



# 阿拉丁<sup>®</sup> 手性膦配体/催化剂

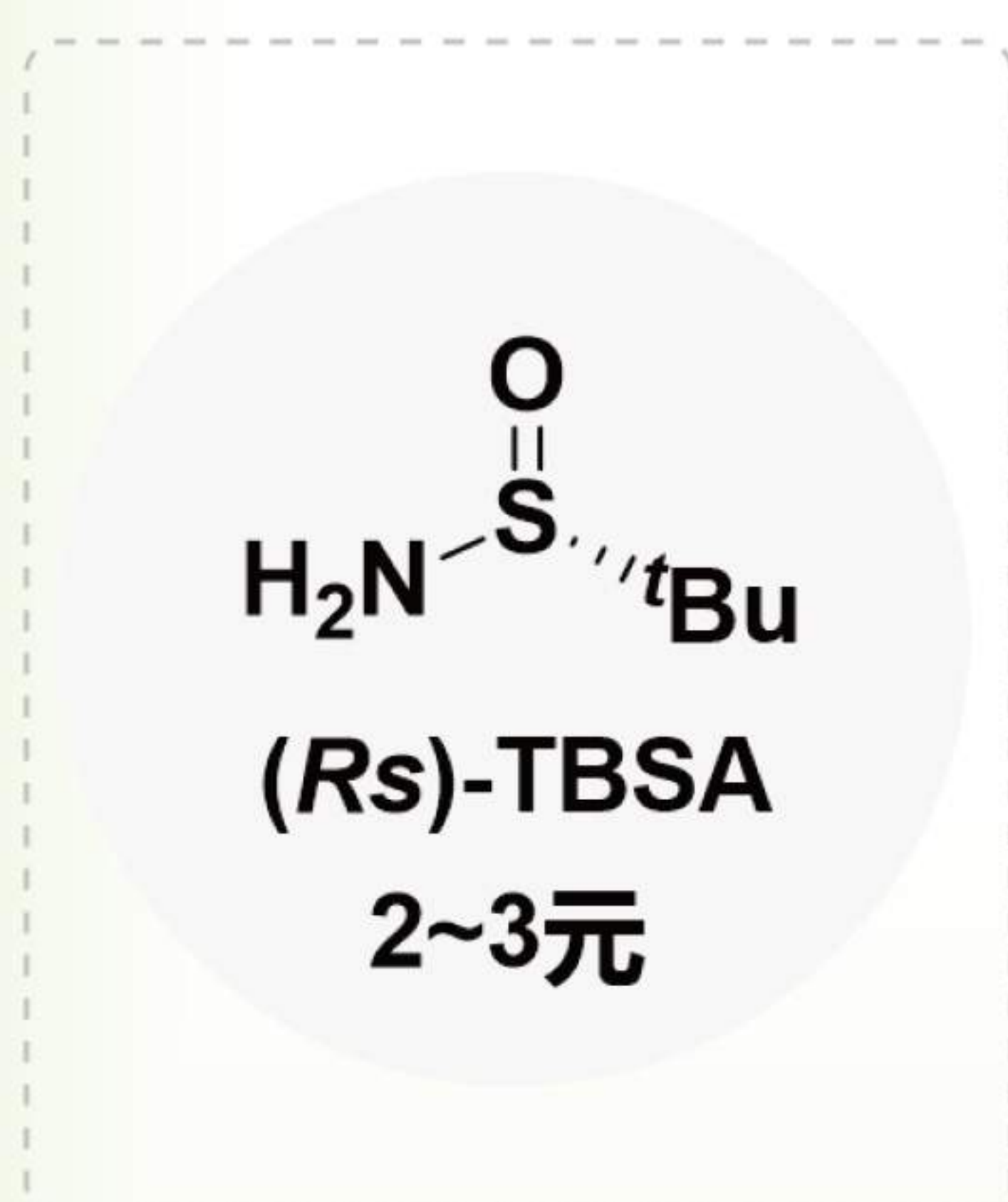
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精准调控的手性之美

# SadPhos 108将，找找你的天魁星

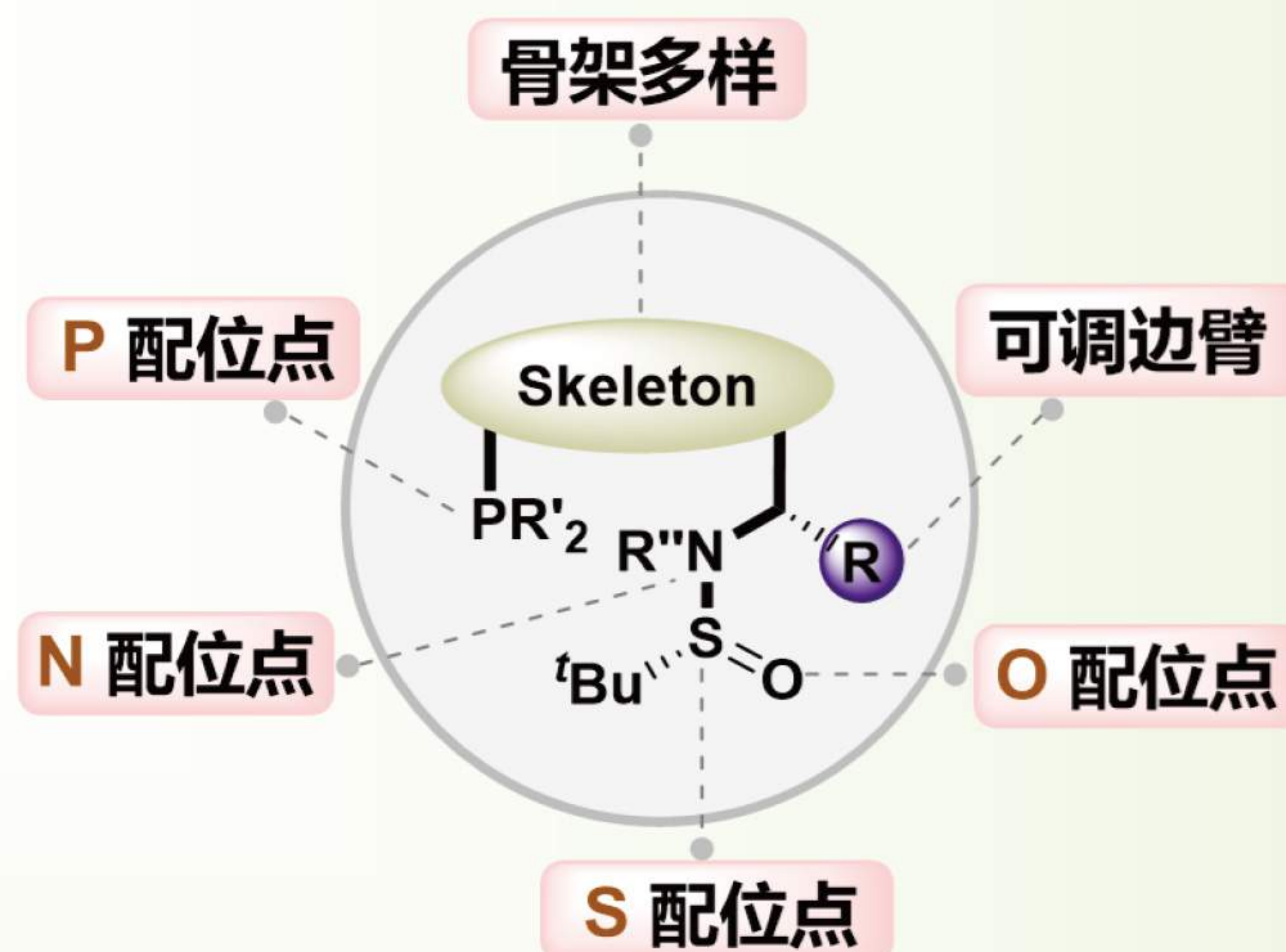
基于非C2对称性、刚柔并济和兼具软硬配位原子（O、S、N、P原子）的设计理念，开发了12个系列含有手性叔丁基亚磺酰胺膦配体/催化剂（Sulfinamide Phosphine，统称：Sad-Phos）。其兼具有结构多样，便于修饰，易于克级制备等众多优点。SadPhos在过渡金属的不对称催化和有机小分子催化中都表现出了优异的催化性能和对映选择性。本次推介“108将”涵盖了Ming-Phos、Xu-Phos、PC-Phos、Xiao-Phos、Wei-Phos、Xiang-Phos、TY-Phos、Peng-Phos等。

