

**TOPICS OF RECTORS COMPETITION**  
**Semmelweis University**  
**Heart and Vascular Center - Cardiology Department**  
**(2018/2019)**

1. Evaluation of the mechanisms and non-pharmacological treatment of arrhythmias.  
(Prof. Béla Merkely M.D., Ph.D., D.Sc.; Klaudia Vivien Nagy M.D., clinical physician)
2. Possible cardiac indications of MRI examination.  
(Prof. Béla Merkely M.D., Ph.D., D.Sc.; Hajnalka Vágó M.D., Ph.D., associate professor)
3. Sudden cardiac death and sport.  
(Prof. Béla Merkely M.D., Ph.D., D.Sc.; György Bárczi M.D., assistant lecturer)
4. Resynchronisation therapy of chronic heart failure – actual questions.  
(Prof. Béla Merkely M.D., Ph.D., D.Sc.; Valentina Kutuyifa M.D. Ph.D., assistant lecturer;  
Annamária Kosztin M.D., Ph.D. clinical physician)
5. The role of tissue Doppler echocardiography in cardiac resynchronisation therapy.  
(Prof. Béla Merkely M.D., Ph.D., D.Sc.; Valentina Kutuyifa M.D. Ph.D., assistant lecturer;  
Annamária Kosztin M.D., Ph.D. clinical physician)
6. Characteristics, diagnosis, and treatment of idiopathic ventricular tachycardias  
(Pál Ábrahám, M.D.; Ph.D. assistant professor)
7. Assessment of the dynamic geometry of the mitral annulus by three-dimensional echocardiography  
(Astrid Apor, M.D., assistant lecturer)
8. Modern Platelet inhibitor therapy in acute coronary syndrome.  
(Dávid Becker M.D., Ph.D., associate professor)
9. The influential factors of the acute coronary syndrome  
(Dávid Becker M.D., Ph.D., associate professor)
10. Ablation treatment of cardiac arrhythmias: new indications, new techniques.  
(Prof. László Gellér M.D., Ph.D.)
11. Applying LV lead stenting in resynchronization.  
(Prof. László Gellér M.D., Ph.D.; Szabolcs Szilágyi M.D., Ph.D., assistant professor)
12. Special techniques in resynchronization therapy  
(Prof. László Gellér M.D., Ph.D.; Szabolcs Szilágyi M.D., Ph.D., assistant professor, Levente Molnár M.D., clinical physician)
13. Role of catheter ablation in the treatment of Ventricular Tachycardia  
(Prof. László Gellér M.D., Ph.D.; Klaudia Vivien Nagy M.D., clinical physician)
14. New electrophysiological methods.  
(Prof. László Gellér M.D., Ph.D.; István Osztheimer M.D., assistant lecturer)

15. Use of pluripotent stem cells in 3D tissue engineering  
(Gábor Földes M.D., Ph.D, associate professor; Andrea Ágnes Molnár M.D.,Ph.D., Cardiologist; Edit Gara M.D., Ph.D, clinical physician)
16. Human pluripotent stem cells and their cardiovascular derivatives - a developing field of cardiovascular research and therapy.  
(Gábor Földes M.D., Ph.D, associate professor; Andrea Ágnes Molnár M.D.,Ph.D., Cardiologist; Edit Gara M.D., Ph.D, clinical physician)
17. New biomarkers in myocardial remodelling and fibrosis in end-stage heart failure  
(Gábor Földes M.D., Ph.D, associate professor; Edit Gara M.D., Ph.D, clinical physician)
18. Anti-tumor therapy-induced myocardial toxicity: in vitro and ex vivo human myocardial studies (Gábor Földes M.D., Ph.D, associate professor; Edit Gara M.D., Ph.D, clinical physician)
19. New cell therapies in ischemic heart disease (Gábor Földes M.D., Ph.D, associate professor; Andrea Ágnes Molnár M.D.,Ph.D., Cardiologist; Edit Gara M.D., Ph.D, clinical physician)
20. Disease modelling with human pluripotent stem cells (Gábor Földes M.D., Ph.D, assistant professor; Annamária Kosztin M.D., Ph.D. clinical physician; Edit Gara M.D., clinical physician)
21. Cardiogenic and septic shock. The sepsis treatment after myocardial infarction in CCU.  
(Krisztina Heltai M.D., Ph.D., assistant professor)
22. Endovascular treatment of aortic aneurysms.  
(Prof. Kálmán Hüttl M.D., Ph.D.)
23. Treatment of restenosis of internal carotid artery.  
(Prof. Kálmán Hüttl M.D., Ph.D.; Balázs Nemes M.D., associate professor)
24. Complications of the interventional treatment of stenotic aortic branches.  
(Prof. Kálmán Hüttl M.D., Ph.D.; Balázs Nemes M.D., associate professor)
25. Haemodynamic changes after carotid artery stenting.  
(Prof. Kálmán Hüttl M.D., Ph.D.)
26. Interventional treatment of critical ischemia in lower limb.  
(Prof. Kálmán Hüttl M.D., Ph.D.; Balázs Nemes M.D., associate professor)
27. Endovascular treatment of vascular complications at cardiological interventions.  
(Prof. Kálmán Hüttl M.D., Ph.D.; Prof. László Gellér M.D., Ph.D.)
28. Treatment of in-stent restenosis with drug-eluting balloon.  
(Zoltán Jambrik M.D., assistant professor, external collaborator)
29. Short- and long-term follow-up of percutaneous catheter interventions on left main stem.  
(Zoltán Jambrik M.D., assistant professor, external collaborator)
30. Non-invasive diagnosis and follow-up of heart diseases in childhood and infancy.  
(Prof. Krisztina Kádár M.D., Ph.D., external collaborator)
31. Long-term follow-up of the Kawasaki disease.  
(Prof. Krisztina Kádár M.D., Ph.D., external collaborator)

