

RESUME

Yael Yaniv

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2 June 1980, Haifa, Israel

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ACADEMIC DEGREES

- 2004-2007** Ph.D. in Biomedical Engineering, Technion—Israel Institute of Technology, Israel.
Dissertation title: “Identification of the mechano-electrical feedback in the heart”
Advisor: Assoc. Prof. Amir Landesberg.
- 2002-2003** M.Sc., (*summa cum laude*), Electrical Engineering, Technion—Israel Institute of Technology, Israel.
Thesis title: “Identification of the sarcomere contraction control mechanisms”
Advisors: Prof. Raphael Sivan and Assoc. Prof. Amir Landesberg.
- 1997-2002** B.Sc., (*cum laude*), Electrical Engineering, Technion—Israel Institute of Technology, Israel.
- 1997-2002** B.Sc., (*cum laude*), Mechanical Engineering, Technion—Israel Institute of Technology, Israel.

ACADEMIC APPOINTMENTS

- 3/2014-** Assistant Professor, Biomedical Engineering, Technion—Israel Institute of Technology, Israel.
- 3, 8/2014-2017** Research Guest, National Institute on Aging, National Institutes of Health.
- 10/2012-2/2014** Research Fellow, National Institute on Aging, National Institutes of Health.
- 10/2007-9/2012** Visiting Fellow (Post-doctoral Fellow), National Institute on Aging, National Institutes of Health. Advisor: Edward G. Lakatta, M.D.
- 7/2006-11/2006** Research Scholar, Biomedical Engineering, Case Western Reserve University. Advisors: Prof. William Stanley and Prof. Gerald Saidel.

PROFESSIONAL EXPERIENCE

- 2002-2005** Research Engineer, RAFAEL, Advanced Defense Systems, Israel.

RESEARCH INTERESTS

Atrial activity, Bioenergetics, Calcium signaling, Cardiac electrophysiology, Cell Biophysics, Heart rate variability analysis, Mathematical modeling of the biochemical and bioenergetics signaling in the heart, Mechanical interaction of the mitochondria and the cytoskeleton, Mobile health devices, Post-translational modification signaling, Prediction and detection of atrial fibrillation, Sinoatrial node cell activity.

TEACHING EXPERIENCE

- 2017-** Lecturer, Undergraduate level, Physiology, Technion—Israel Institute of Technology, Israel.
- 2015-** Lecturer, Graduate level, Control of Cellular Bioenergetics (*New Course*), Technion—Israel Institute of Technology, Israel.
- 2015-** Lecturer and Course Coordinator, Undergraduate level, Biophysics and Neurophysiology, Technion—Israel Institute of Technology, Israel.
- 2014-** Lecturer, Graduate level, Electrophysiological Phenomenon (*Redesign*), Technion—Israel Institute of Technology, Israel.
- 2014** Lecturer, Graduate level, Advanced topics in Biomedical Engineering, Technion—Israel Institute of Technology, Israel.
- 2001-2007** Teaching assistant and substitute lecturer in the Biomedical Engineering Faculty, Technion—Israel Institute of Technology. Each year taught the following courses:
- Muscle Excitation Contraction Coupling, graduate level.
 - Engineering Aspects in the Cardiovascular System, graduate level.
 - Introduction to Control of Bio-medical Systems, undergraduate level.
 - Introduction to the Cardiovascular System, undergraduate level

TECHNION ACTIVITIES

- 2018** Member, The Rothschild Scholars Program for Excellence.
- 2017-** Member, The President's Interdisciplinary Recruitment Committee.
- 2016-** Member, Technion—IIT Animal House Committee.
- 2016** Member, Committee for Student Scholarships & Prizes (Russel Berry Nanotech Inst., Technion).
- 2016** Lecturer, "Encouraging Female Students to Apply to the Technion" Annual Meeting.

2014 Member, Technion—IIT Animal House Committee.

DEPARTMENTAL ACTIVITIES

2018- Seminar Coordinator, Biomedical Engineering, Faculty Technion—IIT, Israel.

2018- Associate Chair for Undergrad Excellence Studies, Biomedical Engineering, Faculty Technion—IIT, Israel.

2016- Coordinator, Advanced lab, Technion—IIT, Israel.

2014- Secretary-General, Council of Biomedical Engineering, Technion—IIT, Israel.

2014- Member, Undergraduate Studies Committee, Biomedical Engineering Faculty, Technion—IIT, Israel.

2014- Biomedical Engineering Faculty Representative, Council Mechanical Engineering, Technion—IIT, Israel.

2014 Member, Excellence Program Committee, Biomedical Engineering, Faculty Technion—IIT, Israel.

PUBLIC PROFESSIONAL ACTIVITIES

Public professional committees

2018- Council member, Israeli Society of Physiology and Pharmacology.

2017- Council member, International Society of Heart Research, European Section.

2015- Council member, International Society of Heart Research, Israeli Section.

Editorial member for archived journals

2016 Guest editor, Cardiovascular Pharmacology: Open Access Journal.

2015- Editorial Board, Frontiers in Computational Physiology and Medicine.

2014- Editorial Board, International Archives of Translational Medicine.

2013- Editorial Board, Cardiovascular Pharmacology: Open access.

Reviewer for funding agencies

- Ministry of science (MOST)

Reviewer for archived journals

- American Journal of Physiology, heart and circulation section
- Bioengineering
- Biophysical Journal
- Cardiovascular Pharmacology: Open Access Journal
- Cardiovascular Research

- Cellular Physiology and Biochemistry
- Computer Methods and Programs in Biomedicine
- European Heart Journal
- FASEB Journal
- Frontiers in Computational Physiology and Medicine
- Frontiers in Bioengineering and Biotechnology
- IEEE: Transactions on Biomedical Engineering
- Indian Heart Journal
- International Journal of Environmental Research Public Health
- Journal of Cardiovascular Development and Disease.
- Journal of Cardiovascular Pharmacology and Therapeutics
- Journal of General Physiology
- Journal of Molecular and Cellular Cardiology
- Journal of Physiology and Pharmacology
- PLoS ONE
- Springer Open
- Vascular Health and Risk Management

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- Member, Biophysical Society
- Member, International Society of Heart Research (ISHR)
- Member, The Physiological Society

FELLOWSHIPS, AWARDS AND HONORS

- Hershel Rich Technion Innovation Award, 2018.
- Women's Excellence in Scientific Research Award, 2013.
- Nathan W. Shock Post-Doctoral Poster Presentation award, 2012.
- NIH Postdoctoral Mentor Award, 2012.
- International Society of Heart Research, American Section, poster award, 2011.
- Gordon Research Conference: Cardiac Arrhythmia Mechanisms poster award, US, 2011.
- Gordon Research Conference: Cardiac Regulatory Mechanisms poster award, US, 2010.

