

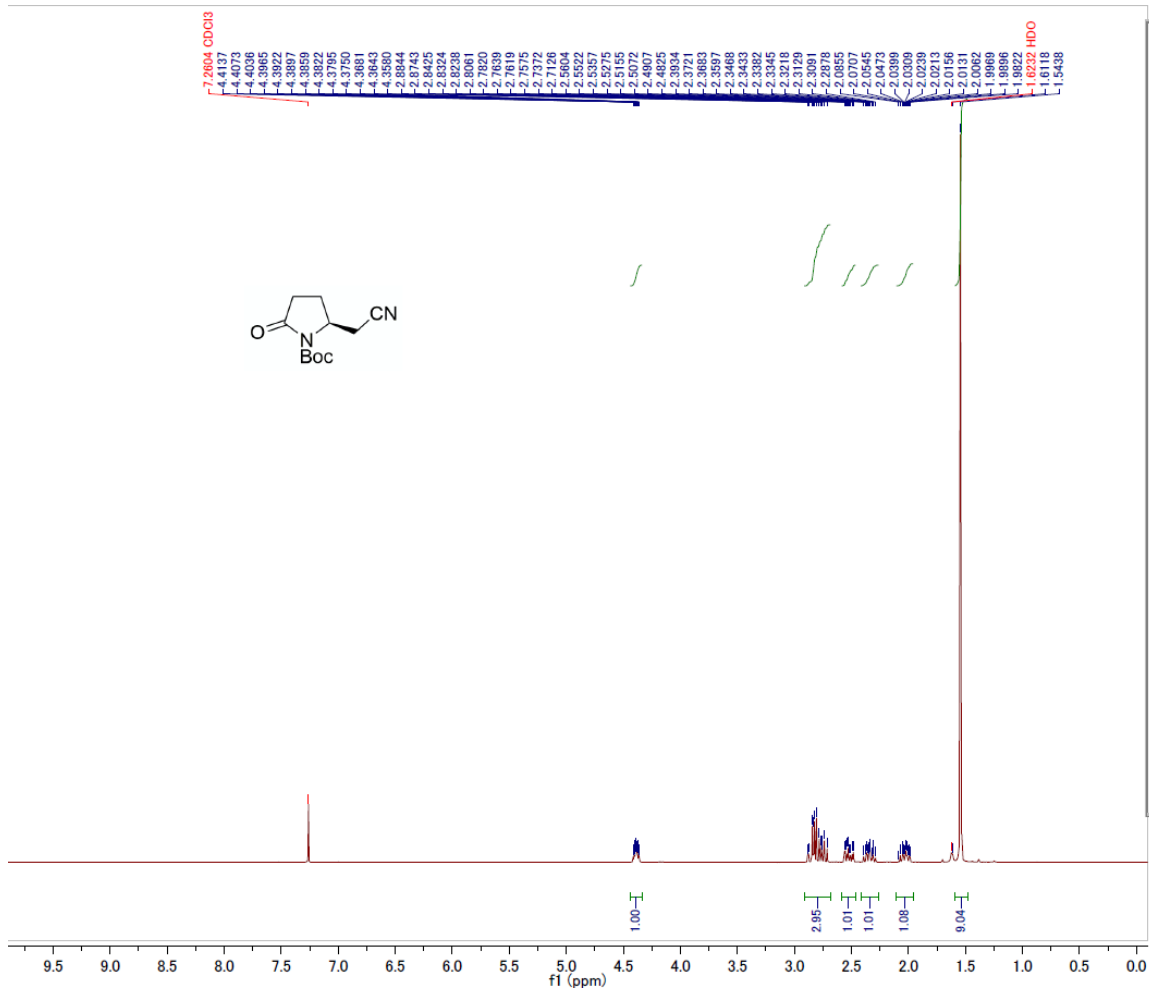
## Supporting Information

### SYNTHESIS OF OPTICALLY ACTIVE (*R*)- AND (*S*)- $\beta$ -ARGININE FROM PYROGLUTAMIC ACID

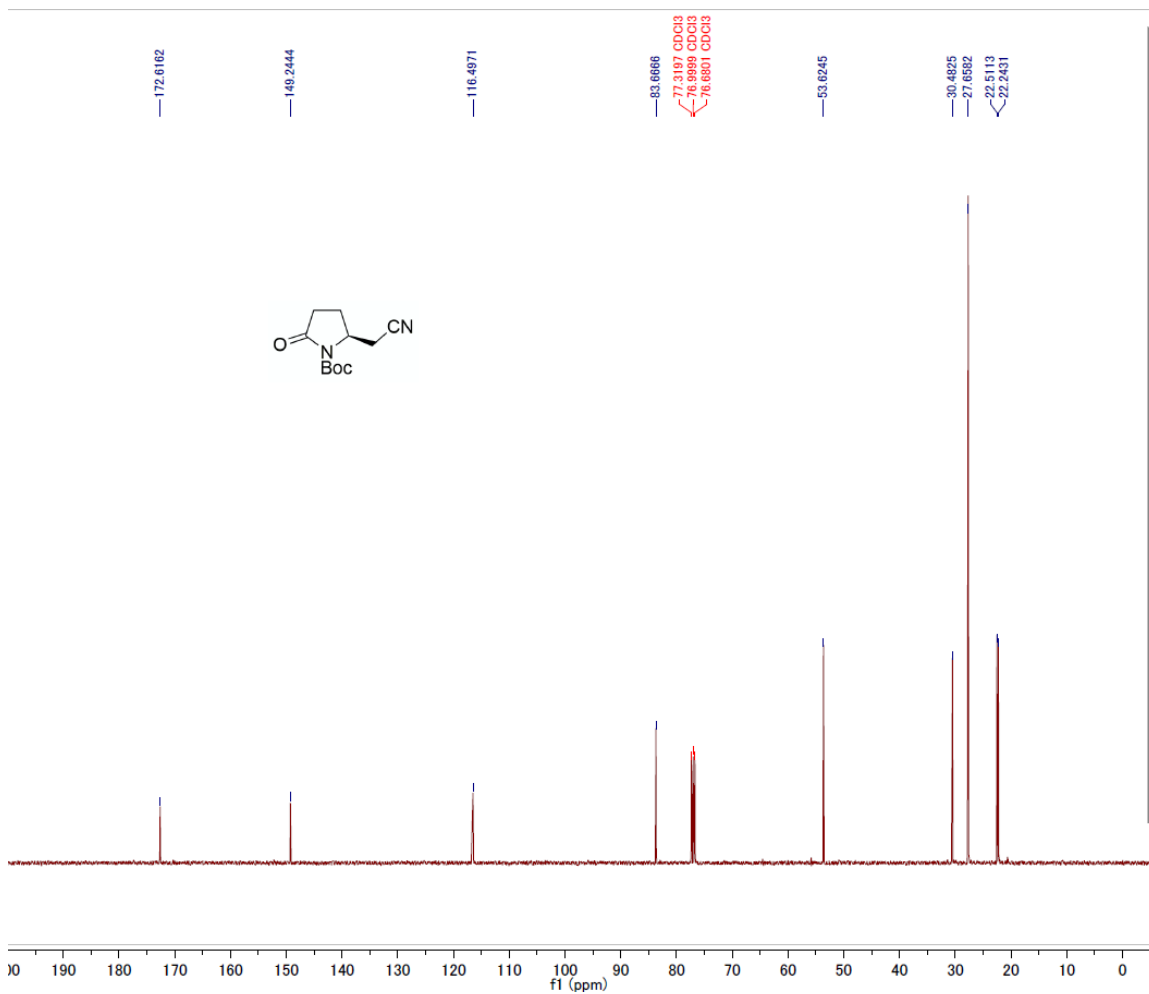
Yoko Yasuno, Akira Sawai, Ai Sekihara, and Tetsuro Shinada\*

