



## Rinkoo Dalan

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### Research Interests:

- Vascular Complications
- Cardio-Metabolic risk factors
- Endocrinology

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### Biography

A/Prof Rinkoo Dalan, an endocrinologist, started her research career after she embarked on a joint DUKE-NUS Tanoto Diabetes Initiative and NHG Clinician scientist scheme awarded study to investigate the impact of vitamin D supplementation on vascular function in diabetes. During the course of this study, she received support from the TTSH center grant scheme which allowed her to expand her research to study vascular function comprehensively in multiple vascular beds. The NMRC, Transition Award in 2014, enabled the development of a resource of diabetes patients with extensive vascular phenotyping. She has recently completed a clinical trial looking at therapeutics in recently diagnosed diabetes patients to ascertain the effects on the vascular function through the NMRC, Clinician Scientist Award. With the help of funding from Ng Teng Fong Foundation and the National Healthcare group, she has developed a strategic research program: Personalised Cardiometabolic Risk Management: Predict 2 Prevent Program. The program aims to develop methods to predict cardiovascular risk in our population. These methods include personalized metabolic and polygenic risk score assessments and measurement of vascular function. Vascular function assessments include in-vivo physiological methods (microvascular and macrovascular function), molecular platforms (lab-on chip blood vessels) through collaboration with NTU, biomarkers of inflammation, oxidative stress, lipidomes, endothelial activation and thrombosis. These will be integrated together with clinical cardiometabolic profiles and longitudinal outcomes. A co-investigator of the HELIOS study, she has collaborations with multiple academic & clinical institutions in Singapore.

## Selected Publications

- [Dalan R](#), Boehm BO. The implications of COVID-19 infection on the endothelium: A metabolic vascular perspective. *Diabetes Metab Res Rev*. 2020 Sep 1:e3402. doi: 10.1002/dmrr.3402. Epub ahead of print. PMID: 32871617.
- [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. doi: 10.1038/s41387-020-0116-7. PMID: 32341356; PMCID: PMC7186220.
- 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. doi: 10.1038/s41574-020-0353-9. PMID: 32242089; PMCID: PMC7113912.
- [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. doi: 10.1038/s41598-018-26931-2. PMID: 29872121; PMCID: PMC5988679.
- 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. doi: 10.1210/jc.2018-00475. PMID: 29718334.
- 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). doi: 10.1002/smll.201702832. Epub 2017 Nov 23. PMID: 29168915.
- [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. doi: 10.1177/1479164115621667. Epub 2016 Jan 27. PMID: 26818228; PMCID: PMC4834510.
- [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. doi: 10.4158/EP12417.OR. PMID: 23757612.

- [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. doi: 10.1016/j.ijcard.2013.08.128. Epub 2013 Sep 7. PMID: 24063922.
- [Dalan R](#), Chin H, Hoe J, Chen A, Tan H, Boehm BO, Chua KS. Adipsic Diabetes Insipidus- The Challenging Combination of Polyuria and Adipsia: A Case Report and Review of Literature. *Front Endocrinol (Lausanne).* 2019 Sep 18;10:630. doi: 10.3389/fendo.2019.00630. PMID: 31620086; PMCID: PMC6759785.

### Notable Research Awards & Grants

Name of Awards & Grants	Year Obtained
<p align="center"><b>NMRC Transition Award</b></p> <p>Relationship of haptoglobin phenotype to vascular changes and response to Vitamin E supplementation in patients with Diabetes Mellitus type 2: The EVAS trial</p>	2014
<p align="center"><b>National Health Innovation Centre (NHIC) I2D (Innovation to Develop) Grant</b></p> <p>Proof-of-concept for an Enhanced Surrogate Marker of Endothelial Function for Macro-Cardiovascular Disease Risks in Patients Diagnosed with Diabetes Mellitus</p>	2015
<p align="center"><b>NMRC Clinician Scientist Award</b></p> <p>Effects of Dapagliflozin and Metformin on Vascular Function in Newly-Diagnosed Treatment-Naïve Type 2 Diabetes – A Randomized Controlled Trial (DMVascular Study).</p>	2018
<p align="center"><b>Transforming Vascular Health. National Healthcare Group</b></p>	-
<p><b>Ng Teng Fong Foundation Strategic Research Program: Personalised Cardiometabolic Risk Management: Predict 2 Prevent Program</b></p>	-

## Translating Research Into Healthcare

- 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>

- 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>