## Sadphos (Sulfinamide Phosphine) 配体设计



Sadphos

2-4 步



### 结构特点

- 非C2对称
- 刚柔并济
- 多配位点

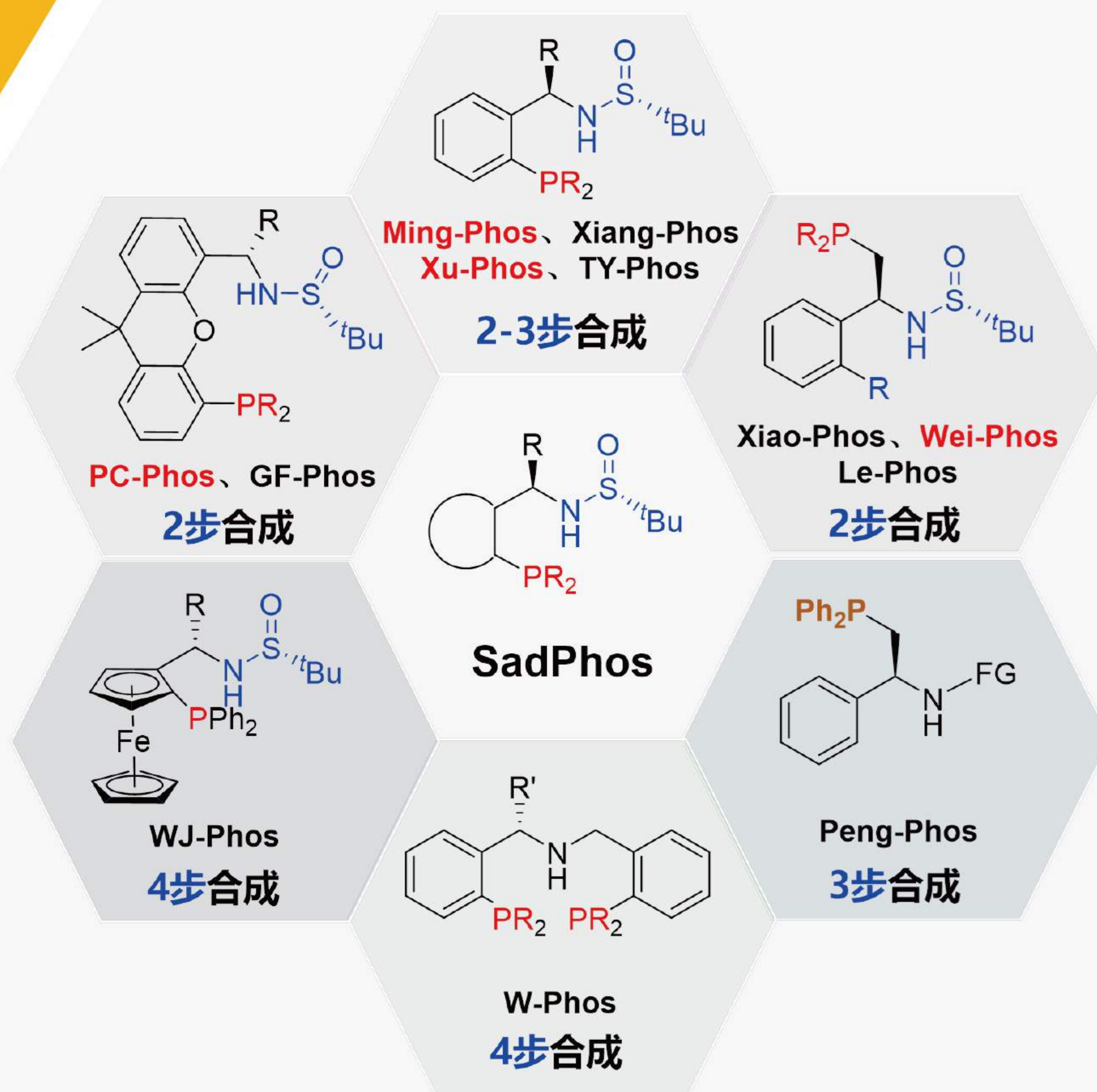


### 配体优势

- 合成简单
- 易于修饰
- 宽螯合角度

- 柔性边臂
- 自适应性配位

## SadPhos家族成员



◆ 已发展**12类**手性配体/催化剂，应用于**50余种**不同反应

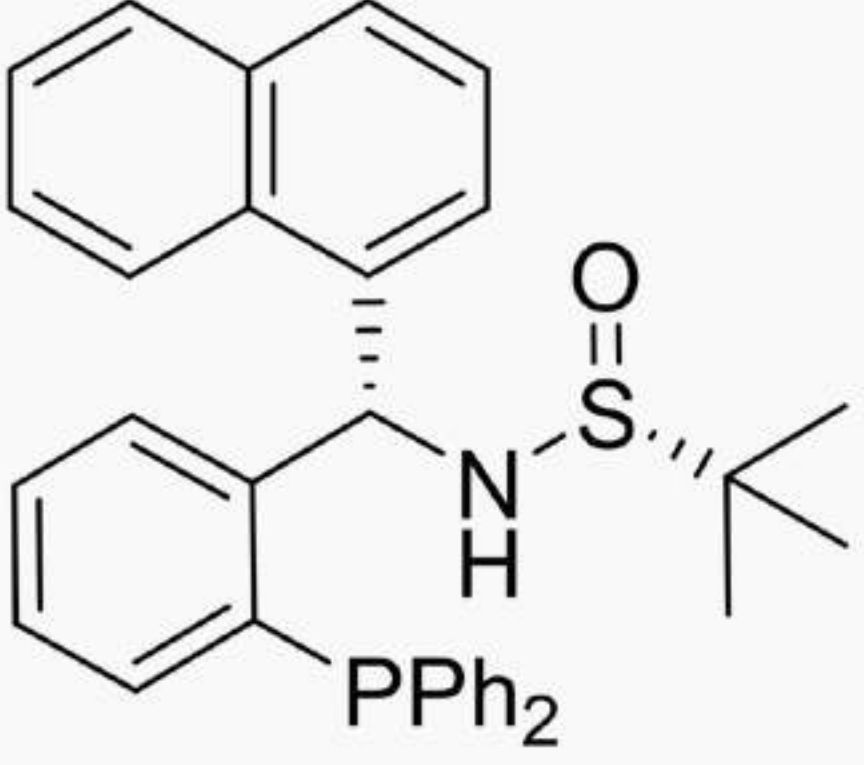
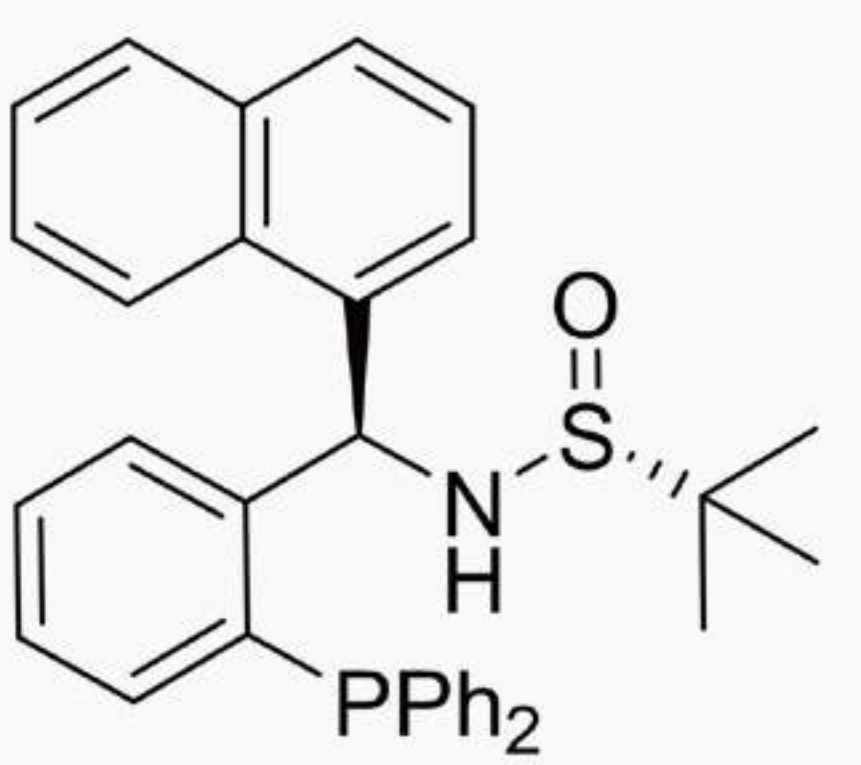
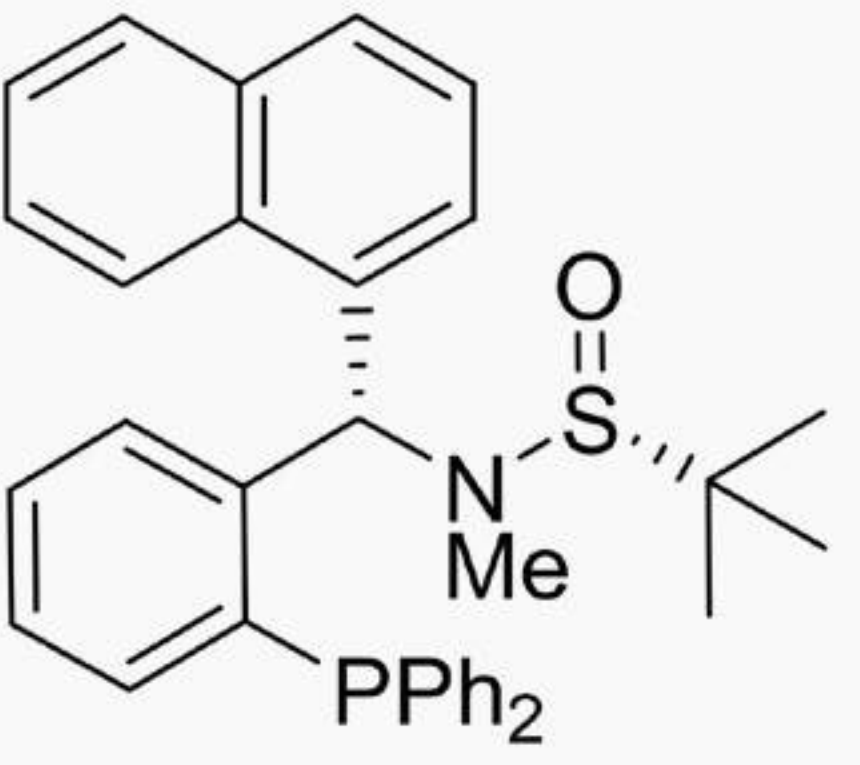
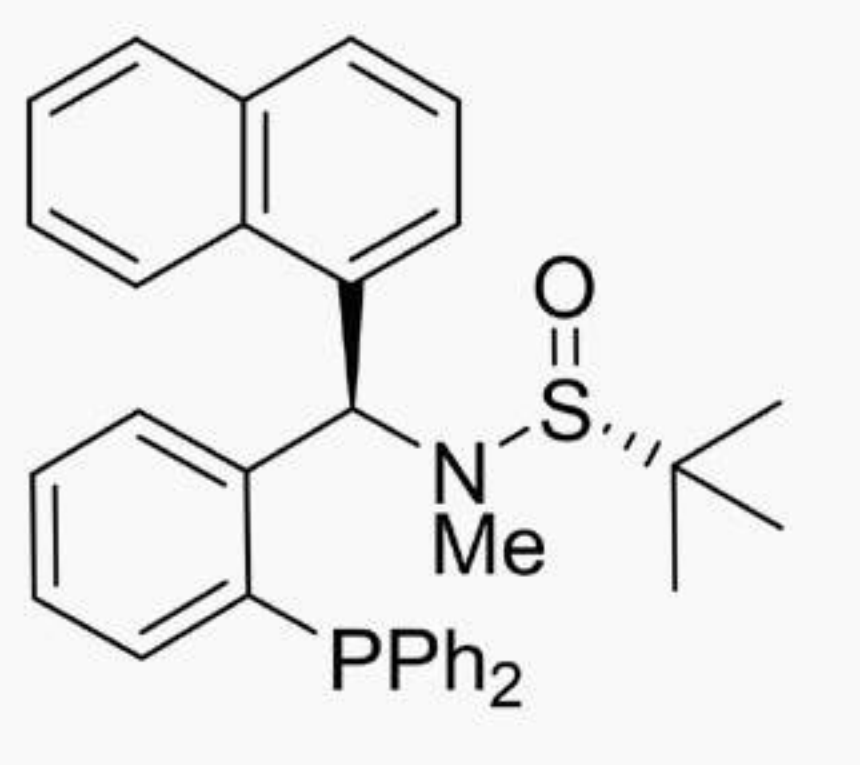
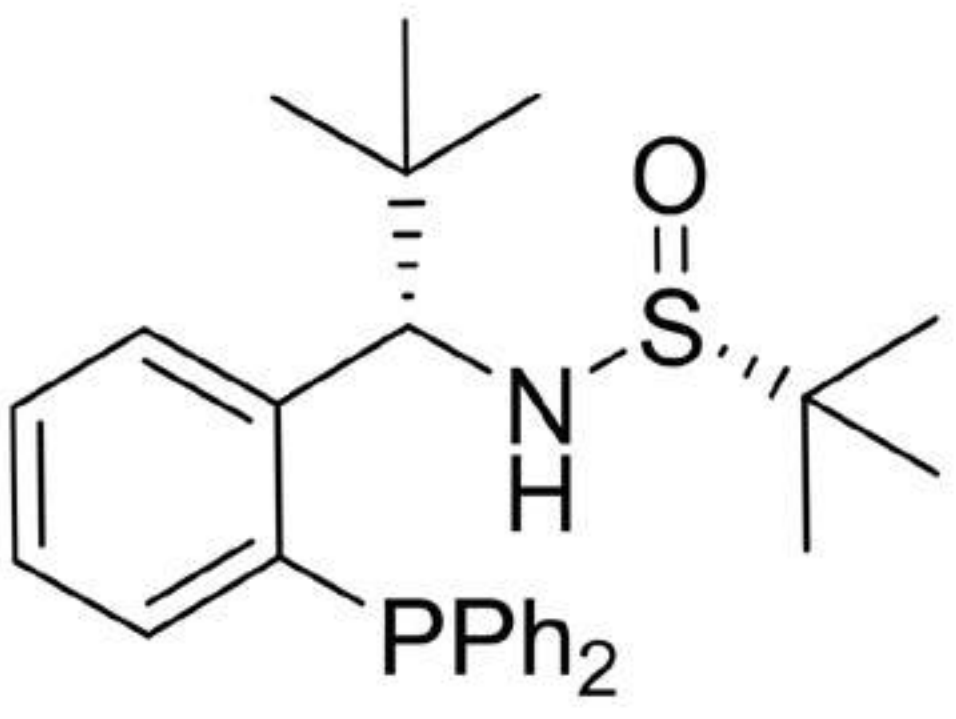
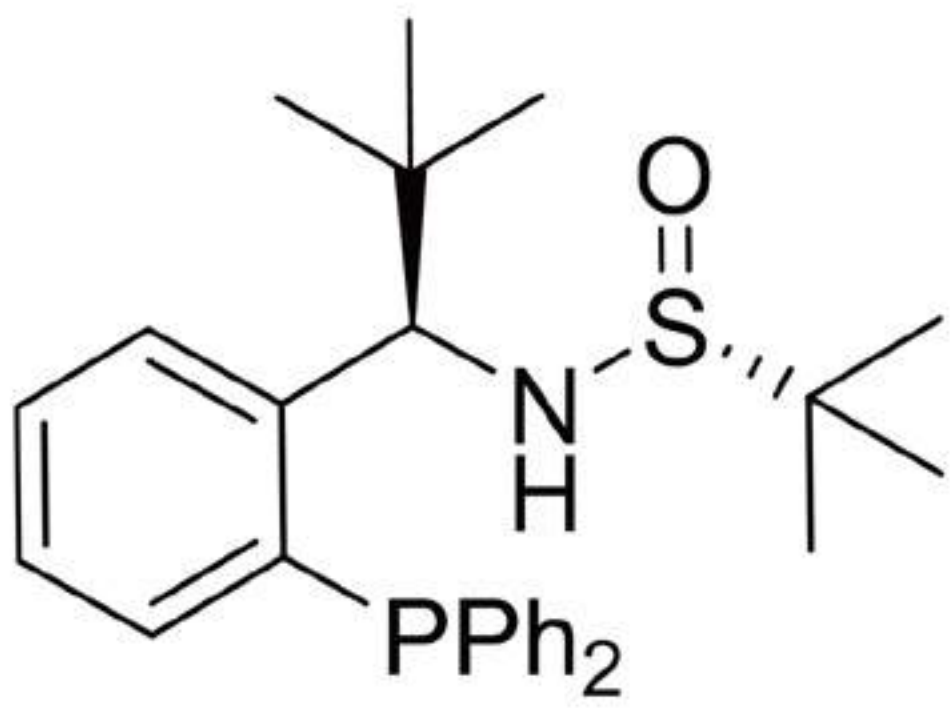
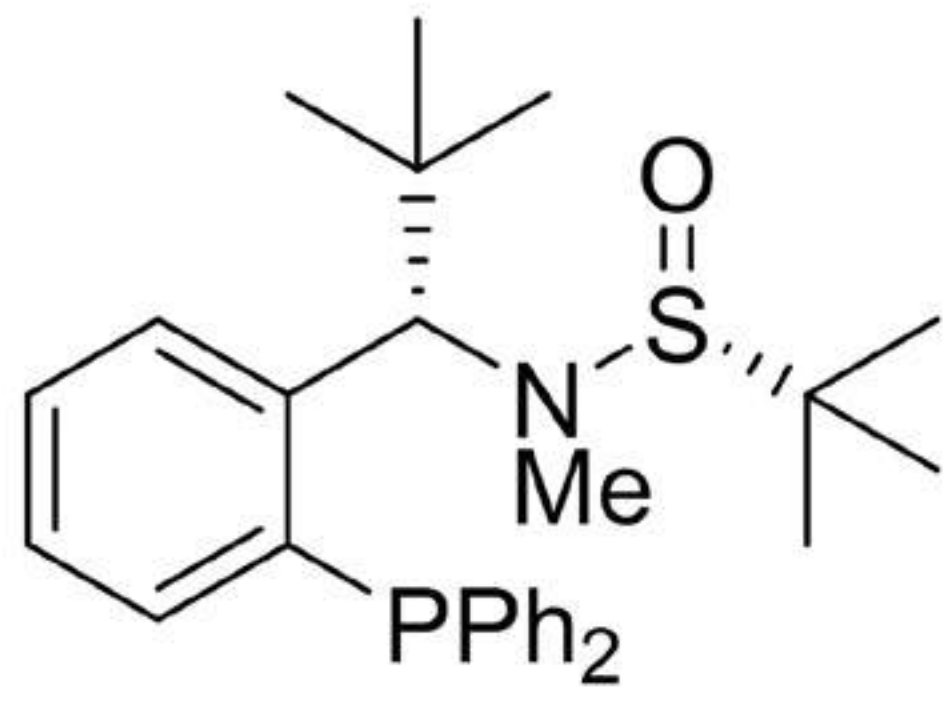
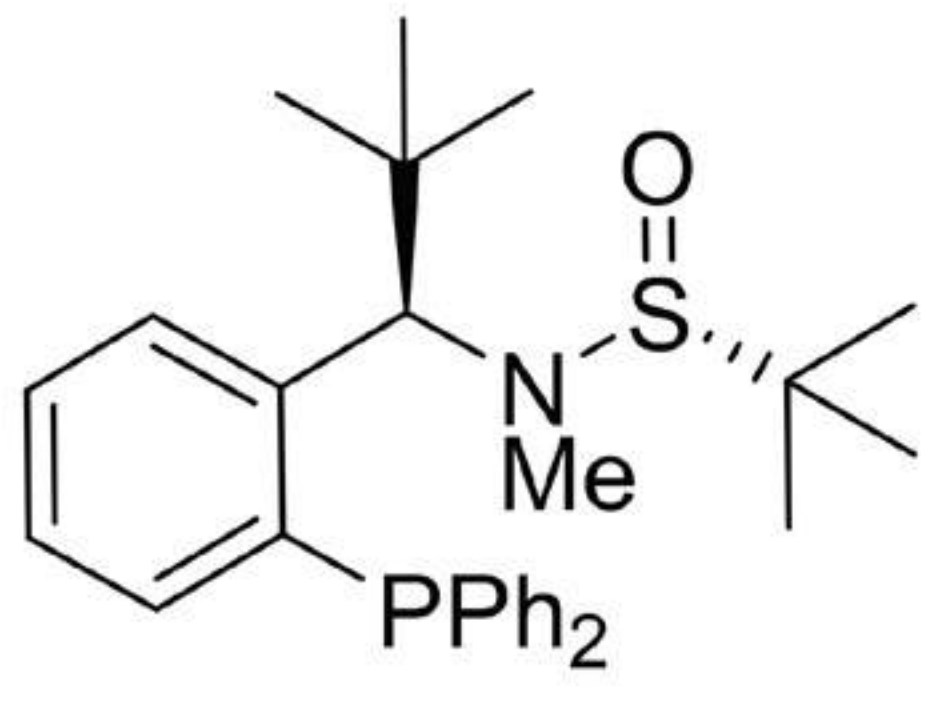
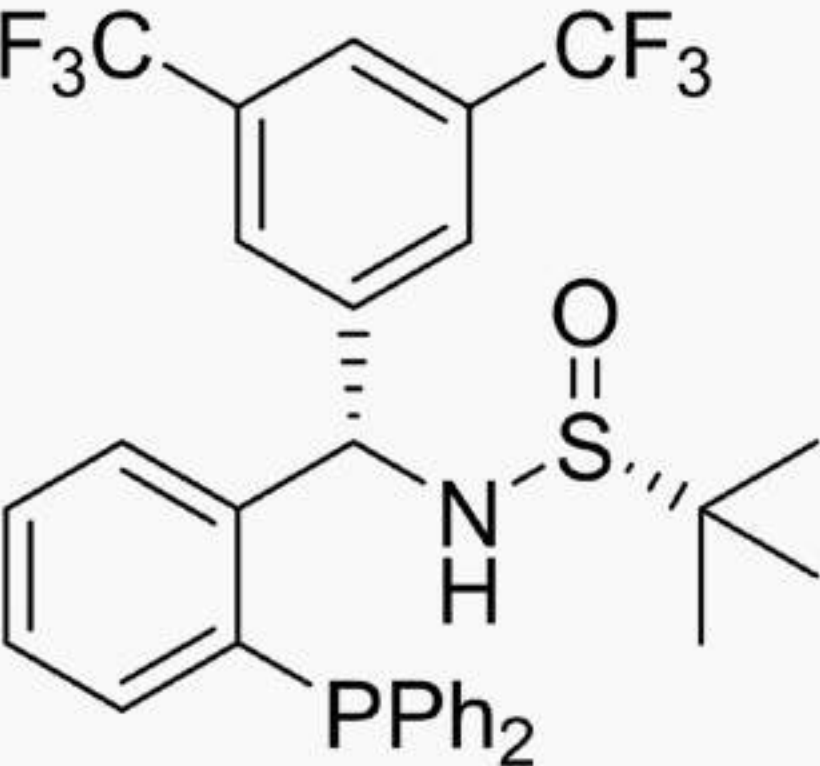
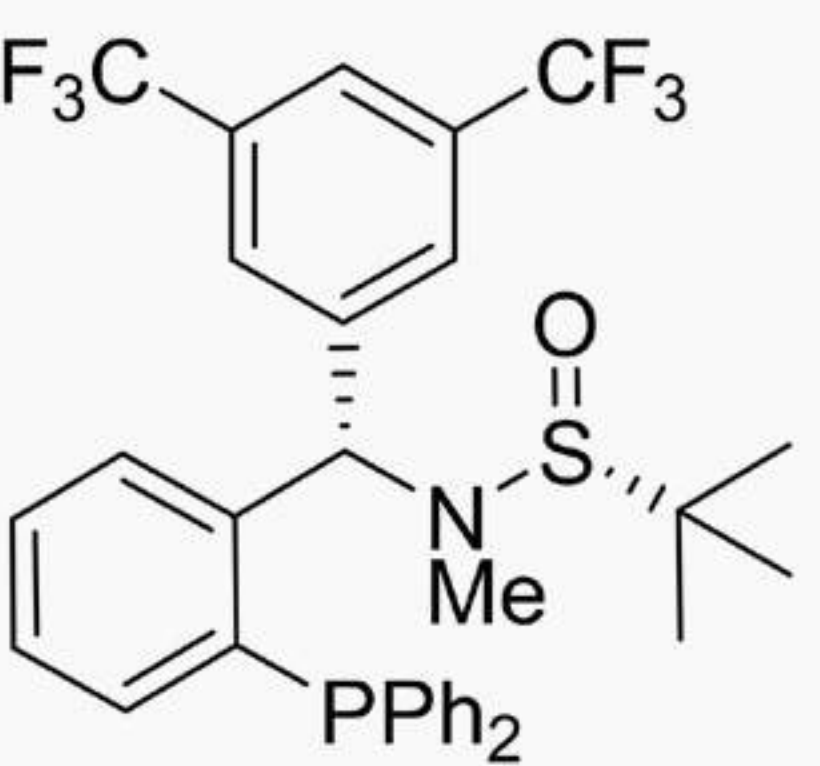
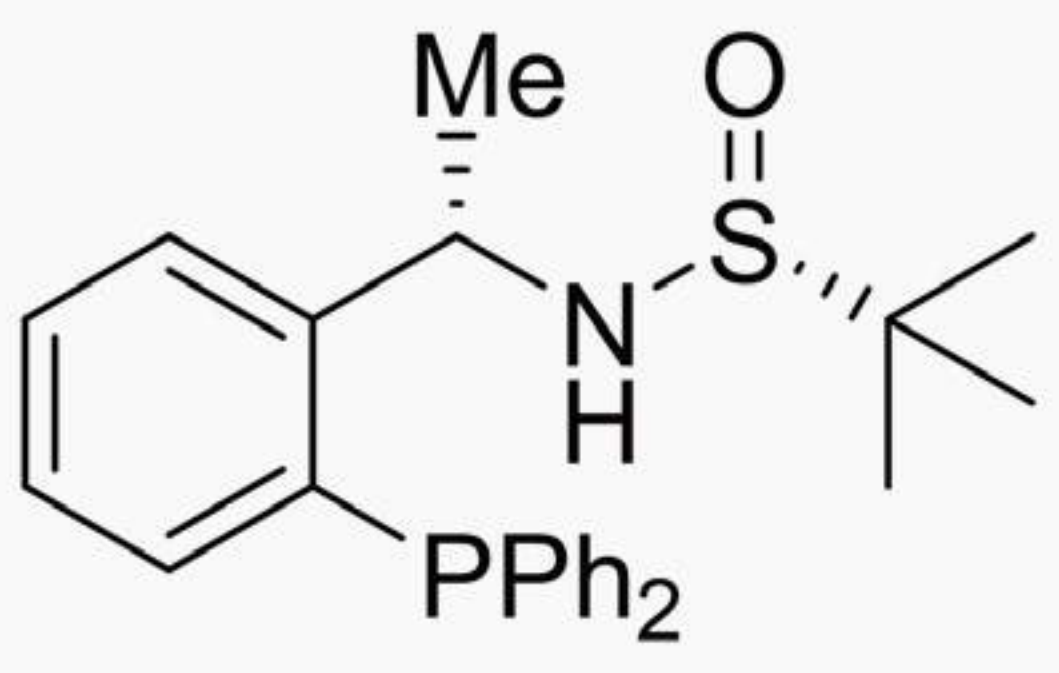
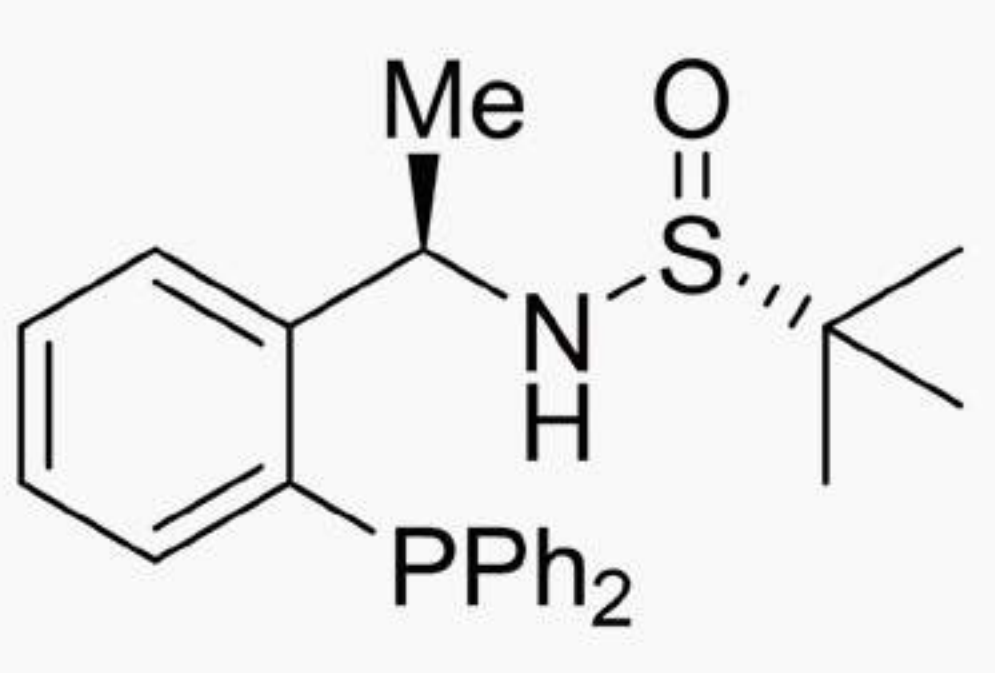
