Wenjun Tang, Ph.D.

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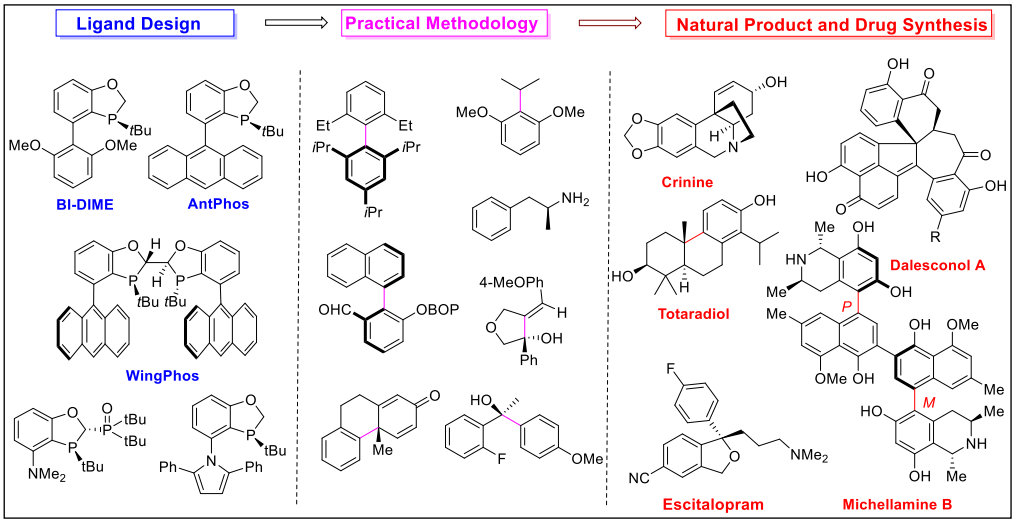
RESEARCH INTERESTS

- Design and development of novel, efficient, and practical chiral catalytic reactions
- Total synthesis of complex and biologically active natural products
- Development of efficient, economical, and green chemical processes for pharmaceutically important molecules



EDUCATION

2003-2005 Postdoctoral research, Organic Chemistry, The Scripps Research Institute
Advisor: Professor K. C. Nicolaou

1998-2003 Ph. D., Organic and Organometallic Chemistry, The Pennsylvania State University
Thesis title: "Development of Efficient Chiral Ligands for Asymmetric Catalysis"
Advisor: Professor Xumu Zhang

1995-1998 M.S., Organic Chemistry, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences
Thesis title: "Synthetic Studies of Benzolactam V8 Derivatives"
Advisor: Professor Dawei Ma

1991-1995 B. Eng., Pharmaceutical Engineering, East China University of Sciences and Technology
Thesis title: "Synthetic Studies of Enofloxacin and Vitamin E Succinate"
Advisor: Professor Guohou Cheng

WORK EXPERIENCE

2011.7-present Research Professor, State Key Laboratory of Bioorganic and Natural Products Chemistry, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences, P. R. China

Lead a group of students, postdocs, and lab assistants in various research areas; Develop a unique ligand system for green syntheses of chiral natural products and drugs that have been widely applied in both academia and industry; Develop several novel catalytic reactions for efficient syntheses of natural products and small molecule drugs; Specialized in asymmetric cross-coupling reactions, asymmetric hydrogenation, asymmetric boration, and asymmetric cyclization; Specialized in developing highly efficient catalytic reactions (high TONs) and green synthesis of drugs.

2009-2011 Principal Scientist, Department of Chemical Development, Boehringer Ingelheim Pharmaceuticals, Inc.
2005-2009 Senior Scientist, Department of Chemical Development, Boehringer Ingelheim Pharmaceuticals, Inc.

Made numerous contributions on many key BI projects as a lead process chemist; designed and developed practical and economical synthetic processes; produced and delivered various drug substances in multi kilo-grams

2003-2005 Postdoctoral Research Associate, Department of Chemistry, The Scripps Research Institute

- Accomplished the structural determination and first total synthesis of a complex marine toxin --- azaspiracid (Highlight in C&ENews, **2004**)
- Developed a novel, catalytic asymmetric three-component reaction for the synthesis of chiral 2,3-disubstituted cycloalkanone
- Furnished a key intermediate with correct stereochemistry for the synthesis of a complex metabolite-Vannusal

1998-2003 Research Assistant, Department of Chemistry, The Pennsylvania State University

- Developed several structurally novel, efficient, and practical chiral phosphorous and nitrogen ligands for asymmetric hydrogenation such as TangPhos (Highlight in C&ENews, **2002**), BINAPINE (Highlight in C&EN news, **2003**), *o*-Ph-HexaMeO-BIPHEP, *o*-BINAPO, phospholane oxazoline, and NOBIN-based ligands
- Investigated extensively various metal-catalyzed asymmetric reactions, particularly asymmetric hydrogenation, asymmetric cyclopropanation, asymmetric Michael addition, and asymmetric Heck reaction.
- Established several excellent hydrogenation and cyclopropanation catalysts for efficient syntheses of important chiral intermediates (α-amino acids, β-amino acids, chiral amines)
- Developed a novel synthesis of an antidepressant drug, sertraline via asymmetric hydrogenation by using a new designed catalyst

1995-1998 Research Assistant, Shanghai Institute of Organic Chemistry, Chinese Academy of Sciences

- Accomplished the synthesis of a series of Benzolactam V8 derivatives in seeking novel isozyme-selective Protein Kinase C regulators.

1994-1995 Research Assistant, Department of Pharmaceutical Engineering, East China University of Sciences and Technology

- Improved a synthetic step for the synthesis of Enofloxacin. Conducted the synthetic study of Vitamin E succinate
- Gained strong training in chemical engineering and pharmaceutical engineering. Familiarized the manufacturing process of drugs.

AWARDS

1. WuXi AppTech Life Science and Chemistry Award, 2019
2. Asian Core Program Lectureship Award, 2015
3. National Homogeneous Catalysis Youth Award, 2015
4. May 4th Medal, The Science and Technology Commission of Shanghai Municipality, 2014
5. Shanghai "Pujiang Talents" Program, 2013
6. Thieme Chemistry Journal Award, 2012
7. Excellence in Action Award, 2010, Boehringer Ingelheim Pharmaceuticals, Inc.
8. President's Award, 2009, Boehringer Ingelheim Pharmaceuticals, Inc.
9. Individual Excellence Award, 2009, Boehringer Ingelheim Pharmaceuticals, Inc.
10. Team Spirit Award (twice), 2008, Boehringer Ingelheim Pharmaceuticals, Inc.
11. Golden Achievement Award, 2007, Boehringer Ingelheim Pharmaceuticals, Inc.
12. Golden Achievement Award, 2006, Boehringer Ingelheim Pharmaceuticals, Inc.
13. Golden Achievement Award, 2005, Boehringer Ingelheim Pharmaceuticals, Inc.
14. Dalalian Fellowship, 2002, The Pennsylvania State University
15. Dalalian Fellowship, 2001, The Pennsylvania State Univeristy
16. Dalalian Graduate Research Award, 2000, The Pennsylvania State University

PROFESSIONAL AFFILIATIONS American Chemical Society, Chinese Chemical Society, Royal Chemical Society

JOURNAL PUBLICATIONS

1 He Yang, Jiawei Sun, Wei Gu, **Wenjun Tang***, Enantioselective Cross-Coupling for Axially Chiral Tetra-*ortho*-Substituted Biaryls and Asymmetric Synthesis of Gossypol" *J. Am. Chem. Soc*. doi: 10.1021/jacs.0c02686

2 Ronghua Xu, He Yang*, **Wenjun Tang***, "Efficient Synthesis of Chiral Drugs Facilitated by P-Chiral Phosphorus Ligands", *Chin. J. Org. Chem.*, accepted. (cjoc202003015) (Account)

3 "P-Chiral Phosphorus Ligands for Cross-Coupling and Asymmetric Hydrogenation Reactions" Ting Wu, Guangqing Xu, **Wenjun Tang***, *Aldrichimica ACTA* **2020**, *53*, 27.

