

● 活動目的

1. 肺高血圧症関連臨床研究のサポート(臨床研究支援部門)
2. 難治性循環器疾患の病態解明と新たな治療法開発(基礎研究部門)

● 活動状況

1. 臨床研究支援部門

- 1) 支援体制 臨床研究看護師 1 名.
- 2) 支援内容と成果 肺高血圧症に関する臨床研究支援を行っている。過去 10 年以上、共同研究機関である京都大学ゲノム医学センターと実施してきた、肺高血圧症の遺伝子解析研究を進展させ、北海道大学、大阪公立大学、香川大学、山口大学など新たに他施設の参加も得て新規のレジストリ研究として、“肺高血圧症における臨床およびオミックス情報の統合レジストリ研究[RADDAR-J[78]]”をスタートした。2025年3月末時点で500例を超える登録例数となっている。加えて、肺高血圧症に関する国内外の他施設主導の3つのレジストリ研究にも参加中である。

2. 基礎研究部門

肺高血圧症の病態解明と新規治療法の開発.

1) 体制

- a) 構成員: 医師 1 名, 客員研究員 3 名, 技術補佐員 1 名
- b) 競争的資金獲得状況: なし
- c) 共同研究機関: 京都大学ゲノム医学センター, 岡山大学大学院医歯薬学総合研究科薬理学分野

2) 研究内容と成果

基礎研究部門 肺高血圧症は、肺動脈壁の平滑筋細胞が異常に増殖することにより肺動脈の中膜が肥厚して動脈が狭窄することが原因で、最終的に心不全に至る稀な疾患である。肺高血圧症は経験豊富な専門医でなければ診断に難渋することが多く、特異的なバイオマーカーの発見が望まれている。近年、アクチビン受容体のリガンド阻害薬が肺動脈性肺高血圧症の治療に有望であることが報告され、また、治療開始前のアクチビンA血中濃度が予後と関連する可能性も示されてきた。当研究室では、これまでに 700 名以上の肺高血圧症患者から血清を採取・保管してあるため、これを用いてアクチビン受容体の各種リガンドの計測を行い、治療前後の変化などから特異的なバイオマーカーの候補を探索中である。

● 研究業績

学会発表

7th World Symposium on Pulmonary Hypertension

H. Tanaka, M. Hashida, T. Nakazawa, K. Kiyama, M. Kano, H. Matsubara

Systematic analysis of platelet-derived growth factor signaling pathway components reveals unique signaling dependencies in pulmonary hypertension, June 29, Barcelona, SPAIN

招待講演

1. Chongqing PH Conference; Determinants of long-term survival in PH patients, CHINA (Remote), April 20, 2024.
2. EASOPH 2024 (Speaker); Remission Induction in PAH (Chair); Case competition, Seoul, KOREA, July 20, 2024.
3. Asia Pacific PH forum 2024: Future treatment landscape, Emerging treatment pathways in PAH, Seoul, KOREA, July 21, 2024.
4. 10th Annual Pulmonary Embolism Scientific Symposium, BPA-CTEPH conference: Will BPA Achieve Equipose with PTE Surgery in Treating CTEPH? Boston, USA, September 11, 2024.
5. 10th Annual Pulmonary Embolism Scientific Symposium (Panelist): PERT International Breakfast Roundtable; Session 12 CTED/CTEPH Monitoring: BPA, Workshop E: Not Quite CTEPH: What to Do: BPA in CTEPD: What is the Experience. Boston, USA, September 12-13, 2024.
6. Echo Seoul & Cardiac Imaging 2024: Balloon pulmonary angioplasty for CTEPH; Evolution and Practical tips, Seoul, KOREA, September 28, 2024
7. ENCORE SEOUL 2024, (Operator); Live session IX, Samsung Medical Center (CTEPH), (Panelist); Vein II, Current practice of CTEPH, (Speaker); Recent advance and innovative approach of BPA in patients with CTEPH, Seoul, KOREA, October 9-11, 2024.
8. THE ARISTOTLE CLASSES ON PH & ACHD; Current condition with BPA. Any room for improvement? Thessaloniki, GREECE (Remote), October 12, 2024.
9. 14th National Scientific Conference of the Pulmonary Circulation Section of the Polish Cardiac Society, (Speaker); What has changed in the treatment of Pulmonary Hypertension after WSPH2024 Congress. Krakow, POLAND, October 18, 2024.
10. Meeting Master: Balloon Pulmonary Angioplasty, (Speaker); Holistic Overview of CTEPH Treatment: Current Practices in Japanese Medical Centers, (Operator); Live-demo cases, (Speaker); Navigating the Complexities of BPA Surgery: Techniques and Outcomes, Taichung, TAIWAN, November 6-7, 2024.
11. EACTS ICA joint webina; Balloon pulmonary angioplasty, (Remote), December 11, 2024.
12. Asan-Severance PH Academy 2024; Paradigm Shift in PAH Treatment: Remission Induction is Possible?; Non-surgical Management of CTEPH: from anticoagulation to BPA, Seoul, KOREA, December 14, 2024.
13. Masterclass 1: Therapies Targeting the Prostacyclin Pathway in Pulmonary Arterial Hypertension and Chronic Thromboembolic Pulmonary Hypertension. (Speaker); What does my crystal ball see for BPA in CTEPH/CTEPD?; My experience on prostacyclin treatments in PAH, Mardin, TURKEY (Remote), January 10, 2025.
14. Special lecture at King Faisal Specialist Hospital & Research Center, (Speaker); Balloon Pulmonary Angioplasty for CTEPH. Riyadh, SAUDI ALABIA, January 15, 2025.
15. 2025 PVRI International Conference; Medical and Surgical management of CTED/CTEPH, Rio de Janeiro, BRAZIL, January 30, 2025.
16. 2025 Chongqing Pulmonary Hypertension Conference Intervention Forum; State of the art PAH treatment, Chongqing, CHINA (Remote), March 30, 2025.

