



Full wwPDB NMR Structure Validation Report ⓘ

Jun 24, 2024 – 09:01 AM EDT

PDB ID : 7DAC
BMRB ID : 36392
Title : Human RIPK3 amyloid fibril revealed by solid-state NMR
Authors : Wu, X.L.; Zhang, J.; Dong, X.Q.; Liu, J.; Li, B.; Hu, H.; Wang, J.; Wang, H.Y.; Lu, J.X.
Deposited on : 2020-10-16

This is a Full wwPDB NMR Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/NMRValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
wwPDB-RCI : v_1n_11_5_13_A (Berjanski et al., 2005)
PANAV : Wang et al. (2010)
wwPDB-ShiftChecker : v1.2
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.37.1

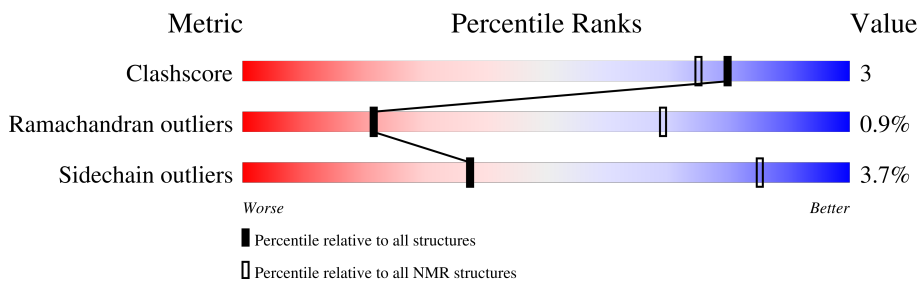
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

SOLID-STATE NMR

The overall completeness of chemical shifts assignment is 7%.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	NMR archive (#Entries)
Clashscore	158937	12864
Ramachandran outliers	154571	11451
Sidechain outliers	154315	11428

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. A cyan segment indicates the fraction of residues that are not part of the well-defined cores, and a grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	A	108	
1	B	108	
1	C	108	
1	D	108	
1	E	108	

2 Ensemble composition and analysis

This entry contains 12 models. Model 1 is the overall representative, medoid model (most similar to other models).

The following residues are included in the computation of the global validation metrics.

Well-defined (core) protein residues			
Well-defined core	Residue range (total)	Backbone RMSD (Å)	Medoid model
1	A:1-A:29, B:1-B:29, C:1-C:29, D:1-D:29, E:1-E:29 (145)	1.04	1

Ill-defined regions of proteins are excluded from the global statistics.

Ligands and non-protein polymers are included in the analysis.

The models can be grouped into 2 clusters and 1 single-model cluster was found.

Cluster number	Models
1	1, 2, 3, 4, 5, 6, 8, 9
2	7, 11, 12
Single-model clusters	10

3 Entry composition [i](#)

There is only 1 type of molecule in this entry. The entry contains 2210 atoms, of which 1095 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Receptor-interacting serine/threonine-protein kinase 3.

Mol	Chain	Residues	Atoms					Trace	
			Total	C	H	N	O		S
1	A	29	442	138	219	39	44	2	0
1	B	29	442	138	219	39	44	2	0
1	C	29	442	138	219	39	44	2	0
1	D	29	442	138	219	39	44	2	0
1	E	29	442	138	219	39	44	2	0

There are 35 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-35	MET	-	initiating methionine	UNP Q9Y572
A	-34	HIS	-	expression tag	UNP Q9Y572
A	-33	HIS	-	expression tag	UNP Q9Y572
A	-32	HIS	-	expression tag	UNP Q9Y572
A	-31	HIS	-	expression tag	UNP Q9Y572
A	-30	HIS	-	expression tag	UNP Q9Y572
A	-29	HIS	-	expression tag	UNP Q9Y572
B	-35	MET	-	initiating methionine	UNP Q9Y572
B	-34	HIS	-	expression tag	UNP Q9Y572
B	-33	HIS	-	expression tag	UNP Q9Y572
B	-32	HIS	-	expression tag	UNP Q9Y572
B	-31	HIS	-	expression tag	UNP Q9Y572
B	-30	HIS	-	expression tag	UNP Q9Y572
B	-29	HIS	-	expression tag	UNP Q9Y572
C	-35	MET	-	initiating methionine	UNP Q9Y572
C	-34	HIS	-	expression tag	UNP Q9Y572
C	-33	HIS	-	expression tag	UNP Q9Y572
C	-32	HIS	-	expression tag	UNP Q9Y572
C	-31	HIS	-	expression tag	UNP Q9Y572
C	-30	HIS	-	expression tag	UNP Q9Y572
C	-29	HIS	-	expression tag	UNP Q9Y572
D	-35	MET	-	initiating methionine	UNP Q9Y572
D	-34	HIS	-	expression tag	UNP Q9Y572

