Mount Sinai Fuster Heart Hospital

Metabolism and Lipids Program

2024 Annual Report

Message From the Director

Cardiovascular disease due to atherosclerosis, or the accumulation of cholesterol in the arterial wall, can lead to heart attacks, strokes, and impairment of blood flow to the extremities (arms and legs) and to organs including the kidney and intestines. The causes of atherosclerosis are both genetic susceptibility and non-genetic factors including unhealthy behaviors such as cigarette smoking, a high saturated fat, high caloric diet, a sedentary lifestyle, and environmental factors such as air pollution.

The Metabolism and Lipids Program uses a comprehensive, integrated approach to risk factor modifications and/or use of proven pharmacological therapies to help lower risk of cardiovascular disease. For some patients, the available therapies may be inadequate to achieve the desired results or may be poorly tolerated.

Our integrated program in clinical care and clinical research may be appropriate for patients who require an alternative approach or more intensive treatment plan. Patients may also be able to enroll in one of our many trials, using therapies such as novel lipid modifying, weight loss, diabetes control, and blood pressure treatment. Some of the new therapies that we have used can reduce pill burden through administration of the medication under the skin every month to every six months. In an effort to change the course of the disease for younger patients, we may use gene editing approaches. We work with patients on a data-driven approach to maintain or restore their health.

The visibility and volume of our research and patient care has grown concomitantly with the transition of the Cardiometabolics Unit to the Metabolism and Lipids Program. Our clinical/translational research program is rapidly expanding.

My team, collaborators, and I extend gratitude to our generous donors for the continued support, which enables us to meaningfully contribute to cardiovascular research and improve the lives of our patients.

Sincerely,

Robert S. Rosenson, MD
Professor of Medicine, Cardiology
Mount Sinai Fuster Heart Hospital
Director, Metabolism and Lipids Program
Mount Sinai Health System

Metabolism and Lipids Program

Overview

The Metabolism and Lipids Program at the Icahn School of Medicine at Mount Sinai focuses on cardiovascular health. We provide patient care, perform translational research, and offer a medical fellowship. Our ultimate goal is to improve patient care and outcomes.

Patient Care

Our patient care focuses on cardiovascular preventive care with an emphasis on evidence-based diagnosis and treatment of metabolic disorders. We have a specific focus on treatment of lipoprotein disorders. We perform enhanced risk assessments by analyzing biomarkers, genetics, and atherosclerosis imaging. We offer guidance on lifestyle changes, with specific counseling on nutrition and exercise. In addition, our patients are able to participate in mechanistic studies as well as phase-2 and phase-3 clinical trials.

Our Director

In 2024, Dr. Rosenson was published 29 times in peer-reviewed scientific journals, including three times in the *New England Journal of Medicine*; and his work was cited in 157 publications by other researchers. For his career, Dr. Rosenson has published over 650 peer-reviewed articles and his work has been cited in over 34,500 peer-reviewed publications.

Likewise, in 2024 Dr. Rosenson was the Principal Investigator on 21 Industry-Sponsored clinical trials and on 2 NIH-Funded studies. He also appeared in 44 different media outlets, including *US News & World Report*, NBC, and NewsMax, either providing commentary as an "expert in the field" or featured in a story on his work.

Research

We design and conduct several types of translational studies on cardiovascular health and metabolic disorders. First, we perform translational research emphasizing lipoproteins, inflammation, and thrombosis. Second, we explore machine learning, integrating classic risk factors, genetics, and imaging. Finally, we use real world data to assess trends in use adherence and persistence of lipid-altering therapies.

Education

Our Advanced Fellowship in Preventive Cardiology provides in-depth, broad-based, multidisciplinary training in clinical cardiovascular risk factor detection and cardiometabolic disease prevention and management. Our fellows also receive a firm grounding in clinical research. Fellows learn about topics such as:

- Lipoprotein disorders
- Obesity and weight management
- Chronic renal disease
- Behavior medication
- Essential and secondary causes of hypertension
- Diabetes
- Metabolic dysfunction-associated steatotic liver disease and steatohepatitis

Fellows also participate in translational research studies, gaining experience in areas including clinical trials, atherosclerosis imaging, genetic epidemiology, machine learning, and thrombosis. Some students in other programs at Icahn Mount Sinai have assisted researchers in the Metabolism and Lipids Program. They gain one-on-one training in specific techniques related to lipoproteins and atherosclerosis, such as management of protein disorders and cardiovascular risk factors.