4 "Enantioselective Formation of Quaternary Carbon Stereocenters in Natural Product Synthesis: A Recent Update" Chengxi Li, Sherif Shaban Ragab, Guodu Liu,* **Wenjun Tang***, *Nat. Prod. Rep.* **2020,** *37*, 276.

5 "Expedite Construction of Various Bridged Polycyclic Skeletons by Palladium-Catalyzed Dearomatization" Xingye Mu, Henian Peng, Wenrui Xiong, Ting Wu, **Wenjun Tang*** *Angew. Chem. Int. Ed.* **2020,** doi: 10.1002/anie.2020000953.

6 "Enantioselective Rhodium-Catalyzed Addition of Arylboroxines to N-Unprotected Ketimines: Efficient Synthesis of Cipargamin" Jinbin Zhu, Linwei Huang, Wei Dong, Naikai Li, Xingxin Yu, Wei-Ping Deng,* **Wenjun Tang*** *Angew. Chem. Int. Ed.* **2019**, 16119-16123.

7 "Stereoelectronic Effects in Ligand Design: Enantioselective Rhodium-Catalyzed hydrogenation of Aliphatic Cyclic Tetrasubstituted Enamides and Concise Synthesis of (R)-Tofacitinib" Chengxi Li, Feng Wan, Yuan Chen, Henian Peng, **Wenjun Tang**,* Shu Yu,* J. Christopher McWilliams,* Jason Mustakis, Lacey Samp, Robert J. Maguire, *Angew. Chem. Int. Ed.* **2019**, 58, 13573-13583.

8 "Enantioselective Palladium-Catalyzed Cross-Coupling between α-Bromo Carboxamides an Arylboronic Acids"Bowen Li, Tiejun Li, Myinat A. Aliyu, Zhen Hua Li, **Wenjun Tang*** *Angew. Chem. Int. Ed.* **2019**, 58, 11355-11359.

9 "P-Chiral Phosphorus Ligands on the Basis of a 2,3-Dihydrobenzo[d][1,3]oxaphosphole Motif for Asymmetric Catalysis" Guangqing Xu, Chris H. Senanayake, **Wenjun Tang*** *Acc. Chem. Res.* **2019**, *52*, 1101-1112.

10 "P-Chiral Monophosphorus Ligands for Asymmetric Copper-Catalyzed Allylic Alkylation" Wenrui Xiong, Guangqing Xu, Xinhong Yu*, **Wenjun Tang*** *Organometallics* **2019**, *38*, 4003.

11 "Efficient Enantioselective Syntheses of Chiral Natural Products Facilitated by Ligand Design" He Yang, **Wenjun Tang*** *Chem. Rec.* **2020,** *20*, 23-40.

12 "Enantioselective palladium-catalyzed C(sp2)-H carbamoylation" Wenfeng Dong, Guangqing Xu, **Wenjun Tang*** *Tetrahedron* **2019**, *75*, 3239-3247.

13 "Ligand-free nickel-catalyzed Kumada couplings of aryl bromides with *tert*-butyl Grignard reagents" ZhenghanWu, Tengda Si, Guangqing Xu, Bin Xu,* **Wenjun Tang*** *Chin. Chem. Lett.* **2019**, *30*, 597−600. .

14 "Efficient Nickel-Catalyzed Regioselective Enantioselective Intramolecular Reductive Cyclization of N-Alkynones" Guodu Liu, Wenzhen Fu, Xingye Mu, Ting Wu, Ming Nie, Kaidi Li, Xiaodong Xu, **Wenjun Tang*** *Communication. Chemistry* **2018**, *1*, 90. DOI: 10.1038/s42004-018-0092.

15 "Optically active N-Alkyl Aziridines via Stereospecific Reductive Cyclization of α-Mesylated Acetamides" Duanshuai Tian, Henian Peng, Ziyue Liu, **Wenjun Tang*** *Org. Chem. Front.* **2018**, *5*, 2723-2727.

16 "Efficient Synthesis of (-)-Corynoline by Enantioselective Palladium Catalyzed α-Arylation with Sterically Hindered Substrates" Xiaofeng Rao,§ Naikai, Li,§ Heng Bai,§ Chaodi Dai, Zheng Wang, **Wenjun Tang*** *Angew. Chem. Int. Ed.* **2018**, *57*, 12328-12332.

17 "Stereospecific Nucleophilic Substitution with Arylboronic Acids as Nucleophiles in the Presence of a CONH Group" Duanshuai Tian,§ Chengxi Li,§ Guoxian Gu, Henian Peng, Xumu Zhang,* **Wenjun Tang*** *Angew. Chem. Int. Ed.* **2018**, *57*, 7176-7180.

18 "Asymmetric Construction of 3-Azabicyclo[3.1.0]hexane Skeleton with Five Contiguous Stereogenic Centers by Cu-Catalyzed 1,3-Dipolar Cycloaddition of Trisubstituted Cyclopropenes" Hua Deng, Wu-Lin Yang, Fei Tian, Wenjun Tang, Wei-Ping Deng,* *Org. Lett.* **2018**, *20*, 4121-4125.

19 "Enantioselective Synthesis of Chiral-at-Cage o-carborane via Pd-Catalyzed Asymmetic B-H Substitution" Ruofei Chen, Bowen Li, Jie Wu, Jie Zhang, Zaozao Qiu, **Wenjun Tang**, Shu-Li You, Yong Tang, Zuowei Xie *J. Am. Chem. Soc.* **2018**, *140*, 4508-4511.

20 "Asymmetric Synthesis of 3,4-Dihydroquinolin-2-ones via a Stereoselective Palladium-Catalyzed Decarboxylative [4+2] Cycloaddition" Jing-Hai Jin, Hao Wang, Zhong-Tao Yang, Wu-Lin Yang, **Wenjun Tang**,* Wei-Ping Deng,* *Org. Lett.* **2018**, *20*, 104-107.

21 "Efficient P-Chiral Biaryl Bisphosphorus Ligands for Palladium-Catalyzed Asymmetric Hydrogenation" Wenhao Jiang, Qing Zhao, **Wenjun Tang*** *Chin. J. Chem*. **2018**, *36*, 153-156.

22 "Efficient Cross-Coupling of Aryl/Alkenyl Triflates with Acyclic Secondary Alkylboronic Acids" Tengda Si, Bowen Li, Wenrui Xiong, Bin Xu‡ and **Wenjun Tang**‡ *Org. Bioorg. Chem.* **2017**, *15*, 9903-9909.

23 "Practical and Asymmetric Reductive Coupling of Isoquinolines Templated by Chiral Diborons" Dongping Chen, Guangqing Xu, Qinghai Zhou, Lung Wa Chung, **Wenjun Tang*** *J. Am. Chem. Soc.* **2017**, *139*, 9767−9770.

24 Total Synthesis and Stereochemical Assignment of Delavatine A: Rh-Catalyzed Aysmmetric Hyrogenation of Inden-Type Tetrasubstituted Olefins and Kinetic Resolution through Pd-Catalyzed Triflamide-Directed C-H Olefination" Zhongyin Zhang, Jinxin Wang, Jian Li, Fan Yang, **Wenjun Tang**, Weiwei He, Jian-Jun Fu, Yun-Heng Shen, Ang Li, Wei-Dong Zhang, *J. Am. Chem. Soc.* **2017**, *139*, 5558-5567.

25 "Efficient Syntheses of (-)-Crinine and (-)-Aspidospermidine, and the Formal Synthesis of (-)-Minfiensine by Enantioselective Intramolecular Dearomative Cyclization" Kang Du, He Yang, Pan Guo, Liang Feng, Guangqing Xu, Qianghai Zhou, Lung Wa Chung, **Wenjun Tang*** *Chem. Sci.* **2017**, *8*, 6247-6256.

