SUPPORTING INFORMATION

Photolytic degradation of Alzheimer's amyloid $A\beta_{42}$ -fibrils by sialic acid decorated glycodendrimers

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Contents

No.	Description	Page No.
1.	The glycodendrimers exhibits low inherent toxicity and cellular	S-3
	update in HEK293 cells (Figure S1)	
2.	The theoretical hydrodynamic radius and radius of gyration for	S-4
	the Aβ ₄₂ monomer (Table S1)	
3.	Copy of the ¹ H NMR spectrum of compound 3	S-5
4.	Copy of the ¹³ C NMR spectrum of compound 3	S-6
5.	Copy of the ¹ H NMR spectrum of compound 4	S-7
6.	Copy of the ¹³ C NMR spectrum of compound 4	S-8
7.	Copy of the ¹ H NMR spectrum of compound 8	S-9
8.	Copy of the ¹³ C NMR spectrum of compound 8	S-10
9.	Copy of the ¹ H NMR spectrum of compound 9	S-11
10.	Copy of the ¹³ C NMR spectrum of compound 9	S-12
11.	Copy of the ¹ H NMR spectrum of compound 11	S-13
12.	Copy of the ¹³ C NMR spectrum of compound 11	S-14
13.	Copy of the ¹ H NMR spectrum of compound 12	S-15
14.	Copy of the ¹³ C NMR spectrum of compound 12	S-16
15.	Copy of the ¹ H NMR spectrum of compound 13	S-17
16.	Copy of the ¹³ C NMR spectrum of compound 13	S-18
17.	Copy of the ¹ H NMR spectrum of compound 15	S-19
18.	Copy of the ¹³ C NMR spectrum of compound 15	S-20
19.	Copy of the ¹ H NMR spectrum of compound 16	S-21
20.	Copy of the ¹³ C NMR spectrum of compound 16	S-22
21.	Copy of the ¹ H NMR spectrum of compound 17	S-23
22.	Copy of the ¹³ C NMR spectrum of compound 17	S-24
23.	Copy of the ¹ H NMR spectrum of compound 1	S-25
24.	Copy of the ¹³ C NMR spectrum of compound 1	S-26
25.	Copy of the ¹ H NMR spectrum of compound 2	S-27
26.	Copy of the ¹³ C NMR spectrum of compound 2	S-28
27.	Copy of the MALDI-TOF Mass spectrum of compound 1	S-29
28.	Copy of the MALDI-TOF Mass spectrum of compound 2	S-30

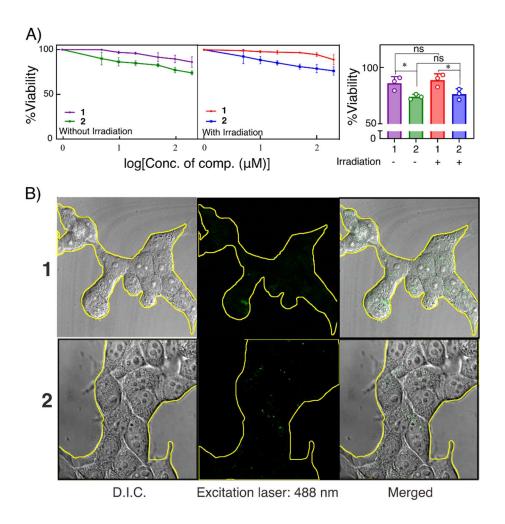


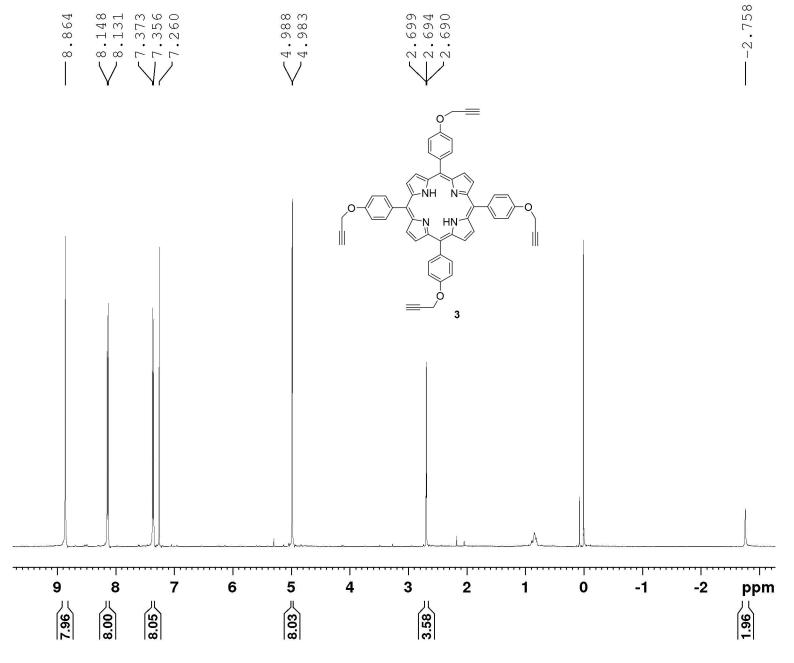
Figure S1: The glycodendrimers exhibits low inherent toxicity and cellular update in HEK293 cells.

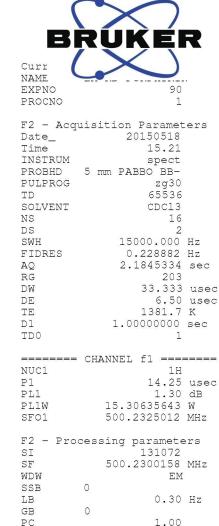
A) Cytotoxicity of **1** and **2** studied in HEK293 cells with and without irradiation. The points represent percentage viability at each compound concentration (left). The bar represents the cell viability after incubation (48 hours) and irradiation (15 minutes) (right). The error bars represent the S.D. from three separate experiments.

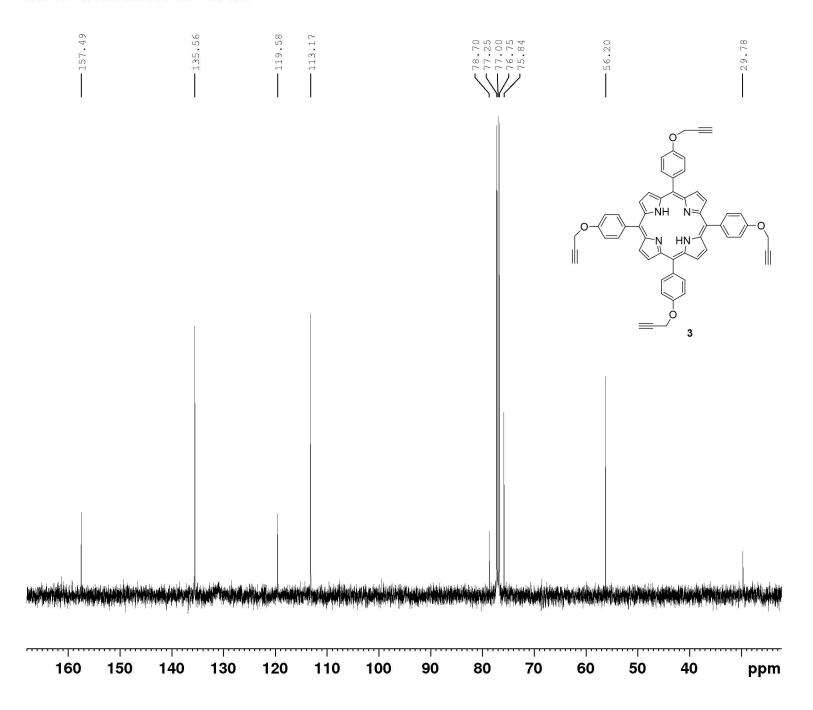
B). Cellular uptake of **1** and **2** in HEK293 cells studied using confocal microscopy. The DIC image (left) was superimposed on the fluorescence image (middle) to produce the merged image (right). The yellow lines indicate the cell membrane.