Graduate School of Science, Osaka City University, 3-3-138,  
Sugimoto, Sumiyoshi, Osaka 558-8585 Japan  
E-mail: shinada@sci.osaka-cu.ac.jp

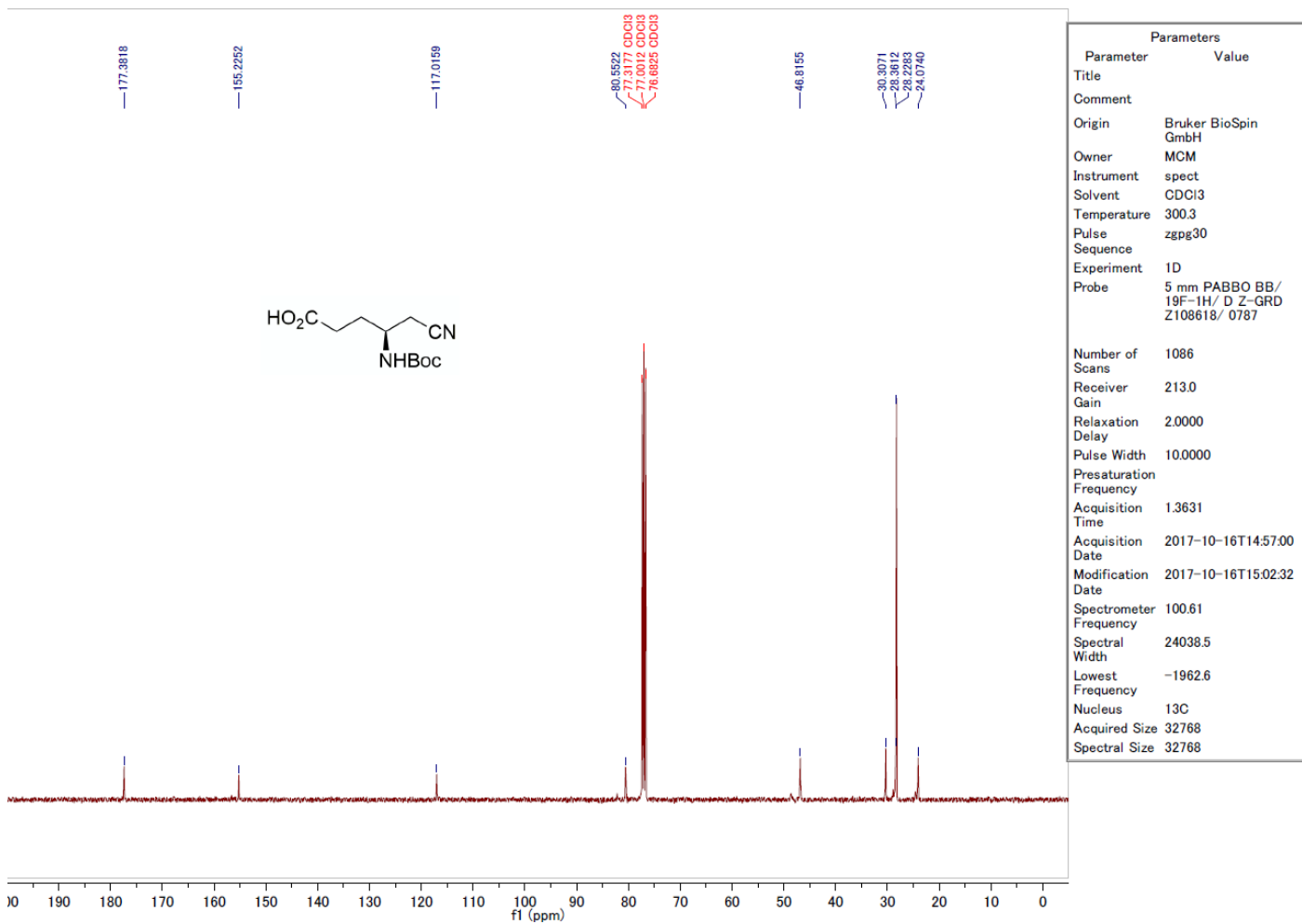
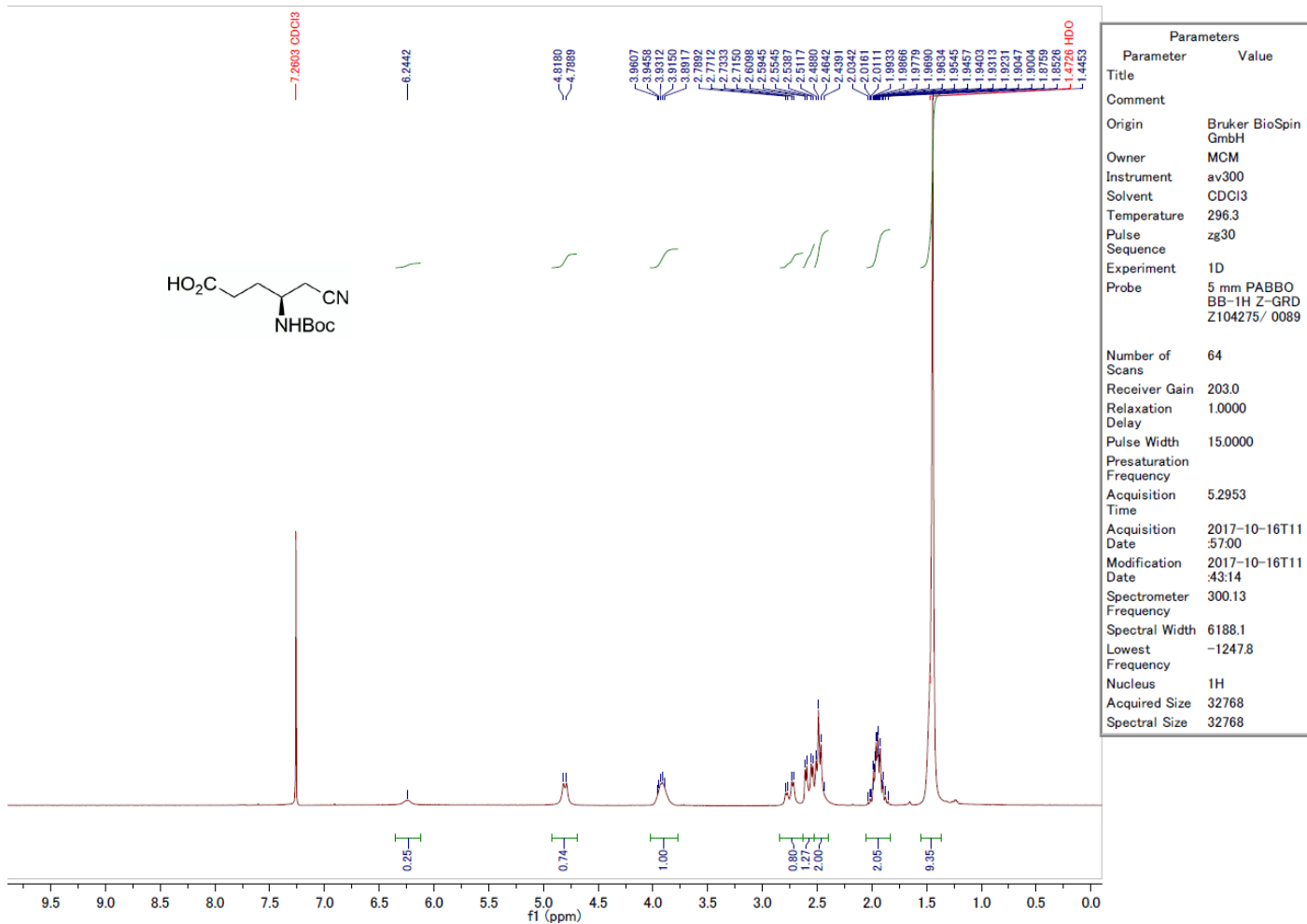
NMR charts for the new compounds

