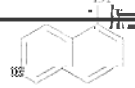
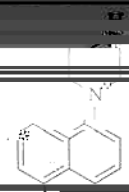
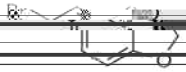
Masakazu NISHIYAMA

NaO*t*-Bu, *o*-xylene R

Pd/P(t-Bu)$_3$

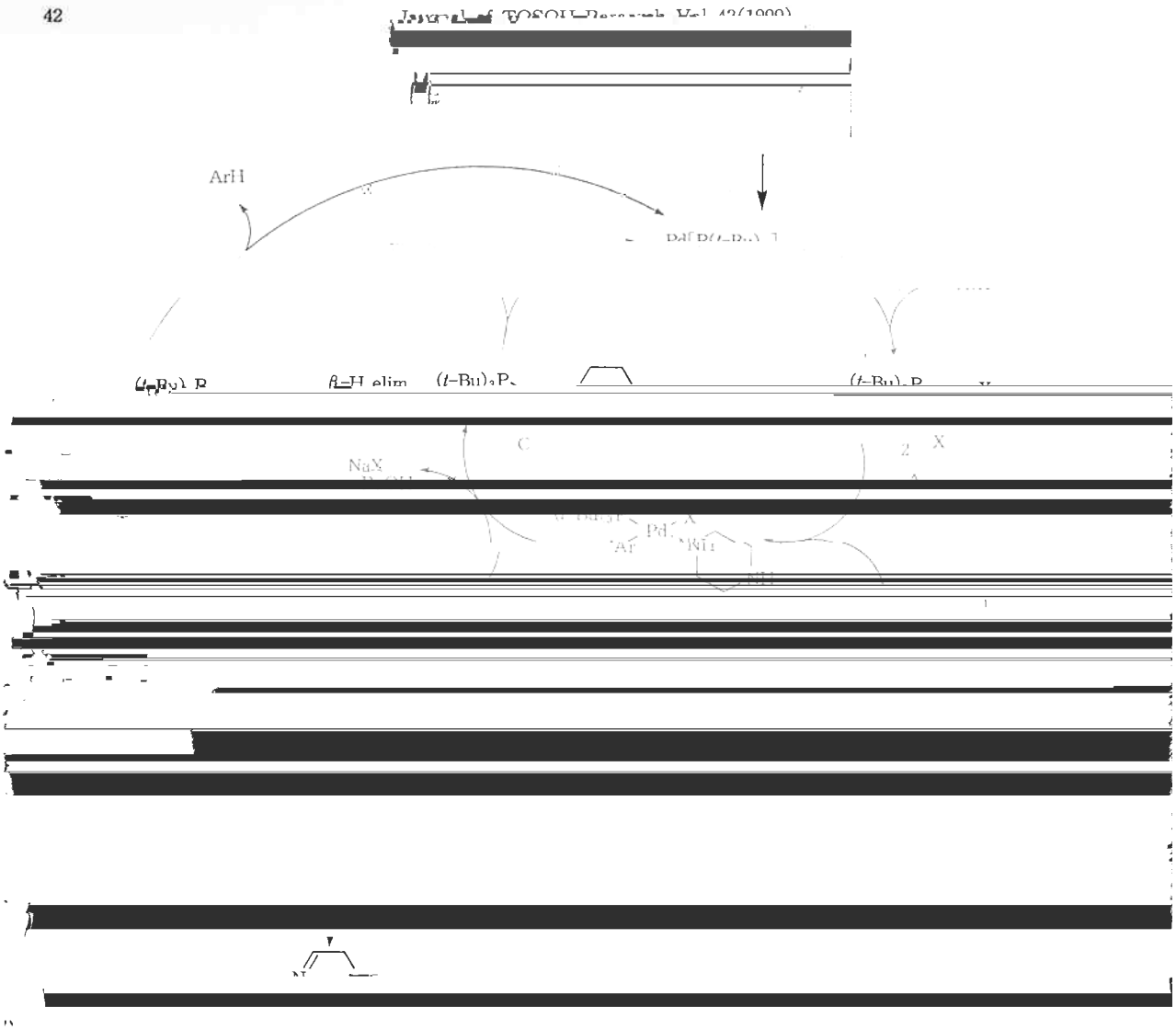
Entry

o-OCH$_3$

Entry	Aryl halide	Cat. [mol%]	Amination	Yield [%]
22		0.1		[illegible]
[illegible]		[illegible]		[illegible]
25		[illegible]	[illegible]	85
[illegible]	[illegible]	[illegible]	[illegible]	89

formation of the inactive bis(amido)palladium N-arylhomopiperazines by conventional aniline

Entry	[illegible]
26	[illegible]
27[#]	[illegible]
28	[illegible]
29	[illegible] 87 [illegible]


ArH
β-H elim
NaX
Pd
Ar

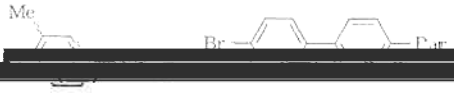
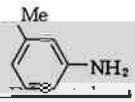

NaO-t-Bu

equivalents of piperazine in the presence of 0.5 stoichiometric amount of copper[15]

Product Yield[%][b]

Me–

gave the targeted diamines and a tetraamine. Therefore this method is also excellent for

Entry	Amine	Yield [%] Mw[c]
36		
37		73
		93[d]
		97
40		98

Aryl dibromide

quant

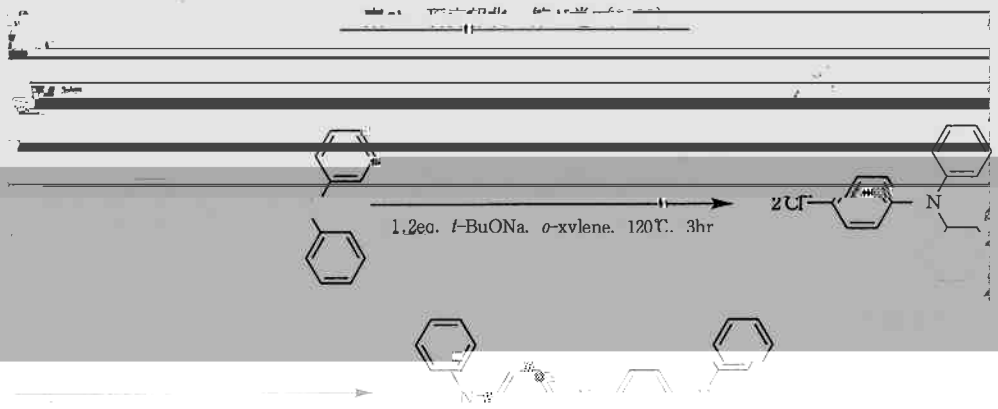


Fig. 7. Synthesis of triarylamine utilizing the difference of the reactivity between Ar-Br and Ar-Cl

N

[a]Isolated yields by column chromatography

Fig. 9 N-Arylation of carbazole with tributyltin chloride.

2）

4）

5）

7）

8）

9）

Imai, *Appl. Phys. Lett.*, 65, 807 (1994). (d) *J. Tosoh Research*, 41, 49 (1997)