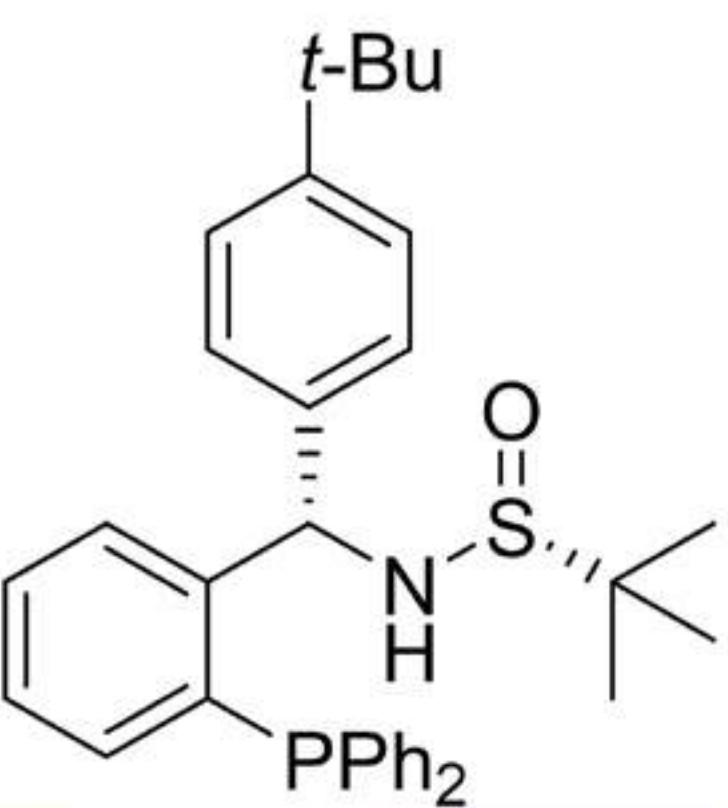
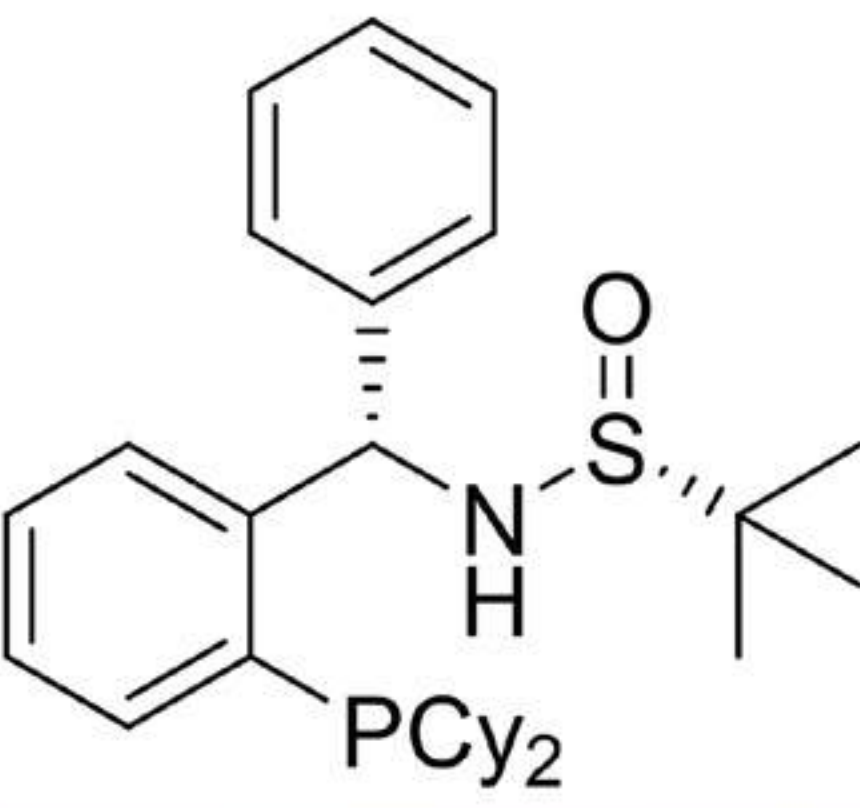
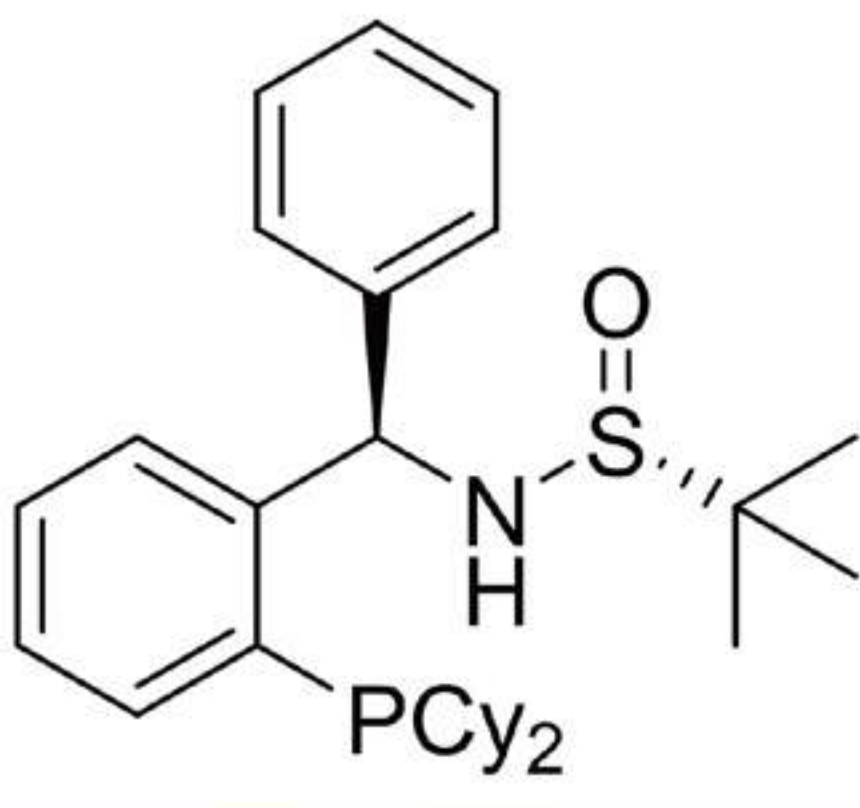
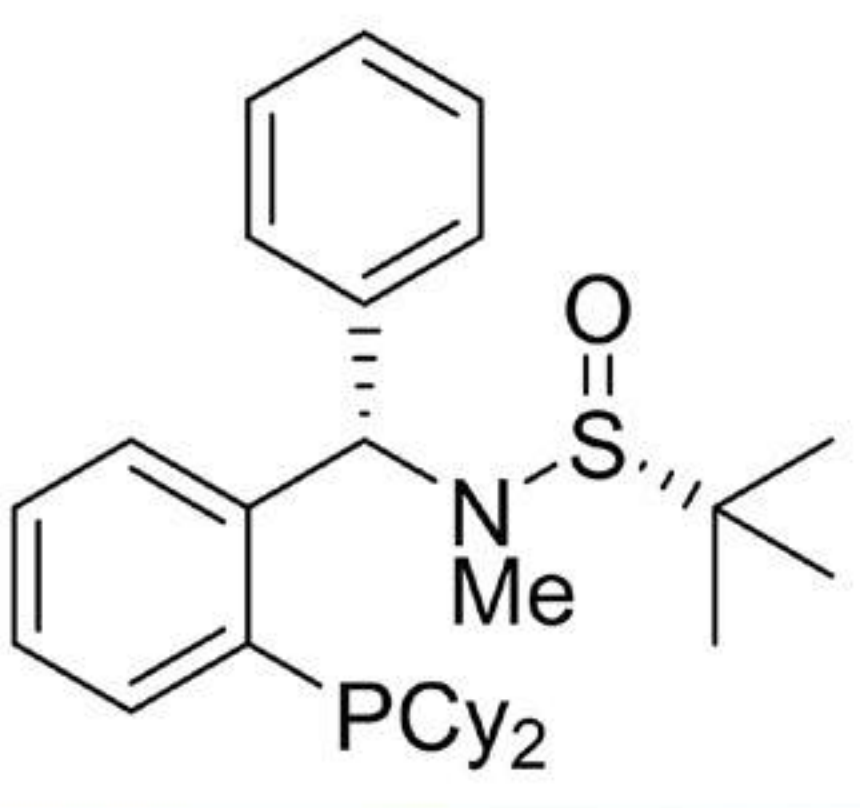
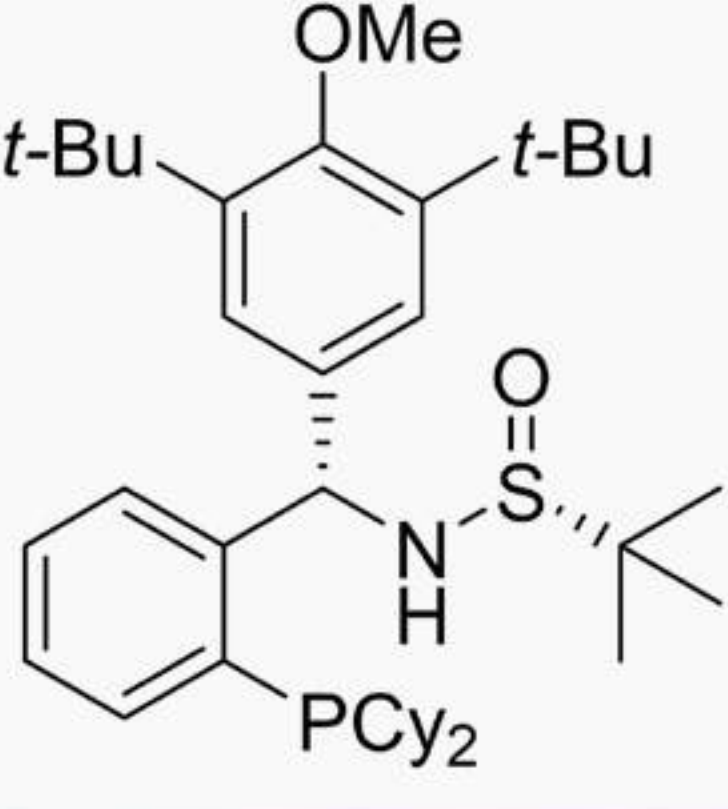
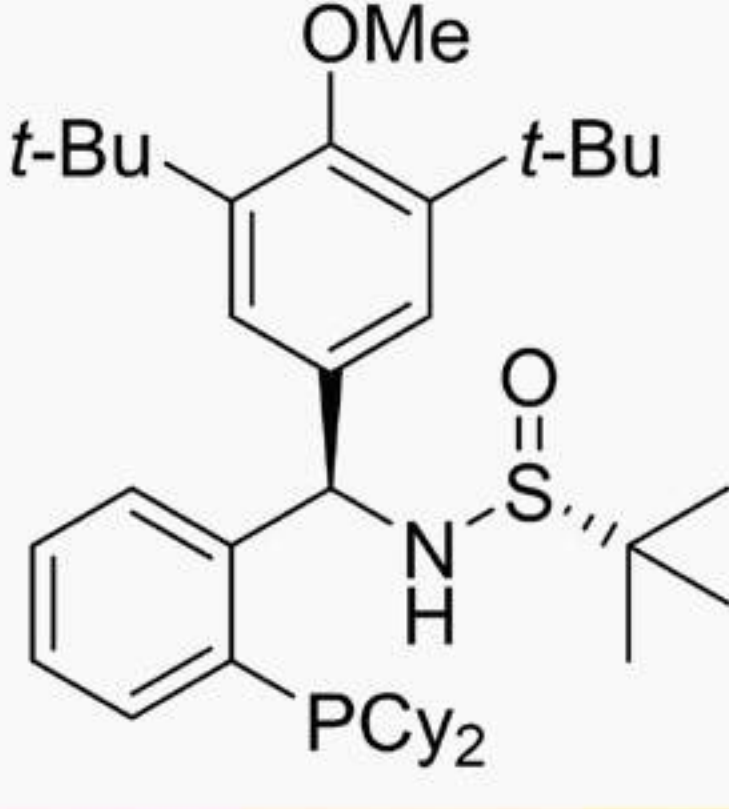
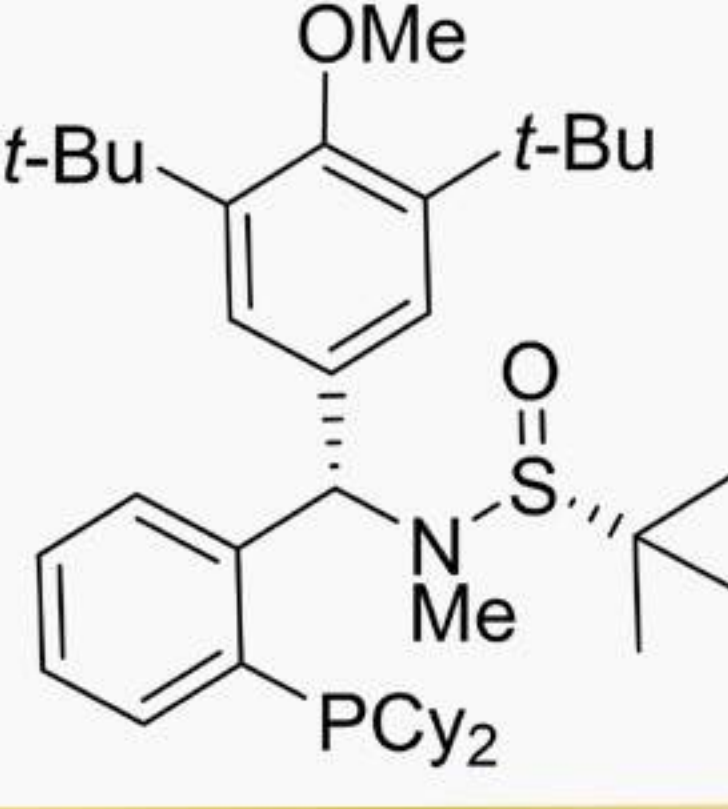
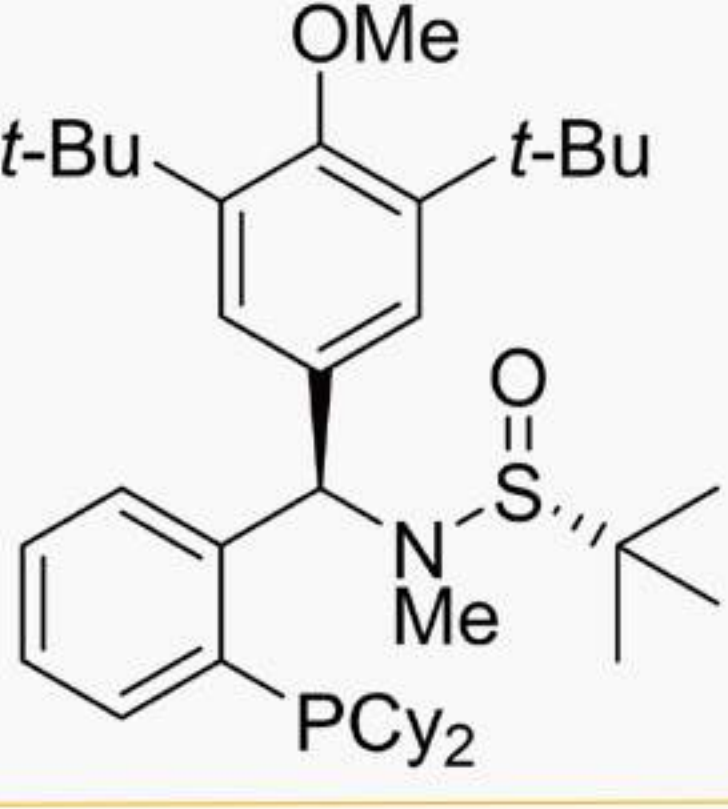
在过渡金属催化的反应中，Ming-Phos、Xu-Phos、PC-Phos、Xiao-Phos、Wei-Phos、Xiang-Phos、TY-Phos等作为单膦配体、P, N-配体、P, S-配体、P, O-配体，可与金、铜、钯、铱、镍、铑、银、钴等8种过渡金属采用自适应性的配位模式，展现出了非常优异的催化效率及不对称诱导能力。目前，其已高效应用于Suzuki偶联、烯烃的双氨化、亚磷酸酯芳基化、氢芳化反应、不对称氢化、Heck/醚化反应、烯烃的碳硼化、插羰反应、烯烃芳基/炔基化、C-S交叉偶联、C-H芳基化、联烯 $\gamma$ -加成、烯烃还原Heck、烯烃的碳碘化、光催化偶联、卡宾芳硅化、联烯C-P偶联、炔烃的氢膦化、烯烃双芳基、烯烃的碳氧化、联烯硼/羰基化、Heck/Tsuji-Trost反应、环加成反应、聚合反应等。

