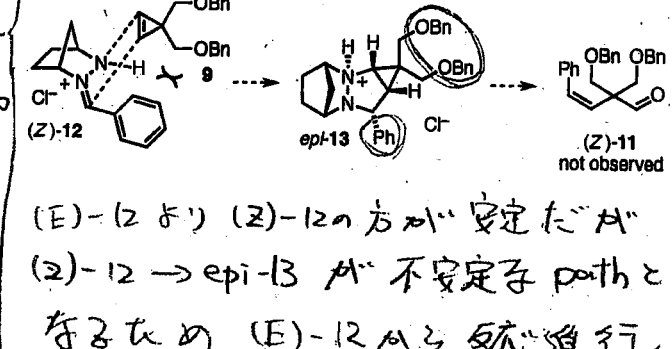
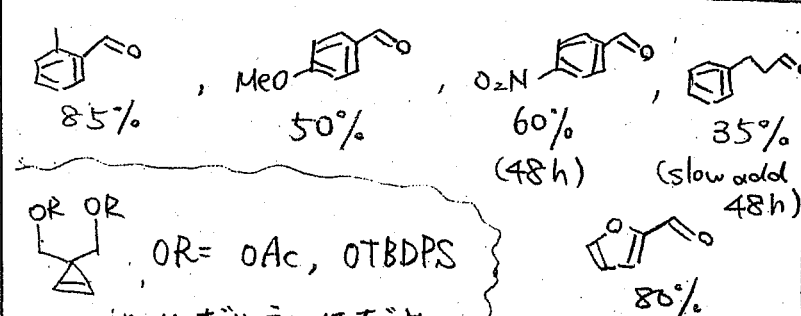
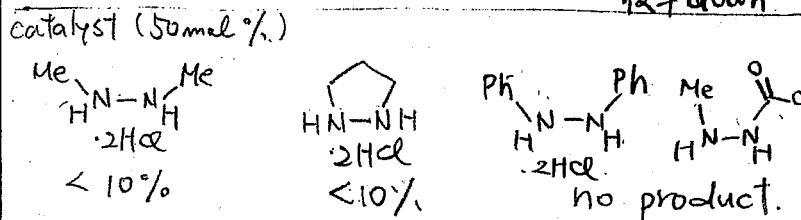
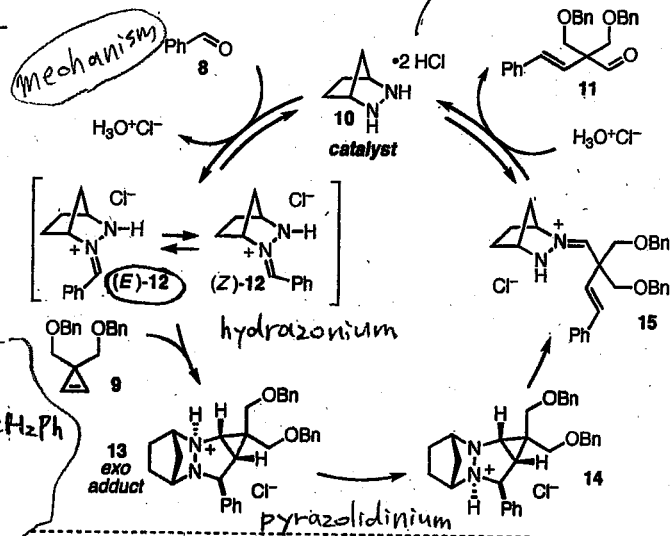
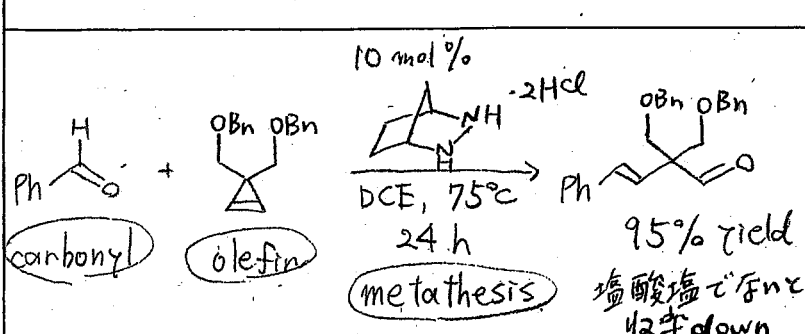
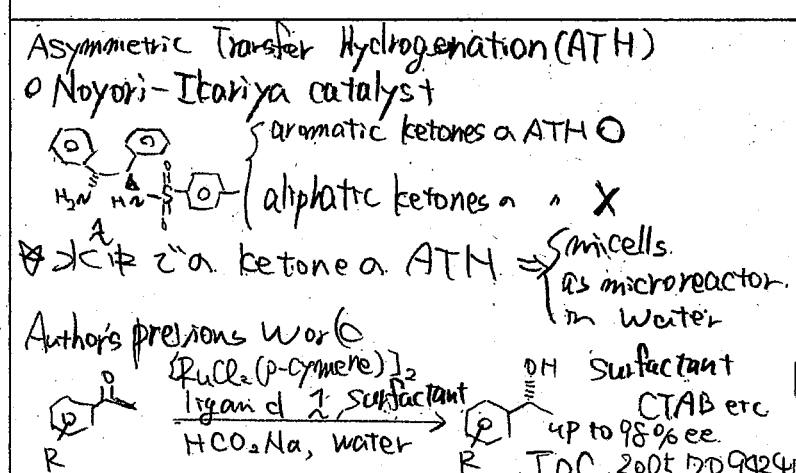