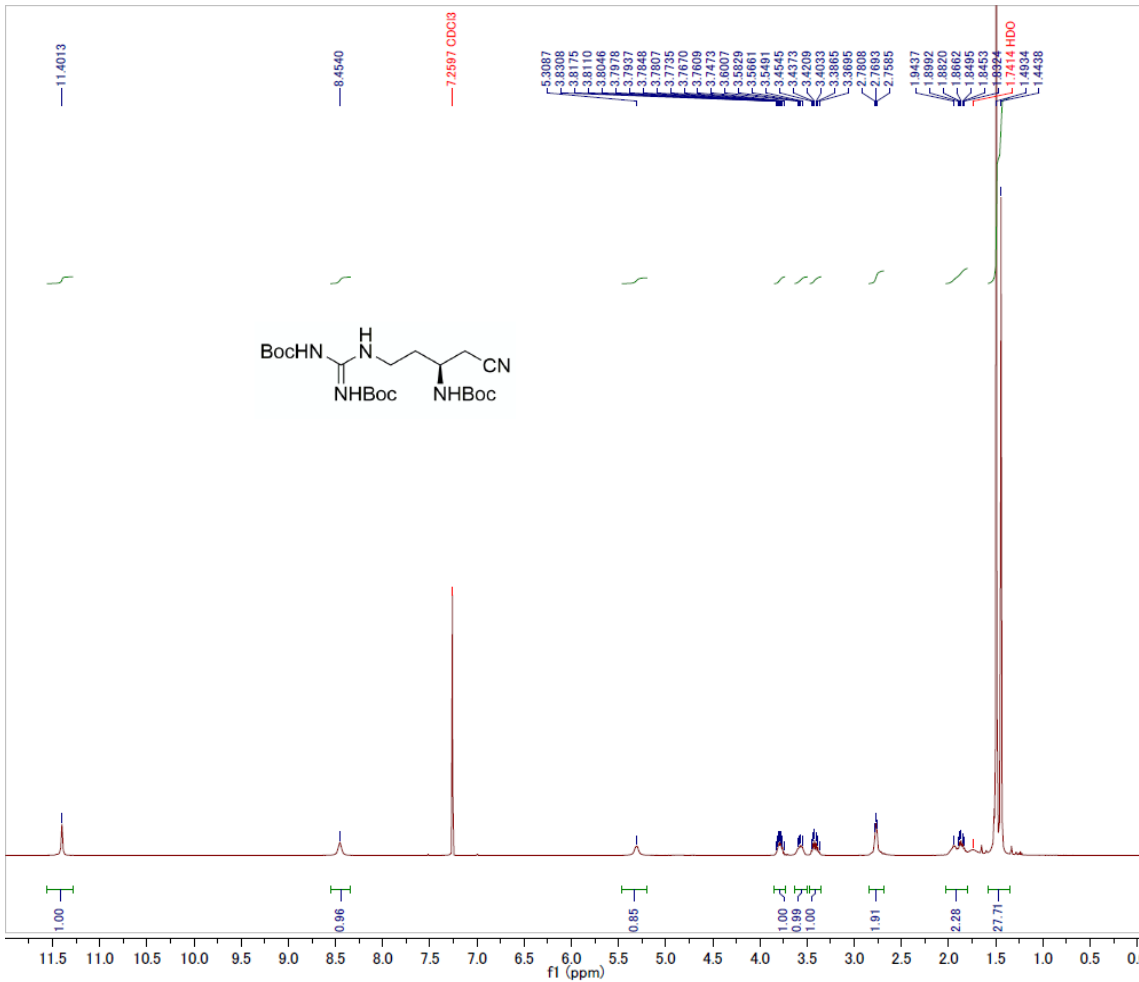


Parameters	
Parameter	Value
Title	
Comment	
Origin	Bruker BioSpin GmbH
Owner	MCM
Instrument	spect
Solvent	CDCl3
Temperature	296.2
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/19F-1H/ D Z-GRD Z108618/ 0787
Number of Scans	32
Receiver Gain	213.0
Relaxation Delay	1.0000
Pulse Width	14.0000
Presaturation Frequency	
Acquisition Time	4.0894
Acquisition Date	2017-10-12T14:31:00
Modification Date	2017-10-12T14:36:58
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-1545.0
Nucleus	1H
Acquired Size	32768
Spectral Size	65536