Metabolism and Lipids Program

Clinical and Research Faculty

Robert S. Rosenson, MD
Director, Metabolism and Lipids Program
Professor of Medicine, Cardiology
The Mount Sinai Hospital

Jeffrey I. Mechanick, MD
Co-Director, Fellowship Training Program
Professor of Medicine, Cardiology
The Mount Sinai Hospital

Sean A. Kotkin, MD
Assistant Professor of Medicine, Cardiology
Mount Sinai Queens

Waqas Malick, MD
Assistant Professor of Medicine, Cardiology
The Mount Sinai Hospital
Mount Sinai West

Research Faculty

Juan J. Badimon, PhD
Professor of Medicine, Cardiology
Icahn School of Medicine at Mount Sinai

Ron Do, PhD
Professor of Genetics and Genomic Sciences
Icahn School of Medicine at Mount Sinai

Gina LaRocca, MD, MHSc
Associate Professor of Medicine, Cardiology
The Mount Sinai Hospital

Leslee Shaw, PhD
Professor of Medicine, Cardiology
Icahn School of Medicine at Mount Sinai

Metabolism and Lipids Program

Trainees

Current Trainees

Chen Gurevitz, MD
Preventive Cardiology Advanced Fellow
Metabolism and Lipids Program
The Mount Sinai Hospital

Daein Choi, MD
Cardiovascular Disease Fellow
Mount Sinai Morningside

Samuel Maidman, MD
Cardiovascular Disease Fellow
The Mount Sinai Hospital and Elmhurst Hospital

Rebecca Fisher, MD
Internal Medicine Resident
The Mount Sinai Hospital

Former Trainees

2019-2022
Aleesha Shaik, MD, MPH
Internal Medicine Resident

2021-2022
Daein Choi, MD
Internal Medicine Resident

Ori Waksman, MD
Preventive Cardiology Advanced Fellow

2022-2023
Waqas Malick, MD
Preventive Cardiology Advanced Fellow

Metabolism and Lipids Program

Staff

Clinical Staff

Theresa Halloran, MSN, RN, FNP-BC
Nurse Practitioner

Siarra Hyland
Patient Services Coordinator

Research Staff

Veronica Castro
Research Administrative Assistant

Rosa De Jesus-Machargo, MD
Clinical Research Coordinator

Charmaine Humphrey
Research Administrative Secretary

Jay Krishna Katragadda, MBBS, MS
Research Program Coordinator

Mark E. Klemencic, CCRP
Program Manager

Maria Morban, MD
Clinical Research Coordinator

Honey Zaw, MD, MMed, Sc
Senior Regulatory Compliance Coordinator

Clinical Research Participation
2023-2024

Industry-Sponsored Clinical Trials

1. A randomized double-blind, placebo-controlled, multicenter trial assessing the impact of lipoprotein (a) lowering with TQJ230 on major cardiovascular events in patients with established cardiovascular disease. Protocol: CTQJ230A12301 (HORIZON). Novartis Pharmaceuticals.
2. Two part (double-blind inclisiran versus placebo [Year 1] followed by open-label inclisiran [Year 2]) randomized multicenter study to evaluate safety, tolerability, and efficacy of inclisiran in adolescents (12 to less than 18 years) with heterozygous familial hypercholesterolemia and elevated LDL-cholesterol. Protocol: CKJX839C12301 (ORION-16). Novartis Pharmaceuticals.
3. A long-term extension trial of the phase III lipid-lowering trials to assess the effect of long-term dosing of inclisiran given as subcutaneous injections in subjects with high cardiovascular risk and elevated LDL-C. Protocol: CKJX839A12306B (ORION-8). Novartis Pharmaceuticals.
4. A double-blind, placebo-controlled Phase 2b study to evaluate the efficacy and safety of ARO-APOC3 in adults with severe hypertriglyceridemia. Protocol: AROAPOC3. Arrowhead Pharmaceuticals.
5. A double-blind, placebo-controlled Phase 2b study to evaluate the efficacy and safety of ARO-ANG3 in adults with mixed dyslipidemia. Protocol: ARO-ANG3-2001. Arrowhead Pharmaceuticals.
6. A phase 3 study to evaluate the efficacy and safety of ARO-APOC3 in adults with familial chylomicronemia syndrome. Protocol: ARO-APOC3-3001. Arrowhead Pharmaceuticals.
7. A Phase 2, randomized, double-blind, placebo-controlled study to investigate the efficacy and safety of LY3561774 in adults with mixed dyslipidemia. Protocol: J3F-MC-EZCB. Eli Lilly and Company.
8. Phase 2 study to evaluate the safety and efficacy of APO-ANG3 in subjects with homozygous familial hypercholesterolemia (HOFH). Protocol: ARO-ANG3-2003. Arrowhead Pharmaceuticals.
9. Phase 3, randomized, placebo-controlled study to investigate the efficacy and safety of olpasiran in patients with cardiovascular events. Protocol: 20180244 [OCEAN(a)]. Amgen Inc.
10. A randomized, double-blind, placebo-controlled, multicenter trial, assessing the impact of inclisiran on major adverse cardiovascular events in participants with established cardiovascular disease. Protocol: KJX839B12302 (VICTORION-2-PREVENT). Novartis Pharmaceuticals.
11. A multi-center, randomized, double-blind, placebo controlled, parallel-group phase IIIb study evaluating the effect of inclisiran on atherosclerotic plaque progression assessed by coronary computed tomography angiography (CCTA) in participants with a diagnosis of non-obstructive coronary artery disease without previous cardiovascular events. Protocol: KJX839D12303 (VICTORIAN- PLAQUE). Novartis Pharmaceuticals.
12. A phase 3, randomized, double-blind, placebo-controlled study to evaluate the efficacy and safety of MK-0616 in adults with hypercholesterolemia. Protocol: MK-0616-013. Merck Sharp & Dohme.
13. A phase 2 open-label extension study to evaluate the long-term safety and efficacy

