

Discovery of novel EGFR inhibitor targeting wild-type and mutant forms of EGFR: *in silico* and *in vitro* study

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General Information

¹H NMR Spectra of compounds PD1-PD14

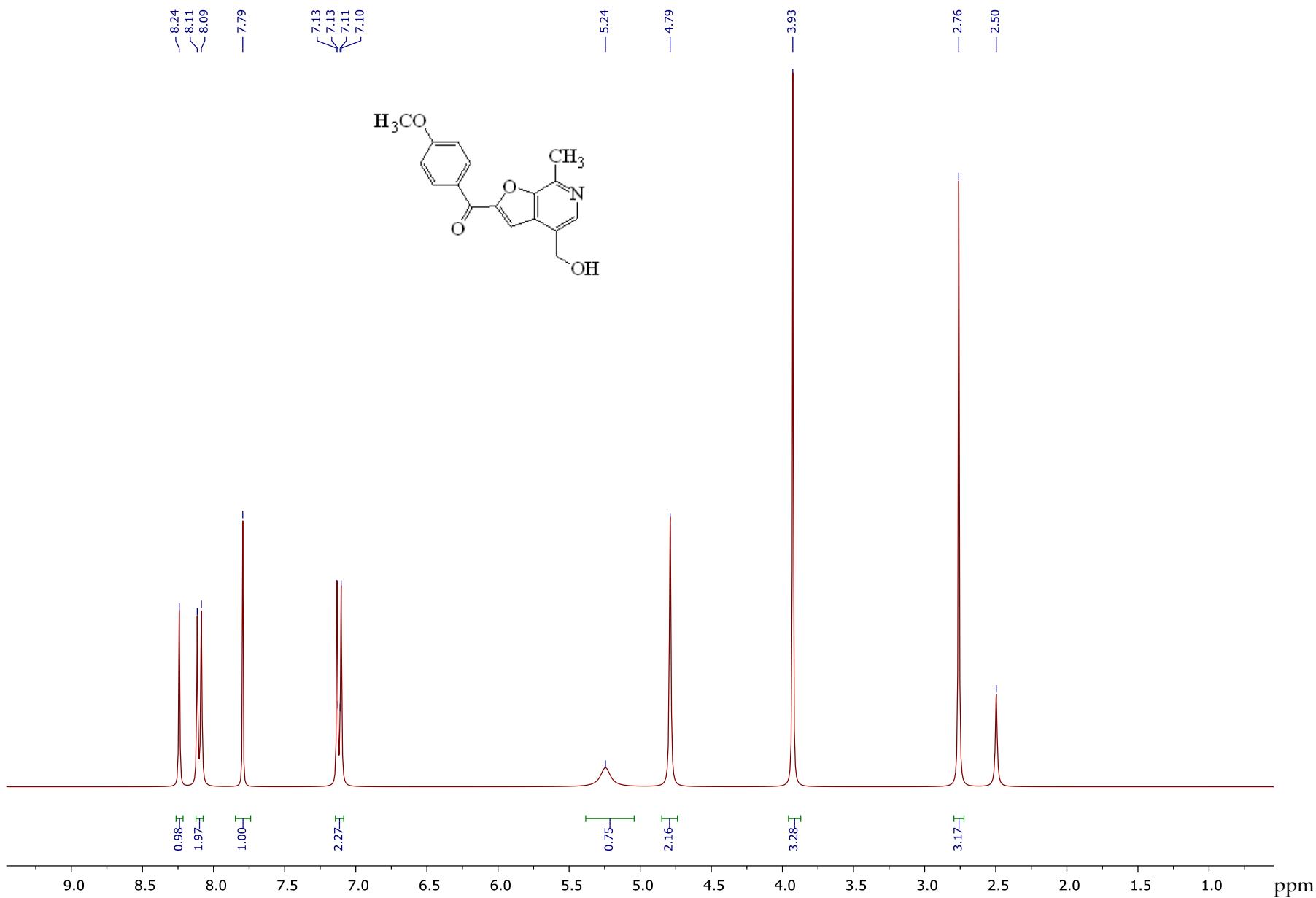
¹³C NMR Spectra of compounds PD1-PD14

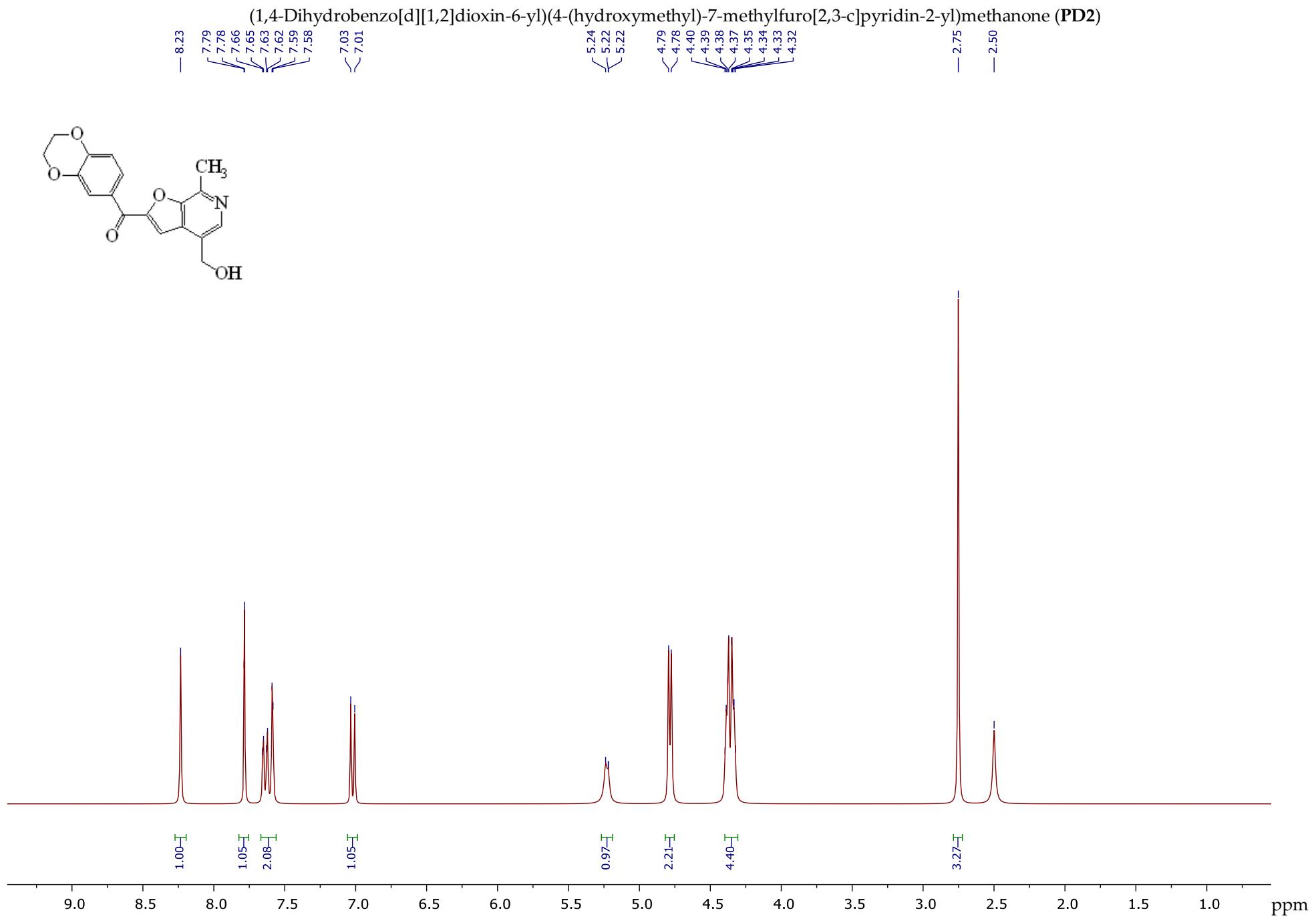
General Information

NMR ¹H of new compounds were recorded on a spectrometer Bruker AC 300 (300 MHz) in DMSO-*d*₆. Chemical shifts of nuclei ¹H and ¹³C were measured relatively the residual signals of deuterated solvent (δ = 2.50 ppm for protons and 39.5 ppm for carbon nuclei). Coupling constants (J) are reported in Hz.

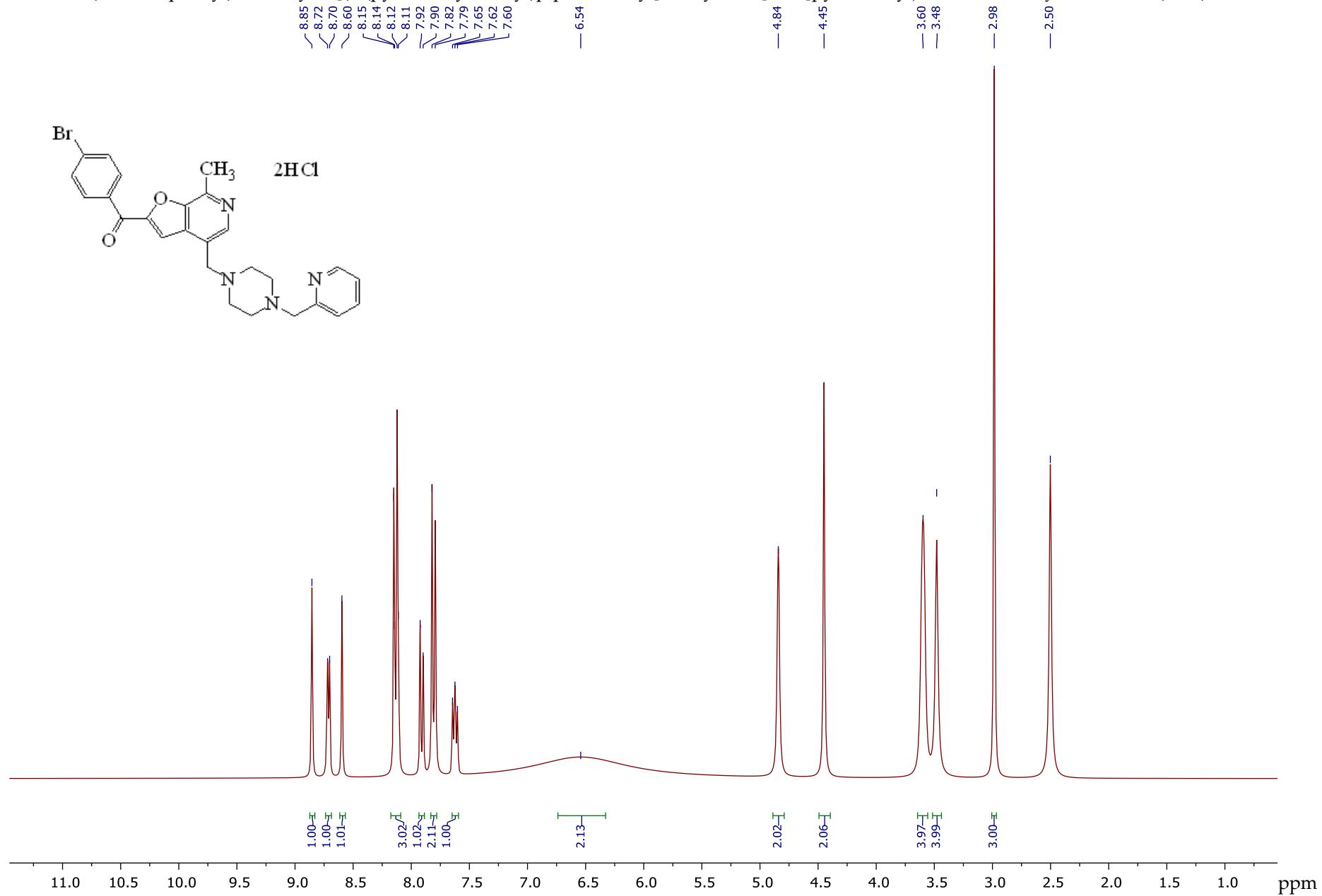
¹H NMR Spectra of compounds PD1-PD14.

[4-(Hydroxymethyl)-7-methylfuro[2,3-c]pyridin-2-yl](4-methoxyphenyl)methanone (**PD1**).