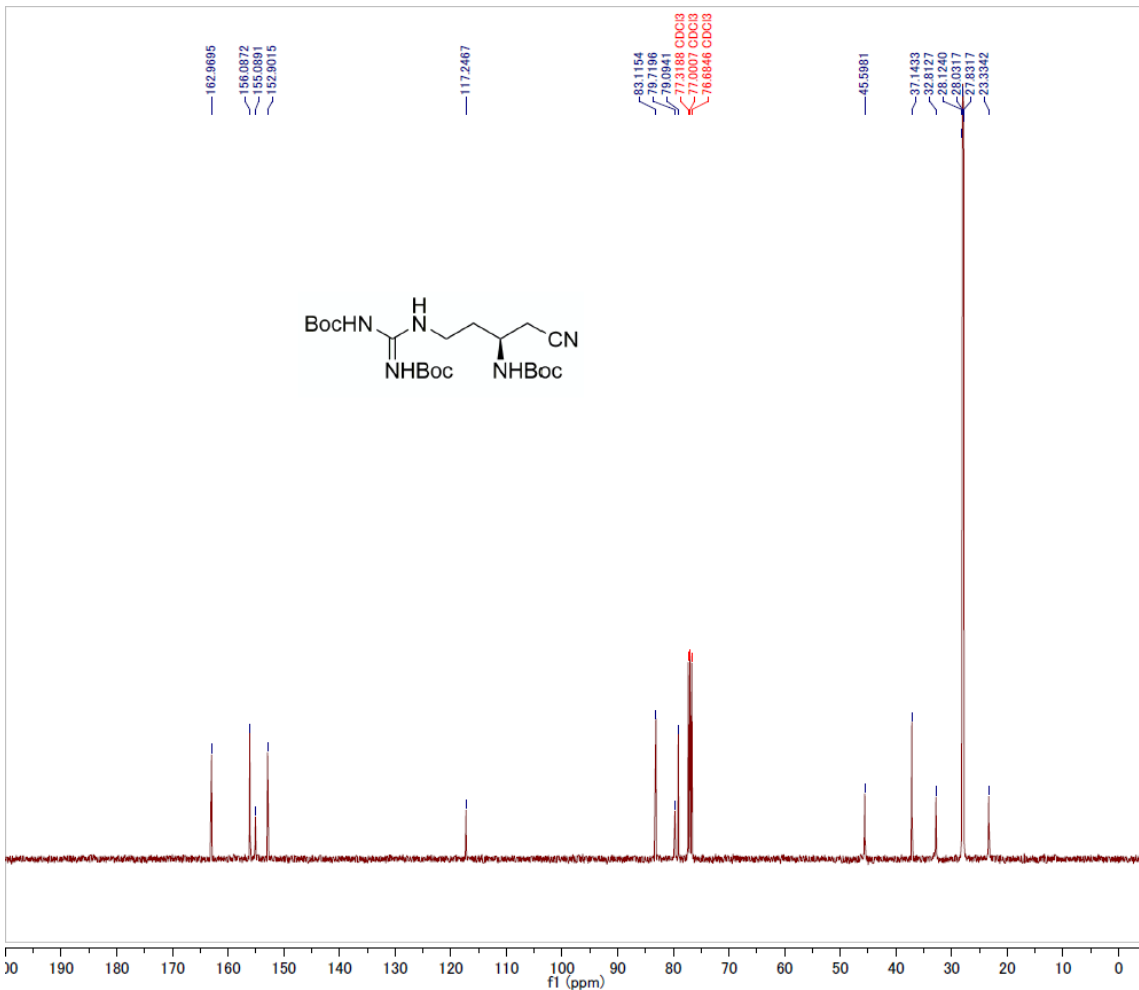


Parameters	
Parameter	Value
Title	
Comment	
Origin	Bruker BioSpin GmbH
Owner	MCM
Instrument	spect
Solvent	CDCl3
Temperature	297.9
Pulse Sequence	zpgg30
Experiment	1D
Probe	5 mm PABBO BB/19F-1H/ D Z-GRD Z108618/ 0787
Number of Scans	51
Receiver Gain	213.0
Relaxation Delay	2.0000
Pulse Width	10.0000
Presaturation Frequency	
Acquisition Time	1.3631
Acquisition Date	2017-10-14T11:56:00
Modification Date	2017-10-14T12:01:38
Spectrometer Frequency	100.61
Spectral Width	24038.5
Lowest Frequency	-1986.9
Nucleus	13C
Acquired Size	32768
Spectral Size	32768

