Japan

HAN-P-14

Go Hirai

Professor, Kyushu University
Email: gohirai@phar.kyushu-u.ac.jp

Website	https://gohirailab.com/
Social Media Channel	@HiraiLab_chem
Research Field(s)	Organic Chemistry, Natural Products, Carbohydrate Chemistry

Academic Career

B.S.: Tohoku University (1997, Prof. Masahiro Hirama)
Ph.D.: Tohoku University (2002, Prof. Masahiro Hirama)
Assistant Professor@Tohoku University (2002-2004. Prof. Mikiko Sodeoka) Research Scientist@RIKEN (2004-2016, Prof. Mikiko Sodeoka) Professor@Kyushu University (2016-)

Selected Publications

1. Linkage-Editing of melibiosamine: Synthesis and biological evaluation of CH2– and CHF-linked analogs, Moritsuka, N. et al. J. Org. Chem. 89, 11909–11920 (2024).

2. Structure–activity relationship study of nitrogen signaling factors, Matoba, H. et al. Bioorg. Med. Chem. Lett. 109, 129857 (2024).

3. Linkage-Editing Pseudo-Glycans: A Reductive α-Fluorovinyl-C-Glycosylation Strategy to Create Glycan Analogs with Altered Biological Activities, Moriyama, T. et al.. J. Am. Chem. Soc. 146, 2237–2247 (2024).

4. Photoredox-catalyzed protecting-group-free C-glycosylation with glycosyl sulfinate via the Giese reaction, Miura, T. et al. Chem. Commun., 59, 8564-8567 (2023).

5. Ligand-controlled Stereoselective Synthesis and Biological Activities of 2-Exomethylene Pseudo-glycoconjugates: Discovery of Mincle-Selective Ligands, Ikazaki, T. et al. Angew. Chem. Int. Ed., 62, e202302569 (2023).

6. Effect of Alkynyl Group on Reactivity in Photoaffinity Labeling with 2-Thienyl-Substituted α-Ketoamide, Moriyama, T. et al. Chem. Eur. J. 28, e2021039 (2022).

7. Ganglioside GM3 Analogues Containing Monofluoromethylene-linked Sialoside: Synthesis, Stereochemical Effects, Conformational Behavior, and Biological Activities, Hirai, G. et al. JACS Au, 1,137-146 (2021).

8. Synthesis of DFGH-ring derivatives of physalins via one-pot construction of GH-ring and evaluation of their NF-κB inhibitory activity, Yoritate, M. et al. Org. Lett. 22, 8877-8881 (2020).

Why My Lab?

My lab can offer opportunities to acquire skills in organic synthesis as well as methodologies for evaluating biological activity and elucidating molecular functions. Our research focuses on

synthesizing uniquely designed, moderately complex molecules and uncovering their biological activities. Recently, we have also incorporated MD (Molecular Dynamics) calculations and DFT (Density Functional Theory) calculations to explore the relationship between molecular dynamics and biological activity.