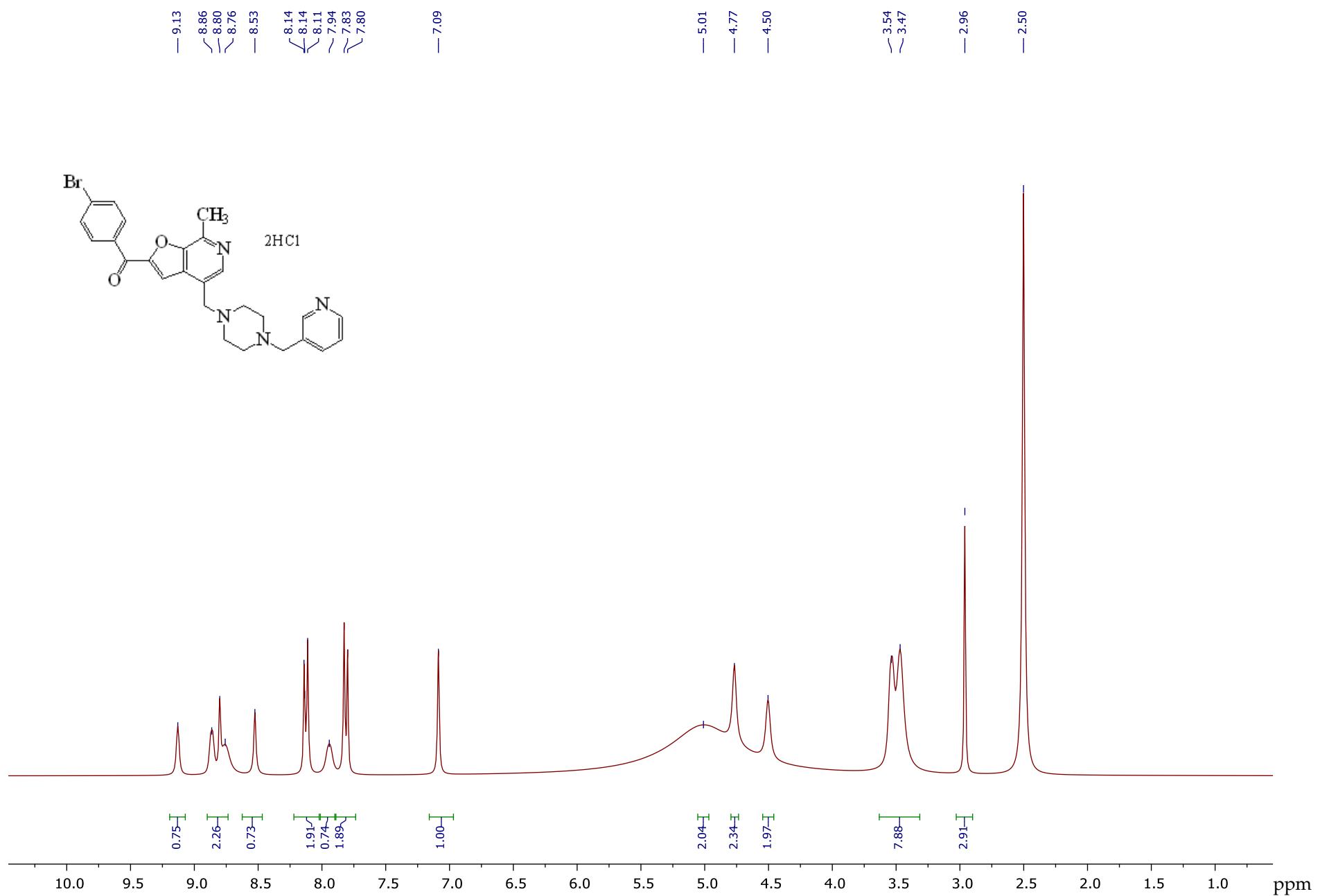




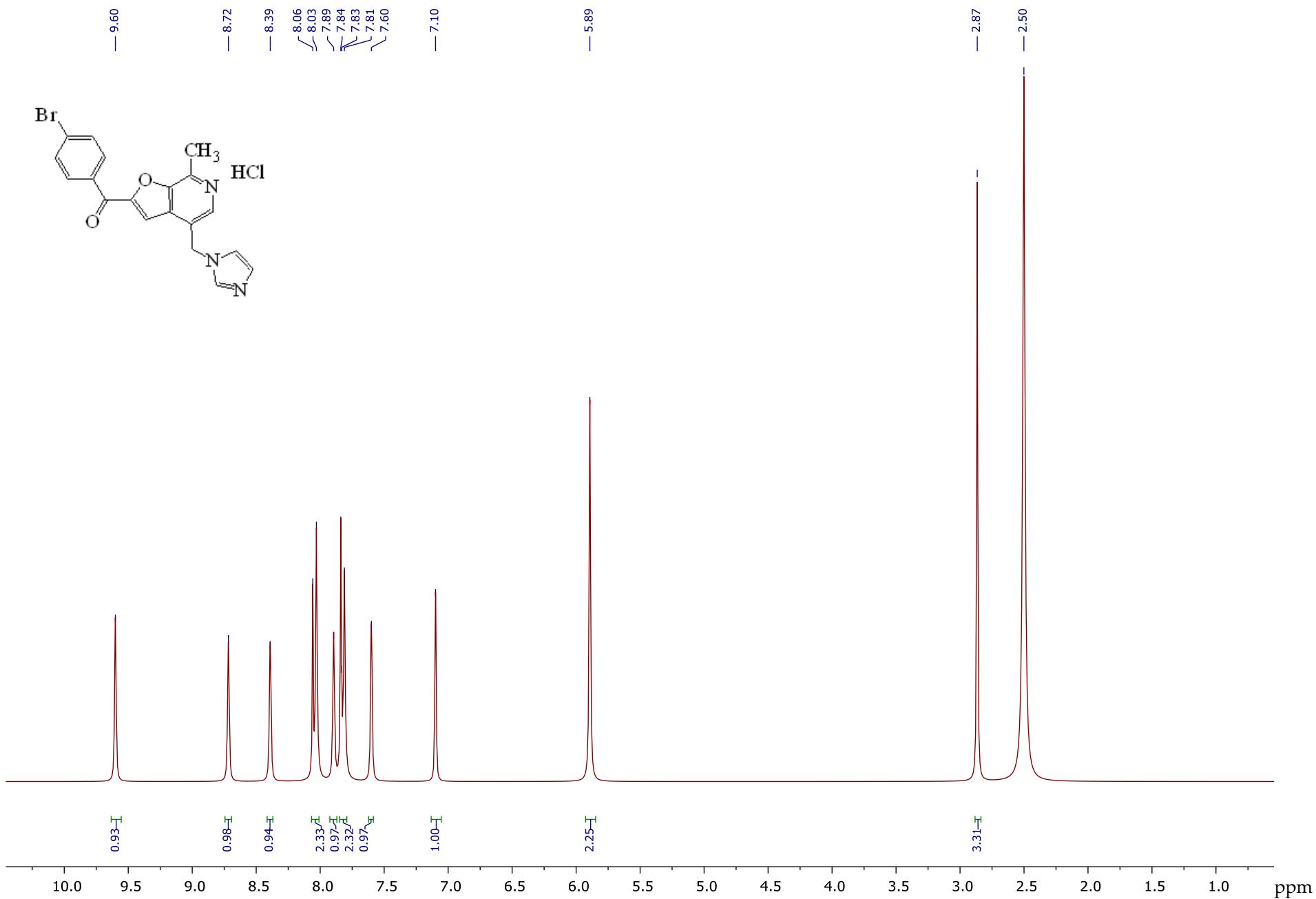
(4-Bromophenyl){7-methyl-4-[(4-(pyridin-2-ylmethyl)piperazin-1-yl)methyl]furo[2,3-c]pyridin-2-yl}methanone dihydrochloride (**PD3**).



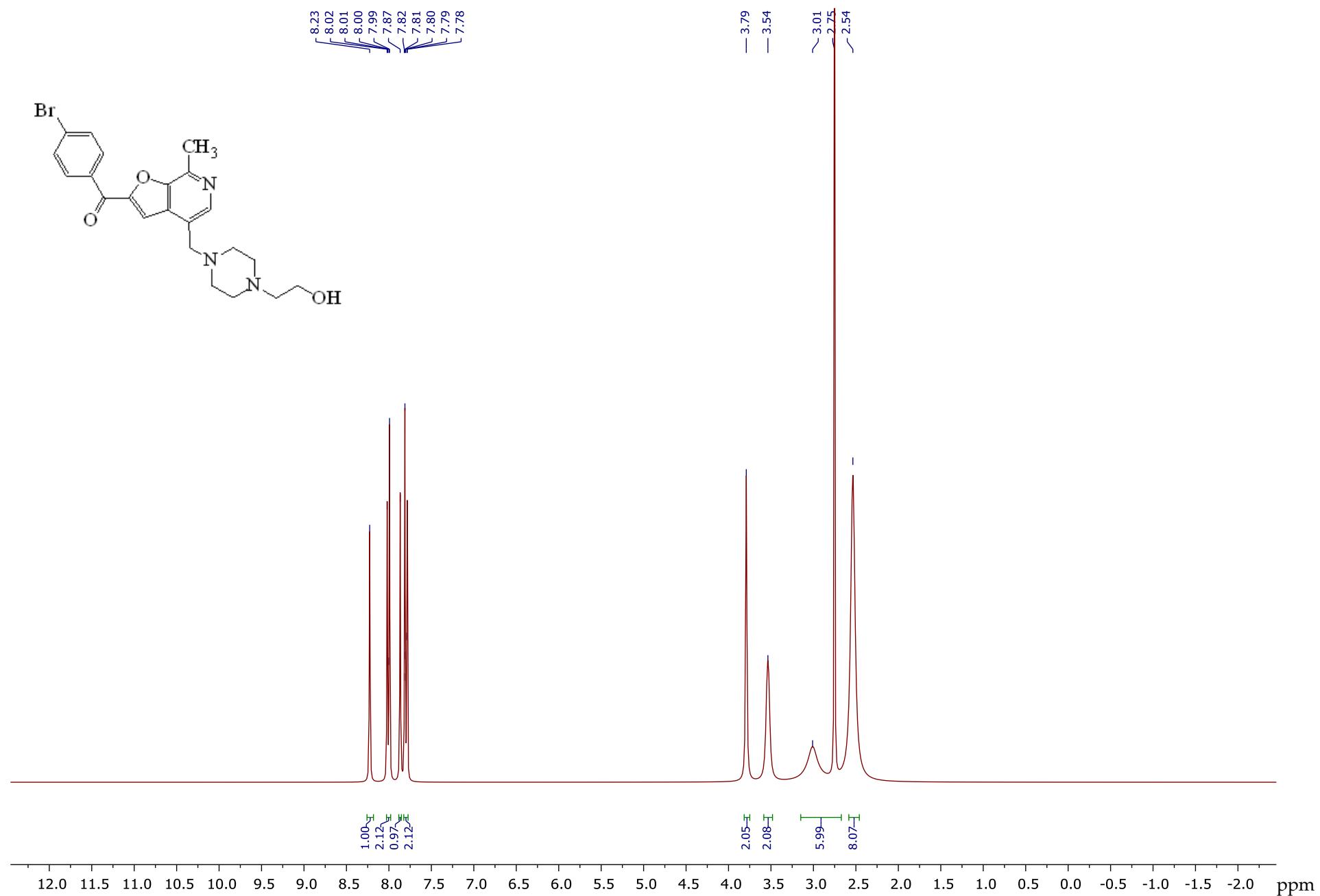
(4-Bromophenyl)(7-methyl-4-((4-(pyridin-3-ylmethyl)piperazin-1-yl)methyl)furo[2,3-c]pyridin-2-yl)methanone (**PD4**).