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
D	-33	HIS	-	expression tag	UNP Q9Y572
D	-32	HIS	-	expression tag	UNP Q9Y572
D	-31	HIS	-	expression tag	UNP Q9Y572
D	-30	HIS	-	expression tag	UNP Q9Y572
D	-29	HIS	-	expression tag	UNP Q9Y572
E	-35	MET	-	initiating methionine	UNP Q9Y572
E	-34	HIS	-	expression tag	UNP Q9Y572
E	-33	HIS	-	expression tag	UNP Q9Y572
E	-32	HIS	-	expression tag	UNP Q9Y572
E	-31	HIS	-	expression tag	UNP Q9Y572
E	-30	HIS	-	expression tag	UNP Q9Y572
E	-29	HIS	-	expression tag	UNP Q9Y572

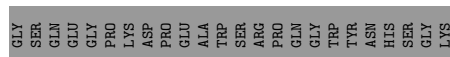
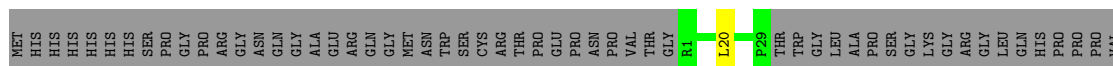
4 Residue-property plots [i](#)

4.1 Average score per residue in the NMR ensemble

These plots are provided for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic is the same as shown in the summary in section 1 of this report. The second graphic shows the sequence where residues are colour-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. Stretches of 2 or more consecutive residues without any outliers are shown as green connectors. Residues which are classified as ill-defined in the NMR ensemble, are shown in cyan with an underline colour-coded according to the previous scheme. Residues which were present in the experimental sample, but not modelled in the final structure are shown in grey.

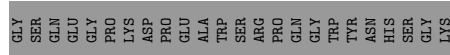
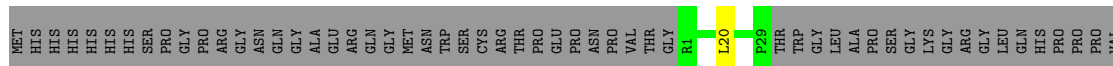
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain A: 



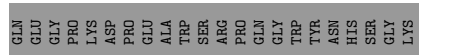
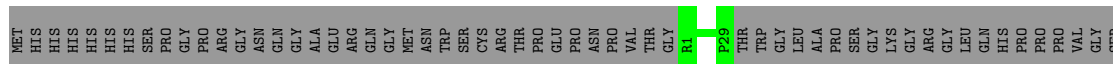
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain B: 



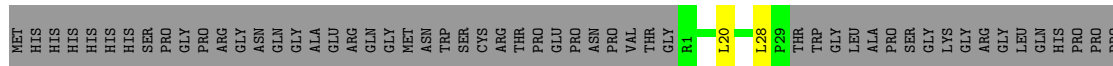
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain C: 



- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain D: 



VAL
GLY
SER
GLN
HIS
GLY
GLY
PRO
LYS
ASP
PRO
GLY
GLU
ALA
TRP
SER
ARG
PRO
GLN
GLY
GLY
TRP
TYR
ASN
HIS
SER
SER
GLY
LYS

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain E: 27% 73%

MET
HIS
HIS
HIS
HIS
HIS
HIS
HIS
SER
PRO
GLY
PRO
GLY
ARG
GLY
ASN
GLN
GLY
ALA
ALA
GLY
ARG
GLN
GLY
MET
ASN
TRP
SER
SER
CYS
ARG
THR
THR
PRO
GLU
GLU
PRO
ASN
PRO
VAL
VAL
THR
GLY
R1
P29
THR
TRP
GLY
LEU
LEU
ALA
PRO
SER
GLY
LYS
GLY
ARG
GLY
LEU
GLN
HIS
PRO
PRO
VAL
GLY
SER

GLN
GLU
GLY
PRO
LYS
ASP
PRO
GLU
ALA
SER
TRP
SER
ARG
PRO
GLN
GLN
TRP
TYR
ASN
HIS
SER
SER
GLY
LYS

4.2 Scores per residue for each member of the ensemble

Colouring as in section 4.1 above.

4.2.1 Score per residue for model 1 (medoid)

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain A: 26% 73%

MET
HIS
HIS
HIS
HIS
HIS
HIS
HIS
SER
PRO
PRO
GLY
GLY
ALA
ALA
TRP
ARG
GLY
ASN
GLN
GLY
ALA
ALA
GLY
ARG
GLN
GLY
GLY
MET
ASN
ASN
TRP
TRP
SER
SER
CYS
ARG
ARG
THR
THR
PRO
GLU
GLU
PRO
PRO
ASN
PRO
VAL
VAL
THR
THR
GLY
R1
L20
P29
THR
TRP
TRP
GLY
LEU
LEU
ALA
ALA
PRO
PRO
SER
SER
GLY
GLY
LYS
GLY
GLY
ARG
ARG
LEU
LEU
GLN
HIS
HIS
PRO
PRO
PRO
VAL

GLY
SER
GLN
GLU
GLY
GLY
PRO
LYS
ASP
PRO
PRO
GLY
GLY
ALA
ALA
TRP
SER
SER
ARG
GLY
ASN
GLN
GLY
GLY
TRP
TYR
ASN
HIS
HIS
SER
SER
GLY
LYS