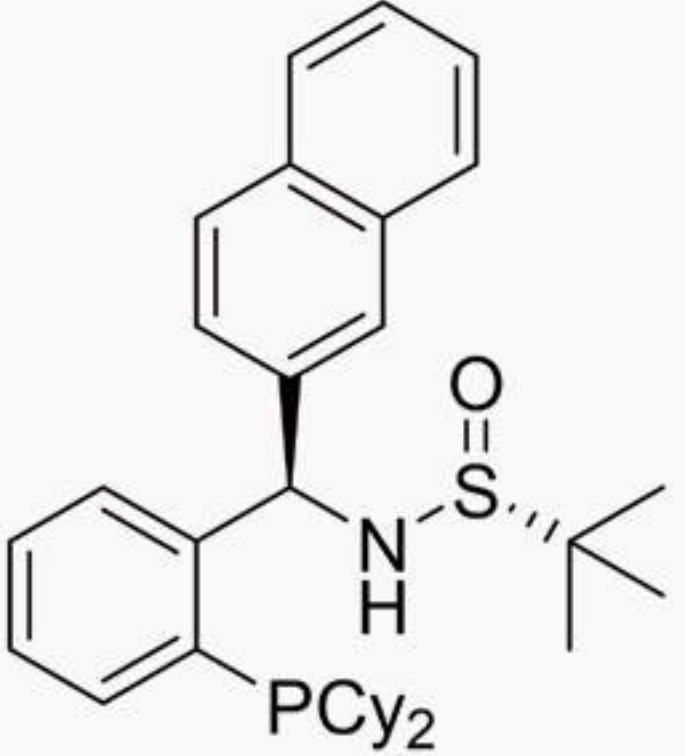
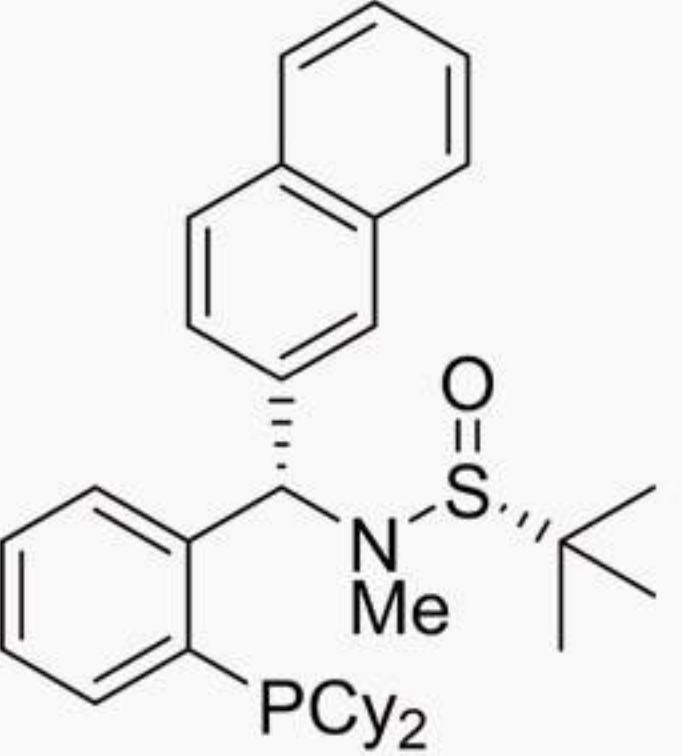
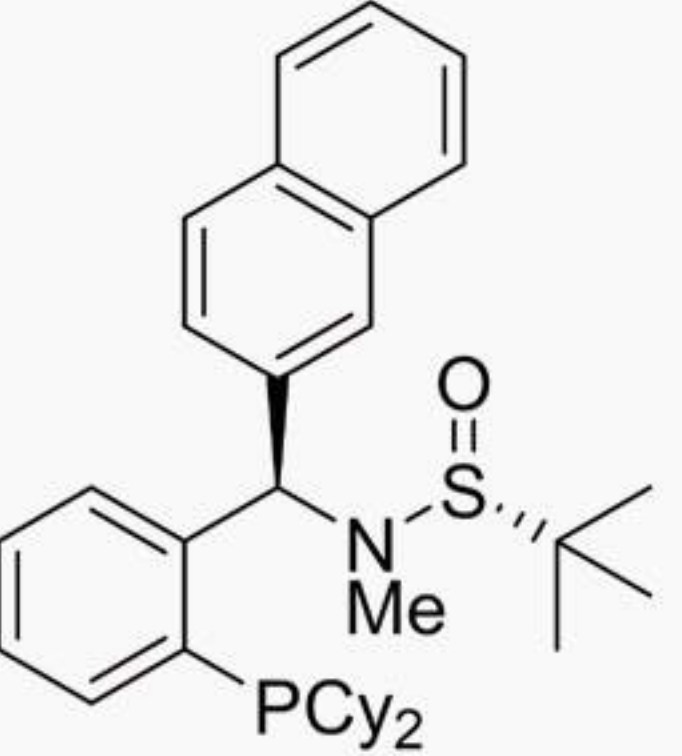
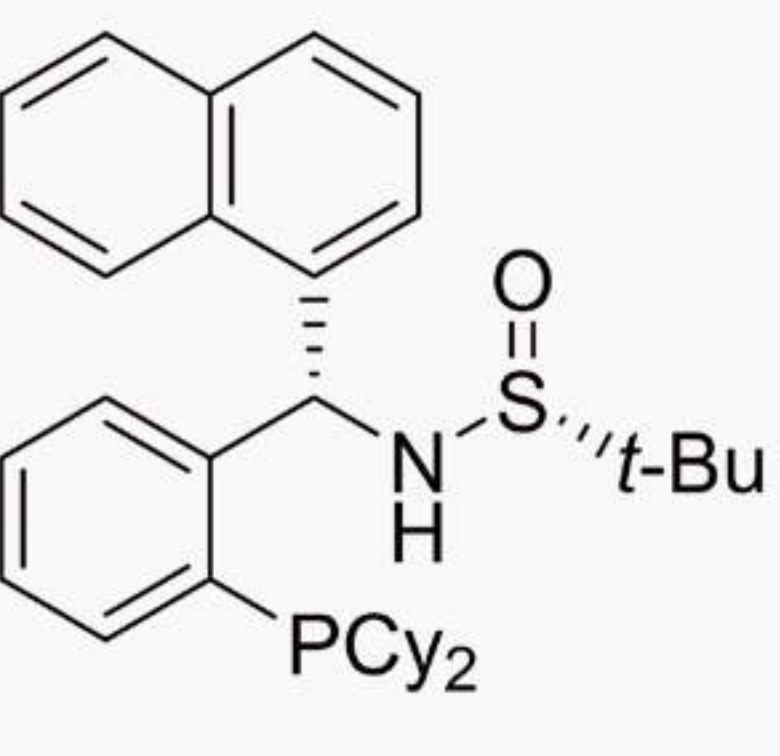
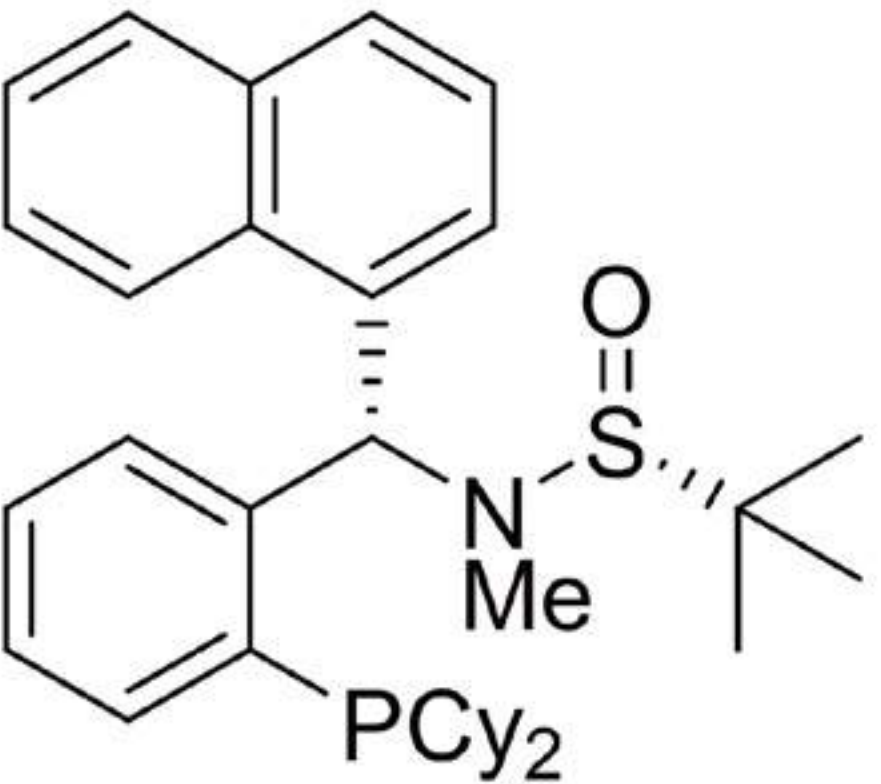
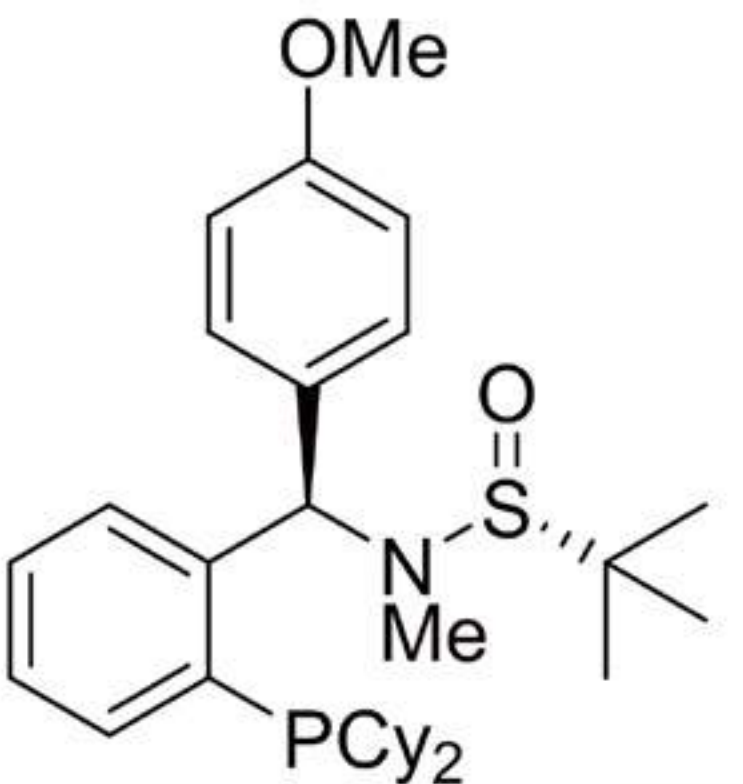
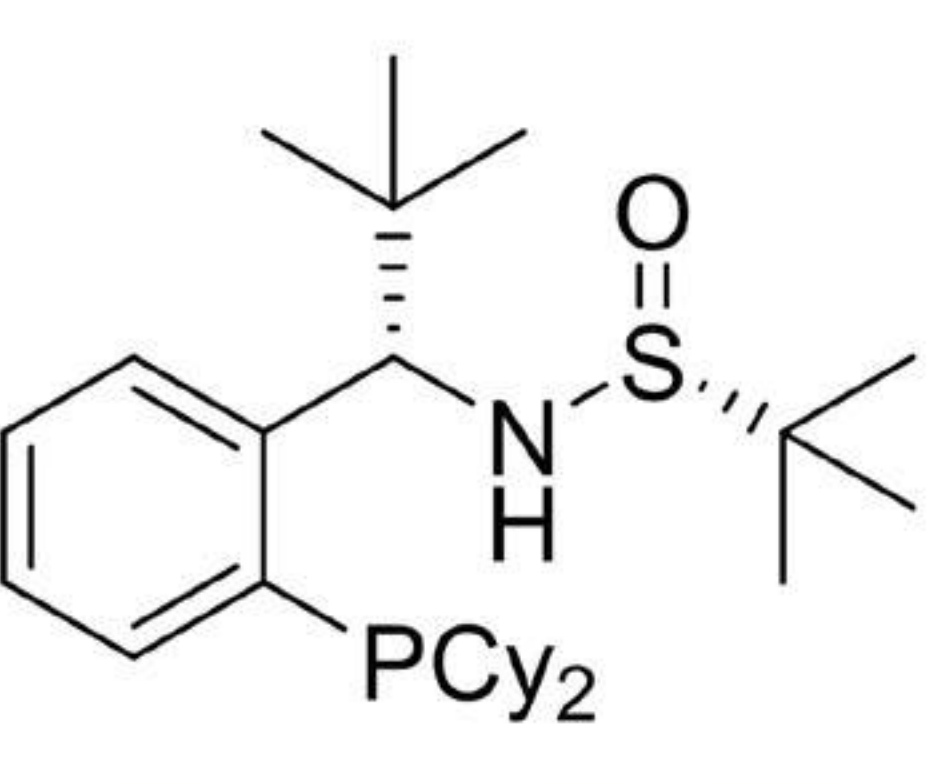
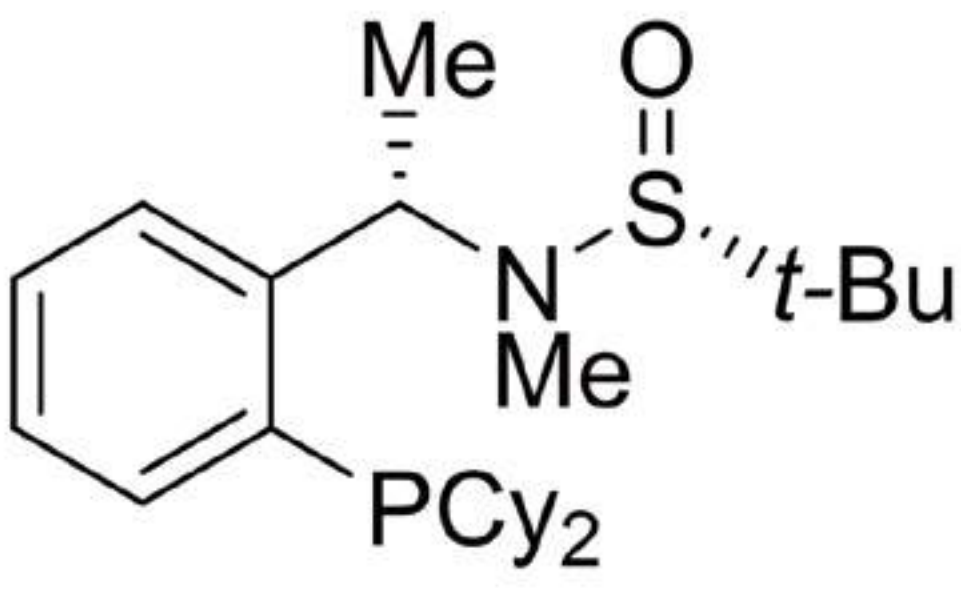
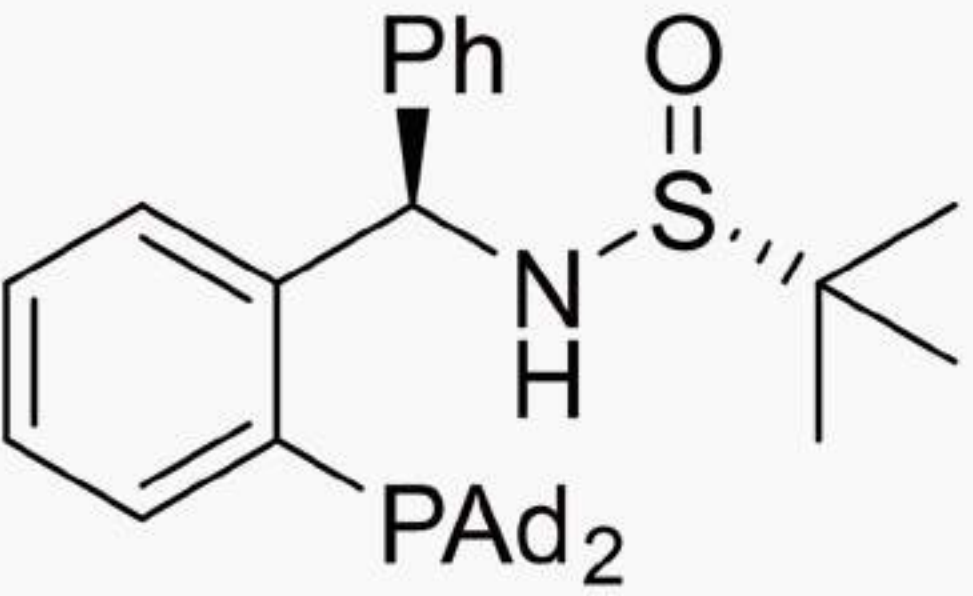
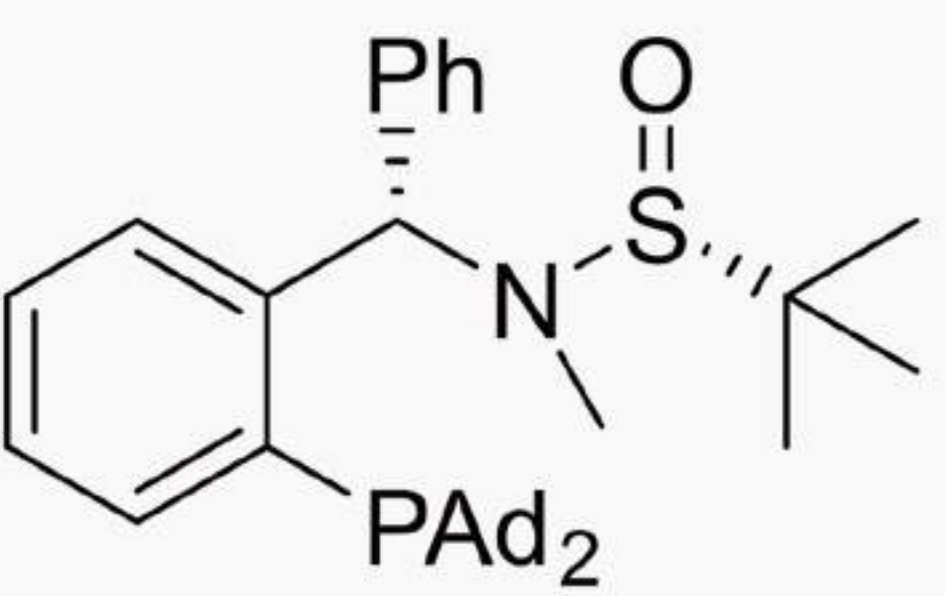
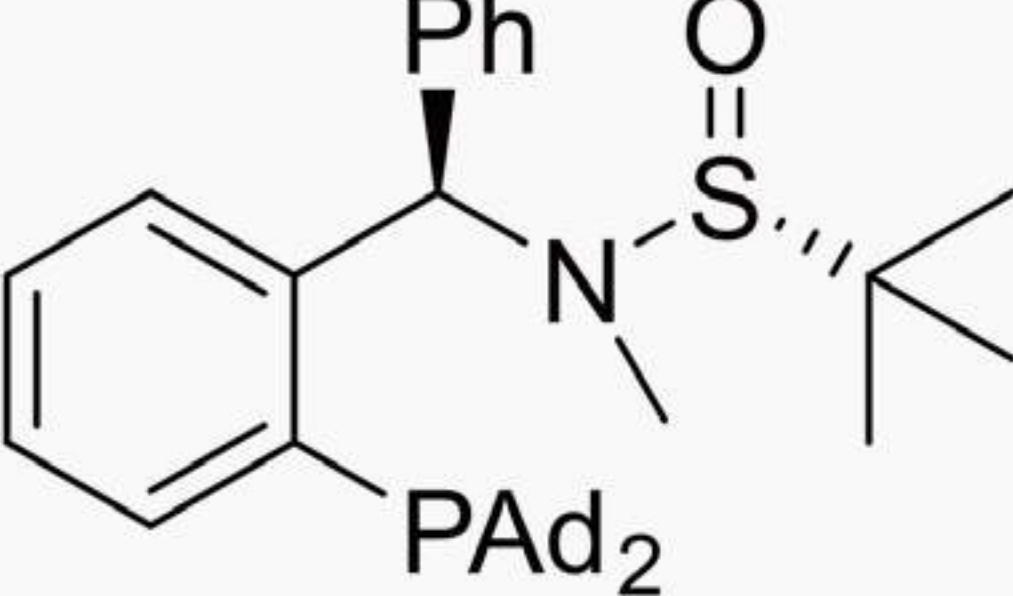
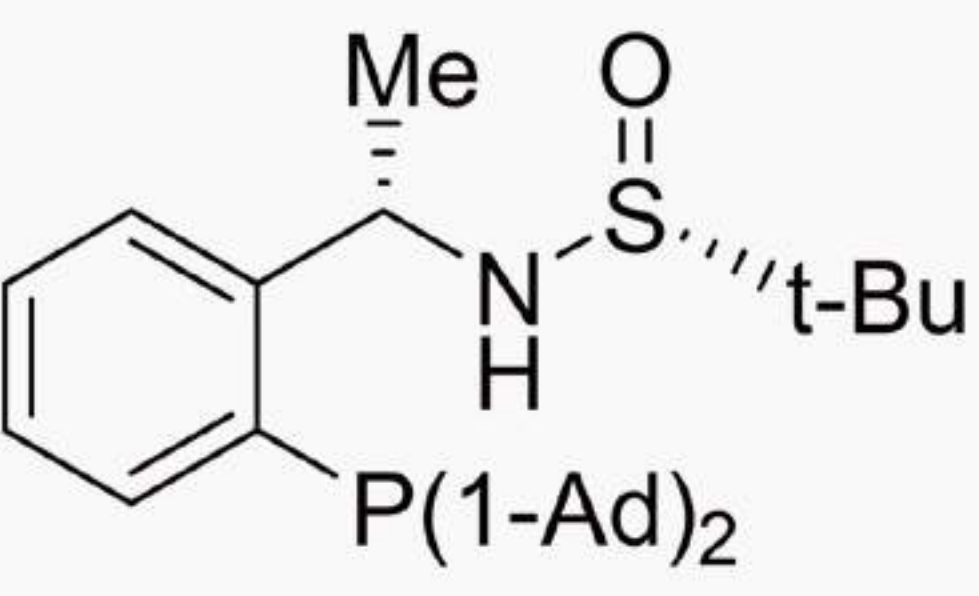
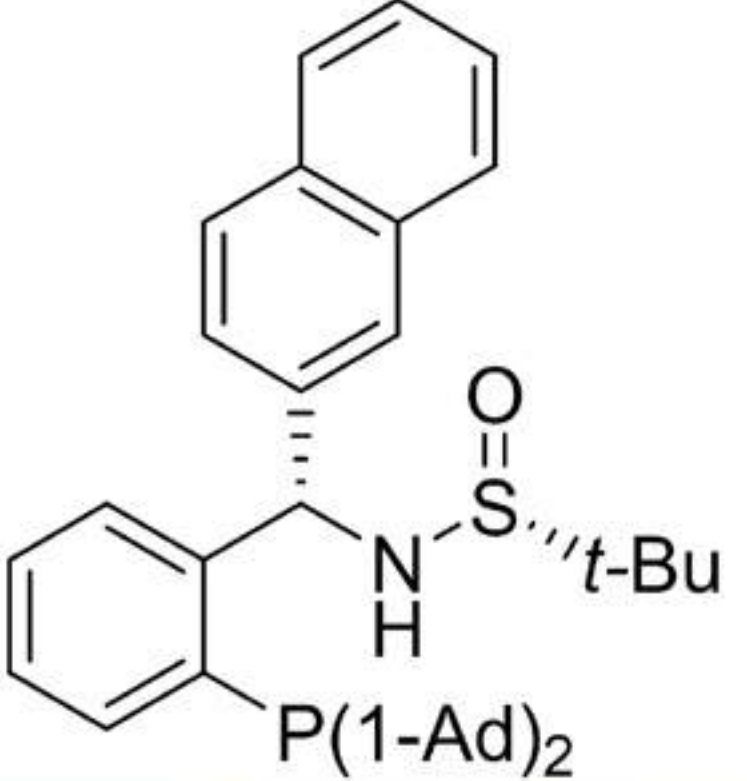
