January 20, 2013

Ronen Beeri, MD- Curriculum Vitae

Personal details

ID number	0-5722203-6
Marital status	Married plus three children.
Birthdate	15.5.61 (Petach-Tikva, Israel)
Military Service	1979-1984; Major, Israeli Defense Forces
Address	11 Hatavor St., IL-90805 Mevasseret Ziyon, Israel
Telephone	Home: +972(2)5334249, Work: +972(50)8573400
Fax	Work: +972(2) 6411028
Email	rbeeri@hadassah.org.il

Higher Education and Certifications

1984-1991	MD. Hebrew University Hadassah Medical School, Jerusalem.
March 1991-February 1992	Intern, Hadassah-Hebrew University Medical Center,Jerusalem
March 1992-February 1996	Resident in Internal Medicine, Hadassah-Hebrew University Medical Center, Mt. Scopus, Jerusalem.
March 1996	Board certified in Internal Medicine- Israel Medical Association
March 1996-December 1998	Fellow in Cardiology, Hadassah-Hebrew University Medical Center, Ein-Karem, Jerusalem
December 1998	Board certified in Cardiology- Israel Medical Association
December 1998- July 2000	Staff Cardiologist- Cardiology Department- Echocardiography Unit, Hadassah-Hebrew University Medical Center, Ein-Karem, Jerusalem
July 2000- August 2002	Research Fellow in Medicine- Harvard Medical School, Cardiac Ultrasound Lab, Massachusetts General Hospital, Boston, MA
August 2002-	Staff Cardiologist- Cardiology Department- Echocardiography Unit, Hadassah-Hebrew University Medical Center, Jerusalem

August 2005-	Visiting Scientist, Harvard Medical School, Cardiac Ultrasound Lab, Massachusetts General Hospital, Boston, MA

Hebrew University Appointments

October 1994-1999	Clinical instructor in internal medicine- Hebrew University-Hadassah Medical School, Jerusalem
January 2002- February 2010	Lecturer in Medicine (Cardiology)- Hebrew University-Hadassah Medical School, Jerusalem
February 2010-	Senior Lecturer in Medicine (Cardiology)- Hebrew University-Hadassah Medical School, Jerusalem
August 2012-	Associate Professor in Medicine (Cardiology)- Hebrew University-Hadassah Medical School, Jerusalem

Hebrew University Administrative Assignments

1994-1995	Member of the Hebrew University Medical School inquiry committee on the teaching of psychiatry (Prof. Feldman- chair)
2003-	Member- Hebrew University Medical School Admission Committee.
January 2007-	Director, Cardiovascular research Center, Heart Institute, Hadassah-Hebrew University Medical Center, Ein-Kerem, Jerusalem
2008-2009	Member, Hadassah- Hebrew University Medical Center Nursing School educational committee.
2009-	Member- Hebrew University Medical Education Committee
2009-	Member- Hebrew University Medical School MD Thesis Committee.
2010-	Member- Hebrew University Medical School special committee on 4th year ambulatory teaching

Other Academic Appointments

July 2000-August 2002	Research Fellow in Medicine- Harvard Medical School, Cardiac Ultrasound Lab, Massachusetts General Hospital, Boston, MA.
2002-	Visiting Scientist- Harvard Medical School, Cardiac Ultrasound Lab, Massachusetts General Hospital, Boston, MA.

Service in Other Academic and Research Institutions

2007-	Teacher- CME course, Tel-Aviv University Sackler School of Medicine-Continuing Education

Other Academic Assignments

2003-	Scientific Advisory Board, World Congress on Heart Disease,International Academy Of Cardiology Annual Scientific Sessions.
2005- 2007	Member, executive committee, Israeli Working Group on Echocardiography, Israel Heart Society
2004-2006	Member of the Examination Committee of the Israeli Board Examination in Cardiology. Coordinator- 2nd step (shlav B) 2006.
2007-	Director, Cardiovascular Research Center, Heart Institute, Hadassah- Hebrew University Medical Center.
2007-	Member- Israel Heart Society advisory committee on Basic Science
2007-	Member- Executive Board-Israel Society for Heart Research
2008-	Faculty, Innovations in Cardiology International Meeting

2011- Member of the Examination Committee of the Israeli Board Examination in Cardiology. Coordinator- 1st step (shlav A).