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain B: 26% 73%

MET
HIS
HIS
HIS
HIS
HIS
HIS
HIS
SER
PRO
PRO
GLY
GLY
ALA
ALA
TRP
ARG
GLY
ASN
GLN
GLY
ALA
ALA
GLY
ARG
GLN
GLY
GLY
MET
ASN
ASN
TRP
TRP
SER
SER
CYS
ARG
ARG
THR
THR
PRO
GLU
GLU
PRO
PRO
ASN
PRO
VAL
VAL
THR
THR
GLY
R1
L20
P29
THR
TRP
TRP
GLY
LEU
LEU
ALA
ALA
PRO
PRO
SER
SER
GLY
GLY
LYS
GLY
GLY
ARG
ARG
LEU
LEU
GLN
HIS
HIS
PRO
PRO
PRO
VAL

GLY
SER
GLN
GLU
GLY
GLY
PRO
LYS
ASP
PRO
PRO
GLY
GLY
ALA
ALA
TRP
SER
SER
ARG
GLY
ASN
GLN
GLY
GLY
TRP
TYR
ASN
HIS
HIS
SER
SER
GLY
LYS

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain C: 26% 73%

MET
HIS
HIS
HIS
HIS
HIS
HIS
HIS
SER
PRO
PRO
GLY
GLY
ALA
ALA
TRP
ARG
GLY
ASN
GLN
GLY
ALA
ALA
GLY
ARG
GLN
GLY
GLY
MET
ASN
ASN
TRP
TRP
SER
SER
CYS
ARG
ARG
THR
THR
PRO
GLU
GLU
PRO
PRO
ASN
PRO
VAL
VAL
THR
THR
GLY
R1
L20
P29
THR
TRP
TRP
GLY
LEU
LEU
ALA
ALA
PRO
PRO
SER
SER
GLY
GLY
LYS
GLY
GLY
ARG
ARG
LEU
LEU
GLN
HIS
HIS
PRO
PRO
PRO
VAL

GLY
SER
GLN
GLU
GLY
GLY
PRO
LYS
ASP
PRO
PRO
GLY
GLY
ALA
ALA
TRP
SER
SER
ARG
GLY
ASN
GLN
GLY
GLY
TRP
TYR
ASN
HIS
HIS
SER
SER
GLY
LYS

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain D:  27% 73%

MET HIS HIS HIS HIS HIS HIS PRO PRO PRO ARG ARG ASN GLN GLU ALA ALA ARG ARG MET MET TRP TRP CYS ARG ARG THR THR PRO PRO GLU PRO PRO ASN PRO VAL VAL THR THR GLY R1 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY LYS LYS ARG ARG GLY LEU GLN HIS HIS PRO PRO PRO VAL VAL GLY SER

GLN GLU GLY PRO PRO HIS LYS ASP PRO GLU ALA TRP SER ARG ARG GLN GLN TRP TYR ASN ARG HIS SER GLY LYS

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain E:  27% 73%

MET HIS HIS HIS HIS HIS HIS PRO PRO PRO ARG ARG ASN GLN GLU ALA ALA ARG ARG MET MET TRP TRP CYS ARG ARG THR THR PRO PRO GLU PRO PRO ASN PRO VAL VAL THR THR GLY R1 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY LYS LYS ARG ARG GLY LEU GLN HIS HIS PRO PRO PRO VAL VAL GLY SER

GLN GLU GLY PRO PRO HIS LYS ASP PRO GLU ALA TRP SER ARG ARG GLN GLN TRP TYR ASN ARG HIS SER GLY LYS

4.2.2 Score per residue for model 2

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain A:  27% 73%

MET HIS HIS HIS HIS HIS HIS PRO PRO PRO ARG ARG ASN GLN GLU ALA ALA ARG ARG MET MET TRP TRP CYS ARG ARG THR THR PRO PRO GLU PRO PRO ASN PRO VAL VAL THR THR GLY R1 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY LYS LYS ARG ARG GLY LEU GLN HIS HIS PRO PRO PRO VAL VAL GLY SER

GLN GLU GLY PRO PRO HIS LYS ASP PRO GLU ALA TRP SER ARG ARG GLN GLN TRP TYR ASN ARG HIS SER GLY LYS

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain B:  27% 73%

MET HIS HIS HIS HIS HIS HIS PRO PRO PRO ARG ARG ASN GLN GLU ALA ALA ARG ARG MET MET TRP TRP CYS ARG ARG THR THR PRO PRO GLU PRO PRO ASN PRO VAL VAL THR THR GLY R1 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY LYS LYS ARG ARG GLY LEU GLN HIS HIS PRO PRO PRO VAL VAL GLY SER