26 "Enantioselective Palladium-Catalyzed Diboration of 1,1-Disubstituted Allenes" Jiawang Liu, Ming Nie, Qinghai Zhou, Shen Gao, Wenhao Jiang, Lung Wa Chung,* **Wenjun Tang,*** Kuiling Ding,* *Chem. Sci.* **2017**, 8, 5161-5165.

27 "Efficient Enantioselective Syntheses of (+)-Dalesconol A & B" Guoqing Zhao, Guangqing Xu, Chao Qian, **Wenjun Tang*** *J. Am. Chem. Soc.* **2017**, 139，3360-3363.

28 "Sequential C-H Arylation and Enantioselective Hydrogenation Enables Ideal Aysmmetric Entry to the Indenopiperidine Core of an 11 β -HSD-1 Inhibitor" Xudong Wei, **Wenjun Tang** et al. *J. Am. Chem. Soc.* **2016**, *138*, 15473-15481.

29 "Transition-Metal-Free Stereospecific Cross-Coupling with Alkenylboronic Acids as Nucleophiles" Chengxi Li, Yuanyuan Zhang, Qi Sun, Tongnian Gu, Henian Peng, **Wenjun Tang*** *J. Am. Chem. Soc.* **2016**, *138*, 10774-10777.

30 "Highly Enantioselective Rhodium-Catalyzed Addition of Arylboroxines to Simple Ketones: Efficient Synthesis of Escitalopram" Linwei Huang, Jinbin Zhu, Guangjun Jiao, Zheng Wang, Xinxin Yu, Wei-Ping Deng,* **Wenjun Tang*** *Angew. Chem., Int. Ed.* **2016**, *55*, 4527.

31 "Synthesis of Chiral 1,4-Benzodioxanes and Chromans by Enantioselective Palladium-Catalyzed Alkene Aryloxyarylation" Naifu Hu, Ke Li, Zheng Wang, **Wenjun Tang*** *Angew. Chem., Int. Ed.* **2016**, *55*, 5044.

32 " *J. Am. Chem. Soc.* **2016**, *138*, 15473-15481

33 "Addressing the Challenges in Suzuki–Miyaura Cross-Couplings by Ligand Design" Chengxi Li, Dongping Chen, **Wenjun Tang*** *Synlett* **2016**, *27*, 2183-2200 (invited account)

34 "Chiral Monophosphorus Ligands for Asymmetric Catalytic Reactions" Wenzhen Fu, **Wenjun Tang*** *ACS Catal.* **2016**, *6*, 4814 (invited review)

35 "Transition-metal catalyzed asymmetric carbon–carbon cross-coupling with chiral ligands" He Yang, Xingtong Yang, **Wenjun Tang*** *Tetrahedron* **2016**, *72*, 6143 (invited review).

36 "Synthesis of Triptoquinone H and its C-5 Epimer via Efficient Asymmetric Dearomative Cyclization" Zhen Cao, Kang Du, Jianhui Liu,* **Wenjun Tang*** *Tetrahedron* **2016**, *72*, 1782-1786.

37 "Efficient synthesis of chiral biaryls via asymmetric Suzuki-Miyaura cross-coupling of ortho-bromo aryl triflates" Xingtong Yang, Guangqing Xu, **Wenjun Tang*** *Tetrahedron* **2016**, *72*, 5178-5183(Invited paper).

38 "Enantioselective Nickel-Catalyzed Alkylative Alkyne-Aldehyde Cross-Couplings" Ming Nie, Wenzhen Fu, Ziping Cao, **Wenjun Tang*** *Org. Chem. Front.* **2015**, 2, 1322-1325.

39 "Efficient Synthesis of P-Chiral Biaryl Phosphonates by Stereoselective Intramolecular Cyclization" Guangqing Xu, Minghong Li, Shouliang Wang, **Wenjun Tang*** *Org. Chem. Front.* **2015**, *2*, 1342-1345.

40 "Concise and Practical Asymmetric Synthesis of a Challenging Atropisomeric HIV Integrase Inhibitor" Keith R. Fandrick, Wenjie Li, Yongda Zhang, Wenjun Tang, Joe Gao, Sonia Rodriguez, Nitinchandra D. Patel, Diana C. Reeves, Jiang-Ping Wu, Sanjit Sanyal, Nina Gonnella, Bo Qu, Nizar Haddad, Jon C. Lorenz, Kanwar Sidhu, June Wang, Shengli Ma, Nelu Grinberg, Heewon Lee, Youla Tsantrizos, Marc-André Poupart, Carl A. Busacca, Nathan K. Yee, Bruce Z. Lu, Chris H. Senanayake *Angew. Chem., Int. Ed.* **2015**, *54*, 7144-7148

41 "Synthesis of Chiral α-Amino Tertiary Boronic Esters by Enantioselective Hydroboration of α-Arylenamides" Naifu Hu,† Guoqing Zhao,† Yuanyuan Zhang, Xiangqian Liu, Guangyu Li, **Wenjun Tang*** *J. Am. Chem. Soc.* **2015**, *137*, 6746-6749.

42 "Concise and Practical Asymmetric Synthesis of a Challenging Atropiosmeric HIV Integrase Inhibitor" Keith R. Fandrick, Wenjun Tang, et al. *Angew. Chem. Int. Ed.* **2015**, *54*, 7144-7148.

43 "Enantioselective Palladium-Catalyzed Dearomative Cyclization for Efficient Synthesis of Terpenes and Steroids" Kang Du, Pan Guo, Yuan Chen, Zheng Cao, **Wenjun Tang*** *Angew. Chem., Int. Ed.* **2015**, *54*, 3033 (hot paper, highlighted by *Synfacts*).

44 "Efficient Syntheses of Sterically Hindered Acyclic Secondary Alkyl Arenes by Suzuki-Miyaura Cross-Couplings" Chengxi Li, Tianyu Chen, Guolan, Xiao, Bowen Li, **Wenjun Tang*** *Angew. Chem., Int. Ed.* **2015**, *54*, 3792.

45 "Highly Enantioselective Nickel-Catalyzed Intramolecular Reductive Cyclization of Alkynone" Wenzhen Fu, Ming Nie, Aizhen Wang, **Wenjun Tang*** *Angew. Chem., Int. Ed.* **2015**, *54*, 2520. (Highlighted by *Synfacts*)

46 "Development of an Enantioselective Hydrogenation Route to (S)-1-(2-(Methylsulfonyl)pyridine-4-yl)propan-1-amine" Jonathan T. Reeves, **Wenjun Tang**, et al. *Org. Process Res. Dev.* **2014**, *18*, 904.

47 "Development of Efficient Asymmetric Suzuki-Miyaura Couplings and Synthetic Applications" Guangqing Xu, Qing Zhao, **Wenjun Tang,*** *Chin. J. Org. Chem.* **2014**, *34*, 1919-1940. (Invited Account, Cover Paper)

48 "Sterically Demanding Aryl-Alkyl Suzuki-Miyaura Coupling" Chengxi Li, Guolan Xiao, Qing Zhao, Huimin Liu, Tao Wang, **Wenjun Tang*** *Org. Chem. Front.* **2014**, *1*, 225-229 (highlighted as *OCF* Cover Paper)

49 "Efficient Syntheses of Korupensamine A, B and Michellamine B by Asymmetric Suzuki-Miyaura Coupling Reactions" Guangqing Xu, Wenzhen Fu, Guodu Liu, Chris H. Senanayake, **Wenjun Tang*** *J. Am. Chem. Soc.* **2014**, *136*, 570−573 (highlighted as *JACS* Cover Paper, by Synfacts)

50 "Practical Syntheses of *N*-Acetyl (E)-β-Arylenamides" Zhihua Cai, Guodu Liu, Guangjun Jiao, Chris H. Senanayake, **Wenjun Tang*** *Synthesis* **2013**, *45*, 3355-3360.