Table S1: The theoretical hydrodynamic radius and radius of gyration for the A β_{42} monomer and oligomers were calculated using Hullrad algorithm (Sl. No.: 1-11). The PDB IDs 6SZF (monomer) and 5KK3(18 A β_{42} fibrils) were used for the calculation. The data was linearly extrapolated to obtain the number of fibrils approximately required to form a A β_{42} oligomer with 100 nm radius (as obtained using DLS measurements).

Sl. no.	No. of Amino Acids	Fibrils	Radius of Gyration (nm)	Hydrodynamic radius(nm)
1	42	1	1.658	1.542
2	576	18	2.203	3.046
3	1152	36	2.939	3.759
4	1728	54	4.121	4.44
5	2304	72	5.24	4.977
6	2880	90	6.402	5.483
7	5760	180	12.641	7.594
8	8640	270	19.020	9.379
9	12672	396	27.843	12.353
10	23616	738	50.565	16.486
11	44352	1386	94.969	24.001
12	~192000	~6000 (Extrapolated Value)	~400	~100 (Obtained from DLS)







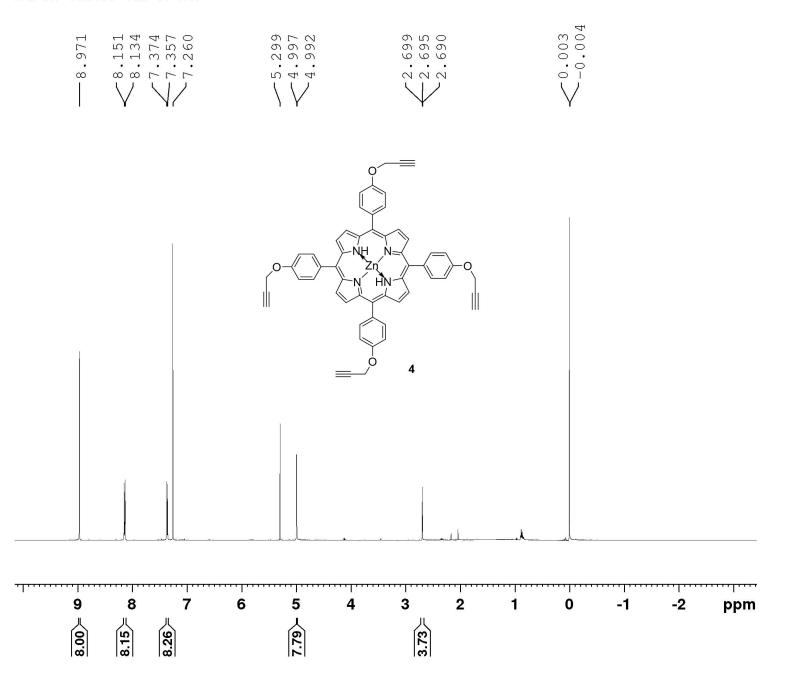


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PROCNO	1

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-----	--	--	---------------------------------------

	CHANNEL f1 ====	
NUC1	13C	
P1	9.50	usec
PL1	-0.50	dB
PL1W	90.18825531	W
SF01	125.7955118	MHz

F2	-	Process	ing	parameters
SI				32768
SF			125	.7829351 MHz
WDV	V			EM
SSE	3	0		
LB				1.00 Hz
GB		0		
PC				1.40





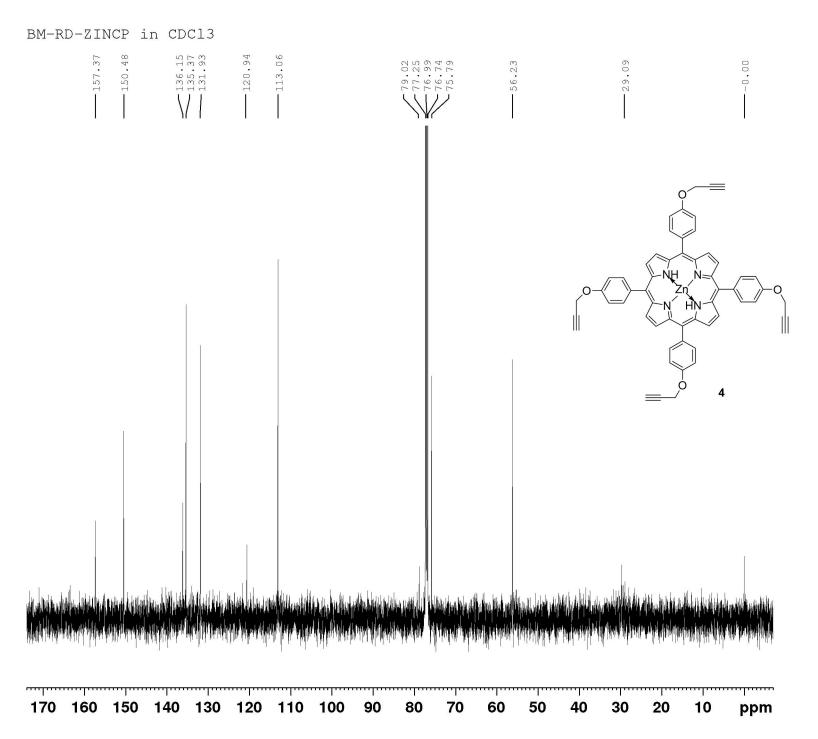
Current	Data Farame	ters
NAME	BM-RD-2	ZINCP
EXPNO		140
PROCNO		1

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PULPROG	zg30	
TD	65536	
SOLVENT	CDC13	
NS	32	
DS	2	
SWH	10000.000	Hz
FIDRES	0.152588	Ηz
AQ	3.2767999	sec
RG	203	
DW	50.000	used
DE	6.50	usec
TE	1237.8	K
D1	1.00000000	sec
TD0	1	

NUC1	1H
P1	14.25 usec
PL1	1.30 dB
PL1W	15.30635643 W
SFO1	500.2325012 MHz
F2 -	Processing parameters
SI	131072
SF	500.2300156 MHz
WDW	EM
COD	0

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

SF		500.2300156 MHz
WDW		EM
SSB	0	
LB		0.30 Hz
GB	0	
PC		1.00





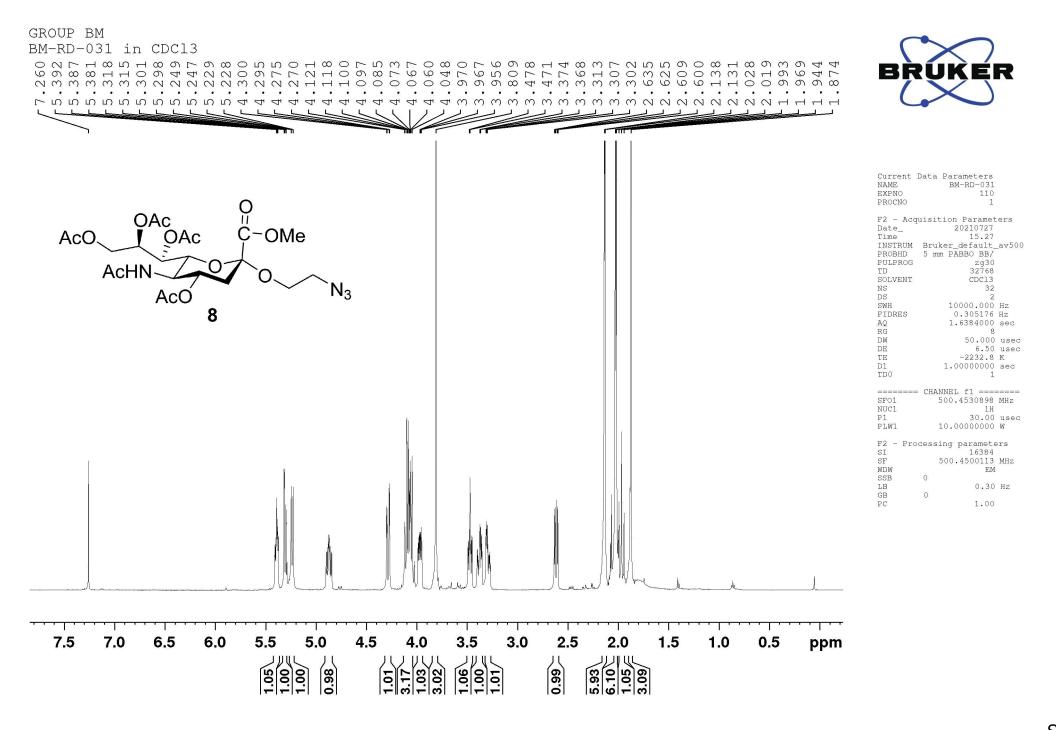
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EXPNO 141
PROCNO 1

