

Personal Details

- born September 19th 1965 in Berlin, Germany
- married (to Cornelia Anker, since 1987)
- 1 son (physician, age 26)
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Stefan D. Anker is *Professor of Innovative Clinical Trials (W3)* at University Medical Center Göttingen (from September 2014). Dr. Anker studied medicine at Charité Berlin and then started his clinical training in Germany completing it in the UK. He obtained his M.D. from Charité Medical School, Berlin, Germany (1993). He went on to earn a Ph.D. (1998) at the National Heart & Lung Institute of Imperial College London. Dr Anker was Professor of Cardiology & Cachexia Research (W2) at Charité Berlin (2002-14).

Dr. Anker has authored more than 600 original papers, reviews, and editorials that are well cited (total citations: >36,000, h-index: 96, papers with ≥200 citations: 45; source: Scopus, 12. November 2015). For his work Dr. Anker has won several prizes (including 2 AHA-YIAs), and has obtained a number of fellowships and grants, including 2 NIH grants (WARCEF trial), 2 EU-FP7 grants & 1 IMI/Horizon2020 grant. Dr. Anker was co-ordinator for “SICA-HF” study (EU-FP7).

Dr. Anker is Councillor of the Board European Society of Cardiology (ESC, 2014-16). Dr. Anker serves in the board of the Heart Failure Association (HFA) of the ESC since 2006; he was HFA President (2012-14), and currently chairs the HFA committee on regulatory affairs. Dr. Anker is founding Editor-in-Chief of the first open access heart failure journal *ESC Heart Failure*. Dr. Anker serves on the editorial boards of 5 scientific journals (including *European Heart Journal*, *European Journal of Heart Failure* & *IJC*).

Dr. Anker is the founding president of the International Society on Sarcopenia, Cachexia and Wasting Disorders (SCWD – see www.cachexia.org). Dr. Anker is founding Editor-in-Chief of the *Journal of Cachexia, Sarcopenia and Muscle* (JCSM, IF 7.30, see www.jcsm.info).

Dr. Anker was and is member of >25 international clinical trial steering committees, chairing or co-chairing several (incl. FAIR-HF & FAIR-HF2, TIM-HF, AUGMENT-HF, RESHAPE-HF2, IMPULSE-HF and BACH). He served in a number of DMC’s (chairing 4) and end-point committees (chairing 4).

Education/Degrees

- 07.07.84: Gymnasium in Berlin, Abitur, *grading: 1.55*
- 11/87-7/93: medical studies, Medical School (Charité) of Humboldt-University Berlin, Germany including pre-registration House Officer year
- 30.07.93: final exams of medical studies
- 29.10.93: MD for the thesis "Epidemiology of cholelithiasis in the GDR - hospital morbidity and mortality 1969 to 1989", *cum laude*
- 1/95-12/97: PhD student, NHLI at Imperial College of Science, Technology & Medicine (supervisor Prof. AJS Coats, sponsor Prof. PA Poole-Wilson)
- 01.06.95: "Approbation als Arzt" (i.e. full registration in Germany)
- 06.02.96: GMC full registration (No. 4267865)
- 28.2.98: PhD for the thesis "Studies of cachexia complicating chronic heart failure"
- 09.07.04: CCST (Facharzt) "Cardiac Myology" (via academic pathway)
GMC reference: 4267865

Professional Experience

- 12/93 - 5/95: "Arzt im Praktikum" (Junior and Senior House Officer), Dept. of Cardiology, Medical School (Charité) of the Humboldt-University Berlin, Germany
- 6-12/95: Assistant Doctor, Dept of Anaesthesiology, Medical School (Charité) of the