Grant support

2001-2002, American Society of Echocardiography (Grant-In-Aid), "Influence of Mitral Regurgitation on Myocardial Remodeling after Myocardial Infarction: Echocardiographic and Cellular Assessment". $ 25,000/25,000. Collaborating investigators: Robert A. Levine, Roger J. Hajjar. Role: principal investigator. #8, #14 #

2002-2006, USA-Israel Binational Science Foundation (BSF). "Influence of Mitral Regurgitation on Myocardial Remodeling after Myocardial Infarction" (grant no. 2001037). $230,000/141,974. Collaborating investigators: Robert A. Levine, Roger J. Hajjar, Dan Gilon, Thea Pugatsch. Role: principal investigator. #16, #19

2003-2005 American Heart Association. "Influence of Mitral Regurgitation on Myocardial Remodeling after Myocardial Infarction" (grant no. 0350422N). $214,000. Collaborating investigators: Robert A. Levine (PI), Gus J. Vlahakes, Francis Spinale, Roger J. Hajjar. Role: investigator. #14, #16, #19

2009-2013 National Institutes of Health (NIH/NHLBI). "Influence of Mitral Regurgitation on Myocardial Remodeling after Myocardial Infarction" (grant no. R01 HL072265). $1,250,000. Robert A. Levine (PI), Gus J. Vlahakes, Francis Spinale, Roger J. Hajjar. Role: investigator #14, #16

2003-2005 National Institutes of Health (NIH/NIBIB). "SV40 As a Cardiac Gene Therapy Vector" (grant no. R21 EB002982) $125,000. Thea Pugatsch, Ariella Oppenheim. Role: Principal Investigator

2004-2009 National Institutes of Health (NIH/NHLBI). "Integrated Mechanism of Ischemic Mitral Regurgitation" (grant no. R01 HL 38176). $1,070,215/120,000.

Collaborating investigators: Robert A. Levine (PI), Emmanuel Messas, Gus J. Vlahakes, Judy Hung. Role: investigator.

2006-2011 USA-Israel Binational Science Foundation (BSF). "Myocardial Remodeling in Ischemic Mitral Regurgitation- From Mechanisms to Potential Therapies" (grant no. 2005250). $192,000/94,000. Collaborating investigators: Robert A. Levine, Roger J. Hajjar, Dan Gilon, Thea Pugatsch. Role: principal investigator. #19 #29 #32.

2008 Israel Cancer Association. "New Echocardiographic Parameters for Early Detection of Trastuzumab Cardiotoxicity in Patients with Breast Carcinoma". (grant no. 20080065C). 20,000₪. Collaborating Investigators: Beatrice Uziely (PI), Daniella Katz. Role:investigator.

2008 Israel Cancer Association. "Peri-operative Administration of Beta-blockers and COX2 inhibitors in Patients Undergoing Removal of a Primary Breast Tumor". (grant no. 20080104C). 45,000₪. Collaborating Investigators: Tanir Allweiss (PI)), Caroline Weiniger, Alexander Avidan. Role:investigator.

2010-2013 National Institutes of Health (NIH/NHLBI). "Effect of Mitral Regurgitation on Ischemic LV Remodeling" (grant no. R01 HL072265-06). $ 1,218, 369/$100,000 (sub-contract). Collaborating investigators: Robert A. Levine (PI), Roger J. Hajjar. Role: Co-Principal Investigator. #29 #32

Hebrew University Teaching Assignments

1992- Internal medicine and cardiology bedside teaching and department lectures- 4th and 6th year medical students.

1999 Instruction in cardiology for graduate students in clinical pharmacy .

1998-2000, 2004- Basic course in internal medicine (cardiology)- 4th year medical students. (2000, and 2005- course director).

1996-2000- ACLS course- The Hadassah School of Resuscitation (6th year medical students, post-graduate course in intensive care nursing). Subjects:

myocardial infarction, resuscitation pharmacology, arrhythmia recognition and management, hands-on training.

1998-2000- Basic cardiology- Post-graduate course in intensive care- Hadassah Nursing School (cardiac anatomy and physiology, valvular diseases, heart catheterizations, cardiac pacemakers).

1998,2002- Basic cardiology- School of biomedical technologists (course director).

2003- 2005 and 2010- Teaching coordinator- Department of Cardiology

Supervision of Post Doctoral Fellows:

2009- Dr Avishag Korkus

Supervision of doctoral degree students:

2010- 2011 Yasmin Shoham- PhD. Co supervisor: Prof Michal Horowitz.

2010- Jussi Leinonen- PhD. Co-supervisor- Prof. David Lichtstein.

Supervision of Masters degree students:

2004-2008 Yasmin Shoham - MSc in Medical Sciences. Co supervisor: Prof Michal Horowitz.