32. Fetal Cardiology  
(Prof. Krisztina Kádár M.D., Ph.D., external collaborator)
33. Right ventricular adaptation in elite athletes.  
(Tímea Kováts M.D., Ph.D., assistant lecturer)
34. Characterization of response to Cardiac Resynchronization Therapy  
(Valentina Kutuyifa M.D., assistant lecturer, Vivien Klaudia Nagy M.D., clinical physician; Annamária Kosztin M.D., Ph.D. clinical physician)
35. CT imaging of coronary artery disease  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor)
36. Multimodality imaging of coronary plaques in ex vivo human hearts  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor)
37. Epicardial fat quantification with 256-slice CT  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor)
38. Predictors of coronary artery disease: imaging and biomarkers  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor)
39. Coronary CT angiography in patients with atrial fibrillation.  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor)
40. Cardiovascular risk prediction using coronary CT angiography  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor, Márton Kolossváry M.D PhD fellow)
41. Radiomics using coronary CT angiography  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor Márton Kolossváry M.D PhD fellow)
42. Assessment of coronary artery disease in atrialfibrillation patients.  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor, Júlia Karády MD., PhD fellow)
43. CT angiography imaging of the left atrium.  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor, Júlia Karády MD., PhD fellow)
44. Left atrial heritability assessment.  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor, Júlia Karády MD., PhD fellow)
45. Epicardial fat volume measurement among atrial fibrillation patients.  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor, Júlia Karády MD., PhD fellow)

46. The association of myocardial bridge and coronary artery disease on coronary CT angiography  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor, Júlia Karády MD., PhD fellow)
47. Assessment of coronary plaque progression using 256-slice CT angiography.  
(Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor, Bálint Szilveszter MD., PhD., clinical physician)
48. 3-dimensional mitral annular dynamics in various forms of mitral insufficiency  
(Astrid Apor, M.D., assistant lecturer, Anikó Nagy. PhD. assistant professor)
49. The physiological geometry and function of the mitral annulus assessed by 3D-echocardiography  
(Anikó Nagy. PhD. assistant professor)
50. Modern echocardiographic technics in the diagnostics of asymptomatic valve disease  
(Anikó Nagy. PhD. assistant professor)
51. The role of left atrial strain in the diagnostics of diastolic dysfunction  
(Anikó Nagy. PhD. assistant professor)
52. The prevalence of valve thrombosis and dysfunction following trans-catheter aortic valve implantation  
(Astrid Apor, M.D., assistant lecturer, Anikó Nagy. PhD. assistant professor, Pál Maurovich-Horvat M.D., Ph.D. M.P.H., associate professor)
53. The effects of MitraClip implantation on the functional status, quality of life and prognosis of patients  
(Anikó Nagy. PhD. assistant professor, Astrid Apor, M.D., assistant lecturer)
54. In vivo animal models in investigation of ischemic stroke.  
(Prof. Zoltán Nagy M.D., Ph.D., D.Sc.)
55. Role of MMP-9 in evolution of reperfusional cerebral damage.  
(Prof. Zoltán Nagy M.D., Ph.D., D.Sc.)
56. NOGO system and cerebral plasticity.  
(Prof. Zoltán Nagy M.D., Ph.D., D.Sc.)
57. Stent-implantation in superior caval vein syndrome.  
(Balázs Nemes M.D., associate professor)
58. Neueste Verfahren für die Behandlung von Vorhofflimmern  
(István Osztheimer M.D., Universitätsassistent )
59. Diabetic cardiomyopathy – development of new treatment strategies in rat models  
(Tamás Radovits MD, PhD, associate professor)
60. Investigation of left ventricular hypertrophy induced by endurance training in a rat model  
(Tamás Radovits MD, PhD, associate professor and Attila Oláh MD, PhD, clinical physician)

