Supporting Information for

**Enantioselective Lewis acid Catalyzed Mukaiyama-Michael Reactions of Acyclic Enones.
Catalysis by *allo*-Threonine Derived Oxazaborolidinones**

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N-Tosyl-(L)-allo-threonine

H3A154.111
DATE 8-4-0

SF 300.133
SY 299.0
O1 5177.586
SI 32768
TD 32768
SW 4807.692
HZ/PT .293

PW 3.0
RD 2.000
AG 3.408
RG 8
NS 8
TE 297

FW 6100
O2 0.0
DP 63L P0

LB .200
GB 0.0
CX 20.00
CY 12.00
F1 8.000P
F2 .001P
HZ/CM 120.046
PPM/CM .400
SR 3367.37

GE NMR
QE-300

KF345B.001
28NOV88

KF345, P-B, CDCL3
OPERATOR. QE300

O-Benzoyl-N-tosyl-(L)-allo-
threonine Benzyl Ester

Current Data Parameters
NAME 140-22
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 20080609
Time 13.02
ZMATHAN
PROBHD 5 mm Nal11.in
PULPROG zg30
TD 32768
SOLVENT Acetone
NS 16
DS 2
SWH 10599.879 Hz
AQ 0.316264 Hz
RG 1.0000212 sec
GB 1624
DE 40.400 us
TE 300.0 K
D1 1.00000000 sec
P1 8.30 us
BFO1 500.1300005 MHz
NUC1 1H
FL1 -8.00 dB

F2 - Processing parameters

SI 16384
SF 500.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 20.00 cm
FID 8.000 pp
F1 4247.88 Hz
F2 0.000 pp
F3 346.04 Hz
PPOW 0.35000 pp
H2ZM 100.04100 Hz

1.4111
1.4244
2.0613
2.0654
2.0696
2.0741
2.0782
2.0905
2.1056
2.1096
2.3707
2.4233
2.8233

4.4130
4.4218
4.4343

5.3657
5.3785
5.3877
5.3915
5.4010
5.4138

7.0403
7.0585
7.2973
7.3134
7.4879
7.5032
7.5190
7.6359
7.6378
7.6528
7.6678
7.7341
7.7506
7.9622
7.9779

3a

S-5

O-(1-Naphthoyl)-N-tosyl-(L)-
allo-threonine Benzyl Ester

9-S

H3A139.111
DATE 17-4-0
SF 300.133
SY 299.0
O1 5177.586
SI 32768
TD 32768
SW 4807.692
HZ/PT .293
PW 3.0
RD 2.000
AQ 3.408
RG 10
NS 8
TE 297
FW 6100
O2 0.0
DP 63L P0
LB .200
GB 0.0
CX 20.00
CY 12.00
F1 9.001P
F2 .002P
HZ/CM 135.040
PPM/CM .450
SR 3367.37

H3A170.111
DATE 19-4-0

SF 300.133
SY 299.0
O1 5177.586
SI 32768
TD 32768
SW 4807.692
HZ/PT .293
PW 3.0
RD 2.000
AQ 3.408
RG 10
NS 8
TE 297
FW 6100
O2 0.0
DP 63L P0
LB .200
GB 0.0
CX 20.00
CY 12.00
F1 9.001P
F2 1.001P
HZ/CM 120.046
PPM/CM .400
SR 3367.37

Current Data Parameters
NAME 14D-26-PD
EXPNO 3
PROCNO 1

F2 - Acquisition Parameters
Date_ 20060716
Time 12:55
INSTRUM DPX500
PROBHD 5 mm Multinu
PULPROG zgpg30
PC 1.00
TO 0.910
SOLVENT DMSO
RG 16
DE 2
FIDRES 0.127
AQ 812.7
RG 48.400 us
DE 6.00 us
TE 300.2 K
D1 1.00000000 us
P1 9.30 us
NUC1 13C
PL1 1H
PL2 1H
F2 - Processing parameters
SI 16384
SF 500.1300000 MHz
WDW EN
SSB 0
LB 0.30 Hz
GB 0
PC 1.00
F2 - NMR plot parameters
CX 25.00 cm
FIP 8.000 pp
F1 4481.16 Hz
F2 480.12 Hz
PPHCH 0.32000 pp
HZCN 160.04160 Hz