Organocatalytic Carbonyl-Olefin Metathesis

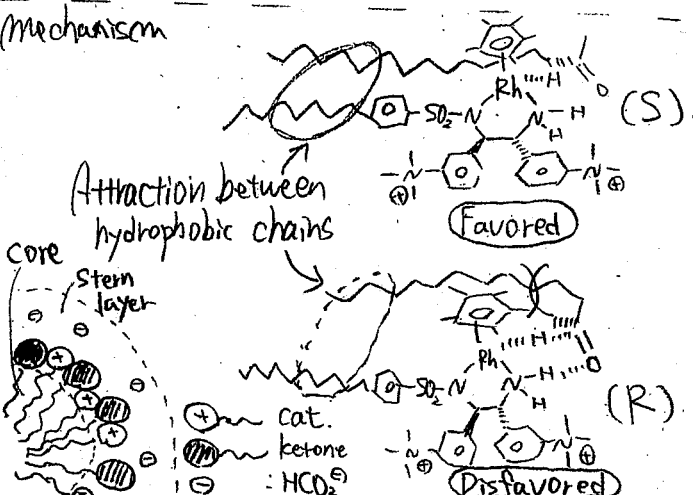
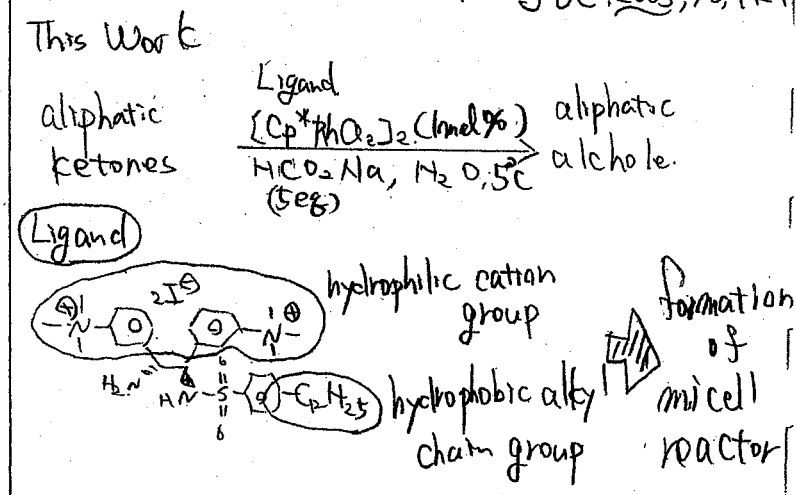


Deng, J. et al | Sichuan University (China) | ja308357y | Nagamachi

Chiral Surfactant-Type Catalyst for Asymmetric Reduction of Aliphatic Ketones in Water

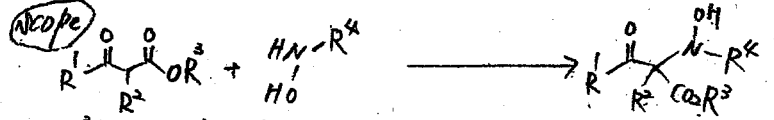
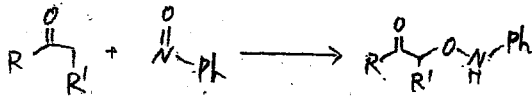


TEM images of the catalyst and reaction mixture. Dimensions: a: 20.9 ± 2.3 nm, b: 22.3 ± 5.7 nm, c: 66.8 ± 15.6 nm.
 Scope: R-C(=O)-R (n=3-10) → R-CH(OH)-R (conv: ~98%, ee: ~94% (S)).
 Mechanism: R-C(=O)-R + H2 (via [Cp*PtCl2]2 and surfactant) → R-CH(OH)-R (conv: 97%, ee: 91% (S)).



