

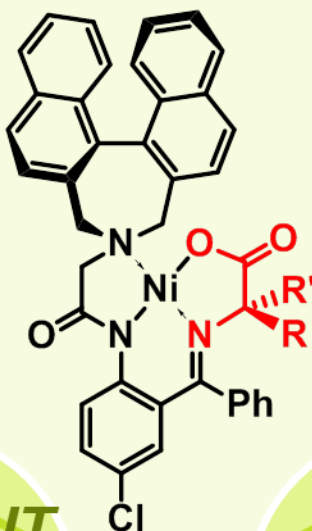
Soloshonok-Hamari Ligand

~Advanced Approach for
Tailor-Made Amino Acids~

***REMARKABLE
STEREOCHEMICAL
OUTCOMES***

***EASY
MANIPULATION***

***RECYCLABLE
LIGAND***



***WITHOUT
SPECIAL
EQUIPMENT***

***COST
EFFECTIVE***



Hamari Chemicals, Ltd.

Practical Asymmetric Synthesis of Custom α -Amino Acids

Hamari Chemicals, Ltd. is collaborating with Professor Vadim A. Soloshonok to develop innovative synthetic process for tailor-made amino acids. The **"Soloshonok-Hamari Ligand"** is an ideal tool to produce various custom amino acids at high efficiency.

Using these ligands and readily available racemic/natural amino acids, a variety of tailor-made amino acids can be synthesized with high stereoselectivity by chiral interconversion and/or functionalization at the α -carbon position. These ligands do not racemize, and are easily recovered and recycled to permit cost-effective large scale manufacture.

This technology is the ultimate advanced approach for tailor-made amino acids.

Advantages

① Remarkable Stereochemical Outcomes

Using "Soloshonok-Hamari Ligands," various tailor-made amino acids can be prepared at both high optical purity and high yield, which is often difficult to attain by enzymatic or resolution methods.

② Easy Manipulation

The Nickel (II) complex prepared from the Schiff base of a "Soloshonok-Hamari Ligand" and the amino acid is a stable crystal, and is easily isolated by filtration.

③ Recyclable Ligand

"Soloshonok-Hamari Ligands" do not racemize, and can be easily separated from the tailor-made amino acid product and quantitatively recycled.

④ Without Special Equipment

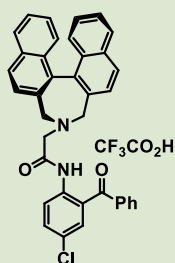
"Soloshonok-Hamari Ligand" technology does not require special equipment like cryogenic reactors or autoclaves.

⑤ Cost Effective

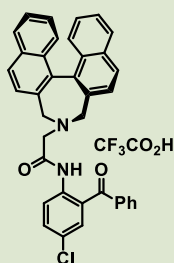
Scale-up is very easy. We can propose various options for your custom-made manufacturing of tailor-made amino acids, based on our 70 years of experience in laboratory and process chemistry.