GLN GLU GLY PRO PRO HIS LYS ASP PRO GLU ALA TRP SER ARG ARG GLN GLN TRP TYR ASN ARG HIS SER GLY LYS

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain C:  27% 73%

MET HIS HIS HIS HIS HIS HIS PRO PRO PRO ARG ARG ASN GLN GLU ALA ALA ARG ARG MET MET TRP TRP CYS ARG ARG THR THR PRO PRO GLU PRO PRO ASN PRO VAL VAL THR THR GLY R1 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY LYS LYS ARG ARG GLY LEU GLN HIS HIS PRO PRO PRO VAL VAL GLY SER

GLN GLU GLY PRO PRO HIS LYS ASP PRO GLU ALA TRP SER ARG ARG GLN GLN TRP TYR ASN ARG HIS SER GLY LYS

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain D:  27% 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	PRO	PRO	GLY	GLY	ARG	ARG	ASN	GLN	GLN	GLY	ALA	ALA	GLU	ARG	GLN	GLY	MET	ASN	TRP	SER	SER	CYS	ARG	THR	THR	PRO	GLU	GLU	PRO	ASN	PRO	PRO	VAL	THR	THR	GLY	R1	P29	THR	TRP	GLY	LEU	LEU	ALA	PRO	SER	GLY	LYS	LYS	ARG	GLY	LEU	GLN	HIS	PRO	PRO	VAL	GLY	SER
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

GLN	GLU	GLY	PRO	HIS	LYS	ASP	PRO	GLU	ALA	TRP	SER	ARG	GLY	PRO	GLN	GLY	TRP	TYR	ASN	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain E:  27% 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	PRO	PRO	GLY	GLY	ARG	ARG	ASN	GLN	GLN	GLY	ALA	ALA	GLU	ARG	GLN	GLY	MET	ASN	TRP	SER	SER	CYS	ARG	THR	THR	PRO	GLU	GLU	PRO	ASN	PRO	PRO	VAL	THR	THR	GLY	R1	P29	THR	TRP	GLY	LEU	LEU	ALA	PRO	SER	GLY	LYS	LYS	ARG	GLY	LEU	GLN	HIS	PRO	PRO	VAL	GLY	SER
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

GLN	GLU	GLY	PRO	HIS	LYS	ASP	PRO	GLU	ALA	TRP	SER	ARG	GLY	PRO	GLN	GLY	TRP	TYR	ASN	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

4.2.3 Score per residue for model 3

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain A:  26% 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	PRO	PRO	GLY	GLY	ARG	ARG	ASN	GLN	GLN	GLY	ALA	ALA	GLU	ARG	GLN	GLY	MET	ASN	TRP	SER	SER	CYS	ARG	THR	THR	PRO	GLU	GLU	PRO	ASN	PRO	PRO	VAL	THR	THR	GLY	R1	M18	P29	THR	TRP	GLY	LEU	LEU	ALA	PRO	SER	GLY	LYS	LYS	ARG	GLY	LEU	GLN	HIS	PRO	PRO	VAL	GLY	SER
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

GLY	SER	GLN	GLU	GLY	PRO	LYS	ASP	PRO	ALA	TRP	SER	ARG	ARG	PRO	GLN	GLY	TRP	TYR	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain B:  27% 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	PRO	PRO	GLY	GLY	ARG	ARG	ASN	GLN	GLN	GLY	ALA	ALA	GLU	ARG	GLN	GLY	MET	ASN	TRP	SER	SER	CYS	ARG	THR	THR	PRO	GLU	GLU	PRO	ASN	PRO	PRO	VAL	THR	THR	GLY	R1	P29	THR	TRP	GLY	LEU	LEU	ALA	PRO	SER	GLY	LYS	LYS	ARG	GLY	LEU	GLN	HIS	PRO	PRO	VAL	GLY	SER
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

GLN	GLU	GLY	PRO	HIS	LYS	ASP	PRO	GLU	ALA	TRP	SER	ARG	GLY	PRO	GLN	GLY	TRP	TYR	ASN	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain C:  26% 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	PRO	PRO	GLY	GLY	ARG	ARG	ASN	GLN	GLN	GLY	ALA	ALA	GLU	ARG	GLN	GLY	MET	ASN	TRP	SER	SER	CYS	ARG	THR	THR	PRO	GLU	GLU	PRO	ASN	PRO	PRO	VAL	THR	THR	GLY	R1	M22	P29	THR	TRP	GLY	LEU	LEU	ALA	PRO	SER	GLY	LYS	LYS	ARG	GLY	LEU	GLN	HIS	PRO	PRO	VAL	GLY	SER
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

GLY	SER	GLN	GLU	GLY	PRO	LYS	ASP	PRO	ALA	TRP	SER	ARG	ARG	PRO	GLN	GLY	TRP	TYR	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain D:  27% 73%

MET HIS HIS HIS HIS HIS HIS PRO PRO PRO PRO ARG ARG ASN ASN GLN GLN ALA ALA ARG ARG GLN GLN MET MET ASN ASN TRP TRP SER SER CYS ARG ARG THR THR PRO PRO GLU GLU PRO PRO ASN ASN PRO PRO VAL VAL THR THR GLY GLY R1 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY GLY LYS LYS ARG ARG GLY GLY LEU LEU GLN GLN HIS HIS PRO PRO PRO PRO VAL VAL GLY GLY SER SER

