

(19)
(12)(KR)
(B1)(51) 。 Int. Cl.⁷
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10-0414442
2003 12 24(21) 10-2000-0085128
(22) 2000 12 29(65)
(43)10-2002-0058129
2002 07 12

(73)

134

(72)

100

103-1203

104 604

4 82-12(20/6)

6

101 904

(74)

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(54)

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가

Friedel-Craft

S. Murai
가

가

가

가

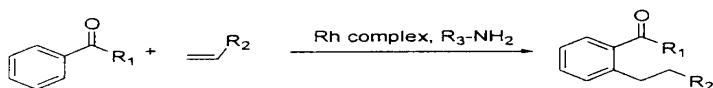
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2

2

1

1

(R₁ , R₂ , R₃)

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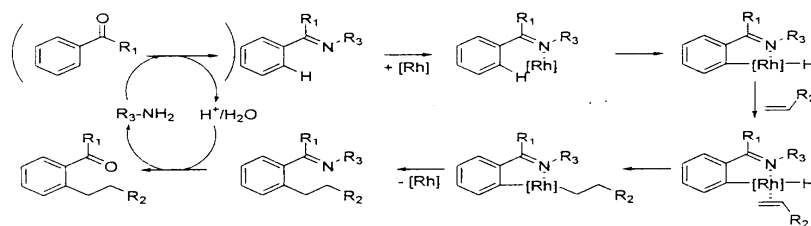
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(1가)가

가

가

2

(R₁ , R₂ , R₃ , [Rh] 1가)

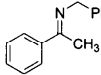
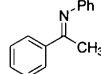
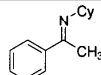
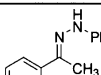
가
3가
1가 (PPh₃)₃RhCl
3가

[Rh(C₈H₁₄)₂Cl]₂ 1가
RhCl₃·H₂O
가

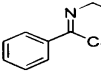
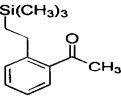
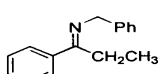
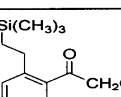
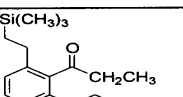
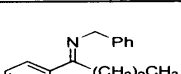
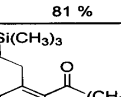
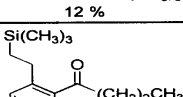
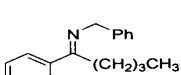
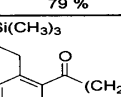
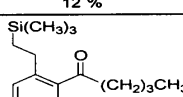
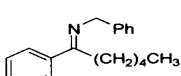
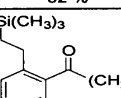
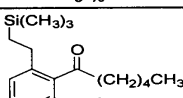
[1]
 500Mℓ 68 mg (0.32 mmol) *N* - (1 - -) - , 6 mg (0.0065 mmol)
 (1) , 27 mg (0.32 mmol) 3,3- -1- , 100 mg
 150 2 가 . , 3 ml THF , 1
 N HCl 10 ml 가 12 가 Et₂O CH₂Cl₂ 3
 3 MgSO₄ (= 5 : 2) 2-(3,3-) -
 1- 97 % (64 mg; 0.31 mmol)
 1
 [1]

올레핀	생성물	수율(%)	비고
3,3-디메틸-1-부텐		97	
1-헥센		94	1-헥센 1.6 mmol 사용
1,2,3,4,5-펜타플루오르스티렌		91	
비닐시클로헥산		68	
1-옥텐		71	1-옥텐 1.6 mmol 사용
1-도데센		82	1-도데센 1.6 mmol 사용
트리메틸비닐 실란		96	
스티렌		41	
노보르닐렌		92	
2-펜텐		95	1-펜텐 1.6 mmol 사용
2-헥산		42	1-헥센 1.6 mmol 사용

[2]
 500Mℓ 63 mg (0.32 mmol) *N* - (1 - -) - , 6 mg (0.0065 mmol)
 (1) , 27 mg (0.32 mmol) 3,3- -1- , 100 mg
 150 2 가 . , 3 ml THF , 1
 N HCl 10 ml 가 12 가 Et₂O CH₂Cl₂ 3
 MgSO₄ (= 5 : 2) 2-(3,3-) -1-
 85 % (56 mg; 0.27 mmol)
 [2]

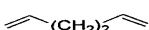
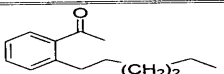
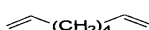
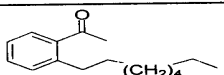

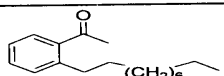
	케티민(반응물)	수율(%)
1		97
2		85
3		83
4		7

[3] 3 0.32mmol 32mg(0.32mmol)
1 , 3 .
[3]

	케티민	생성물 및 수율
1		 92 %
2		 81 %  12 %
3		 79 %  12 %
4		 82 %  9 %
5		 57 %  16 %

[4]
500Mℓ 68 mg (0.32 mmol) N - (1- -)- , 6 mg (0.0065 mmol)
(1) , 3.24 mmol , 100 mg
150 2 가 , 3 ml THF , 1 N HCl 10 ml
가 12 가 . Et₂O CH₂Cl₂ 3 ,
MgSO₄ , Pd/C
4 (= 5 : 2)
4

[4]

	diene	생성물	수율(%)
1			92
2			97
3			92

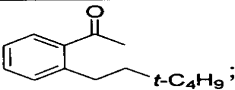
[5]

1

5

1

[5]

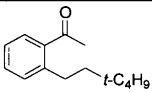
	온도 (°C)	 GC Yield (%)
1	80	12
2	100	53
3	130	81
4	150	86
5	170	83

[6]

500Mℓ 26 mg (0.22 mmol) , 12 mg (0.11 mmol) , 10.0 mg (0.011 m
 mol) (1) , 91 mg (1.1 mmol) 3,3- -1- , 50 mg
 150 2 가 , 2-(3,3
)-1- (GC) 가 85% .

6

[6]

	벤질아민의 첨가량 (mol%)	 GC Yield (%)	비고
1	0	0	
2	30	43	
3	40	72	
4	50	85	7 %의 di-alkylation 생성물 포함
5	60	29	
6	70	33	
7	100	27	

[7]

500Mℓ 26 mg (0.22 mmol) , 12 mg (0.11 mmol) , 10.0 mg (0.011 m
 mol) (1) , 91 mg (1.1 mmol) 3,3- -1- ,
 150 6 가 , 3 ml THF , 1 N HCl 10 ml
 가 12 가 . Et₂O CH₂Cl₂ ,
 MgSO₄ = 5 : 2 2-(3,3) -1- 95 % (42 mg; 0.21
 mmol) . 7 .

[7]

올레핀	생성물	수율(%)
3,3-디메틸-1-부텐		95
1-헥센		72
1,2,3,4,5-펜타플루오르스티렌		68
비닐시클로헥산		89
1-옥텐		15
1-도데센		17

[8]
 8 0.22mmol 91mg(1.1mmol) 3,3- -1-
 7 , 8 .
 [8]

케톤	생성물	수율(%)
		86
		72
		87

(57)

1.
 (1)

2-12

가

2.
 (1)

, 1 가

3.
 (1)

1 2 , 1가 , 3가 , $(\text{PPh}_3)_3 \text{RhCl}$
 가 2 - .

4.

1 2 , , , , tert-
 - .