of ARO-APOC3 in adults with dyslipidemia. Protocol: ARO-APOC-2003. Arrowhead Pharmaceuticals.
14. An open-label, single arm, multicenter extension study to evaluate long-term safety and tolerability of inclisiran in participants with heterozygous or homozygous familial hypercholesterolemia who have completed the adolescent ORION-16 or ORION-13 studies. Protocol: KJX839C12001B (VICTORION-PEDS-OLE). Novartis Pharmaceuticals.
15. A phase 3, randomized, double-blind, placebo-controlled study to evaluate the efficacy and safety of pegozafermin in subjects with severe hypertriglyceridemia (SHTG). Protocol: 89Bio100-231 (ENTRUST). 89Bio.
16. A phase 3, randomized, double-blind, placebo controlled study to investigate the effect of lepodisiran on the reduction of major adverse cardiovascular events in adults with elevated lipoprotein(a) who have established atherosclerotic cardiovascular disease or are at high risk for a first cardiovascular event. Protocol: J3L-MC- EZEF [ACCLAIM-Lp(a)]. Eli Lilly and Company.
17. A phase 3, randomized, double-blind, placebo-controlled, event-driven study to investigate the effect of retatrutide on the incidence of major adverse cardiovascular events and the decline in kidney function in participants with body mass index ≥27 kg/m2 and atherosclerotic cardiovascular disease and/or chronic kidney disease. Protocol: J1I-MC-GZBO (TRIUMPH-OUTCOMES). Eli Lilly and Company.
18. A Phase 3, open-label extension study to evaluate the safety and efficacy of MK-0616 in adults with hypercholesterolemia. Protocol: MK-0616-019. Merck Sharp & Dohme
19. A double-blind, placebo-controlled, phase 3 study to evaluate the efficacy and safety of ARO-APOC3 in adults with severe hypertriglyceridemia. Protocol: AROAPOC3-3004 (SHASTA-4). Arrowhead Pharmaceuticals.
20. A double-blind, placebo-controlled, Phase 3 study to evaluate the efficacy and safety of plozasiran in adults with hypertriglyceridemia. Protocol: AROAPOC3-3009 (MUIR-3). Arrowhead Pharmaceuticals.
21. A phase 2, randomized, double-blind, placebo-controlled, parallel study to evaluate the efficacy and safety of subcutaneously administered BW-00112 in patients with mixed dyslipidemia. Protocol: BW-00112-2002. Shanghai Argo Biopharmaceutical Co., Ltd.

Clinical Research Participation
2023-2024

Federally Funded Studies (NIH)
1. Use of high-density lipoprotein proteome in the prediction of cognitive impairment and Alzheimer's disease: (REGARDS). PI: Rosenson
2. Development, testing, and implementation of virtual statin associated muscle symptom (SAMS) management. Subaward: Rosenson

Industry-Sponsored Epidemiological Studies
1. A multicenter, cross-sectional study to characterize the distribution of lipoprotein(a) levels among patients with documented history of atherosclerotic cardiovascular disease (ASCVD). Protocol: 20210057. Amgen Inc.
2. Multi-center cross-sectional observational study to characterize the prevalence of overweight and obesity among patients with established cardiovascular disease. Protocol: DAS-7537 (POETIC). Novo Nordisk.