- Excellent Women Researchers in Engineering and Science Award, Technion—Israel Institute of Technology, 2007.
- Excellence in Teaching Award, Technion—Israel Institute of Technology, 2007.
- Katzir Travel Fellowship, Weizmann Institute, Israel, 2006.
- Gutwirth Award, Technion—Israel Institute of Technology, 2006.
- Biophysical Society Student Travel award, 2005.
- Vivian Konigsberg Award for Excellence in Teaching, Technion—Israel Institute of Technology, 2005.
- Gutwirth Award, Technion—Israel Institute of Technology, 2005.
- International Congress of Physiological Sciences Travel award, 2005.
- Sandor Szego Award for Excellence in Teaching, Technion—Israel Institute of Technology, 2004.
- First Place Award for best student presentation at the meeting of the Israeli Society for Medical and Biological Engineering, Israel, 2004.
- First Place Award, for best graduate student presentation, at the International Society of Physiology and Pharmacology meeting, Israel, 2003.

GRADUATE STUDENTS AND TRAINEES

* Primary adviser, unless otherwise mentioned

Current Postdocs

1. Joachim Behar Ph.D., Oxford University, England 2015-
Aly-Kaufman Postdoctoral Fellow, 2015-2017
First prize in the Rena Yarom Young Investigator Competition, ISHR, Haifa, Israel, 2015
2. Kenta Tsutsui M.D. Ph.D., Teikyo University, Japan 2014-2019
Currently at NIA/NIH US, co-advised with Dr. Edward G Lakatta
Nathan W. Shock Postdoctoral Poster Presentation Award, 2017
Nathan W. Shock Postdoctoral Poster Presentation Award, 2015
Japan Society for the Promotion of Science Fellowship, 2016-

Former Postdocs

1. Yosuke Okamoto M.D. Ph.D., Akita University, Japan 2013-2015
Currently Assistant Professor at Yamagata University Faculty of Medicine, Japan

Current Ph.D students

1. Noa Kirschner-Peretz M.Sc. in Biomedical Engineering, Technion-IIT 2017-2021
“Identifying the role of mitochondrial Ca^{2+} and cAMP/ protein kinase-A signaling on the crosstalk between energy and electrical activities in the atria”
2. Limor Arbel-Ganon B.Sc. in Biomedical Engineering, Technion-IIT 2016-2021
“Mechano-electrical signal transduction in healthy and dysfunctional heart pacemaker tissue”
3. Sofia Segal M.Sc. in Biomedical Engineering, Technion-IIT 2017-2021
“Oscillation and beat-to-beat variability of PKA signaling in different compartments in heart pacemaker cells”
-Poster award ISHR, Tel Aviv, Israel, 2018
4. Ido Weiser Bitoun B.Sc. in Biomedical Engineering and Medical, Technion-IIT 2017-2021
“Synchronization among sinoatrial node cells in the pacemaker tissue: from molecular mechanisms to non-invasive clinical tool”
5. Vadim Galiner M.Sc. in Biomedical Engineering, Technion-IIT 2018-2022
“Real-time distributed artificial intelligence system for arrhythmia detection from ECG acquired by mobile devices”
Co-Adviser Assaf Schuster
6. Aviv Rosenberg M.Sc. in Biomedical Engineering, Technion-IIT 2018-2022
“The pacemaker-cell signature: A learning-based approach for characterization and classification of heart function from beat-interval signals”
Co-Adviser Alex Bronstein

Current M.Sc. (with thesis) students

1. Savyon Mazgaoker B.Sc. in Biomedical Engineering, Technion-IIT 2017-2019
“Characteristics of human induced pluripotent stem cell function”
-ISHR-ES Travel Grant for Amsterdam meeting, 2018
2. Moran Davoodi B.Sc. in Biomedical Engineering, Technion-IIT 2018-2020
“ECG signal analysis for prediction of heart diseases due to aging process by applying machine learning methods”

Former M.Sc. Student

1. Noa Kirschner-Peretz B.Sc. in Biomedical Engineering, Technion-IIT 2015-2017
“Designing a culture system for sustaining bioelectric, biophysical and bioenergetic atrial functions”
-Second place, Poster Competition, ISHR, Beer Sheva, Israel, 2016
Currently: PhD student in the lab

4. Individual Research Grant Yaniv (PI) 10/2014-10/2018
 Israel Science Foundation (ISF), No. 882/14
 Title: The role of PKA signaling on the crosstalk between energy and electrical activity in the atria.
 Role: PI
 Amount: \$395,000
5. New-Faculty Equipment Grant, ISF No. 1911/14 Yaniv (PI) 10/2014-10/2016
 Role: PI
 Amount: \$220,000
6. University of Michigan-Israel Partnership for Research Yaniv (PI) 12/2014-12/2016
 Title: The role of energetic state on atrial fibrillation induction.
 Role: co-PI, together with José Jalife
 Amount: \$25,000 for each PI

INTERNAL RESEARCH GRANT

1. Rappaport Institute Yaniv (PI) 4/2018-4/2021
 Title: Inherited cardiomyopathies caused by mutations resulting in metabolic impairments: searching for novel therapeutic approaches.
 Role: co-PI together with Ofer Binah, Stavit Shalev and Eyal Gottlieb
 Amount: \$540,000 (\$135,000 my share)
2. Seed grants in Biomedical Informatics Yaniv (PI) 5/2018-4/2020
 Title: Towards predictive treatment of cardiac fibrillation
 Role: co-PI together with Assaf Schuster, Alex Bronstein, Mahmoud Suleiman and Shmuel Rispler.
 Amount: \$110,000 (\$35,000 my share)
3. Ruch Exchange Grant, Jacobs Technion-Cornell Institute Yaniv (PI) 6/2018-5/2019
 Title: Automatic detection of heart pacemaker beating rate
 Role: co-PI together with Ramin Zabih
 Amount: \$7000
4. Technion E.V.P,R Fund- Eliyahu Pen Fund for Scientific Yaniv (PI) 2/2017-12/2019
 and Medical Research
 Title: Mechano-signal transduction by Ca²⁺ and phosphorylation in healthy and dysfunctional heart pacemaker tissue.
 Role:PI