GLN GLU GLY PRO PRO HIS LYS ASP PRO GLU ALA TRP SER ARG ARG GLY ASN ASN GLN GLY TRP TYR ASN ASN GLU ARG ARG GLN SER MET MET ASN ASN TRP TRP SER SER CYS ARG ARG THR THR PRO PRO GLU GLU PRO PRO ASN ASN PRO PRO VAL VAL THR THR GLY GLY R1 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY GLY LYS LYS ARG ARG GLY GLY LEU LEU GLN GLN HIS HIS PRO PRO PRO PRO VAL VAL GLY GLY SER SER

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain E:  27% 73%

MET HIS HIS HIS HIS HIS HIS PRO PRO PRO PRO ARG ARG GLY ASN ASN GLN GLN ALA ALA ARG ARG GLN GLN MET MET ASN ASN TRP TRP SER SER CYS ARG ARG THR THR PRO PRO GLU GLU PRO PRO ASN ASN PRO PRO VAL VAL THR THR GLY GLY R1 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY GLY LYS LYS ARG ARG GLY GLY LEU LEU GLN GLN HIS HIS PRO PRO PRO PRO VAL VAL GLY GLY SER SER

GLN GLU GLY PRO PRO HIS LYS ASP PRO GLU ALA TRP SER ARG ARG GLY ASN ASN GLN GLY TRP TYR ASN ASN GLU ARG ARG GLN SER MET MET ASN ASN TRP TRP SER SER CYS ARG ARG THR THR PRO PRO GLU GLU PRO PRO ASN ASN PRO PRO VAL VAL THR THR GLY GLY R1 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY GLY LYS LYS ARG ARG GLY GLY LEU LEU GLN GLN HIS HIS PRO PRO PRO PRO VAL VAL GLY GLY SER SER

4.2.4 Score per residue for model 4

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain A:  27% 73%

MET HIS HIS HIS HIS HIS HIS PRO PRO PRO PRO ARG ARG GLY ASN ASN GLN GLN ALA ALA ARG ARG GLN GLN MET MET ASN ASN TRP TRP SER SER CYS ARG ARG THR THR PRO PRO GLU GLU PRO PRO ASN ASN PRO PRO VAL VAL THR THR GLY GLY R1 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY GLY LYS LYS ARG ARG GLY GLY LEU LEU GLN GLN HIS HIS PRO PRO PRO PRO VAL VAL GLY GLY SER SER

GLN GLU GLY PRO PRO HIS LYS ASP PRO GLU ALA TRP SER ARG ARG GLY ASN ASN GLN GLY TRP TYR ASN ASN GLU ARG ARG GLN SER MET MET ASN ASN TRP TRP SER SER CYS ARG ARG THR THR PRO PRO GLU GLU PRO PRO ASN ASN PRO PRO VAL VAL THR THR GLY GLY R1 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY GLY LYS LYS ARG ARG GLY GLY LEU LEU GLN GLN HIS HIS PRO PRO PRO PRO VAL VAL GLY GLY SER SER

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain B:  24% 73%

MET HIS HIS HIS HIS HIS HIS PRO PRO PRO PRO ARG ARG GLY ASN ASN GLN GLN ALA ALA ARG ARG GLN GLN MET MET ASN ASN TRP TRP SER SER CYS ARG ARG THR THR PRO PRO GLU GLU PRO PRO ASN ASN PRO PRO VAL VAL THR THR GLY GLY R1 Q13 L20 A27 L28 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY GLY LYS LYS ARG ARG GLY GLY LEU LEU GLN GLN HIS HIS PRO PRO PRO PRO VAL VAL GLY GLY SER SER

PRO PRO VAL VAL SER SER GLN GLU GLY GLY LYS ASP PRO GLU ALA TRP SER ARG ARG GLN GLN MET MET ASN ASN TYR TRP TRP HIS HIS SER SER TYR ASN ASN HIS HIS PRO PRO GLU GLU PRO PRO ASN ASN PRO PRO VAL VAL THR THR GLY GLY R1 Q13 L20 A27 L28 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY GLY LYS LYS ARG ARG GLY GLY LEU LEU GLN GLN HIS HIS PRO PRO PRO PRO VAL VAL GLY GLY SER SER

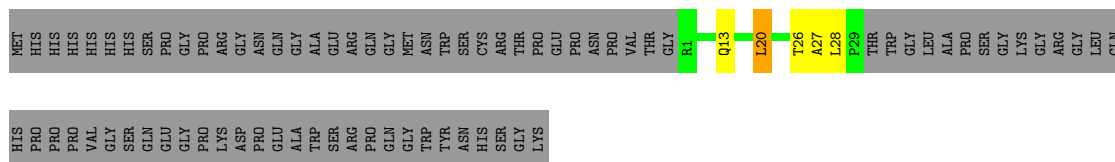
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain C:  21% 6% 73%