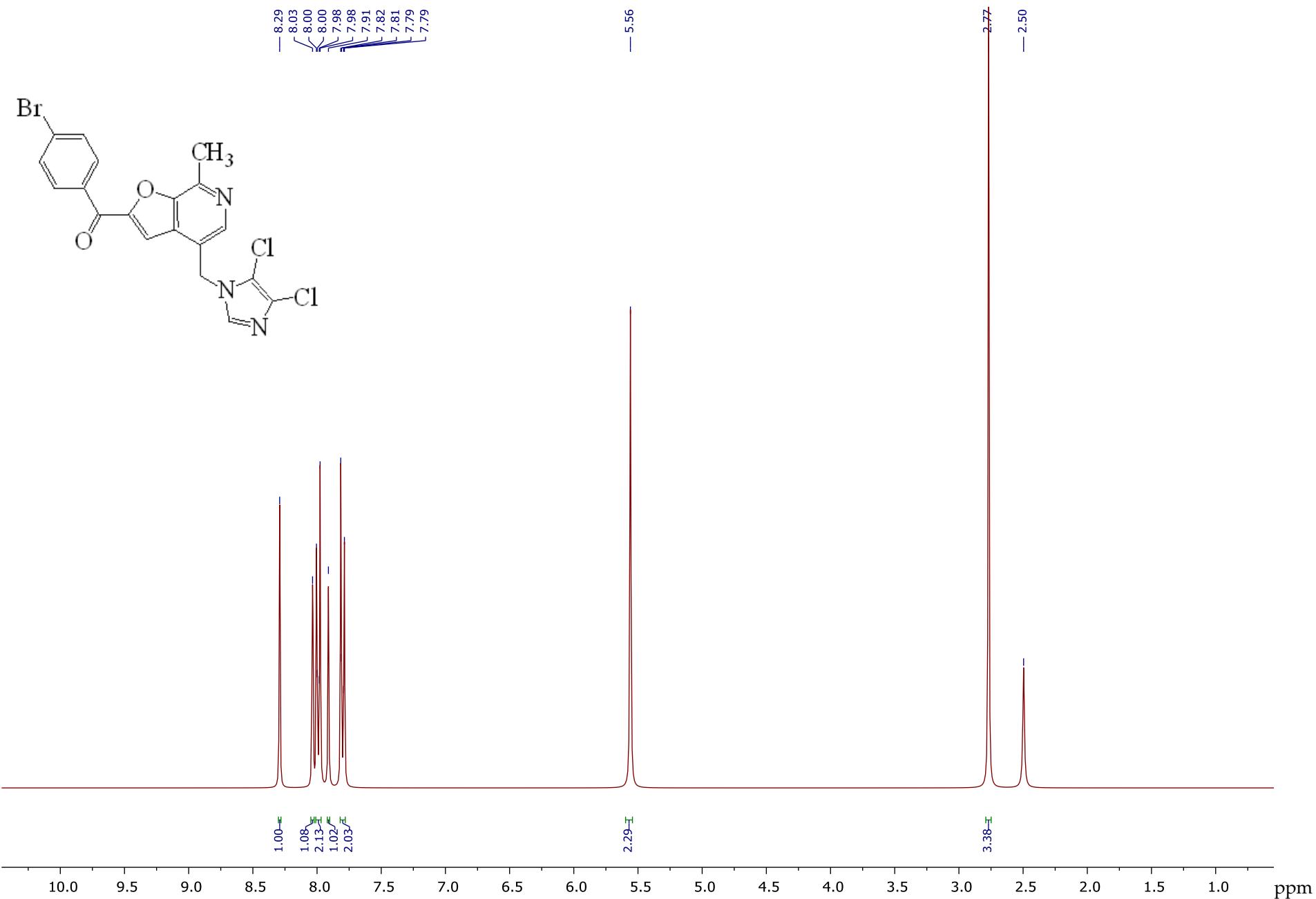
(4-((1H-Imidazol-1-yl)methyl)-7-methylfuro[2,3-c]pyridin-2-yl)(4-bromophenyl)methanone hydrochloride (**PD5**).



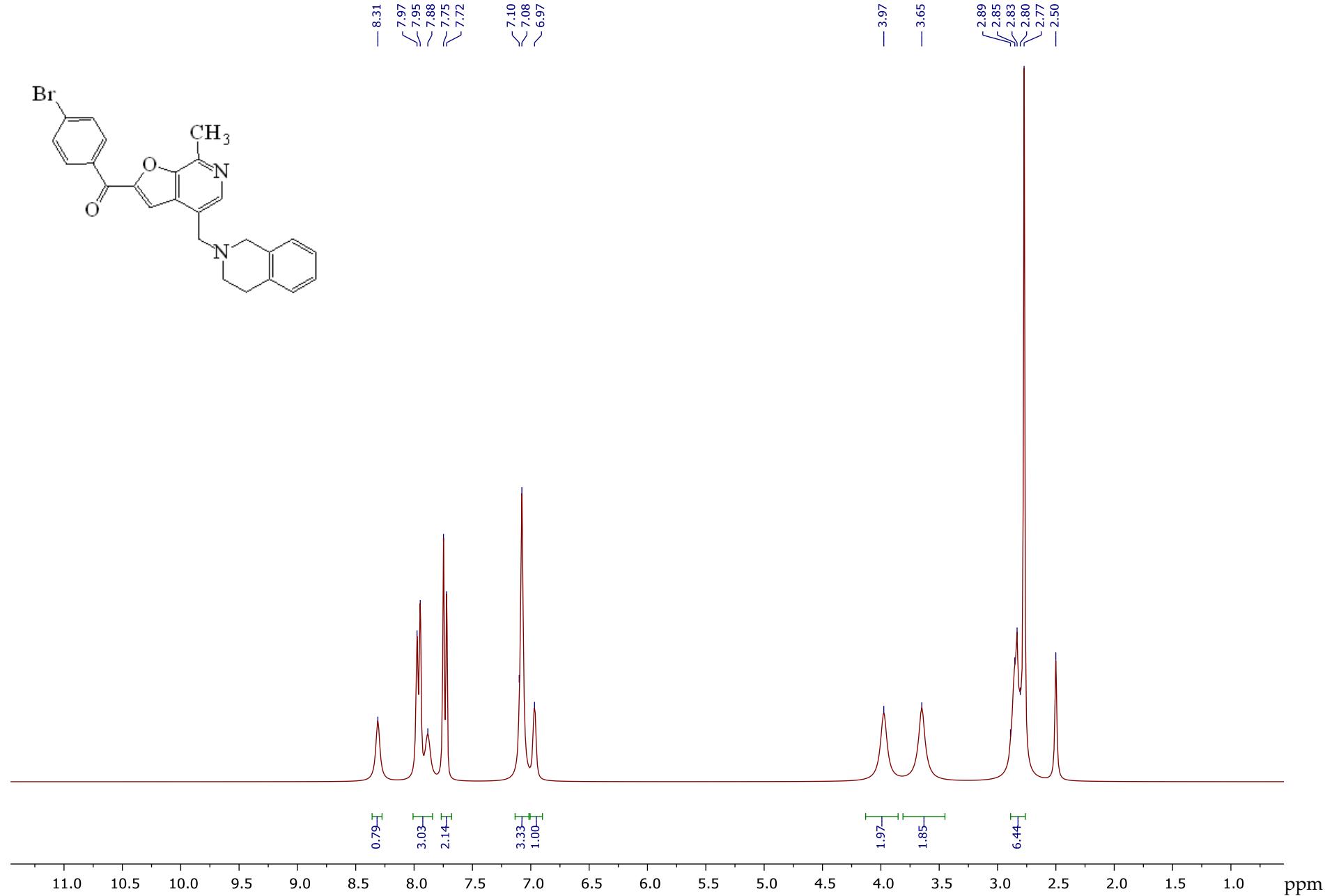
(4-Bromophenyl)(4-((4-(2-hydroxyethyl)piperazin-1-yl)methyl)-7-methylfuro[2,3-c]pyridin-2-yl)methanone (**PD6**).



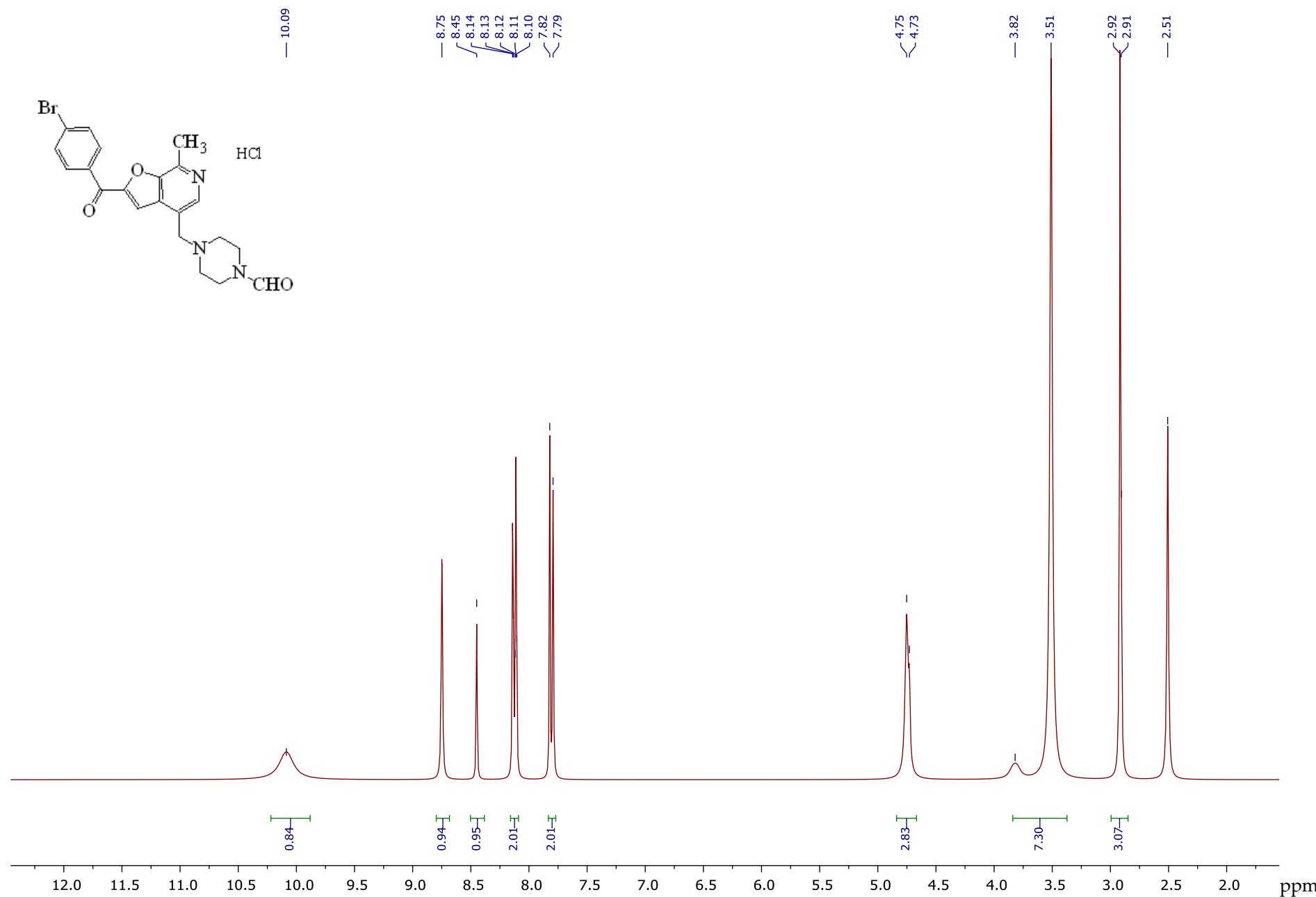
(4-Bromophenyl)(4-((4,5-dichloro-1H-imidazol-1-yl)methyl)-7-methylfuro[2,3-c]pyridin-2-yl)methanone (**PD7**).



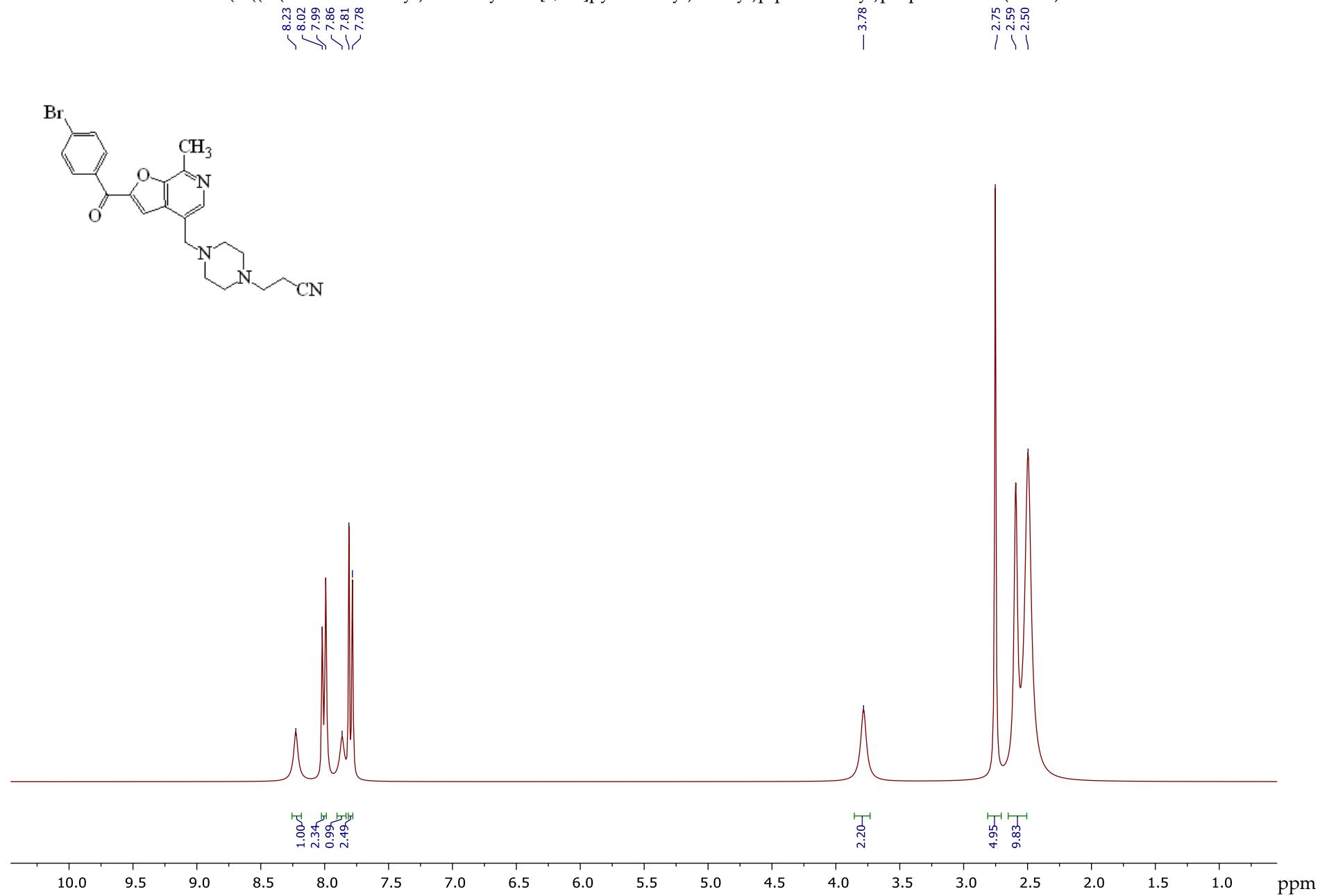
(4-Bromophenyl)(4-((3,4-dihydroisoquinolin-2(1H)-yl)methyl)-7-methylfuro[2,3-c]pyridin-2-yl)methanone (**PD8**).



