

Curriculum Vitae

NATTHAPHAT SIRI-ANGKUL, MD



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EDUCATION

2017 *Doctor of Medicine (MD) First-Class Honor*
Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand

HONORS AND AWARDS

2025 *CMB Travel Award,*
Cellular and Molecular Biology (CMB) Program,
University of Wisconsin-Madison, WI, USA

2024 *CVRC Research Summit Poster Fair Prize,*
Cardiovascular Research Center (CVRC),
University of Wisconsin-Madison, WI, USA

2024 *Department of Medicine Research Day Best Poster Award*
(Basic Science), University of Wisconsin-Madison, WI, USA

2023 *AHA Predoctoral Fellowship,* American Heart Association (AHA), USA

2020 *An offer of the University of Minnesota Medical School Dean's*
Distinguished Graduate Fellowship with an offer of admission into
the Graduate Program in Integrative Biology and Physiology,
University of Minnesota, Minneapolis, MN, USA

- 2017 *The Certificate of Achievement in Contributing to the Enhancement of the University's Reputation,*
Chiang Mai University, Chiang Mai, Thailand
- 2017 *The Award for Excellence in Overall Academic Performance,*
Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand
- 2016 *Outstanding Manner Award for Medical Students,*
The Medical Council of Thailand, Bangkok, Thailand
- 2016 *Prince Mahidol Award Youth Program Scholarship,*
Prince Mahidol Award Foundation, Bangkok, Thailand
(Thai mentor: Prof. Nipon Chattipakorn, MD, PhD;
International mentor: Assoc. Prof. Lai-Hua Xie, PhD)
- 2016 *Outstanding Academic Achievement Award,*
Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand
- 2015 *Top-Scored 5th-Year Medical Student Award,*
Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand
- 2014 *8th Rank (individual score) and quarter-finalist (team competition),*
The 12th Inter-Medical School Physiology Quiz (IMSPQ),
University of Malaya, Kuala Lumpur, Malaysia
- 2013 *Award for the Best Score in Human Urinary System,*
Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand
- 2013 *Top-Scored 3rd-Year Medical Student Award,*
Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand
- 2012 *The Professor Vit & Mrs. Pornpen Meenakanit Award
for the Best Score in Human Respiratory System,*
Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand
- 2012 *The Professor Sood Sangvichien Award
for the Best Score in Human Locomotive System,*
Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand
- 2011 *Award for the Best Score in Introduction to Medical Science II,*
Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand
- 2011 *Top-Scored 1st-Year Medical Student Award,*
Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand
- 2011 *The Professor Dr. Tab Nilanidhi Foundation Award
for the Best Score in Medical Science (Medicine),*
The Prof. Dr. Tab Nilanidhi Foundation, Bangkok, Thailand
- 2010 *Gold Medal, The 7th Thailand Biology Olympiad*

PROFESSIONAL APPOINTMENT

2017 - Present *Lecturer*, Department of Physiology,
Faculty of Medicine, Chiang Mai University, Chiang Mai, Thailand

PROFESSIONAL LICENSE

2017 - Present MD (Thailand)

ORGANIZATION AND PARTICIPATION

2024 - Present The Biophysical Society
2023 - Present The Honor Society of Phi Kappa Phi (ΦΚΦ), USA
2019 - Present Physiological Society of Thailand
2018 - Present American Heart Association (Council on Basic Cardiovascular Sciences)
2017 - Present Medical Council of Thailand

PRESENTATION AT NATIONAL AND REGIONAL MEETINGS

Nov 1, 2024 *Leucine-Rich Repeat-Containing Protein 10 Modulates Human Cardiac L-Type Calcium Channels but not T-Type Calcium Channels*. The 6th Cardiovascular Research Summit, Madison, WI, USA

Apr 26, 2024 *Leucine-Rich Repeat-Containing Protein 10 Modulates Human Cardiac L-Type Calcium Channels*. Department of Medicine's 14th Research Day, Department of Medicine, School of Medicine and Public Health, University of Wisconsin-Madison, WI, USA

Oct 12, 2023 *Leucine-Rich Repeat-Containing Protein 10 Potentiates L-Type Calcium Current Through Short-N-Terminus and Long-N-Terminus Isoforms of Cav1.2*. The 5th Cardiovascular Research Summit, Madison, WI, USA