Investigator-Initiated Studies
1. Pilot study of Lp(a) and immunothrombosis in patients with atherosclerotic cardiovascular disease. Mount Sinai Pilot Lp(a) project.
2. Lipoprotein(a): the Mechanisms Underlying Immune Response, Clotting, and Vulnerable Coronary Artery Plaques.
3. Efficacy and safety of statin therapy in patients with hospital admission for SARS CoV-2 infection. Mount Sinai Statin COVID-19 project.
4. Lipoprotein(a), Aspirin Mutation and Platelet Activity project (PI: Chen Gurevitz, MD)

Academic Productivity
Publications | 2024

Peer-Reviewed Publications
1. Lee CH, Lee SH, Kwak HS, Kwak YG, Rosenson RS, Cho YI, Jeong SK. validation of signal intensity gradient from TOF-MRA for wall shear stress by phase-contrast MR. J Imaging Inform Med. 2024;37(3):1248-1258. PMID: 38332403.
2. Goonewardena SN, Chen Q, Tate AM, Grushko OG, Damodaran D, Blakely P, Hayek SS, Pinsky DJ, Rosenson RS. Monocyte-mediated thrombosis linked to circulating tissue factor and immune-paralysis in COVID-19. Arterioscler Thromb Vasc Biol. 2024;44(5):1124-1134. PMID: 38511328.
3. Rosenson RS, Rader DJ, Ali S, Banerjee P, McGinniss J, Pordy R. Evinacumab reduces triglyceride-rich lipoproteins in patients with hyperlipidemia: A post-hoc analysis of three randomized clinical trials. Cardiovasc Drugs Ther. 2024. Online ahead of print. PMID: 38446275.
4. Godoy LC, Neal MD, Goligher EC, Cushman M, Houston BL, Bradbury CA, McQuilten ZK, Tritschler T, Kahn SR, Berry LR, Lorenzi E, Jensen T, Higgins AM, Kornblith LZ, Berger JS, Gong MN, Paul JD, Castellucci LA, Le Gal G, Lother SA, Rosenson RS, Derde LPG, Kumar A, McVerry BJ, Nicolau JC, Leifer E, Escobedo J, Huang DT, Reynolds HR, Carrier M, Kim KS, Hunt BJ, Slutsky AS, Turgeon AF, Webb SA, McArthur CJ, Farkouh ME, Hochman JS, Zarychanski R & Lawler PR. Heparin dose intensity and organ support-free days in patients hospitalized for COVID-19. JACC: Advances. 2024;3(3);100780. PMID: 38938844

5. Park JK, Petrazzini BO, Bafna S, Duffy A, Forrest IS, Vy HM, Marquez-Luna C, Verbanck M, Narula J, Rosenson RS, Jordan DM, Rocheleau G, Do R. Muesli intake may protect against coronary artery disease: Mendelian randomization on 13 dietary traits. JACC Adv. 2024;3(4):100888. PMID: 38737007.
6. El Sherbini A, Rosenson RS, Al Rifai M, Virk HUH, Wang Z, Virani S, Glicksberg BS, Lavie CJ, Krittanawong C. Artificial intelligence in preventive cardiology. Progress in Cardiovascular Diseases. 2024;84:76-89. PMID: 38460897.
7. Choi D, Froess JD, Lawler PR, Neal MD, Zarychanski R, Rosenson RS; ATTACC ACTIV-4a Investigators. Whole blood viscosity and thromboembolic events in hospitalized patients with COVID-19: Post hoc analysis of the ATTACC/ACTIV-4a trial. Thromb Haemost. 2024;124(11):1084-1086. PMID: 38684221.
8. Gurevitz C, Chen L, Muntner P, Rosenson RS. Hypertriglyceridemia and multiorgan disease among US adults. JACC: Advances. 2024;3(5):100932. PMID: 38939631.
9. Rosenson RS, Tate A, Mar P, Grushkob O, Chen Q, Goonewardena SN. Inhibition of PCSK9 with evolocumab modulates lipo-proteins and monocyte activation in high-risk ASCVD subjects. Atherosclerosis. 2024;392:117529. PMID: 38583289.
10. Gaudet D, Denes P, Watts G, Nicholls S, Rosenson RS, Modesto K, San Martin J, Hellawell J, Ballantyne CM, Given B, Goldberg E, Leeper N, Anzalone V. Plozasiran (ARO-APOC3) for severe hypertriglyceridemia: The SHASTA-2 randomized clinical trial. JAMA Cardiology. 2024;9(7):620-630. PMID: 38583092.
11. Muntner P, Jones J, Dhalwani N, Poudel B, Wen Y, Chen L, Wang Z, Bittner VA, Kalich B, Farkouh M, Colantonio LD, Rosenson RS. Persistence and adherence to PCSK9 inhibitor monoclonal antibodies versus ezetimibe in real-world settings. Adv Ther. 2024;41(6):2399-2413. PMID: 38691317.
12. Luo F, Das A, Khetarpal SA, Fang Z, Zelniker TA, Rosenson RS, Qamar A. ANGPTL3 inhibition, dyslipidemia, and cardiovascular disease. Trends Cardiovasc Med. 2024;34(4):215-222. PMID: 36746257.
13. Volgman AS, Koschinsky ML, Mehta A, Rosenson RS. Genetics and pathophysiological mechanisms of lipoprotein(a)-associated cardiovascular risk. J Am Heart Assoc. 2024 Jun 18;13(12):e033654. doi: 10.1161/JAHA.123.033654. Epub 2024 Jun 15. PMID: 38879448.
14. Rosenson RS, Gaudet D, Hegele RA, Ballantyne CM, Nicholls SJ, Lucas KJ, San Martin J, Zhou R, Muhsin M, Chang T, Hellawell J, Watts GF; ARCHES-2 Trial Team. Zodasiran, an RNAi therapeutic targeting ANGPTL3, for mixed hyperlipidemia. N Engl J Med. 2024;391(10):913-925. PMID: 38809174.
15. Ballantyne CM, Vasas S, Azizad M, Clifton P, Rosenson RS, Chang T, Melquist S, Zhou R, Mushin M, Leeper NJ, Hellawell J, Gaudet D. Plozasiran, an RNA interference agent targeting APOC3, for mixed hyperlipidemia. N Engl J Med. 2024;391(10):899-912. PMID: 38804517.
16. Gaudet D, Greber-Platzer S, Reeskamp LF, Iannuzzo G, Rosenson RS, Saheb S, Stefanutti C, Stroes E, Wiegman A, Turner T, Ali S, Banerjee P, Drewery T, McGinniss J, Waldron A, George RT, Zhao XQ, Pordy R, Zhao J, Bruckert E, Raal FJ. Evinacumab in homozygous familial hypercholesterolaemia: Long-term safety and efficacy. Eur Heart J. 2024;45(27):2422-2434. PMID: 38856678.
17. Petrazzini BO, Forrest IS, Rocheleau G, Vy HMT, Márquez-Luna C, Duffy Á, Chen R, Park JK, Gibson K, Goonewardena SN, Malick WA, Rosenson RS, Jordan DM, Do R. Exome sequence analysis identifies rare coding variants associated with a machine learning-based marker for coronary artery disease. Nat Genet. 2024;56(7):1412-1419. PMID: 38862854.