- Amount: \$4661
5. Technion E.V.P.R Fund-Star Fund Yaniv (PI) 11/2016-10/2018
Title: Detection and identification of arrhythmogenic events by smart defibrillator
Role: co-PI, together with Assaf Schuster
Amount: \$27,347
6. Technion E.V.P.R Fund – Jabit Fund Yaniv (PI) 6/2016-6/2017
Title: Smart implantable cardiac defibrillator.
Role: co-PI, together with Assaf Schuster
Amount: \$23,166
7. Technion E.V.P.R Fund – Elias Fund for Medical Research Yaniv (PI) 6/2015-12/2017
Title: Investigating the identities of ATP supply-to-demand control mechanisms in human cardiac pacemakers.
Role: co-PI, together with Ofer Binah
Amount: \$16,000
8. Technion V.P.R Fund –Krbliing Research Fund Yaniv (PI) 3/2014-12/2016
Title: Feasibility test for a diagnostic tool to assess the heart pacemaker function in vivo by noninvasive measurements.
Role: PI
Amount: \$17,000
9. Technion V.P.R Fund - Mallat Family Research Fund Yaniv (PI) 3/2014-3/2016
Title: The role of protein kinase-A in the crosstalk between the ATP budget and ion channel regulation in heart pacemaker cells.
Role: PI
Amount: \$6,000

PUBLICATIONS

Graduate students and postdocs are underlined

Theses

1. **Yaniv Y.** Identification of the sarcomere contraction control mechanisms. M.Sc. Thesis, Faculty of Electrical Engineering, Technion, Israel, 2003. Advisors: Prof. Raphael Sivan and Assoc. Prof. Amir Landesberg.
2. **Yaniv Y.** Identification of the mechano-electrical feedback in the heart. Ph.D. Thesis, Faculty of Biomedical Engineering, Technion, Israel, 2007. Advisor: Assoc. Prof. Amir Landesberg.

Refereed papers in professional journals

1. **Yaniv Y**, Sivan S and Landesberg A. Identification of the sarcomere control of cardiac contraction by analyzing the hystereses in the force length and force calcium relations, *American Journal of Physiology: Heart and Circulation*, 288: 389-399, 2005.
2. **Yaniv Y**, Sivan S and Landesberg A. Stability controllability and observability of the four state model for the sarcomere control of contraction, *Annals of Biomedical Engineering*, 34: 778-789, 2006.
3. **Yaniv Y**, Maltsev VA, Escobar AL, Spurgeon HA, Ziman BD, Stern MD and Lakatta EG. Beat-to-beat Ca^{2+} -dependent regulation of sinoatrial nodal pacemaker cell rate and rhythm. *Journal of Molecular and Cellular Cardiology*, 51(6):902-905, 2011.
4. **Yaniv Y**, Juhaszova M, Lyashkov AE, Spurgeon HA, Sollott SJ and Lakatta EG. Ca^{2+} -regulated-cAMP/PKA signaling in cardiac pacemaker cells links ATP supply to demand. *Journal of Molecular and Cellular Cardiology*, 51(5):740-748, 2011.
5. **Yaniv Y**, Juhaszova M, Wang S, Fishbein KW, Zorov BD, and Sollott SJ. Analysis of mitochondrial 3D-deformation in cardiomyocytes during active contraction reveals passive structural anisotropy of orthogonal short axes, *PLoS One*, 6(7): e21985, 2011.
6. **Yaniv Y**, Maltsev V, and Lakatta EG. The "funny" current (If) inhibition by ivabradine at membrane potentials encompassing spontaneous depolarization in pacemaker cells. *Molecules*, 17(7):8241-54, 2012.
7. **Yaniv Y**, Spurgeon HA, Lyashkov AE, Yang D, Ziman BD, Maltsev V, and Lakatta EG. Crosstalk between mitochondrial and sarcoplasmic reticulum Ca^{2+} cycling modulates cardiac pacemaker cell automaticity. *PLoS One*, 7(5): e37582, 2012.
8. Abdelmoshsen K, Srikantan S, Tominaga K, Kang MJ **Yaniv Y**, Martindale JL, Yang X, Park SS, Becker KG, Subramanian M, Maudsley S, Lal A and Gorospe M. Growth inhibition by miR-519 via multiple p21-inducing pathways *Molecular and Cellular Biology*, 32(13):2530-48, 2012.
9. **Yaniv Y**, Stern M, Lakatta EG and Maltsev VA. Mechanisms of beat-to-beat regulation of cardiac pacemaker cell function by Ca^{2+} cycling dynamics. *Biophysics Journal*, 105(7):1551-1561, 2013.
10. Maltsev A, **Yaniv Y**, Stern M, Lakatta EG and Maltsev VA. RyR-NCX-SERCA local crosstalk ensures pacemaker cell function at rest and during the fight-or-flight reflex. *Circulation Research*, 113(10): e94-e100, 2013.
11. **Yaniv Y**, Sirenko S, Ziman BD, Spurgeon HA, Maltsev VA and Lakatta EG. New evidence for coupled clock regulation of the normal automaticity of sinoatrial nodal pacemaker cells:

Bradycardic effects of ivabradine are linked to suppression of intracellular Ca^{2+} cycling. *Journal of Molecular and Cellular Cardiology*, 62C:80-89, 2013.

12. **Yaniv Y**, Spurgeon HA, Ziman BD, Lyashkov AE, and Lakatta EG. Mechanisms that match ATP supply to demand in cardiac pacemaker cells during high ATP demand. *American Journal of Physiology: Heart and Circulation*, 304(11): H1428-1438, 2013.
13. **Yaniv Y**, Spurgeon HA, Ziman BD and Lakatta EG. Ca^{2+} /calmodulin-dependent protein kinase II (CaMKII) and sinoatrial nodal pacemaker cell energetics. *PLoS One*, 8(2): e57079, 2013.
14. **Yaniv Y**, Lyashkov AE, Sirenko S, Okamoto Y, Guiriba TR, Ziman BD, Morrell CH, and Lakatta EG. Stochasticity intrinsic to coupled-clock mechanisms underlies beat-to-beat variability of spontaneous action potential firing in sinoatrial node pacemaker cells. *Journal of Molecular and Cellular Cardiology*, 77: 1-10, 2014.
15. **Yaniv Y**, Ahmet I, Liu J, Lyashkov AE, Guiriba TR, Okamoto Y, Ziman BD and Lakatta EG. Synchronization of sinoatrial node pacemaker cell clocks and its autonomic modulation impart complexity to heart beating intervals. *Heart Rhythm* 11(7):1210-9, 2014.