Dec 19, 2019 *Development of Novel Therapeutic Interventions Using Medical Device and Pharmacological Therapies Targeting Mitochondria to Prevent Chemotherapy-induced Cardiotoxicity and Chemobrain: From Bench to Bedside Investigations*. Academic exhibition at the press conference of the NSTDA Chair Professor Grant 2019 to Prof. Nipon Chattipakorn; National Science and Technology Development Agency (NSTDA), Bangkok, Thailand

Nov 8, 2019 *Cellular Electrophysiology in Cardiac Iron Overload: Arrhythmogenic Role of TRPC Channels*. The 17th Neurologic and Cardiac Electrophysiology Symposium (NCES), Chiang Mai, Thailand

Aug 25-26, 2017 *Heart and Brain Research by the Cardiac Electrophysiology Research and Training (CERT) Center*. Academic exhibition at the 25th Anniversary of Thailand Research Fund (TRF), Bangkok, Thailand

PRESENTATION AT INTERNATIONAL MEETINGS

- Feb 18, 2025 *LRRC10 Exerts L-Type Calcium Current-Specific Modulation Through Interaction with the N-Terminus of Cav1.2*. The 69th Biophysical Society Annual Meeting, The Biophysical Society, Los Angeles, CA, USA
- Jul 22, 2024 *Leucine-Rich Repeat-Containing Protein 10 Modulates Human Cardiac L-Type Calcium Channels but not T-Type Calcium Channels*. Basic Cardiovascular Sciences (BCVS) Scientific Sessions, American Heart Association (AHA) Council on Basic Cardiovascular Sciences, Chicago, IL, USA
- Jun 28, 2023 *Leucine-Rich Repeat-Containing Protein 10 Potentiates L-Type Calcium Current Through Short-N-Terminus and Long-N-Terminus Isoforms of Cav1.2*. The 42nd International Society for Heart Research-North American Section (ISHR-NAS) Meeting, Madison, WI, USA
- Mar 29, 2019 *Electrophysiological Alterations and Calcium Dyshomeostasis in Iron-Overloaded Ventricular Cardiomyocytes*. The 9th Federation of the Asian and Oceanian Physiological Societies (FAOPS) Congress in conjunction with the 96th Annual Meeting of the Physiological Society of Japan, Kobe, Japan
- Mar 29, 2019 *Electrophysiological Alterations and Calcium Dyshomeostasis in Iron-Overloaded Ventricular Cardiomyocytes*. The 9th Federation of the Asian and Oceanian Physiological Societies (FAOPS) Congress in conjunction with the 96th Annual Meeting of the Physiological Society of Japan, Kobe, Japan
- Jan 29, 2019 *Electrophysiological Alterations and Calcium Dyshomeostasis in Iron-Overloaded Ventricular Cardiomyocytes*. Prince Mahidol Award Conference (PMAC), Prince Mahidol Award Foundation, Bangkok, Thailand
- Aug 3, 2018 *Mitochondrial Permeability Transition Pore, Calcium Uniporter and Iron Overload in the Heart*. The 13th Basic Cardiovascular Sciences (BCVS) Scientific Sessions, American Heart Association (AHA) Council on Basic Cardiovascular Sciences, San Antonio, TX, USA

RESEARCH GRANT SUPPORT

- Jan 2023-Dec 2024 American Heart Association (AHA) Predoctoral Fellowship
Project title: "Roles of Leucine-Rich Repeat-Containing Protein 10 in Cardiac L-Type Ca²⁺ Channel Modulation and Intracellular Ca²⁺ Homeostasis"

PREVIOUS GRANT SUPPORT

- Feb 2018-Jan 2019 Prince Mahidol Award Youth Program
Project title: "Electrophysiological Alterations and Calcium Dyshomeostasis in Iron-Overloaded Ventricular Cardiomyocytes"