51 "Search for Ideal P-Chiral Phosphorus Ligands for Practical Asymmetric Hydrogenation and Asymmetric Suzuki-Miyaura Coupling" Guodu Liu, Guangqing Xu, Renshi Luo, **Wenjun Tang*** *Synlett*, **2013,** *24*, 2465–247. (Synpacts, invited review)

52 "Asymmetric Ring-Opening of Oxabenzonorbornadiene with Amines Promoted by a Chiral Iridium-monophosphine catalyst" Renshi Luo, Jianhua Liao, Ling Xie, **Wenjun Tang,*** Albert S. C. Chan *Chem. Commun.* **2013**, *49*, 9959-9961.

53 "A Chiral Ruthenium –Monophosphine Catalyst for Asymmetric Addition of Arylboronic Acids to Aryl Aldehydes" Ke Li, Naifu Hu, Renshi Luo, Weicheng Yuan, **Wenjun Tang*** *J. Org. Chem.* **2013**, *78*, 6350-6355.

54 "Enantioselective Rhodium-Catalyzed Addition of Arylboronic Acids to Trifluoromethyl Ketones" Renshi Luo, Ke Li, Yuling Hu, **Wenjun Tang*** *Adv. Syn. Cat.* **2013**, *355*, 1297-1302 (Highlighted by Synfacts)

55 "Design of Phosphorus Ligands with Deep Chiral Pockets: Practical Synthesis fo Chiral β-Arylamines by Asymmetric Hydrogenation" Guodu Liu, Xiangqian Liu, Zhihua Cai, Guangjun Jiao, Guangqing Xu, **Wenjun Tang*** *Angew. Chem., Int. Ed.* **2013**, *52*, 4235-4238 (Highlighted in *Chin. J. Org. Chem.; Chemistry Portal Highlights*)

56 "An Efficient Method for Sterically Demanding Suzuki-Miyaura Coupling Reactions" Qing Zhao, Chengxi Li, Chris H. Senanayake, **Wenjun Tang*** *Chem. Eur. J.*, **2013**, *19*, 2261

57 "The P-Chiral Phosphane Ligand (MeO-BIBOP) for Efficient and Practical Large-Scale Rh-Catalyzed Asymmetric Hydrogenation of N-Acetyl Enamides with High TONs" Wenjie Li,* Sonia Rodriguez, Adil Duran, Xiufeng Sun, **Wenjun Tang,*** Ajith Premasiri, Jun Wang, Kanwar Sidhu, Nitinchandra D. Patel, Jolaine Savoie, Bo Qu, Heewon Lee, Nizar Haddad, Jon C. Lorenz, Larry Nummy, Azad Hossain, Nathan Yee, Bruce Lu, Chris H. Senanayake *Org. Process Res. Dev.* **2013**, *12*, 1061-1065.

58 "Synthesis of a Sodium-Hydrogen Exchange Type 1 (NHE-1) Inhibitor; an Efficient Cu-catalyzed Conjugated Addition of a Grignard Reagent to an Acetyl Pyridinium Salt." **Wenjun Tang**, Nitinchandra Patel, Xudong Wei,* Denis Byrne, Ashish Chitroda, Bikshandarkoil Narayanan, Alexander Sienkiewicz, Laurence J. Nummy, Max Sarvestani, Shengli Ma, Nelu Grinberg, Heewon Lee, Soojin Kim, Zhibin Li, Earl Spinelli, Bing-Shiou Yang, Nathan Yee, and Chris H. Senanayake, *Org. Process Res. Dev.* **2013**, *17*, 382.

59 "Efficient Chiral Monophosphorus Ligands for Asymmetric Suzuki–Miyaura Coupling Reactions" **Wenjun Tang**,* Nitinchandra D. Patel, Guangqing Xu, Xiaobing Xu, Jolaine Savoie, Shengli Ma, Ming-Hong Hao, Santosh Keshipeddy, Andrew G. Capacci, Xudong Wei, Yongda Zhang, Joe J. Gao, Wenjie Li, Sonia Rodriguez, Bruce Z. Lu, Nathan K. Yee, and Chris H. Senanayake *Org. Lett.* **2012**, *14* , 2258–2261

60 "A Practical Asymmetric Synthesis of Isopropyl (1*R*,2*S*)-Dehydrocoronamate" **Wenjun Tang**,* Xudong Wei, Nathan K. Yee, Nitinchandra Patel, Heewon Lee, and Chris H. Senanayake, *Org. Proc. Res. Dev.* **2011**, *15*, 1207-1211

61 "A Mild Palladium-Catalyzed Suzuki Coupling Reaction of Quinoline Carboxylates with Boronic Acid" Wenjie Li,* Joe J. Gao, Yongda Zhang, **Wenjun Tang**, Heewon Lee, Keith R. Fandrick, Bruce Lu, and Chris H Senanayake *Adv. Syn. Cat.* **2011**, *353*, 1671-1675**.**

62 "A Facile Synthesis of *N*-Acetyl Enamides by Reductive Acetylation of Oximes Mediated with Ferrous Acetate: Synthesis of *N*-(1-(4-Bromophenyl)vinyl)acetamide" **Wenjun Tang,*** Nitinchandra D. Patel, Xudong Wei, Nathan K. Yee, and Chris H. Senanayake *Org. Syn.* **2013**, *90*, 62-73.

63 **"** Efficient Monophosphorus Ligands for Palladium-Catalyzed Miyaura Borylation" **Wenjun Tang**,* Santosh Keshipeddy,Yongda Zhang, Xudong Wei, Jolaine Savoie, Nitinchandra D. Patel, Nathan K. Yee, and Chris H. Senanayake *Org. Lett.* **2011**, *13*, 1366-1369.

64 "Dihydrobenzooxaphosphole-Based Monophosphorus Ligands for Palladium-Catalyzed Amination Reactions" Sonia Rodriguez,* Bo Qu, Nizar Haddad, Diana Reeves, **Wenjun Tang**,* Dhileepkumar Krishnamurthy and Chris H. Senanayake *Adv. Asy. Cat.* **2011**, *353*, 533-537

65 "A General and Special Catalyst for Suzuki-Miyaura Coupling Processes" **Wenjun Tang**,* Andrew G. Capacci, Xudong Wei, Wenjie Li, Andre White, Nitinchandra D. Patel, Jolaine Savoie, Joe J. Gao, Sonia Rodriguez, Bo Qu, Nizar Haddad, Bruce Z. Lu, Dhileepkumar Krishnamurthy, Nathan K. Yee and Chris H. Senanayake, *Angew. Chem., Int. Ed.* **2010**, *49*, 5879-5883. *Highlighted as "Synfact of the month" by Synfacts in Nov. 2010.*

66 "Copper Catalyzed Asymmetric Propargylation of Aldehydes" Daniel R. Fandrick, Keith R. Fandrick, Jonathan T. Reeves, Zhulin Tan, **Wenjun Tang**, Andrew G. Capacci, Sonia Rodriguez, Jinhua J. Song, Heewon Lee, Nathan K. Yee and Chris H. Senanayake, *J. Am. Chem. Soc.* **2010**, *132*, 7600-7601.

67 "Novel and Efficient Chiral Bisphosphorus Ligands for Rhodium-Catalyzed Asymmetric Hydrogenation" **Wenjun Tang,*** Andrew G. Capacci, Andre White, Shengli Ma, Sonia Rodriguez, Bo Qu, Jolaine Savoie, Nitinchandra Patel, Xudong Wei, Nizar Haddad, Nelu Grinberg, Nathan K. Yee, Dhileep Krishnamurthy, and Chris H. Senanayake, *Org. Lett.* **2010**, *12*, 1104-1107. *Highlighted by Synfacts*.