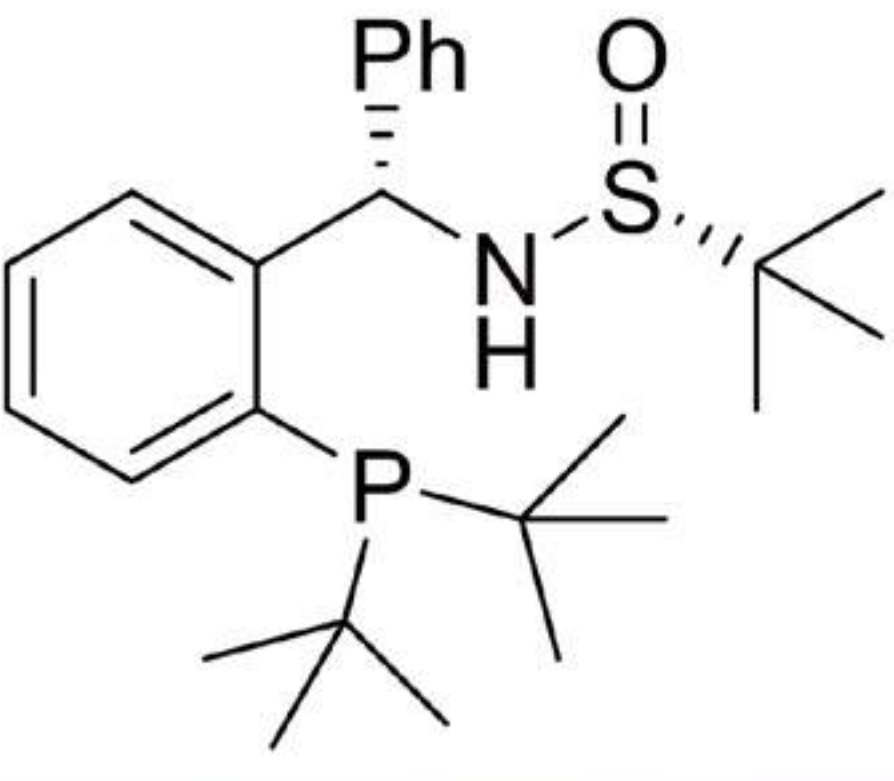
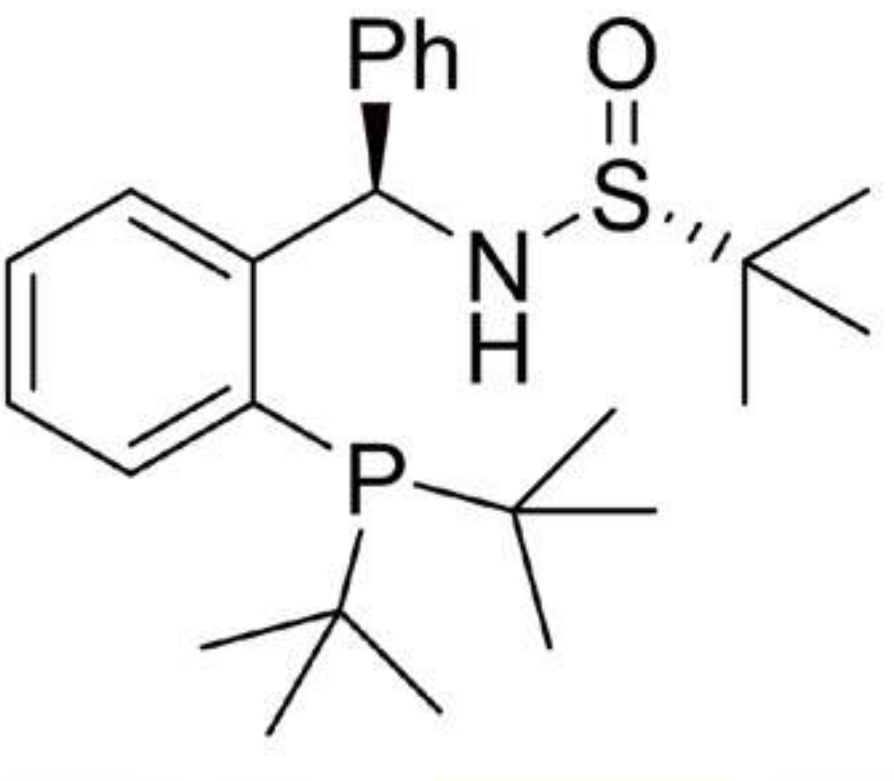
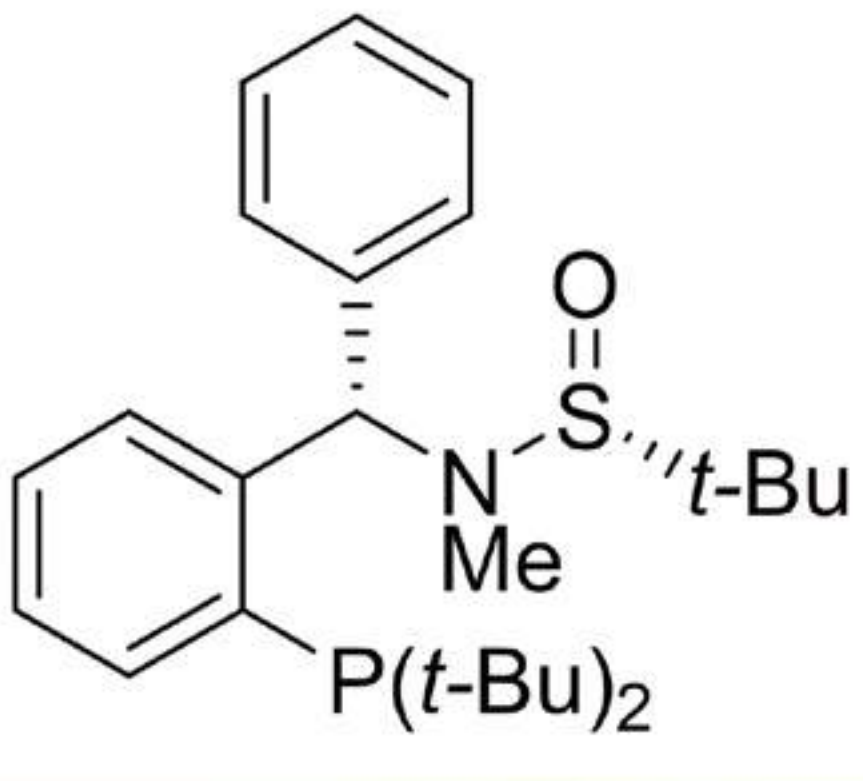
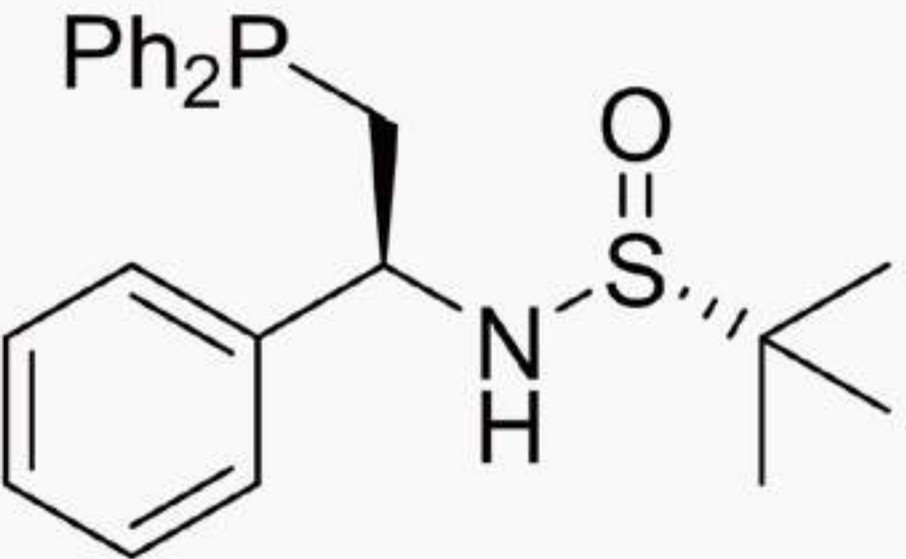
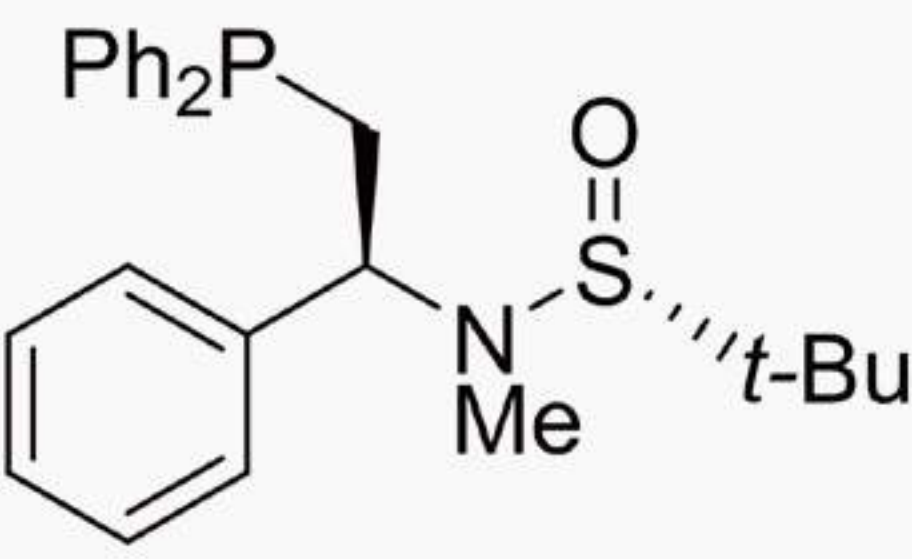
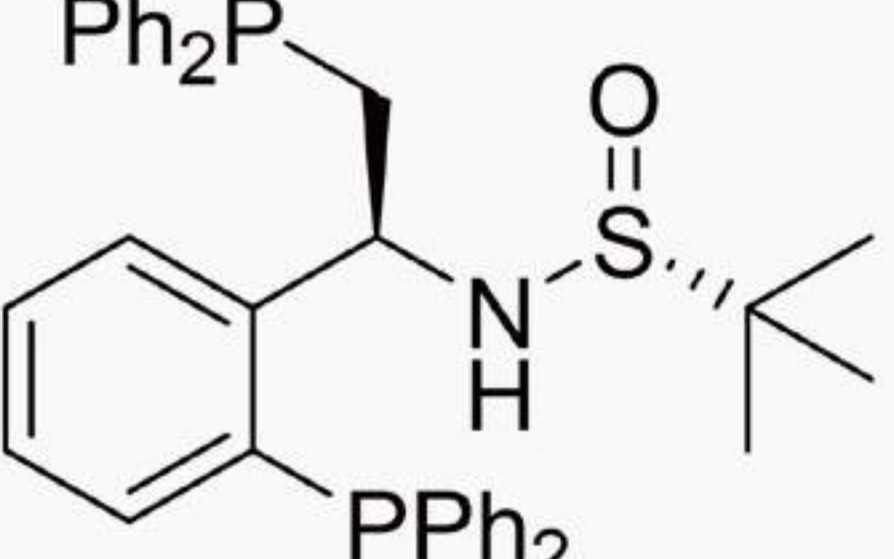
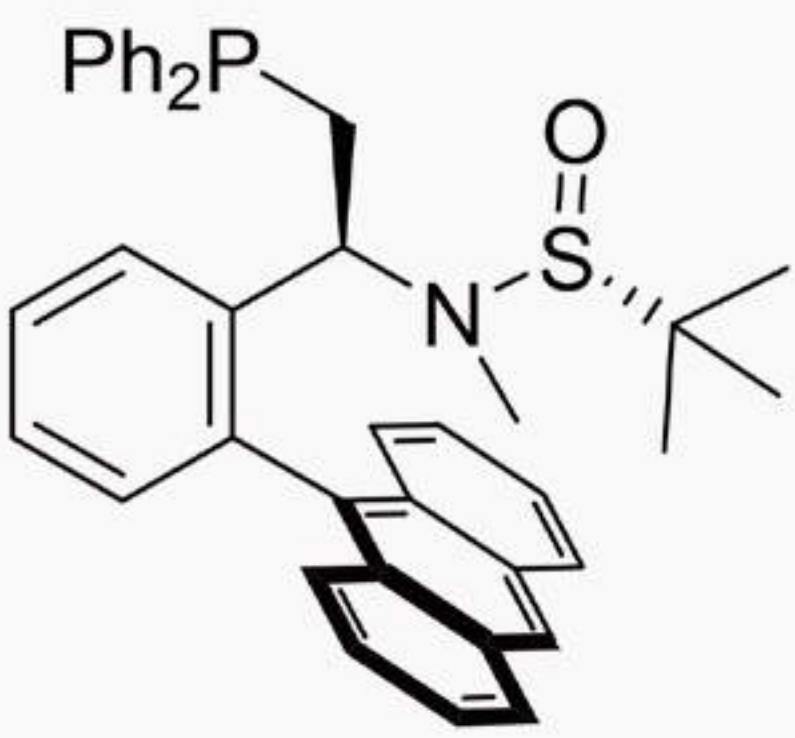
在有机小分子催化的反应中，Xiao-Phos、Wei-Phos、Peng-Phos等通过亚磺酰胺提供氢给体，是一类非常高效的多功能手性叔膦催化剂。其已成功地应用于不对称分子内和分子间的Rauhut-Currier反应、缺电子亚胺与联烯酸酯的 $\gamma$ -加成反应、烯酮或联烯酮参与的不对称[4+2]环加成反应、 $\alpha$ ,  $\beta$ -不饱和酮与TMSN<sub>3</sub>的双官能团化反应、3-硝基吡啶与联烯酸酯的去芳构化[3+2]环加成反应和不对称烯丙基化等反应中，并取得了优异的反应结果。