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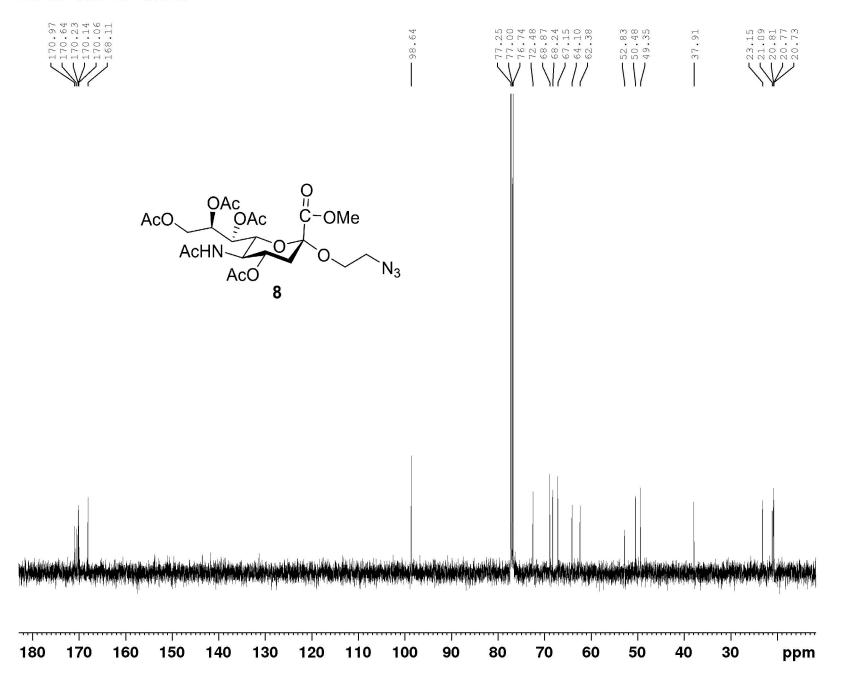
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P1 9.50 usec
PL1 -0.50 dB
PL1W 90.18825531 W
SF01 125.7955118 MHz

====== CHANNEL f2 ====== waltz16 CPDPRG[2 NUC2 80.00 usec PCPD2 PL2 1.30 dB PL12 16.00 dB PL2W 15.30635643 W PL12W 0.51864696 W SFO2 500.2320009 MHz

F2 - Processing parameters
SI 32768
SF 125.7829343 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.40



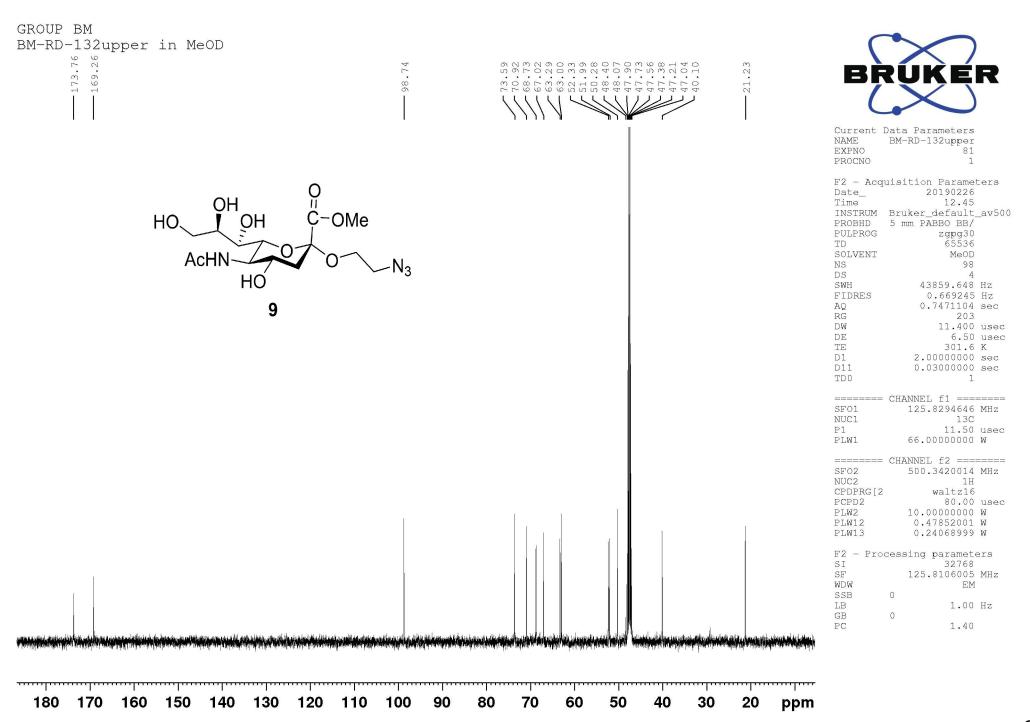
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BM-RD-031 in CDC13

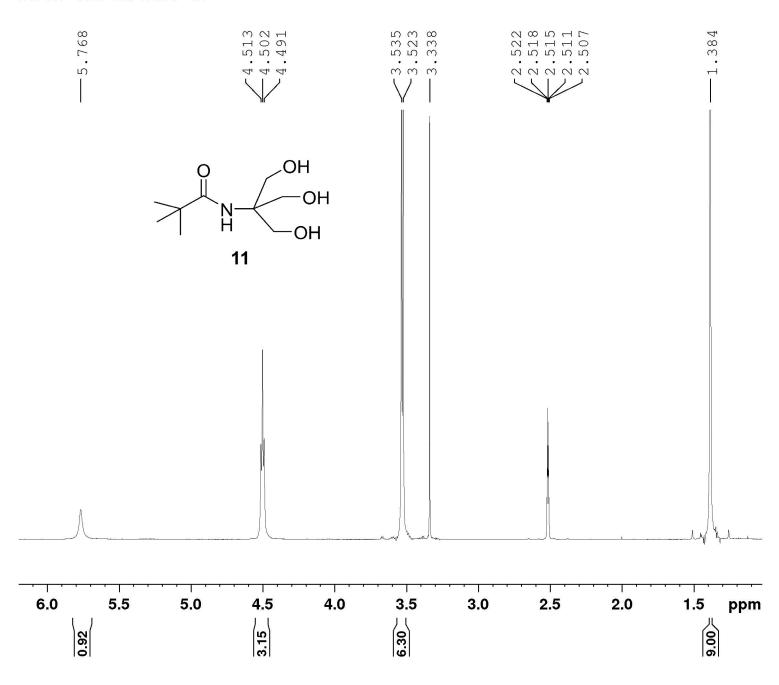




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F2 - Acquisition Param Date_ 2021072 Time 15.3 INSTRUM Bruker_defaul PROBHD 5 mm PABBO B PULPROG zgpg3 TD 6553 SOLVENT CDC1 NS 10.5	7 1 t_av500 / 0 6 3
SWH 37878.78 FIDRES 0.57798 AQ 0.865075 RG DW 13.20 DE 6.5 TE -2192 D1 2.0000000 D11 0.0300000	9 Hz 4 Hz 2 sec 8 0 usec 0 usec 1 K 0 sec
====== CHANNEL f1 == SF01 125.850834 NUC1 130	===== 6 MHz C O usec
SF02 500.452001. NUC2 11 CPDPRG[2 waltz1 PCPD2 137.0 PLW2 10.0000000 PLW12 0.4785200 PLW13 0.2404363	4 MHz H 6 O usec O W 1 W
F2 - Processing parametric 3276' SF 125.838257' WDW EI SSB 0 LB 1.00' GB 0 PC 1.33	8 8 MHz M O Hz