68 "Novel, Tunable, and Efficient Chiral Bisdihydrobenzooxaphosphole Ligands for Asymmetric Hydrogenation" **Wenjun Tang**,* Bo Qu, Andrew Capacci, Sonia Rodriguez, Xudong Wei, Nizar Haddad, Bikashandarkoil Narayanan, Shengli Ma, Nelu Grinberg, Nathan K. Yee, and Chris H. Senanayake, *Org. Lett.* **2010**, *12,* 176-179

69 "Chromatographic and Spectroscopic Studies on the Chiral Recognition of Sulfated beta-Cyclodextrin as Chiral Mobile Phase Additive." Shengli Ma, Sherry Shen, Nizar Haddad, **Wenjun Tang**, Jing Wang, Heewon Lee, Nathan Yee, Chris Senanayake, Nelu Grinberg, *J. Chromatography A,* **2009**, *1216*, 1232-1240

70 "A Facile and Practical Synthesis of *N*-Acetyl Enamides" **Wenjun Tang**,* Andrew Capacci, Max Sarvestani, Xudong Wei, Nathan K. Yee, and Chris H. Senanayake, *J. Org. Chem.* **2009**, *74*, 9528-9530

71 "Formation of 2-Trifluoromethylphenyl Grignard Reagent via Magnesium-Halogen exchange: Process Safety Evaluation and Concentration Effect" **Wenjun Tang**,* Max Sarvestani,* Xudong Wei, Nitinchandra Patel, Bikshandarkoil Narayanan, Laurence J. Nummy, Denis Byrne, Heewon Lee, Nathan Yee, and Chris H. Senanayake, *Org. Proc. Res. Dev.* **2009**, *13*, 1426-1430.

72 "Development of a Preparative-Scale Asymmetric Synthesis of (R)-p-Tolyl Methyl Sulfoxide for Use in a One-Pot Synthesis of a Drug Intermediate Containing a Trifluoromethyl-Substituted Alcohol Functionality," Zhengxu Han, Jinhua J. Song, Nathan K. Yee, Yibo Xu, **Wenjun Tang**, Jonathan T. Reeves, Zhulin Tan, Xiao-Jun Wang, Bruce Lu, Dhileepkumar Krishnamurthy, Chris H. Senanayake, *Org. Proc. Res. Dev.* **2007**, *11*, 605-608.

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No	Nickname	Full name	Structure	CAS No.	Spec.	Cat. No.

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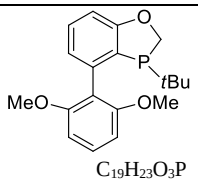
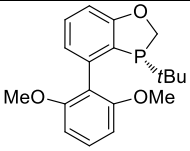
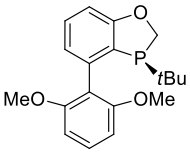
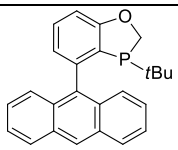
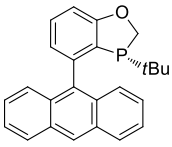
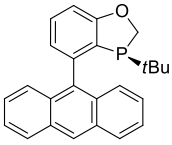
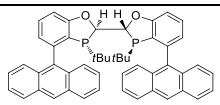
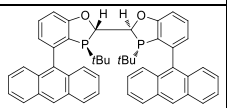
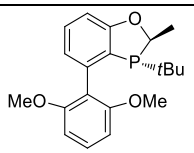
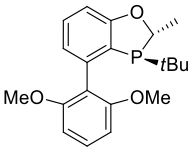
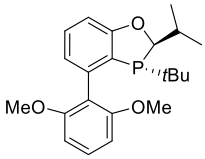
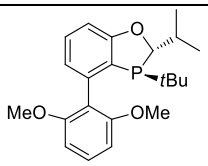
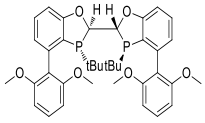
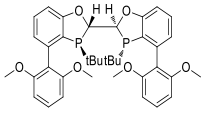
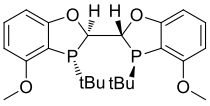
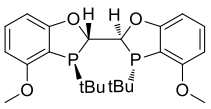
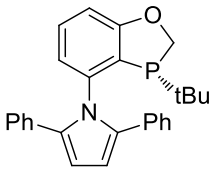
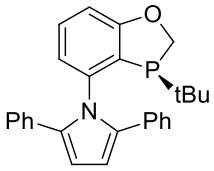
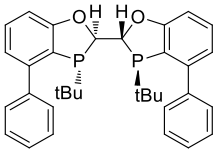
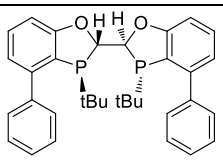
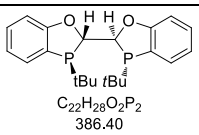
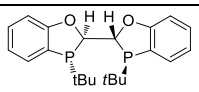
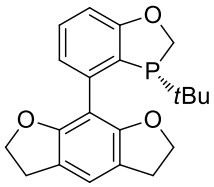
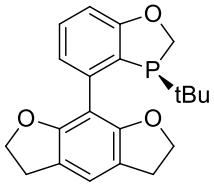
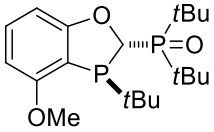
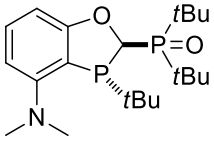
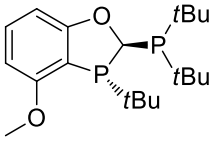
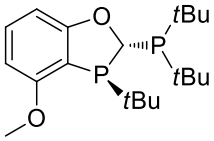
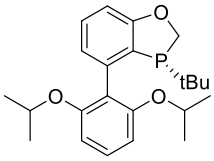
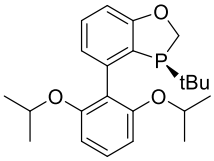
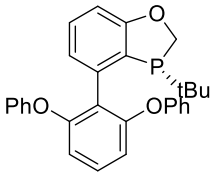
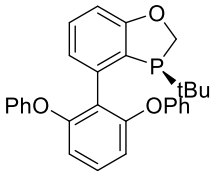
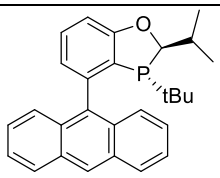
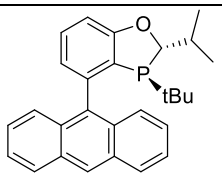
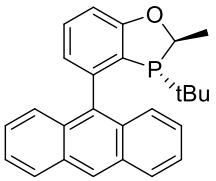
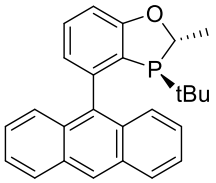
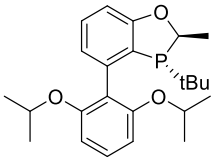
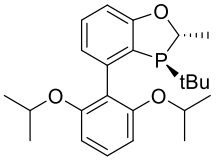
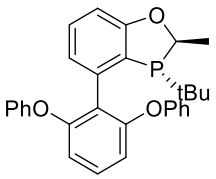
1	*rac*-BIDIME	3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{19}H_{23}O_3P$ MW: 330.36	1246888-90-3	97% purity	ZJ-0011
2	*(R)*-BIDIME	(*R*)-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{19}H_{23}O_3P$ MW: 330.36	1338454-03-7	97% purity >99% ee	ZJ-0022
3	*(S)*-BIDIME	(*S*)-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{19}H_{23}O_3P$ MW: 330.36	1373432-09-7	97% purity >99% ee	ZJ-0018
4	*rac*-AntPhos	4-(anthracen-9-yl)-3-(tert-butyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{25}H_{23}OP$ MW: 370.42	1268693-24-8	97% purity	ZJ-0014
5	*(R)*-AntPhos	(*R*)-4-(anthracen-9-yl)-3-(tert-butyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{25}H_{23}OP$ MW: 370.42	1456816-37-7	97% purity >99% ee	ZJ-0026
6	*(S)*-AntPhos	(*S*)-4-(anthracen-9-yl)-3-(tert-butyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{25}H_{23}OP$ MW: 370.42	1807740-34-6	97% purity >99% ee	ZJ-0024
7	(*2R,2R',3R,3R'*)-WingPhos	(*2R,2'R,3R,3'R*)-4,4'-di(anthracen-9-yl)-3,3'-di-tert-butyl-2,2',3,3'-tetrahydro-2,2'-bibenzo[d][1,3]oxaphosphole	 $C_{50}H_{44}O_2P_2$ MW: 738.83	1884680-45-8	97% purity >99% ee	ZJ-0031
8	(*2S,2S',3S,3S'*)-WingPhos	(*2S,2'S,3S,3'S*)-4,4'-di(anthracen-9-yl)-3,3'-di-tert-butyl-2,2',3,3'-tetrahydro-2,2'-bibenzo[d][1,3]oxaphosphole	 $C_{50}H_{44}O_2P_2$ MW: 738.83	1435940-19-4	97% purity >99% ee	ZJ-0032