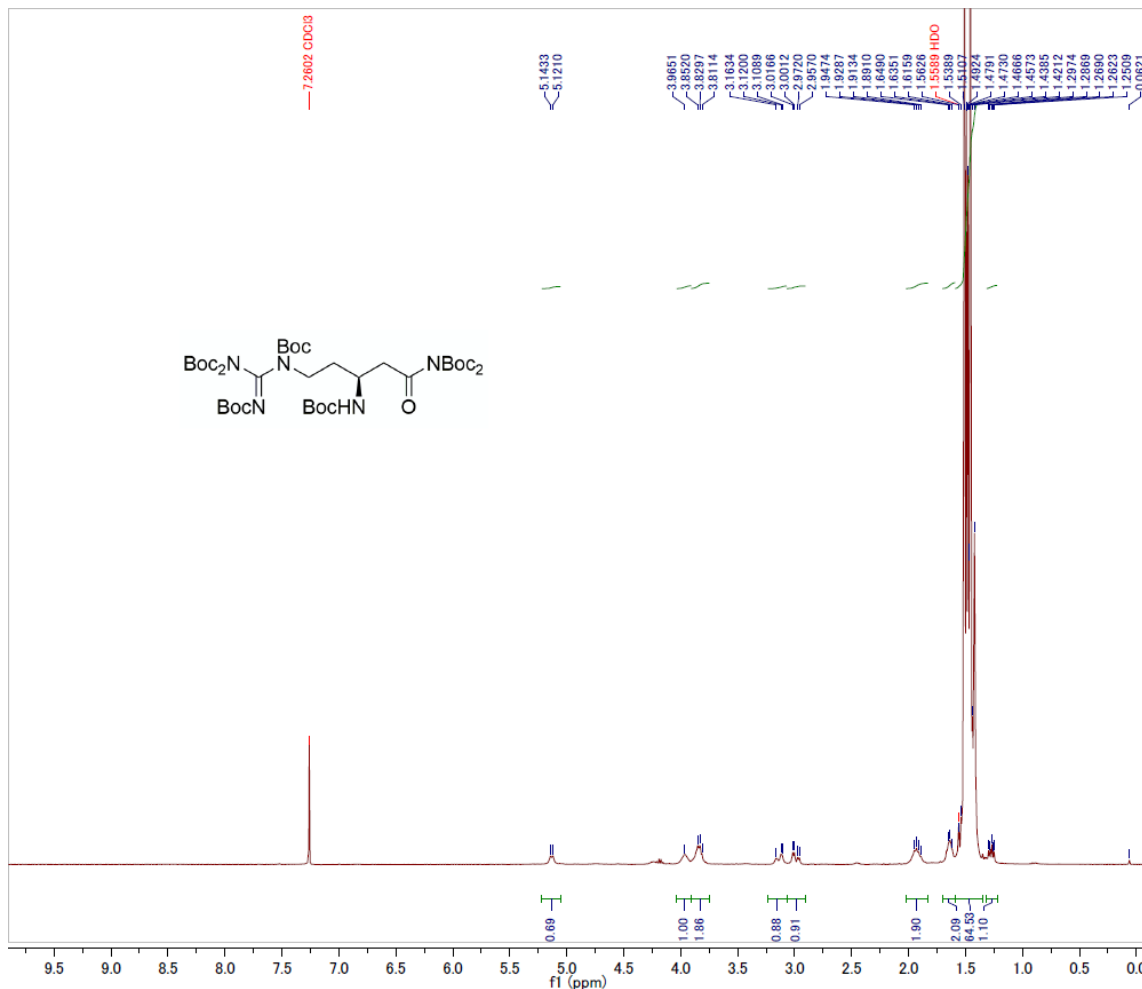




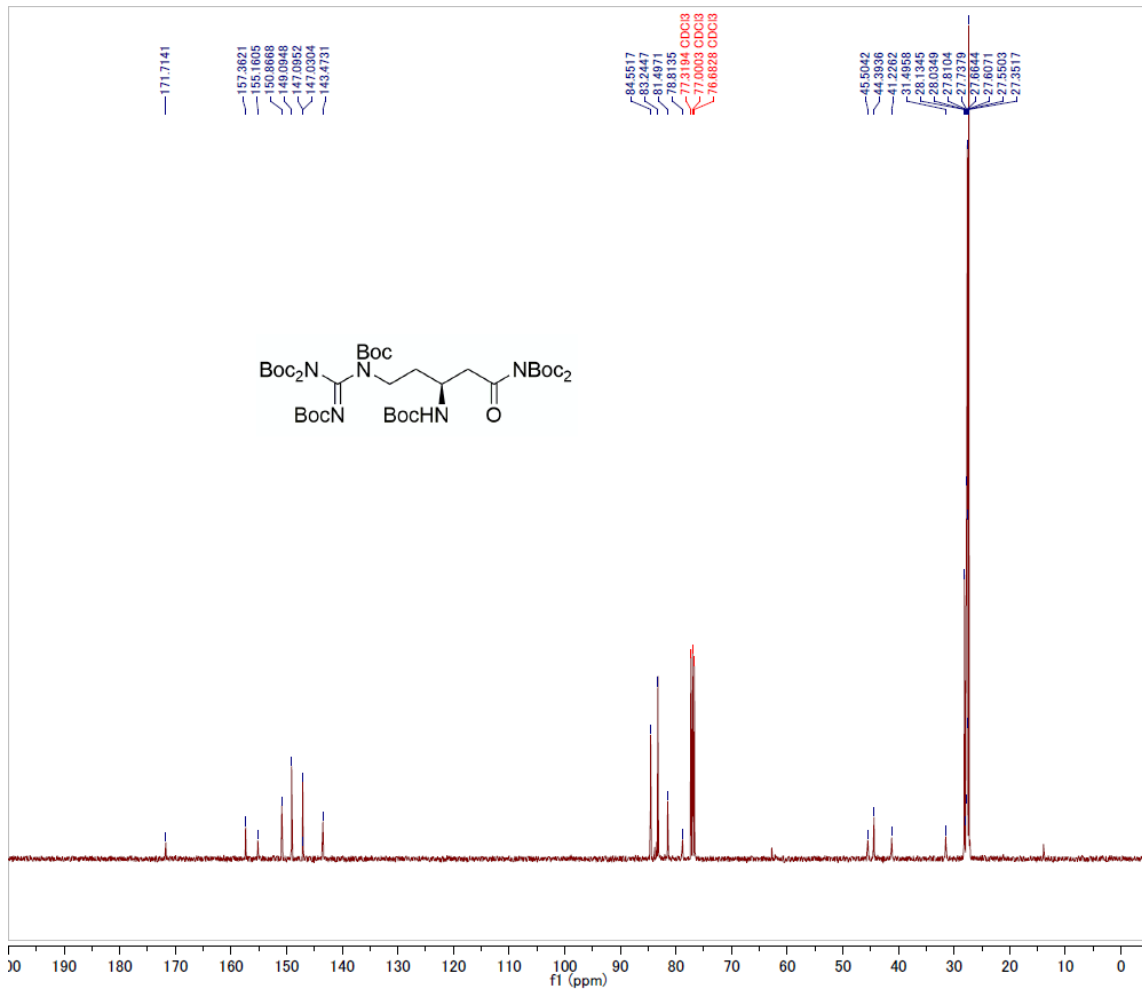
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Title	
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Origin	Bruker BioSpin GmbH
Owner	MCM
Instrument	spect
Solvent	CDCl3
Temperature	298.0
Pulse	zg30
Sequence	
Experiment	1D
Probe	5 mm PABBO BB/19F-1H/ D Z-GRD Z108618/ 0787
Number of Scans	32
Receiver Gain	213.0
Relaxation Delay	1.0000
Pulse Width	14.0000
Presaturation Frequency	
Acquisition Time	4.0894
Acquisition Date	2017-10-19T14:32:00
Modification Date	2017-10-19T14:38:16
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-1545.4
Nucleus	1H
Acquired Size	32768
Spectral Size	65536