● 論文

1. Tanabe N, Kumamaru H, Tamura Y, Kondoh Y, Nakayama K, Kinukawa N, Kimura T, Nishiyama O, Tsujino I, Shigeta A, Morio Y, Inoue Y, Kuraishi H, Hirata KI, Tanaka K, Kuwana M, Nagaoka T, Handa T, Sugimura K, Sakamaki F, Naito A, Taniguchi Y, **Matsubara H**, Hanaoka M, Inami T, Hayama N, Nishimura Y, Kimura H, Miyata H, Tatsumi K, Group J. Pulmonary Hypertension With Interstitial Pneumonia: Initial Treatment Effectiveness and Severity in a Japan Registry. *JACC Asia*. 2024;4:403–417. doi: 10.1016/j.jacasi.2024.01.009
2. Tamura Y, Hosokawa K, Horimoto K, Ikeda S, Inami T, Kubota K, Nakanishi N, Shirai Y, Tanabe N, Tsujino I, **Matsubara H**. Development and Validation of Quality Indicators for Pulmonary Arterial Hypertension Management in Japan: A Modified Delphi Consensus Study. *Diagnostics (Basel)*. 2024;14. doi: 10.3390/diagnostics14232656
3. Suruga K, Shimokawahara H, Miyagi A, Sugiyama Y, Suetomi T, Ogawa A, **Matsubara H**. Flow Grade-Based Success Rates, Complication Rates, and Balloon Pulmonary Angioplasty Patency for Total Occlusions. *Can J Cardiol*. 2024;40:625–633. doi: 10.1016/j.cjca.2023.12.004
4. Sato K, Shimokawahara H, **Matsubara H**. Balloon Pulmonary Angioplasty for a Patient With Central-Type Chronic Thromboembolic Pulmonary Hypertension With Lung Cavitation. *JACC Cardiovasc Interv*. 2024;17:707–708. doi: 10.1016/j.jcin.2023.11.022
5. **Matsubara H**. Multidisciplinary Team Approach for the Management of Chronic Thromboembolic Pulmonary Hypertension. *Korean Circ J*. 2024;54:422–424. doi: 10.4070/kcj.2024.0193
6. Kim NH, D'Armini AM, Delcroix M, Jais X, Jevnikar M, Madani MM, **Matsubara H**, Palazzini M, Wiedenroth CB, Simonneau G, Jenkins DP. Chronic thromboembolic pulmonary disease. *Eur Respir J*. 2024. doi: 10.1183/13993003.01294-2024
7. Kanezawa M, Shimokawahara H, Miyagi A, **Matsubara H**. Stenting of isolated pulmonary artery stenosis in an adult patient with RNF213 p.Arg4810Lys variant. *Can J Cardiol*. 2024. doi: 10.1016/j.cjca.2024.05.003
8. Kanezawa M, Shimokawahara H, Ejiri K, Goten C, Okada H, Sato K, Yuasa S, **Matsubara H**. Effects of medical therapy and age on cardiac output changes following balloon pulmonary angioplasty: Implications for combination therapy in chronic thromboembolic pulmonary hypertension. *J Heart Lung Transplant*. 2024. doi: 10.1016/j.healun.2024.05.007
9. Gerges C, **Matsubara H**, Lang I. Low diffusing capacity for carbon monoxide in chronic thromboembolic pulmonary hypertension: a biomarker for microvascular disease? *Heart*. 2024. doi: 10.1136/heartjnl-2024-324237
10. Delcroix M, Pepke-Zaba J, D'Armini AM, Fadel E, Guth S, Hoole SP, Jenkins DP, Kiely DG, Kim NH, Madani MM, **Matsubara H**, Nakayama K, Ogawa A, Ota-Arakaki JS, Quarck R, Sadushi-Kolici R, Simonneau G, Wiedenroth CB, Yildizeli B, Mayer E, Lang IM. Worldwide CTEPH Registry: Long-Term Outcomes With Pulmonary Endarterectomy, Balloon Pulmonary Angioplasty, and Medical Therapy. *Circulation*. 2024. doi: 10.1161/CIRCULATIONAHA.124.068610
11. Aggarwal V, Giri J, Visovatti SH, Mahmud E, **Matsubara H**, Madani M, Rogers F, Gopalan D, Rosenfield K, McLaughlin VV, American Heart Association Council on Clinical C, Council on Peripheral Vascular D, Council on Cardiopulmonary CCP, Resuscitation, Council on C, Stroke N. Status and Future Directions for Balloon Pulmonary Angioplasty in Chronic Thromboembolic Pulmonary Disease With and Without Pulmonary Hypertension: A Scientific Statement From the American Heart Association. *Circulation*. 2024; 149:e1090–e1107. doi:10.1161/CIR.0000000000001197