

CURRICULUM VITAE

PERSONAL DATA

Name Surat Kulapatana
Citizenship Thai



ADDRESS

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EDUCATION

2009 - 2015 Doctor of Medicine (First class honors), Faculty of Medicine
Siriraj Hospital, Mahidol University, Thailand
2023 - present PhD student, Department of Biomedical Engineering,
Vanderbilt University, USA

POSTDOCTORAL TRAINING

April 2015 1-month externship, Department of Surgery, John A. Burns
School of Medicine, University of Hawaii, Hawaii, USA
June 2015 - May 2016 General physician internship, Chiang Rai Prachanukroh
Hospital, Chiang Rai, Thailand
Job description:
Rotated in all departments and emergency room services.
June 2016 - January 2019 Physiologist internship, Department of Physiology, Faculty of
Medicine Siriraj Hospital, Mahidol University, Thailand
Job description:
Supported and facilitated in physiology course for medical
and paramedical students, doing research in cardiovascular
electrophysiology laboratory (patch-clamp technique)
April 2019 - March 2020 Thai airways international PCL's pilot trainee
Job description:
Trained a commercial pilot license course at flight school.

ACADEMIC APPOINTMENTS

May 2021 - present Assistant instructor, Department of Physiology, Faculty of
Medicine Siriraj Hospital, Mahidol University, Thailand

CLINICAL/HOSPITAL APPOINTMENTS

April 2020 - July 2023 Staff physician, OPD and HIV-TB clinics, Bangkok Public
Health Center, Bangkok, Thailand

SCIENTIFIC ACTIVITIES

Academic Speaker

1. "Autonomic function and space flight", Faculty of Medicine Siriraj Hospital, Mahidol University, Bangkok, Thailand, 14th March 2025.

Ad Hoc Reviewer

1. Journal of Cardiothoracic Surgery, 2025
2. European Journal of Medical Research, 2025
3. Clinical Autonomic Research, 2025

GRANT SUPPORT

2023 - present Faculty development PhD scholarship, Faculty of Medicine
Siriraj Hospital, Mahidol University, Thailand

CERTIFICATION AND LICENSURE

2015 Doctor of Medicine (MD), Thailand

HONORS AND AWARDS

2023 Best poster presentation award (Researcher category), 50th
annual scientific meeting of the physiological society of
Thailand

2024 Most downloaded article award, Cellular and Molecular
Bioengineering Journal, Biomedical Engineering Society
conference 2024

2025 Streeten travel fellowship award, American Autonomic
Society Meeting 2025

MEMBERSHIPS AND OFFICES IN PROFESSIONAL SOCIETIES

2023 - present	Physiological society of Thailand
2024 - present	Biomedical engineering society
2024 - present	American autonomic society

TEACHING AND MENTORING ACTIVITIES

2021 - 2023	Secretary, course committee of SIID 247, cardiovascular system for 2 nd year medical students, Faculty of Medicine Siriraj Hospital, Mahidol University
2023	Course coordinator, Aviation physiology for 3 rd year preventive medicine residents, aviation medicine branch

ANNOTATED BIBLIOGRAPHY

Peer-Reviewed Publications

1. Somboon, P., **Kulapatana, S.**, Watanapa, W. B., Chattaris, T., Sirivongrangson, P., Livikorn, P., Nonthadid, T., & Hussarin, P. (2023). Heart Rate Variability and Baroreflex Sensitivity: Factors and Reference Ranges. *Siriraj Medical Journal*, 75(10), 713–724. <https://doi.org/10.33192/smj.v75i10.264037>
2. King, M. R., Abdulrahman, A. M., Petrovic, M. I., Poley, P. L., Hall, S. P., **Kulapatana, S.**, & Lamantia, Z. E. (2024). Incorporation of ChatGPT and Other Large Language Models into a Graduate Level Computational Bioengineering Course. *Cellular and Molecular Bioengineering*. <https://doi.org/10.1007/s12195-024-00793-3>
3. **Kulapatana, S.**, Diedrich, A., Lersritwimanmaen, P., & Watanapa, W. B. (2024). Postural orthostatic tachycardia syndrome in a Thai male patient. *Clinical Autonomic Research*. <https://doi.org/10.1007/s10286-024-01044-1>
4. Rahman, S., Gamboa, A., Saleem, M., **Kulapatana, S.**, Diedrich, A., Biaggioni, I., Kirabo, A., & Shibao, C. A. (2024). Complete autonomic blockade reveals nitric oxide contribution to blood pressure regulation in obese Black women. *Clinical Autonomic Research*. <https://doi.org/10.1007/s10286-024-01050-3>
5. **Kulapatana S**, Urechie V, Rigo S, Mohr A, Vance YA, Okamoto LE, Gamboa A, Shibao C, Biaggioni I, Furlan R, Diedrich A. Blood volume deficit in postural orthostatic tachycardia syndrome assessed by semiautomated carbon monoxide