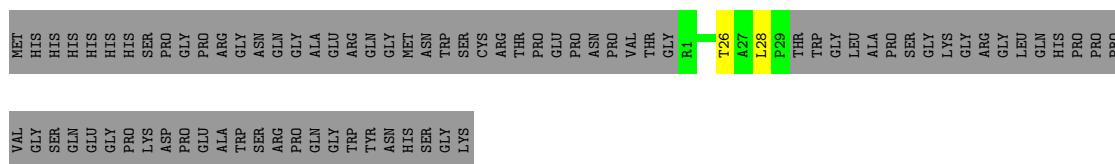
MET HIS HIS HIS HIS HIS HIS PRO PRO PRO PRO ARG ARG GLY ASN ASN GLN GLN ALA ALA ARG ARG GLN GLN MET MET ASN ASN TRP TRP SER SER CYS ARG ARG THR THR PRO PRO GLU GLU PRO PRO ASN ASN PRO PRO VAL VAL THR THR GLY GLY R1 Q13 L20 T21 M22 T26 A27 L28 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY GLY LYS LYS ARG ARG GLY GLY LEU LEU GLN GLN HIS HIS PRO PRO PRO PRO VAL VAL GLY GLY SER SER

LEU GLN HIS PRO PRO VAL VAL SER SER GLN GLU GLY GLY LYS ASP PRO GLU ALA TRP SER ARG ARG GLN GLN MET MET ASN ASN TYR TRP TRP HIS HIS SER SER TYR ASN ASN HIS HIS PRO PRO GLU GLU PRO PRO ASN ASN PRO PRO VAL VAL THR THR GLY GLY R1 Q13 L20 T21 M22 T26 A27 L28 P29 THR TRP TRP GLY LEU LEU ALA ALA PRO PRO SER SER GLY GLY LYS LYS ARG ARG GLY GLY LEU LEU GLN GLN HIS HIS PRO PRO PRO PRO VAL VAL GLY GLY SER SER

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

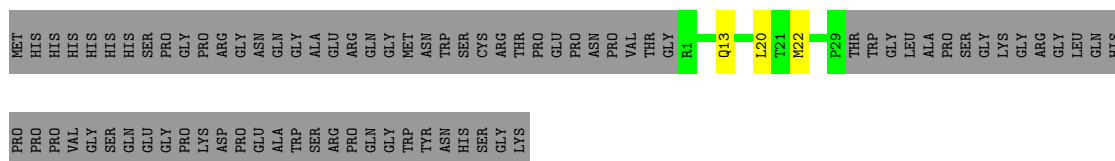


- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

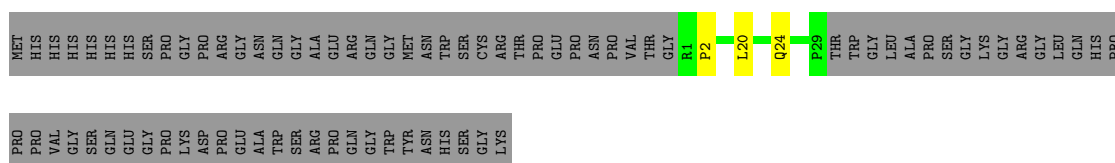


4.2.5 Score per residue for model 5

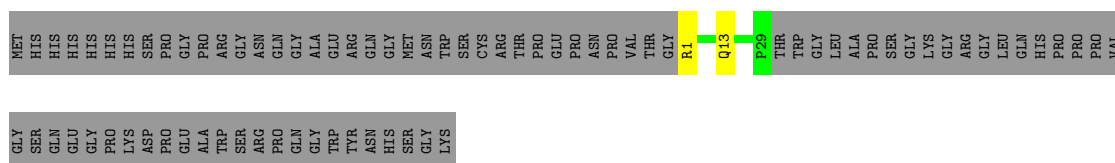
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3



- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3



- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3



- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain D:  22% 5% 73%

MET HIS HIS HIS HIS HIS HIS PRO PRO PRO ARG ARG ASN ASN GLN GLU ALA ALA ARG ARG GLN MET MET ASN TRP TRP SER CYS ARG ARG THR PRO GLU PRO ASN PRO VAL THR THR THR GLY R1 P2 L3 Q13 L20 Q24 P29 THR TRP TRP GLY LEU ALA PRO SER SER GLY LYS ARG GLY LEU

GLN HIS PRO PRO HIS VAL GLY SER GLN GLU PRO ARG ASP PRO GLU TRP TRP ARG PRO GLN MET ASN TRP TYR ASN HIS SER SER LYS

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain E:  25% 73%

MET HIS HIS HIS HIS HIS HIS SER PRO PRO PRO ARG ARG ASN ASN GLN GLU ALA ALA ARG ARG GLN MET MET ASN TRP TRP SER CYS ARG ARG THR PRO GLU PRO ASN PRO VAL THR THR THR GLY R1 Q13 L20 P29 THR TRP TRP GLY LEU ALA PRO SER SER GLY LYS ARG GLY LEU GLN HIS PRO PRO VAL GLY SER