"Soloshonok-Hamari Ligand" and Ni(II) complexes of Glycine/Alanine Schiff Base

For *S/R* Interconversion



(*S*)-BCCN
TFA salt



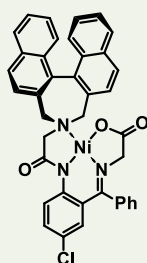
(*R*)-BCCN
TFA salt

CAS # 1614264-49-1*

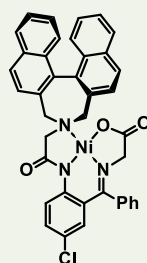
1614264-50-4*

* Free base

For Asymmetric Functionalization



(*S*)-BCNG

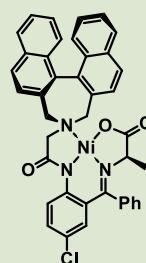


(*R*)-BCNG

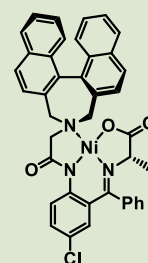
1639014-40-6

1639014-43-9

For α,α -Disubstituted Amino Acids



(*S*)-BCNA



(*R*)-BCNA

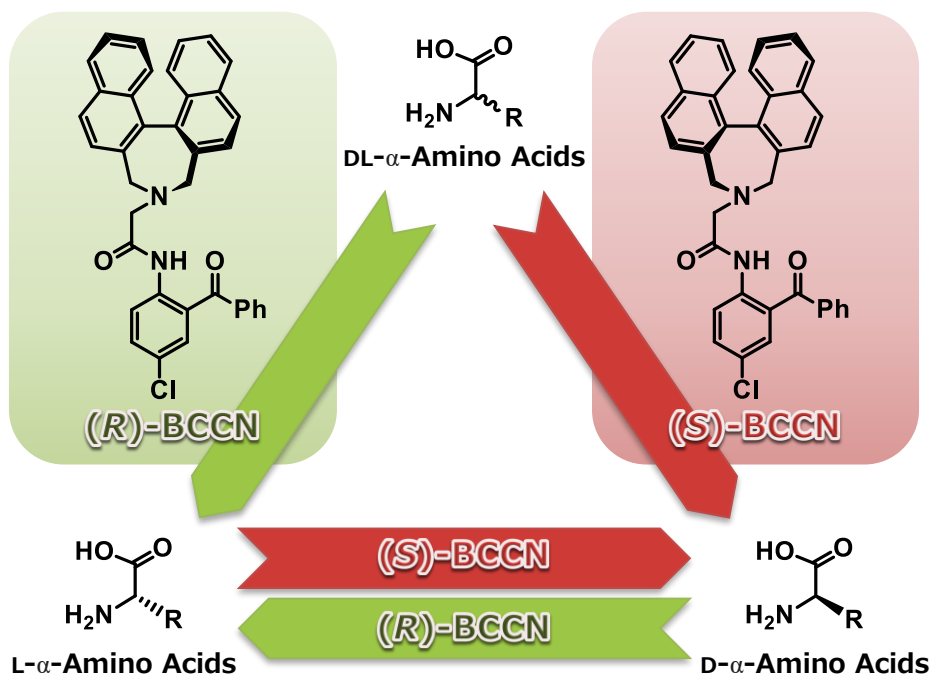
1615217-87-2

1615217-89-4

Please contact us for price and availability of complexes not shown above. We can make tailor-made complexes with a minimum order of 500 mg.