- rebreathing. Clin Auton Res. 2025 Apr;35(2):267-276. doi: 10.1007/s10286-024-01091-8. Epub 2024 Nov 30. PMID: 39614968; PMCID: PMC11999789.
6. **Kulapatana S**, Rigo S, Urechie V, Brychta RJ, Furlan R, Biaggioni I, Diedrich A. Spike Detection of Human Sympathetic Nerve Activity Using Wavelet Transformation and Valsalva Maneuver Denoising. J Neurosci Methods. 2025 May 9:110482. doi: 10.1016/j.jneumeth.2025.110482. Epub ahead of print. PMID: 40350041.
 7. Mehr PE, Ortiz PJ, O'Rourke KR, Ding T, Hackstadt AJ, **Kulapatana S**, Diedrich A, Claassen DO, Biaggioni I, Peltier AC, Shiba CA. Peripheral autonomic failure is associated with more severe postprandial hypotension compared to central autonomic failure. Clin Auton Res. 2025 May 13. doi: 10.1007/s10286-025-01131-x. Epub ahead of print. PMID: 40360851.
 8. Thudium M, Kornilov E, Moestl S, Hoffmann F, Hoff A, **Kulapatana S**, Urechie V, Oremek M, Rigo S, Heusser K, Biaggioni I, Tank J and Diedrich A (2025) Continuous wavelet based transfer function analysis of cerebral autoregulation dynamics for neuromonitoring using near-infrared spectroscopy. Front. Physiol. 16:1616125. doi: 10.3389/fphys.2025.1616125
 9. **Kulapatana S**, Okamoto LE, Rigo S, Urechie V, Cayton TW, Han RE, Jacob G, Dupont WD, Furlan R, Biaggioni I, Diedrich A. Hyperadrenergic postural tachycardia syndrome associated with augmented neurovascular transduction. Clin Auton Res. 2026 Jan 14. doi: 10.1007/s10286-025-01183-z. Epub ahead of print. PMID: 41533304.

Abstract

1. **Kulapatana S**, Somboon P, Watanapa WB*, Chattaris T, Sirivongrangson P, Livikorn P, Nonthadid T, Hussarin P. Cardiac Baroreflex Sensitivity Normal Range, Determining Factors, and Its Correlation to Heart Rate Variability in Healthy Thai Adults. 50th Annual Scientific Meeting of the Physiological Society of Thailand, Pattaya, Chonburi, Thailand, 24th-26th May 2023. Poster presentation; Best Poster Presentation (Researcher category).
2. Walsh E, **Kulapatana S**, Okamoto LE, Biaggioni I, Diedrich A. Using Valsalva Metrics to Predict Response to Pyridostigmine in Neurogenic Orthostatic Hypotension. American College of Cardiology 73rd Annual Scientific Session & Expo, Atlanta, GA, USA, 6th-8th April 2024.

3. **Kulapatana S**, Biaggioni I, Diedrich A, Lersritwimanmaen P, Watanapa WB. Postural Orthostatic Tachycardia Syndrome in Male Thai. Dysautonomia International's 12th Annual Conference, Chicago, IL, USA, 28th-30th June 2024. Poster presentation
4. **Kulapatana S**, Rigo S, Urechie V, Brychta RJ, Biaggioni I, Diedrich A. Individualized Muscle Sympathetic Nerve Activity Denoising Using Valsalva Maneuver Response. Biomedical engineering society 2024 annual meeting, Baltimore, MD, USA. 23rd-26th October 2024. Poster presentation
5. **Kulapatana S**, Thudium M, Kornilov E, Moestl S, Hoffmann F, Hoff A, Urechie V, Rigo S, Heusser K, Tank J, Biaggioni I, Diedrich A. Continuous Wavelet based Transfer Function Analysis for Baroreflex Sensitivity Analysis. Biomedical engineering society 2024 annual meeting, Baltimore, MD, USA. 23rd-26th October 2024. Poster presentation
6. **Kulapatana S**, Rigo S, Urechie V, Okamoto LE, Wilkes M, Biaggioni I, Furlan R, Diedrich A. Muscle Sympathetic Nerve Activity Entropy in POTS During Valsalva Maneuver. Vanderbilt Translational Research Forum 2025, Nashville, TN, USA. 12th February 2025. Poster presentation
7. Mehr EP, Abd-Eldayem M, **Kulapatana S**, Golchha M, Shehata E, Rigo S, Urechie V, ORTIZ PJ, Diedrich A, Shibao CA. Long COVID-19 Postural Orthostatic Tachycardia Syndrome Patients Exhibit Hypovolemia at Severity Levels Similar to Primary Postural Orthostatic Tachycardia Syndrome Patients. Hypertension 2025 Scientific Sessions, Baltimore, MD, USA. 3rd-7th September 2025. DOI: 10.1161/hyp.82.suppl_1.TH224
8. Cairo B, Bari V, De Maria B, Arduino C, Rigo S, Shiffer D, **Kulapatana S**, Diedrich A, Biaggioni I, Furlan R, Porta A. Cardiac and Sympathetic Baroreflex Sensitivity Is Not Affected by Transcutaneous Vagus Nerve Stimulation in Hyperadrenergic Postural Tachycardia Syndrome. Computing in Cardiology, Sao Paulo, Brazil. 14th-17th September 2025. DOI: 10.22489/CinC.2025.071
9. **Kulapatana S**, Okamoto LE, Rigo S, Urechie V, Jacob G, Dupont WD, Furlan R, Biaggioni I, Diedrich A. Diastolic blood pressure rise during Valsalva maneuver as a peripheral sympathetic function surrogate for hyperadrenergic POTS subtyping and their responses to moxonidine. Vanderbilt Neurology Research Symposium, Nashville, TN, USA, 27th September 2025. Poster presentation
10. Mehr PE, Ortiz PJ, O'Rourke KR, Ding T, Hackstadt AJ, **Kulapatana S**, Diedrich A, Claassen DO, Biaggioni I, Peltier AC, Shibao CA. Parkinson Disease Patients with

