

Corrigendum

Page 30 Figure 4.

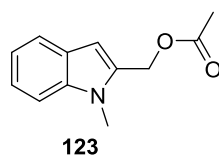
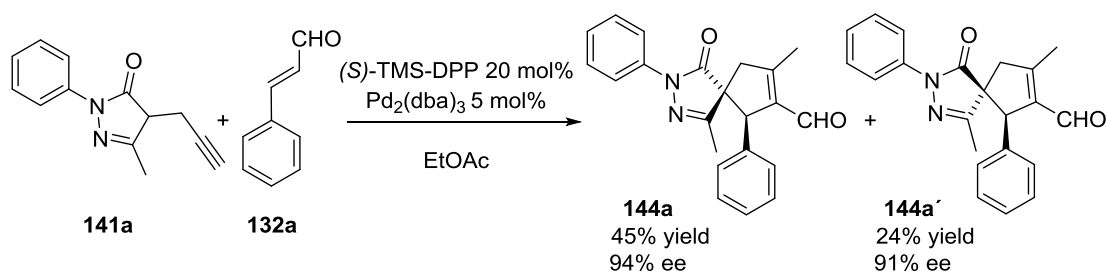


Figure 4: Byproduct – (1-methyl-1*H*-indol-2-yl)methyl acetate.

Page 35 Scheme 37.



Scheme 37: Model enantioselective spirocyclization reaction.

Page 36 Table 1.

Table 1: Metal catalyst screening.

Entry	Metal catalyst	Yield ^a 144a/144a' (%)	Ee ^b 144a/144a' (%)	Dr ^c
1	FeCl ₃	-	-	-
2	AgOTf	-	-	-
3	In(OTf) ₃	-	-	-
4	PdCl ₂	30/5	90/85	3.6:1
5	Pd ₂ (dba) ₃	45/24	94/91	2.1:1
6 ^d	Pd(PPh ₃) ₄	12/5	97/90	1.1:1
7	Pd(OAc) ₂	44/10	93/90	1.7:1

Reaction conditions: 0.24 mmol of **141a**, 0.12 mmol of **132a**, at room temperature under argon atmosphere in 1.0 mL of EtOAc. ^a isolated yield, yield of **144a** determined by ¹H NMR of a mixture of **144a** with **141a**. ^b determined by chiral HPLC, ^c determined by ¹H NMR of crude mixture, ^d 30% conversion.

Table 2: Solvent screening.

Entry	Solvent	Yield ^a 144a/144a' (%)	Ee ^b 144a/144a' (%)	Dr ^c
1	EtOAc	45/24	94/91	2.1:1
2	DCM	56/33	93/86	1.4:1
3	CHCl ₃	56/26	94/89	1.6:1
4 ^d	MTBE	44/19	93/88	2:1

Reaction conditions: 0.24 mmol of **141a**, 0.12 mmol of **132a**, at room temperature under argone atmosphere in 1.0 mL of solvent, ^aisolated yield, yield of **144a** determined by ¹H NMR of a mixture of **144a** with **141a**, ^bdetermined by chiral HPLC, ^cdetermined by ¹H NMR of crude mixture, ^dconversion 89%.

Table 3: Concentration screening.

Entry	Concentration of 141a + 132a (M)	Conversion (%)	Yield ^a 144a/144a' (%)	Ee ^b 144a/144a' (%)	Dr ^c
1	0.05	90	38/20	96/93	1.7:1
2	0.1	98	53/22	96/95	1.7:1
3	0.5	100	46/26	93/91	1.6:1
4 ^d	0.1	50	16/12	93/97	2.2:1
5 ^d	0.3	100	69/26	95/95	2.2:1
6 ^e	0.36	100	45/24	94/91	2.1:1

Reaction conditions: 0.18 mmol of **141a**, 0.12 mmol of **132a**, at room temperature under argone atmosphere for 24 hours. ^aisolated yield, yield of **144a** determined by ¹H NMR of a mixture of **144a** with **141a**, ^bdetermined by chiral HPLC, ^cdetermined by ¹H NMR of crude mixture. ^d5 mol% of (S)-DPP-TMS, 2 mol% of Pd₂(dba)₃, ^e0.24 mmol of **141a**, 0.12 mmol of **132a**, **144a** determined by ¹H NMR of mixture of **144a** and **141a**, **144a'** isolated yield

Table 4: The scope of the reaction.

