

# Organoheteroatom Chemistry Based on Transition Metal Catalysis

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## **【 Outline of survey 】**

Our society depends deeply on various useful compounds derived from petroleum, and it is very important to develop effective synthetic methods for such compounds. Organoheteroatom compounds containing sulfur, selenium, phosphorous, or arsine (group 15 and 16 elements) are a group of useful compounds in the development of drugs and materials, and have been prepared by using the substitution reactions of organohalogen compounds with various heteroatom reagents. The methods, however, often employ toxic reagents and strict reaction conditions to remove trace of oxygen or moisture, and form metal halides as byproducts. The aim of the present project is to develop economical and environmentally benign synthetic methods for organoheteroatom compounds by employing transition metal catalysis.

## **【 Expected results 】**

The development of economical and environmentally benign synthetic methods for organoheteroatom compounds results in the considerable reduction of byproducts. It should also be emphasized that the study will provide various novel compounds, some of which may be used for drugs and materials. Breakthrough in organometallic chemistry and organoheteroatom chemistry is also expected.

## **【 References by the principal researcher 】**

M. Arisawa, M. Yamaguchi, Rhodium-Catalyzed Disulfide Exchange Reaction. J. Am.Chem. Soc., 125, 6624-6625 (2003).

**【 Term of project 】** FY 2004 - 2008

**【 Budget allocation 】** 90,100,000 yen

**【 Homepage address 】** none