2007-2009 Assi Samaan- MSc in Medical Sciences- Co-supervisor: Prof Michal Horowitz.

2009-2011 Mahmoud Moustafa- MSc in Medical Sciences- Co-supervisors: Prof Bar Shavit and Dr Moni Shuvi

Supervision of MD and other theses:

2004-2006 Meirav Rubinow-Heshin- MD thesis, with distinction.

2006-2007 Sarit Helman- MD thesis. Co supervisor: Prof. Dan Gilon.

2007- 2010 Sara Hoss- MD Thesis.Co supervisor: Prof. Dan Gilon. With distinction.

2007- 2008 Sameh Daher- MD thesis. Co-supervisor: Dr Moni Shuvi.

2007- 2010 Guy Shapira - MD thesis. Co-supervisor: Dr Moni Shuvi.

2007-2009 Nitzan Duvdevan- MD thesis. Co-supervisor: Dr Moni Shuvi.

2008- 2010 Shai Shimoni- MD thesis.

2008-2009 Dr Amit Lev- Anesthesiology residency basic science project. Co-supervisors: Prof Giora Landsberg, Prof Charles Weisman

2009-2010 Dr Siffi Faiz- Anesthesiology residency basic science project. Co-supervisors: Prof Giora Landsberg, Prof Charles Weisman.

2008-2010 Dr Yaron Helman- Cardiology residency basic science project.

2011- Dr Sara Hoss- Medical residency basic science project

Awards and Prizes

June 1996 The Shafarman Memorial Fund award for outstanding research - Hebrew University and Hadassah Medical School, Jerusalem.

May 1999 The Eisenberg Fund award for research in treatment and prevention of heart diseases.

July 2001 American Society of Echocardiography research award

August 2002 The Prof. H. Neufeld Memorial Research Award (USA-Israel Binational Science Foundation).

January 2007 The Louis Chor Research Award

2007 Excellent Teaching Award- Faculty of Medicine

2011 Excellence in teaching- HUJI students survey

Membership in Professional Societies

Member – Israel Medical Association; Fellow- Israel Heart Society; Fellow , American College of Cardiology; Member- European Society of Cardiology; Member- American Society of Echocardiography; Member, Council on basic cardiovascular sciences, American Heart Association. Member- Israeli Society of Gene Therapy. Member- Heart Valve Society of America.

Ronen Beeri, MD- Publications list

Abbreviations: (PI)- principal investigator, (S)- student, (C)- collaborating investigator, (T)- technician.

MD thesis

"Clinical Characteristics of Upper Gastrointestinal Bleeding". Mentor: J. Zimmerman, MD. MD awarded 1991. Publication numbers: #1, #2, #4.

Books

Chapters in Books

1. Hung J, Shahzad K, **Beeri R**, Levine RA. Ventricular Remodeling and Secondary Valvular Dysfunction in Heart Failure Progression. In: Dec GW, editor. Heart Failure: A Comprehensive Guide to Diagnosis and Treatment. 1 ed. New-York: Marcel Dekker Inc.; 2004.
2. **Beeri R**, Otsuji Y, Schwammenthal E, Levine R. Ischemic Mitral Regurgitation. In Valvular Heart Disease: A Companion to Braunwald's Heart Disease. 3.ed. New York: Saunders; 2009.

Peer reviewed original articles

1. Zimmerman J[PI], Arnon R[C], **Beeri R**[PI], Keret D[C], Lysy J[C], Ligumski M[C], Gonzalez J[C], Fich A[C], Ackerman Z[C], Goldin E[C] (1992). Seasonal fluctuations in acute upper gastrointestinal bleeding: No effect of non-steroidal antiinflammatory drugs. *Am J Gastroenterol;* 87(11):1587-90. 6.882;5/71;17.
2. Zimmerman J[PI], Arnon R[C], Ligumsky M[C], **Beeri R**[PI] **,** Keret D[C], Lysy J[C], Fich A[C], Tsvang E[C], Siguencia J[C], Gonzalez J[C], Ackerman Z[C], Goldin E[C] (1993). Acute upper gastrointestinal bleeding in Jerusalem 1988-91: Causes, characteristics and relation to nonsteroidal anti-inflammatory drugs. *Isr J Med Sci;* 29:292-7. 0.953;84/151; 9
3. **Beeri R**[PI], Symon Z[C], Brezis M[PI], Ben-Sasson SA[C], Baehr PH[C], Rosen S[C], Zager RA[C] (1995). Rapid DNA fragmentation from hypoxia along the thick ascending limb of rat kidneys. *Kidney Int;* 47(6):1806-10. 6.105;3/69;93.

