

# Regio-selective Cyanation of (Z)-(1,2-dibromo-2-arylvinyl)triisopropylsilane with Suppression of Halogen Elimination

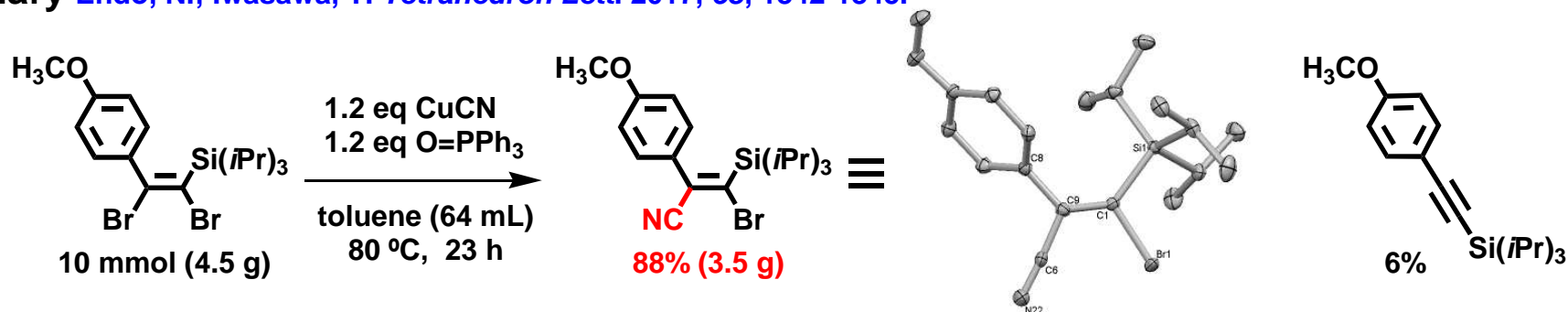


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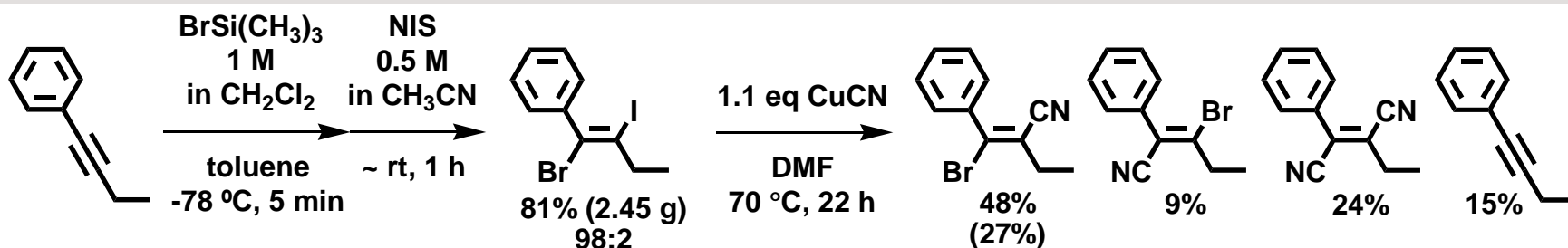
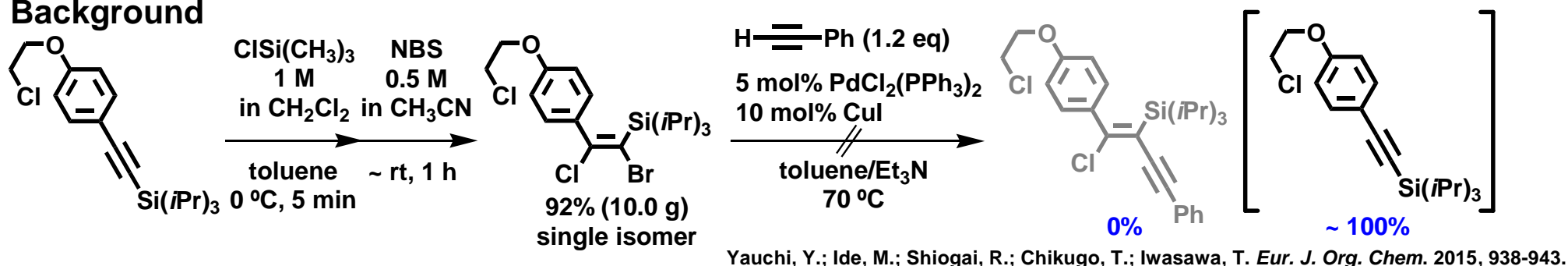
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## 1. Summary Endo, N.; Iwasawa, T. *Tetrahedron Lett.* 2017, 58, 1842-1845.



