



## Rinkoo Dalan

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### Research Interests:

- Vascular Function
- Cardio-Metabolic risk factors
- Diabetes

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## Biography

Rinkoo Dalan began her research journey with the DUKE-NUS Tanoto Diabetes Initiative and NHG Clinician Scientist Scheme, investigating vitamin D supplementation's effects on vascular function. Supported by a TTSH center grant, she expanded her studies to explore vascular function in various vascular beds.

In 2014, Dr. Dalan received the NMRC Transition Award, enabling her to create a patient resource with comprehensive vascular profiling. Later, through the NMRC Clinician Scientist Award, she researched therapeutic impacts on vascular health in newly diagnosed diabetes patients. Alongside this work, she completed a Master's in Clinical Trials from LSHTM and a PhD from LKCMedicine, NTU.

With support from Ng Teng Fong Foundation, National Healthcare Group, and LKCMedicine, she established the Predict-2-Prevent Program, focused on personalized cardiometabolic risk management. This program aims to improve cardiovascular risk prediction and monitoring in chronic conditions, with tailored interventions for long-term vascular health benefits. It emphasizes patient and provider perspectives, fostering strong collaborations with LKCMedicine, NTU, industry, and healthcare institutions. Current research includes exploring Colchicine as a cost-effective option to reduce cardiovascular risk in type 2 diabetes, funded by the Tanoto Medical Research Foundation, and developing digital twin-based predictive analytics for diabetes management with MESH BIO, supported by the NHIC.

## Selected Publications

- Surian NU, Batagov A, Wu A, Lai WB, Sun Y, Bee YM, [Dalan R](#). A digital twin model incorporating generalized metabolic fluxes to identify and predict chronic kidney disease in type 2 diabetes mellitus. NPJ Digit Med. 2024;7(1):140.
- Leong SY, Lok WW, Goh KY, Ong HB, Tay HM, Su C, Kong F, Upadya M, Wang W, Radnaa E, Menon R, Dao M, [Dalan R](#), Suresh S, Lim DW, Hou HW. High-Throughput Microfluidic Extraction of Platelet-free Plasma for MicroRNA and Extracellular Vesicle Analysis. ACS Nano. 2024;18(8):6623-6637.
- Petchakup C, Wong SO, [Dalan R](#), Hou HW. Label-free virtual staining of neutrophil extracellular traps (NETs) in microfluidics. Lab Chip. 2023;23(18):3936-3944.
- [Dalan R](#), Boehm BO. The implications of COVID-19 infection on the endothelium: A metabolic vascular perspective. Diabetes Metab Res Rev. 2020:e3402.
- [Dalan R](#), Goh LL, Lim CJ, Seneviratna A, Liew H, Seow CJ, Xia L, Chew DEK, Leow MKS, Boehm BO. Impact of Vitamin E supplementation on vascular function in haptoglobin genotype stratified diabetes patients (EVAS Trial): a randomized controlled trial. Nutr Diabetes. 2020 Apr 27;10(1):13.
- Bornstein SR, [Dalan R](#), Hopkins D, Mingrone G, Boehm BO. Endocrine and metabolic link to coronavirus infection. Nat Rev Endocrinol. 2020 Jun;16(6):297-298.
- [Dalan R](#), Goh S, Bing S, Seneviratna A, Phua CT. Proof-of-Concept Study for an Enhanced Surrogate Marker of Endothelial Function in Diabetes. Sci Rep. 2018 Jun 5;8(1):8649.
- Bruinstroop E, [Dalan R](#), Cao Y, Bee YM, Chandran K, Cho LW, Soh SB, Teo EK, Toh SA, Leow MKS, Sinha RA, Sadananthan SA, Michael N, Stapleton HM, Leung C, Angus PW, Patel SK, Burrell LM, Lim SC, Sum CF, Velan SS, Yen PM. Low-Dose Levothyroxine Reduces Intrahepatic Lipid Content in Patients With Type 2 Diabetes Mellitus and NAFLD. J Clin Endocrinol Metab. 2018 Jul 1;103(7):2698-2706.
- Tay HM, [Dalan R](#), Li KHH, Boehm BO, Hou HW. A Novel Microdevice for Rapid Neutrophil Purification and Phenotyping in Type 2 Diabetes Mellitus. Small. 2018 Feb;14(6).
- [Dalan R](#), Liew H, Assam PN, Chan ES, Siddiqui FJ, Tan AW, Chew DE, Boehm BO, Leow MK. A randomized controlled trial evaluating the impact of targeted vitamin D supplementation on endothelial function in type 2 diabetes mellitus: The DIMENSION trial. Diab Vasc Dis Res. 2016 May;13(3):192-200.

- [Dalan R](#), Earnest A, Leow MK. Ethnic variation in the correlation between fasting glucose concentration and glycated hemoglobin (HbA1c). *Endocr Pract.* 2013 Sep-Oct;19(5):812-7.
- [Dalan R](#), Jong M, Choo R, Chew DE, Leow MK. Predictors of cardiovascular complication in patients with diabetes mellitus: a 5-year follow-up study in a multiethnic population of Singapore: CREDENCE II study. *Int J Cardiol.* 2013 Nov 15;169(4):e67-9.

### Notable Research Awards & Grants from Past 5 Years

Name of Awards & Grants	Year Obtained
Ng Teng Fong Foundation Strategic Research Program: Personalised Cardiometabolic Risk Management: Predict 2 Prevent Program	-
Transforming Vascular Health. National Healthcare Group	-
National Health Innovation Centre (NHIC) I2A (Innovation to Adopt) Grant	2023 - 2024
Tanoto Medical Research Fund: The role of Colchicine in preventing Atherosclerotic cardiovascular disease in Type 2 Diabetes	-
NMRC Clinician Scientist Award	2018
NMRC Transition Award	2014

### Translating Research Into Healthcare

- The collaborative work on the development of methods to isolate plasma from blood to facilitate downstream phenotyping of blood cells to predict vascular risk with Prof Hou Han Wei was covered by the Straits Time (March 22, 2024).  
<https://www.straitstimes.com/singapore/ntu-s-potential-game-changer-for-quick-accurate-blood-samples-to-detect-cancers-and-diseases>
- Novel 3D Model Aids Vascular Disease Research. Singaporean researchers develop new 3D models to study vascular diseases. 2021  
<https://www.ebiotrade.com/newsf/2021-9/20210904004823549.htm>  
<https://www.labmate-online.com/news/news-and-views/5/ntu/novel-3d-model-aids-vascular-disease-research/56155>
- Digital-twin tech for managing chronic kidney disease to be trialled in Singapore in early 2025  
<https://www.straitstimes.com/singapore/digital-twin-tech-for-managing-chronic-kidney-disease-to-be-trialled-in-singapore-in-early-2025>

- \$5m awarded to studies on maternal and child health, cardiology  
<https://www.straitstimes.com/singapore/health/5m-awarded-to-studies-on-maternal-and-child-health-cardiology>
- Pain-free way to test health of blood vessels - Researchers at Nanyang Poly and TTSH developing non-invasive device to measure blood flow. The Straits Times. Published 12 January 2019.  
<https://www.ttsh.com.sg/About-TTSH/TTSH-News/Pages/Pain-free-way-to-test-health-of-blood-vessels.aspx>