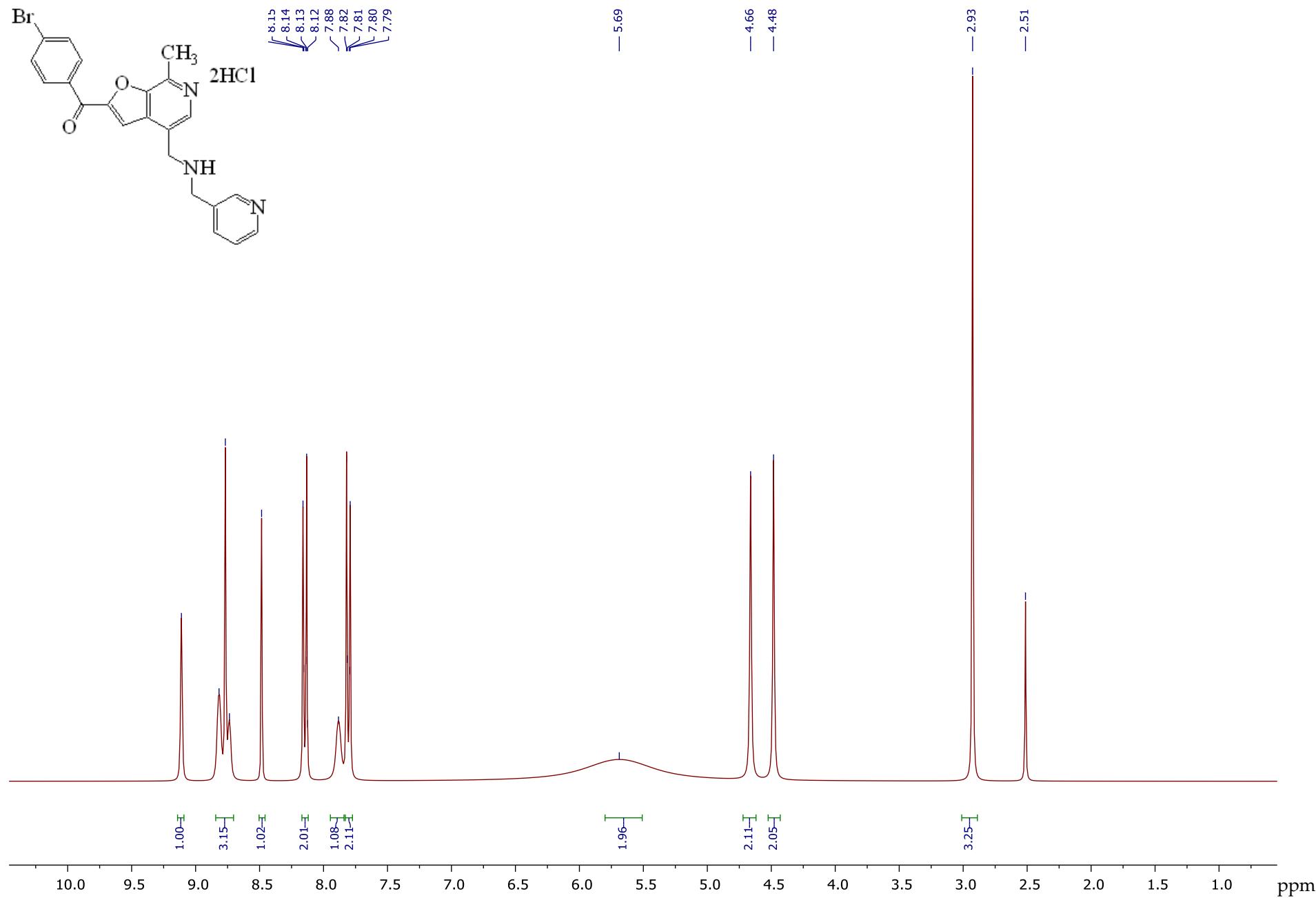
4-((2-(4-Bromobenzoyl)-7-methylfuro[2,3-c]pyridin-4-yl)methyl)piperazine-1-carbaldehyde hydrochloride (**PD9**).



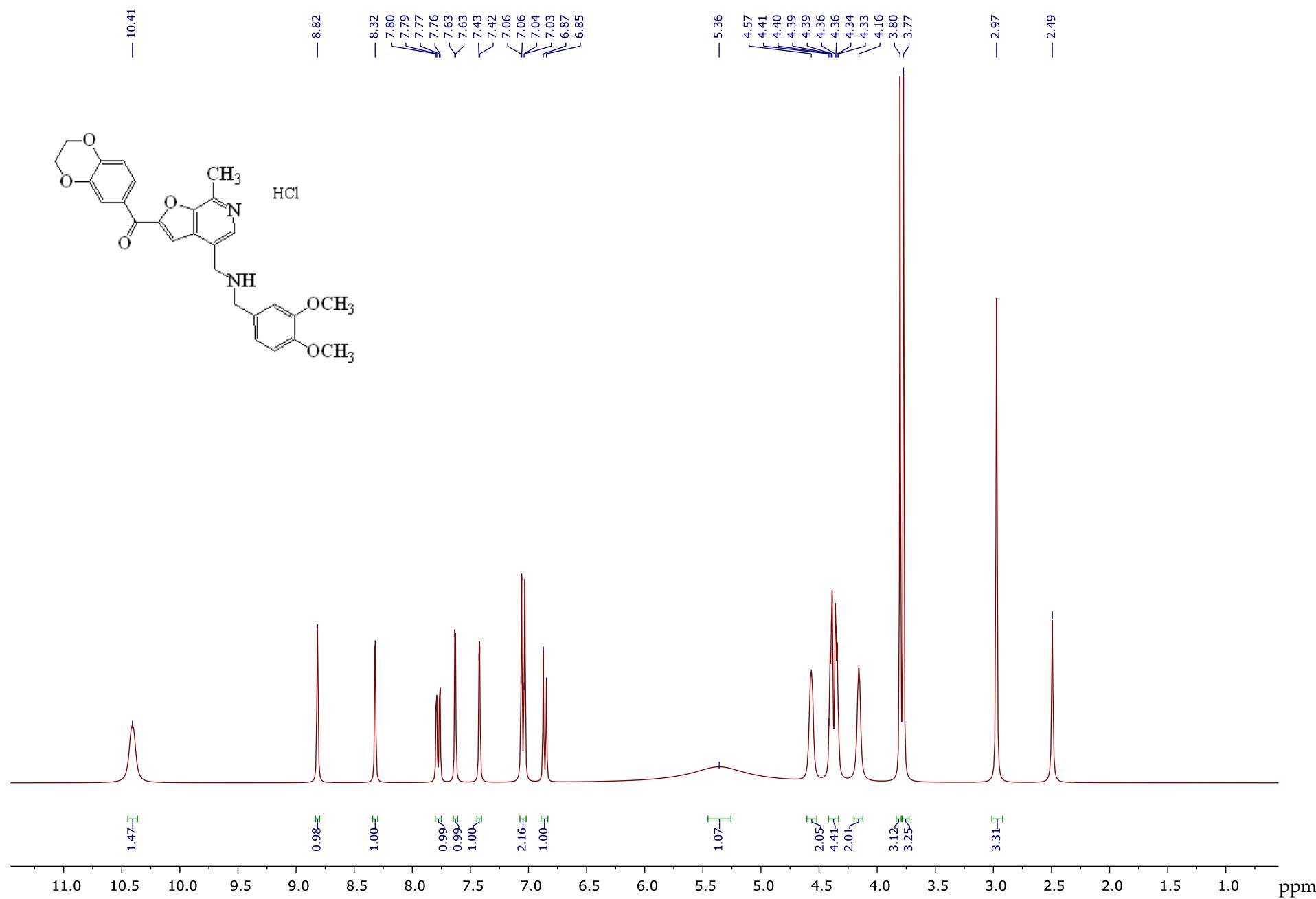
3-((2-(4-Bromobenzoyl)-7-methylfuro[2,3-c]pyridin-4-yl)methyl)piperazin-1-yl)propanenitrile (PD10).



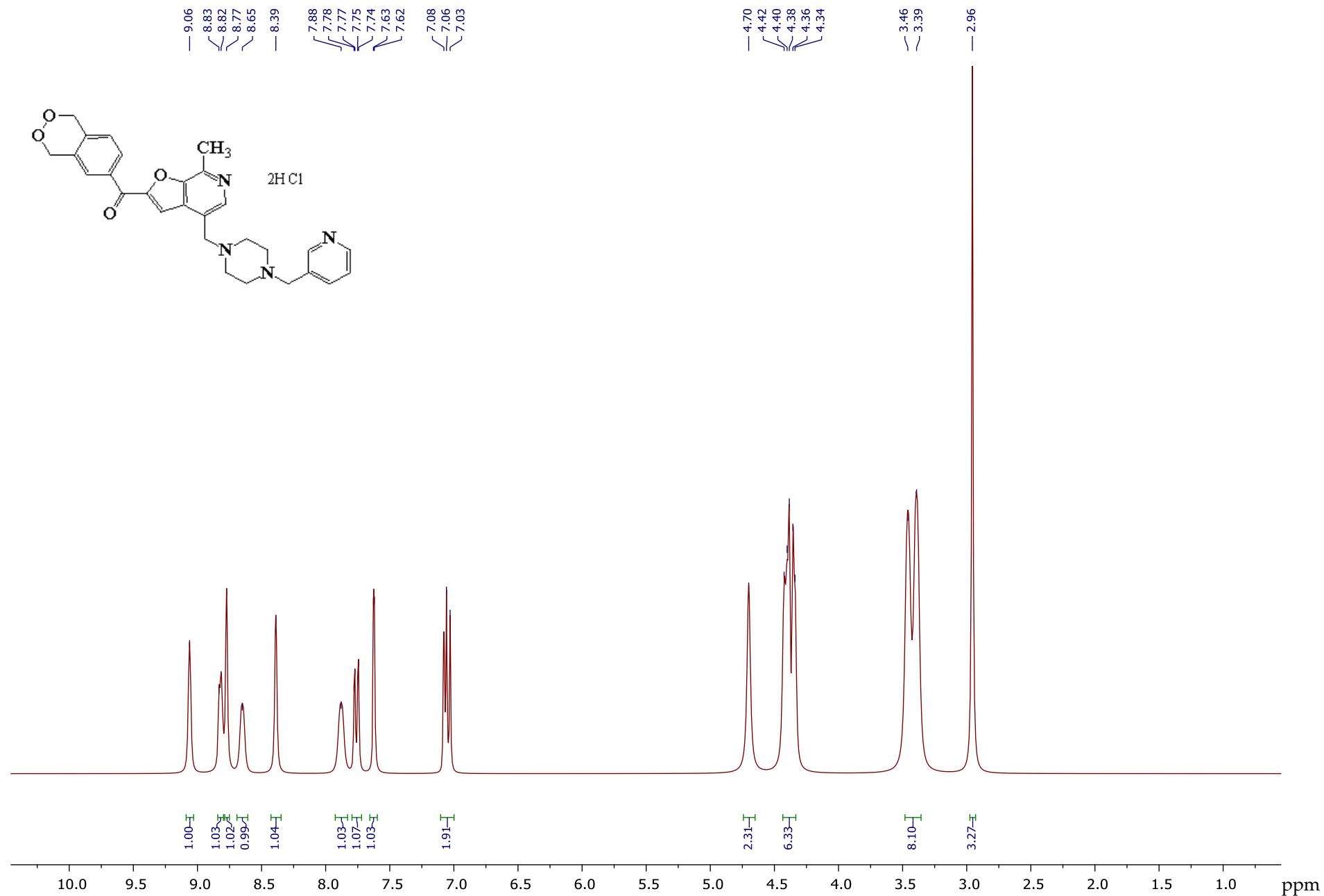
(4-Bromophenyl)(7-methyl-4-((pyridin-3-ylmethyl)amino)methyl)furo[2,3-c]pyridin-2-yl)methanone dihydrochloride (**PD11**).