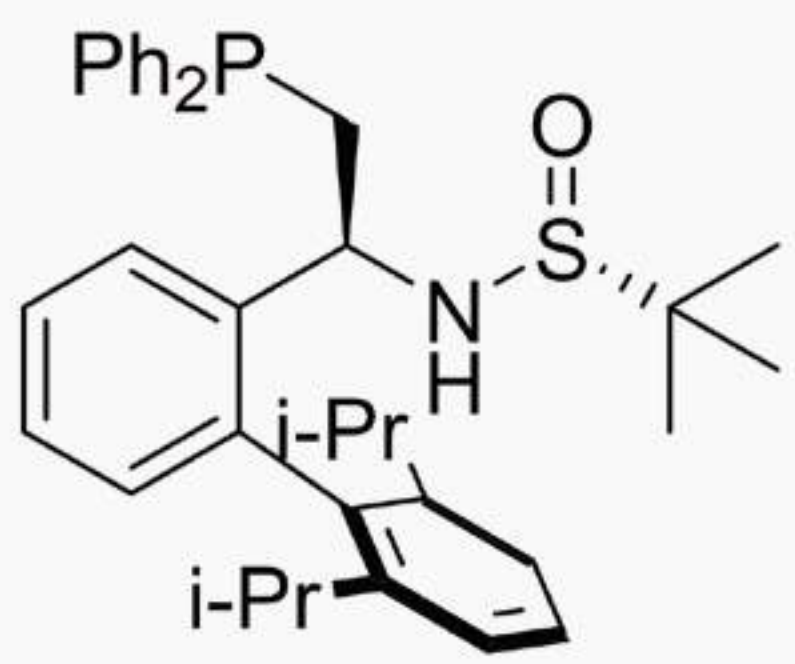
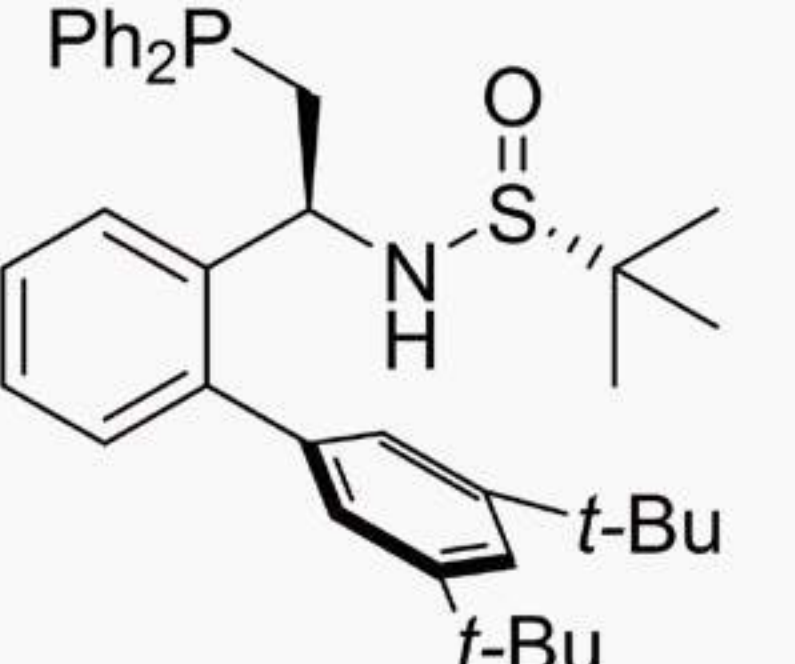
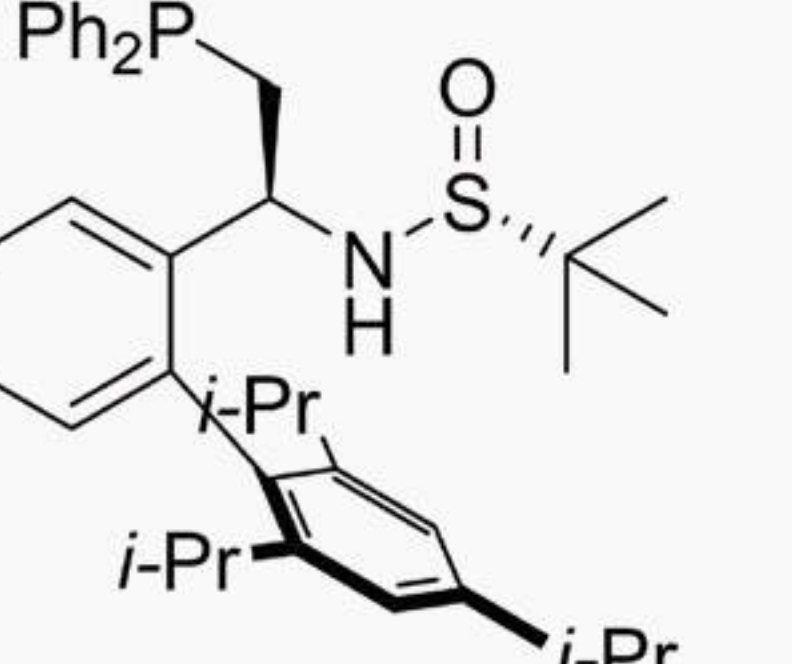
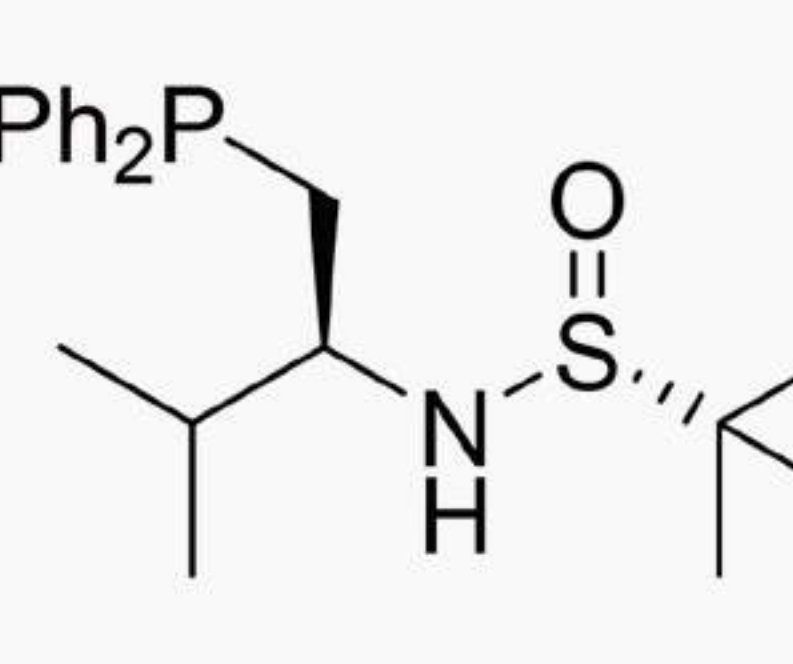
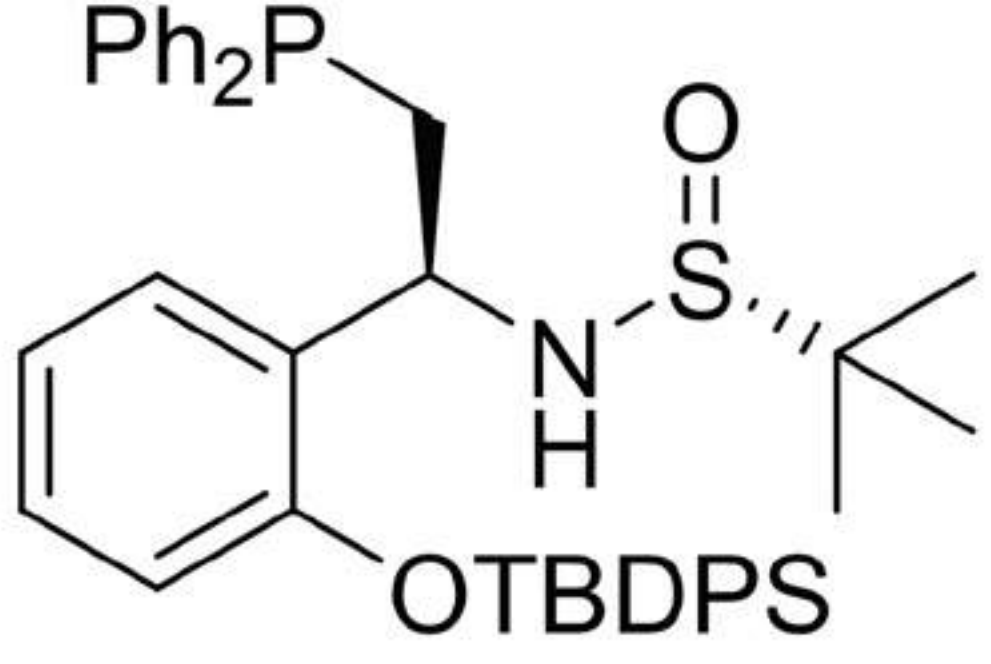
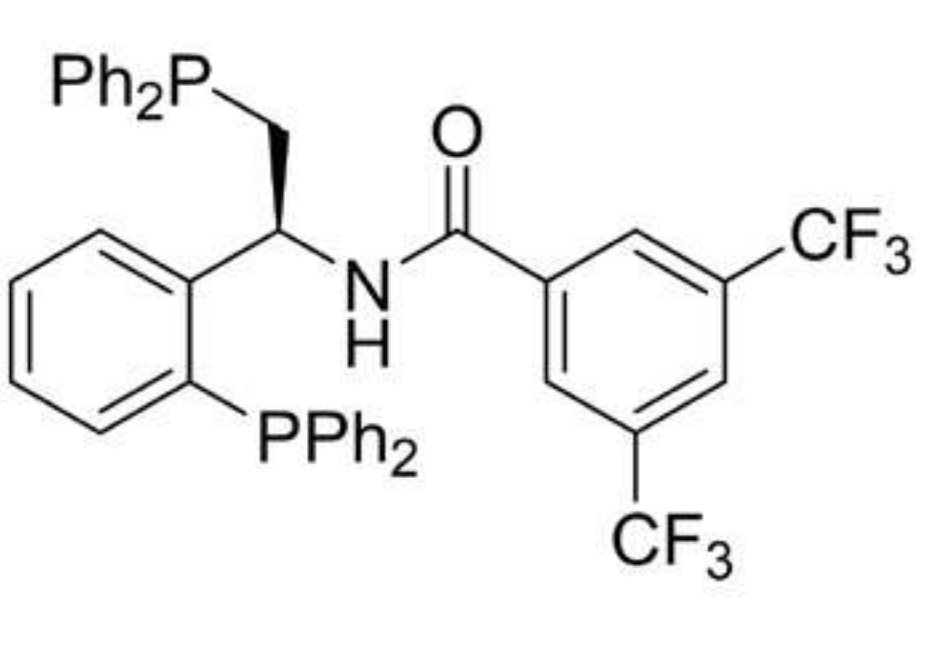
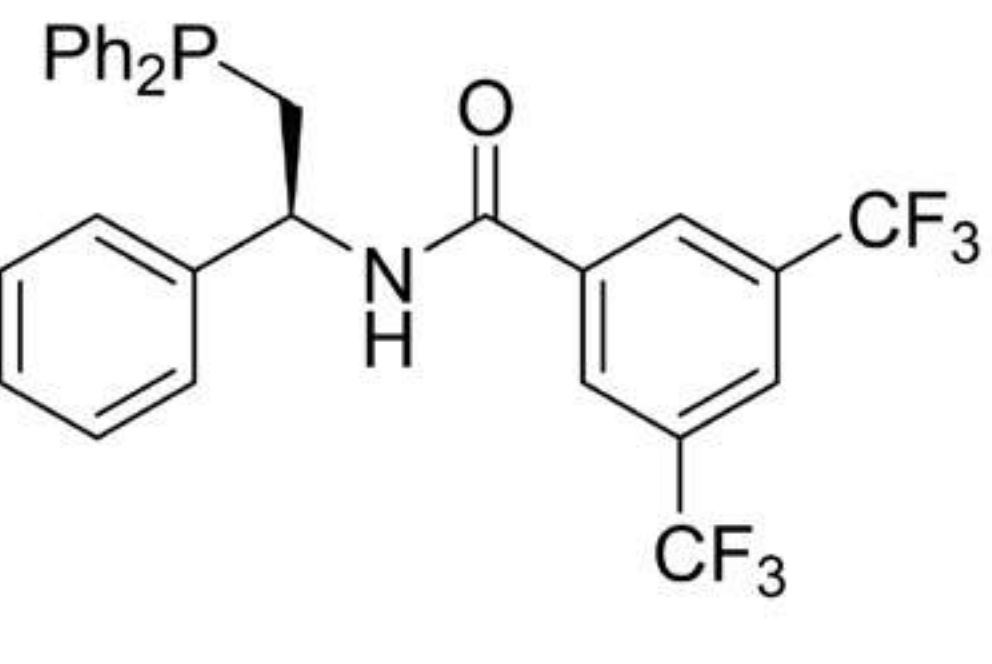
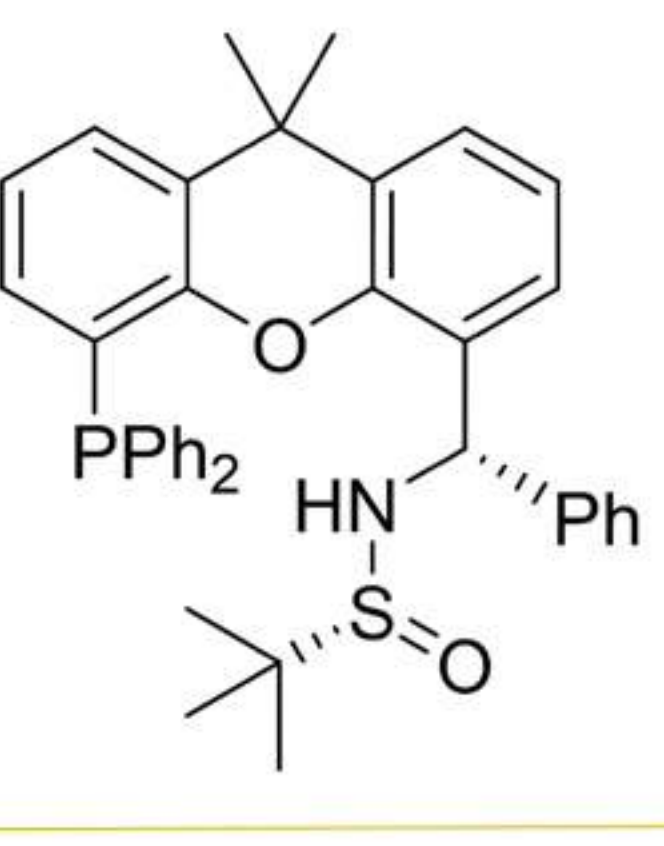