RESEARCH FIELD OF INTEREST

Cardiac Electrophysiology

PEER-REVIEWED ARTICLES

1. **Siri-Angkul N**, Kamp TJ. Cardiac L-type calcium channel regulation by Leucine-Rich Repeat-Containing Protein 10. *Channels (Austin)*. 2024;18(1):2355121.
2. Sripusanapan A, Yanpiset P, Sriwichaiin S, **Siri-Angkul N**, Chattipakorn SC, Chattipakorn N. Hyperpolarization-activated cyclic nucleotide-gated channel inhibitor in myocardial infarction: Potential benefits beyond heart rate modulation. *Acta Physiol (Oxf)*. 2024;240(3):e14085.
3. Oo TT, Prachayasakul W, Chattipakorn K, **Siri-Angkul N**, Choovuthayakorn J, Charumporn T, Ongnok B, Arunsak B, Chunchai T, Kongkaew A, Songtrai S, Kaewsuwan S, Chattipakorn N, Chattipakorn S. Cyclosorus Terminans Extract Alleviates Neuroinflammation in Insulin Resistant Rats. *Mol Neurobiol*. 2024;61(7):4879-4890.
4. Fefelova N, Wongjaikam S, Pamarthi SH, **Siri-Angkul N**, Comollo T, Kumari A, Garg V, Ivessa A, Chattipakorn SC, Chattipakorn N, Gwathmey JK, Xie LH. Deficiency of mitochondrial calcium uniporter abrogates iron overload-induced cardiac dysfunction by reducing ferroptosis. *Basic Res Cardiol*. 2023;118(1):21.
5. Yanpiset P, Maneechote C, Sriwichaiin S, **Siri-Angkul N**, Chattipakorn SC, Chattipakorn N, Gasdermin D-mediated pyroptosis in myocardial ischemia and reperfusion injury: Cumulative evidence for future cardioprotective strategies. *Acta Pharm Sin B*. 2023;13(1):29-53.
6. Pantiya P, Thonusin C, Sumneang N, Ongnok B, Chunchai T, Kerdphoo S, Jaiwongkam T, Arunsak B, **Siri-Angkul N**, Sriwichaiin S, Chattipakorn N, Chattipakorn SC. High Cardiorespiratory Fitness Protects against Molecular Impairments of Metabolism, Heart, and Brain with Higher Efficacy in Obesity-Induced Premature Aging. *Endocrinol Metab*. 2022;37(4):630-640.
7. Thonusin C, Pantiya P, Sumneang N, Chunchai T, Nawara W, Arunsak B, **Siri-Angkul N**, Sriwichaiin S, Chattipakorn SC, Chattipakorn N. Effectiveness of high cardiorespiratory fitness in cardiometabolic protection in prediabetic rats. *Mol Med*. 2022;28(1):31.
8. Sirikul W, **Siri-Angkul N**, Chattipakorn N, Chattipakorn SC. Fibroblast Growth Factor 23 and Osteoporosis: Evidence from Bench to Bedside. *Int J Mol Sci*. 2022;23(5):2500.
9. Buawangpong N, Pinyopornpanish K, **Siri-Angkul N**, Chattipakorn N, Chattipakorn SC. The role of trimethylamine-N-oxide in the development of Alzheimer's disease. *J Cell Physiol*. 2022;237(3):1661-1685.
10. Khuanjing T, Ongnok B, Maneechote C, **Siri-Angkul N**, Prathumsap N, Arinno A, Chunchai T, Arunsak B, Chattipakorn SC, Chattipakorn N. Acetylcholinesterase inhibitor ameliorates doxorubicin-induced cardiotoxicity through reducing RIP1-mediated necroptosis. *Pharmacol Res*. 2021;173:105882.
11. **Siri-Angkul N**, Dadfar B, Jaleel R, Naushad J, Parambathazhath J, Doye A, Xie LH, Gwathmey JK. Calcium and Heart Failure: How Did We Get Here and Where Are We Going? *Int J Mol Sci*. 2021;22(14):7392.
12. **Siri-Angkul N**, Chattipakorn SC, Chattipakorn N. The mechanistic insights of the arrhythmogenic effect of trastuzumab. *Biomed Pharmacother*. 2021;139:111620.

