

## Medicinal Chemistry, Organic Chemistry

### Principal Investigator

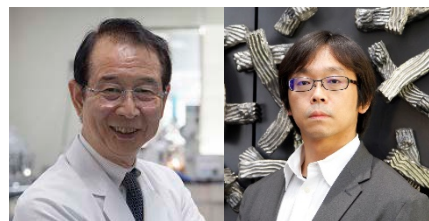
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### Other Faculty Members

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## Major Scientific Interests of the Group

Our research objective is to create drugs that act on the central nervous system, especially for orexin and opioid receptors.

## Projects for Regular Students in Doctoral or Master's Programs

- 1) Design and synthesis of orexin receptor agonists and antagonists
- 2) Design and synthesis of opioid receptor agonists and antagonists

## Study Programs for Short Stay Students (one week – one trimester)

- 1) Organic synthesis of orexin and/or opioid ligands
- 2) Purification technique for organic compounds

## Selected Publications

- 1) **Kutsumura N**, Koyama Y, Saitoh T, Yamamoto N, Nagumo Y, Miyata Y, Hokari R, Ishiyama A, Iwatsuki M, Otoguro K, Ōmura S, **Nagase H**. Structure-Activity Relationship between Thiol Group-Trapping Ability of Morphinan Compounds with a Michael Acceptor and Anti-*Plasmodium falciparum* Activities. **Molecules** 30, 127360, 2020.
- 2) **Kutsumura N**, Koyama Y, Suzuki Y, Tominaga K, Yamamoto N, Saitoh T, Nagumo Y, **Nagase H**. Favorskii-Type Rearrangement of the 4,5-Epoxymorphinan Skeleton. **Org. Lett.** 20, 1559-1562, 2018.
- 3) **Nagase H**, Yamamoto N, Yata M, Ohru S, Okada T, Saitoh T, **Kutsumura N**, Nagumo Y, Irukayama-Tomobe Y, Ishikawa Y, Ogawa Y, Hirayama S, Kuroda D, Watanabe Y, Gouda H, Yanagisawa M. Design and Synthesis of Potent and Highly Selective Orexin 1 Receptor Antagonists with a Morphinan Skeleton and their Pharmacologies. **J. Med. Chem.** 60, 1018-1040, 2017.
- 4) Nagahara T, Saitoh T, **Kutsumura N**, Irukayama-Tomobe Y, Ogawa Y, Kuroda D, Gouda H, Kumagai H, Fujii H, Yanagisawa M, **Nagase H**. Design and Synthesis of Non-Peptide, Selective Orexin Receptor 2 Agonists. **J. Med. Chem.** 58, 7931-7937, 2015.