- Humboldt-University Berlin, Germany
- 8/94-2/95: Clinical Research Fellow, Dept of Cardiology, NHLI London, UK
- 1/96-12/97: Clinical Research Registrar and PhD student at NHLI and Royal Brompton Hospital, London, UK
- 1/98-4/07: Senior Research Fellow and Team Leader at the NHLI London and Royal Brompton Hospital, London, UK
- 7/98-6/02: Assistant Doctor, Franz-Volhard-Klinik, Charité Campus Buch, Berlin, Germany (guest physician status)
- 1/00-12/01: MDC Postgraduate Research Fellow at Max Delbrück Center for Molecular Biology (MDC Berlin-Buch), Berlin, Germany
- 7/02-10/07: Junior-Professor for Applied Cachexia Research, Division for Applied Cachexia Research, Dept of Cardiology, Charité Campus Virchow-Klinikum, Berlin, Germany
- 11/03-12/07: Professor of Medicine (Guest Professorship), Faculty of Medicine, University of Sydney, Australia
- 8/07-9/08: Senior Research Fellow, Imperial College London, NHLI, London, UK
- 11/07-8/14: Professor for Cardiology & Cachexia Research (W2, tenured), Division for Applied Cachexia Research, Dept of Cardiology, Charité Campus Virchow-Klinikum, Berlin, Germany
- 10/08-09/09: Honorary Senior Research Fellow, Imperial College London, NHLI, London, UK
- 5/09-12/12: Visiting Professor, Centre for Clinical and Basic Research, IRCCS San Raffaele, Rome, Italy
- since 9/14: Professor for Innovative Clinical Trials / Cardiology & Cachexia Research (W3, tenured), Division Innovative Clinical Trials, University Medicine Göttingen (UMG), Göttingen, Germany (continuing)

Selected Grants

overall academic grant support (excl. fellowships): approx. 14.5 Mill EUR + 6.5 Mill US\$

- 8/04-12/11: NIH research grant "WARCEF study in Germany and Poland" (\$ 4,632,500)
- 9/05-12/11: NIH research grant "The WARCEF study in The Netherlands" (\$ 1,830,000)
- 8/07-8/10: DFG Clinical Research Group, Sub-project "Investigations on insulin sensitivity in patients patients with HF and COPD with/without cachexia" (240,000 EUR) (with Dr. Döhner)
- 4/08-3/13: IFB – Stroke Research, Sub-project "Metabolic research on mechanisms of cachexia in stroke and CHF" (280,000 EUR) (together with Dr. Döhner)
- 10/09-5/14: EU FP-7 project "SICA-HF", SD Anker: overall project co-ordinator and work package leader (total grant sum: 5.0 Mill EUR (11 centers), grant to Charité unit: 1.3x Mill EUR)
- 5/10-4/15: EU FP-7 project "Biostat-CHF", SD Anker: work package leader (0.9 Mill EUR)
- 09/14: IMI project "SPRINT-T", SD Anker: work package leader (1.5 Mill EUR)
- 11/14: Grant for IIT "RESHAPE-HF2" from Abbott Vascular: 5.3 Mill EUR
- 05/15: Grant for IIT "FAIR-HF2" (together with Dr Karakas) from German Center for Cardiovascular Research (DZHK): 7.5 Mill EUR
- 10/15: Grant for IIT "FAIR-HFpEF" from Vifor Pharma: 1.0 Mill EUR

past and present contract research support from: Amgen Inc., Brahms AG, Fresenius Medical Care, Ipsen Pharma, Myotec Therapeutics Ltd., PAR Pharmaceuticals, Roche AG, Schwarz Pharma, Vasogen Inc., Vifor International – total contract value >4.0 Mill. EUR

Publications

- PubMed records: 643 original papers, reviews, editorials and letters (12.11.2015) (Anker SD: 608, Anker S: 35)
- Total number of citations: 36,178 (Scopus, 12.11.2015)
- 45 papers with ≥200 citations; 95 papers with ≥100 citations
- h-index: 96 (Scopus)
- Patents / patents submitted: >20