18. Libby P, Smith R, Rubin EJ, Glassberg MK, Farkouh ME, Rosenson RS. Inflammation unites diverse acute and chronic diseases. Eur J Clin Invest. 2024;54(11): e14280. PMID: 39046830.
19. Goyal P, Chen L, Lau JD, Rosenson RS, Levitan EB. Reductions in renin-angiotensin system inhibitors following hospitalization for heart failure. ESC Heart Fail. 2024. Epub ahead of print. PMID: 39030944.
20. Sakhuja S, Bittner V, Brown T, Farkouh M, Levitan E, Rosenson RS, Safford M, Muntner P, Chen L, Sun R, Noshad S, Dhalwani N, Woodward M, Colantonio L. Recurrent atherosclerotic cardiovascular disease events preventable with guideline recommended lipid-lowering treatment following myocardial infarction. Cardiovasc Drugs Ther. 2024;38(5):937-945. PMID: 37052867.
21. O'Donoghue ML, Rosenson RS, López JAG, Lepor NE, Baum SJ, Stout E, Gaudet D, Knusel B, Kuder JF, Murphy SA, Wang H, Wu Y, Shah T, Wang J, Wilmanski T, Sohn W, Kassahun H, Sabatine MS; OCEAN(a)-DOSE Trial Investigators. The off-treatment effects of olpasiran on lipoprotein(a) lowering: OCEAN(a)-dose extension period results. J Am Coll Cardiol. 2024;84 (9):790-797. PMID: 39168564.
22. Watts GF, Rosenson RS, Hegele RA, Goldberg IJ, Gallo A, Mertens A, Baass A, Zhou R, Muhsin M, Hellawell J, Leeper NJ, Gaudet D; PALISADE Study Group. Plozasiran for managing persistent chylomicronemia and pancreatitis risk. N Engl J Med. 2024. Epub ahead of print. PMID: 39225259.
23. Gurevitz C, Mechanick JI, Do R, Rosenson RS. Hypertriglyceridemia-induced acute pancreatitis in pregnancy associated with CREB3L3 mutation. J Clin Lipidol. 2024;S1933-2874(24)00253-8. Online ahead of print. PMID: 39562229.
24. Maidman SD, Hegele RA, Rosenson RS. The emerging potential of apolipoprotein C-III inhibition for ASCVD prevention: A state-of-the-art review. Curr Atheroscler Rep. 2024; 27(1):3. PMID: 39541062.
25. Gurevitz C, Rosenson RS. Metabolic dysfunction-associated steatotic liver disease, hypertriglyceridemia and cardiovascular risk. Eur J Prev Cardiol. Online ahead of print. 2024;zwae388. https://doi.org/10.1093/eurjpc/zwae388.
26. Watts GF, Hegele RA, Rosenson RS, Goldberg IJ, Gallo A, Mertens A, Baass A, Zhou R, Muhsin M, Hellawell J, Gaudet D, Leeper NJ. Temporal effects of plozasiran on lipids and lipoproteins in persistent chylomicronemia. Circulation. 2024. E-pub ahead of print. PMID: 39549263.
27. Kaur G, Rosenson RS, Gencer B, et al. Olpasiran lowering of lipoprotein(a) according to baseline levels: Insights from the OCEAN(a)-DOSE study. Eur Heart J. Online ahead of print. 2024:ehae781. PMID: 39565305.
28. Gaba P, Rosenson RS, López JAG, Watts GF, Leucker TM, Kuder JF, Im K, Kassahun H, Wang H, Wu Y, Wang J, Ohman EM, Sabatine MS, O'Donoghue ML. Intraindividual variability in serial lipoprotein(a) concentrations among placebo-treated patients in the OCEAN(a)-DOSE trial. J Am Coll Cardiol. Online ahead of print. 2024;S0735-1097(24)10043-5. PMID: 39665702.
29. Peterson BE, Bhatt DL, Ballantyne CM, de Lemos JA, Rosenson RS, Kosiborod MN, Cannon CP; GOULD Investigators. Inadequate intensification of LDL-cholesterol lowering therapy after coronary revascularization: Insights from the GOULD registry. Int J Cardiol. Online ahead of print. 2024. PMID: 39701461.