13. Piamsiri C, Maneechote C, **Siri-Angkul N**, Chattipakorn SC, Chattipakorn N. Targeting necroptosis as therapeutic potential in chronic myocardial infarction. *J Biomed Sci.* 2021;28(1):25.
14. Wongtanasarasin W, **Siri-Angkul N**, Wittayachamnankul B, Chattipakorn SC, Chattipakorn N. Mitochondrial dysfunction in fatal ventricular arrhythmias. *Acta Physiol (Oxf).* 2021;231(4):e13624. — *Co-first author*
15. **Siri-Angkul N**, Song Z, Fefelova N, Gwathmey JK, Chattipakorn SC, Qu Z, Chattipakorn N, Xie LH. Activation of TRPC (Transient Receptor Potential Canonical) Channel Currents in Iron Overloaded Cardiac Myocytes. *Circ Arrhythm Electrophysiol.* 2021;14(2):197-212.
16. Kumfu S, **Siri-Angkul N**, Chattipakorn SC, Chattipakorn N. Silencing of lipocalin-2 improves cardiomyocyte viability under iron overload conditions via decreasing mitochondrial dysfunction and apoptosis. *J Cell Physiol.* 2021;236(7):5108-5120.
17. **Siri-Angkul N**, Chattipakorn SC, Chattipakorn N. Angiotensin converting enzyme 2 at the interface between renin-angiotensin system inhibition and coronavirus disease 2019. *J Physiol.* 2020;598(19):4181-4195. — *Editor's choice article*
18. Sumneang N, **Siri-Angkul N**, Kumfu S, Chattipakorn SC, Chattipakorn N. The effects of iron overload on mitochondrial function, mitochondrial dynamics, and ferroptosis in cardiomyocytes. *Arch Biochem Biophys.* 2020;680:108241.
19. Benjanuwattra J, **Siri-Angkul N**, Chattipakorn SC, Chattipakorn N. Doxorubicin and its proarrhythmic effects: a comprehensive review of the evidence from experimental and clinical studies. *Pharmacol Res.* 2020;151:104542.
20. Sumneang N, Kumfu S, Khamseekaew J, **Siri-Angkul N**, Fucharoen S, Chattipakorn SC, Chattipakorn N. Combined iron chelator with N-acetylcysteine exerts the greatest effect on improving cardiac calcium homeostasis in iron-overloaded thalassemic mice. *Toxicology.* 2019;427:152289.
21. **Siri-Angkul N**, Xie LH, Chattipakorn SC, Chattipakorn N. Cellular electrophysiology of iron-overloaded cardiomyocytes. *Front Physiol.* 2018;9:1615.
22. **Siri-Angkul N**, Chattipakorn SC, Chattipakorn N. Diagnosis and treatment of cardiac iron overload in transfusion-dependent thalassemia patients. *Expert Rev Hematol.* 2018;11(6):471-479.
23. **Siri-Angkul N**, Chattipakorn SC, Chattipakorn N. Roles of lipocalin 2 and adiponectin in iron overload cardiomyopathy. *J Cell Physiol.* 2018;233(7):5104-5111.
24. Tanajak P, Sa-Nguanmoo P, Sivasinprasan S, Thummasorn S, **Siri-Angkul N**, Chattipakorn S, Chattipakorn N. Cardioprotection of dapagliflozin and vildagliptin in cardiac reperfusion injury rats. *J Endocrinol.* 2018;236(2):69-84.
25. Tanajak P, Pintana H, **Siri-Angkul N**, Khamseekaew J, Apaijai N, Chattipakorn SC, Chattipakorn N. Vildagliptin and caloric restriction for cardioprotection in pre-diabetic rats. *J Endocrinol.* 2017;232(2):189-204.
26. Wijarnpreecha K, **Siri-Angkul N**, Shinlapawittayatorn K, Charoenkwan P, Silvilairat S, Siwasomboon C, Visarutratna P, Srichairatanakool S, Tantiworawit A, Phrommintikul A, Chattipakorn SC, Chattipakorn N. Heart rate variability as an alternative indicator for identifying cardiac iron status in non-transfusion dependent thalassemia patients. *PLoS One.* 2015;10(6):e0130837.