4. Zimmerman J[PI], Siguencia J[C], Tsvang E[C], **Beeri R**[PI], Arnon R[PI] (1995). Predictors of mortality in patients admitted to hospital for acute gastrointestinal hemorrhage. *Scand J Gastroenterol;* 30(4):327-31. 1.966;41/71;50.
5. Zahger D[PI], Milgalter E[C], Pollak A[C], Hasin Y[C], Merin G[C]**,** **Beeri R**[C], Gotsman MS[C]. Left ventricular free wall rupture as the presenting manifestation of acute myocardial infarction in diabetic patients. *Am J Cardiol;* 1996;78:681-2. 3.680;27/114;10.
6. Fuchs S[PI], Jaffe R[C], **Beeri R**[C], Rosen S[C], Heyman SN[C], Brezis M[PI] (1997). Failure of insulin-like growth factor 1 to improve radiocontrast nephropathy. *Exp Nephrol;* 5:88-94. 2.743;20/69;6.
7. Jaffe R[PI], Ariel I[PI], **Beeri R**[C], Paltiel O[C], Hiss Y[C], Rosen S[C] , Brezis M[PI] (1997). Frequent apoptosis in human kidneys after acute renal hypoperfusion. *Exp Nephrol;* 5:399-403. 2.743; 20/69;16.
8. **Beeri R**[PI], Guerrero JL[T], Supple G[S], Sullivan S[T], Levine RA[C], Hajjar RJ[PI] (2002). A New Efficient Catheter-Based System for Myocardial Gene Delivery. *Circulation;* 106:1756-59. 14.429;1/114;34.

(Nomination as Lecturer)

9. Han B[PI], Fixler R[PI], **Beeri R**[PI], Wang Y[C], Bachrach U[C], Hasin Y[PI] (2003). The opposing effects of endothelin-1 and C-type natriuretic peptide on apoptosis of neonatal rat cardiac myocytes. *Eur J Pharmacol*; 474:15-20. 2.787;90/249;10
10. Raphael J[PI], Abedat S[C], Rivo J[C], Meir K[C], **Beeri R[C]**, Pugatsch T[C], Zuo Z[C], Gozal Y[PI] (2006). Volatile anesthetic preconditioning attenuates myocardial apoptosis in rabbits after regional ischemia and reperfusion via Akt signaling and modulation of Bcl-2 family proteins. *J Pharmacol Exp Ther*; 318(1):186-94. 4.017; 40/249;31
11. Pugatsch T[PI], Abedat S[C], Lotan C[C], **Beeri R**[PI]. (2006). Anti-erbB2 treatment induces cardiotoxicity by interfering with cell survival pathways. *Breast Cancer Res*. 13;8(4):R35. 5.785; 23/184;10

12. Tshori S[PI], Gilon D[PI], **Beeri R**[C], Nechushtan H[C], Kaluzhny D[C], Pikarsky E[C], Razin E[PI]. (2006) Transcription factor MITF regulates cardiac growth and hypertrophy. *J Clin Invest*;116(10):2673-81. 14.152;3/106;9 {*remark: Tshori and Gilon are listed as equal contributors}.*
13. Zwirn G[PI], **Beeri R**[C], Gilon D[C], Akselrod S[PI] (2006) . Automatic endocardial-boundary detection in low mechanical-index contrast echocardiography. *IEEE Trans Biomed Eng*;53(11):2310-22. 1.782; 32/69;6
14. **Beeri R**[PI] , Streckenbach SC [C], Isselbacher EM [C], Akins CW [C], Vlahakes GJ [C], Adams MS [T], Levine, RA [PI] (2007). The Crossed Swords sign: insights into the dilemma of repair in bileaflet mitral valve prolapse. *J Am Soc Echocardiogr*; 20(6): 698-702. 3.518; 30/144;0
15. Alcalai R[PI], Viola N[PI], Mosseri M[C], **Beeri R**[C], Leibowitz D[C], Lotan C[C], Gilon D[PI] (2007). The value of percutaneous coronary intervention in patients with symptomatic aortic stenosis and coronary artery disease. *Am J Med*; 120:185. 5.115; 14/151;1.
16. **Beeri R[PI]**, Yosefy C[C], Guerrero JL[T], Abeidat S[C], Handschumacher MD[T], Stroud R[T], Sullivan S[T], Chaput M[C], Gilon D[C], Vlahakes GJ[C], Spinale FG[C], Hajjar RJ[PI], Levine RA[PI] (2007). Early Repair of Moderate Ischemic MR Reverses LV Remodeling: A Functional and Molecular Study. *Circulation*; 116(11):I288-93. 14.429;1/114;2
17. Kogan NM[PI], Schlesinger M[C], Marincheva G[C], **Beeri R[C]**, Mechoulam R[PI]. (2007) A Cannabinoid Anticancer Quinone, HU-331, is More Potent and Less Cardiotoxic than Doxorubicin – a Comparative In-Vivo Study. *J Pharmacol Exp Ther*; 322(2):646-53. 4.017; 40/249;12
18. Durst R[PI], Danenberg H[C], Gallily R[PI], Mechoulam R[PI], Meir K[C], Grad E[C], **Beeri R[C]**, Pugatsch T[C], Tarsish E[T], Lotan C [PI] (2007). Cannabidiol, a nonpsychoactive Cannabis constituent, protects against myocardial ischemic reperfusion injury. *Am J Physiol Heart Circ Physiol.* 293(6):H3602-7. 3.880;25/114;14