Electrophilic α -Amination Reaction of β -Ketoesters Using *N*-Hydroxycarbamates: Merging Aerobic Oxidation and Lewis Acid Catalysis

• *O*-selective nitroso aldol reaction

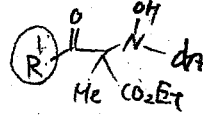


$R^1 = R^2 = Me, R^3 = cbz$
 (R^1) (ester) = Me, Et, allyl, t Bu, 82 ~ 92%

$R^1 = R^2 = Me, R^3 = Et$

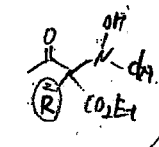
(R^3) (protecting group) cbz, Boc, Fmoc, Tnc 77 ~ 92%

$R^1 = Et, R^2 = cbz$



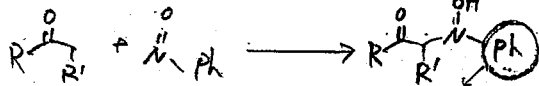
$R^2 = Me, Et, Bn, Ph$

86 ~ 90%

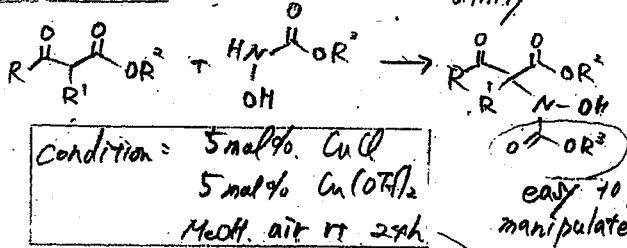


$R^1 = Me, Et, Bn, iPr$
 92%, 89%, 72%, 82%

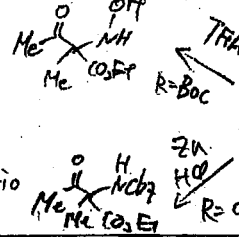
• *N*-selective nitroso aldol reaction



This work

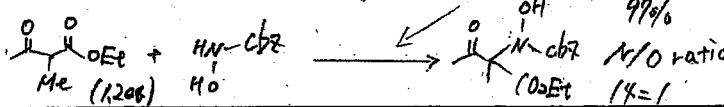


Synthetic utility

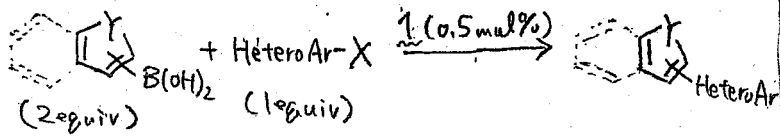


• CuCl, air \rightarrow nitroso formation

• Cu(OAc)₂ \rightarrow enolate generation

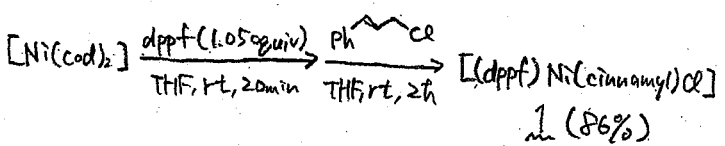


Highly Reactive, Single-Component Nickel Catalyst Precursor for Suzuki-Miyaura Cross-Coupling of Heteroaryl Boronic Acids with Heteroaryl Halides

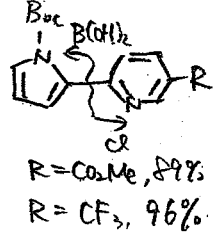
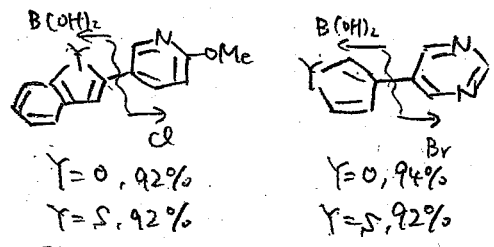
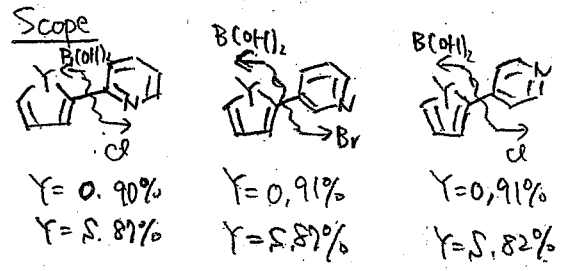
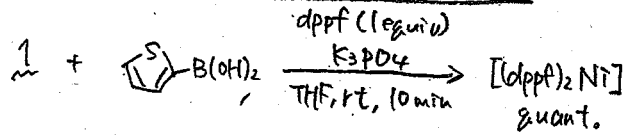