Peak for editorial issue

16. Liu J, Sirenko S, Juhaszova M, Sollott SJ, Shukla S, **Yaniv Y**, and Lakatta EG. Age-associated abnormalities of intrinsic automaticity of sinoatrial nodal cells are linked to deficient cAMP-PKA- Ca^{2+} signaling. *Journal of Molecular and Cellular Cardiology*, 306(10):H1385-9, 2014.
17. **Yaniv Y**, Ganesan A, Yang D, Lyashkov AE, Ziman B, Levchenko A, Zhang J and Edward Lakatta. Real-time relationship between PKA biochemical signal network dynamics and increased action potential firing rate in heart pacemaker cells. *Journal of Molecular and Cellular Cardiology*, 86:168-178, 2015.
18. **Yaniv Y**, Ahmet I, Tsutsui K, Behar J, Moen JM, Okamoto Y, Guiriba TR, Liu J, Bychkov R, and Lakatta EG. Deterioration of autonomic neuronal receptor signaling and mechanisms intrinsic to heart pacemaker cells contribute to age-associated alterations in heart rate variability in vivo. *Cell Aging*, 15(4):716-724, 2016.
19. Sirenko S, Maltsev VA, **Yaniv Y**, Bychkov R, Yaeger D, Vinogradova T, Spurgeon HA, and Lakatta EG. Electrochemical Na^+ and Ca^{2+} gradients drive coupled-clock regulation of automaticity of isolated rabbit sinoatrial nodal pacemaker cells. *American Journal of Physiology: Heart and Circulation*, 311(1):H251-267, 2016.

20. Behar J, Ganesan A, Zhang J and **Yaniv Y**. The autonomic nervous system regulates the heart rate through cAMP-PKA dependent and independent coupled-clock pacemaker cell mechanisms. *Frontiers in Physiology*, 7:419, 2016.
21. Behar J and **Yaniv Y**. Dynamics of PKA phosphorylation and gain-of-function in cardiac pacemaker cells: a computational model analysis. *American Journal of Physiology: Heart and Circulation*, 310(9):H1259-1266, 2016.
22. Haron-Khun S, Weisbrod D, Bueno H, Yadin D, Behar J, Peretz A, Binah O, Hochhauser E, Eldar M, **Yaniv Y**, Arad M and Attali B. SK4 K⁺ channels are therapeutic targets for the treatment of cardiac arrhythmias. *Experimental & Molecular Medicine*. 9(4): 415-429, 2017.
23. Davoodi M, Segal S, Kirschner Peretz N, Kamoun D and **Yaniv Y**. Semi-automated program for analysis of local Ca²⁺ spark release with application for classification of heart cell type. *Cell Calcium*. 64:83-90, 2017.
24. Behar J and **Yaniv Y**. Age-related pacemaker deterioration is due to impaired intracellular and membrane mechanisms: insights from numerical modeling. *Journal of General Physiology*, 149(10):935-949 2017.

Peak for JGP Research News and for the journal cover picture

Featured in a collection of articles for the 2018 UC Davis Cardiovascular Symposium

25. Kirschner Peretz N, Segal S, Arbel-Ganon L, Ben Jehuda R, Shemer Y, Eisen B, Davoodi M, Binah O and **Yaniv Y**. A method sustaining the bioelectric, biophysical, and bioenergetic function of cultured rabbit atrial cells. *Frontiers in Physiology*, 8:584, 2017.
26. Lyashkov AE, Behar J, Lakatta EG, **Yaniv Y*** and Maltsev VA*. Positive feedback mechanisms among local Ca releases, NCX, & ICaL ignite pacemaker action potentials. *Biophysical Journal* 114 (5), 1176-1189 2017.

*both authors contribute equally to this paper

27. Gliner V, Behar J and **Yaniv Y**. Novel method to efficiently create an mHealth app: Implementation of a real-time electrocardiogram R peak detector. *Journal of Medical Internet Research mHealth and uHealth* 6(5):e118, 2018.

Review papers

1. Juhaszova M, Zorov BD, **Yaniv Y**, HB, Wang S and Sollott SJ. Role of glycogen synthase kinase-3 β in cardioprotection, *Circulation Research* 104: 1240-1252, 2009.
2. Zorov BD, Juhaszova M, **Yaniv Y**, Nuss HB, Wang S and Sollott SJ. Regulation and pharmacology of the mitochondrial permeability transition pore, *Cardiovascular Research* 83: 213-225, 2009.

3. **Yaniv Y**, Lyashkov AE and Lakatta EG. Impaired signaling intrinsic to sinoatrial node pacemaker cells affects heart rate variability during cardiac disease. *Journal of Clinical Trials* 4 (152), 2167-0870.1000152, 2013.
4. **Yaniv Y**, Lyashkov AE and Lakatta EG. The fractal-like complexity of heart rate variability beyond neurotransmitters and autonomic receptors: signaling intrinsic to sinoatrial node pacemaker cells. *Cardiovascular Pharmacology: Open access*, 2:111, 2013.
5. **Yaniv Y**, Juhaszova M and Sollott SJ. Age-related changes of myocardial ATP supply and demand mechanisms. *Trends in Endocrinology Metabolism*, S1043-2760(13)00092-1, 2013.
6. Maltsev VA, **Yaniv Y**, Maltsev AV, Stern MS and Lakatta EG. Modern perspectives on numerical modeling of cardiac pacemaker cell. *Journal of Pharmacological Sciences*, 125(1):6-38, 2014.
7. **Yaniv Y** and Maltsev VA. Numerical Modeling Calcium and CaMKII Effects in the SA Node. *Frontiers in Pharmacology of Ion Channels and Channelopathies* 5:58, 2014.
8. **Yaniv Y** and Lakatta EG. The end effector of circadian heart rate variation: the sinoatrial node pacemaker cell. *Biochemistry and Molecular Biology Reports*, 48(12):677-684, 2015.
9. **Yaniv Y**, Tsutsui K and Lakatta EG. Potential effects of intrinsic heart pacemaker cell mechanisms on dysrhythmic cardiac action potential firing. *Frontiers in Physiology* 6:47, 2015.
10. **Yaniv Y**, Lakatta EG and Maltsev VA. From two competing oscillators to one coupled-clock pacemaker cell system. *Frontiers in Physiology* 6:28, 2015.
11. **Yaniv Y**. The tango between PKA and CaMKII signaling in cardiac pacemaker cells. *Physiological Mini Review*. 9(8):58-65, 2016.