19. **Beeri R[PI]**, Yosefy C[C], Guerrero JL[T], Nesta F[C], Abeidat S[C] , del Monte F[C], Handschumacher M[T], Stroud R[T], Sullivan S[T], Pugatsch T[C], Gilon D[C], Vlahakes GJ[C], Spinale FG[C], Hajjar RJ[PI], Levine RA[PI]. (2008) Mitral Regurgitation Worsens Post-Infarct LV Remodeling: Failure of Hypertrophic Compensation. *J Am Coll Cardiol*.;51(4):476-86. 14.292;2/114;11.
    (*+accompanying editorial*)
20. Raphael J[PI], Zuo Z[C], Abedat S[C], **Beeri R[C]**, Gozal Y[PI]. (2008). Isoflurane pre-conditioning decreases myocardial infarction in rabbits via up-regulation of hypoxia inducible factor 1 that is mediated by mammalian target of rapamycin. *Anesthesiology*;108(3):415-25. 5.486;1/26;14
21. Shuvy M[PI], Abedat S[PI], **Beeri R[PI]**, Danenberg HD[C], Planer D[C], Ben-Dov IZ[C], Meir K[C], Sosna J[C], Lotan C[PI] (2008). Uraemic hyperpara-thyroidism causes a reversible inflammatory process of aortic valve calcification in rats. *Cardiovasc Res*;79(3):492-9. 6.051;9/114;5
22. Zwirn G[PI], **Beeri R[C]**, Gilon D[C], Friedman Z[C], Akselrod S[PI] (2009). Quantitative evaluation of local myocardial blood volume in contrast echocardiography. *Med Image Anal*;13(1):62-79. 4.248;4/69;1
23. Durst R[PI], Neumark Y[C], Meiner V[C], Friedlander Y[C], Sharon N[C], Polak A[C], **Beeri R[C]**, Danenberg H[C], Erez G[C], Spitzen S[C], Ben-Avi L[C], Leitersdorf E[PI], Lotan C[PI] (2009). Increased risk for atherosclerosis of various macrophage scavenger receptor 1 alleles. *Genet Test Mol Biomarkers*; 13(5): 583-7. 0.879;135/156;2
24. Gavish L[PI], Rubinstein C[C], Bulut A[C], Berlatzky Y[C], **Beeri R[C]**, Gilon D[C], Gavish L[C], Harlev M[C], Reissman P[C], Gertz SD[PI] (2009). Low-level laser irradiation inhibits abdominal aortic aneurysm progression in apolipoprotein E-deficient mice. *Cardiovasc Res*; 83(4): 785-92. 6.051;9/114;1.
25. Rajamannan NM[PI], Antonini-Canterin F[C], Moura L[C], Zamorano JL[C], Rosenhek RA[C], Best PJ[C], Lloyd MA[C], Rocha-Goncalves F[C], Chandra S[C], Alfieri O[C], Lancellotti P[C], Tornos P[C], Baliga RR[C], Wang A[C], Bashore T[C], Ramakrishnan S[C], Spargias K[C], Shuvy M[C], **Beeri R[C]**, Lotan C[C], Suwaidi JA[C], Bahl V[C], Pierard LA[C], Maurer G[C], Nicolosi

GL[C], Rahimtoola SH[C], Chopra K[C], Pandian NG[C] (2009). Medical therapy for rheumatic heart disease: is it time to be proactive rather than reactive? *Indian Heart J*. 2009 Jan-Feb ; 61(1): 14-23; Not rated. {Review Article}