H3A198B	.111
DATE	12-7-0
	<i>CPCLs</i>
SF	300.133
SY	299.0
O1	5177.586
SI	32768
TD	32768
SW	4807.692
HZ/PT	.293
PW	3.0
RD	2.000
AQ	3.408
RG	20
NS	8
TE	297
FW	6100
O2	0.0
DP	63L P0
LB	.200
GB	0.0
CX	20.00
CY	12.00
F1	10.000F
F2	.001F
HZ/CM	150.050
PPM/CM	.500
SR	3367.37

H3A199PB.111
 DATE 13-7-0
 Acetone
 SF 300.135
 SY 299.0
 O1 6720.000
 SI 32768
 TD 32768
 SW 4807.692
 HZ/PT .293
 PW 3.0
 RD 2.000
 AQ 3.408
 RG 16
 NS 8
 TE 297
 FW 6100
 O2 0.0
 DP 63L P0
 LB .200
 GB 0.0
 CX 20.00
 CY 12.00
 F1 9.500P
 F2 .001P
 HZ/CM 142.552
 PPM/CM .475
 SR 4920.00

H3A176C.111
 DATE 11-5-0
 SF 300.133
 SY 299.0
 O1 5177.586
 SI 32768
 TD 32768
 SW 4807.692
 HZ/PT .293
 PW 3.0
 RD 2.000
 AQ 3.408
 RG 2
 NS 8
 TE 297
 FW 6100
 O2 0.0
 DP 63L P0
 LB .200
 GB 0.0
 CX 20.00
 CY 12.00
 F1 8.200P
 F2 .200P
 HZ/CM 120.046
 PPM/CM .400
 SR 3367.37

sample

Current Data Parameters
 NAME 14d-33
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters
 Date_ 20030806
 Time 19.02
 INSTRUM drx500
 PROBHD 5 mm Multinuc1
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SWH 10330.578 Hz
 FIDRES 0.157632 Hz
 AQ 3.1719923 sec
 RG 645.1
 DM 48.400 usec
 DE 5.00 usec
 TE 296.2 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCWPK 0.01500000 sec

***** CHANNEL f1 *****
 NUC1 1H
 P1 10.30 usec
 PL1 -6.00 dB
 SF01 500.1330885 MHz

F2 - Processing parameters
 SI 32768
 SF 500.1300129 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters
 CX 20.00 cm
 CY 12.50 cm
 F1P 9.000 ppm
 F2P 4501.17 Hz
 F2 0.000 ppm
 F2 0.00 Hz
 PPMCM 0.45000 ppm/cm
 HZCM 225.05849 Hz/cm

Current Data Parameters
NAME 140-88
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20061105
Time 15.05
INSTRUM spect
PROBHD 5 mm Multinu
PULPROG zgpg30
TD 32768
SOLVENT CDCl3
NS 16
DS 2
SWH 10380.578 Hz
FIDRES 0.316264 Hz
AQ 1.0960212 sec
RG 1148.4
DE 48.400 um
TE 300.0 K
D1 1.00000000 sec
R1 9.30 um
SFO1 500.1300000 MHz
NUC1 1H
PL1 -6.00 dB

F2 - Processing parameters
SI 16384
SF 500.1300000 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

LD NMR plot parameters
CX 25.00 cm
FAP 5.128 pp
F1 4580.31 Hz
F2 0.128 pp
FZ 78.14 Hz
PPHCH 0.36000 pp
HZCH 180.04880 Hz

1.4039
1.4171

2.3754

4.4393
4.4470
4.4580
4.4657

5.3758
5.3836
5.3887
5.3966
5.5500
5.5686

7.2258
7.2420
7.2867
7.6962
7.7071
7.7120
7.7232
7.7332
8.0735
8.0898

S-13

3.0352

0.0656

2.9953

0.1501

1.0000

0.1577

1.0508

0.0322

1.0593

1.1186

1.9650

1.3085

0.1366

3.9346

0.0732

1.9557

Integral

Current Data Parameters
NAME 140-14-2
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 20020804
Time 13.55
INSTRUM DRG000
PROBHD 5 mm Multinu
PULPROG zgpg30
TD 65536
SOLVENT DMSO-d6
NS 2
DS 2
SWH 10330.578 Hz
AQ 0.316284 Hz
RG 1.0880212 sec
FIDRES 1024
AQ 46.460 usec
DE 8.00 usec
TE 300.0 K
D1 1.00000000 sec
P1 8.30 usec
SFO1 500.1330685 MHz
NUC1 13C
PL1 -8.00 dB

F2 - Processing parameters

SI 18384
SF 500.1330685 MHz
WDW EN
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters

