Supporting Information for

Asymmetric synthesis of an axially chiral antimitotic biaryl

***via* an atropo-enantioselective Suzuki cross-coupling**

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General experimental considerations

¹H, ¹³C NMR spectra of compound **4d**

¹H, ¹³C, ³¹P NMR spectra of compounds **7d-e**, **14**, **18a-b**

HPLC chromatograms of compounds **6** and **2**

General experimental considerations

Reagents were commercially available and used without further purification unless otherwise stated. Solvents were distilled from the appropriate drying reagents immediately before use. Triethylamine and pyridine were distilled from KOH. Yields refer to chromatographically and spectroscopically homogeneous materials unless otherwise stated. Reactions were monitored by thin-layer chromatography carried out on 0.25 mm silica gel coated glass plates (60F254) using UV light as visualizing agent and ethanolic sulfuric molybdate or cerium ammonium sulfate and heat as staining agents. Silica gel 60 (particle size 40–63 μM) was used for flash column chromatography. NMR spectra were calibrated using tetramethylsilane as an internal reference. The following abbreviations were used to designate the multiplicities: s = singlet, d = doublet, t = triplet, m = multiplet, br = broad. High-resolution mass spectra (HRMS) were recorded under liquid secondary ion (LSIMS) or electrospray ionization (ESI) conditions. HPLC experiments were performed using a Diacel chiracel OJ or chiracel OD column (25 cm $\times$ 0.46 cm) or a nucleodex beta-PM.

14

18a

F1: 300.172
EX: zg30

F2: 1.000

SW1: 6173
PW: 0.0 usec

PD: 0.0 sec

OF1: 1848.7
NA: 16

LB: 0.0

USER: rmn -- DATE: Wed Jul 03 12:44:25 2002
PTS1d: 32768

MacNuts - AYH363.001

Current Data Parameters
NAME am180102
EXPNO 9
PROCNO 1

F2 - Acquisition Parameters
Date_ 20020118
Time 11.19
INSTRUM spect
PROBHD 5 mm GNP 1H/1
PULPROG zgpg30
TD 65536
SOLVENT CDCl₃
NS 64
DS 0
SWH 24271.844 Hz
FIDRES 0.370359 Hz
AQ 1.3500916 sec
RG 13004
DW 20.600 usec
DE 6.00 usec
TE 300.0 K
D1 1.0000000 sec
D11 0.0300000 sec
D12 0.0002000 sec

***** CHANNEL f1 *****
NUC1 31P
P1 8.00 usec
PL1 -3.00 dB
SF01 161.9818720 MHz

***** CHANNEL f2 *****
CPDPRG2 waltz16
NUC2 1H
PCPD2 100.00 usec
PL2 120.00 dB
PL12 20.00 dB
PL13 26.00 dB
SF02 400.1316005 MHz

F2 - Processing parameters
SI 32768
SF 161.9753930 MHz
WDW EM
SSB 0
LB 3.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 22.50 cm
F1P 114.925 ppm
F1 18614.94 Hz
F2P -34.924 ppm
F2 -5656.90 Hz
PPMCM 6.65995 ppm/cm
HZCM 1078.74866 Hz/cm

C13CPD CDCl₃ f: Guenard 2.

USER: rmn -- DATE: Wed Jul 03 21:16:53 2002

F1: 75.485

F2: 1.000

SW1: 17986

OF1: 7549.4

PTS1d: 32768

EX: zgpg30

PW: 0.0 usec

PD: 0.0 sec

NA: 2048

LB: 0.0

MacNuts - AYH367p.013

(±)-6

SampleName AYH223/test Vial 1 Injection 1 Date Acquired 13/06/02 10:38:01 Processed Channel Descr. PDA 290.0 nm

Column: Chiralcel OJ 250 * 4.6 mm
Hexane/propan-2-ol 98/2
Flow rate: 1 mL/min

Peak Results

	RT	Area	% Area
1	6.464	2837239	50.14
2	9.473	2820987	49.86

Column: Chiralcel OJ 250 * 4.6 mm
Hexane/propan-2-ol: 95/5
Flow rate: 1 mL/min

Peak Results		
	RT	% Area
1	9.814	30.10
2	15.482	69.90

	RT	% Area
1	25.868	49.36
2	30.703	50.64

Peak Results

	RT	% Area
1	29.573	3.94
2	34.549	96.06