

## Original Publications

- (308) Ohshita, R.; Kutsumura, N.; Nagumo, Y.; Yamamoto, N.; Saitoh, T.; Hirayama, S.; Fujii, H.; Nagase, H., Synthesis of Novel 1,3-Dioxo-5-thiazatriquinane and 1-Oxa-3,5-dithiazatriquinane Derivatives and their Pharmacologies, *Heterocycles* **2018**, in press.
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- (304) Kutsumura, N.; Okada, T.; Imaide, S.; Fujii, H.; Nagase, H., Acetic Anhydride-Mediated Retro-Ene Reaction via a [4.4.3]Propellane Skeleton Intermediate Containing a Quaternary Ammonium Linkage, *synthesis* **2018**, in press.
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- (300) Hideaki Fujii, Naoyuki Shimada, Masaki Ohtawa, Fumika Karaki, Masayoshi Koshizuka, Kohei Hayashida, Mitsuhiro Kamimura, Kazuishi Kakino, Tohru Nagamitsu, Hiroshi Nagase, Deprotection of silyl ethers by using SO<sub>3</sub>H silica gel: Application to the sugar, nucleoside, and alkaloid derivatives, *Tetrahedron*, **73**, 5425-5429, **2017**. IF: 2.645
- (299) Noriki Kutsumura, Yasuaki Koyama, Yasuyuki Nagumo, Ryo Nakajima, Yoshiyuki Miyata, Naoshi Yamamoto, Tsuyoshi Saitoh, Kaoko Yoshida, Satoshi Iwata, and Hiroshi Nagase, Antitrichomonal activity of  $\delta$  opioid receptor antagonists, 7-benzylidennaltrexone

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#### Invited Lectures

- (67) くすりと健康 2018 春季講演会（日本薬学会関東支部・市民講座）  
演題：睡眠・覚醒の謎に挑む～副題：睡眠病の治療薬を目指して～  
日時：2018 年 5 月 26 日、東京
- (66) 創薬薬理フォーラム第 64 回談話会  
演題：難治性そう痒症治療薬の研究開発

- 日時：2018 年 5 月 18 日、東京
- (65) 慢性肝疾患と関連疾患を考える会  
演題：難治性そう痒症治療薬の研究開発  
日時：2018 年 3 月 14 日、茨城
- (64) 第 40 回白金シンポジウム  
演題：オレキシン受容体選択的リガンドの設計・合成  
日時：2018 年 2 月 27 日、東京
- (63) 東レ株式会社医薬研究所  
演題：トリマーリガンドの合成と化合物ライブラリーへの応用  
日時：2018 年 2 月 16 日、神奈川
- (62) 全薬工業株式会社  
演題：トリマーリガンドの合成とその薬理作用  
日時：2017 年 12 月 15 日、東京
- (61) 技術情報協会  
演題：痒みにおける臨床ニーズとモデルマウス作成・薬効評価  
日時：2017 年 11 月 24 日、東京
- (60) 26th French-Japanese Symposium on Medicinal & Fine Chemistry, “Design and Synthesis of Orexin Receptor Selective Ligands”, France, September 18, 2017.
- (59) 第 37 回鎮痛薬・オピオイドペプチドシンポジウム、「ナルフラフィンの嫌悪性分離の機序の解明」、「全身投与可能なオピオイド  $\delta$  受容体作動薬、KNT-127 の設計・合成」、2017 年 9 月 8 日、東京
- (58) 慢性肝疾患と関連疾患を考える会  
演題：難治性掻痒症治療薬の研究開発  
日時：2017 年 8 月 31 日、栃木
- (57) 北海道大学  
演題：オレキシンリガンドの研究開発  
日時：2017 年 7 月 5 日
- (56) 特別学術シンポジウム  
演題：難治性搔そう痒症治療薬・ナルフラフィンの開発と痒みの機序  
日時：2017 年 6 月 27 日
- (55) 京都大学大学院薬学研究科  
演題：オピオイド系およびオレキシン系薬物の研究開発  
日時：2017 年 4 月 27 日
- (54) 小野薬品工業株式会社  
演題：オレキシン受容体リガンドの探索研究  
日時：2016 年 11 月 2 日