Method A: K₂CO₃·(H₂O)_{1.5} (4 equiv), CH₃CN, 50°C
 Method B: K₃PO₄ (4 equiv), 1,4-dioxane, 70°C
 Method C: K₃PO₄ (4 equiv), 1,4-dioxane, 80°C

Synthesis of 1

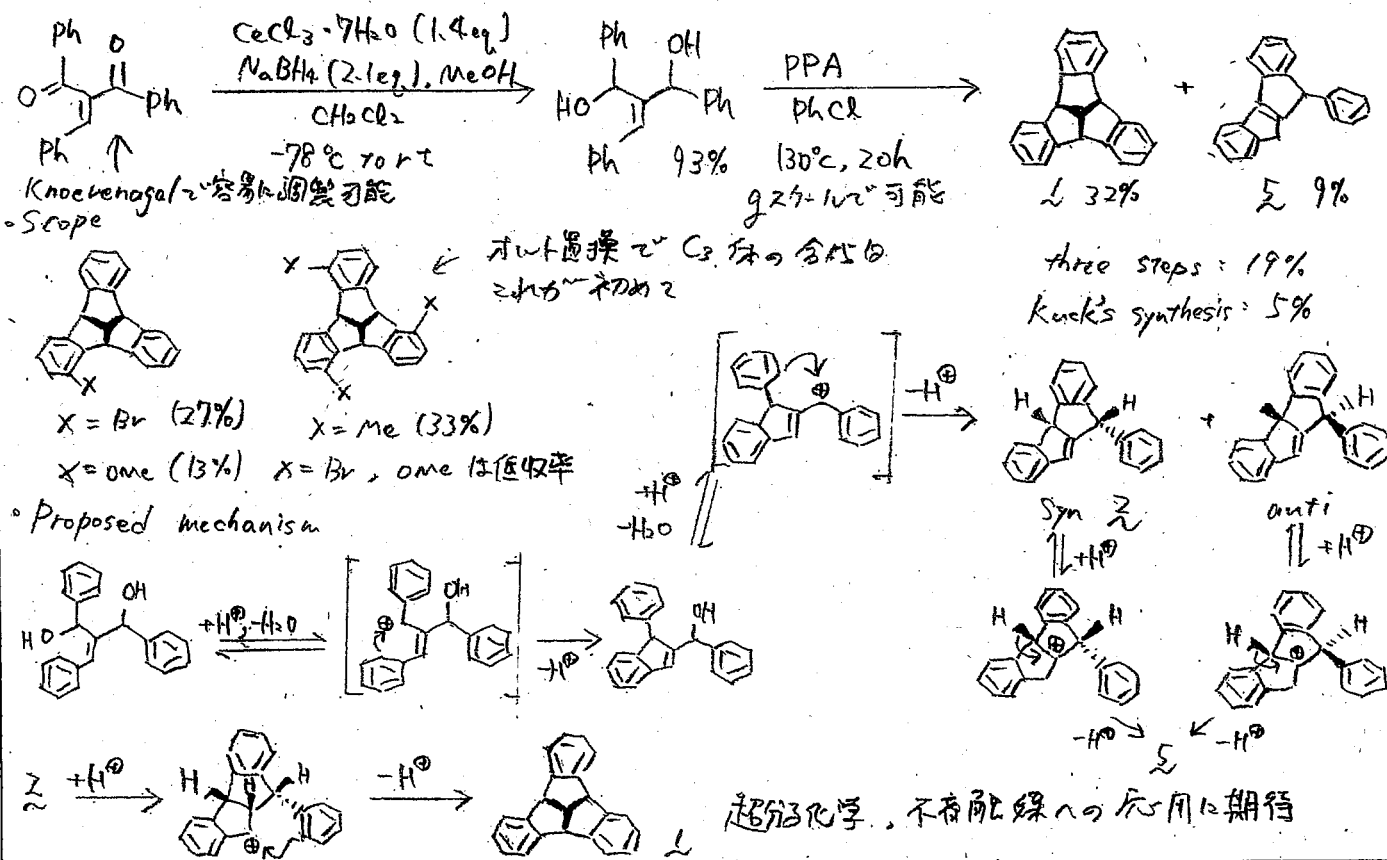


The rate of generation of Ni(0) from 1



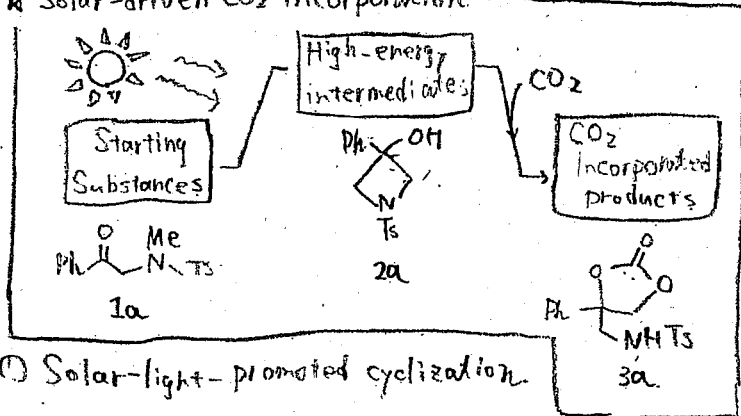
• 67 examples.
 • >79% yield.
 • This coupling reaction was easily conducted on large scale without a drybox.

Tribenzotriquinacene: A Versatile Synthesis and C₃-Chiral Platforms

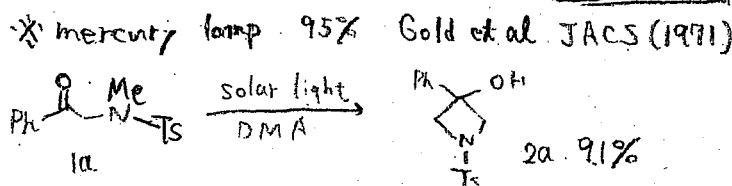