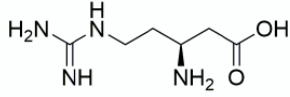
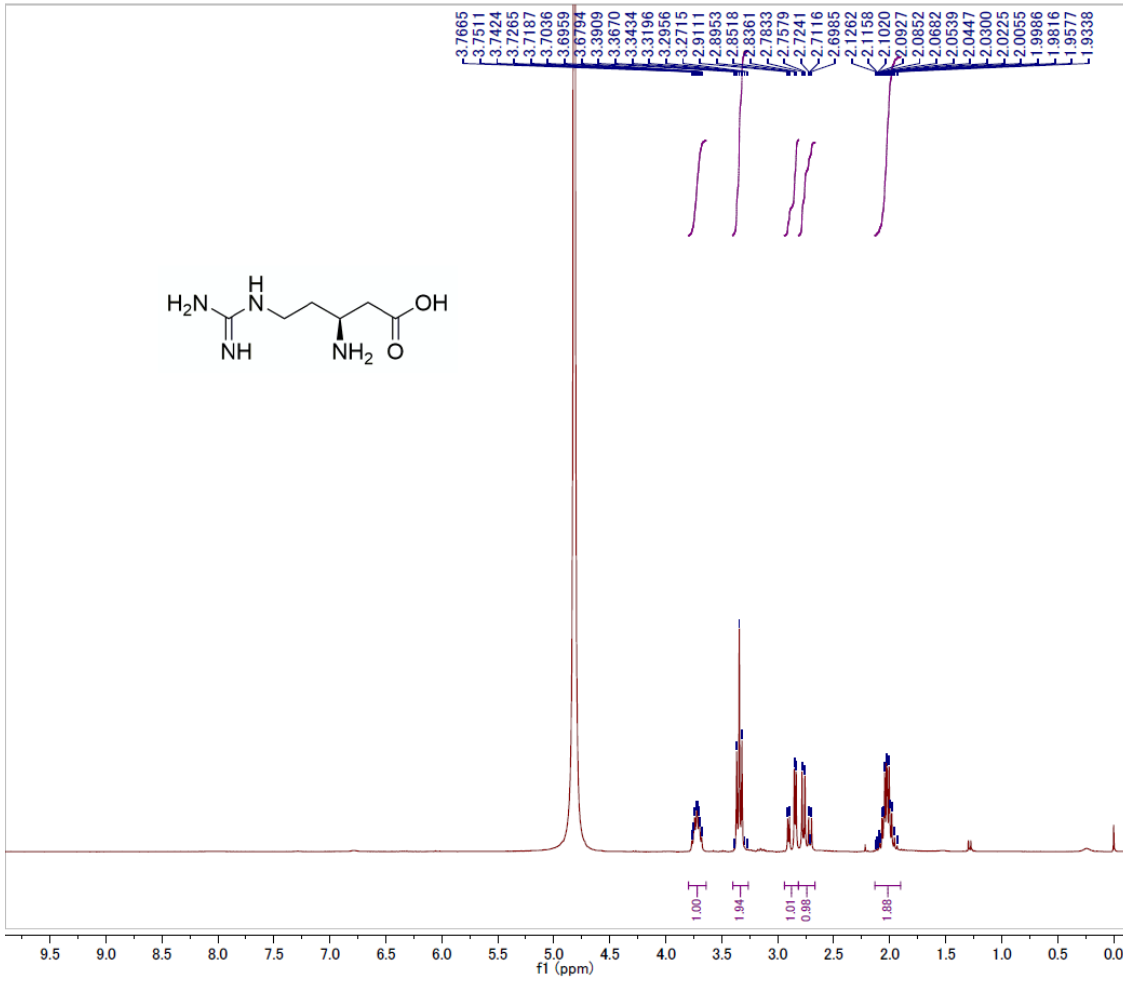
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Parameter	Value
Title	
Comment	
Origin	Bruker BioSpin GmbH
Owner	MCM
Instrument	spect
Solvent	CDCl3
Temperature	299.6
Pulse	zpg30
Sequence	
Experiment	1D
Probe	5 mm PABBO BB/19F-1H/ D Z-GRD Z108618/ 0787
Number of Scans	100
Receiver Gain	213.0
Relaxation Delay	2.0000
Pulse Width	10.0000
Presaturation Frequency	
Acquisition Time	1.3631
Acquisition Date	2017-10-23T14:00:00
Modification Date	2017-10-23T14:05:44
Spectrometer Frequency	100.61
Spectral Width	24038.5
Lowest Frequency	-1974.6
Nucleus	13C
Acquired Size	32768
Spectral Size	32768



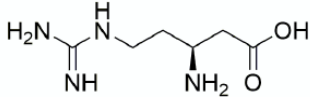
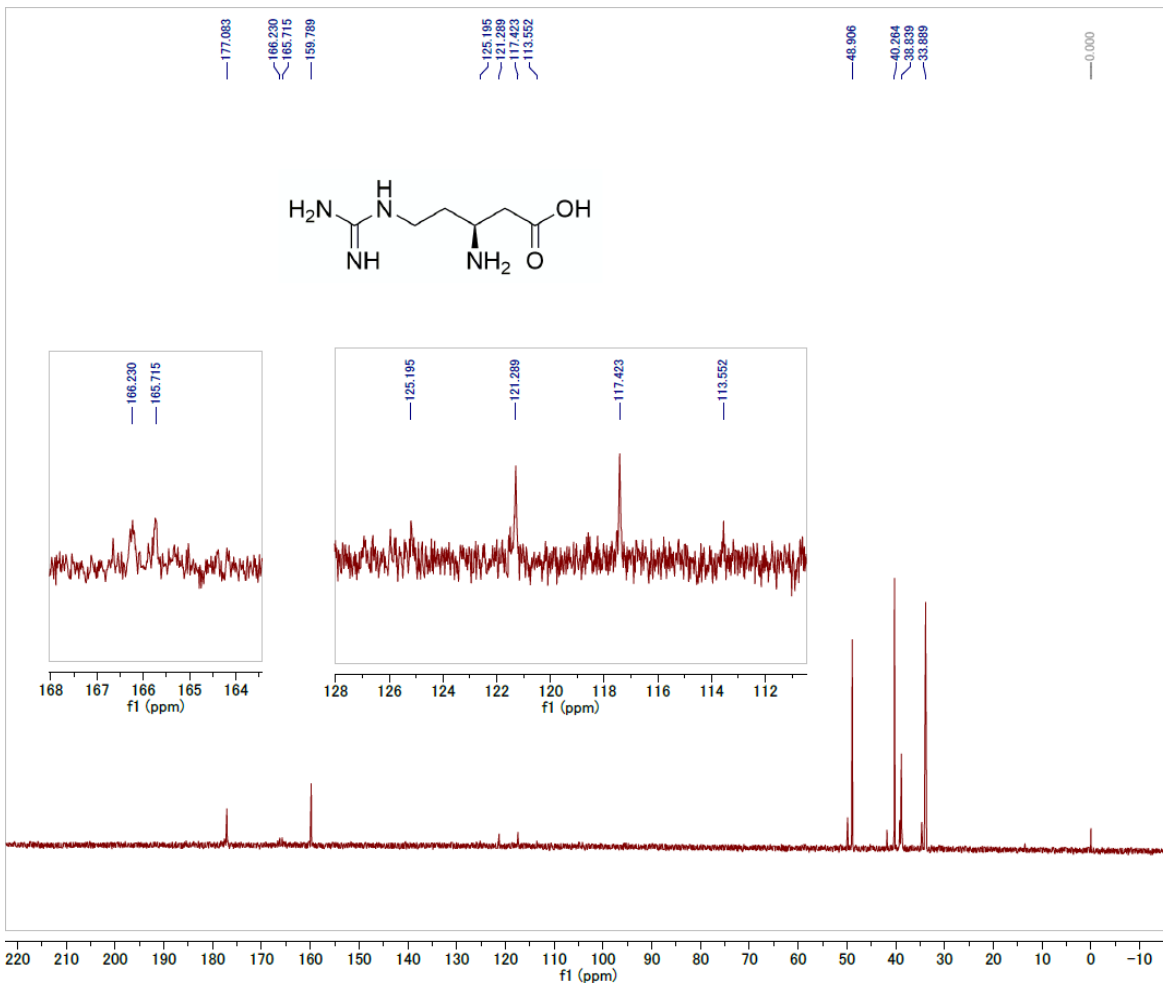
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Parameter	Value
Title	
Comment	
Origin	Bruker BioSpin GmbH
Owner	MCM
Instrument	spect
Solvent	CDCl3
Temperature	297.8
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/19F-1H/ D Z-GRD Z108618/ 0787
Number of Scans	16
Receiver Gain	189.3
Relaxation Delay	1.0000
Pulse Width	14.0000
Presaturation Frequency	
Acquisition Time	4.0894
Acquisition Date	2017-12-01T12:44:00
Modification Date	2017-12-01T12:43:12
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-1545.2
Nucleus	1H
Acquired Size	32768
Spectral Size	65536