- (53) 厚木市皮膚科医会例会  
演題：ナルフラフィンの研究開発と新規痒みの機序の解明  
日時：2016 年 10 月 20 日
- (52) 富山化学工業株式会社  
演題：ナルフラフィンの研究開発、オレキシン受容体リガンドの探索研究、トリプレト薬の研究と化合物ライブラリーへの応用  
日時：2016 年 10 月 14 日
- (51) The 12th JSH Single Topic Conference  
演題：Design and Synthesis of Nalfurafine for an Antipruritic Drug for Chronic liver Disease Patients and kidney Dialysis Patients  
日時：2016 年 9 月 23 日
- (50) Tsukuba Global Science Week 2016  
演題：Design and Synthesis of Orexin 2 Receptor Agonists  
日時：2016 年 9 月 19 日
- (49) FIP2016  
演題：The science and the development of non-addictive opioid receptor agonists  
日時：2016 年 8 月 30 日
- (48) 第 36 回鎮痛薬・オピオイドペプチシンポジウム  
演題：オレキシン 2 受容体作動薬の設計・合成  
日時：2016 年 8 月 19 日
- (47) Orexin Expert Forum  
演題：医薬標的としてのオレキシン系  
日時：2016 年 7 月 16 日
- (46) 日本睡眠学会第 41 回定期学術集会  
演題：オレキシン受容体作動薬：創薬への展望  
日時：2016 年 7 月 7 日
- (45) 第 13 回 GPCR 研究会  
演題： $\kappa$  受容体拮抗薬ナルフラフィンの開発と痒みの発生機序  
日時：2016 年 5 月 13 日
- (44) 技術情報協会  
演題：難治性掻痒症治療薬の研究開発と痒みの最新メカニズム  
日時：2016 年 4 月 19 日
- (43) 第 23 回分子皮膚科学フォーラム  
演題：難治性そう痒症治療薬・ナルフラフィンの開発と痒み機序の解明  
日時：2016 年 4 月 15 日
- (42) 全薬工業株式会社



- 演題：オレキシン作動薬の設計・合成と薬理作用」  
日時：2016 年 3 月 11 日
- (41) 脳・肝インターフェースメディシン研究センター シンポジウム  
演題：オレキシン 2 受容体選択的作動薬の研究開発とその薬理作用」  
演題：Design and Synthesis of OX2R selective agonists and their pharmacologies  
日時：2016 年 3 月 7 日
- (40) 持田製薬株式会社創薬研究所  
演題：オレキシン関連創薬  
日時：2016 年 1 月 19 日
- (39) Pacifichem 2015  
演題：Design and synthesis of novel ligands of opioid receptors  
日時：2015 年 12 月 17 日
- (38) 第 133 回日本薬理学会関東部会ミニシンポジウム  
演題：ナルフラフィンの OX1R 拮抗作用と U-50488H の嫌悪作用との関係  
日時：2015 年 10 月 10 日
- (37) 第 18 回近畿薬剤師学術大会 in 神戸  
演題：患者ニーズに根ざした新薬開発 – 難治性そう痒症治療薬を例にして –  
日時：2015 年 8 月 30 日
- (36) テンプル大学  
演題：Study and Development of Opioid  $\kappa$  Agonist, Nalfurafine and their Clinical Effects  
日時：2015 年 7 月 27 日
- (35) Drug Discovery & Therapy World Congress 2015  
演題：DESIGN AND SYNTHESIS OF NOVEL  $\delta$  OPIOID AGONISTS AND THEIR  
PHARMACOLOGIES  
日時：2015 年 7 月 23 日
- (34) 北海道大学  
演題：難治性掻痒症治療薬ナルフラフィンの研究開発  
日時：2015 年 7 月 16 日
- (33) 大日本住友製薬株式会社  
演題：難治性そう痒治療薬の研究開発  
日時：2015 年 7 月 6 日
- (32) 富士フィルム株式会社  
演題：難治性そう痒治療薬の研究開発と痒みの最新メカニズム  
日時：2015 年 6 月 30 日
- (31) 株式会社 技術情報協会  
演題：痒みの最新メカニズムと難治性掻痒症治療薬のポイント