Letters

1. Goonewardena SN, Chen Q, Tate AM, Grushko OG, Damodaran Puthiya Veettil D, Blakely PK, Hayek SS, Pinsky DJ, Rosenson RS. Response by Goonewardena et al

to letter regarding article, "Monocyte-mediated thrombosis linked to circulating tissue factor and immune paralysis in COVID-19". Arterioscler Thromb Vasc Biol. 2024;44(9):e240-e241. PMID: 39167673.

Abstracts

1. Gaudet D, Pall D, Watts G, Nicholls S, Rosenson R, Modesto K, Chang T, Melquist S, Fu R, Muhsin M, San Martin J, Ballantyne C. Plozasiran (ARO-APOC3), an investigational RNAi therapeutic, demonstrates profound and durable reductions in APOC-3 and triglycerides (TG) in patients with severe hypertriglyceridemia (SHTG), SHASTA-2 final results. European Atherosclerosis Society, 92nd Congress. Lyon, France. May 26-29, 2024.
2. Gaudet D, Greber-Platzer S, Reeskamp L, Iannuzzo G, Rosenson R, Sahed S, Stefanutti C, Stroes E, Bruckert E, Waldron A, Banerjee P, George R, Jones R, Raal FJ. Efficacy of evinacumab by low-density lipoprotein receptor genotype and function in patients with homozygous familial hypercholesterolaemia: A subanalysis from the ELIPSE open-label extension study. European Atherosclerosis Society, 92nd Congress. Lyon, France. May 26-29, 2024.
3. Ballantyne C, Vasas S, Azizad M, Clifton P, Rosenson R, Hellawell J, Chang T, Melquist S, Fu R, Muhsin M, San Martin J, Gaudet D. Plozasiran (ARO-APOC3), decreases APOC3 and triglycerides (TG) in patients with mixed dyslipidemia: MUIR final results. European Atherosclerosis Society, 92nd Congress. Lyon, France. May 26-29, 2024.
4. Rosenson R, Gaudet D, Hegele R, Ballantyne C, Nicholls S, Lucas KJ, Hellawell J, Chang T, Fu R, Muhsin M, Leeper N, Watts G. Zodasiran silences hepatic ANGPTL3 leading to deep and durable reductions in atherogenic lipids and lipoproteins in mixed dyslipidemia patients: Final results from ARCHES-2, double-blind period. European Atherosclerosis Society, 92nd Congress. Lyon, France. May 26-29, 2024.
5. Pall D, Watts G, Nicholls S, Rosenson R, Ballantyne C, Modesto K, Chang T, Melquist S, Fu R, Mushin M, San Martin J, Gaudet D. Plozasiran (ARO-APOC3), an investigational RNAi, demonstrates deep and durable TG reductions in patients with SHTG, SHASTA-2 Final Results. J Clin Lipidol. 2024; 18(4): e564.
6. Vasas S, Azizad M, Clifton P, Rosenson R, Gaudet D, Hellawell J, Chang T, Melquist S, Fu R, Mushin M, San Martin J, Ballantyne C. Plozasiran (ARO-APOC3), an investigational RNAi, demonstrates robust and durable TG reductions in patients with mixed dyslipidemia, MUIR final results. J Clin Lipidol. 2024; 18(4): e560.
7. Ballantyne C, Watts G, Rosenson R, Vasas S, Pall D, Clifton P, Nicholls S, Azizad M, Fu R, Muhsin M, Melquist S, Hellawell J, Gaudet D. Plozasiran and triglyceride levels in hypertriglyceridemia: Long-term efficacy and safety data from subjects in an open-label extension trial. Circulation. 2024;150(Suppl_1): A4139852-A4139852. Abstract 4139852.
8. Colantonio L, Wang Z, Ghazi L, Alanaeme C, Christenson A, Dubal M, Malick W, Levitan E, Rosenson R, Bittner V. Aspirin use and cardiovascular disease incidence in adults with high lipoprotein(a): A multi-cohort study. Circulation. 2024;150 (Suppl_1): A4119535. Abstract 4119535.