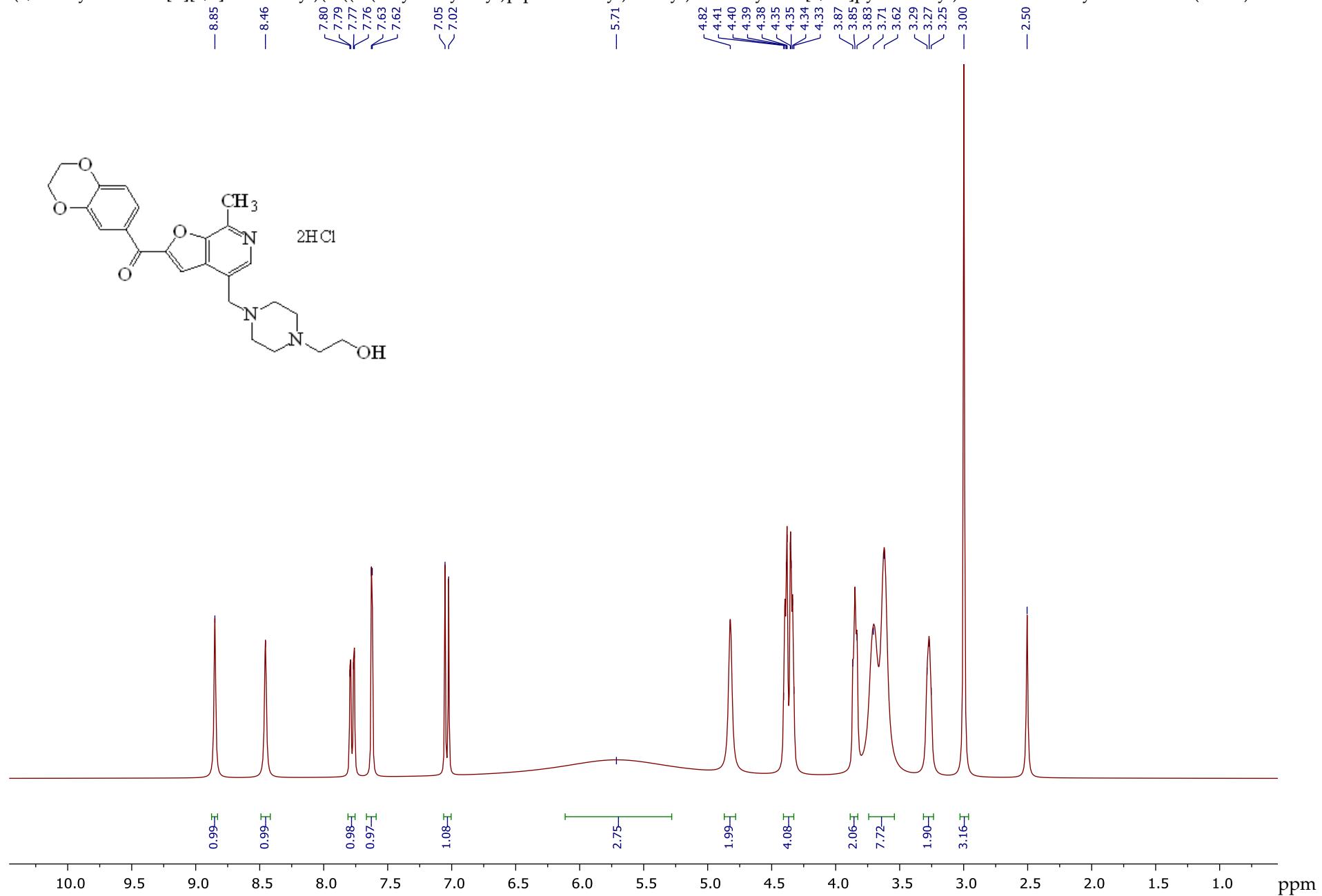
(1,4-Dihydrobenzo[d][1,2]dioxin-6-yl)(4-(((3,4-dimethoxybenzyl)amino)methyl)-7-methylfuro[2,3-c]pyridin-2-yl)methanone hydrochloride (**PD12**).



(1,4-Dihydrobenzo[d][1,2]dioxin-6-yl)(7-methyl-4-((4-(pyridin-3-ylmethyl)piperazin-1-yl)methyl)furo[2,3-c]pyridin-2-yl)methanone dihydrochloride (**PD13**).



(1,4-Dihydrobenzo[d][1,2]dioxin-6-yl)(4-((4-(2-hydroxyethyl)piperazin-1-yl)methyl)-7-methylfuro[2,3-c]pyridin-2-yl)methanone dihydrochloride (**PD14**).



¹³C NMR Spectra of compounds PD1-PD14.
[4-(Hydroxymethyl)-7-methylfuro[2,3-c]pyridin-2-yl](4-methoxyphenyl)methanone (**PD1**).

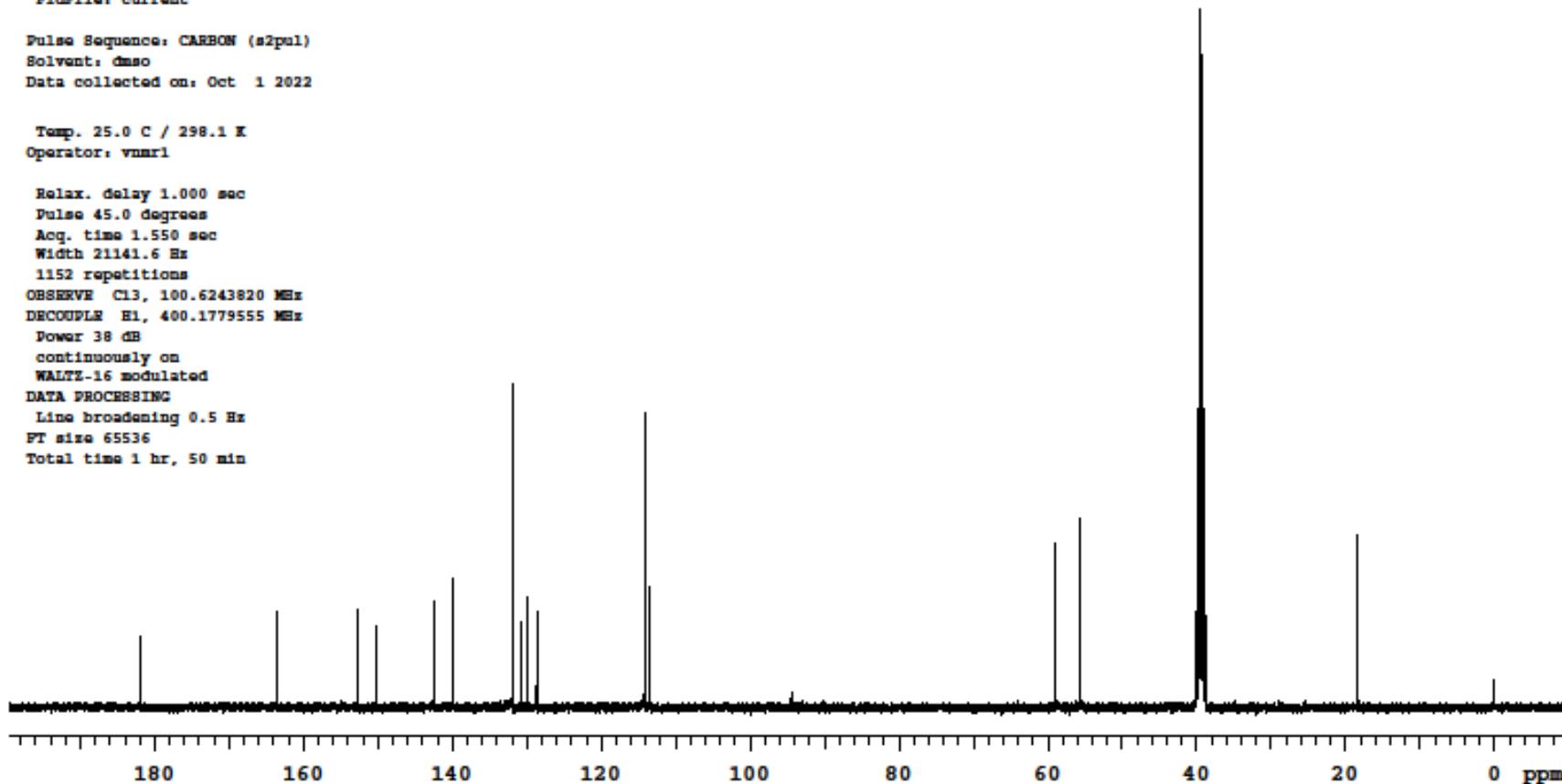
PD1

Sample Name:
PD1
Data Collected on:
mercury400-mercury400
Archive directory:
/home/vnmri/vnmrsys/data
Sample directory:
PD1_20221001_01
PfdFile: current

Pulse Sequence: CARBON (s2pul)
Solvent: dmsc
Data collected on: Oct 1 2022

Temp. 25.0 C / 298.1 K
Operator: vnmri

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.550 sec
Width 21141.6 Hz
1152 repetitions
OBSERVE CL3, 100.6243820 MHz
DRCOUPLE H1, 400.1779555 MHz
Power 38 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 65536
Total time 1 hr, 50 min



(1,4-Dihydrobenzo[d][1,2]dioxin-6-yl)(4-(hydroxymethyl)-7-methylfuro[2,3-c]pyridin-2-yl)methanone (PD2)

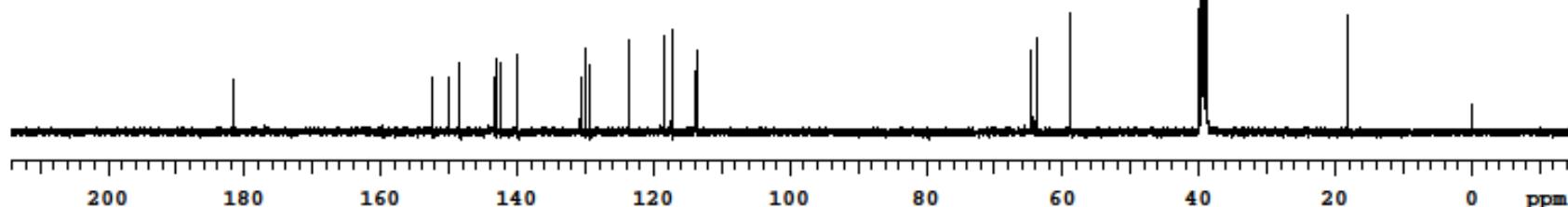
PD2

Sample Name:
PD2
Data Collected on:
mercury400-mercury400
Archive directory:
/home/vmarrl/vmarrsys/data
Sample directory:
PD2_20220925_01
PsdFile: CARBON_01

Pulse Sequence: CARBON (s2pul)
Solvent: dmcso
Data collected on: Sep 25 2022

Temp. 25.0 C / 298.1 K
Operator: vmarrl

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.419 sec
Width 23094.7 Hz
2512 repetitions
OBSERVE C13, 100.6243836 MHz
DECOUPLE H1, 400.1779555 MHz
Power 38 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 65536
Total time 1 hr, 45 min



(4-Bromophenyl){7-methyl-4-[(4-(pyridin-2-ylmethyl)piperazin-1-yl)methyl]furo[2,3-c]pyridin-2-yl}methanone dihydrochloride (**PD3**).