- 日時：2015 年 3 月 31 日
- (30) 第 88 回日本薬理学会年会  
演題： $\delta$  作動薬の設計・合成  
日時：2015 年 3 月 20 日
- (29) 脳肝インターフェースメディスンセンター 分子神経科学部門シンポジウム 2015  
演題：難治性掻痒症治療薬ナルフラフィンの研究開発とその作用機序  
日時：2015 年 3 月 13 日
- (28) ライフイノベーション学位プログラム 第二回シンポジウム  
演題：Study and development of opioid  $\kappa$  agonist, nalfurafine and their clinical effects  
日時：2015 年 1 月 21 日
- (27) DPhG Jahrestagung 2014  
演題：Synthesis of a novel opioid receptor agonist, SYK-146 with 1,3,5-trioxazatriquinane skeleton and its pharmacologies  
日時：2014 年 9 月 23 日～26 日
- (26) 都医学研国際シンポジウム, 2014 年 9 月 4 日～6 日(東京)  
演題：design and synthesis of novel ligands for opioid receptors  
日時：2014 年 9 月 4 日～6 日
- (25) 協和発酵キリン  
演題：ナルフラフィンの研究開発と最近の研究  
日時：2014 年 8 月 22 日
- (24) 鳥居薬品  
演題：難治性掻痒症 治療薬レミッチカプセルの創出  
日時：2014 年 7 月 24 日
- (23) R & D 支援センター  
演題：難治性掻痒症治療薬の研究開発と臨床試験のポイント  
日時：2014 年 6 月 24 日
- (22) University of Minnesota  
演題：Design and Synthesis of Opioid Receptor Type Selective Ligands  
日時：2014 年 6 月
- (21) 大正製薬 医薬化学研究所  
演題：オピオイド受容体タイプ選択的薬物の研究開発  
日時：2014 年 6 月 6 日
- (20) 金沢大学  
演題：2 つの独創的新薬(ドルナー、ナルフラフィン)の創製  
日時：2014 年 5 月 22 日
- (19) 東レ株式会社

- 演題：オピオイド選択的薬物の設計と合成  
日時：2014 年 2 月 28 日
- (18) 全薬工業株式会社 中央研究所  
演題：創薬化学探索研究から開発まで  
日時：2014 年 2 月 14 日
- (17) 名古屋大学トランスフォーマティブ生命分子研究所 (ITbM)  
演題：ベラプロスト、ナルフラフィンの開発とオレキシン作動薬の研究  
日時：2014 年 2 月 5 日
- (16) 住友化学 健康・農業関連事業研究所  
演題：プロスタグランジンおよびオピオイド系医薬の創薬研究  
日時：2014 年 1 月 31 日
- (15) 有機合成化学協会関東支部ミニシンポジウム千葉 2013  
演題：オピオイド受容体タイプ選択的リガンドの設計・合成  
日時：2013 年 11 月 18 日
- (14) The 2<sup>nd</sup> HBP Symposium at Tsukuba Global Science Week 2013  
演題：Synthesis of Novel Triplets with 1,3,5-Trioxazatriquinane Skeleton Using Nitrogen Clamp  
日時：2013 年 10 月 2 日
- (13) 第 7 回日本緩和医療薬学会年会  
演題：2 つの薬が世に出るまで：安定型プロスタグランジン I2 誘導体（ドルナー）  
および難治性掻痒症治療薬レミッチカプセルの探索研究から発売まで  
日時：2013 年 9 月 15 日
- (12) 国立がん研究センター研究所  
演題：オピオイド受容体拮抗薬の原虫症治療薬としての効果およびその作用機序  
（癌治療薬としての可能性）  
日時：2013 年 8 月 26 日
- (11) 旭化成ファーマ株式会社  
演題：ベラプロストとナルフラフィンの研究開発  
日時：2013 年 7 月 26 日
- (10) 田辺三菱研究所  
演題：ドルナーとナルフラフィンの研究開発  
日時：2013 年 7 月 4 日
- (9) 日本透析医学会学術集会・総会  
演題：熾烈な新薬開発競争を振り返って～ $\mu$ 受容体作動薬（モルヒネから依存性を分離した薬物）はどう創製されたか～  
日時：2013 年 6 月 21 日

- (8) 東レ医薬研究所  
演題：オピオイド受容体選択的薬物の設計と合成  
日時：2013 年 3 月 19 日
- (7) 全薬工業株式会社  
κ オピオイド受容体作動薬ナルフラフィン塩酸塩の研究開発  
日時：2013 年 3 月 8 日
- (6) 筑波大学  
分子行動科学研究コア医科学セミナー  
演題：難治性掻痒症治療薬・ナルフラフィン塩酸塩の研究開発  
日時：2012 年 11 月 21 日
- (5) 東京大学弥生講堂 第 17 回分生研シンポジウムアカデミア創薬～分子標的と化合物の力～  
演題：難治性咳嗽治療薬、TRK-851 の研究開発  
日時：2012 年 10 月 29 日
- (4) New Trends in Pain Research from Basic Research to Clinical Translation  
Invited Opening Lecture in Italy  
演題：Translational Research in Itching: Research and Development of nalfurafine Hydrochloride and its Application to Kidney Dialysis Patients with intractable pruritus.  
日時：2012 年 9 月 13 日
- (3) 技術情報協会セミナー痒みのメカニズム/評価法と新薬開発戦略  
演題：難治性掻痒症治療薬ナルフラフィン塩酸塩の研究開発  
日時：2012 年 8 月 20 日
- (2) 日本薬理学会関東支部会招待講演  
演題：ナルフラフィン塩酸塩の研究開発  
日時：2012 年 7 月 14 日
- (1) Wuxi pharma Tech 社（上海の合成/アッセイ・GLP 対応試験受託会社）招待講演  
演題：Design and Synthesis of a Novel Antipruritic Agent, Nalfurafine Hydrochloride.  
日時：2012 年 6 月 4 日