Selected Awards

- 22.10.98: "Ehrenmedalie der Charité Berlin" (honoary medal of Charité Medical School, Berlin)
- 11/98: Runner-up; Samuel A Levine Young Investigator Award [YIA] (Clinical Cardiology) of the AHA for the paper: Niebauer J, Poole-Wilson PA, Coats AJS, Anker SD. Endotoxin and immune activation in chronic heart failure: proof of concept.
- 3/99: 2nd Prize; Young Investigator Award (Clinical Cardiology) of the ACC for the paper: Ponikowski P, Anker SD, Coats AJS. Oscillatory breathing patterns during the wakefulness in patients with chronic heart failure: clinical and prognostic implications.
- 8/00: 3rd Prize; YIA Clinical Cardiology of the European Society of Cardiology for the paper: Anker SD, Negassa A, Coats AJS, Poole-Wilson PA, Yusuf S. Prognostic importance of weight loss in chronic heart failure and the impact of treatment with ACE inhibitors.
- 11/00: 1st Prize; Samuel A Levine Young Investigator Award (Clinical Cardiology) for the AHA for the paper: Sharma R, Coats AJS, Anker SD. Cellular endotoxin desensitization in patients with severe chronic heart failure.
- 2/01: GlaxoSmithKline Respiratory Clinical Research Award (£ 38,358)
- 5/06: Animal protection research prize (22,000 EUR) (together with Dr. Springer)
- 11/06: 1st Prize; Samuel A Levine Young Investigator Award (Clinical Cardiology) for the AHA for the paper: Okonko D, Poole-Wilson PA, Anker SD, Ponikowski P. Intravenous iron therapy in patients with chronic heart failure with and without anemia.
- 6/07: 1st Prize; Young Investigator Award of the European HF Association for the paper: Okonko D, Anker SD, Poole-Wilson PA. Epo and inflammatory cytokines in patients with chronic heart failure – mechanistic studies.
- 10/11: Storz German Telemedicine Award 2011 for TIM-HF (together with Prof. Köhler)

Research Focus

Clinical Trial Work:

- trial expertise at national and international level in numerous steering committees, clinical endpoint committees and DSMBs (phase II / III & investigator-initiated studies)
- trial topics: treatment of acute & chronic heart failure; cardiac device therapy; clinical evaluation of cardiovascular biomarkers; cachexia therapy in CHF; ageing/sarcopenia; cancer
- execution of clinical trials

Clinical Research:

- Pathophysiology of heart failure: particular expertise in the areas of exercise testing, insulin sensitivity assessment, anemia, iron deficiency and body composition assessment
- Pathophysiology of cachexia & muscle wasting (sarcopenia) in chronic heart failure, stroke, COPD, CKD, cancer and the elderly
- Pathophysiology of symptom generation and cardiac dysfunction in cancer
- Biomarker research (from pathophysiology to clinical trials) in acute / chronic heart failure & sarcopenia

Pre-clinical Research:

- Pathophysiology of cachexia and sarcopenia in ageing, heart failure, cancer and ALS including extensive phenotyping (including body-composition, locomotor-activity & high-resolution echocardiography)
- Treatment development in heart failure, cachexia in cancer, ageing & sarcopenia as well as ALS (PoC)
- Cachexia disease models: 130-Yoshida hepatoma cell carcinoma (rat), pancreatic cancer (mouse), C26 colon cancer (mouse); LAD-ligation heart failure (rat); ALS (rat); ageing / sarcopenia (rat/mouse)

Guideline & Consensus Activities:

- 1) Chair, Guidelines on Parenteral Nutrition in "Cardiology & Pneumology" (Anker et al., Clin Nutr 2009)
- 2) Co-Chair, Consensus Group "The definition of Cachexia" (Evans et al., Clinical Nutrition 2008)
- 3) AHA Consensus Group "State of the science: promoting self-care in persons with heart failure: a scientific statement from the American Heart Association." (Riegel et al., Circulation 2009)
- 4) ADQI 7 Consensus Group "Cardio-Renal Syndromes" (Ronco et al., Eur Heart J 2010)
- 5) Co-Chair, Consensus Group "Endpoints for Cachexia Trials & Nutrition for Cachexia and Sarcopenia" (Morley et al., JAMDA 2010)
- 6) Nutritional recommendations for the management of sarcopenia. Co-Chair. (Morley et al., JAMDA 2010)
- 7) "Definition and classification of cancer cachexia" (Fearon et al. Lancet Oncol 2011)

- 8) ESC/HFA Guideline on Diagnosis & treatment of acute and chronic heart failure (McMurray et al., EHJ 2012)
- 9) HFA/WGTE of ESC Consensus on thromboembolism & anti-thrombotic therapy in heart failure with sinus rhythm (Lip et al. Eur J HF 2012)
- 10) ESH/ESC Guidelines for the management of arterial hypertension. Reviewer. (Mancia et al. EHJ 2013)
- 11) ESC/EASD Guidelines on diabetes, pre-diabetes, and cardiovascular diseases. (Ryden et al. EHJ 2013)
- 12) ESC/ESA 2014 Guidelines on non-cardiac surgery: cardiovascular assessment and management. (Kristensen et al. EHJ 2014)
- 13) Reporting on patient reported outcomes in cardiovascular trials – Position statement of the ESC cardiovascular round table. (Anker et al. EHJ 2014)
- 14) Co-Chair, Consensus Group “International Cachexia Definition – Update 2016” (ongoing)