Entry	Enal	Time (d)	Product	Yield ^a Major/Minor (%)	Ee ^b Major/Minor (%)	Dr ^c
1	4-Methoxyphenyl	4	144d	55/20	91/92	2.8:1
2	4-Chlorophenyl	4	144g	44/24	89/91	2.3:1
3	3-Chlorophenyl	7	144h	46/32	91/78	2:1
4 ^d	2-Chlorophenyl	7	144i	27	65/90	2:1
5	4-Nitrophenyl	4	144e	46/21	86/53	1.4:1
6	Methyl	5	144b	81	82/76	2:1
7	Ethyl	1	144c	46	85/84	2.5:1
8 ^d	<i>N</i> -methyl-(1 <i>H</i>)-indole-2-yl	7	144j	12	82/94	3.6:1
9	2-Pyridyl	7	144l	traces	-	-

Reaction conditions: 0.18 mmol of **141a**, 0.12 mmol of **132**, at room temperature under argone atmosphere in 1.0 mL of EtOAc. ^aisolated yields, ^bdetermined by chiral HPLC, ^cdetermined by ¹H NMR of crude mixture, ^dconversion less than 40%.

Table 5: The scope of the reaction.

Entry	Enal	Conversion ^a (%)	Time (d)	Product	Yield ^b Major/Minor (%)	Ee ^c Major/Minor (%)	Dr ^d
1	Phenyl	80	7	146a	26/18	96/99	2.5:1
2	4-Methoxyphenyl	47	7	146d	21/5	98/98	2:1
3	4-Chlorophenyl	28	7	146g	12/5	94/98	0.9:1
4	4-Bromophenyl	63	7	146f	23/20	86/97	1.2:1
5	4-Nitrophenyl	20	7	146e	19	73/98	2:1
6	Ethyl	100	2	146c	48	87/94	2:1

Reaction conditions: 0.18 mmol of **141b**, 0.12 mmol of **132**, at room temperature under argone atmosphere in 1.0 mL of EtOAc. ^adetermined by ¹H NMR of crude mixture by ratio of **146a,c-g** and **132**, ^bisolated yields, ^cdetermined by chiral HPLC, ^ddetermined by ¹H NMR of crude mixture

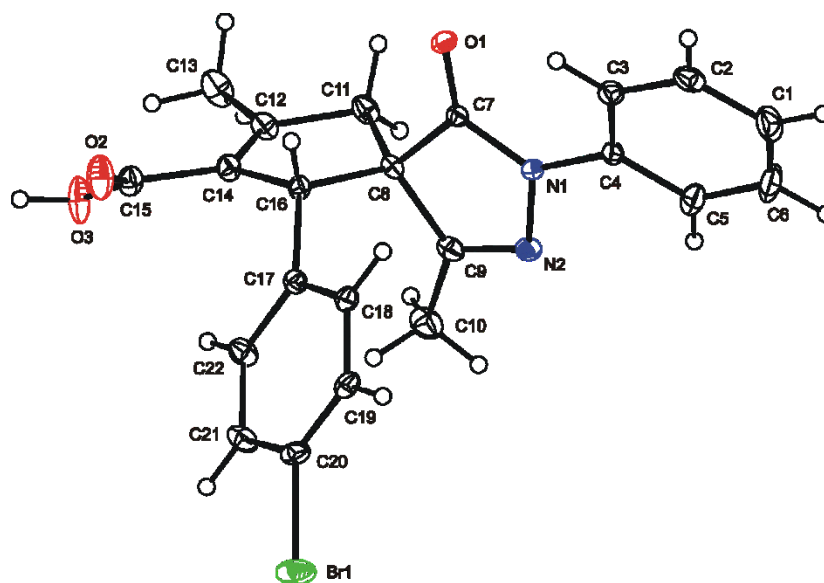


Figure 11: X-ray structure analysis of compound **155** with stereogenic centers (*5R,6S*).