Peripheral Autonomic Failure Have More Severe Postprandial Hypotension Compared to Multiple System Atrophy Patients with Central Autonomic Failure. Vanderbilt Neurology Research Symposium, Nashville, TN, USA, 27th September 2025.

11. **Kulapatana S**, Rigo S, Urechie V, Okamoto LE, Dupont WD, Biaggioni I, Furlan R, Diedrich A. Muscle Sympathetic Nerve Activity Entropy in POTS During Valsalva Maneuver. Biomedical engineering society 2025 annual meeting, San Diego, CA, USA. 8th-12th October 2025. Oral presentation
12. **Kulapatana S**, Okamoto LE, Rigo S, Urechie V, Jacob G, Dupont WD, Furlan R, Biaggioni I, Diedrich A. Diastolic blood pressure rise during Valsalva maneuver as a peripheral sympathetic function surrogate for hyperadrenergic POTS subtyping and their responses to moxonidine. 36th International Symposium on The Autonomic Nervous System, American Autonomic Society, Clearwater Beach, FL, USA, 5th-8th November 2025. Platform presentation; Streeten travel fellowship award.
13. Han R, **Kulapatana S**, Rigo S, Urechie V, Vance YA, Harder R, Raj SR, Garland E, Biaggioni I, Diedrich A. Interstitial volume in postural tachycardia syndrome determined by multifrequency bioimpedance. 36th International Symposium on The Autonomic Nervous System, American Autonomic Society, Clearwater Beach, FL, USA, 5th-8th November 2025.
14. Mehr EP, Abd-Eldayem M, **Kulapatana S**, Golchha M, Shehata E, Rigo S, Urechie V, Ortiz PJ, Diedrich A, Shibus CA. Long COVID-19 POTS patients have reduced blood volume similar to primary POTS patients. 36th International Symposium on The Autonomic Nervous System, American Autonomic Society, Clearwater Beach, FL, USA, 5th-8th November 2025.
15. Olivares K, Shehata E, **Kulapatana S**, Maloney D, Diedrich A, Shibus CA, Okamoto LE. Novel method to assess changes in splanchnic venous capacitance after a meal challenge in POTS. 36th International Symposium on The Autonomic Nervous System, American Autonomic Society, Clearwater Beach, FL, USA, 5th-8th November 2025.
16. Rigo S, Shiffer D, Duyao MG, Furlan L, Montano N, Cairo B, Porta A, Zamunér AR, **Kulapatana S**, Okamoto LE, Biaggioni I, Diedrich A, Furlan R. The effects of transcutaneous vagus nerve stimulation in hyperadrenergic and non-hyperadrenergic postural orthostatic tachycardia patients. 36th International Symposium on The Autonomic Nervous System, American Autonomic Society, Clearwater Beach, FL, USA, 5th-8th November 2025.

17. Shiffer D, Rigo S, Yarsuvat DT, Furlan L, Montano N, Cairo B, Porta A, Zamunér AR, **Kulapatana S**, Okamoto L, Biaggioni I, Diedrich A, Furlan R. Transcutaneous vagal nerve stimulation for symptom modulation in hyperadrenergic postural orthostatic tachycardia syndrome: a preliminary investigation. 36th International Symposium on The Autonomic Nervous System, American Autonomic Society, Clearwater Beach, FL, USA, 5th-8th November 2025.
18. **Kulapatana S**, Thudium M, Cox J, Eckberg D, Ertl A, Iwasaki K, Pawelczyk JA, Zhang R, Levine BD, Biaggioni I, Diedrich A. Cerebral Autoregulation During Valsalva Maneuver is Preserved During Spaceflight. 45th Annual Meeting of the International Society for Gravitational Physiology, Cologne, Germany. 25th -29th May 2026. Oral presentation