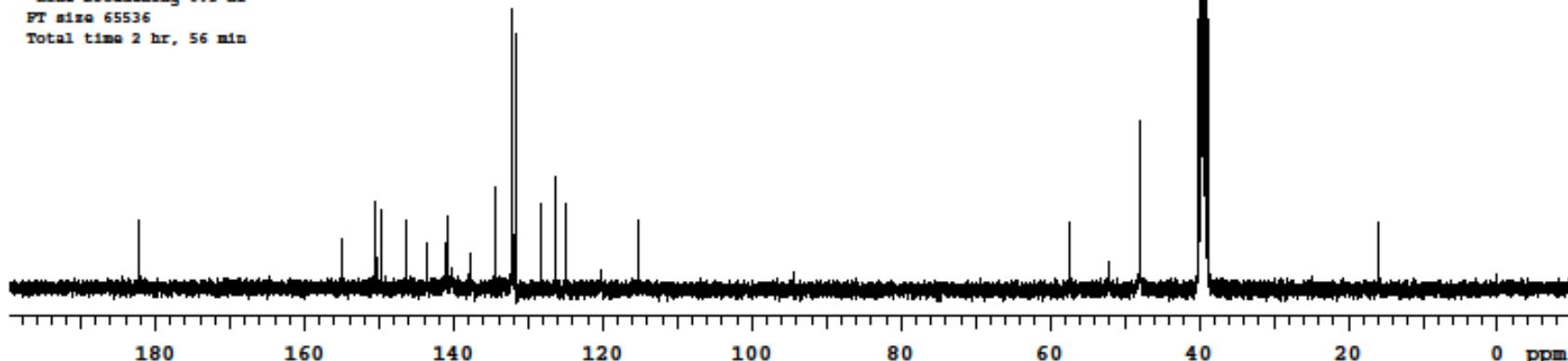
PD3

Sample Name:
PD3
Data Collected on:
mercury400-mercury400
Archive directory:
/home/vnmri/vnmrsys/data
Sample directory:
PD3_20220927_01
PifFile: CARBON_02

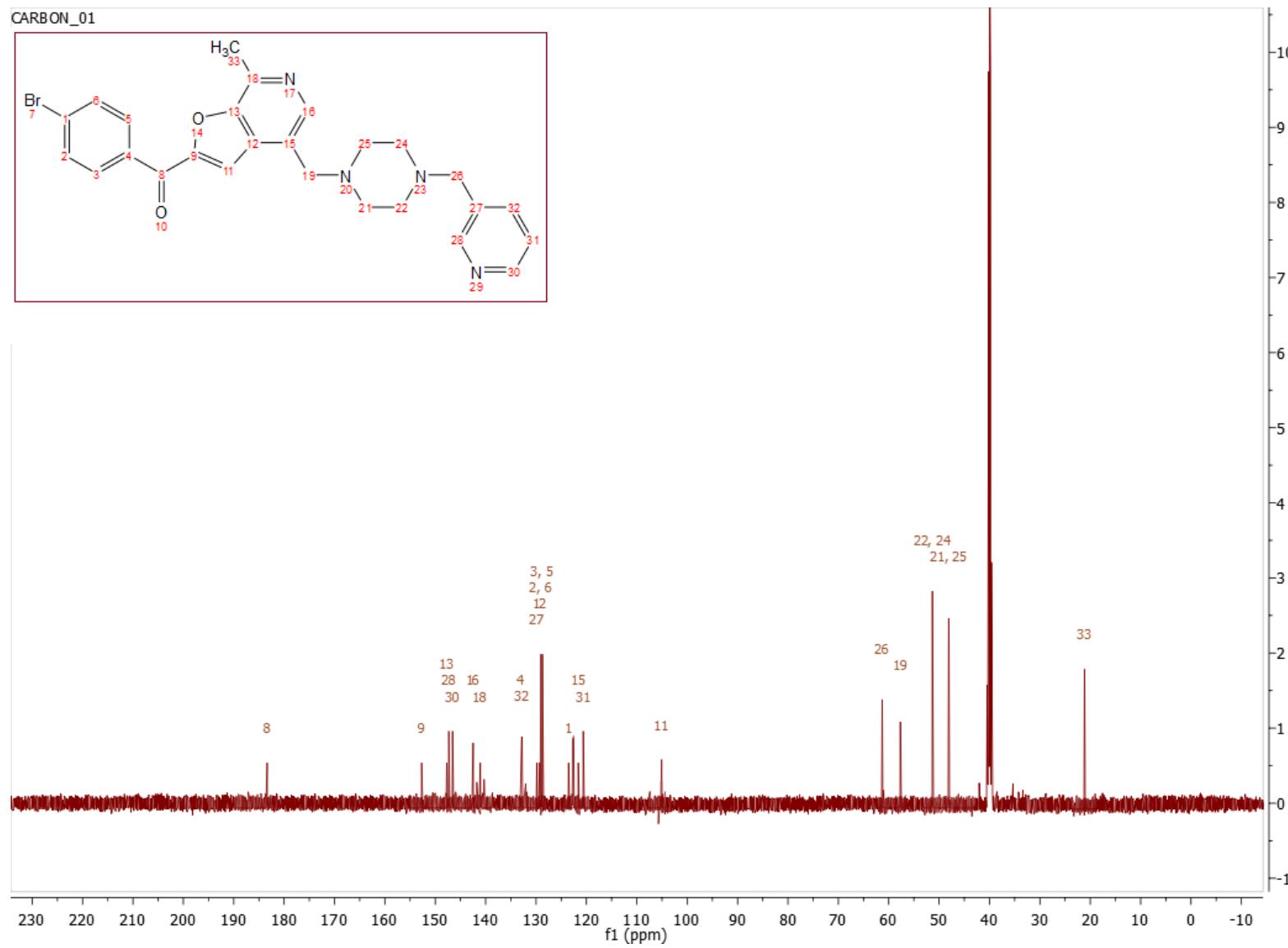
Pulse Sequence: CARBON (s2pul)
Solvent: dmso
Data collected on: Sep 27 2022

Temp. 25.0 C / 298.1 K
Operator: vnmri

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.550 sec
Width 21141.6 Hz
4000 repetitions
OBSERVE C13, 100.6243768 MHz
DECOUPLE H1, 400.1779555 MHz
Power 38 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 65536
Total time 2 hr, 56 min



4-Bromophenyl(7-methyl-4-((4-(pyridin-3-ylmethyl)piperazin-1-yl)methyl)furo[2,3-c]pyridin-2-yl)methanone (**PD4**).



(4-((1H-Imidazol-1-yl)methyl)-7-methylfuro[2,3-c]pyridin-2-yl)(4-bromophenyl)methanone hydrochloride (**PD5**).

DDS

Sample Name:
DDS
Data Collected on:
mercury400-mercury400
Archive directory:
/home/vnmarl/vnmrsys/data
Sample directory:
DDS_20220925_01
PidFile: CARBON_01

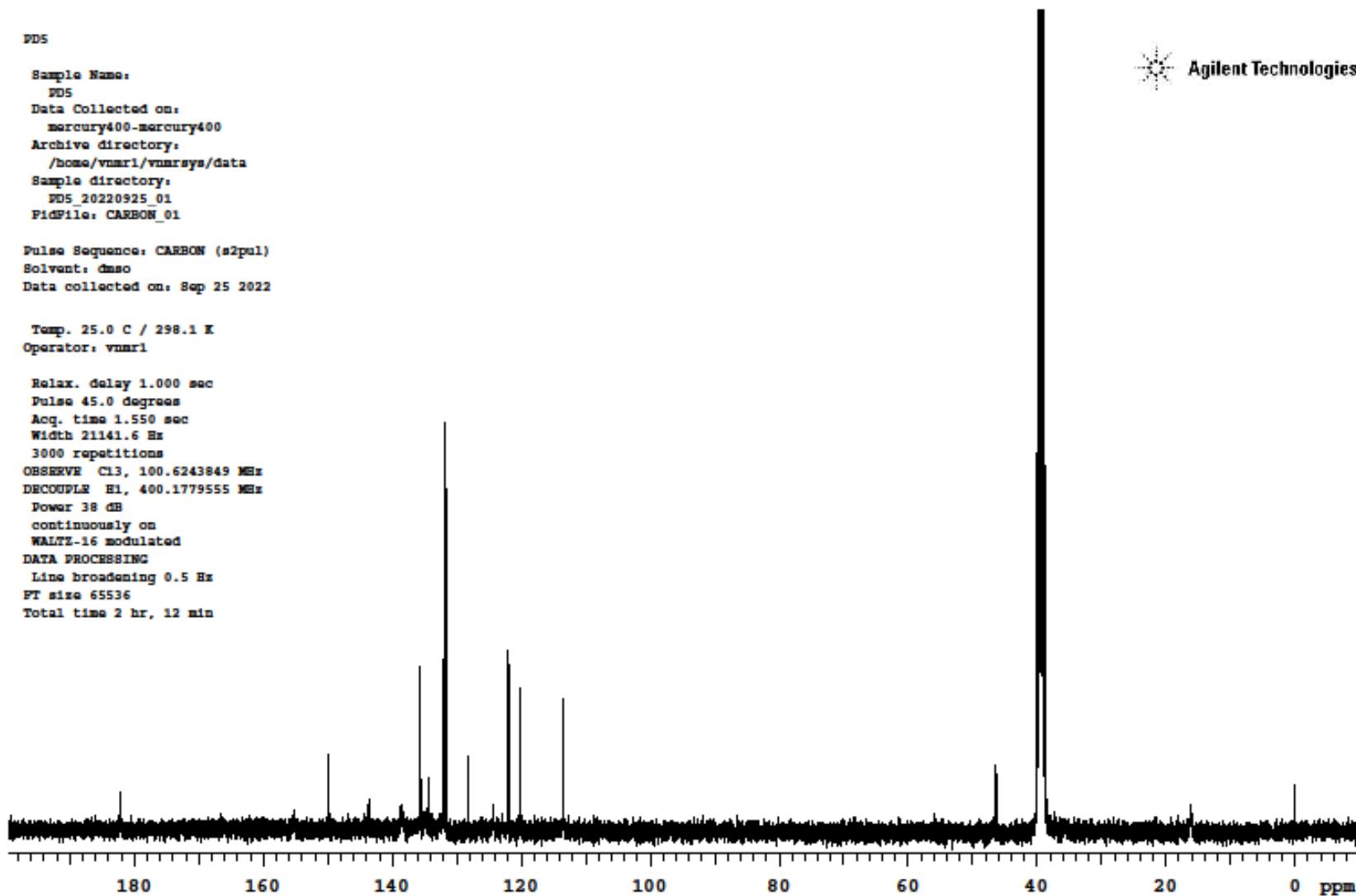
Pulse Sequence: CARBON (s2pul)
Solvent: dmso
Data collected on: Sep 25 2022

Temp. 25.0 C / 298.1 K
Operator: vnmarl

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.550 sec
Width 21141.6 Hz
3000 repetitions
OBSERVE Cl3, 100.6243849 MHz
DECOUPLE H1, 400.1779555 MHz
Power 38 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 65536
Total time 2 hr, 12 min



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4-Bromophenyl)(4-((4-(2-hydroxyethyl)piperazin-1-yl)methyl)-7-methylfuro[2,3-c]pyridin-2-yl)methanone (**PD6**).

PD6

Sample Name:
PD6
Data Collected on:
mercury400-mercury400
Archive directory:
/home/vmurl/vmursys/data
Sample directory:
PD6_20220928_01
PsdFile: CARBON_01

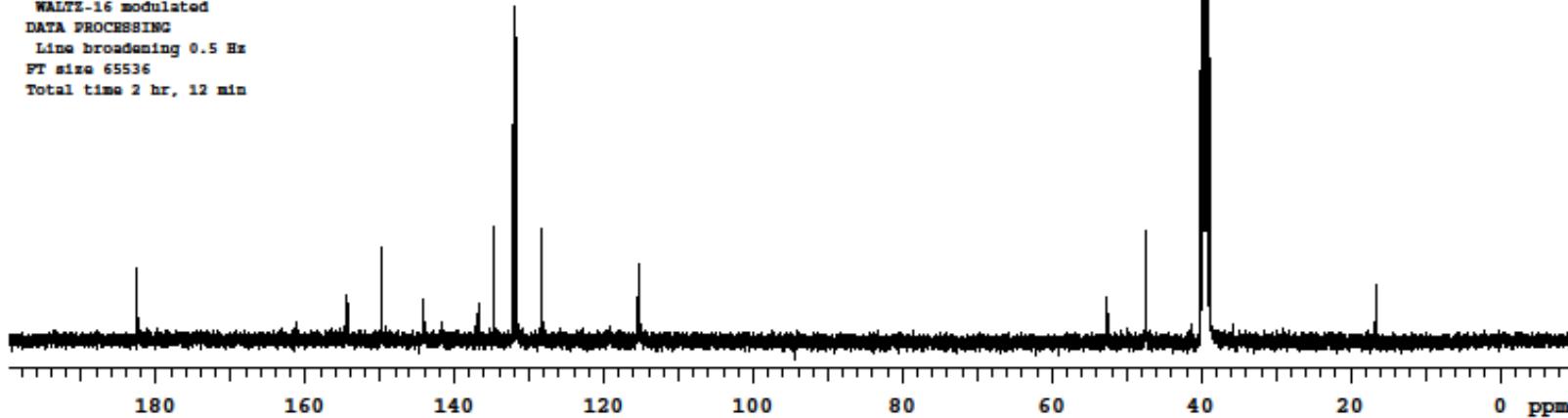
Pulse Sequence: CARBON (s2pul)
Solvent: dmso
Data collected on: Sep 28 2022

Temp. 25.0 C / 298.1 K
Operator: vmurl

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.550 sec
Width 21141.6 Hz
3000 repetitions
OBSERVE Cl3, 100.6243723 MHz
DECOUPLE H1, 400.1779555 MHz
Power 38 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 65536
Total time 2 hr, 12 min



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(4-Bromophenyl)(4-((4,5-dichloro-1H-imidazol-1-yl)methyl)-7-methylfuro[2,3-c]pyridin-2-yl)methanone (PD7).