26. Liel-Cohen N[PI], Tsadok Y[C], **Beeri R[C]**, Lysyansky P[C], Agmon Y[C], Feinberg MS[C], Fehske W[C], Gilon D[C], Hay I[C], Kuperstein R[C], Leitman M[C], Deutsch L[C], Rosenmann D[C], Sagie A[C], Shimoni S[C], Vaturi M[C], Friedman Z[C], Blondheim DS[PI] (2010). A new tool for automatic assessment of segmental wall motion based on longitudinal 2D strain: a multicenter study by the Israeli Echocardiography Research Group. *Circ Cardiovasc Imaging;* 3(1): 47-53; 4.757;17/114; 4

(Nomination as Senior Lecturer)

27. Bachner-Hinenzon N [PI], Ertracht O [C], Leitman M [C], Vered Z [C], Shimoni S [C], **Beeri R [C]**, Binah O [C], Adam D [PI] (2010). Layer-specific strain analysis by speckle tracking echocardiography reveals differences in left ventricular function between rats and humans. *Am J Physiol Heart Circ Physiol*;299(3):H664-72. 3.880;25/114; 2
28. Blondheim DS [PI], **Beeri R [PI],** Feinberg MS [C], Vaturi M [C], Shimoni S [C], Fehske W [C], Sagie A [C], Rosenmann D [C], Lysyansky P [C], Deutsch L [C], Leitman M [C], Kuperstein R [C], Hay I [C], Gilon D [C], Friedman Z [C], Agmon Y [C], Tsadok Y [S], Liel-Cohen N [PI] (2010). Reliability of visual assessment of global and segmental left ventricular function: a multicenter study by the Israeli Echocardiography Research Group. *J Am Soc Echocardiog*r;23(3):265-6. 3.518;30/114; 2
29. **Beeri R [PI]**, Chaput M [C], Guerrero JL [T], Kawase Y[C], Yosefy C [C], Abedat S[C], Karakikes I [C], Morel C [C], Tisosky A [C], Sullivan S [T], Handschumacher MD [C], Gilon D [C], Vlahakes GJ [C], Hajjar RJ [PI], Levine RA [PI] (2010). Gene delivery of sarcoplasmic reticulum calcium ATPase inhibits ventricular remodeling in ischemic mitral regurgitation. *Circ Heart Fail*;3(5):627-34. 4.315;22/114; 3

    {Chosen as Editor's pick of the 32 most important articles published in Circ Heart Fail in 2009-2010 : Circulation (2011);124:e42-50}
30. Shuvy M [PI], Abedat S [PI], **Beeri R [PI]**, Valitsky M [T], Daher S [C], Kott-Gutkowski M [C], Gal-Moscovici A [C], Sosna J [C], Rajamannan NM [C], Lotan C [PI] (2011). Raloxifene attenuates Gas6 and apoptosis in

experimental aortic valve disease in renal failure. *Am J Physiol Heart Circ Physiol*;300(5):H1829-40. 3.518;30/114; 0

31. Shuvy M [PI], Nyska A [C], **Beeri R [C]**, Abedat S [C], Gal-Moscovici A [C], Rajamannan NM [C], Lotan C [PI] (2011). Histopathology and apoptosis in an animal model of reversible renal injury. Exp Toxicol Pathol;63(4):303-6. 2.283;29/76; 0
32. Yosefy C[PI]*, **Beeri R [PI]***, Vaturi M[C], Scherrer-Crosbie M[C], Handschumacher MD[C], Levine RA[PI] (2011) . Mitral regurgitation after anteroapical myocardial infarction: new mechanistic insights. *Circulation*;123(14):1529-36. 14.429;1/114; 0