Invited Lectures and International Committees

- Valentín Fuster Cardiovascular Symposium | American College of Cardiology (ACC)
  December 6-8, 2024, Washington, D.C.
  Invited Lecture: “Lipid-modifying agents as a continuous success development: From statins to PCSK9 inhibitors/inclisiran and ANGPTL3 inhibitors.”

- 21st Global Cardio Vascular Clinical Trialists (CVCT) Forum
  December 9-11, 2024 | Washington, D.C.
  Course Director, Atherosclerosis Clinical Trials
  Invited Lectures: “RNA inhibitors” & “ANGPTL3 inhibitors: Versatility for the broad spectrum of dyslipidemia.”

- Atherosclerotic CT Imaging Outcome Consortium: Accelerating Atherosclerosis Drug Development (ACTION A2D2)
  Member, International Working Group
  Block Chair, CCTA as a Surrogate Marker: Practical Considerations (April 11-12, 2024 | Washington, D.C.)

Trainees

Present | Academic Productivity

Chen Gurevitz, MD
Preventive Cardiology Advanced Fellow
July 2023 – July 2025

Publications

1. Gurevitz C, Rosenson RS. Metabolic dysfunction-associated steatotic liver disease, hypertriglyceridemia and cardiovascular risk. Eur J Prev Cardiol. Online ahead of print. 2024;zwae388. https://doi.org/10.1093/eurjpc/zwae388. PMID: 39656826.
2. Gurevitz C, Mechanick JI, Do R, Rosenson RS. Hypertriglyceridemia-induced acute pancreatitis in pregnancy associated with CREB3L3 mutation. J Clin Lipidol. 2024;S1933-2874(24)00253-8. Online ahead of print. PMID: 39562229.
3. Gurevitz C, Zadok OIB, Leshem-Lev D, Hodeda L, Rotholz A, Kornowski R, Eisen A. Circulating endothelial progenitor cells in patients with established cardiovascular disease treated with PCSK9 monoclonal antibodies. Am J Prev Cardiol. 2024;20:100896. PMID: 39649377.
4. Gurevitz C, Chen L, Muntner P, Rosenson RS. Hypertriglyceridemia and multiorgan disease among U.S. adults. JACC Adv. 2024;3(5):100932. PMID: 38939631.
5. Giladi E, Israel R, Daud W, Gurevitz C, Atamna A, Pereg D, Assali A, Elis A. Anti PCSK9 monoclonal antibody treatment in elderly patients: A real-world clinical experience. Isr Med Assoc J. 2024 Feb;26(2):130-135. PMID: 38420988.