Solar-Driven Incorporation of Carbon Dioxide into α -Amino Ketones

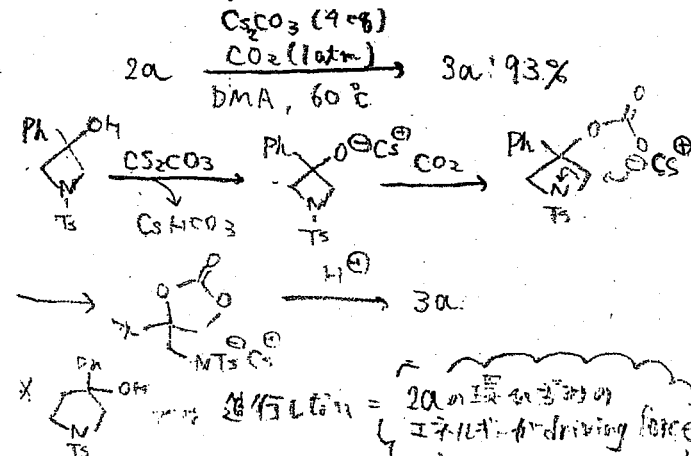
Solar-driven CO₂ incorporation



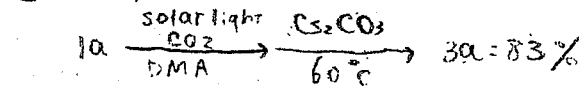
Solar-light-promoted cyclization



CO₂ incorporation



one-pot reaction

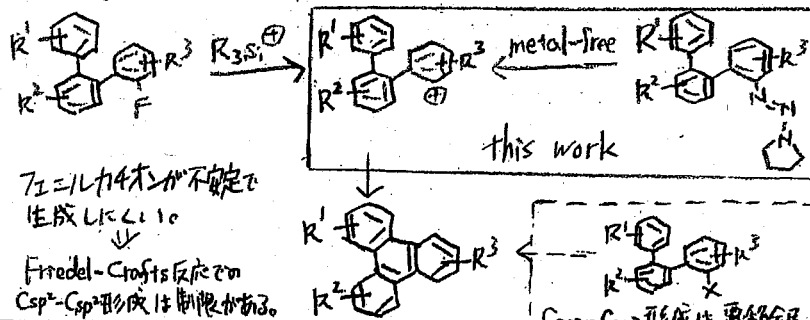


<Scope of 1a>

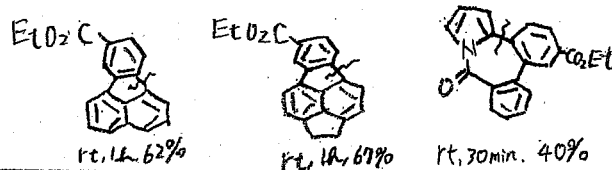
- Sunny (0.4 kW m⁻² h⁻¹ 以上) 8h 91% (5.5 kW h m⁻²)
- Cloudy (0.1-0.4 kW m⁻² h⁻¹) 8h 54% (0.9 kW h m⁻²)
- Ar: p-MeO (80%), p-CF₃ (51%), p-O (73%)
- NH上の置換基:
 -SO₂-O-OMe (87%), -SO₂-O-CF₃ (85%)