#### Patents

- (58) スルホンアミド誘導体またはその薬学的に許容される酸付加塩  
特願 2017-238093  
長瀬 博、柳沢 正史、斉藤 毅、入鹿山 容子
- (57) 鎮痛薬による眠気の予防または治療薬  
特願 2017-235529  
長瀬 博、柳沢 正史、斉藤 毅、下山 恵

- (56) Novel slow-wave sleep-inducing agent  
特願 2017-202225  
Michael Lazarus, 齊藤 毅、長瀬 博、Mustafa Korkutata
- (55) モルヒナン誘導体  
特願 2017-166577  
長瀬 博、山本 直司、渡邊 義一、茂木 雄三
- (54) モルヒナン誘導体  
US 出願(15/463,418)  
長瀬 博、山本 直司
- (53) モルヒナン誘導体  
特願 2017-023444  
長瀬 博、山本 直司
- (52) モルヒナン誘導体及びその医薬用途  
PCT/JP2016/081995  
長瀬 博、山本 直司、入鹿山 容子、齊藤 毅、柳沢 正史、南雲 康行
- (51) モルヒナン誘導体のオピオイド  $\delta$  受容体アゴニスト関連疾患の治療のための使用  
特願 2016-203925  
長瀬 博、藤井 秀明、斎藤 顕宜、中田 恵理子、廣瀬 雅朗、大井 勲、  
林田 康平
- (50) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
201480075340.9  
長瀬 博、永原 崇志
- (49) モルヒナン誘導体  
特願 2016-156049  
長瀬 博、藤井 秀明、斎藤 顕宜、中田 恵理子、廣瀬 雅朗、大井 勲、  
林田 康平
- (48) モルヒナン誘導体及びその医薬用途  
特願 2016-155477  
長瀬 博、山本 直司、入鹿山 容子、齊藤 毅、柳沢 正史、南雲 康行
- (47) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
10-2016-7018768  
長瀬 博、永原 崇志
- (46) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
2014362150  
長瀬 博、永原 崇志
- (45) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩

- 201691221  
長瀬 博、永原 崇志  
(44) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
14869823.6  
長瀬 博、永原 崇志  
(43) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
201647023610  
長瀬 博、永原 崇志  
(42) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
2016/04748  
長瀬 博、永原 崇志  
(41) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
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長瀬 博、永原 崇志  
(40) ナルフラフィン含有経皮吸収添付剤  
PCT/JP2016/ 68860  
長瀬 博、多田 麻希子、八島 恵、佐伯 健  
(39) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
PCT/JP2016/067405  
長瀬 博、柳沢 正史、斉藤 毅、沓村 憲樹、入鹿山 容子  
(38) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
1458-2016  
長瀬 博、永原 崇志  
(37) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
MX/a/2016/007661  
長瀬 博、永原 崇志  
(36) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
000782-2016/DIN  
長瀬 博、永原 崇志  
(35) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
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長瀬 博、永原 崇志  
(34) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩  
15/103,085  
長瀬 博、永原 崇志  
(33) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩