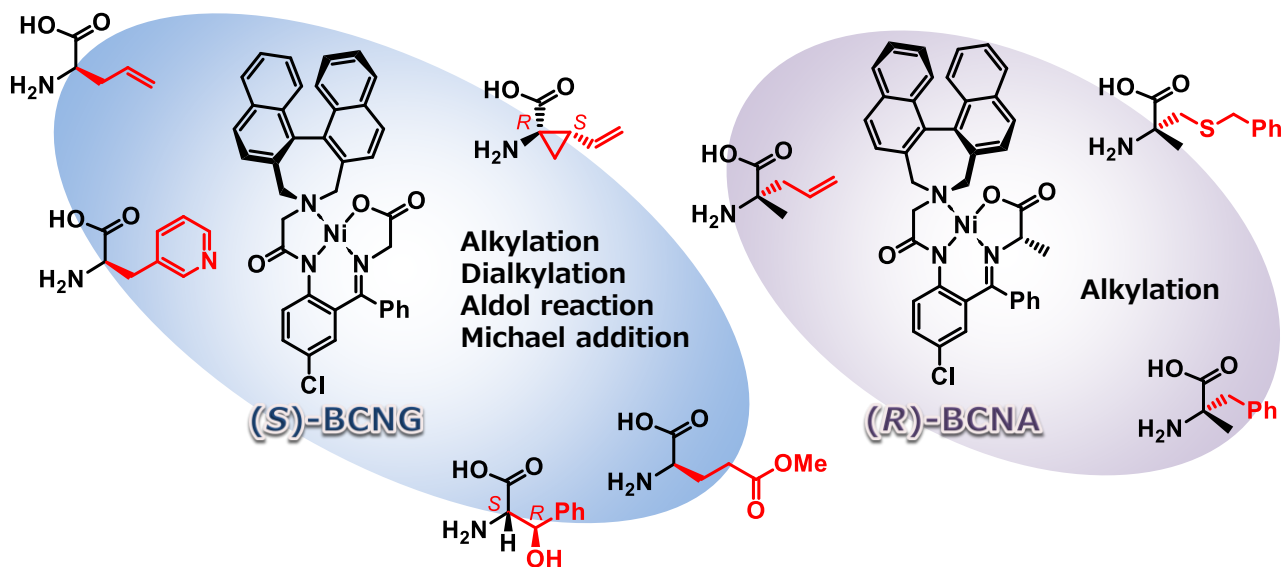
S/R Interconversion of Amino Acids

With "Soloshonok-Hamari Ligands," a racemic mixture of α -amino acids can be converted to pure L- or D-amino acids. Moreover, these ligands also make it feasible to convert natural L-amino acids to D-amino acids. **Chiral D-amino acids are extremely useful in R&D and in designing new peptide pharmacophores.**



Asymmetric Functionalization

Glycine can be converted to tailor-made amino acids through derivatization of the Nickel (II) complex prepared from "Soloshonok-Hamari Ligand" and glycine. Similarly α,α -disubstituted amino acids can be prepared from Alanine-Nickel complex. **Thus, various functionalized amino acids are available with high optical purity using our ligand.**



Research Activities

Patents

Axial-asymmetric *N*-(2-acylaryl)-2-[5, 7-dihydro-6*H*-dibenzo [c, e] azepine-6-yl] acetamide compound and chirality conversion method for α -amino acid using same WO2014098063A1

Method for synthesizing optically active α -amino acid using chiral metal complex comprising axially chiral *N*-(2-acylaryl)-2-[5, 7-dihydro-6*H*-dibenzo [c, e] azepin-6-yl] acetamide compound and amino acid WO2014188783A1

Publications

Chemical Dynamic Kinetic Resolution and *S/R* Interconversion of Unprotected α -Amino Acids

Angew. Chem. Int. Ed. **2014**, *53*, 12214–12217

ACS Omega **2019**, *4*, 11844–11851; *ChemistryOpen* **2019**, *8*, 701–704; *Symmetry* **2019**, *11*, 578; *Org. Process Res. Dev.* **2019**, *23*, 629–634; *Org. Process Res. Dev.* **2019**, *23*, 619–628; *ACS Omega* **2018**, *3*, 9729–9737; *Org. Biomol. Chem.* **2018**, *16*, 4968–4972; *Chirality* **2018**, *30*, 498–508; *Curr. Pharm. Des.* **2017**, *23*, 4493–4554; *Org. Biomol. Chem.* **2017**, *15*, 6978–6983; *Amino Acids* **2017**, *49*, 1487–1520; *Org. Process Res. Dev.* **2017**, *21*, 732–739; *Eur. J. Org. Chem.* **2017**, 1931–1939; *Eur. J. Org. Chem.* **2016**, 2757–2774; *Amino Acids* **2016**, *48*, 973–986; *Eur. J. Org. Chem.* **2016**, 999–1006; *J. Org. Chem.* **2015**, *80*, 9817–9830; *RSC Adv.* **2015**, *5*, 1051–1058; *J. Fluorine Chem.* **2015**, *171*, 67–72; *Org. Biomol. Chem.* **2014**, *12*, 6239–6249; *Adv. Synth. Catal.* **2014**, *356*, 2203–2208; *Amino Acids* **2014**, *46*, 2047–2073; *Amino Acids* **2014**, *46*, 945–952; *Beilstein J. Org. Chem.* **2014**, *10*, 442–448; *Amino Acids* **2013**, *45*, 1017–1033; *Amino Acids* **2013**, *45*, 691–718; *J. Fluorine Chem.* **2013**, *155*, 21–38; *J. Fluorine Chem.* **2013**, *152*, 114–118; *Org. Biomol. Chem.* **2013**, *11*, 4508–4515; *Org. Biomol. Chem.* **2013**, *11*, 4503–4507

Partner and Advisor

Prof. Dr. Vadim A. Soloshonok



- Ikerbasque Research Professor of University of the Basque Country, UPV/EHU in San Sebastian
- More than 20 years of research on asymmetric synthesis of amino acids in Ukrainian, Italian, Japanese, USA and Spanish Universities
- Over 320 publications; h-index 78 (as of September 2019)

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