Memberships

- German Cardiac Society, 1995–current
- European Society of Cardiology, 1995–current
- Working Group on Myocardial Function of the ESC, 1996–current
- Working Group on Heart Failure of the ESC, 1996–2004
- Heart Failure Association of the ESC, 2004–current
- Founding President of the Society on Sarcopenia, Cachexia & Wasting Disorders, 2008–current

European Society of Cardiology Activities

- Member of the Board of the Heart Failure Association of the ESC, 2006–current
- Treasurer of the Board of the Heart Failure Association of the ESC, 2008–2010
- President-Elect of the Board of the Heart Failure Association of the ESC, 2010–2012
- President of the Board of the Heart Failure Association of the ESC, 2012–2014
- President-Past of the Board of the Heart Failure Association of the ESC, 2014–2016
- Ex Officio Member of the ESC Board, 2012–2014
- Councillor of the Board of the ESC, 2014-2016
- Member of the ESC CPC, 2004-2006 & 2012–2016 (topic coordinator “heart failure” 2014-2016)
- Congress President of the HFA Annual Congress in Berlin, 2010
- Member of the Editorial Board of *European Journal of Heart Failure*, 2008–current
- Member of the Editorial Board of *European Heart Journal*, 2010–current
- Founding Editor-in-Chief of the open access journal *ESC Heart Failure*, 2014–current

Committee Work – Clinical Trials

Steering Committee Chair or Co-Chair

1. **FAIR-HF** trial, Chairman of the Executive Committee (iv iron for patients with chronic heart failure [CHF], phase III, LKP for Germany) – completed / *Anker et al., NEJM 2009*
2. **TIM-HF**, Chairman of the Steering Committee (Telemedicine for CHF, M+M trial) – completed / *Koehler et al., Circulation 2011*
3. **BACH**-study, Co-Chairman of the Steering Committee (Biomarkers for diagnosis and prognosis of HF patients) – completed / *Maisel et al., JACC 2009*
4. **CPS** – Cachexia-Prevention-study, Chairman of the Steering Committee, co-ordinator for Germany (CPS nutrition vs placebo in patients with CHF or COPD, phase II) – completed
5. **AUGMENT-HF**, Chairman of the Steering Committee (alginate as a method of left ventricular restoration in patients with DCM vs no treatment, phase II) – completed / *Anker et al., EHJ 2015*
6. **ACT-ONE**, Co-Chairman of the Steering Committee (MT-102 vs Placebo in patients with advanced colon & NSCLC cancer with and without cachexia, phase II) – completed
7. **TRUE-AHF**-study, European Co-PI (Ularitide for patients with acute HF, phase III) – current
8. **TIM-HF2** (FONTANE-study), Co-Chair of the Steering Committee (Gesundheitsregion Brandenburg – Studies to improve outcome in patients with acute MI and chronic HF with co-morbidities) – current
9. **EAA-Cancer**, Chairman of the Steering Committee (Essential amino acids to prevent & treat sarcopenia in cancer, phase II) – completed (reporting in Dec’15)
10. **IMPULSE-HF**, Chairman of the Steering Committee (cardiac contractility management vs control intervention to improve exercise capacity in CHF patients) – current
11. **RESHAPE-HF-2**, Co-Chairman of the Steering Committee (MitraClip, M&M trial) – current

12. **FAIR-HFpEF**, Chairman of the Steering Committee (iv iron for patients with HFpEF, phase III trial to study 6minWT distance) – to be started
13. **FAIR-HF-2**, Chairman of the Steering Committee (iv iron for patients with systolic heart failure, M&M trial) – to be started

