J, Heilman C, Antzelevitch C. Ability of epicardial, M, and endocardial tissues and myocytes to develop repolarization alternans under baseline and long QT conditions. *PACE*, 1999;22:II-431.
15. **Burashnikov A**, Antzelevitch C. Is the Purkinje system the source of the electrocardiographic U wave? *Circulation*, 1999;100:I-841.
16. **Burashnikov A**, Thibault D, Antzelevitch C. Hyperthermia-induced early afterdepolarization and Torsade de Pointes under acquired and congenital long QT syndrome conditions. *PACE*, 2000;23:II-662.
17. **Burashnikov A**, Antzelevitch C. Transmural distribution of action potentials with spike and dome morphology in the isolated arterially-perfused canine right atrium. *PACE*, 2000;23:II-728.
18. **Burashnikov A**, Antzelevitch C. Heterogeneous distribution of action potential duration in canine isolated perfused right atrium and its accentuation by acetylcholine. *PACE*, 2000;23:II-729.
19. **Burashnikov A**, Antzelevitch C. Delayed afterdepolarization activity as the basis for acetylcholine-induced tachyarrhythmias recorded in arterially-perfused canine right atria. *Circ.*2000, 102;II-323.
20. **Burashnikov A**, Antzelevitch C. Does DAD activity contribute to reinduction of atrial flutter or fibrillation immediately following termination of the arrhythmias? *PACE*. 2001;24:II-544.
21. **Burashnikov A**, Antzelevitch C. I_{to} and I_{Kur} inhibition is superior to I_{Kr} and I_{Ks} block in preventing cholinergically-mediated atrial fibrillation. *PACE* 2001;24:II-550.
22. **Burashnikov A**, Antzelevitch C. Re-induction of atrial fibrillation immediately following termination of the arrhythmia is mediated by calcium-overload-induced triggered activity. *PACE*, 2002;25:II-535.
23. **Burashnikov A**, Antzelevitch C. Electrical restitution during atrial fibrillation in the isolated canine right atria. *PACE* 2003;26:II-1108.
24. Nam, G.-B., **Burashnikov A**, Antzelevitch C. Cellular mechanisms underlying the development of catecholaminergic ventricular tachycardia. *Heart Rhythm*, 2004;1:S188.
25. **Burashnikov A**, Antzelevitch C. β -adrenergic stimulation is highly arrhythmogenic following ischemic/reperfusion injury in the isolated canine right atrium. *Heart Rhythm* 2005;2:S179.
26. **Burashnikov A**, Di Diego JM, Belardinelli L, Antzelevitch C. Ranolazine suppresses atrial fibrillation by exerting a marked use-dependent block of sodium current in canine atrium but not ventricle. *Heart Rhythm*. 2006;3:S304.
27. **Burashnikov A**, Belardinelli L, Antzelevitch C. Ranolazine and propafenone both suppress atrial fibrillation but ranolazine unlike propafenone does it without prominent effects on ventricular myocardium. *Heart Rhythm*, 2007;4:S163.

28. **Burashnikov A**, Antzelevitch C. I_{Kur} block promotes atrial fibrillation in “healthy” canine atria. *Heart Rhythm*, 2007;4:S112.
29. **Burashnikov A**, Baraja-Matinez H, Hu D, Nof E, Blazek J, Antzelevitch C. The atrial-selective potassium channel blocker AVE0118 prolongs effective refractory period in canine atria by inhibiting sodium channel. *Heart Rhythm* 2009;6:S98.