Friedel-Crafts Arylation for the Formation of Csp²-Csp² Bonds: A Route to Unsymmetrical and Functionalized Polycyclic Aromatic Hydrocarbons from Aryl Triazines

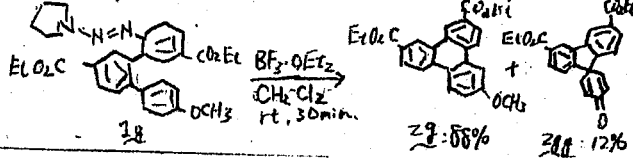
<Strategies for the synthesis of PAHs>



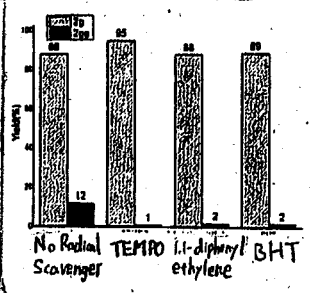
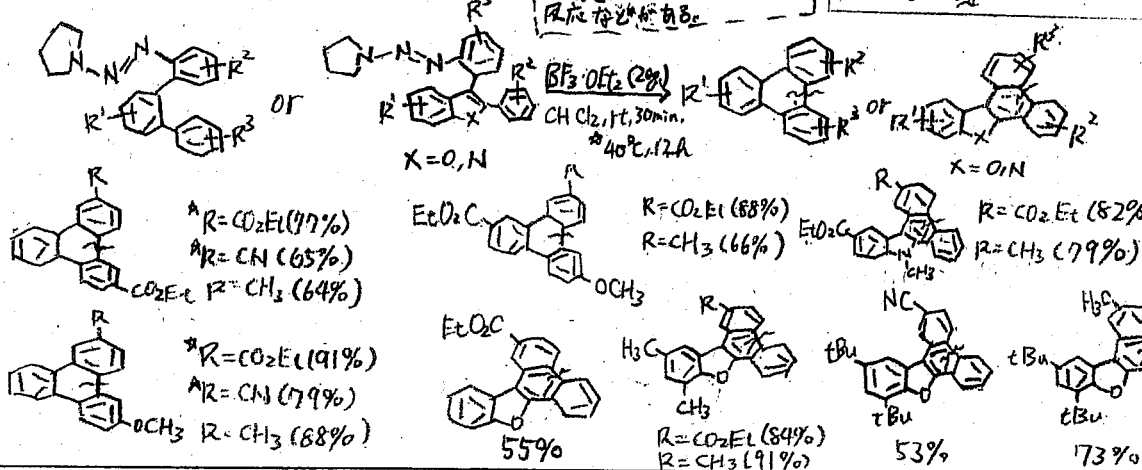
<Application>



<Investigation of the reaction mechanism>



<Scope>



2g: 7-エニル基經由

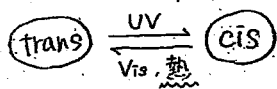
2g: 7-エニル基經由

Fastest Thermal Isomerization of an Azobenzene for Nanosecond Photoswitching Applications under Physiological Conditions

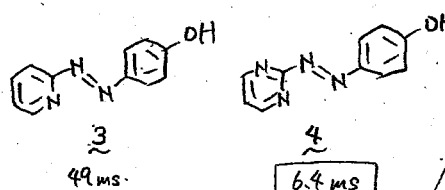
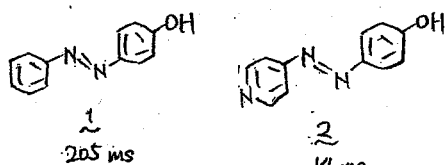
水溶性アゾベンゼン化合物