GROUP BM BM-RD-132upper in MEOD 00088977788988989480778000808847480779 8 W Y O Q 8 L L P A R W W L Y L H O O Q Q 8 8 L R A W Y L L A R A O Q 8 L L P A Q Q P L L R A K A V A Low BM-RD-132upper NAME EXPNO PROCNO F2 - Acquisition Parameters 20190226 Date_ Time 12.40 INSTRUM Bruker_default_av500 PROBHD 5 mm PABBO BB/ PULPROG zg30 66560 TD OH SOLVENT MeOD NS 16 -OMe OH DS SWH 9469.697 Hz FIDRES 0.142273 Hz 3.5143681 sec AQ RG 90.5 52.800 usec **AcHN** DW DE 6.50 usec HO TE 300.8 K D1 1.00000000 sec TD0 9 CHANNEL f1 ====== 500.3445031 MHz SFO1 NUC1 17.50 usec P1 PLW1 10.00000000 W F2 - Processing parameters SI 131072 SF 500.3400324 MHz WDW EM SSB T.B. 0.60 Hz GB 1.00 PC 4.5 3.5 1.5 4.0 3.0 2.5 2.0 ppm 2.30 2.30 0.94 3.34 1.17 2.82 1.03 1.00



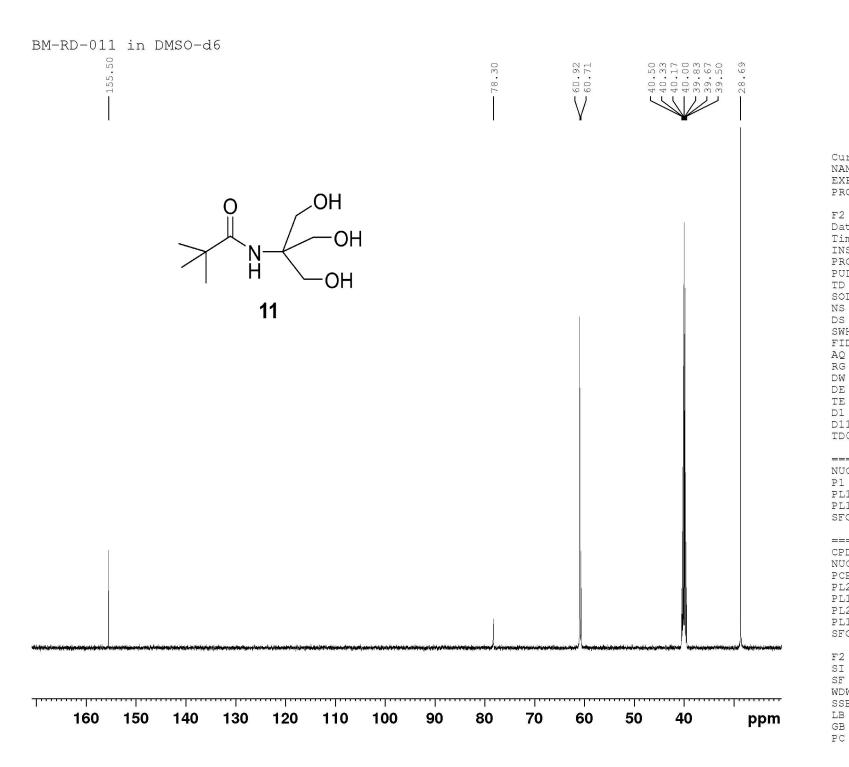




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PROCNO		1

=======	CHANNEL	f1	====	====
NUC1			1H	
P1		14	.25	used
PL1		1	30	dB
PL1W	15.30	635	643	W
SFO1	500.2	2330	891	MHz

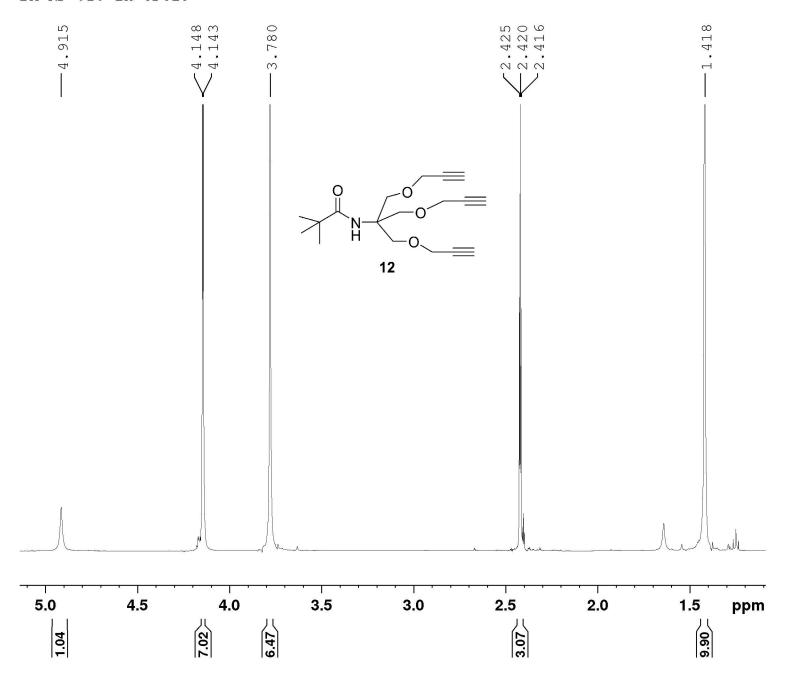
F2 -	Processing	parameters
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WDW		EM
SSB	0	
LB		0.30 Hz
GB	0	
PC		1.00





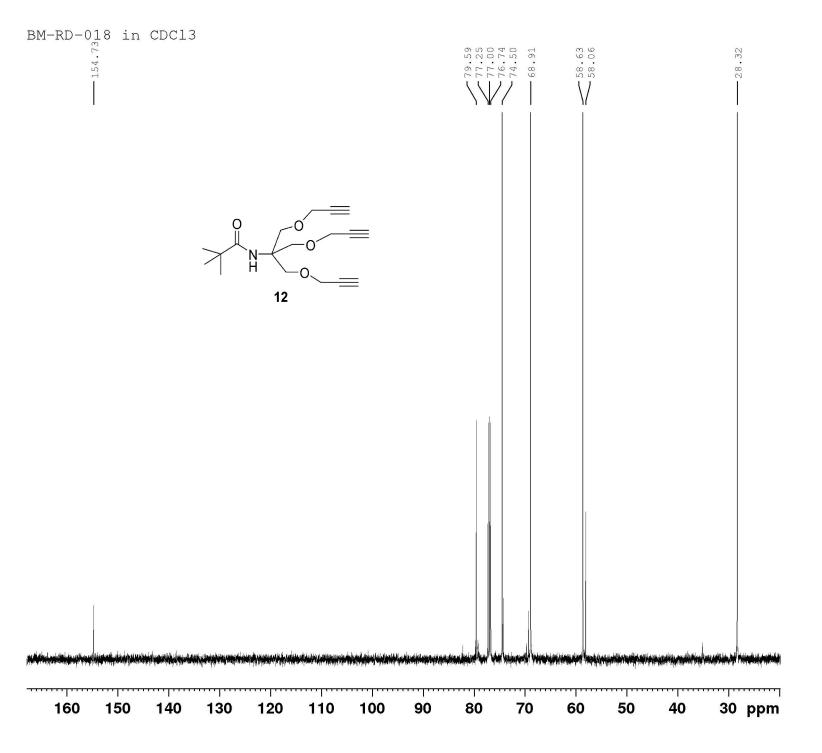
Current I NAME EXPNO PROCNO	ata E		eters RD-011 171 1	
F2 - Acqu Date_ Time INSTRUM PROBHD PULPROG TD SOLVENT NS DS		201	2aramet .50420 16.39 spect 30 BB- zgdc 65536 DMSO 653	ers
SWH FIDRES AQ RG		0.4	1.904 154131 010048 203	Hz sec
DW DE TE D1 D11 TD0		í 2.000	16.800 6.50 1079.3 000000 000000	usec K sec
NUC1 P1 PL1 PL1W SFO1	9(0.188	13C	usec dB W
CPDPRG[2 NUC2 PCPD2 PL2 PL12 PL2W PL12W PL12W SFO2	1:	wa 5.306 0.518	2 ===: altz16 1H 80.00 1.30 16.00 335643 864696 320009	usec dB dB W W
F2 - Proc SI SF WDW			ramete 32768 329340 EM	MHz
SSB LB GB	0		1.00	