Projects

- Hypertriglyceridemia and multi-organ diseases Collaboration with Paul Muntner and Chen Ligong. Published in JACC:Advances (see above). Presented as a poster at ACC 2024. Presented at Mount Sinai Fuster Heart Hospital Research Day.
- Hypertriglyceridemia, CVD and MASLD. Published in European Journal of Preventive Cardiology.
- Lp(a), Platelets and Thrombogenicity. An independent investigator-initiated prospective study, in collaboration with Dr. Juan Badimon's program. Phase 1 of the study was completed (N=40 patients). Presentation of phase 1 findings as in scientific meetings. Presented in the Young Investigator Competition of ACC NY Chapter, December 2024. Accepted as a moderated poster for ACC 2025 Scientific Meetings, Chicago, IL. Currently - Enrolling patients to phase 2, in order to enlarge the study sample and strength of trial. Will be completed by the end of the first quarter of 2025.
- Aortic Valve Calcium Score on CTA among patients with High vs. Low Lp(a). Currently enrolling, trying to enlarge the cohort (simultaneously with the coronary plaque characteristics pilot study).
- Lp(a) sub-analysis on data from YELLOW-II. Collaboration with Dr. Annapoorna Kini. Presentation as an abstract in a scientific meeting – accepted as a moderated poster for ACC 2025 Scientific Meetings, Chicago, IL. Publishing a manuscript. A manuscript was completed submitted to a Q1 cardiovascular journal.
- Benefit of IPE across Types and Sizes of MI in REDUCE-IT. Mentored by Dr. Bhatt. A manuscript was completed and submitted to a Q1 cardiovascular journal.
- Genetic Approaches to Lipoprotein Disorders. A review from CVCT 2023. Manuscript is currently being revised after peer-review in a Q1 cardiovascular journal.
- Potential project - GLP-1 across patients with different coronary artery disease risk, based on Machine Learning models. Letter of intent was approved for an AHA grant submission. Full application will be submitted by mid-January 2025.
- Potential research project - Sex differences in coronary artery disease by AI-based plaque analysis and CT-FFR. Collaboration with Dr. Leslee Shaw and Dr. Gina LaRocca. A protocol was drafted. A proposal was sent to Heart Flow and details were negotiated. An abstract of the planned study was presented in CVCT 2024, Washington DC. Research committee of Heart Flow will convene in January 2025.
- Cardiovascular-Ophthalmologic conditions associations, as analyzed by Machine Learning models. Collaboration with the Ophthalmic Vascular Diagnostic and Research Program – Prof. Alon Harris. Includes both a retrospective and a prospective projects. IRB was submitted, currently gathering and processing data for the retrospective study, and preparing to start the prospective study.
- Hypertriglyceridemia-induced Acute Pancreatitis in Pregnancy associated with CREB3L3 Mutation. Published in Journal of Clinical Lipidology (see above).
- LpX and LpZ related hypercholesterolemia, secondary to primary sclerosing cholangitis. All labs and data have been gathered. The manuscript is currently finalized for submission to a Q1 Lipidology oriented journal.
- Case Series Cholesterol hyper-absorption and related genetic traits. Data and labs are currently being collected and processed. A manuscript will be drafted and submitted for publication.

Participation in other studies as SI / co-author–

- CTA – COVID 19 (Dr. Leslie Shaw's NIH funded study). Dr. Gurevitz screened patients eligible for the study; patients are now being enrolled.
- AI-Based Coronary CTA Analysis, Lp(a) and CRP (Collaboration with Dr. Rebecca Fisher). Dr. Gurevitz participated in writing the manuscript. Currently under further statistical analysis.
- Lp(a), eicosanoids and immunogenicity (Collaboration with Dr. Waqas Malick). Dr. Gurevitz assisted with data collection.
- Lp(a) – Coronary CTA and Plaque Analysis (Collaboration with Dr. Waqas Malick and Dr. Sascha Goonewardena). Dr.
- Gurevitz is currently screening and enrolling patients to this database, which the base for three future manuscripts.
- Sub-investigator in all industry clinical trials in Metabolism and Lipids Program.

Daein Choi, MD

Cardiovascular Disease Fellow
Program Trainee: 2024–present

Projects

- Association of NMR lipid profile and plaque quantification analysis (with Rebecca Fisher, MD)
- Association of Lp(a) calcium score of aortic valve (with Chen Gurevitz, MD)

Publication

Choi D, Froess JD, Lawler PR, Neal MD, Zarychanski R, Rosenson RS, ATTACC ACTIV-4a Investigators. Whole blood viscosity and thromboembolic events in hospitalized patients with COVID-19: Post hoc analysis of the ATTACC/ACTIV-4a trial. Thromb Haemost. 2024;124(11):1084-1086. PMID: 38684221.

Samuel Maidman, MD

Cardiovascular Disease Fellow
Program Trainee: 2024–present

Projects

- Review paper for BioDrugs on lipid-lowering RNA therapies - in progress
- Metabolomic profiling in patients with acute coronary syndromes
- Metabolomic profiling in patients with acute heart failure
- Efficacy of ANGPTL3 inhibition among patients with a spectrum of Lp(a) levels

Publication

Maidman SD, Hegele RA, Rosenson RS. The emerging potential of apolipoprotein C-III inhibition for ASCVD prevention: A state-of-the-art review. Curr Atheroscler Rep. 2024; 27(3). doi.org/10.1007/s11883-024-01258-8.