PRO VAL GLY SER GLN GLY PRO GLY ASP ARG GLU ALA TRP SER ARG GLN TYR ASN HIS SER SER GLY LYS

4.2.6 Score per residue for model 6

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain A:  26% 73%

MET HIS HIS HIS HIS HIS HIS SER PRO PRO PRO ARG ARG ASN ASN GLN GLU ALA ALA ARG ARG GLN MET MET ASN TRP TRP SER CYS ARG ARG THR PRO GLU PRO ASN PRO VAL THR THR THR GLY R1 P29 THR TRP TRP GLY LEU ALA PRO SER SER GLY LYS ARG GLY LEU GLN HIS PRO PRO VAL GLY SER

GLN GLU PRO PRO LYS ASP PRO GLU ALA TRP SER ARG GLN TYR ASN HIS SER SER LYS

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain B:  23% 73%

MET HIS HIS HIS HIS HIS HIS SER PRO PRO PRO ARG ARG ASN ASN GLN GLU ALA ALA ARG ARG GLN MET MET ASN TRP TRP SER CYS ARG ARG THR PRO GLU PRO ASN PRO VAL THR THR THR GLY R1 Q13 L20 L28 P29 THR TRP TRP GLY LEU ALA PRO SER SER GLY LYS ARG GLY LEU GLN HIS PRO PRO VAL GLY SER

PRO PRO VAL GLY SER GLN GLU GLU GLY PRO PRO ALA TRP SER ARG GLN TYR ASN HIS SER SER GLY LYS

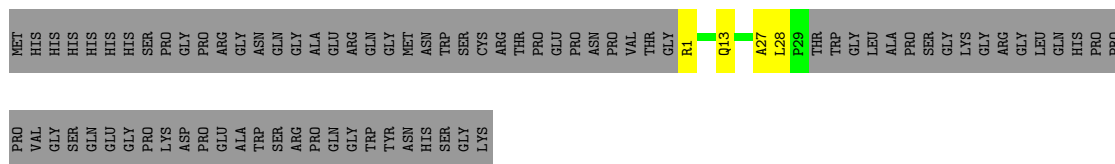
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain C:  25% 73%

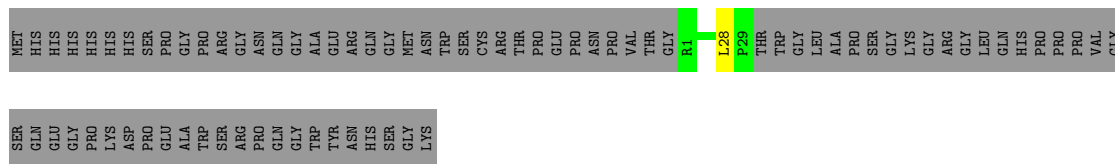
MET HIS HIS HIS HIS HIS HIS SER PRO PRO PRO ARG ARG ASN ASN GLN GLU ALA ALA ARG ARG GLN MET MET ASN TRP TRP SER CYS ARG ARG THR PRO GLU PRO ASN PRO VAL THR THR THR GLY R1 Q13 L28 P29 THR TRP TRP GLY LEU ALA PRO SER SER GLY LYS ARG GLY LEU GLN HIS PRO PRO VAL GLY SER

VAL GLY SER GLN GLU GLY PRO LYS ASP PRO PRO ALA TRP SER ARG GLN TYR ASN HIS SER SER GLY LYS

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

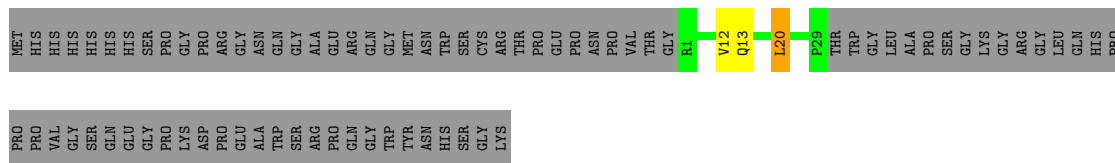


- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

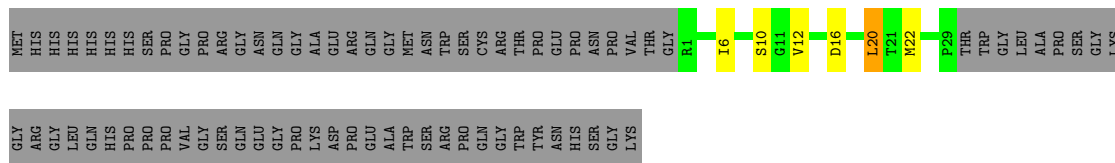


4.2.7 Score per residue for model 7

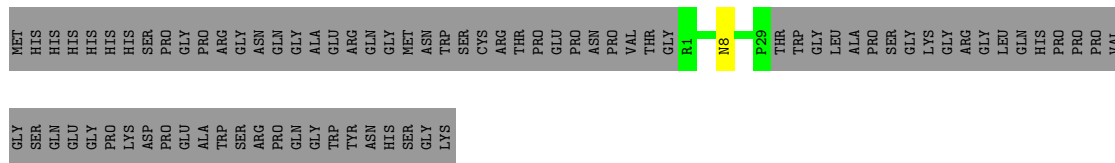
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3