1.40





Current NAME EXPNO PROCNO	Data Parameter BM-RD-01 20	8
Date_ Time INSTRUM PROBHD PULPROG TD SOLVENT NS DS SWH FIDRES	1 10330.57 0.15763	0 4 t 0 6 3 6 2 8 Hz 2 Hz
AQ RG DW DE TE D1 TD0		1 0 usec 0 usec 8 K
NUC1 P1 PL1 PL1W SFO1		H 5 usec 0 dB 3 W
SI SF WDW SSB LB	0	8
GB PC	0 1.0	0





		_		>						
Curre NAME EXPNO PROCN		ata	Ρ			net RD·	-0:			
F2 - Date_ Time INSTR PROBH PULPR TD SOLVE NS DS	RUM ID ROG	isi 5 m		2	201	150 1' s) 30	042 7. pe BI zg 55 DC	20 57 ct 3- dc 36	ers	
SWH FIDRE AQ RG DW DE TE	ls			1	.1	45. 01. 16	41 20 .8 6.	04 31 48 03 00 50		
D1 D11 TD0			0	. ()3(000	000	1	sec sec	
NUC1 P1 PL1 PL1W SF01	===	CHA	90	. 1	188	- 325	9. 0. 553	3C 50 50 31	use dB W MHz	=
CPDPF NUC2 PCPD2 PL2 PL12 PL12W PL12W SF02	2	СНА	15		wa 300	80 10 635 864	0.0 1. 6.0 56.4	16 1H 00 30 00 43	used dB dB W	=
F2 - SI SF	Proc	ess				3:	27 93	68	MHz	

WDW SSB LB

GB

РC

0

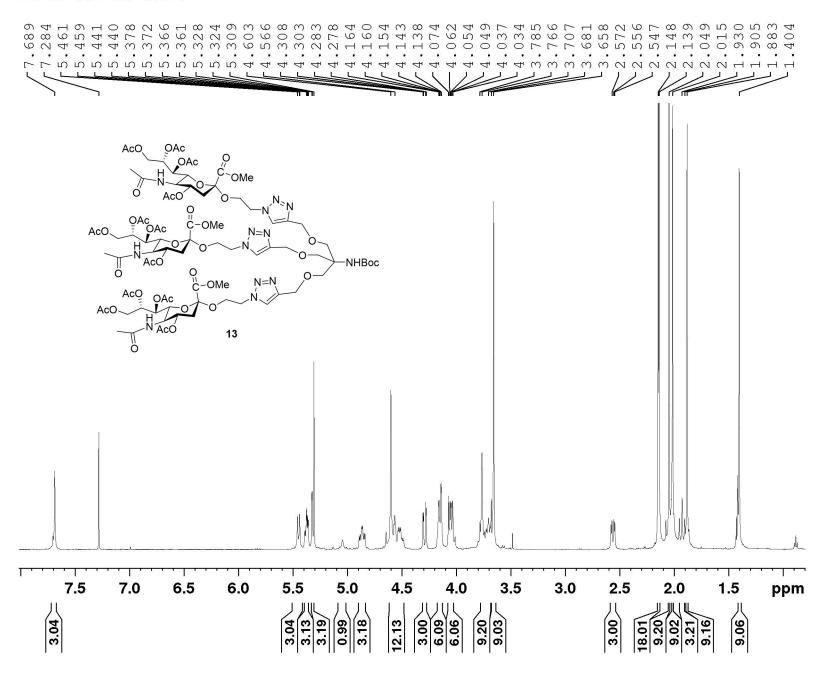
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EM

1.00 Hz

1.40

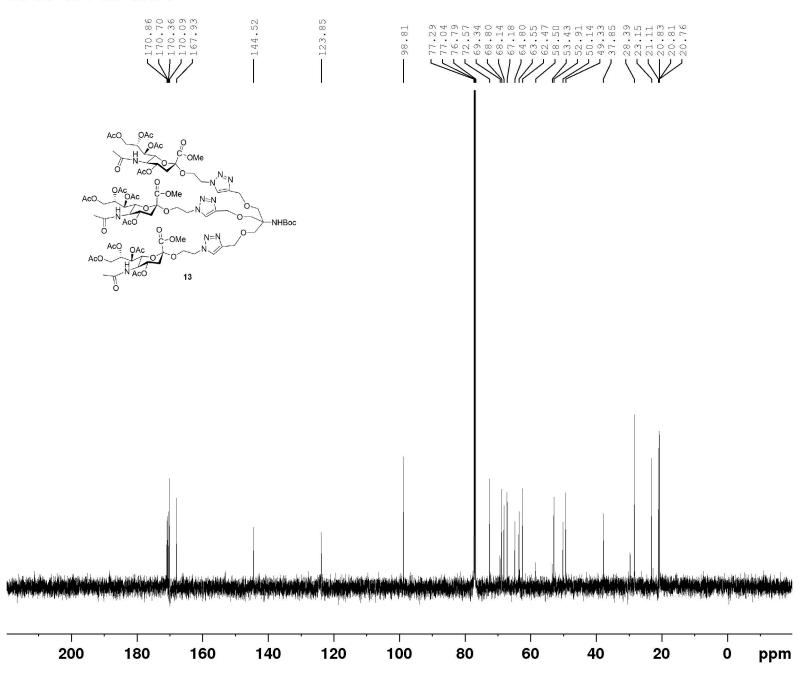
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PROCNO	1	
11100110		
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Date_	20210809	.010
Time	10.36	h
INSTRUM	AV4 500MHz	11
PROBHD	Z119467 0011 (
PULPROG	zg30	
TD	65536	
SOLVENT	CDC13	
NS	16	
DS	2	
SWH	10000,000	TT-
	0.305176	
FIDRES	3,2767999	
AQ		sec
RG	101	
DW	50.000	
DE	10.11	
TE	299.3	
D1	1.00000000	sec
TD0	1	
SFO1	500.1430884	
NUC1	1H	
P0		usec
P1	14.00	
PLW1	13.47399998	W
	cessing paramete	rs
SI	65536	
SF	500.1400000	MHz
WDW	EM	
SSB	0	
LB	0.30	Hz
GB	0	
PC	1.00	

GROUP BM BM-RD-032 in CDCl3



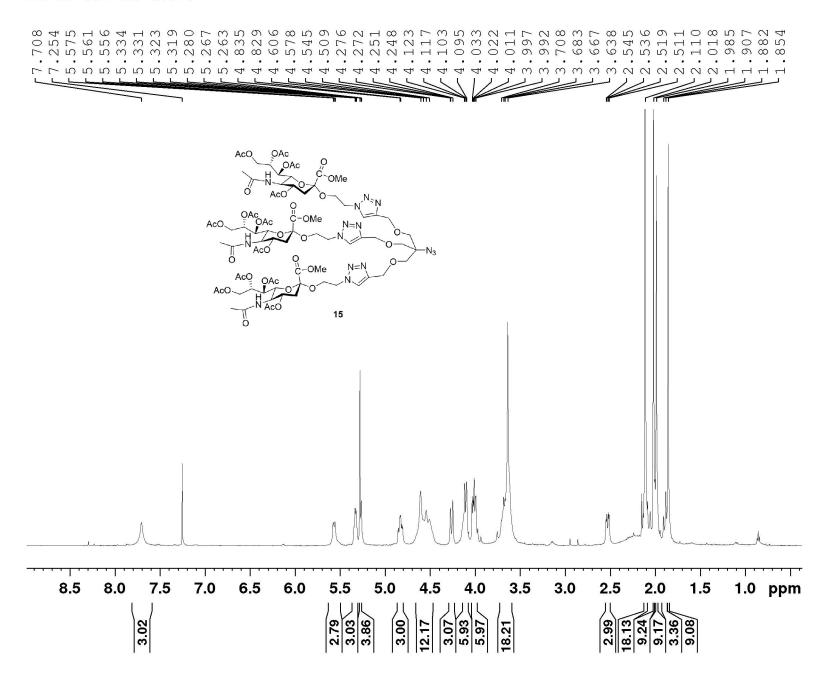


Current NAME	Data	Parameters BM-RD-032
EXPNO PROCNO		230
FROCIO		т.