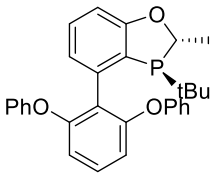
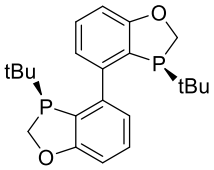
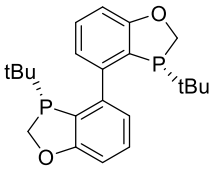
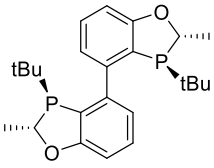
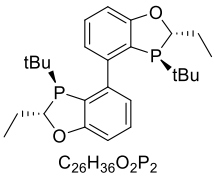
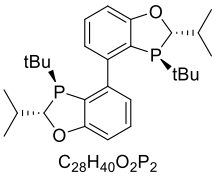
9	(2R,3R)-Me-BIDIME	(2R,3R)-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2-methyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{20}H_{25}O_3P$ MW: 344.38	1477517-18-2	97% purity >99% ee	ZJ-0034
10	(2S,3S)-Me-BIDIME	(2S,3S)-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2-methyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{20}H_{25}O_3P$ MW: 344.38	1373432-11-1	97% purity >99% ee	ZJ-0040
11	(2R,3R)-iPr-BIDIME	(2R,3R)-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2-isopropyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{22}H_{29}O_3P$ MW; 372.44	1477517-19-3	97% purity >99% ee	ZJ-0036
12	(2S,3S)-iPr-BIDIME	(2S,3S)-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2-isopropyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{22}H_{29}O_3P$ MW; 372.44	1477517-21-7	97% purity >99% ee	ZJ-0042
13	(2R,2'R,3R,3'R)-Bis-BIDIME	(2R,2'R,3R,3'R)-3,3'-di-tert-butyl-4,4'-bis(2,6-dimethoxyphenyl)-2,2',3,3'-tetrahydro-2,2'-bibenzo[d][1,3]oxaphosphole	 $C_{38}H_{44}O_6P_2$ 658.70	1884680-48-1	97% purity >99% ee	ZJ-0044
14	(2S,2'S,3S,3'S)-Bis-BIDIME	(2S,2'S,3S,3'S)-3,3'-di-tert-butyl-4,4'-bis(2,6-dimethoxyphenyl)-2,2',3,3'-tetrahydro-2,2'-bibenzo[d][1,3]oxaphosphole	 $C_{38}H_{44}O_6P_2$ 658.70	1435940-21-8	97% purity >99% ee	ZJ-0046
15	(2R,2'R,3R,3'R)-MeO-BIBOP	(2R,2'R,3R,3'R)-3,3'-di-tert-butyl-4,4'-dimethoxy-2,2',3,3'-tetrahydro-2,2'-bibenzo[d][1,3]oxaphosphole	 $C_{24}H_{32}O_4P_2$ 446.46	1228758-57-3	97% purity >99% ee	ZJ-0048

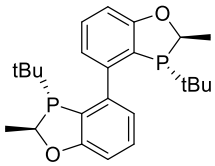
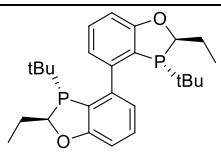
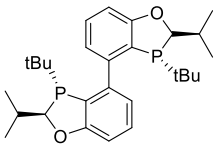
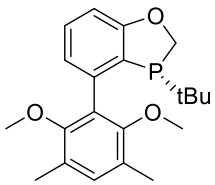
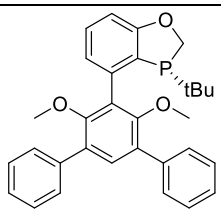
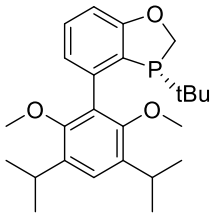
16	(2S,2'S,3S,3'S)-MeO-BIBOP	(2S,2'S,3S,3'S)-3,3'-di-tert-butyl-4,4'-dimethoxy-2,2',3,3'-tetrahydro-2,2'-bibenzo[d][1,3]oxaphosphole	 $C_{24}H_{32}O_4P_2$ 446.46	1202033-19-9	97% purity >99% ee	ZJ-0050
17		(R)-1-(3-(tert-butyl)-2,3-dihydrobenzo[d][1,3]oxaphosphol-4-yl)-2,5-diphenyl-1H-pyrrole	 $C_{27}H_{26}NOP$ 411.48	1884457-40-2	97% purity >99% ee	ZJ-0065
18		(S)-1-(3-(tert-butyl)-2,3-dihydrobenzo[d][1,3]oxaphosphol-4-yl)-2,5-diphenyl-1H-pyrrole	 $C_{27}H_{26}NOP$ 411.48	1683581-58-9	97% purity >99% ee	ZJ-0067
19	(2R,2'R,3R,3'R)-Ph-BIBOP	(2R,2'R,3R,3'R)-3,3'-di-tert-butyl-4,4'-diphenyl-2,2',3,3'-tetrahydro-2,2'-bibenzo[d][1,3]oxaphosphole	 $C_{34}H_{36}O_2P_2$ 538.60	2301856-53-9	97% purity >99% ee	ZJ-0069
20	(2S,2'S,3S,3'S)-Ph-BIBOP	(2S,2'S,3S,3'S)-3,3'-di-tert-butyl-4,4'-diphenyl-2,2',3,3'-tetrahydro-2,2'-bibenzo[d][1,3]oxaphosphole	 $C_{34}H_{36}O_2P_2$ 538.60	1202033-21-3	97% purity >99% ee	ZJ-0086
21	(2S,2'S,3S,3'S)-BIBOP	(2S,2'S,3S,3'S)-3,3'-di-tert-butyl-2,2',3,3'-tetrahydro-2,2'-bibenzo[d][1,3]oxaphosphole	 $C_{22}H_{28}O_2P_2$ 386.40	1202033-17-7	97% purity >99% ee	ZJ-0072

