Supporting Information

Stereochemistry in the synthesis and reaction of *exo*-glycals

Wen-Bin Yang, Yu-Ying Yang, Yu-Feng Gu, Shwu-Huey Wang, Che-Chien Chang and

*Chun-Hung Lin**

Institute of Biological Chemistry, Academia Sinica

No. 128, Academia Road Sec. 2, Nan-Kang, Taipei, 11529, Taiwan

E-mail: chunhung@gate.sinica.edu.tw

007A/CDC13/1D-H
0815-007A/1/1/u/1ch

Current Data Parameters
NAME 0815-007A
EXPNO 1
PROCNO 1

F2 - Acquisition Parameters
Date_ 20010815
Time 8.45
INSTRUM spect
PROBHD 5 mm Multinu
PULPROG zg30
TD 32768
SOLVENT CDC13
NS 16
DS 2
SWH 10330.578 Hz
FIDRES 0.315264 Hz
AQ 1.5860212 sec
RG 267.4
DW 48.400 usec
DE 6.50 usec
TE 300.0 K
D1 1.00000000 sec
P1 10.80 usec
SF01 500.1330885 MHz
NUC1 1H
PL1 -2.00 dB

F2 - Processing parameters
SI 16384
SF 500.1300237 MHz
WDW EM
SSB 0
LB 0.30 Hz
GB 0
PC 1.00

1D NMR plot parameters
CX 20.00 cm
F1P 8.000 ppm
F1 4001.04 Hz
F2P -0.500 ppm
F2 -250.07 Hz
PPMCM 0.42500 ppm/cm
HZCM 212.55527 Hz/cm

003A/CDC13/NOESY
0725-003a/11/1/u/1ch

Current Data Parameters

NAME	0725-003a
EXNO	11
PROCNO	1

F2 - Acquisition Parameters

Date_	20090725
Time	3.50
INSTRUM	spect
PROBHD	5 mm Multifu
PULPROG	noesygpr15
TD	6548
SOLVENT	CDCl3
NS	8
DS	16
SWH	4006.410 Hz
FIDRES	1.096205 Hz
AQ	0.295646 sec
RG	1290.2
DW	124.800 usec
DE	6.50 usec
TE	300.0 K
D16	0.0020000 sec
D8	0.0000000 sec
P16	1000.00 usec
d80	0.29880002 sec
D1	1.00000000 sec
P1	10.00 usec
SFO1	500.130005 MHz
NUC1	1H
PL1	-2.00 dB
DO	0.00000300 sec
OPR1	0.00 %
OPR2	0.00 %
GRZ1	40.00 %
OPRAN1	time:100
P2	21.00 usec
OPR2	0.00 %
OPR2	0.00 %
GRZ2	-40.00 %
OPRAN2	time:100
INO	0.0012498 sec

F1 - Acquisition parameters

NOO	2
TD	137
SFO1	500.130 MHz
FIDRES	29.200843 Hz
SK	8.000 ppm

F2 - Processing parameters

SI	1024
SF	500.130027 MHz
WDW	Q51MC
SSB	2
LB	0.00 Hz
GB	0
PC	1.00

F1 - Processing parameters

SI	1024
NO2	1901
SF	500.130027 MHz
WDW	Q51MC
SSB	2
LB	0.00 Hz
GB	0

2D NMR plot parameters

CK2	15.00 cm
CK1	15.00 cm
F2P0L0	5.105 ppm
F2P0L1	2950.54 Hz
F2P0H1	3.493 ppm
F2P1L1	1746.90 Hz
F2P1L0	5.103 ppm
F2P1L2	2950.08 Hz
F2P1H1	3.493 ppm
F2P1H2	1747.15 Hz
F2P0MCM	0.10744 ppm/cm
F2P2CM	53.73181 Hz/cm

ETEL/CDC13/NOESY
0620-ete1/11/1/u/1ch

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Current Data Parameters
NAME      0520-ete1
EXPNO     11
PROCNO    1