    (* Equal Contributors)
33. Landesberg G [PI], Gilon D [C], Meroz Y[C], Georgieva M[C], Levin PD[C], Goodman S[C], Avidan A[C], **Beeri R**[C], Weissman C[C], Jaffe AS[C], Sprung CL[C] (2011). Diastolic dysfunction and mortality in severe sepsis and septic shock. *Eur Heart J*. 2012 Apr;33(7):895-903. 10.046;3/114;0
34. Kodesh E [PI], Nesher N [C] , Simaan A[C], Hochner B[C], **Beeri R**[C], Gilon D[C], Stern M[C], Gerstenblith G[C], Horowitz M[PI] (2011). Heat acclimation and exercise training interact when combined in an overriding and tradeoff manner: Physiologic-genomic linkage. *Am J Physiol-Regul Integr Comp Physiol*; 301(6):R1786-97. 3.284;24/77;0.
35. Blondheim D [PI], Friedman Z,Lysyansky P, PhD, Kuperstein R, Hay I, Feinberg MS, **Beeri R**, VaturiM, Sagie A, Shimoni S, Fehske W, Deutsch L,, Leitman M, Gilon D, Agmon Y, Tsadok Y, Rosenmann D, Liel-Cohen, N (2011). Use of an automatic application for wall motion classification based on longitudinal strain: is it affected by operator expertise in echocardiography? A multicenter study by the Israeli Echocardiography Research Group. *Eur Heart J Cardiovasc Imaging* Mar;13(3):257-62.
36. Beaudoin J, Levine RA, Yosefy C, **Beeri R**, Neary JH, Morgan NV, Passeri JJ (2012). Severe ischemic mitral regurgitation despite normally contracting subpapillary myocardium. *Circulation* Jul 3;126(1):138-41
37. Gavish L, Rubinstein C, Berlatzky Y, Gavish LY, **Beeri R**, Gilon D, Bulut A, Harlev M, Reissman P, Gertz SD (2012). Low level laser arrests abdominal aortic aneurysm by collagen matrix reinforcement in apolipoprotein E-deficient mice. *Lasers Surg Med*. Oct;44(8):664-74

38. Leinonen JV, Emanuelov AK, Platt Y, Helman Y, Feinberg Y, Lotan C, **Beeri R** (2013). Left Atrial Appendages from Adult Hearts Contain a Reservoir of Diverse Cardiac Progenitor Cells. *PLoS One*, (in press)

Case reports

1. Golan G, **Beeri R**, Mevorach D (1994). Henoch-Schonlein purpura-like disease representing a flare of Behcet's disease . *Br J Rheumatol.* 33(12):1198-9. NA;NA;4.
2. **Beeri R**, Golan G, Steiner I, Mevorach D, Brezis M (1995). Transverse myelitis heralding hepatitis A. *J Clin Gastroenterol.* 20(3):262-3. 2.752;26/71;8
3. Fuchs S, **Beeri R**, Hasin Y, Weiss AT, Gotsman MS, Zahger D (1998). Pituitary apoplexy as a first manifestation of pituitary adenomas following intensive thombolytic and antithrombotic therapy. *Am J Cardiol*. 81:110-111. 3.6;27/114;11.
4. Amitai Y, **Beeri R** (1999). Automatic autoinjectors hazard: penetration through bone. *Ann. Pharmacother.* 33:751-752. 2.166;135/249;0.
5. Yosefy C, Berman M, **Beeri R**. (2005). Cusp tear in bicuspid aortic valve possibly caused by phentermine**.** *Int J Cardiol***.** 13;106(2):262-3. 6.802; 6/114;3
6. Yosefy C, **Beeri R**, Reisin L. (2006) Imaging silent type A aortic dissection. *Isr Med Assoc J.* ;8(1):75. 0.547;76/105;4
7. Barkan D, Fanne RA, Elazari-Scheiman A, Maayan S, **Beeri R** (2006). Navel piercing as a cause for streptococcus viridans endocarditis: case report, review of the literature and implications for antibiotic prophylaxis. *Cardiology*;108(3):159-60. 1.982; 58/114;3
8. Abramowitz Y, Hiller N, Perlman G, Admon D, **Beeri R**, Chajek-Shaul T, Leibowitz, D. (2007) The diagnosis of primary cardiac lymphoma by right heart catheterization and biopsy using fluoroscopic and transthoracic echocardiographic guidance. *Int J Cardiol*. 2007 May 31;118(2):e39-40. 6.802; 6/114;4
9. Bulut A, Rav-Acha M, Aydin O, Arin CB, **Beeri R**, Danenberg HD (2009). "Inverted Tako-Tsubo": transient apical-sparing cardiomyopathy. *Int J Cardiol*. 2009 May 1; 134(1): e35-8; 6.802; 6/114;3

Paper Reviews

On the reviewer panel for Circulation, International Journal of Cardiology, Medical Decision Making, Circulation Cardiovascular Imaging, Circulation Heart Failure, American Journal of Cardiology.

Grant Review Boards

Member of study sections for the USA-Israel Binational Science Foundation (2008), the Israeli Academy of Sciences, and the Israel Health Ministry Chief Scientist research grants (chairman of cardiovascular committee).