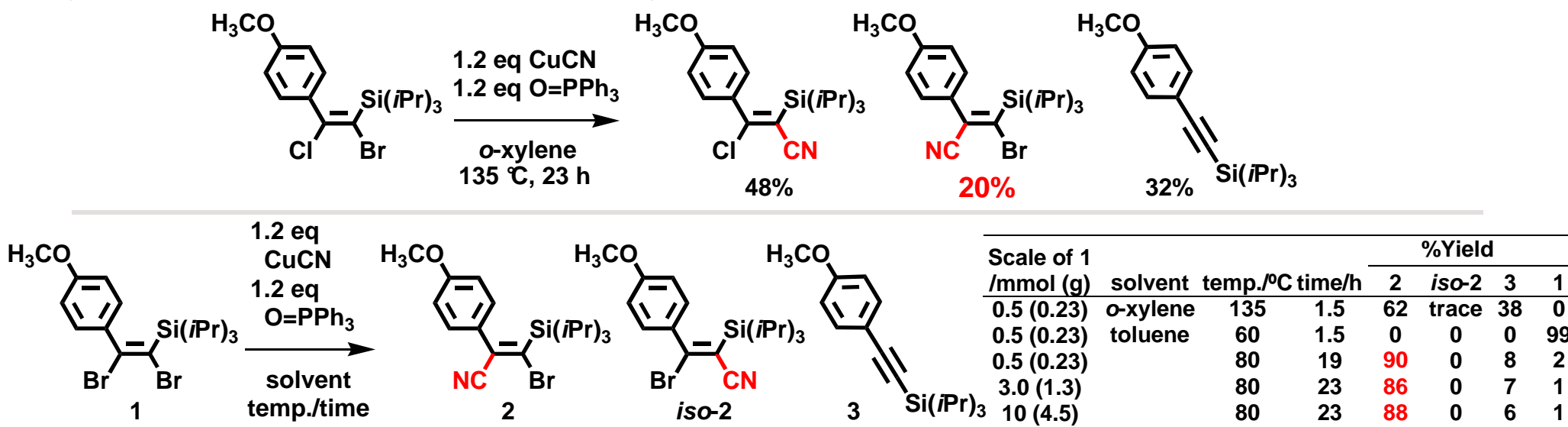
## 2. Background



1. Ide, M.; Yauchi, Y.; Shiogai, R.; Iwasawa, T. *Tetrahedron* 2014, 70, 8532.

2. Endo, N.; Kanaura, M.; Iwasawa, T. *Tetrahedron Lett.* 2016, 57, 483-486.

## 3. Cyanation of vicinal (Z)-1,2-dihaloalkenylsilane



## 4. Evaluation of this cyanation protocol

Ar	solvent	temp./°C	time/h	TM	Alkyne	Dibromo
	toluene	80	23	67	0	24
		110	9	90	trace	0
	toluene	80	15	86	0	2
		110	3	91	trace	0
	toluene	80	8	0	0	~100
	<i>o</i> -xylene	110	23	54	15	22
	toluene	80	19	21	1	68
		110	20	69	21	0
	toluene	110	19	0	78	11
	<i>o</i> -xylene	144	3	0	>99	trace

## 5. (Z)-1,2-dichloroalkenylsilane

Reaction scheme showing the regio-selective cyanation of (Z)-1,2-dichloroalkenylsilane. Reagents: 1.2 eq CuCN, 1.2 eq O=PPh<sub>3</sub>, solvent, temp./time. The reaction yields a mixture of (Z)- and (E)-isomers.

solvent	temp./°C	time/h	%Yield [a]		
			5	3	4
toluene	80	23	0	0	~100
toluene	110	15	65	0	22
<i>o</i> -xylene	135	23	78	trace	10
1,3,5-mesitylene	155	23	<82 [b]	trace	7

[a] Isolated yields.

[b] ~ 90% purity. Unknown pesky impurities were observed.