Books and /or chapters in books

1. Lakatta EG, **Yaniv Y** and Maltev V. Cardiac impulse is initiated by a coupled system of membrane ion channels and Ca²⁺ cycling proteins. *Cardiac Electrophysiology from Cell to Bedside*, 6th Edition, Saunders 243-252, 2013.

Refereed papers in conference proceedings

1. **Yaniv Y**, Sivan S and Landesberg A. Identification of the intercellular control of the cardiac force-length relationship: Analysis of the hysteresis in the force-length plane, *International Conference on Control and Automation 10-12 June* WA01-WA06, 2003.
2. Landesberg A, Levy C, **Yaniv Y** and Sideman S. The adaptive intracellular control of cardiac muscle function, *Annals of New York Academy of Science*, 1015: 71-83, 2004.
3. Levy C, ter Keurs HEDJ, **Yaniv Y** and Landesberg A. The sarcomeric control of energy conversion, *Annals of New York Academy of Science*, 1047: 219-231, 2005.

4. **Yaniv Y**, Levi C and Landesberg A. The mechanoelectric feedback. A novel calcium clamp method, utilizing titanic contraction, for testing the role of the intracellular free calcium, *Annals of New York Academy of Science*, 1080: 235-247, 2006.
5. **Yaniv Y**, Stanley WC, Saidel GM, Cabrera ME and Landesberg A. The role of Ca²⁺ in coupling cardiac metabolism with regulation of contraction: In silico modeling, *Annals of New York Academy of Science*, 1123: 69-78, 2008.
6. **Yaniv Y**, Juhaszova M, Nuss HB, Wang S, Zorov BD, Lakatta EG and Sollott SJ. Matching ATP supply and demand in mammalian heart: *In vivo*, *in vitro* and in silico perspectives, *Annals of New York Academy of Science*, 1188: 133-142, 2010.
7. Behar JA, Rosenberg AA, **Yaniv Y** and Oster J. Rhythm and quality classification from short ECGs recorded using a mobile device. *Computing in Cardiology*, Accepted.
8. Gliner V and **Yaniv Y**. Identification of features for machine learning analysis for automatic arrhythmogenic event classification. *Computing in Cardiology*, Accepted.

Patent applications

1. **Yaniv Y**. Early prediction and detection of arrhythmogenic events No. 07035-P0032A.
2. Rosenberg A and **Yaniv Y**. Non-invasive analysis of sinoatrial node function. No. 62/586,406.
3. Leichner JM, Konyukhov E and **Yaniv Y**. Real time mitochondrial dimension measurements. No. 2066-00.
4. Behar J, Rosenberg A and **Yaniv Y**. A novel software for beating rate variability analysis from mammalian electrophysiological and pulsatile data.

Others publications (Editorial and letters to the editors)

1. **Yaniv Y**. Cardiac troponin I phosphorylation and force-length relationship. *Journal of Physiology*, 591 (24), 6135-6136, 2013.
2. **Yaniv Y** and Lakatta EG. Pacemaker gene mutations, bradycardia, arrhythmias and the coupled clock theory. *Journal of Cardiovascular Electrophysiology*, 24(12): E28-E29, 2013.
3. Lakatta EG, **Yaniv Y** and Maltsev V. Minding the gaps that link intrinsic circadian clock within the heart to its intrinsic ultradian pacemaker clocks. *American Journal of Physiology, Cell physiology*. 304(10): C941-944, 2013.
4. Behar J and **Yaniv Y**. Mutation in one molecule induces beating rate changes by affecting the coupled clock pacemaker function. *Journal of Cardiology and Cardiovascular Therapy*. 6(4), 2017.

CONFERENCES

Plenary, keynote or invited talks in conferences

1. Schrödinger's dog: Non-invasive in-vivo analysis of intrinsic clock-like pacemaker mechanisms. ISHR, Amsterdam, Netherland, 2018 (invited talk).
2. Automatic detection of atrial fibrillation. 3rd International Conference on Cardiovascular Medicine and Cardiac Surgery. Berlin, Germany, 2018 (invited talk).
3. Big data in Biomedical Engineering Field. ICT4V- Big Data workshop, Montevideo, Uruguay, 2018 (invited talk).
4. Post-translational modification signaling and bioelectrical, biophysical and bioenergetics pacemaker function. Biophysical Society, San Francisco, US, 2018 (invited talk in Symposium).
5. Smart medical IoT. Smart medical IoT, Ivannikov ISPRAS Open Conference, Moscow, Russia, 2017 (invited talk).
6. Australian Physiological Society meeting, Melbourne, Australia, 2017 (invited talk, was not delivered due to visa problems).
7. Bioenergetic feedback between heart cell contractile machinery and mitochondrial 3D deformations. Cardiac Physiome17, Toronto, Canada, 2017 (invited talk).
8. Function and dysfunction of coupled clock pacemaker system: Aging perspective. Technion-Michigan joint meeting, Haifa, Israel, 2017 (invited talk).
9. Calcium handling and mishandling: Role in cardiac rhythm and dysrhythmia. World Congress of Physiology, Rio de Janeiro, Brazil, 2017 (invited talk).
10. Yanqi Lake Forum, Beijing, China, 2017 (invited talk).
11. Calcium clock and pacemaker dysfunction. American Heart Association, New Orleans, LA, 2016 (invited talk).
12. Mobile Health Lab: from single pacemaker cell to prediction of arrhythmogenic events. Connected Health, Monaco, 2016 (invited talk).
13. The tango between PKA and CaMKII signaling in cardiac pacemaker. International Society of Heart Research, Buenos Aires, Argentina, 2016 (invited talk).
14. Synchronization and desynchronization of intrinsic clock-like mechanisms in pacemaker cells: clinical applications. Israel Society of Physiology and Pharmacology, Israel, 2016 (invited talk).
15. Synchronization and desynchronization of intrinsic clock-like mechanisms in pacemaker cells. International Society of Heart Research, Israel, 2015 (invited talk).