Research Biography

Chronic Mitral Regurgitation

- **Models of chronic mitral regurgitation in large and small animals.** This serves as a basis for most of my research projects. The first model we developed was a LV-LA shunt in a sheep, causing a fixed predictable systolic regurgitant flow, and subsequent myocardial remodeling as expected. Another model, both in sheep and rodents, involves apical tethering of the subvalvular apparatus and thus creation of MR in a mechanism similar to ischemic mitral regurgitation.
- **Influence of mitral regurgitation on post myocardial infarction remodeling.** This study means to verify the hypothesis that mitral regurgitation, which is a frequent complication of myocardial infarction, worsens the remodeling process which invariably occurs after it. It is examined in the LV-LA shunt model, in which an antero-apical myocardial infarction is also created. Follow up is performed twice in three months, after which the animals are sacrificed. The parameters followed include invasive pressure-volume assessment, three dimensional echocardiography, blood neurohumoral factor assays, molecular studies in the tissue (including apoptosis, intra-cellular proteins and genes activated in hypertrophy and failure, and changes in extra-cellular matrix composition and remodeling), and single cell contractility and calcium transients studies. The molecular part of this study is performed in the Hadassah Cardiovascular Research Center. We have demonstrated that indeed moderate mitral regurgitation causes excess remodeling in this model and that repairing MR after one month reverses morphological, functional and molecular stigmata of remodeling. We

subsequently, in collaboration with Dr Roger Hajjar (Mt Sinai School of Medicine), upregulated SERCA activity using a gene therapy approach. This also had the effect of stopping or retarding remodeling in this model. Results from this study were published in *Circulation Heart Failure*.

We are currently building two mouse models of ischemic MR, either by creating a posterior MI by cauterizing the origin of the posterior artery, or by separately creating a small anterior MI (no intrinsic MR) and perforating the mitral valve percutaneously guided by echo. There are primary encouraging results to these studies. We are also testing wether long-term remodeling (4 months) in this model is still repairable (this study is completed and being analyzed now), and whether upregulating SERCA in this time frame might still be beneficial.

- **Mechanism of mitral regurgitation in anterior myocardial infarction.** This study aims to define the mechanism by which mitral regurgitation occurs in some patients with anterior myocardial infarction. This is performed in the sheep model using three-dimensional echo. This study has now been published in *Circulation.*

Cardiac Gene and Cell Therapy

- **Development of closed-chest delivery systems for myocardial gene therapy** . We developed a delivery system, based on a balloon catheter, acetylcholine and echocardiographic contrast, to deliver reporter gene-encoding adenoviral vectors in a rat model. This study demonstrated that the system is significantly more efficient than each one of its components alone. This technique is now being used by us to deliver
- **Cardiac resident stem cells from the left atrial appendage (LAA).** We managed to grow typical cardiac stem cells out of rat, mice and human left atrial appendages, a repository of many stem cell niches. We managed to clone them, and demonstrate typical cardiac stem cell markers in them. These cells differentiate into mature and sometimes functional cardiomyocytes. We are now using the LAA as a “biological Band Aid” which serves to buttress the infracted area and thus reverse-remodel the ventricle, while supplying new cardiomyocytes which we demonstrated to migrate into the recipient’s muscle. Also, we managed to separate two distinct populations of stem cells by using a novel and simple enzymatic

technique. All the above experiments have been submitted or in the process of being submitted for publication (three papers) and have been presented in abstract form.

Aortic Stenosis

- **Development of an animal model.** A novel model of aortic valve calcification was developed in our lab using a high-adenine diet. The model is defined at the molecular and imaging levels, both in the intact valve and in valve myofibroblasts in culture. The process, involving osteoblast transformation, was corroborated in cultures of human aortic valve myoofibroblasts from patient with aortic stenosis. The mechanisms of calcific aortic stenosis are now defined on the molecular level in this model.

Functional Imaging Using Echo

- **Research Group-** I participate in the Israeli Research Group on Echocardiography. We study applications of novel functional analysis methods based on speckle tracking in Echo images, and developed by the GE Haifa research team and the Bioengineering department in the Technion in Haifa. We have already published two papers on validation of the technique versus experienced readers, and we are currently engaged in a multi-center study on the diagnosis of ischemic chest pain in the ER. We also completed a study utilizing this method to diagnose non-invasively coronary disease in severe aortic stenosis patients.

Modeling of the heart

- We recently initiated a cooperation with the Engineering school in Ben-Gurion university (Prof Kobi Bortman), with the purpose of creating, for the first time, a viable and valid finite-element analysis model of the heart. If successful, this will allow us to model different treatments ex-vivo before testing in-vivo. This project is currently in its pilot phases.