F2 - Acqu	uisition Paramet	ers
Date_	20210809	
Time	14.10	h
INSTRUM	AV4 500MHz	
PROBHD	Z119467_0011 (
PULPROG	zapa30	
TD	65536	
SOLVENT	CDC13	
NS	128	
DS	4	
SWH	30120.482	Hz
FIDRES	0.919204	Hz
AQ	1.0878977	sec
RG	101	
DW	16.600	used
DE	6.50	used
TE	299.8	K
D1	2.00000000	sec
D11	0.03000000	sec
TDO	1	
SF01	125.7728791	MHz
NUC1	13C	
PO	3.33	used
P1	10.00	
PLW1	77.33000183	
SFO2	500.1420006	MHz
NUC2	1H	
CPDPRG[2	waltz65	
PCPD2	80.00	
PLW2	13.47399998	
PLW12	0.41264001	
PLW13	0.20756000	M

F2 -	Processing	paramete	ers
SI		32768	
SF	125	.7603030	MHz
WDW		EM	
SSB	0		
LB		1.00	Hz
GB	0		
PC		1.40	

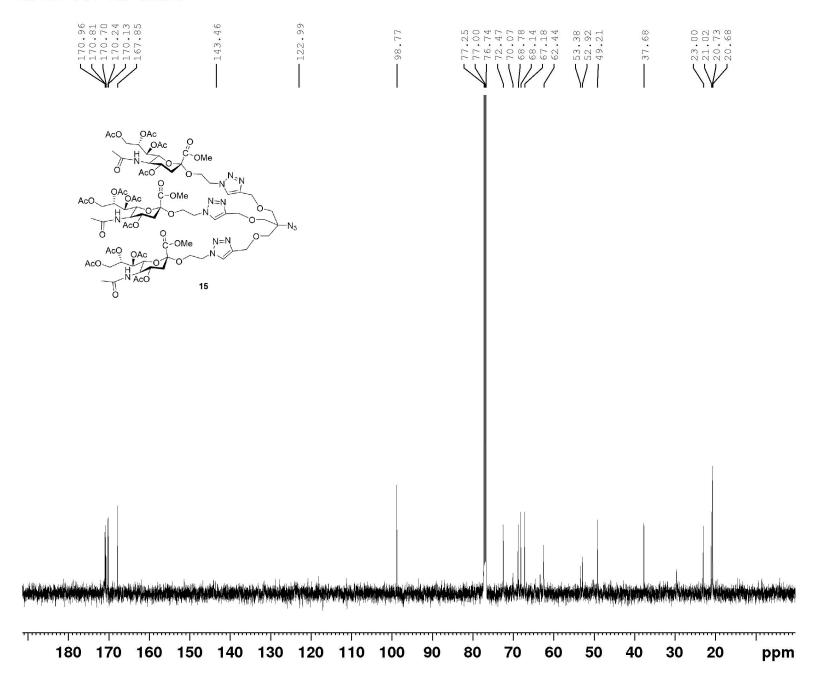
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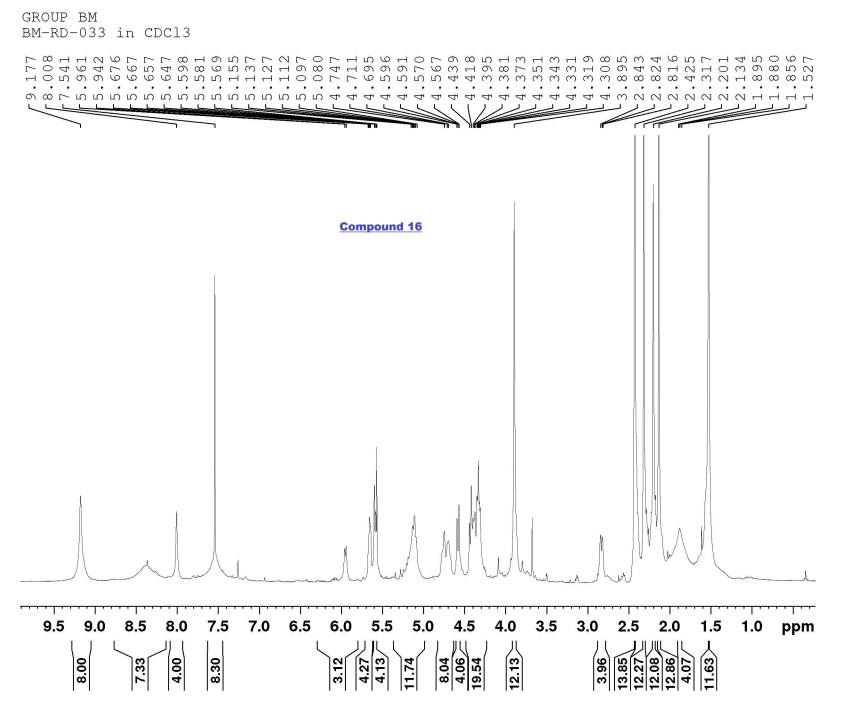
PROCNO 1
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SWH 10000.000 Hz FIDRES 0.305176 Hz AQ 1.6384000 sec RG 14.2 DW 50.000 usec DE 6.50 usec TE 2307.2 K D1 1.00000000 sec TD0 1
SF01 500.4530898 MHz NUC1 1H P1 30.00 usec PLW1 10.00000000 W
F2 - Processing parameters SI 16384 SF 500.4500151 MHz WDW EM SSB 0 LB 0.30 Hz GB 0 PC 10.10