16. The identification of the mechanisms that match ATP supply to demand in cardiac pacemaker cells. International Society of Heart Research, Israel, 2014 (invited talk).
17. cAMP/PKA-dependent phosphorylation signaling controls both pacemaker cell rate and energetics: experimental evidence and in silico testing. Heart Rhythm, Denver, CO, 2013 (invited talk).
18. Matching ATP supply and demand in mammalian heart: In vivo, in vitro and in silico perspectives. The 6th Larry & Horti Fairberg Workshop, Haifa, Israel, 2009 (invited talk).
19. The mechanoelectric feedback. A novel calcium clamp method, utilizing titanic contraction, for testing the role of the intracellular free calcium, The 4th Larry & Horti Fairberg Workshop, Charleston SC, 2006 (invited talk).

Seminars in universities

1. Contraction activity and the function of heart pacemaker cell in culture. Servier Lab, Paris, France (invited talk).
2. Function and dysfunction of coupled clock pacemaker system: Aging perspective. La Sapienza University, Rome, Italy (invited talk).
3. The aging-associated deficient heart pacemaker function. Inserm UMR-S 1180 - LabEx LERMIT, Paris, France 2017 (invited talk).
4. Coupled clock and pacemaker dysfunction. Center for Molecular Biotechnology, Turin, Italy, 2016 (invited talk).
5. Post-translation modification signaling in pacemaker cells. UC Davis, Davis, CA, 2016 (invited talk).
6. Post-translation modification signaling in pacemaker cells. University of Michigan, Ann Arbor, MI, 2016 (invited talk).
7. The clocks that make our heart tick. Georgetown University, Washington DC, 2015 (invited talk).
8. The clocks that make our heart tick. Tel Aviv University, Israel, 2015 (invited talk).
9. Systems Biology Perspectives of Bioelectric and Bioenergetic Mechanisms of Heart Pacemaker Cells. Biomedical Engineering, Technion, Israel, 2013 (invited talk).
10. Get more bang for your buck: How the mitochondria efficiently adapt the supply to the demand? Biomedical Engineering, Technion, Israel, 2009 (invited talk).
11. Matching respiration and oxidative phosphorylation: electrons being “pushed” or “pulled”? Biomedical Engineering, Technion, Israel, 2008 (invited talk).
12. The mechanoelectric feedback: in vitro and in silico perspectives. Laboratory of Cardiovascular Science, NIA, NIH, Baltimore, MD, 2006 (invited talk).

13. The mechanoelectric feedback in the heart. Department of Physiology, Loyola University, Chicago, IL, 2006 (invited talk).
14. The mechanoelectric feedback in cardiac trabecula. Biomedical Engineering, Washington University, St. Louis, MO, 2006 (invited talk).

Participation in organizing conferences

- 2018** Member of the board, International Society of Heart Research-Israeli Section, Amsterdam, Netherland.
- 2018** Member of the board, International Society of Heart Research-Israeli Section, Tel Aviv, Israel.
- 2018** Technical Committee and Reviewer, International Conference on Bio-Signal and Image Processing, Porto, Portugal.
- 2017** Technical Committee and Reviewer, International Conference on Bio-Signal and Image Processing, Budapest, Hungary.
- 2017** Program Committee member, Summer Computer Simulation Conference, Seattle, WA.
- 2016** Member of the board, International Society of Heart Research-Israeli Section, Beer Sheva, Israel.
- 2016** Session chair, Israel Society of Physiology and Pharmacology, Tel-Aviv, Israel.
- 2015** Member of the board, International Society of Heart Research-Israeli Section, Haifa, Israel.
- 2003-2006** Conference coordinator, Annual Larry & Horti Fairberg Cardiac Workshop.
 - Helped to organize and plan the program books.
 - Established the conference website.
 - Organized the tours and dinners to the participants and spouses.
 - Reviewed the manuscripts submitted to the conference proceedings.

Presentation at scientific meetings

Employee, Graduate students and postdocs are underlined

1. Mazgaoker S and **Yaniv Y**. PKA as a regulator of ATP supply to demand matching in pacemaker cells: insight from computational and experimental results. *International Society of Heart Research-European Section* Amsterdam, Netherland, July 2018.
2. Segal S, Kirschner Peretz N, Arbel-Ganon L, Liang J, Li L, Marbach D, Wang S and **Yaniv Y**. Eliminating contraction maintains the structure and function of cultured pacemaker cells. *International Society of Heart Research-Israeli Section* Tel Aviv-Israel, February 2018.