CX 25.00 cm
F1P 8.673 pp
F1 4297.70 Hz
F2P 0.673 pp
F2 298.88 Hz
FPCW 0.38000 pp
NUC2 15N
150.04180 Hz

O-(4-biphenyl)-N-tosyl-(L)-
allo-threonine Benzyl Ester

O-(3,5-Dimethoxybenzoyl)-N-tosyl-(L)-allo-threonine Benzyl Ester

H3A183.111
DATE 16-6-0

SF 300.133
SY 299.0
O1 5177.586
SI 32768
TD 32768
SW 4807.692
HZ/PT .293

PW 3.0
RD 2.000
AQ 3.408
RG 10
NS 8
TE 297

FW 6100
O2 0.0
DP 63L P0

LB .200
GB 0.0
CX 20.00
CY 12.00
F1 8.000P
F2 .003P
HZ/CM 120.016
PPM/CM .400
SR 3367.37

7.67020
7.34950
7.33937
7.32811
7.26221
7.22003

4.96108
4.95514

2.39998
2.04479
1.93288
1.59847
1.25850
1.17262
1.15079

O-Acetyl-N-tosyl-(L)-allo-threonine Benzyl Ester

H3A241.111
DATE 1-11-0
SF 300.133
SY 299.0
01 5177.586
SI 32768
TD 32768
SW 4807.692
HZ/PT .293
PW 3.0
RD 2.000
AQ 3.408
RG 16
NS 8
TE 297
FW 6100
02 0.0
DP 63L P0
LB .200
GB 0.0
CX 20.00
CY 12.00
F1 8.000P
F2 .002P
HZ/CM 120.031
PPM/CM .400
SR 3367.37

H3A245.111
DATE 4-11-0

SF 300.133
SY 299.0
O1 5177.586
SI 32768
TD 32768
SM 4807.692
HZ/PT .293

PW 3.0
RD 2.000
AQ 3.408
RG 4
NS 8
TE 297

FW 6100
O2 0.0
DP 63L P0

LB .200
GB 0.0
CX 20.00
CY 12.00
F1 8.000P
F2 .001P
HZ/CM 120.046
PPM/CM .400
SR 3367.37

H3A185A.111
DATE 26-6-0

SF 300.133
SY 299.0
O1 5177.586
SI 32768
TD 32768
SW 4807.692
HZ/PT .293

PW 3.0
RD 2.000
AQ 3.408
RG 10
NS 8
TE 297

FW 6100
O2 0.0
DP 63L P0

LB .200
GB 0.0
CX 20.00
CY 12.00
F1 8.000P
F2 .001P
HZ/CM 120.046
PPM/CM .400
SR 3367.37

H3A189.111
DATE 29-6-0
SF 300.135
SY 299.0
O1 6720.000
SI 32768
TD 32768
SW 4807.692
HZ/PT .293
PW 3.0
RD 2.000
AQ 3.408
RG 10
NS 8
TE 297
FW 6100
O2 0.0
DP 63L P0
LB .200
GB 0.0
CX 20.00
CY 12.00
F1 8.500P
F2 .500P
HZ/CM 120.060
PPM/CM .400
SR 4920.00

GE NMR
QE--300

3A13PB.00

26MAY98

3A-13P-B-B, CDCl₃

OPERATOR: OE300

O-Benzoyl-N-mesyl-(L)-allo-
threonine Methyl Ester

GE NMR
QE-300

3A28A.001
08JUL98

3A-28 P-A; CDCL3

OPERATOR: GE300

456.88

1

3k

311.01

252.50

232.94

2.39

-1.42

18.89

0.18

114.67

-18.94

370.63

-6.46

159.55

7.87

366.45

Current Data Parameters
NAME 11C-15B-PA
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20021204
Time 16.20

INSTRUM DRX500
PROBHD 5 mm Multinu
PULPROG zgpg30
TD 32768
FIDRES 0.1145
SOLVENT CDCl3
NS 16
DS 2
SWH 10390.578 Hz
FIDRES 0.318264 Hz
AQ 1.9860212 ss
RG 203.2
DE 48.400 us
TE 300.0 K
D1 1.00000000 ss
P1 8.30 us
SFO 500.1330080 MHz
NUC1 1H
PL1 -6.00 dB

F2 - Processing parameters
SI 16384
SF 500.1330000 MHz
WDW EN
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 25.00 cm
F1P 8.788 pp
F1 4400.83 Hz
F2P -0.201 pp
F2 -100.84 Hz
PPhCN 0.36000 pp
H2CN 180.04890 Hz