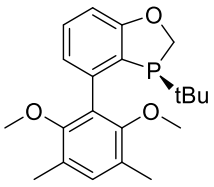
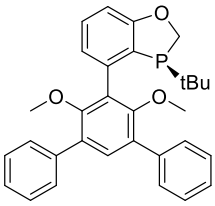
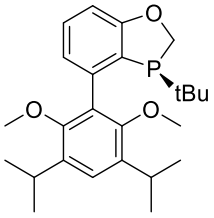
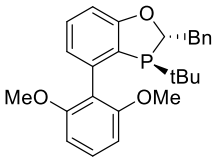
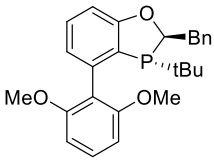
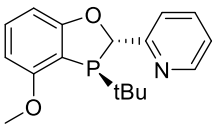
22	(2R,2'R,3R,3'R)-BIBOP	(2R,2'R,3R,3'R)-3,3'-di-tert-butyl-2,2',3,3'-tetrahydro-2,2'-bibenzo[d][1,3]oxaphosphole	 $C_{22}H_{28}O_2P_2$ 386.40	1610785-35-7	97% purity >99% ee	ZJ-0075
23		(R)-3-(tert-butyl)-4-(2,3,5,6-tetrahydrobenzo[1,2-b:5,4-b']difuran-8-yl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{21}H_{23}O_3P$ 354.39	1835717-07-1	97% purity >99% ee	ZJ-0077
24		(S)-3-(tert-butyl)-4-(2,3,5,6-tetrahydrobenzo[1,2-b:5,4-b']difuran-8-yl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{21}H_{23}O_3P$ 354.39	Unknown	97% purity >99% ee	ZJ-0079
25		di-tert-butyl(3-(tert-butyl)-4-methoxy-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)phosphine oxide	 $C_{20}H_{34}O_3P_2$ 384.43	1788085-46-0	97% purity	ZJ-0081(rac)
26		di-tert-butyl-(3-(tert-butyl)-4-(dimethylamino)-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)phosphine oxide	 $C_{21}H_{37}NO_2P_2$ 397.48	1788085-47-1	97% purity	ZJ-0083(rac)
27	(2S,3R)-MeO-POP	(2S,3R)-3-(tert-butyl)-2-(di-tert-butylphosphino)-4-methoxy-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{20}H_{34}O_2P_2$ 368.44	1215081-28-9	97% purity >99% ee	ZJ-0087

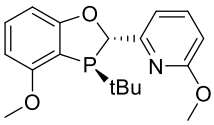
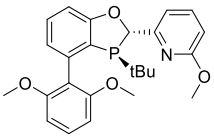
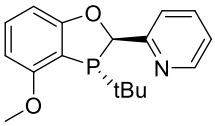
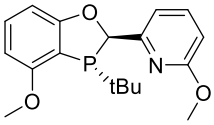
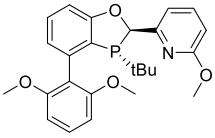
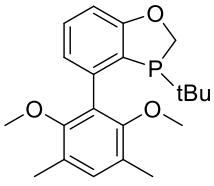
28	(2R,3S)-MeO-POP	(2R,3S)-3-(tert-butyl)-2-(di-tert-butylphosphino)-4-methoxy-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{20}H_{34}O_2P_2$ 368.44	N/A	97% purity >99% ee	ZJ-0088
29		(R)-3-(tert-butyl)-4-(2,6-diisopropoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{23}H_{31}O_3P$ 386.20	1338454-38-8	97% purity >99% ee	ZJ-0089
30		(S)-3-(tert-butyl)-4-(2,6-diisopropoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{23}H_{31}O_3P$ 386.20	N/A	97% purity >99% ee	ZJ-0090
31		(R)-3-(tert-butyl)-4-(2,6-diphenoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{29}H_{27}O_3P$ 454.17	1441830-74-5	97% purity >99% ee	ZJ-0091
32		(S)-3-(tert-butyl)-4-(2,6-diphenoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{29}H_{27}O_3P$ 454.16978	N/A	97% purity >99% ee	ZJ-0092
33		(2R,3R)-4-(anthracen-9-yl)-3-(tert-butyl)-2-isopropyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{28}H_{29}OP$ 412.51	1891002-60-0	97% purity >99% ee	ZJ-0094

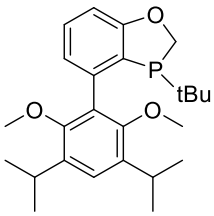
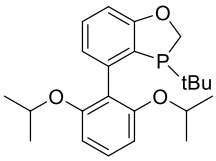
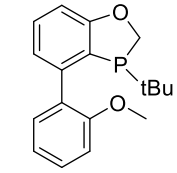
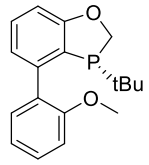
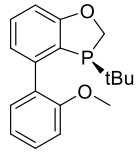
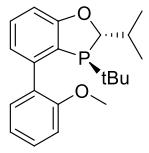
34		(2S,3S)-4-(anthracen-9-yl)-3-(tert-butyl)-2-isopropyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{28}H_{29}OP$ 412.51	1891002-61-1	97% purity >99% ee	ZJ-0096
35		(2R,3R)-4-(anthracen-9-yl)-3-(tert-butyl)-2-methyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{26}H_{25}OP$ 384.46	1477517-20-6	97% purity >99% ee	ZJ-0098
36		(2S,3S)-4-(anthracen-9-yl)-3-(tert-butyl)-2-methyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{26}H_{25}OP$ 384.46	1884594-02-8	97% purity >99% ee	ZJ-0100
37		(2R,3R)-3-(tert-butyl)-4-(2,6-diisopropoxyphenyl)-2-methyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{24}H_{33}O_3P$ 400.21673	N/A	97% purity >99% ee	ZJ-0101
38		(2S,3S)-3-(tert-butyl)-4-(2,6-diisopropoxyphenyl)-2-methyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{24}H_{33}O_3P$ 400.21673	N/A	97% purity >99% ee	ZJ-0102
39		(2R,3R)-3-(tert-butyl)-4-(2,6-diphenoxyphenyl)-2-methyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{30}H_{29}O_3P$ 468.18543	N/A	97% purity >99% ee	ZJ-0103

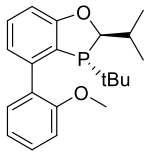
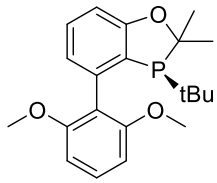
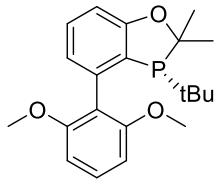
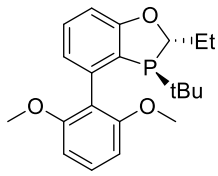
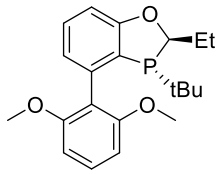
40		(2S,3S)-3-(tert-butyl)-4-(2,6-diphenoxyphenyl)-2-methyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{30}H_{29}O_3P$ 468.18543	N/A	97% purity >99% ee	ZJ-0104
41		(3S,3'S)-3,3'-di-tert-butyl-2,2',3,3'-tetrahydro-4,4'-bibenzo[d][1,3]oxaphosphole	 $C_{22}H_{28}O_2P_2$ 386.41152	2207601-04-3	97% purity >99% ee	ZJ-0105
42		(3R,3'R)-3,3'-di-tert-butyl-2,2',3,3'-tetrahydro-4,4'-bibenzo[d][1,3]oxaphosphole	 $C_{22}H_{28}O_2P_2$ 386.41152	2214207-73-3	97% purity >99% ee	ZJ-0106
43		(2S,2'S,3S,3'S)-3,3'-di-tert-butyl-2,2'-dimethyl-2,2',3,3'-tetrahydro-4,4'-bibenzo[d][1,3]oxaphosphole	 $C_{24}H_{32}O_2P_2$ 414.46552	2207601-10-1	97% purity >99% ee	ZJ-0107
44		(2S,2'S,3S,3'S)-3,3'-di-tert-butyl-2,2'-diethyl-2,2',3,3'-tetrahydro-4,4'-bibenzo[d][1,3]oxaphosphole	 $C_{26}H_{36}O_2P_2$ 442.51952	N/A	97% purity >99% ee	ZJ-0108
45		(2S,2'S,3S,3'S)-3,3'-di-tert-butyl-2,2'-diisopropyl-2,2',3,3'-tetrahydro-4,4'-bibenzo[d][1,3]oxaphosphole	 $C_{28}H_{40}O_2P_2$ 470.57352	2207601-12-3	97% purity >99% ee	ZJ-0109