## 产品信息

|                                                                                 |                                                                                |                                                                                |                                                                                 |
|---------------------------------------------------------------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| [S(R)]-N-[(R)-[2-(二苯基膦基)苯基]苯基甲基]-2-甲基-2-丙烷亚磺酰胺                                  | [S(R)]-N-[(S)-[2-(二苯基膦基)苯基](4-甲氧基苯基)甲基]-2-甲基-2-丙烷亚磺酰胺                          | [S(R)]-N-[(R)-[2-(二苯基膦基)苯基](4-甲氧基苯基)甲基]-2-甲基-2-丙烷亚磺酰胺                          | [S(R)]-N-[(S)-[2-(二苯基膦基)苯基](4-甲氧基苯基)甲基]-N-甲基-2-叔丁基亚磺酰胺                          |
|                                                                                 |                                                                                |                                                                                |                                                                                 |
| C <sub>29</sub> H <sub>30</sub> NOPS 95%<br>S282263 1616688-59-5                | C <sub>30</sub> H <sub>32</sub> NO <sub>2</sub> PS 95%<br>S282264 1616688-62-0 | C <sub>30</sub> H <sub>32</sub> NO <sub>2</sub> PS 95%<br>S282265 1595319-96-2 | C <sub>31</sub> H <sub>34</sub> NO <sub>2</sub> PS ≥95%<br>S398583 2565792-78-9 |
| [S(R)]-N-[(R)-[2-(二苯基膦基)苯基](4-甲氧基苯基)甲基]-N-甲基-2-叔丁基亚磺酰胺                          | [S(R)]-N-[(S)-[2-(二苯基膦基)苯基](4-甲氧基苯基)甲基]-2-甲基-2-丙烷亚磺酰胺                          | [S(R)]-N-[(R)-[3,5-双(1,1-二甲基乙基)-4-甲氧基苯基][2-(二苯基膦基)苯基]甲基]-2-甲基-2-丙烷亚磺酰胺         | [S(R)]-N-[(S)-[3,5-双叔丁基-4-甲氧基苯基][2-(二苯基膦基)苯基]甲基]-N-甲基-2-叔丁基亚磺酰胺                 |
|                                                                                 |                                                                                |                                                                                |                                                                                 |
| C <sub>31</sub> H <sub>34</sub> NO <sub>2</sub> PS ≥95%<br>S398591 2565792-73-4 | C <sub>38</sub> H <sub>48</sub> NO <sub>2</sub> PS 95%<br>S282266 1616688-63-1 | C <sub>38</sub> H <sub>48</sub> NO <sub>2</sub> PS 95%<br>S282267 1616688-64-2 | C <sub>39</sub> H <sub>50</sub> NO <sub>2</sub> PS ≥95%<br>S398609 2454167-25-8 |