3. Weiser-Bitoun I, Rosenberg AA, Shemla O, Alexandrovich A, Behar J and **Yaniv Y**. Accurate heart rate estimation in mammals electrocardiographic data. *International Society of Heart Research-Israeli Section* Tel Aviv-Israel, February 2018.
4. Arbel-Ganon L, Gomez AM and **Yaniv Y**. Mechano signal transduction by calcium and phosphorylation in healthy and dysfunctional heart pacemaker tissue. *International Society of Heart Research-Israeli Section* Tel Aviv-Israel, February 2018.
5. Rosenberg AA, Behar J, Shemla O and **Yaniv Y**. Characterization of pacemaker cell function from standard ECG recordings. *International Society of Heart Research-Israeli Section* Tel Aviv-Israel, February 2018.
6. Gliner V and **Yaniv Y**. Identification of features for machine learning analysis for automatic arrhythmogenic event classification. *Computers in Cardiology* Rennes, September 2017.
7. Behar J, Rosenberg A, **Yaniv Y**, Oster J. Rhythm and quality classification from short ECGs recorded using a mobile device. *Computers in Cardiology* Rennes, September 2017.
8. Behar J, Rosenberg A, Alexandrovich A, Elul Y, Shemlas O and **Yaniv Y**. PhysioZoo: Open source software for heart rate variability analysis of mammals electrophysiological data. *International Society of Heart Research-European Session* Hamburg, July 2017.
9. Kirschner Peretz N, Segal S, Arbel-Ganon L, Ben Jehuda R, Shemer Y, Eisen B, Davoodi M, Binah O, and **Yaniv Y**. A method sustaining the bioelectric, biophysical, and bioenergetic function of cultured atrial cells. *International Society of Heart Research-European Session* Hamburg, July 2017.
10. Segal S, Davoodi M, Kirschner-Peretz N, Kamoun D and **Yaniv Y**. Semi-automated program for detection and analysis of local Ca^{2+} spark release. *International Society of Heart Research-Israeli Section* Beer Sheva-Israel, December 2016.
11. Kirschner-Peretz N, Segal S, Arbel-Ganon L, Davoodi M and **Yaniv Y**. A novel method to maintain atrial cell bioelectric, biophysical and bioenergetic functions in culture. *International Society of Heart Research-Israeli Section* Beer Sheva-Israel, December 2016.
12. Behar J, Gordon R, Segal S and **Yaniv Y**. Non-additive sympathetic-parasympathetic brain stimulation interaction in single sinoatrial node cells. *International Society of Heart Research-Israeli Section* Beer Sheva-Israel, December 2016.
13. Elul J, Rosenberg A, Behar J and **Yaniv Y**. PhysioZoo database: a Software for annotating animal electrophysiological data. *International Society of Heart Research-Israeli Section* Beer Sheva-Israel, December 2016.
14. Kamoun D and **Yaniv Y**. Bioenergetic feedback between mitochondrial 3D deformations and heart cell contractile machinery. *ICME*, Haifa,-Israel, November 2016.

15. Behar J and **Yaniv Y**. Internal pacemaker cell mechanisms mediating autonomic nervous regulation of the heart rate. *International Society of Heart Research-World Congress*, Buenos Aires-Argentina, April 2016.
16. Kamoun D and **Yaniv Y**. Dynamics of mitochondrial 3D deformation feedback loop in isolated cardiac cells. *Biomedical Engineering Conference*, Haifa,-Israel, February 2016.
17. Behar J and **Yaniv Y**. The Regulation of the Heart Beat by the Crosstalk between Brain Signaling Receptor Stimulation and Pacemaker Cell Internal Mechanisms *International Society of Heart Research-Israeli Section* Haifa-Israel, December 2015.
18. **Yaniv Y**, Ahmet I, Tsutsui K, Okamoto Y, Guiriba TR, Bychkov R, and Lakatta EG. Alterations in mechanisms intrinsic to pacemaker cells contribute to age-associated changes in heart rate variability. *International Society of Heart Research-European Section* Bordeaux-France, July 2015.
19. **Yaniv Y**, Ganesan A, Yang D, Ziman B, Zhang J and Edward Lakatta. Parallel increase in PKA activation kinetics and spontaneous beating rate in sinoatrial node cell in response to chronotropic stimuli. *Heart Rhythm* San Francisco-U.S.A, May, 2014.
20. **Yaniv Y**, Ganesan A, Yang D, Ziman B, Zhang J and Edward Lakatta. The chicken or the egg: In response to a reduction in cAMP/PKA signaling in heart pacemaker cells, what becomes reduced first, the ATP level or the spontaneous action potential firing rate? *Heart Rhythm* San Francisco-U.S.A, May, 2014.
21. **Yaniv Y**, Lyashkov AE, Sirenko S, Okamoto Y, Guiriba TR and Lakatta EG. Fractal-like behavior of the heart-beat intervals is encoded within intrinsic complexity of pacemaker cells residing in the sinoatrial node and modulated by autonomic input to the heart. *Biophysical Society* San Francisco-U.S.A, February, 2014.
22. **Yaniv Y**, Lyashkov AE, Sirenko S, Okamoto Y, Guiriba TR, Lakatta EG. The coupled-pacemaker clock system of sinoatrial nodal cells regulates both the action potential rate and rhythm. *Biophysical Society* San Francisco-U.S.A, February, 2014.
23. **Yaniv Y**, Ahmet I, Liu J, Guiriba TR, and Lakatta EG. Age-associated changes of heart rate and heart rate variability extend well beyond age-dependent changes in autonomic nerve input to the sinoatrial node. *International Society of Heart Research* San Diego-U.S.A, July 2013.
24. **Yaniv Y**, Ambhi G, Yang D, Ziman BD, Zhang J and Lakatta EG. Experimental and in silico studies of the kinetics and magnitude of PKA activation in live sinoatrial node pacemaker cell. *International Society of Heart Research* San Diego-U.S.A, July 2013.

25. **Yaniv Y**, Maltsev V, and Lakatta EG. cAMP/PKA-dependent phosphorylation signaling controls both pacemaker cell rate and energetics: experimental evidence and *in silico* testing. *Heart Rhythm Society* Denver-U.S.A, May 2013.
26. **Yaniv Y**, Spurgeon HA, Ziman BD and Lakatta EG. Ca²⁺/calmodulin-dependent protein kinase II (CaMKII) activity modulates sinoatrial nodal pacemaker cell energetic. *Mitochondria Research Retreat* Baltimore-U.S.A, October, 2012.
27. **Yaniv Y**, Maltsev V, and Lakatta EG. How Ca²⁺-activated, cAMP/PKA-dependent phosphorylation signaling mediates pacemaker cell activity: experimental and *in silico* biochemical and biophysics perspectives. *Biophysical Society* San Diego-U.S.A, February, 2012.
28. **Yaniv Y**, Spurgeon HA, Ziman BD and Lakatta EG. Ca²⁺/calmodulin-dependent protein kinase II (CaMKII) activity modulates sinoatrial nodal pacemaker cell energetic. *Biophysical Society* San Diego-U.S.A, February, 2012.
29. **Yaniv Y**, Maltsev V, Escobar A, Spurgeon HA, Ziman BD, Stern M and Lakatta EG. Photolytic Ca²⁺ release from caged Ca²⁺ buffer acutely modulates action potential cycle length of sinoatrial nodal cells. *International Society for Heart Research American Section* Philadelphia-U.S.A, May, 2011.
30. **Yaniv Y**, Spurgeon HA, Lyashkov AE, Dongmei Y, Ziman BD and Lakatta EG. Mitochondrial-SR Ca²⁺ cycling, a third clock within pacemaker cells, modulates basal automaticity of rabbit cardiac sinoatrial nodal pacemaker cells. *International Society for Heart Research American Section* Philadelphia-U.S.A, May, 2011.
31. **Yaniv Y**, Spurgeon HA, Lyashkov AE, Dongmei Y, Ziman BD and Lakatta EG. Mitochondrial-SR Ca²⁺ cycling, a third clock within pacemaker cells, modulates basal automaticity of rabbit cardiac sinoatrial nodal pacemaker cells. *NHLBI Mitochondrial Biology Symposium* Bethesda-U.S.A, May, 2011.
32. **Yaniv Y**, Spurgeon HA, Lyashkov AE, Ziman BD, Lakatta EG. Mitochondrial-SR Ca²⁺ cycling modulates normal automaticity of rabbit cardiac sinoatrial nodal pacemaker cells. *Biophysical Society* Baltimore-U.S.A, March, 2011.
33. **Yaniv Y**, Juhaszova M, Lyashkov AE, Spurgeon HA, Sollott S and Lakatta EG. Ca²⁺-regulated-cAMP/PKA signaling in cardiac pacemaker cells links ATP supply to demand. *Biophysical Society* Baltimore-U.S.A, March, 2011.
34. **Yaniv Y**, Juhaszova M, Wang S, Fishbein KW, Nuss HB, Sollott SJ. Between a rock and a hard place: mitochondria deform anisotropically in intact cardiomyocytes during active contraction. *Biophysical Society* Baltimore-U.S.A, March, 2011.