61. Investigation of cardiac effects of acute exhaustive exercise stress in a rat model  
(Tamás Radovits MD, PhD, associate professor and Attila Oláh MD, PhD, clinical physician)
62. Investigation of electrophysiological aspects of sports cardiology in rat models  
(Attila Oláh MD, PhD, clinical physician and Tamás Radovits MD, PhD, associate professor)
63. Aging-associated cardiovascular dysfunction and nitro-oxidative stress  
(Tamás Radovits MD, PhD, associate professor)
64. Investigation of novel cardioprotective therapies on animal models of ischemia/ reperfusion  
(Tamás Radovits MD, PhD, associate professor)
65. Experimental heart transplantation studies  
(Tamás Radovits MD, PhD, associate professor and Kálmán Benke MD, resident)
66. Investigation of physiological and pathological myocardial hypertrophy in small animal models  
(Tamás Radovits MD, PhD, associate professor and Attila Oláh MD, PhD, clinical physician)
67. Investigation of the development and progression of heart failure in rat models.  
(Tamás Radovits MD, PhD, associate professor)
68. Investigation of novel treatment options for heart failure in rat models.  
(Tamás Radovits MD, PhD, associate professor)
69. Novel options for large vessel replacement  
(Tamás Radovits MD, PhD, associate professor)
70. Investigation of vascular function in heart diseases  
(Tamás Radovits MD, PhD, associate professor)
71. Genetic prognostic markers of myocardial ischaemia and infarction.  
(Zsolt Szélid M.D., Ph.D., assistant professor, external collaborator)
72. Genetic polymorphisms associated with the cardiovascular system in Olympic waterpolo players.  
(Zsolt Szélid M.D., Ph.D., assistant professor, external collaborator)
73. The role of the psychosocial factors in the outcome of heart surgical interventions.  
(Andrea Székely M.D., Ph.D., associate professor, external collaborator)
74. MRI examination of heart.  
(Hajnalka Vágó M.D., Ph.D., associate professor; Attila Tóth M.D., assistant lecturer)
75. Cardiac examination of competitive sportmen.  
(Hajnalka Vágó M.D., Ph.D., associate professor; Attila Tóth M.D., assistant lecturer)
76. New method for characterization of heart muscle with cardiac MRI.  
(Hajnalka Vágó M.D., Ph.D., associate professor; Attila Tóth M.D., assistant lecturer)

77. Pathomechanism, risk stratification, diagnostics and treatment of acute and chronic heart failure:
- a. Examination of prognostic and diagnostic value of oxidative, nitro-oxidative stress and PARP activation (Endre Zima M.D., Ph.D., associate professor, Levente Molnár M.D., clinical physician, Tamás Bárány M.D., clinical physician)
  - b. Investigation of therapeutic efficacy and safety profile of levosimendan in heart failure. (Endre Zima M.D., Ph.D., associate professor)
  - c. Investigation of (side)effects of inotropic and vasoactive agents (Endre Zima M.D., Ph.D., associate professor)
  - d. Cardiogenic shock and multi-organ failure. (Endre Zima M.D., Ph.D., associate professor)
78. Investigation of prognostic factors of in- and out-of-hospital cardiac arrest, post cardiac arrest intensive hypothermic treatment modalities (Endre Zima M.D., Ph.D., associate professor).
79. Investigation of telecardiological monitoring options in pacemaker and ICD patients. (Endre Zima M.D., Ph.D., associate professor)