|                                                                                     |                                                                                     |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| [S(R)]-N-[(S)-[2-(二苯基膦基)苯基]-1-萘甲基]-2-甲基-2-丙烷亚磺酰胺                                    | [S(R)]-N-[(R)-[2-(二苯基膦基)苯基]-1-萘甲基]-2-甲基-2-丙烷亚磺酰胺                                    | [S(R)]-N-[(S)-[2-(二苯基膦)苯基]-1-萘甲基]-N-甲基-2-叔丁基亚磺酰胺                                      | [S(R)]-N-[(R)-[2-(二苯基膦)苯基]-1-萘基甲基]-N-甲基-2-叔丁基亚磺酰胺                                     |
|    |    |    |    |
| C <sub>33</sub> H <sub>32</sub> NOPS95%<br>S2822681595319-95-1                      | C <sub>33</sub> H <sub>32</sub> NOPS95%<br>S2822691616688-65-3                      | C <sub>34</sub> H <sub>34</sub> NOPS≥95%<br>S3986002416748-57-5                       | C <sub>34</sub> H <sub>34</sub> NOPS≥95%<br>S3986072565792-58-5                       |
| [S(R)]-N-[(1S)-1-[2-(二苯基膦基)苯基]-2,2-二甲基丙基]-2-甲基-2-丙烷亚磺酰胺                             | [S(R)]-N-[(1R)-1-[2-(二苯基膦基)苯基]-2,2-二甲基丙基]-2-甲基-2-丙烷亚磺酰胺                             | [S(R)]-N-[(1S)-1-[2-(二苯基膦)苯基]-叔丁基]-N-甲基-2-叔丁基亚磺酰胺                                     | [S(R)]-N-[(1R)-1-[2-(二苯基膦基)苯基]-2,2-二甲基丙基]-N,2-二甲基-2-丙烷亚磺酰胺                            |
|   |  |   |   |
| C <sub>27</sub> H <sub>34</sub> NOPS95%<br>S2822701595319-94-0                      | C <sub>27</sub> H <sub>34</sub> NOPS95%<br>S2822711906918-20-4                      | C <sub>28</sub> H <sub>36</sub> NOPS≥95%<br>S3990802454167-14-5                       | C <sub>28</sub> H <sub>36</sub> NOPS95%<br>S2822722049042-08-0                        |
| S(R)]-N-[(S)-[3,5-双(三氟甲基)苯基][2-(二苯基膦)苯基]甲基]-2-甲基-2-叔丁基亚磺酰胺                          | [S(R)]-N-[(S)-[3,5-双(三氟甲基)苯基][2-(二苯基膦)苯基]甲基]-N-甲基-2-叔丁基亚磺酰胺                         | [S(R)]-N-[(1S)-1-[2-(二苯基膦)苯基]乙基]-2-叔丁基亚磺酰胺                                            | [S(R)]-N-[(1R)-1-[2-(二苯基膦)苯基]乙基]-2-叔丁基亚磺酰胺                                            |
|  |  |  |  |
| C <sub>31</sub> H <sub>28</sub> F <sub>6</sub> NOPS95%<br>S2822972262535-73-7       | C <sub>32</sub> H <sub>30</sub> F <sub>6</sub> NOPS≥95%<br>S3986112565792-74-5      | C <sub>24</sub> H <sub>28</sub> NOPS≥95%<br>S3990021595319-98-4                       | C <sub>24</sub> H <sub>28</sub> NOPS≥95%<br>S3990171595319-89-3                       |
| [S(R)]-N-[(S)-(4-叔丁基苯基)[2-(二苯基膦)苯基]甲基]-2-叔丁基亚磺酰胺                                    | [S(R)]-N-[(S)-[2-(二环己基膦基)苯基]苯基甲基]-2-甲基-2-丙烷亚磺酰胺                                     | [S(R)]-N-[(R)-[2-(二环己基膦)苯基]苯甲基]-2-叔丁基亚磺酰胺                                             | [S(R)]-N-[(S)-[2-(二环己基膦基)苯基]苯基甲基]-N,2-二甲基-2-丙烷亚磺酰胺                                    |
|  |  |  |  |
| C <sub>33</sub> H <sub>38</sub> NOPS≥95%<br>S3990482628235-12-9                     | C <sub>29</sub> H <sub>42</sub> NOPS95%<br>S2822891595319-99-5                      | C <sub>29</sub> H <sub>42</sub> NOPS≥95%<br>S3986972565792-22-3                       | C <sub>30</sub> H <sub>44</sub> NOPS95%<br>S2822902241598-32-1                        |
| [S(R)]-N-[(S)-[3,5-二叔丁基-4-甲氧基苯基][2-(二环己基膦)苯基]甲基]-2-叔丁基亚磺酰胺                          | [S(R)]-N-[(R)-[3,5-二叔丁基-4-甲氧基苯基][2-(二环己基膦)苯基]甲基]-2-叔丁基亚磺酰胺                          | [S(R)]-N-[(S)-[3,5-双(1,1-二甲基乙基)-4-甲氧基苯基][2-(二环己基膦基)苯基]甲基]-N,2-二甲基-2-丙烷亚磺酰胺            | [S(R)]-N-[(R)-[3,5-二叔丁基-4-甲氧基苯基][2-(二环己基膦)苯基]甲基]-N-甲基-2-叔丁基亚磺酰胺                       |
|  |  |  |  |
| C <sub>38</sub> H <sub>60</sub> NO <sub>2</sub> PS≥95%<br>S3996252241598-31-0       | C <sub>38</sub> H <sub>60</sub> NO <sub>2</sub> PS≥95%<br>S3987082565792-75-6       | C <sub>39</sub> H <sub>62</sub> NO <sub>2</sub> PS95%<br>S2822912241598-34-3          | C <sub>39</sub> H <sub>62</sub> NO <sub>2</sub> PS≥95%<br>S3987102565792-49-4         |

|                                                                                     |                                                                                      |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| [S(R)]-N-[(R)-[2-(二环己基膦)苯基]-2-萘基甲基]-2-叔丁基亚磺酰胺                                       | [S(R)]-N-[(S)-[2-(二环己基膦)苯基]-2-萘基甲基]-N-甲基-2-叔丁基亚磺酰胺                                   | [S(R)]-N-[(R)-[2-(二环己基膦)苯基]-2-萘基甲基]-N-甲基-2-叔丁基亚磺酰胺                                    | [S(R)]-N-[(S)-2-(二环己基膦)苯基]-1-萘基甲基]-2-叔丁基亚磺酰胺                                          |
|    |     |    |    |
| C <sub>33</sub> H <sub>44</sub> NOPS ≥95%<br>S398720 2565792-53-0                   | C <sub>34</sub> H <sub>46</sub> NOPS ≥95%<br>S398712 2565792-44-9                    | C <sub>34</sub> H <sub>46</sub> NOPS ≥95%<br>S398718 2565792-68-7                     | C <sub>33</sub> H <sub>44</sub> NOPS ≥95%<br>S399311 2241598-30-9                     |
| [S(R)]-N-[(S)-[2-(二环己基膦)苯基]-1-萘基甲基]-N,2-二甲基-2-丙烷亚磺酰胺                                | [S(R)]-N-[(R)-[2-(二环己基膦)苯基](4-甲氧基苯基)甲基]-N-甲基-2-叔丁基亚磺酰胺                               | [S(R)]-N-[(1S)-[2-(二环己基膦)苯基]-2,2-二甲丙基]-2-叔丁基亚磺酰胺                                      | [S(R)]-N-[(1S)-1-[2-(二环己基膦)苯基]乙基]-N-甲基-2-叔丁基亚磺酰胺                                      |
|   |    |   |   |
| C <sub>34</sub> H <sub>46</sub> NOPS 95%<br>S282292 2241598-33-2                    | C <sub>31</sub> H <sub>46</sub> NOPS ≥95%<br>S398724 2565792-29-0                    | C <sub>27</sub> H <sub>46</sub> NOPS ≥95%<br>S398728 2565792-30-3                     | C <sub>25</sub> H <sub>42</sub> NOPS ≥95%<br>S399632 2253984-97-1                     |
| [S(R)]-N-[(R)-[2-(二金刚烷基膦)苯基]苯甲基]-2-叔丁基亚磺酰胺                                          | [S(R)]-N-[(S)-[2-(二金刚烷基膦)苯基]苯甲基]-N-甲基-2-叔丁基亚磺酰胺                                      | [S(R)]-N-[(R)-[2-(二金刚烷基膦)苯基]苯甲基]-N-甲基-2-叔丁基亚磺酰胺                                       | [S(R)]-N-[(1S)-1-[2-(二金刚烷基膦)苯基]乙基]-2-叔丁基亚磺酰胺                                          |
|  |  |  |  |
| C <sub>37</sub> H <sub>50</sub> NOPS ≥95%<br>S398868 2565792-31-4                   | C <sub>38</sub> H <sub>52</sub> NOPS ≥95%<br>S398863 2413724-69-1                    | C <sub>38</sub> H <sub>52</sub> NOPS ≥95%<br>S398866 2509201-09-4                     | C <sub>32</sub> H <sub>48</sub> NOPS ≥95%<br>S399305 1929530-56-2                     |
| [S(R)]-N-[(S)-[2-(二金刚烷基膦)苯基](2-萘基)甲基]-2-叔丁基亚磺酰胺                                     | [S(R)]-N-[(1S)-1-[2-(二叔丁基膦)苯基]苯甲基]-2-叔丁基亚磺酰胺                                         | [S(R)]-N-[(1R)-1-[2-(二叔丁基膦)苯基]苯甲基]-2-叔丁基亚磺酰胺                                          | [S(R)]-N-[(1S)-1-[2-(二叔丁基膦)苯基]苯甲基]-N-甲基-2-叔丁基亚磺酰胺                                     |
|  |   |  |  |
| C <sub>41</sub> H <sub>52</sub> NOPS ≥95%<br>S399119 2249950-37-4                   | C <sub>25</sub> H <sub>38</sub> NOPS ≥95%<br>S398896 2565792-23-4                    | C <sub>25</sub> H <sub>38</sub> NOPS ≥95%<br>S398900 2565792-40-5                     | C <sub>26</sub> H <sub>40</sub> NOPS ≥95%<br>S399359 2253984-99-3                     |
| [S(R)]-N-[(1S)-2-(二苯基膦)-1-苯基乙基]-2-甲基-2-丙烷亚磺酰胺                                       | [S(R)]-N-[(1S)-2-(二苯基膦)-1-苯基乙基]-N-甲基-2-叔丁基亚磺酰胺                                       | [S(R)]-N-[(1S)-2-(二苯基膦)-1-2-(二苯基膦基苯基)乙基]-2-甲基-2-丙烷亚磺酰胺                                | [S(R)]-N-[(1S)-1-[2-(9-蒎基)苯基]-2-(二苯基膦)乙基]-N-甲基-2-叔丁基亚磺酰胺                              |
|  |   |  |  |
| C <sub>24</sub> H <sub>28</sub> NOPS 95%<br>S282273 1803239-44-2                    | C <sub>25</sub> H <sub>30</sub> NOPS ≥95%<br>S398915 1824731-37-4                    | C <sub>36</sub> H <sub>37</sub> NOP <sub>2</sub> S 95%<br>S282280 1824731-39-6        | C <sub>39</sub> H <sub>38</sub> NOPS ≥95%<br>S398656 1936438-30-0                     |

|                                                                                    |                                                                                              |                                                                                      |                                                                                      |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| [S(R)]-N-[(1S)-1-(2',6'-双异丙基)-(1,1'-联苯)-2-(二苯基膦)乙基]-2-叔丁基亚磺酰胺                      | [S(R)]-N-[(1S)-1-[3'',5''-双(1,1-二甲基乙基)[1,1''-联苯]-2-基]-2-(二苯基膦基)乙基]-2-甲基-2-丙烷亚磺酰胺             | [S(R)]-N-[(1S)-1-(2',4',6'-三异丙基)-(1,1'-联苯)-2-(二苯基膦)乙基]-2-叔丁基亚磺酰胺                     | [S(R)]-N-[(1S)-1-[(二苯基膦基)甲基]-2-甲基丙基]-2-甲基-2-丙亚磺酰胺                                    |
|   |             |   |   |
| C <sub>36</sub> H <sub>44</sub> NOPS ≥95%<br>S398661 2394923-85-2                  | C <sub>38</sub> H <sub>48</sub> NOPS 95%<br>S282279 1936438-24-2                             | C <sub>39</sub> H <sub>50</sub> NOPS ≥95%<br>S398652 2394923-81-8                    | C <sub>21</sub> H <sub>30</sub> NOPS 95%<br>S282277 1803239-46-4                     |
| [S(R)]-N-[(1S)-1-[2-((叔丁基二苯硅氧)苯基)]-2-(二苯基膦)乙基]-2-叔丁基亚磺酰胺                           | N-[(1S)-2-(二苯基膦)-1-((2-二苯基膦)苯基)乙基]-3,5-二(三氟甲基)苯甲酰胺                                           | N-[(1S)-2-(二苯基膦)-1-苯乙基]-3,5-二(三氟甲基)苯甲酰胺                                              | [S(R)]-N-[(S)-(苯基)[5-(二苯基膦)-9,9-二甲基-9H-氧杂蒽]苯基甲基]-2-叔丁基亚磺酰胺                           |
|  |            |  |  |
| C <sub>40</sub> H <sub>46</sub> NO <sub>2</sub> PSSi ≥95%<br>S398669 1803239-59-9  | C <sub>41</sub> H <sub>31</sub> F <sub>6</sub> NOP <sub>2</sub> ≥95%<br>N398906 2249744-81-6 | C <sub>29</sub> H <sub>22</sub> F <sub>6</sub> NOP 95%<br>N282296 1853342-57-0       | C <sub>38</sub> H <sub>38</sub> NO <sub>2</sub> PS ≥95%<br>S398694 2162939-87-7      |



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