PD7

Sample Name:
PD7
Data Collected on:
mercury400-mercury400
Archive directory:
/home/vmarrl/vmarrsys/data
Sample directory:
PD7_20221001_01
P1dFile: CARBON_01

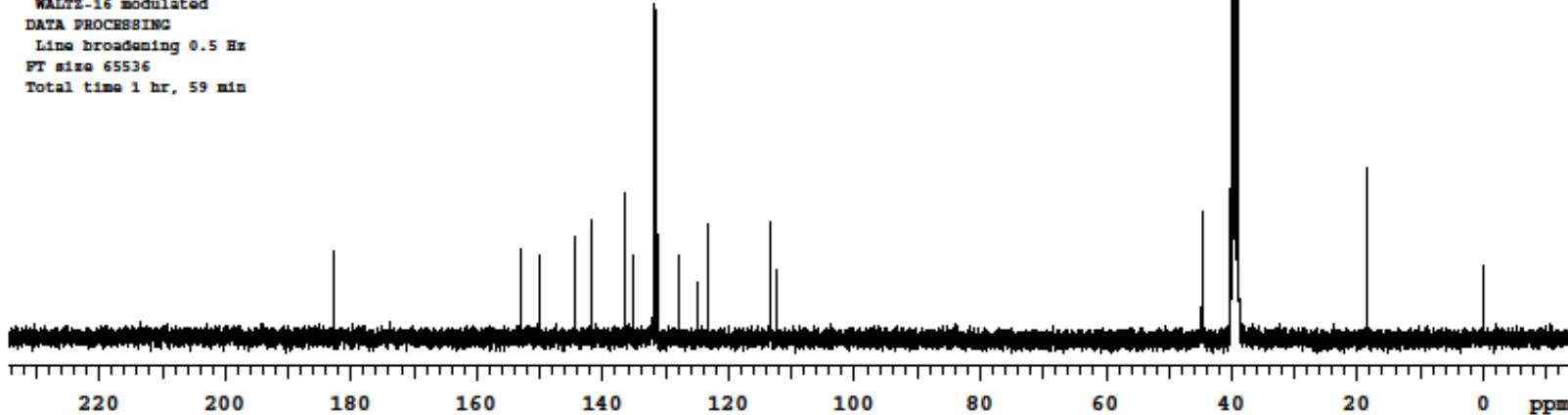
Pulse Sequence: CARBON (s2pul)
Solvent: dmso
Data collected on: Oct 1 2022

Temp. 25.0 C / 298.1 K
Operator: vmarrl

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.304 sec
Width 25125.6 Hz
3000 repetitions
OBSERVE CH, 100.6243751 MHz
DECOUPLE H1, 400.1779555 MHz
Power 38 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 65536
Total time 1 hr, 59 min



Agilent Technologies



(4-Bromophenyl)(4-((3,4-dihydroisoquinolin-2(1H)-yl)methyl)-7-methylfuro[2,3-c]pyridin-2-yl)methanone (**PD8**).

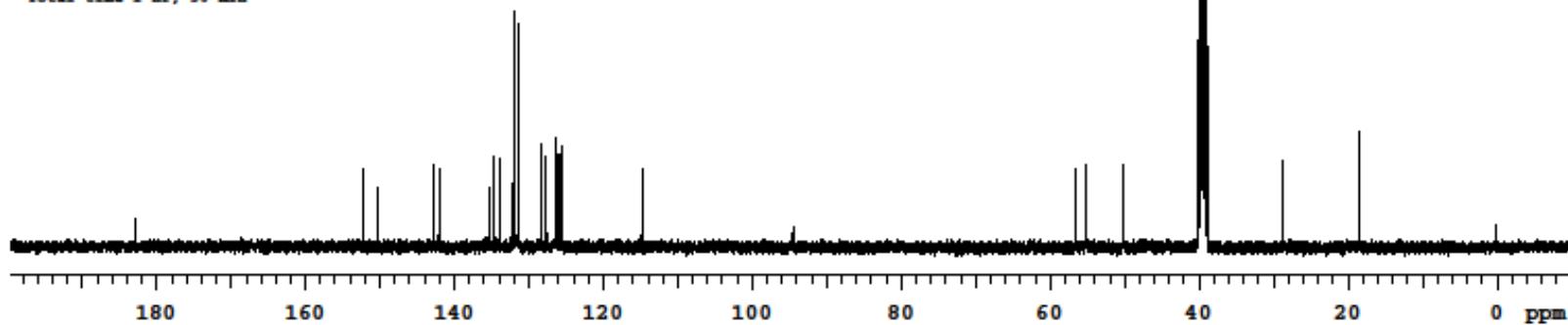
PD8

Sample Name:
PD8
Data Collected on:
mercury400-mercury400
Archive directory:
/home/vnmri/vnmrsys/data
Sample directory:
PD8_20220927_01
Pdbfile: CARBON_01

Pulse Sequence: CARBON (s2pul)
Solvent: dmso
Data collected on: Sep 27 2022

Temp. 25.0 C / 298.1 K
Operator: vnmri

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.550 sec
Width 21141.6 Hz
2512 repetitions
OBSERVE Cl3, 100.6243742 MHz
DECOUPLE H1, 400.1779555 MHz
Power 38 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 65536
Total time 1 hr, 50 min



3-((2-(4-Bromobenzoyl)-7-methylfuro[2,3-c]pyridin-4-yl)methyl)piperazine-1-carbaldehyde hydrochloride (PD9).

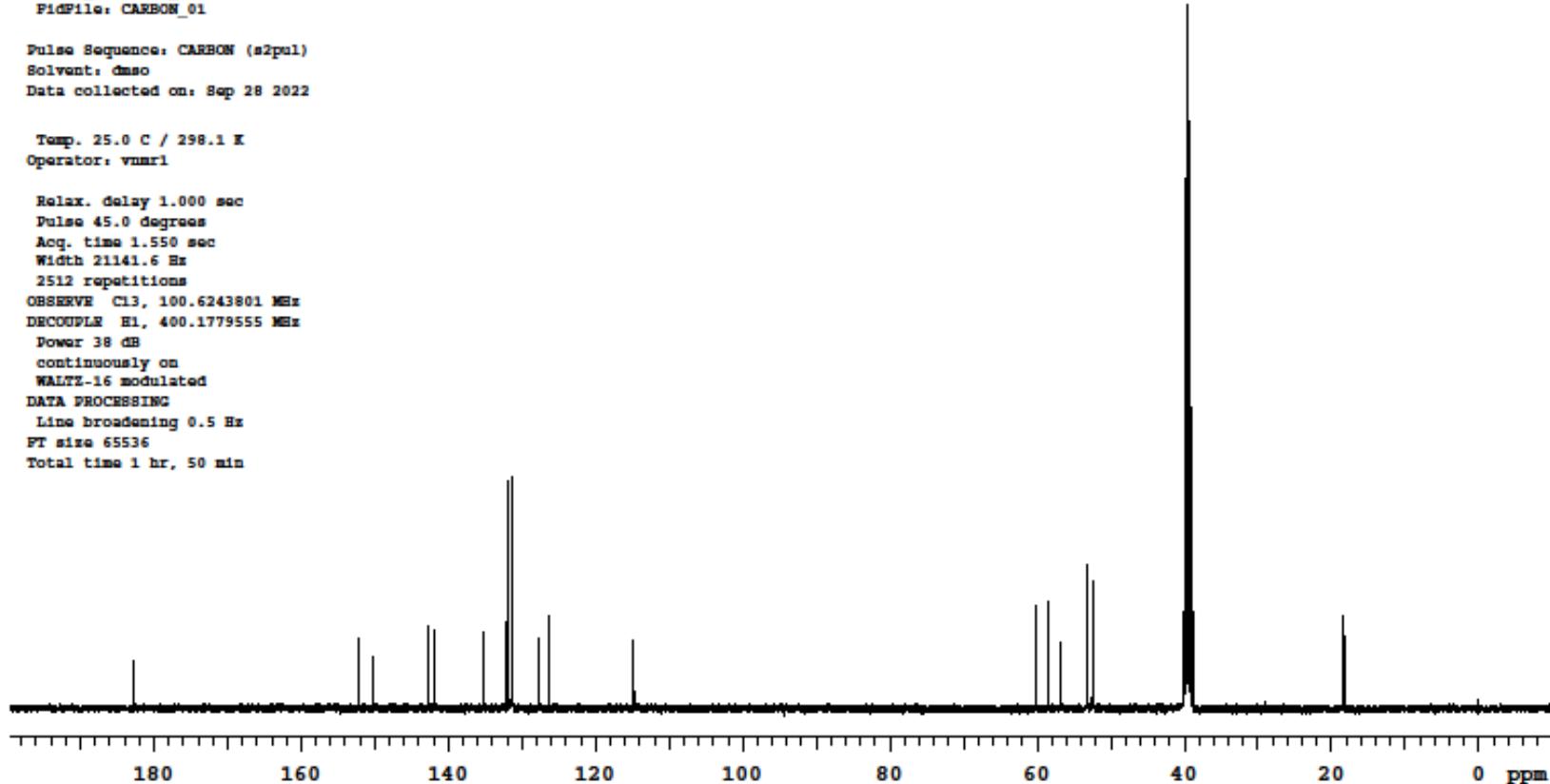
PD9

Sample Name:
PD9
Data Collected on:
mercury400-mercury400
Archive directory:
/home/vnmr1/vnmrsys/data
Sample directory:
PD9_20220928_01
P1dfile: CARBON_01

Pulse Sequence: CARBON (s2pul)
Solvent: dmso
Data collected on: Sep 28 2022

Temp. 25.0 C / 298.1 K
Operator: vnmr1

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.550 sec
Width 21141.6 Hz
2512 repetitions
OBSERVE Cl3, 100.6243801 MHz
DECOUPLE H1, 400.1779555 MHz
Power 38 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 65536
Total time 1 hr, 50 min



3-((2-(4-Bromobenzoyl)-7-methylfuro[2,3-c]pyridin-4-yl)methyl)piperazin-1-yl)propanenitrile (PD10).

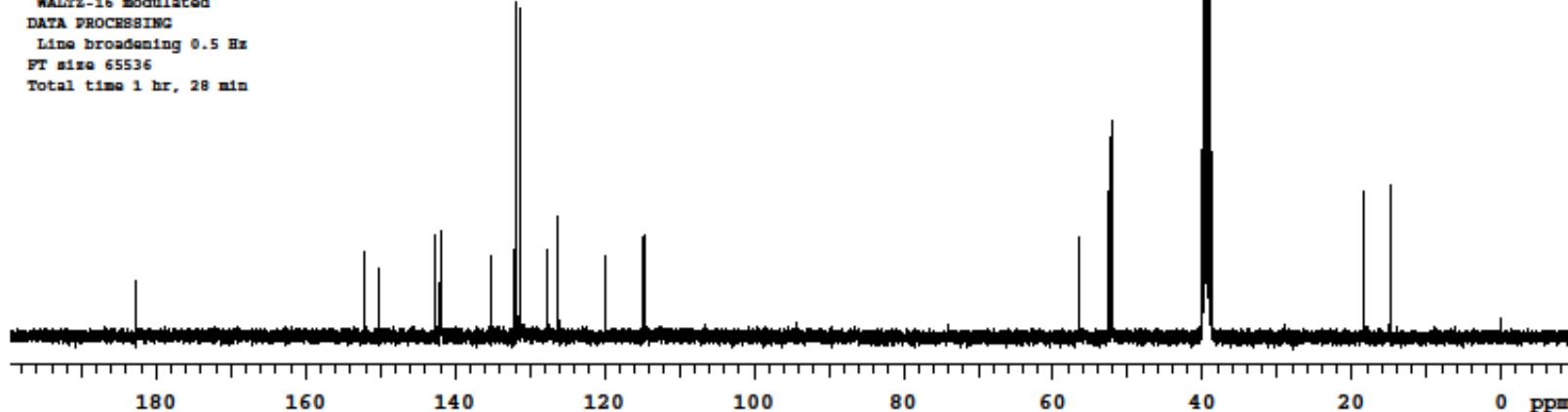
PD10

Sample Name:
PD10
Data Collected on:
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Archive directory:
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Sample directory:
PD10_20220925_01
P1dFile: CARBON_01