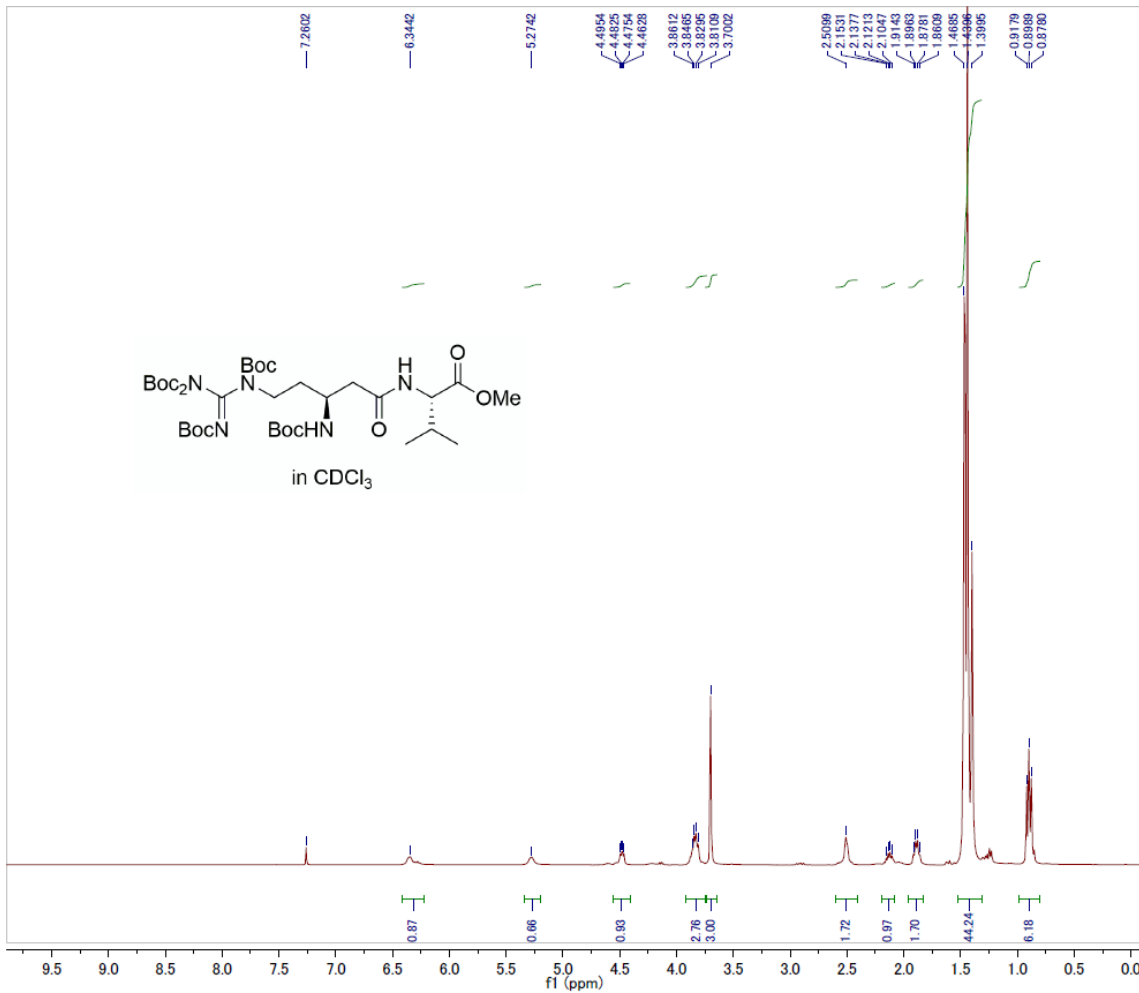
Parameters	
Parameter	Value
Title	
Comment	
Origin	Bruker BioSpin GmbH
Owner	MCM
Instrument	spect
Solvent	CDCl3
Temperature	299.4
Pulse Sequence	zgpg30
Experiment	1D
Probe	5 mm PABBO BB/19F-1H/ D Z-GRD Z108618/ 0787
Number of Scans	100
Receiver Gain	213.0
Relaxation Delay	2.0000
Pulse Width	10.0000
Presaturation Frequency	
Acquisition Time	1.3631
Acquisition Date	2017-12-01T12:53:00
Modification Date	2017-12-01T12:52:28
Spectrometer Frequency	100.61
Spectral Width	24038.5
Lowest Frequency	-1974.6
Nucleus	13C
Acquired Size	32768
Spectral Size	32768