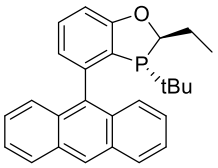
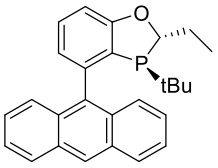
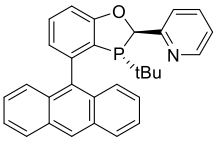
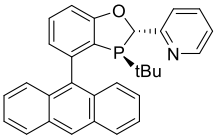
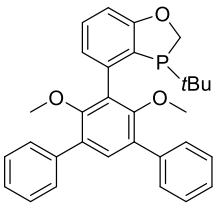
46		(2R,2'R,3R,3'R)-3,3'-di-tert-butyl-2,2'-dimethyl-2,2',3,3'-tetrahydro-4,4'-bibenzo[d][1,3]oxaphosphole	 $C_{24}H_{32}O_2P_2$ 414.46552	2214207-74-4	97% purity >99% ee	ZJ-0110
47		(2R,2'R,3R,3'R)-3,3'-di-tert-butyl-2,2'-diethyl-2,2',3,3'-tetrahydro-4,4'-bibenzo[d][1,3]oxaphosphole	 $C_{26}H_{36}O_2P_2$ 442.51952	N/A	97% purity >99% ee	ZJ-0111
48		(2R,2'S,3R,3'R)-3,3'-di-tert-butyl-2,2'-diisopropyl-2,2',3,3'-tetrahydro-4,4'-bibenzo[d][1,3]oxaphosphole	 $C_{28}H_{40}O_2P_2$ 470.57352	2214207-75-5	97% purity >99% ee	ZJ-0112
49		(R)-3-(tert-butyl)-4-(2,6-dimethoxy-3,5-dimethylphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{21}H_{27}O_3P$ 358.16978	N/A	97% purity >99% ee	ZJ-0113
50		(R)-3-(tert-butyl)-4-(4',6'-dimethoxy-[1,1':3',1"-terphenyl]-5'-yl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{31}H_{31}O_3P$ 482.20108	N/A	97% purity >99% ee	ZJ-0114
51		(R)-3-(tert-butyl)-4-(3,5-diisopropyl-2,6-dimethoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{25}H_{35}O_3P$ 414.23238	N/A	97% purity >99% ee	ZJ-0115

52		(S)-3-(tert-butyl)-4-(2,6-dimethoxy-3,5-dimethylphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{21}H_{27}O_3P$ 358.16978	2021202-03-7	97% purity >99% ee	ZJ-0116
53		(S)-3-(tert-butyl)-4-(4',6'-dimethoxy-[1,1':3',1''-terphenyl]-5'-yl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{31}H_{31}O_3P$ 482.20108	2021201-99-8	97% purity >99% ee	ZJ-0117
54		(S)-3-(tert-butyl)-4-(3,5-diisopropyl-2,6-dimethoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{25}H_{35}O_3P$ 414.23	N/A	97% purity >99% ee	ZJ-0118
55		(2S,3S)-2-benzyl-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{26}H_{29}O_3P$ 420.18543	1373432-13-3	97% purity >99% ee	ZJ-0119
56		(2R,3R)-2-benzyl-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{26}H_{29}O_3P$ 420.18543	1884457-36-6	97% purity >99% ee	ZJ-0120
57		2-((2S,3S)-3-(tert-butyl)-4-methoxy-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)pyridine	 $C_{17}H_{20}NO_2P$ 301.32576	N/A	97% purity >99% ee	ZJ-0123

58		2-((2S,3S)-3-(tert-butyl)-4-methoxy-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)-6-methoxypyridine	 $C_{18}H_{22}NO_3P$ 331.35176	1777796-37-8	97% purity >99% ee	ZJ-0125
59		2-((2S,3S)-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)-6-methoxypyridine	 $C_{25}H_{28}NO_4P$ 437.47576	2003230-67-7	97% purity >99% ee	ZJ-0127
60		2-((2R,3R)-3-(tert-butyl)-4-methoxy-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)pyridine	 $C_{17}H_{20}NO_2P$ 301.32576	1542796-07-5	97% purity >99% ee	ZJ-0157
61		2-((2R,3R)-3-(tert-butyl)-4-methoxy-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)-6-methoxypyridine	 $C_{18}H_{22}NO_3P$ 331.35176	1542796-16-6	97% purity >99% ee	ZJ-0159
62		2-((2R,3R)-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)-6-methoxypyridine	 $C_{25}H_{28}NO_4P$ 437.47576	N/A	97% purity >99% ee	ZJ-0161
63		3-(tert-butyl)-4-(2,6-dimethoxy-3,5-dimethylphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{21}H_{27}O_3P$ 358.16978	N/A	97% purity >99% ee	ZJ-0128

64		3-(tert-butyl)-4-(3,5-diisopropyl-2,6-dimethoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{25}H_{35}O_3P$ 414.23238	N/A	97% purity >99% ee	ZJ-0129
65		3-(tert-butyl)-4-(2,6-diisopropoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{23}H_{31}O_3P$ 386.20108	N/A	97% purity >99% ee	ZJ-0130
66		3-(tert-butyl)-4-(2-methoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{18}H_{21}O_2P$ 300.12792	1246888-88-9	97% purity >99% ee	ZJ-0136
67		(R)-3-(tert-butyl)-4-(2-methoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{18}H_{21}O_2P$ 300.12792	1338454-28-6	97% purity >99% ee	ZJ-0137
68		(S)-3-(tert-butyl)-4-(2-methoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{18}H_{21}O_2P$ 300.12792	N/A	97% purity >99% ee	ZJ-0138
69		(2S,3S)-3-(tert-butyl)-2-isopropyl-4-(2-methoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{21}H_{27}O_2P$ 342.17487	N/A	97% purity >99% ee	ZJ-0139

70		(2R,3R)-3-(tert-butyl)-2-isopropyl-4-(2-methoxyphenyl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{21}H_{27}O_2P$ 342.17487	N/A	97% purity >99% ee	ZJ-0140
71		(S)-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2,2-dimethyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{21}H_{27}O_3P$ 358.16978	2227217-19-6	97% purity >99% ee	ZJ-0141
72		(R)-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2,2-dimethyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{21}H_{27}O_3P$ 358.16978	N/A	97% purity >99% ee	ZJ-0142
73		(2S,3S)-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2-ethyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{21}H_{27}O_3P$ 358.16978	2247162-97-4	97% purity >99% ee	ZJ-0143
74		(2R,3R)-3-(tert-butyl)-4-(2,6-dimethoxyphenyl)-2-ethyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{21}H_{27}O_3P$ 358.16978	N/A	97% purity >99% ee	ZJ-0144

75		2R,3R)-4-(anthracen-9-yl)-3-(tert-butyl)-2-ethyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{27}H_{27}OP$ 398.48576	N/A	97% purity >99% ee	ZJ-0145
76		(2S,3S)-4-(anthracen-9-yl)-3-(tert-butyl)-2-ethyl-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{27}H_{27}OP$ 398.48576	1884594-03-9	97% purity >99% ee	ZJ-0146
77		2-((2R,3R)-4-(anthracen-9-yl)-3-(tert-butyl)-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)pyridine	 $C_{30}H_{26}NOP$ 447.51776	1542796-14-4	97% purity >99% ee	ZJ-0147
78		2-((2S,3S)-4-(anthracen-9-yl)-3-(tert-butyl)-2,3-dihydrobenzo[d][1,3]oxaphosphol-2-yl)pyridine	 $C_{30}H_{26}NOP$ 447.51776	N/A	97% purity >99% ee	ZJ-0148
79		3-(tert-butyl)-4-(4',6'-dimethoxy-[1,1':3',1''-terphenyl]-5'-yl)-2,3-dihydrobenzo[d][1,3]oxaphosphole	 $C_{31}H_{31}O_3P$ 482.20108	N/A	97% purity >99% ee	ZJ-0162