GROUP BM BM-RD-037 in CDC13



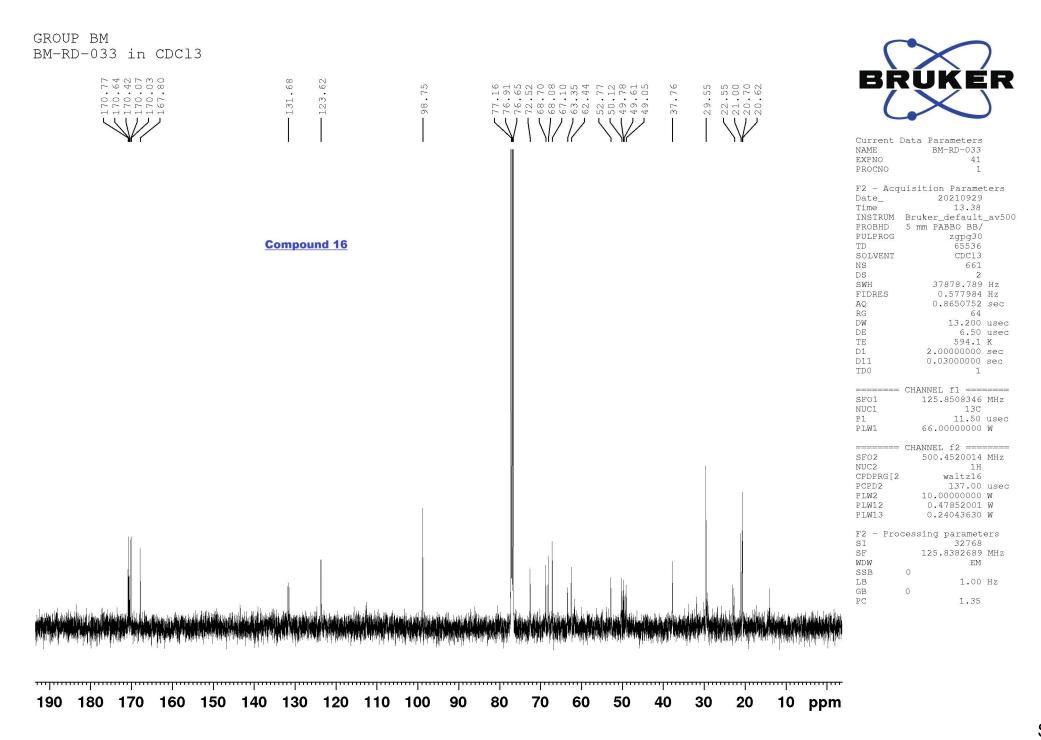


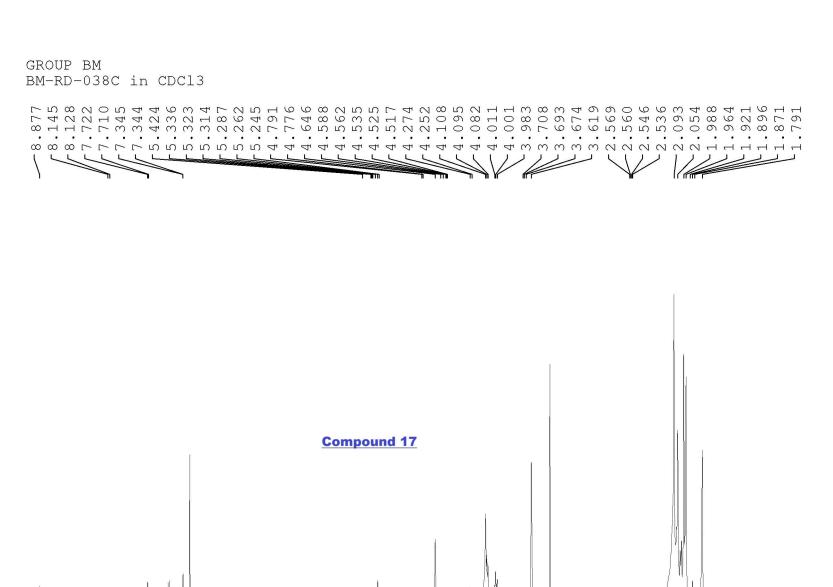
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Date_ Time	uisition Parameters 20211111 14.48 Bruker_default_av500 5 mm PABBO BB/ 2gpg30 65536 CDC13 318 2
SWH FIDRES AQ RG DW DE TE D1 D11 TD0	37878.789 Hz 0.577984 Hz 0.8650752 sec 32 13.200 usec 6.50 usec 4345.2 K 2.00000000 sec 0.03000000 sec
SFO1 NUC1 P1 PLW1	CHANNEL f1 ====== 125.8508346 MHz 13C 11.50 usec 66.00000000 W
SF02 NUC2 CPDPRG[2 PCPD2 PLW2 PLW12 PLW13	CHANNEL f2 500.4520014 MHz 1H waltz16 137.00 usec 10.00000000 W 0.47852001 W 0.24043630 W
F2 - Proc SI SF WDW SSB LB	cessing parameters 32768 125.8382587 MHz EM 0
GB PC	0 1.35





Current NAME EXPNO PROCNO	Data Parameter: BM-RD-033 40)
Date_ Time	zg3(32768	9 t_av500 /) 3 3
SWH FIDRES AQ RG DW DE TE D1 TD0	10000.000 0.305176 1.6384000 16	Hz Hz Hz sec usec usec K sec
SF01 NUC1 P1 PLW1	= CHANNEL f1 === 500.4530898 1H 30.00	MHz I usec
F2 - Pr SI SF WDW SSB LB GB PC	ocessing parameter 16384 500.4498707 EM 0 0 0 10.10	H 7 MHz N 1 Hz





8.5

7.98

8.0

12.05

8.13

7.0

6.5

6.0

5.5

8.81

5.0

12.00

4.0

12.14 20.91 12.42 36.58 2.5

12.31

3.0

2.0

35.58 35.73 72.62 12.71 35.99

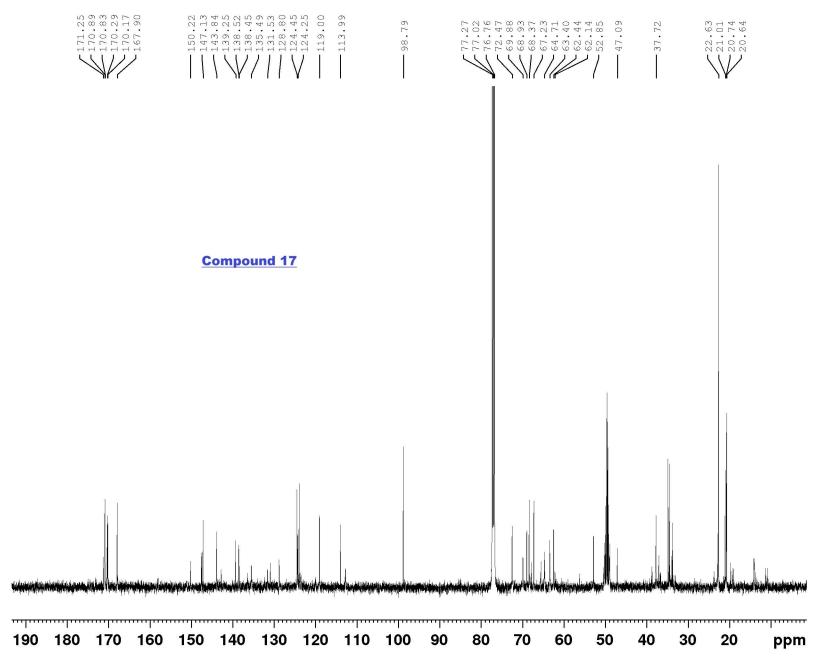
1.5

ppm



Current D NAME EXPNO PROCNO	ata Parameters BM-RD-038C 390 1	
Date_ Time INSTRUM	isition Paramet 20211227 18.54 Bruker_default_ 5 mm PABBO BB/ 2g30 32768 CDC13 32	
SWH FIDRES AQ RG DW DE TE D1 TD0	10000.000	Hz sec usec usec K
SF01 NUC1 P1 PLW1	CHANNEL f1 ==== 500.4525023 1H 30.00 10.00000000	MHz usec
SI SF WDW	essing paramete 16384 500.4500068 EM 0 0.30	MHz

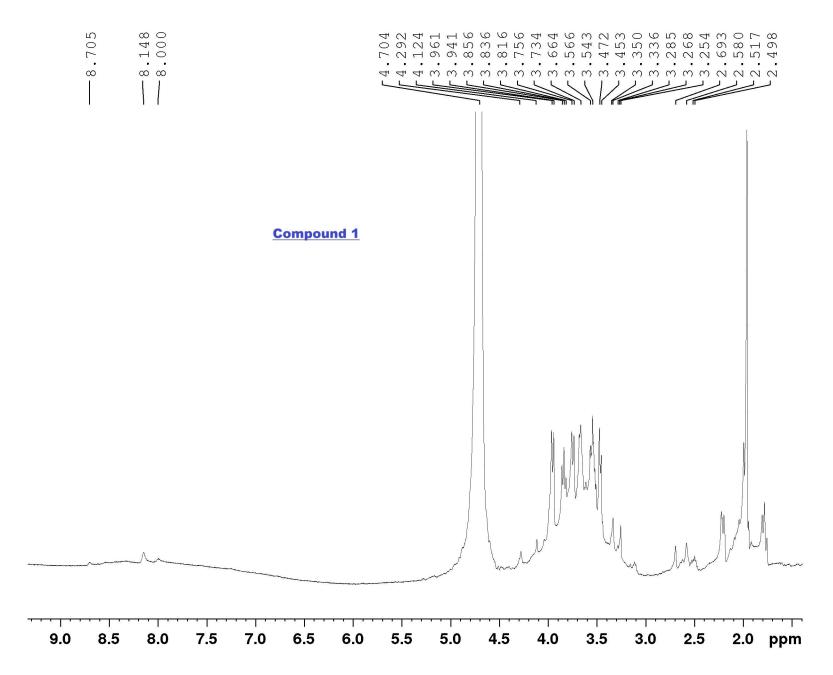
GROUP BM
BM-RD-038C in CDC13





	-						
Current I NAME EXPNO PROCNO	Data			ame	03		
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FIDRES AQ RG DW DE TE D1 D11 TD0		2 0	.00	13 26 300	3.2 6. 571 000	16 00 50 .8 00 00	sec sec
SF01 NUC1 P1 PLW1	1	12.	5.8	350 1	83	46 3C	MHz usec
SFO2 NUC2 CPDPRG[2 PCPD2 PLW2 PLW12 PLW13		50 10 0	0.2 W .00	152 ral 13 000 785	tz 7.	14 1H 16	MHz usec W W
F2 - Proc SI SF WDW SSB LB GB PC				3	327 25	68 57 EM	ers MHz Hz