Steering Committee Member

1. **SENIORS** trial (Nebivolol in CHF M+M trial) – completed / *Flather et al., EHJ 2006*
2. **Amgen 126** (Darbepoietin alpha in CHF, phase 2) – completed / Ponikowski et al., **JACC 2007**
3. **Ferric-HF** (iv iron in CHF patients, phase 2) – completed / *Okonko et al., JACC 2008*
4. **ACCLAIM** trial (Celegace immune modulation in CHF, phase III trial, M+M trial, co-ordinator for Germany) – completed / *Torre-Amione et al., Lancet 2008*
5. **WARCEF** trial, Member of the Executive Committee & European Study Coordinator (Warfarin vs Aspirin in CHF M+M trial, PI for GER) – completed / *Homma et al., NEJM 2012*
6. **ASCEND-HF** (Nesiritide vs Placebo in acute HF) – completed / *O'Connor et al., NEJM 2011*
7. **RED-HF**, PI for Germany (darbepoietin alpha vs placebo in CHF with anemia, phase III) – completed / *Swedberg et al., NEJM 2013*
8. **HEBE III** (Erythropoietin vs Placebo in acute MI, phase II) – completed / *Voors et al. EHJ 2010*
9. **POSEIDON**-study, PI in Germany (oral BG9928 vs Placebo in CHF, phase II) – completed
10. **FAST-TRAC** study (Biomarkers for diagnosis and prognosis of ACS, registration trial) – completed
11. **ATMOSPHERE** study, Co-PI for Germany (Aliskiren vs Placebo in CHF, phase III) – current
12. **PEARL-HF** study (potassium binding in CHF, phase II) – completed / *Pitt et al. EHJ 2011*
13. **CANTOS** study, PI for Germany (canakinumab vs placebo in CAD, phase III) – current
14. **RESHAPE-HF-1** study, PI for Germany (MitraClip vs control in CHF, phase III) – stopped
15. **PHARM-CHF** study (Drug tablets to increase compliance vs usual care in CHF) – current
16. **INTENSE-HF** study (Integrated telemonitoring and nurse support in CHF) – stopped
17. **PREVENTT** study (iv iron vs placebo in patients undergoing major surgery) – current
18. **PIVOTAL** study (iv iron vs placebo to reduce M&M in patients on hemodialysis) – current
19. **ARTS-HF** study (BAY 94-8862 dose-finding study vs placebo in heart failure) – completed
20. **IMPACT-PCT** study (procalcitonin-guided therapy vs control in acute HF) – completed
21. **COMMANDER-HF** (rivaroxaban vs placebo in CHF patients) – current
22. **RELAX-AHF-2**, European PI-Co-ordinator (serelaxin vs Placebo in AHF patients) – current

Data Safety Monitoring Board Work

1. **Aldo-DHF**, Member of the DSMB (Spironolactone for patients with diastolic HF) – completed
2. **OptiLink-HF**, Chairman of the DSMB (CRT-therapy for patients with heart failure) – current
3. **Ex-DHF**, Chairman of the DSMB (Exercise training for patients with diastolic HF) – current
4. **PLX-PAD 1301-01**, Chairman of the DSMB (i.m. Injections of allogeneic PLX-PAD cells for the regeneration of Injured gluteal musculature after total hip arthroplasty) – completed
5. **DIGIT-HF**, Chairman of the DSMB (Digitalis vs placebo for M&M in CHF) – to be started

Endpoint Adjudication Committees Work

1. **SENSE-HF**, Member of the Endpoint Committee (Device based congestion sensing and outcome in CHF patients, Phase II) – completed
2. **TRIDENT-1** (Biogen Protocol 160HF301, Member of the Endpoint Committee (iv BG9928 vs Placebo in patients with acute heart failure, phase II) – completed
3. **MOOD-HF**, Chairman of the Endpoint Committee (Anti-depressive therapy in CHF) – current
4. **TIOSPIR**, Member of the Mortality Event Adjudication Committee – completed
5. **BEACON**, Member of the Endpoint Committee – completed
6. **CONFIRM-HF**, Chairman of the Endpoint Committee (iv iron vs placebo in CHF) – completed
7. **EFFECT-HF**, Chairman of the Endpoint Committee (iv iron vs placebo in CHF) – current
8. **ARTS-HF** study, Member of the Clinical Endpoints Committee – current

Other Clinical Trial Work (focus on pathophysiology)

1. Allopurinol to improve endothelial function in CHF – completed / *Doehner et al. Circulation 2002*
2. Benzbromarone to improve metabolic status in CHF – completed / *Ogino et al. Circ HF 2010*
3. **Iris-HF** (Irbesartan to improve insulin sensitivity in CHF) – completed / *Doehner et al. IJC 2011*
4. UDCA to improve endothelial function in CHF – completed / *von Haehling et al. JACC 2012*