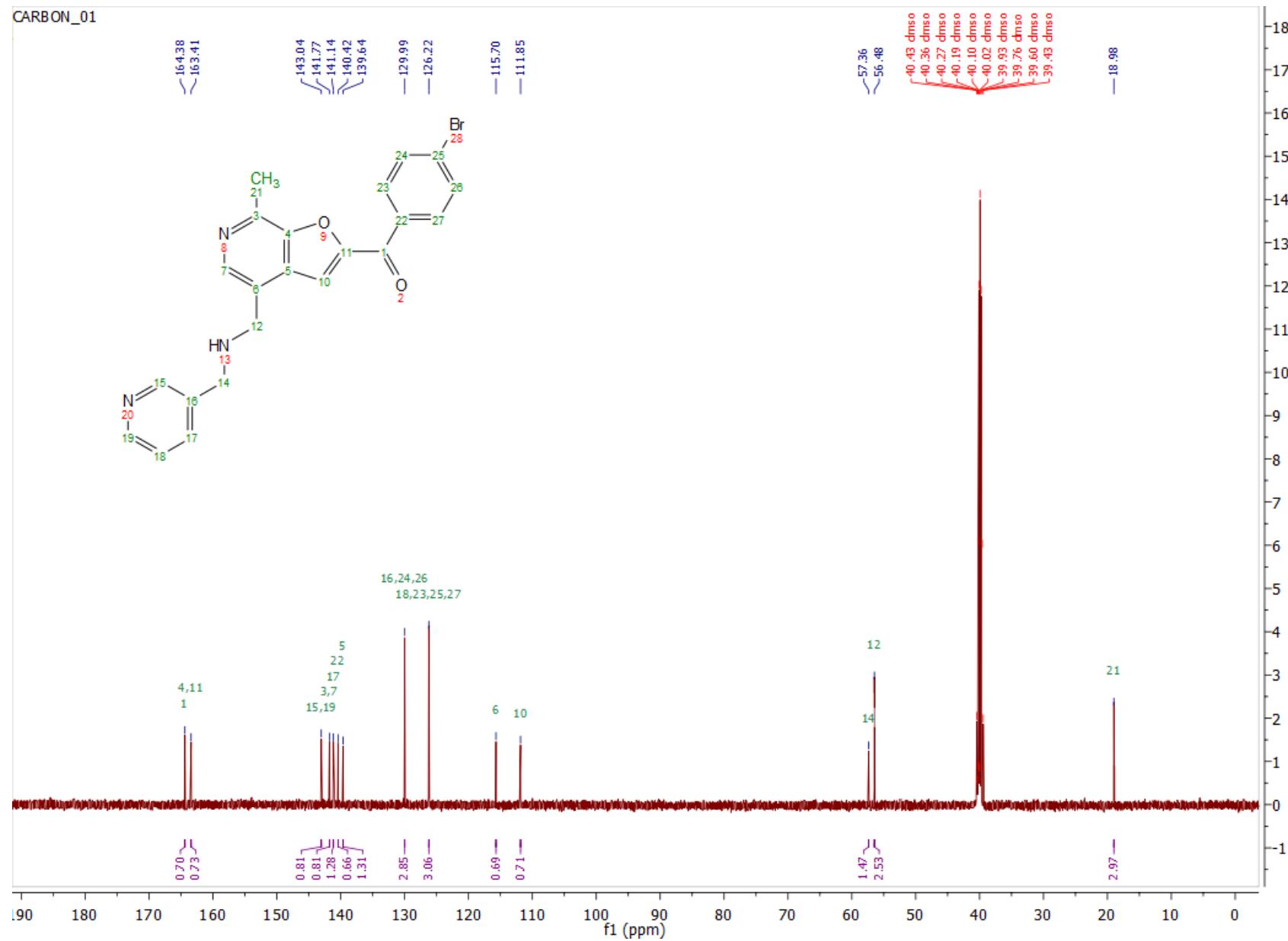
Pulse Sequence: CARBON (s2pul)
Solvent: dmso
Data collected on: Sep 25 2022

Temp. 25.0 C / 298.1 K
Operator: vnmrl

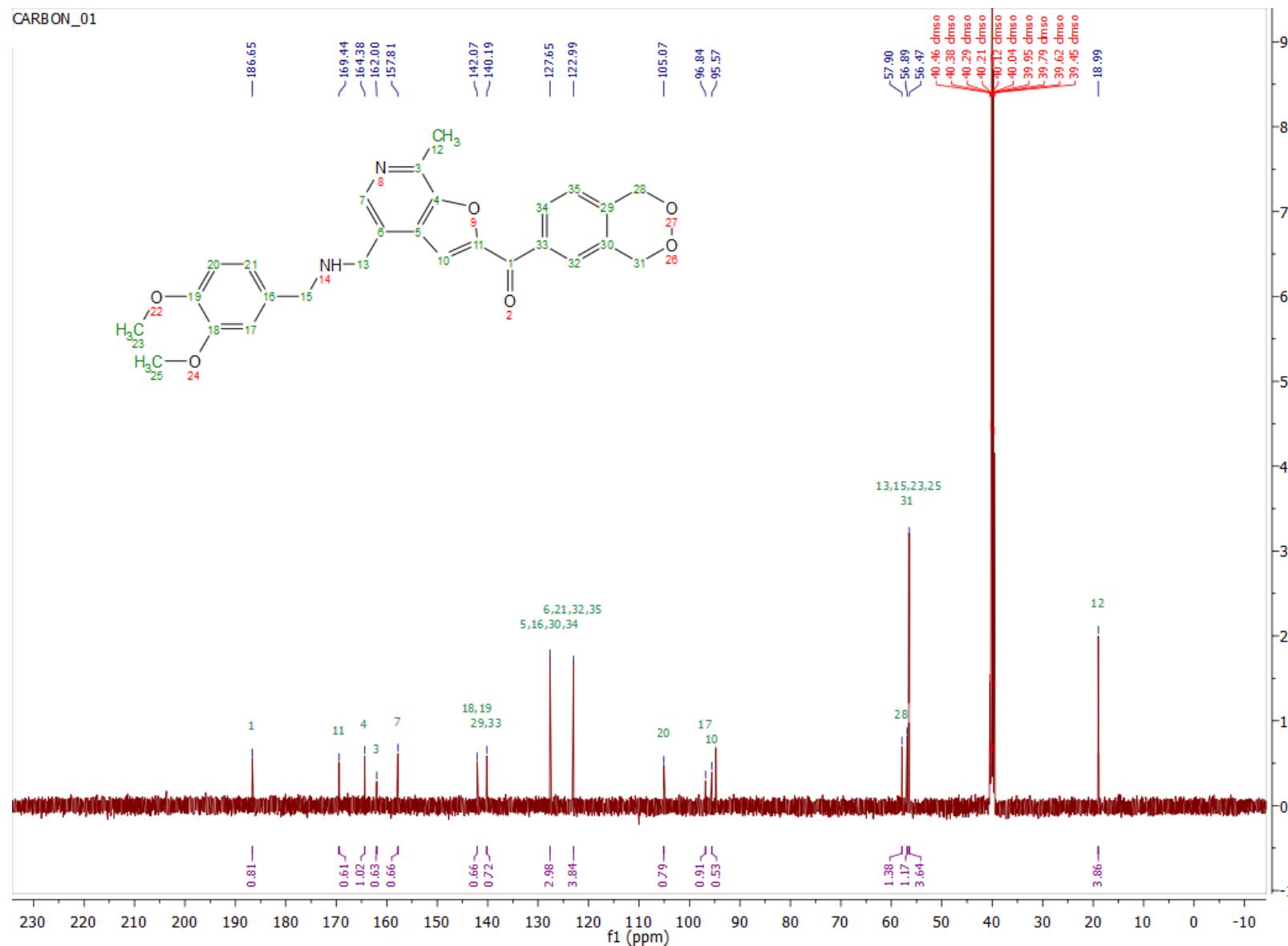
Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.550 sec
Width 21141.6 Hz
2000 repetitions
OBSERVE Cl3, 100.6243834 MHz
DECOUPLE H1, 400.1779555 MHz
Power 38 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 65536
Total time 1 hr, 28 min



(4-Bromophenyl)(7-methyl-4-((pyridin-3-ylmethyl)amino)methyl)furo[2,3-c]pyridin-2-yl)methanone dihydrochloride (**PD11**).



(1,4-Dihydrobenzo[d][1,2]dioxin-6-yl)(4-((3,4-dimethoxybenzyl)amino)methyl)-7-methylfuro[2,3-c]pyridin-2-yl)methanone hydrochloride (**PD12**).



1,4-Dihydrobenzo[d][1,2]dioxin-6-yl)(7-methyl-4-((4-(pyridin-3-ylmethyl)piperazin-1-yl)methyl)furo[2,3-c]pyridin-2-yl)methanone dihydrochloride (PD13).

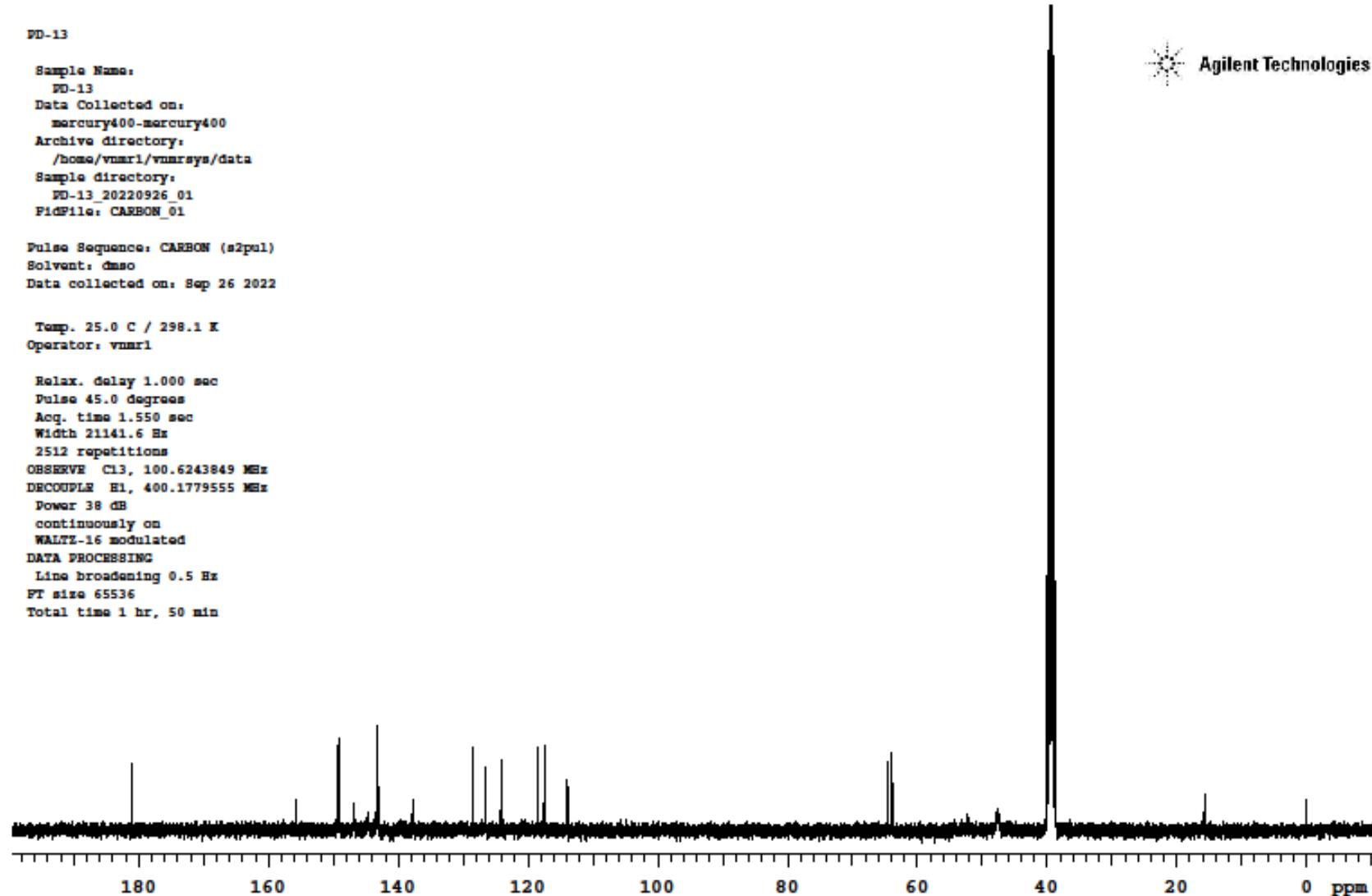
PD-13

Sample Name:
DD-13
Data Collected on:
mercury400-mercury400
Archive directory:
/home/vnmr1/vnmrsys/data
Sample directory:
PD-13_20220926_01
FidFile: CARBON_01

Pulse Sequence: CARBON (s2pul)
Solvent: dmaso
Data collected on: Sep 26 2022

Temp. 25.0 C / 298.1 K
Operator: vnmr1

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.550 sec
Width 21141.6 Hz
2512 repetitions
OBSERVE Cl3, 100.6243849 MHz
DECOUPLER H1, 400.1779555 MHz
Power 38 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 65536
Total time 1 hr, 50 min



(1,4-Dihydrobenzo[d][1,2]dioxin-6-yl)(4-((4-(2-hydroxyethyl)piperazin-1-yl)methyl)-7-methylfuro[2,3-c]pyridin-2-yl)methanone dihydrochloride (**PD14**).

PD14

Sample Name:
PD14
Data Collected on:
mercury400-mercury400
Archive directory:
/home/vmarri/vmnrssys/data
Sample directory:
PD14_20221001_01
P1dFile: CARBON_01

Pulse Sequence: CARBON (s2pul)
Solvent: dmso
Data collected on: Oct 1 2022

Temp. 25.0 C / 298.1 K
Operator: vmarri

Relax. delay 1.000 sec
Pulse 45.0 degrees
Acq. time 1.550 sec
Width 21141.6 Hz
4000 repetitions
OBSERVE C13, 100.6243849 MHz
DECOUPLE H1, 400.1779555 MHz
Power 38 dB
continuously on
WALTZ-16 modulated
DATA PROCESSING
Line broadening 0.5 Hz
FT size 65536
Total time 2 hr, 56 min