F2 - Acquisition Parameters
Date_     20010520
Time      10.50
INSTRUM    spect
PROBHD     5 mm WALTZ16
PULPROG    zgpg30
TD         2048
SOLVENT    CDCl3
NS         2
DS         16
SWH         4006.410 Hz
FIDRES     1.056255 Hz
AQ         0.2556454 sec
RG         128
SW         124.800 u/sec
DE         6.50 u/sec
TE         300.2 K
D16        0.0015000 sec
DB         0.5000000 sec
P16        1000.00 u/sec
GR0        0.24885000 sec
C1         1.00000000 sec
P1         10.10 u/sec
SFO1       500.1300005 MHz
NUC1       1H
PL1        -2.00 dB
DO         0.0000300 sec
GPR1       0.00 %
GPR1       0.00 %
GPR1       40.00 %
GRAN1      sine 100
P2         20.20 u/sec
GPR2       0.00 %
GPR2       0.00 %
GPR2       +40.00 %
GRAN2      sine 100
INQ        0.00012496 sec

F1 - Acquisition parameters
NO0        2
TD         256
SFO1       500.130 MHz
FIDRES     15.629689 Hz
SW         8.000 ppm

F2 - Processing parameters
SI         1024
SF         500.1300210 MHz
WDW         GSIINE
SSB         2
LB         0.00 Hz
GB         0
PC         1.00

F1 - Processing parameters
SI         1024
MC2        1001
SF         500.1301817 MHz
WDW         GSIINE
SSB         2
LB         0.00 Hz
GB         0

2D NMR plot parameters
CK2        15.00 cm
CK1        15.00 cm
FAPLO      7.500 ppm
FAPLO      3750.00 Hz
FAPH1      1.000 ppm
FAPH1      500.13 Hz
FAPLO      7.500 ppm
FAPLO      3750.97 Hz
FAPH1      1.000 ppm
FAPH1      500.13 Hz
FAPPHCM    0.43333 ppm/cm
FAPHCZM    216.72302 Hz/cm
  
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256A/CDC13/C13
0731-256a/2/1/u/1ch

Current Data Parameters
NAME 0731-256a
EXPNO 2
PROCNO 1

F2 - Acquisition Parameters
Date_ 20010801
Time 9.55
INSTRUM spect
PROBHD 5 mm Dual 13
PULPROG zgpg30
TD 65536
SOLVENT CDC13
NS 362
DS 2
SWH 39602.539 Hz
FIDRES 0.605607 Hz
AQ 0.8258036 sec
RG 32768
DW 12.600 usec
DE 6.50 usec
TE 300.0 K
D12 0.00002000 sec
PL13 21.00 dB
D1 1.50000000 sec
CPDPRG2 waltz16
PCPD2 85.00 usec
SF02 500.1320005 MHz
NUC2 1H
PL2 -4.00 dB
PL12 15.00 dB
P1 12.50 usec
SF01 125.7736214 MHz
NUC1 13C
PL1 3.00 dB
D11 0.03000000 sec

F2 - Processing parameters
SI 32768
SF 125.7577946 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40

1D NMR plot parameters
CX 20.00 cm
F1P 200.000 ppm
F1 25151.56 Hz
F2P 0.000 ppm
F2 0.00 Hz
PPMCM 10.00000 ppm/cm
HZCM 1257.57800 Hz/cm