2933147

長瀬 博、永原 崇志

- (32) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩

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長瀬 博、永原 崇志

- (31) スルホンアミド誘導体またはその薬学的に許容される 酸付加塩

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長瀬 博、永原 崇志

- (30) スルホンアミド誘導体またはその薬学的に許容される酸付加塩

特願 2015-552533

長瀬 博、永原 崇志

- (29) モルヒナン誘導体

PCT/JP2016/58475

長瀬 博、藤井 秀明、斎藤 顕宜、中田 恵理子、廣瀬 雅朗、大井 勲、  
林田 康平

- (28) スルホンアミド誘導体またはその薬学的に許容される酸付加塩

PCT/JP2016/054700、特願 2017-500731

柳沢 正史、長瀬 博、入鹿山 容子、斉藤 毅

- (27) ナルフラフィン含有局所適用製剤

PCT/JP2015/ 77741

長瀬 博、佐伯 健、下山 潤、多田 麻希子

- (26) ナルフラフィン含有経皮吸収添付剤

特願 2015-126282

長瀬 博、多田 麻希子、八島 恵、佐伯 健

- (25) オレキシン 1 受容体拮抗薬

2015-212553

長瀬 博、山本 直司、入鹿山 容子、斉藤 毅

- (24) スルホンアミド誘導体またはその薬学的に許容される酸付加塩

2015-119785

長瀬 博、柳沢 正史、斉藤 毅、沓村 憲樹、入鹿山 容子

- (23) モルヒナン誘導体

特願 2015-54079

長瀬 博、藤井 秀明、斎藤 顕宜、中田 恵理子、廣瀬 雅朗、大井 勲、  
林田 康平

- (22) アミド誘導体またはその薬学的に許容される酸付加塩

2015-31041

- 柳沢 正史、長瀬 博、入鹿山 容子、斉藤 毅
- (21) スルホンアミド誘導体またはその薬学的に許容される酸付加塩  
PCT/JP2014/082961  
長瀬 博、永原 崇志
- (20) オレキシン受容体拮抗剤  
特願 2014-222969  
長瀬 博、入鹿山 容子、小川 靖裕、宮本 美津子、新田 一功
- (19) ナルフラフィン含有局所適用製剤  
特願 2014-201237  
長瀬 博、佐伯 健、下山 潤、多田 麻希子
- (18) スルホンアミド誘導体またはその薬学的に許容される酸付加塩  
特願 2013—257523  
長瀬 博、永原 崇志
- (17) プロペラン誘導体  
特願 2013—66941  
長瀬 博、藤井 秀明
- (16) モルヒナン誘導体  
特願 2013—47325  
長瀬 博、藤井 秀明、中田 恵理子、渡邊 義一、高橋 俊弘
- (15) モルヒナン誘導体  
特願 2013—47324  
長瀬 博、藤井 秀明、中田 恵理子、渡邊 義一、高橋 俊弘
- (14) プロペラン誘導体  
特願 2013—12104  
長瀬 博、藤井 秀明
- (13) モルヒナン誘導体  
特願 2012—72868  
長瀬 博、藤井 秀明、中田 恵理子、渡邊 義一、高橋 俊弘
- (12) モルヒナン誘導体  
特願 2012—168402  
長瀬 博、藤井 秀明、中田 恵理子、渡邊 義一、高橋 俊弘
- (11) モルヒナン誘導体  
特願 2012—168401  
長瀬 博、藤井 秀明、中田 恵理子、渡邊 義一、高橋 俊弘
- (10) モルヒナン誘導体  
特願 2012—51741



- 中田 恵理子、藤井 秀明、長瀬 博
- (9) 掻痒症改善経皮吸収貼付類  
特願 2012—9168  
長瀬 博、有吉 知加子、原 和好、丸山 喜通
- (8) ジフェニルメチルピペラジン誘導体およびそれを含有する医薬組成物  
特許番号：第 4782441 号  
竹内 勤、長瀬 博、長 由美子、小林 正規
- (7) 6,14-エポキシモルヒナン誘導体及びその医薬用途  
特開 2009—51749  
長谷部 光、中島 真弓、長瀬 博
- (6) オキサビシクロ「2. 2. 2」オクタンを骨格とするモルヒナン誘導体及びその医薬用途  
特開 2009—196933  
長谷部 光、中島 真弓、長瀬 博
- (5) 4a,9a-架橋-ヘキサヒドロ-1H-インデノピリジン誘導体、その医薬用途、及びその製造方法  
特開 2008—179556  
木綿 しのぶ、泉本 直樹、長瀬 博
- (4) ピロール縮合モルヒナン誘導体及びその医薬用途  
特開 2008—179554  
長谷部 光、木綿 しのぶ、長瀬 博
- (3) 薬剤耐性解除用の医薬  
特開 2008—37790  
長瀬 博、長 由美子、竹内 勤、小林 正規、狩野 繁之
- (2) オピオイド  $\delta$  受容体アゴニスト  
特願 2008—522628  
長瀬 博（国際出願 WO 2008/001859 A1）.
- (1) 止痒剤  
特願 2002—311186  
長瀬 博、内海 潤、遠藤 孝、田中 利明、川村 邦明