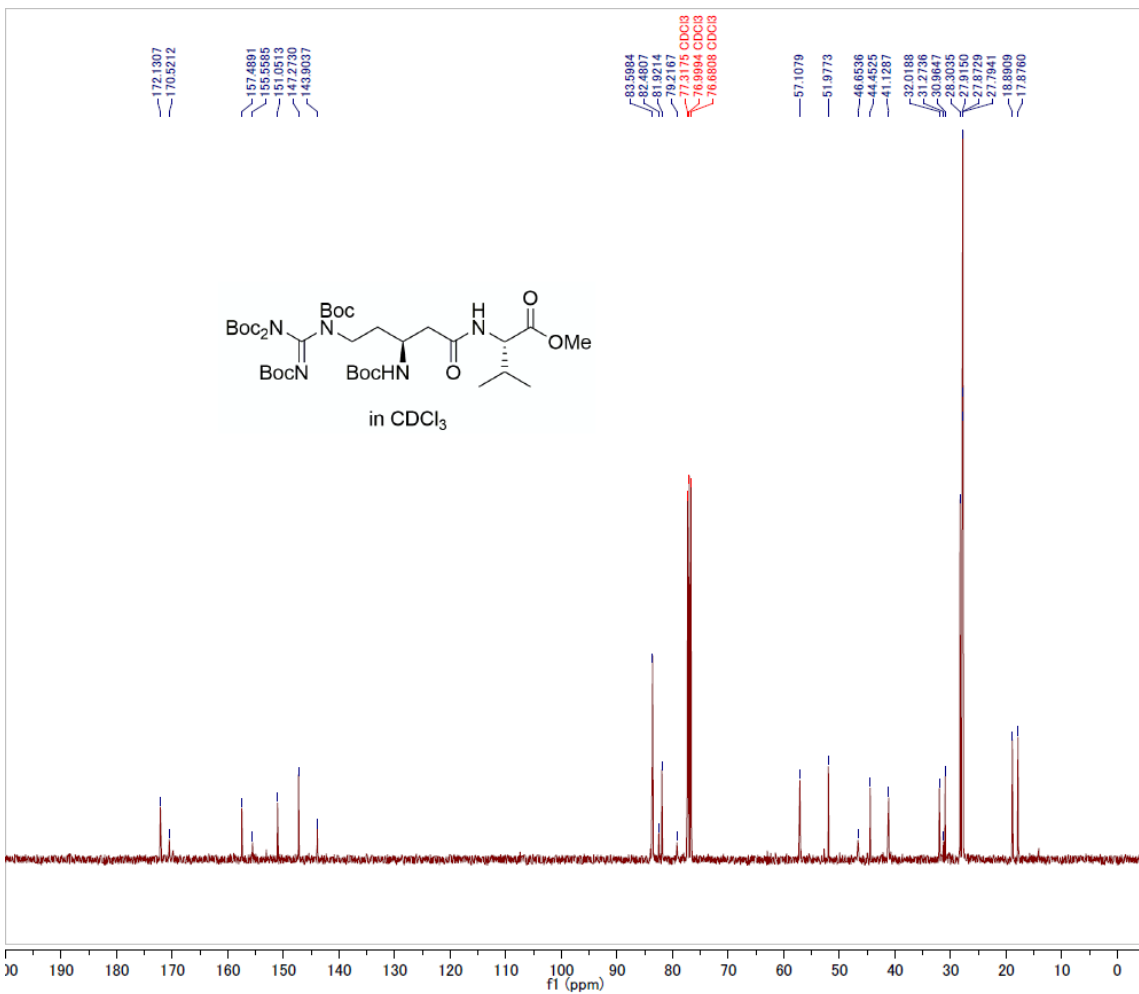
Parameters	
Parameter	Value
Title	
Comment	
Origin	Bruker BioSpin GmbH
Owner	MCM
Instrument	av300
Solvent	D2O
Temperature	292.7
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB-1H Z-GRD Z104275/0089
Number of Scans	64
Receiver Gain	128.0
Relaxation Delay	1.0000
Pulse Width	15.0000
Presaturation Frequency	
Acquisition Time	5.2953
Acquisition Date	2018-12-17T13:48:00
Modification Date	2018-12-17T13:46:20
Spectrometer Frequency	300.13
Spectral Width	6188.1
Lowest Frequency	-1206.5
Nucleus	1H
Acquired Size	32768
Spectral Size	32768



Parameter		Value
1 Title	b-arg-OH. 11.fid	
2 Origin	Bruker BioSpin GmbH	
3 Owner	MCM	
4 Instrument	av300	
5 Solvent	D2O	
6 Temperature	293.7	
7 Pulse Sequence	zpgg30	
8 Experiment	1D	
9 Probe	5 mm PABBO BB-1H Z-GRD Z104275/0089	
10 Number of Scans	13041	
11 Receiver Gain	203.0	
12 Relaxation Delay	2.0000	
13 Pulse Width	10.0000	
14 Presaturation Frequency		
15 Acquisition Time	1.8175	
16 Acquisition Date	2019-04-06T10:02:00	
17 Modification Date	2019-04-06T09:58:22	
18 Spectrometer Frequency	75.48	
19 Spectral Width	18028.8	
20 Lowest Frequency	-1241.3	
21 Nucleus	13C	
22 Acquired Size	32768	
23 Spectral Size	65536	



Parameters	
Parameter	Value
Title	
Comment	
Origin	Bruker BioSpin GmbH
Owner	MCM
Instrument	spect
Solvent	CDCl <sub>3</sub>
Temperature	295.6
Pulse Sequence	zg30
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0787
Number of Scans	32
Receiver Gain	103.6
Relaxation Delay	1.0000
Pulse Width	14.0000
Presaturation Frequency	
Acquisition Time	4.0894
Acquisition Date	2017-12-05T14:34:00
Modification Date	2017-12-05T14:33:50
Spectrometer Frequency	400.13
Spectral Width	8012.8
Lowest Frequency	-1544.6
Nucleus	1H
Acquired Size	32768
Spectral Size	65536



Parameters	
Parameter	Value
Title	
Comment	
Origin	Bruker BioSpin GmbH
Owner	MCM
Instrument	spect
Solvent	CDCl <sub>3</sub>
Temperature	298.0
Pulse Sequence	zpg30
Experiment	1D
Probe	5 mm PABBO BB/ 19F-1H/ D Z-GRD Z108618/ 0787
Number of Scans	773
Receiver Gain	213.0
Relaxation Delay	2.0000
Pulse Width	10.0000
Presaturation Frequency	
Acquisition Time	1.3631
Acquisition Date	2017-12-05T15:20:00
Modification Date	2017-12-05T15:19:08
Spectrometer Frequency	100.61
Spectral Width	24038.5
Lowest Frequency	-1964.1
Nucleus	13C
Acquired Size	32768
Spectral Size	32768