35. **Yaniv Y**, Juhaszova M, Lyashkov AE, Spurgeon HA, Sollott S and Lakatta EG. Cardiac pacemaker cells uniquely match ATP supply to demand. *Biophysical Society* San Francisco-U.S.A, February, 2010.
36. Syevda S, Yaeger D, Vinogradova TM, Li Y, **Yaniv Y**, Zahanich I, Spurgeon HA, Maltsev V and Lakatta EG. Cardiac glycoside chronotropic and arrhythmogenic effects in sinoatrial nodal pacemaker cells occur along a continuum of electrochemical gradients of Na^+ (E_{Na}) and Ca^{2+} (E_{Ca}). *Biophysical Society* San Francisco-U.S.A, February, 2010.
37. **Yaniv Y**, Juhaszova M, Lyashkov AE, Zahanich I, Sollott S and Lakatta EG. Matching ATP supply and demand: pulling the energy plug in cardiac pacemaker cells. *ISHR* Baltimore-U.S.A, May 2009.
38. **Yaniv Y**, Juhaszova M, Wang S and Sollott S. Analysis of the role of Ca^{2+} in the regulation of mitochondrial volume in the intact cardiomyocytes. *ISHR* Baltimore- U.S.A, May 2009.
39. **Yaniv Y**, Landesberg A, Sharma N, Huang H, Allen C, Cabrera ME, Saidel G, Stanley WC. An increase in matrix Ca^{2+} activates mitochondrial ATP production and maintains mechanical efficiency at high workloads: *In Vivo* and *In Silico* evidence. *Biophysical Society* Baltimore-U.S.A, March, 2007.
40. **Yaniv Y**, Landesberg A, The mechanoelectric feedback phenomenon is stress dependent in the isolated rat trabeculae and the rabbit papillary muscle. *Biophysical Society* Baltimore-U.S.A, March, 2007.
41. **Yaniv Y**, Landesberg A, Implication of cardiac arrhythmogenicity by stretch activated channels and calcium. International Meeting of Muscle Energetics Banff, Canada, July 22-26, 2006.
42. **Yaniv Y**, Landesberg A, The mechanoelectric feedback: The roles of stretch activated channels and troponin, implications to cardiac arrhythmogenicity. *4th Larry and Horti Fairberg Cardiac Workshop* Charleston SC, USA, April 23-27, 2006.
43. **Yaniv Y**, Landesberg A, The mechanoelectric feedback: The roles of stretch activated channels and troponin, implications to cardiac arrhythmogenicity. *International Society for Heart Research Israeli Subsection* Tel Aviv-Israel, February 27, 2006.
44. **Yaniv Y**, Landesberg A, The mechanoelectric feedback: The roles of stretch activated channels and troponin. *Biophysical Society* Salt Lake City-U.S.A, February, 2006.
45. **Yaniv Y**, Landesberg A, A novel integrated model of cardiac myocyte electrical and mechanical activities. *International Society for Heart Research Israeli Subsection* Haifa-Israel, February 24, 2005.

46. **Yaniv Y**, Landesberg A, A novel integrated model of cardiac myocyte electrical and mechanical activities. *Biophysical Society* Long Beach-U.S.A, February, 2005.
47. **Yaniv Y**, Landesberg A, Sivan S, The adaptive control of cardiac contraction by the loading conditions, with high constant efficiency, in the rat heart. *Biophysical Society* Baltimore-U.S.A, March 17, 2004.
48. **Yaniv Y**, Landesberg A, Sivan S, The adaptive control of cardiac contraction by the loading conditions, with high constant efficiency, in the rat heart. *International Society for Heart Research Israeli Subsection* Tel Aviv-Israel, February 26, 2004.
49. **Yaniv Y**, Landesberg A, Sivan S, T The adaptive control of cardiac contraction by the loading conditions, with high constant efficiency, in the rat heart. *Israel Society for Physiology and Pharmacology Annual Meeting* Mala Hamisha-Israel, October 2, 2003.
50. **Yaniv Y**, Landesberg A, Sivan S, Regulation of the force length relationship in the cardiac muscle. *The 29th Conference on Mechanical Engineering* Haifa-Israel, May 12-13, 2003. **Yaniv Y**, Landesberg A, Sivan S, Identification of the sarcomere control of cross-bridge recruitment. *Israel Society for Medical and Biological Engineering* Tel Aviv-Israel, January 23, 2003.
52. **Yaniv Y**, Landesberg A, Sivan S, Identification of the cellular control of cross bridge recruitment in the cardiac muscle. *Israel Society for Physiology and Pharmacology Annual Meeting* Mala Hamish-Israel, October 9, 2002.
53. **Yaniv Y**, Landesberg A, Sivan S, Identification of the control of cross bridge recruitment. *Banff Symposium on Skeletal Muscle* Banff-Canada August 2-3, 2002.