Best 20 Papers

1. Anker SD, Ponikowski P, Varney S, et al. Wasting as independent risk factor of survival in chronic heart failure. **Lancet** 1997;349:1050-3.
2. Anker SD, Chua TP, Swan JW, et al. Hormonal changes and catabolic/anabolic imbalance in chronic

- heart failure: The importance for cardiac cachexia. **Circulation** 1997;96:526-34.
3. Niebauer J, Volk H-D, Kemp M, et al & Anker SD. Endotoxin and immune activation in chronic heart failure: a prospective cohort study. **Lancet** 1999;353:1838-42.
 4. Rauchhaus M, Coats AJS, Anker SD. The endotoxin-lipoprotein hypothesis. **Lancet** 2000;356:930-3.
 5. Rauchhaus M, Doehner W, Francis DP, et al. & Anker SD. Plasma cytokine parameters and mortality in patients with chronic heart failure. **Circulation** 2000;102:3060-7.
 6. Anker SD, Negassa A, Coats AJS, et al. Prognostic importance of weight loss in chronic heart and the effect of treatment with angiotensin-converting-enzyme inhibitors: an observational study. **Lancet** 2003;361:1077-83.
 7. Anker SD, Doehner W, Rauchhaus M, et al. Uric acid and survival in chronic heart failure: validation and application in metabolic, functional, and hemodynamic staging. **Circulation** 2003;107:1991-7.
 8. Sandek S, Bauditz J, Swidsinski A, et al. & Anker SD. Altered intestinal function in patients with chronic heart failure. **J Am Coll Cardiol** 2007;50:1561-9.
 9. Torre-Amione G, Anker SD, Bourge RC, et al. Results of a non-specific immunomodulation therapy in chronic heart failure (ACCLAIM trial): a placebo-controlled randomised trial. **Lancet** 2008;371: 228-36.
 10. Jankowska EA, Rozentryt P, Ponikowska B, et al. & Anker SD, Ponikowski P. Circulating estradiol and mortality in men with systolic chronic heart failure. **JAMA** 2009; 301:1892-901.
 11. Anker SD, Comin Colet J, Filippatos G, et al. Ferric carboxymaltose in patients with heart failure and iron deficiency. **N Engl J Med** 2009;361:2436-48.
 12. Maisel A, Mueller C, Nowak R, Peacock WF et al. & Anker SD. Mid-region pro-hormone markers for diagnosis and prognosis in acute dyspnea: results from the BACH (Biomarkers in Acute Heart Failure) trial. **J Am Coll Cardiol** 2010;55:2062-76.
 13. Koehler F, Winkler S, Schieber M, et al. & Anker SD. Impact of Remote Telemedical Management on Mortality and Hospitalizations in Ambulatory Patients With Chronic Heart Failure: The Telemedical Interventional Monitoring in Heart Failure Study. **Circulation** 2011;123:1873-80.
 14. O'Connor CM, ..., Anker SD, ..., Califf RM. Effect of nesiritide in patients with acute decompensated heart failure. **N Engl J Med**. 2011;365:32-43.
 15. Anker SD, Koehler F, Abraham WT. Telemedicine and remote patient management in heart failure. **Lancet** 2011;378:731-9.
 16. von Haehling S, Schefold JC, Jankowska EA, et al. & Anker SD. Ursodeoxycholic acid in patients with chronic heart failure a double-blind, randomized, placebo-controlled, crossover trial. **J Am Coll Cardiol**. 2012;59:585-92.
 17. Homma S, ..., Anker SD, ...; WARCEF Investigators. Warfarin and aspirin in patients with heart failure and sinus rhythm. Warfarin and aspirin in patients with heart failure and sinus rhythm. **N Engl J Med**. 2012;366:1859-69.
 18. Springer J, Tschirner A, Haghikia A, et al. & Anker SD. Prevention of liver cancer cachexia-induced cardiac wasting and heart failure. **Eur Heart J**. 2014;35:932-41.
 19. Anker SD, Agewall S, Borggrefe M, et al. The importance of patient-reported outcomes: a call for their comprehensive integration in cardiovascular clinical trials. **Eur Heart J**. 2014;35:2001-9.
 20. Ponikowski P, et al. & Anker SD. Beneficial effects of long-term intravenous iron therapy with ferric carboxymaltose in patients with symptomatic heart failure and iron deficiency. **Eur Heart J**. 2015;36:657-68.