PEER-REVIEWED ABSTRACTS

1. **Siri-Angkul N**, Woon MT, Gregorich ZR, Olorundare O, Lee Y, Kamp TJ. LRRRC10 exerts L-type Ca^{2+} current-specific modulation through interaction with the N-terminus of $\text{Ca}_v1.2$. *Biophys J*. 2024;124(3),451a.
2. **Siri-Angkul N**, Woon MT, Gregorich ZR, Olorundare O, Lee Y, Kamp TJ. Leucine-Rich Repeat-Containing Protein 10 Modulates Human Cardiac L-Type Ca^{2+} Channels but not T-Type Ca^{2+} Channels. *Circ Res*. 2024;135(Suppl_1),AMo059-AMo059.
3. Fefelova N, **Siri-Angkul N**, Gwathmey J, Xie LH. Cardiac Ferroptosis Induced Through Novel Signaling Pathways. *Circulation*. 2021;144:A11118.
4. Kumfu S, Sripetchwandee J, **Siri-Angkul N**, Sumneang N, Maneechote C, Arunsak B, Chunchai T, Chattipakorn SC, Chattipakorn N. Ferroptosis Inhibitor Exerts Greater Efficacy Than Apoptosis and Necroptosis Inhibitors on Improving Cardiac Function via Restoring Cardiac Mitochondrial Function and Attenuating Cardiomyocyte Death in Rats With Iron-Overloaded Cardiomyopathy. *Circulation*. 2021;144:A9379.
5. Fefelova N, Wongjaikam S, **Siri-Angkul N**, Gwathmey J, Chattipakorn N, Chattipakorn SC, Xie LH. Deficiency of Mitochondrial Calcium Uniporter Protects Mouse Hearts From Iron Overload by Attenuating Ferroptosis. *Circulation*. 2020;142:A15737.
6. **Siri-Angkul N**, Gordan R, Wongjaikam S, Fefelova N, Gwathmey J, Chattipakorn SC, Chattipakorn N, Xie LH. Activation of Transient Receptor Potential Canonical Channel Currents in Iron-Overloaded Cardiac Myocytes. *Circ Res*. 2019;125:A507. — Awarded "top 10 percent of the accepted abstracts" and selected to be re-presented at The American Heart Association (AHA) Scientific Sessions 2019
7. **Siri-Angkul N**, Gordan R, Wongjaikam S, Fefelova N, Gwathmey J, Chattipakorn SC, Chattipakorn N, Xie LH. Cardiac Iron Overload: Impacts on Cellular Electrophysiology and Calcium Handling. *J Physiol Sci*. 2019;69:S106 (1P-046).
8. Gordan R, Wongjaikam S, Fefelova N, **Siri-Angkul N**, Gwathmey JK, Chattipakorn SC, Chattipakorn N, Xie LH. Mitochondrial permeability transition pore, calcium uniporter and iron overload in the heart. *Circ Res*. 2018;123:A254.
9. Tanajak P, Sa-nguanmoo P, Sivasinprasasn S, Thummasorn S, Intachai K, **Siri-Angkul N**, Chattipakorn SC, Chattipakorn N. Dipeptidyl peptidase-4 inhibitor markedly enhances the cardioprotective efficacy of sodium-glucose cotransporter-2 inhibitor in pre-diabetic rats with cardiac ischemia-reperfusion injury. *Eur Heart J*. 2017;38(suppl_1):1246-1247.

CONFERENCE SHORT PAPERS AND ABSTRACTS

1. **Siri-Angkul N**, Woon MT, Gregorich ZR, Lee Y, Kamp TJ. Leucine-Rich Repeat-Containing Protein 10 Potentiates L-Type Calcium Current Through Short-N-Terminus and Long-N-Terminus Isoforms of $\text{Ca}_v1.2$. *Proceeding of the 42nd International Society for Heart Research-North American Section (ISHR-NAS) Meeting*. 2023;41.
2. **Siri-Angkul N**, Gordan R, Wongjaikam S, Fefelova N, Qu Z, Gwathmey JK, Chattipakorn SC, Chattipakorn N, Xie LH. Cellular electrophysiology in cardiac iron overload: arrhythmogenic role of TRPC channels. *Proceeding of the 17th Neurologic and Cardiac Electrophysiology Symposium (NCES)*. 2019;32-33.
3. **Siri-Angkul N**, Chattipakorn N, Xie LH. Electrophysiological alterations and calcium dyshomeostasis in iron-overloaded ventricular cardiomyocytes. *Proceeding of The Prince Mahidol Award Youth Program (PMAYP) Conference*. 2019;33-35.

TEXTBOOKS

1. **Siri-Angkul N**, Chattipakorn SC, Chattipakorn N. *Cardiotoxicity Caused by Doxorubicin and Trastuzumab: Current Understanding for Future Preventive Strategies*. In: Atta-ur-Rahman, editor. *Frontiers in Clinical Drug Research - Anti-Cancer Agents* (Vol. 9). UAE: Bentham Science Publishers; 2024. p.116-148