- ・生体に適用可能
- ・光や熱により異性化

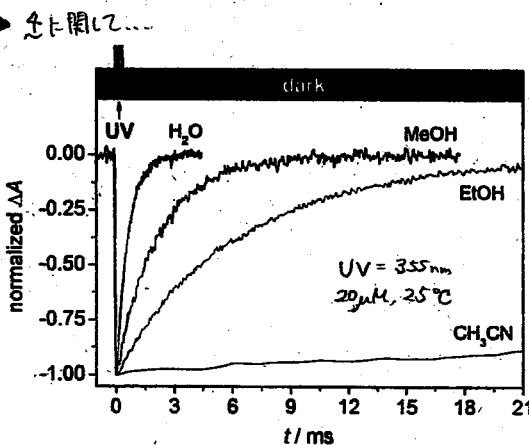
→ 光スイッチ



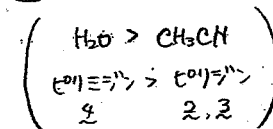
光が1種類のみ



EtOH中; 25°C



芳香環内のN原子と溶媒分子との水素結合が多いほど、trans体への逆異性化が速くなる。



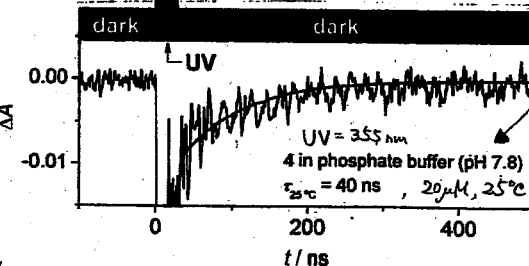
buffer中での逆異性化が55に速くなる。

(ヒドロキシ基が部分的に脱プロトン化している)

過去に報告されている中で最も速い。

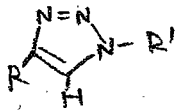
・大腸菌細胞を用いて生体適合性を評価

⇒ 追加最高



Halogen Exchange (HalEx) Reaction of 5-Iodo-1,2,3-thiazoles:
Synthesis and Applications of 5-Fluorothiazoles.

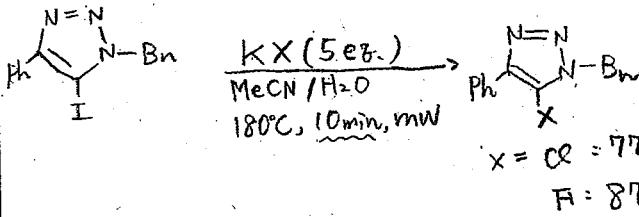
1,2,3-thiazole products



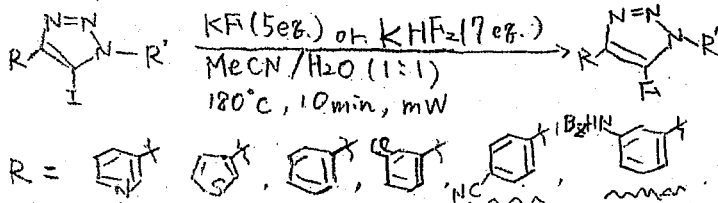
⇒ medicinal chemistry
• materials science
• polymer chemistry
と いろいろ分野で利用

This Work

→ 今まで thiazole 環に直接 F を導入する方法は報告されていなし。



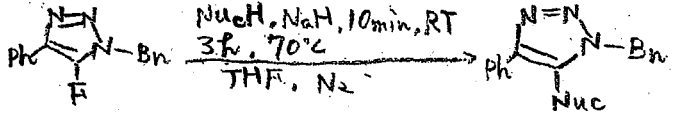
Scope



R' = Bn, Ph, Me, OH, etc.

yield: 64~92%

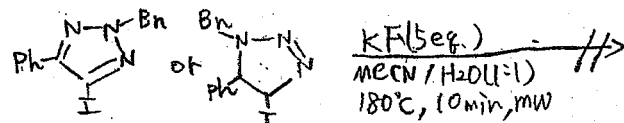
• S_NAr reactions



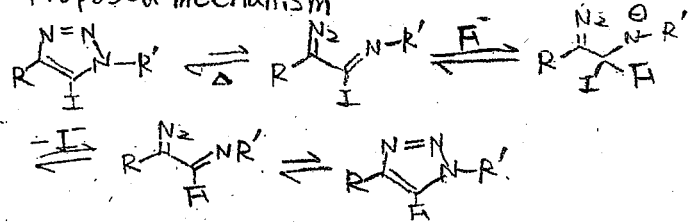
NuCH = HN, MeOH, HSBn

(F 以外の I, Br, Cl では置換反応は進行しない)