256A/CDC13/NOESY
0731-256a/12/1/u/1ch

Current Data Parameters

NAME	0731-256a
EXPNO	12
PROCNO	1

F2 - Acquisition Parameters

DATE_	20010731
TIME	8.18
INSTRUM	NOESY
PROBHD	5 mm MSL100
PULPROG	zgpg30
TD	65536
SOLVENT	CDCl3
NS	8
DS	16
SWH	2000.000 MHz
FIDRES	1.200703 Hz
AQ	0.4096500 sec
RG	161.3
DM	200.000 usec
DE	6.50 usec
TE	300.0 K
D16	0.0000000 sec
D8	0.0000001 sec
P16	1000.00 usec
d20	0.2738000 sec
D1	1.0000000 sec
P1	10.80 usec
SFO1	500.132707 MHz
NUC1	1H
PL1	+2.00 dB
DC	0.0000300 sec
GR1	0.00 %
GR2	0.00 %
GR3	40.00 %
GR4	0.00 %
GR5	0.00 %
GR6	0.00 %
GR7	0.00 %
GR8	0.00 %
GR9	0.00 %
GR10	0.00 %
GR11	0.00 %
GR12	0.00 %
GR13	0.00 %
GR14	0.00 %
GR15	0.00 %
GR16	0.00 %
GR17	0.00 %
GR18	0.00 %
GR19	0.00 %
GR20	0.00 %
GR21	0.00 %
GR22	0.00 %
GR23	0.00 %
GR24	0.00 %
GR25	0.00 %
GR26	0.00 %
GR27	0.00 %
GR28	0.00 %
GR29	0.00 %
GR30	0.00 %
GR31	0.00 %
GR32	0.00 %
GR33	0.00 %
GR34	0.00 %
GR35	0.00 %
GR36	0.00 %
GR37	0.00 %
GR38	0.00 %
GR39	0.00 %
GR40	0.00 %
GR41	0.00 %
GR42	0.00 %
GR43	0.00 %
GR44	0.00 %
GR45	0.00 %
GR46	0.00 %
GR47	0.00 %
GR48	0.00 %
GR49	0.00 %
GR50	0.00 %
GR51	0.00 %
GR52	0.00 %
GR53	0.00 %
GR54	0.00 %
GR55	0.00 %
GR56	0.00 %
GR57	0.00 %
GR58	0.00 %
GR59	0.00 %
GR60	0.00 %
GR61	0.00 %
GR62	0.00 %
GR63	0.00 %
GR64	0.00 %
GR65	0.00 %
GR66	0.00 %
GR67	0.00 %
GR68	0.00 %
GR69	0.00 %
GR70	0.00 %
GR71	0.00 %
GR72	0.00 %
GR73	0.00 %
GR74	0.00 %
GR75	0.00 %
GR76	0.00 %
GR77	0.00 %
GR78	0.00 %
GR79	0.00 %
GR80	0.00 %
GR81	0.00 %
GR82	0.00 %
GR83	0.00 %
GR84	0.00 %
GR85	0.00 %
GR86	0.00 %
GR87	0.00 %
GR88	0.00 %
GR89	0.00 %
GR90	0.00 %
GR91	0.00 %
GR92	0.00 %
GR93	0.00 %
GR94	0.00 %
GR95	0.00 %
GR96	0.00 %
GR97	0.00 %
GR98	0.00 %
GR99	0.00 %
GR100	0.00 %

F1 - Acquisition parameters

ND0	2
TD	256
SFO1	500.1308 MHz
FIDRES	9.768067 Hz
SW	5.000 ppm

F2 - Processing parameters

SI	1024
SF	500.130237 MHz
WDW	SSINE
SGB	2
LB	0.00 Hz
GB	0
PC	1.00

F1 - Processing parameters

SI	1024
WDW	SSINE
SGB	2
LB	0.00 Hz
GB	0

2D NMR plot parameters

CK2	15.00 cm
CK1	15.00 cm
FAPLO	7.500 ppm
FALO	3750.98 Hz
FAPHI	3.500 ppm
FAPHI	1750.48 Hz
FALO	7.500 ppm
FALO	3750.98 Hz
FAPHI	3.500 ppm
FAPHI	1750.48 Hz
FAPMOM	0.26667 ppm/cm
FAPMOM	133.36801 Hz/cm

GLUCO R. DIENE 1H-NMR

GLUCO G ALDEHYDE 13C-NMR

Chemical structure of compound 40 is shown in the inset. The structure is a bicyclic acetal with a phenyl selenide group (SePh) and an ethyl ester group (CO₂Et). The numbering of the carbons in the structure is as follows: 1, 2, 3, 4, 5, 6 for the bicyclic system and 1' for the carbon bearing the SePh group.

¹H NMR spectrum (CDCl₃) of compound 40. The x-axis represents the chemical shift in PPM, ranging from 0.0 to 8.0. The spectrum shows several peaks, with integration values provided below the baseline: 12.80, 162.76, 6.36, 22.89, 16.29, 23.46, 29.89, 32.02, 7.24, 21.79. The peaks are assigned to the following protons in the structure:

- 7.1-7.3 ppm (m, 12.80): Aromatic protons (H_a).
- 6.3-6.5 ppm (m, 6.36): Aromatic protons (H_a).
- 5.1-5.3 ppm (m, 22.89): Aromatic protons (H_a).
- 4.1-4.3 ppm (m, 16.29): Aromatic protons (H_a).
- 3.1-3.3 ppm (m, 23.46): Aromatic protons (H_a).
- 2.1-2.3 ppm (m, 29.89): Aromatic protons (H_a).
- 1.1-1.3 ppm (m, 32.02): Aromatic protons (H_a).
- 0.1-0.3 ppm (m, 7.24): Aromatic protons (H_a).
- 1.1-1.3 ppm (m, 21.79): Aromatic protons (H_a).