GROUP BM
BM-RD-1STGENSIA in D20





Current	Data	Parameters
NAME	BM-F	RD-1STGENSIA
EXPNO		150
PROCNO		1.

F2 - Acqu	uisition Parame	ters
Date_	20220126	
Time	12.55	
INSTRUM	Bruker_default	_av500
PROBHD	5 mm PABBO BB/	
PULPROG	zg30	
TD	32768	
SOLVENT	D20	
NS	128	
DS	2	
SWH	10000.000	Hz
FIDRES	0.305176	Hz
AQ	1.6384000	sec
RG	16	
DW	50.000	usec
DE	6.50	usec
TE	2390.7	K
D1	8.00000000	sec
TD0	1	

	=== CHANNEI	L f1 ==	
SF01	500	452502	3 MHz
NUC1		1	Н
P1		30.0	0 usec
PLW1	10.	0000000	0 W
F2 -	Processing	parame	ters
SI		1638	4
SF	500.	450000	0 MHz
WDW		El	M
SSB	0		

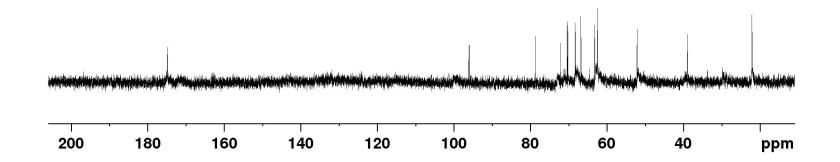
0.30 Hz

LB

GB



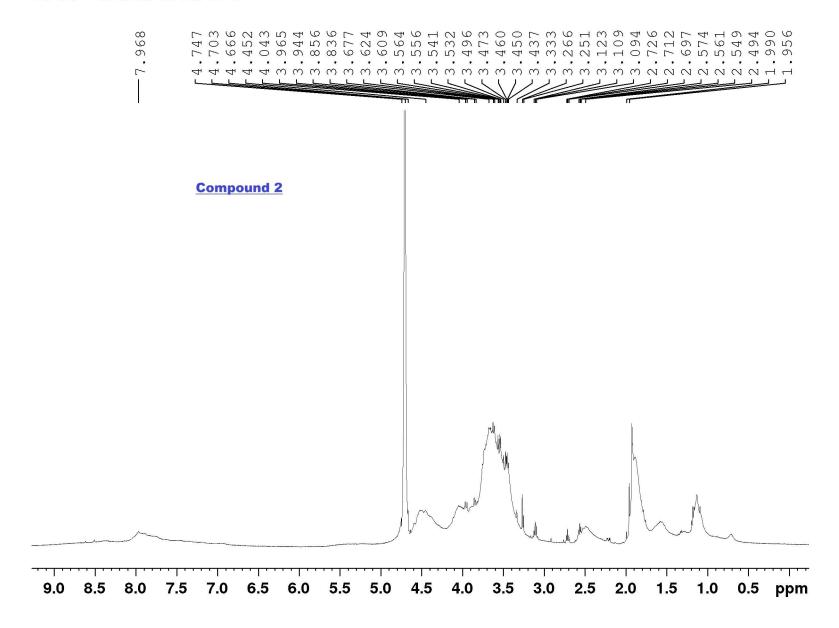
Compound 1





F2 - Acqu	isi	ti						ers
Date_				2	02		123	
Time						4	1.11	h
INSTRUM		Z	١V	4	5	00	MHz	
PROBHD 2	Z11	94	6	7	0	01	1 (
PULPROG					_ z	ar	g30	
TD							5536	
SOLVENT							D20	
NS						25	5000	
DS							4	
SWH			3	0	12	0 .	482	Hz
FIDRES			-				204	
AO			1					sec
RG			_	•	00	, .	101	
DW					1	6		usec
DE								usec
TE						20	99.6	V
D1		,)	0	n n			sec
D11								sec
TD0		(U	30	UC	1	
		1 0	. =			20		
SFO1		12	25	٠	1 1	20	791	MHZ
NUC1							13C	
PO								usec
P1				_				usec
PLW1							183	
SFO2		5 ()()	•	14	20		MHz
NUC2							1H	
CPDPRG[2					wa		z65	
PCPD2								usec
PLW2							998	
PLW12		(4	12	64	001	W
PLW13		().	2	07	56	000	W
F2 - Proce	ess	ir	ng	ı	ра	ra	mete	ers

	Processing	
SI		32768
SF	125	.7603030 MHz
WDW		EM
SSB	0	
LB		1.00 Hz
GB	0	
PC		1.40



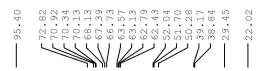


Current Data Parameters
NAME BM-RD-2NDGENSIA
EXPNO 400
PROCNO 1

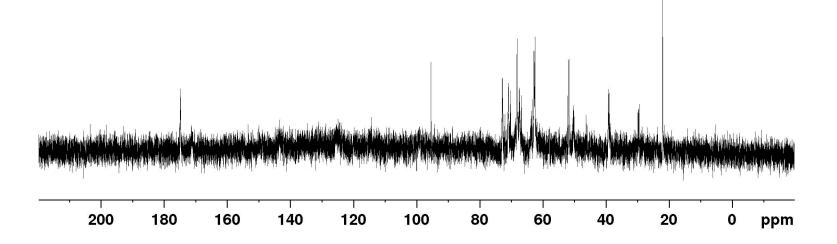
F2 - Acquisition Parameters Date 20220125 Time 17.00 INSTRUM Bruker_default_av500 5 mm PABBO BB/ PROBHD PULPROG zg30 TD 32768 SOLVENT D20 NS 64 DS 2 SWH 10000.000 Hz 0.305176 Hz FIDRES 1.6384000 sec AQ RG 16 DW 50.000 usec DE 6.50 usec 2413.1 K TE D1 1.00000000 sec TD0 1

SF01 500.4525023 MHz
NUC1 1H
P1 30.00 usec
PLW1 10.00000000 W





Compound 2





Current Data Farameters
NAME BM-RD-2NDGENSIA
EXPNO 404
PROCNO 1

F2 - Acquisition Parameters Date_ 20220125 Time 18.12 INSTRUM Bruker_default_av500 PROBHD 5 mm PABBO BB/ PULPROG zgpg30 TD 65536 SOLVENT D20 NS 19827 DS SWH 37878.789 Hz FIDRES 0.577984 Hz 0.8650752 sec AQ RG 16 DW 13.200 usec DE 6.50 usec ΤE 2438.8 K D1 2.00000000 sec D11 0.03000000 sec TDO 1

 SF01
 125.8508346
 MHz

 NUC1
 13C

 P1
 11.50
 usec

 PLW1
 66.00000000
 W

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

F2 - Processing parameters
SI 32768
SF 125.8382574 MHz
WDW EM
SSB 0
LB 1.00 Hz
GB 0
PC 1.35