• thiazole isomer

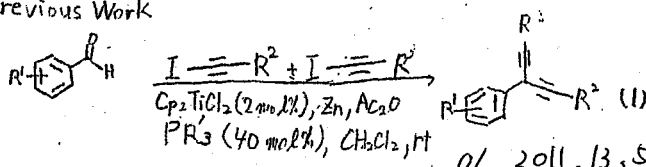


• Proposed mechanism

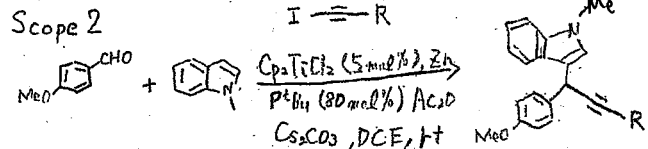


Titanocen-Catalyzed Multicomponent Coupling Approach to Diarylethynyl Methanes

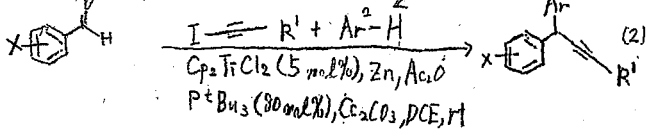
Previous Work



Scope 2

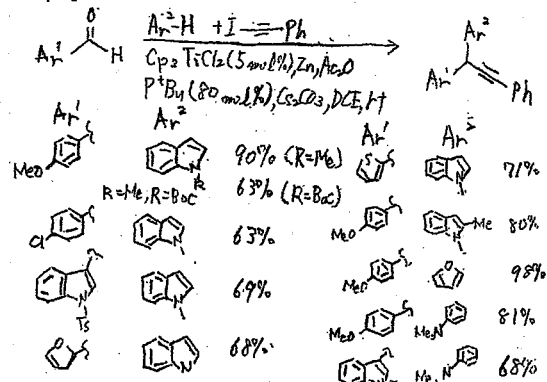


This Work

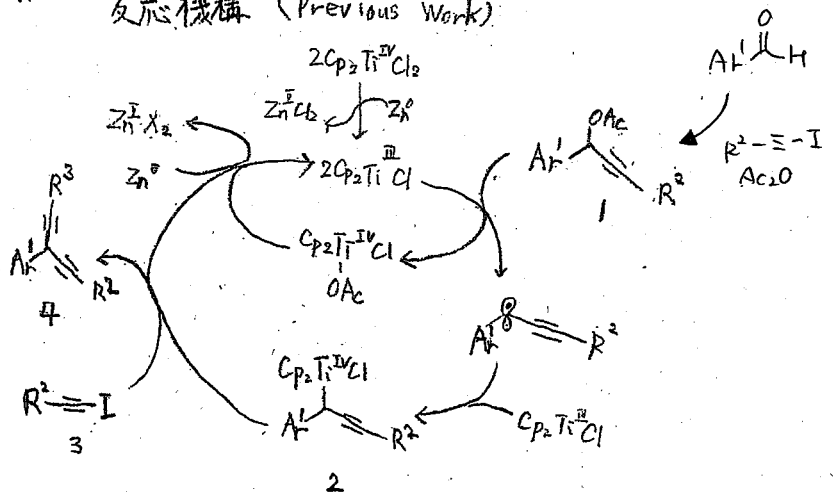


Scope 1

Scope 1

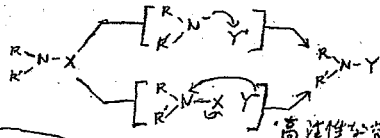


反応機構 (Previous Work)



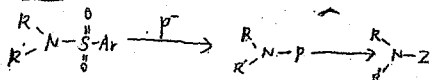
Nucleophilic Substitution Reaction at the Nitrogen of Arylsulfonamides with Phosphide Anion

Substitution at Nitrogen



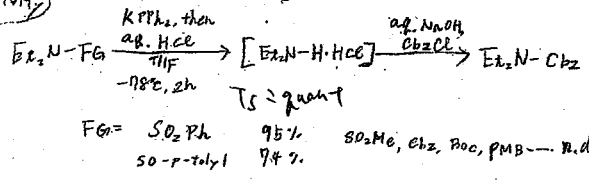
高活性の空基化合物に限定

This work

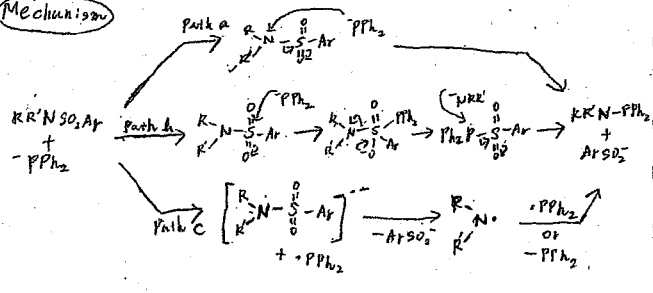


Z = H or other functional group (FG)

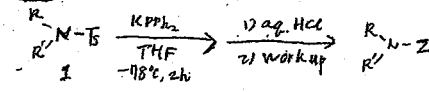
Selectivity



Mechanism



Scope



entry	1	2	entry	3	4	5
		Cbz 95%			R=H Boc 95%	
					Br Boc 98%	
					H 98%	

Substitution of diamine