**Military Hospital – State Health Center**  
**(1134 Budapest, Károly Róbert krt. 44)**

1. Modern pacemaker therapy. Survival and quality of life.  
(Prof. Ádám B hm M.D., Ph.D., D.Sc.)
2. Cardiac implantable electronic devices in the treatment of heart failure and arrhythmias.  
(Gábor Duray M.D. Ph.D.)
3. Role of invasive cardiac electrophysiology in the treatment of cardiac arrhythmias  
(Gábor Duray M.D. Ph.D.)
4. Clinical use of the intracardiac pacemaker capsule.  
(Gábor Duray M.D. Ph.D.)
5. Treatment options in atrial fibrillation  
(Gábor Duray M.D. Ph.D.)
6. Diagnosis, treatment and significance of sleep apnea in cardiac diseases.  
(Gábor Duray M.D. Ph.D.)
7. Outcome-influencing factors in primary percutan coronary intervention: role of the transradial approach.  
(István Hizoh M.D. Ph.D., c. honorary associate professor)
8. Use of verapamil during transradial coronarography and intervention. Is it necessary?  
(István Hizoh M.D. Ph.D., c. honorary associate professor)

9. Door-to-balloon time and duration of hospitalization in transradial primary coronary intervention.  
(István Hizoh M.D. Ph.D., c. honorary associate professor)
10. Activation and inhibition of thrombocytes in coronary atherothrombosis.  
(Róbert Gábor Kiss M.D., Ph.D., honorary professor)
11. Long-term follow up examination of prognostic factors of in-stent thrombosis and in-stent restenosis after percutaneous coronary intervention.  
(Andrea Ágnes Molnár M.D., Ph.D.)
12. Modern treatment of heart failure.  
(Noémi Nyolczas M.D., Ph.D., honorary associate professor)
13. Obesity and coronary heart disease  
(Prof. István Préda M.D., Ph.D., D.Sc.)
14. Risk factors to obesity and coronary heart disease.  
(Prof. István Préda M.D., Ph.D., D.Sc.)

**Gottsegen György Hungarian Institute of Cardiology**  
**(1096 Budapest, Haller u. 29.)**

1. Stem cell transplantation in the clinical practice.  
(Prof. Péter Andréka M.D., Ph.D.)
2. Percutan interventional techniques.  
(Prof. Péter Andréka M.D., Ph.D.)
3. Pregnancy and heart disease.  
(Olga Hajnalka Bálint M.D., Ph.D.)
4. Chronic thromboembolic pulmonary hypertension  
(Olga Hajnalka Bálint M.D., Ph.D.)
5. Fontan circulation in adults  
(Olga Hajnalka Bálint M.D., Ph.D.)
6. Hybrid electric cardioversion.  
(Prof. József Borbola M.D., Ph.D.)
7. Treatment of the acute heart failure.  
(Gabriella Hódi M.D.)
8. Treatment characteristics of AMI patients in different area of Hungary.  
(Prof. András Jánosi M.D., Ph.D., D.Sc.)
9. Non-pharmacological treatment of atrial fibrillation: medium- and long-term results.  
(Attila Kardos M.D., Ph.D., senior lecturer)

10. Isolation of vena pulmonalis by cryoballoon in the treatment of paroxysmal atrial fibrillation.  
(Attila Kardos M.D., Ph.D., senior lecturer)
11. Pacemaker-mediated cardiomyopathy.  
(László Környei M.D.)
12. Endothelial dysfunction: clinical significance and search modalities.  
(Attila Mohácsi M.D., Ph.D., honorary associate professor)
13. FFR in everyday practice  
(Piróth Zsolt M.D., senior lecturer)
14. 12. The clinical value of post-PCI FFR measurements  
(Piróth Zsolt M.D., senior lecturer)
15. Long-term outcome of percutaneous interventions of the unprotected left main coronary artery.  
(Piróth Zsolt M.D., senior lecturer)
16. Minimal-invasive heart surgery.  
(László Székely M.D., Ph.D.)
17. Mitral valve reconstructions.  
(László Székely M.D., Ph.D.)
18. Treatment of tricuspidal valve insufficiency.  
(László Székely M.D., Ph.D.)
19. Surgical procedure for stentless aortic valves.  
(László Székely M.D., Ph.D.)
20. The role of 3D echocardiography in monitoring different interventions.  
(András Temesvári M.D., Ph.D.)
21. Long-term prognosis of pulmonic homograft surgery in adults.  
(András Temesvári M.D., Ph.D.)