0.1145
1.7215
1.7347
2.3107

0.2181
3.1648
3.0515

4.6372
4.6409
5.3193
5.7116
5.7153
5.7248
5.7286
7.0601
7.0765
7.3919
7.4073
7.4228
7.5463
7.5535
7.5629
7.5684
7.5849
7.7895
7.8232
7.8261
7.8298
8.0972
8.0990
8.1132
8.3319

1.9639
0.1437
2.0144
1.0705
4.0545
0.1593
1.0476
1.0228
1.9357
0.0373
1.9108
0.1980
0.9253

1g

S-22

Integral

ppm

sample

Current Data Parameters
NAME 7C-29A
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20030908
Time 15:57
INSTRUM grx500
PROBHD 5 mm Multinucl
PULPROG zg30
TD 65536
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.157632 Hz
AQ 3.1719923 sec
RG 645.1
DM 48.400 usec
DE 6.00 usec
TE 296.4 K
D1 1.00000000 sec
MCPRST 0.00000000 sec
MCMRK 0.01500000 sec

===== CHANNEL f1 =====
NUC1 1H
P1 10.30 usec
PL1 -6.00 dB
SF01 500.130885 MHz

F2 - Processing parameters
SI 32768
SF 500.1300129 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 20.00 cm
CY 12.50 cm
FAP 8.000 ppm
FX 4001.04 Hz
FZP 0.000 ppm
F2 0.00 Hz
PPMCH 0.40000 ppm/cm
HZCM 200.05200 Hz/cm

sample

Current Data Parameters
 NAME 3A-235
 EXPNO 1
 PROCNO 1

F2 - Acquisition Parameters

Date_ 20030912
 Time 15.56
 INSTRUM drx500
 PROBHD 5 mm Multinuc1
 PULPROG zg30
 TD 65536
 SOLVENT CDCl3
 NS 16
 DS 2
 SMH 10330.578 Hz
 FIDRES 0.157632 Hz
 AQ 3.1719923 sec
 RG 645.1
 DM 48.400 usec
 DE 5.00 usec
 TE 296.5 K
 D1 1.00000000 sec
 MCREST 0.00000000 sec
 MCWPK 0.01500000 sec

===== CHANNEL f1 =====

NUC1 1H
 P1 10.30 usec
 PL1 -6.00 dB
 SF01 500.1330885 MHz

F2 - Processing parameters

SI 32768
 SF 500.1300129 MHz
 WDW EM
 SSB 0
 LB 0.30 Hz
 GB 0
 PC 1.00

1D NMR plot parameters

CX 20.00 cm
 CY 12.50 cm
 F1P 9.000 ppm
 F1 4501.17 Hz
 F2P 0.000 ppm
 F2 0.00 Hz
 PPMCM 0.45000 ppm/cm
 HZCM 225.05849 Hz/cm

GE NMR
QE-300

KF168A.001
28OCT95

KF-168 P-A; CDCL3

OPERATOR: QE300

7r

184.17

14.80

44.94

0.29

41.09

0.00

19.97

0.87

114.51

65.13

40.44

2.02

1.68

0.53

1 PPM

2

3

4

5

6

7

8

GE NMR
QE-300

KF163A.001
23OCT95

KF-163 P-A; CDCL3

OPERATOR: QE300

7s

GE NMR
QE-300

KF321A.001
250CT88

KF-321, P-A, CDCL₃

OPERATOR: QE300

12

Current Data Parameters
NAME 3A-264-B
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters

Date_ 500000
Time 20.17
INSTRUM spect
PROBHD 5 mm Multinu
PULPROG zg30
TD 32768
SOLVENT CDCl3
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.318284 Hz
AQ 1.0589212 sec
RG 465.1
DN 48.460 us
DE 6.00 us
TE 300.0 K
D1 1.00000000 sec
P1 9.30 us
DE 6.00 us
SF01 500.1330885 MHz
NUC1 1H
PL1 -5.00 dB

F2 - Processing parameters

SI 16384
SF 500.1300000 MHz
WDW EM
LB 0
GB 0
PC 1.00

1D NMR plot parameters

CX 25.00 cm
F1P 8.556 pp
F1 4279.12 Hz
F2P 0.556 pp
F2 278.08 Hz
PRACH 0.32000 pp
HZCN 180.04180 Hz