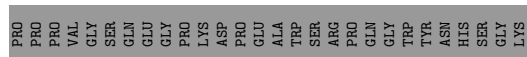
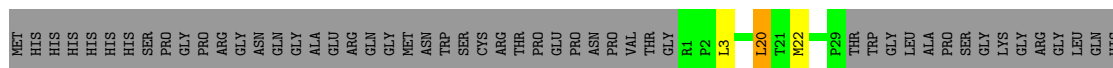
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3



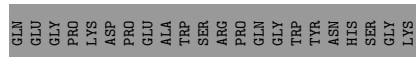
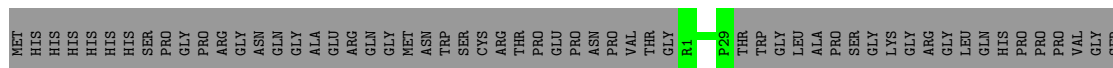
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3



- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

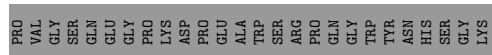
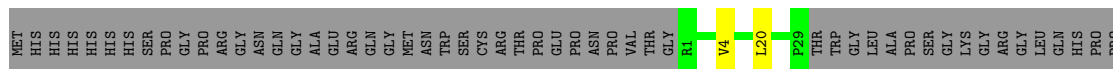


• Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

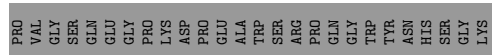
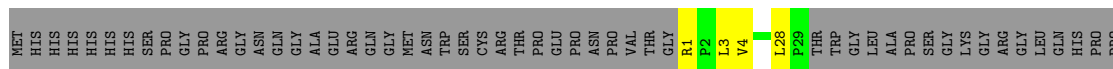


4.2.8 Score per residue for model 8

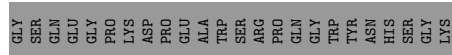
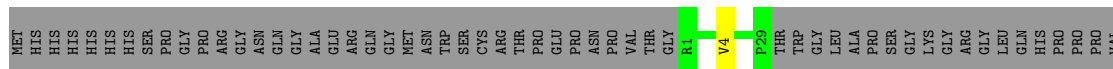
• Molecule 1: Receptor-interacting serine/threonine-protein kinase 3



• Molecule 1: Receptor-interacting serine/threonine-protein kinase 3



• Molecule 1: Receptor-interacting serine/threonine-protein kinase 3



• Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain D:  24% .. 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	HIS	HIS	PRO	PRO	GLY	ARG	ASN	GLN	GLY	ALA	GLU	ARG	GLN	R1	P2	L3	V4	L28	P29	THR	TRP	LEU	ALA	PRO	SER	GLY	LYS	ARG	GLY	GLY	GLN	HIS	PRO	PRO
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

PRO	VAL	GLY	SER	GLN	GLU	GLY	PRO	PRO	LYS	ASP	GLU	ALA	TRP	SER	ARG	GLY	GLN	GLY	TRP	TYR	ASN	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain E:  23% . 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	HIS	SER	PRO	PRO	GLY	ARG	ASN	GLN	GLY	ALA	GLU	ARG	GLN	R1	P2	L3	V4	L28	P29	THR	TRP	LEU	ALA	PRO	SER	GLY	LYS	ARG	GLY	GLY	GLN	HIS	PRO	PRO
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

PRO	VAL	GLY	SER	GLN	GLU	GLY	PRO	PRO	LYS	ASP	GLU	ALA	TRP	SER	ARG	GLY	GLN	GLY	TRP	TYR	ASN	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

4.2.9 Score per residue for model 9

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain A:  26% . 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	HIS	SER	PRO	PRO	GLY	ARG	ASN	GLN	GLY	ALA	GLU	ARG	GLN	R1	L20	P29	THR	TRP	LEU	ALA	PRO	SER	GLY	LYS	ARG	GLY	GLY	HIS	PRO	PRO	VAL
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

GLY	SER	GLN	GLU	GLY	PRO	LYS	ASP	PRO	GLU	ALA	TRP	SER	ARG	PRO	GLN	GLY	GLY	TRP	TYR	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain B:  24% .. 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	HIS	SER	PRO	PRO	GLY	ARG	ASN	GLN	GLY	ALA	GLU	ARG	GLN	R1	L20	L28	P29	THR	TRP	GLY	LEU	ALA	PRO	SER	GLY	LYS	GLY	GLY	GLY	GLN	HIS	PRO	PRO
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

VAL	GLY	SER	GLN	GLU	GLY	PRO	LYS	ASP	PRO	GLU	ALA	TRP	SER	ARG	PRO	GLN	GLY	GLY	TRP	TYR	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

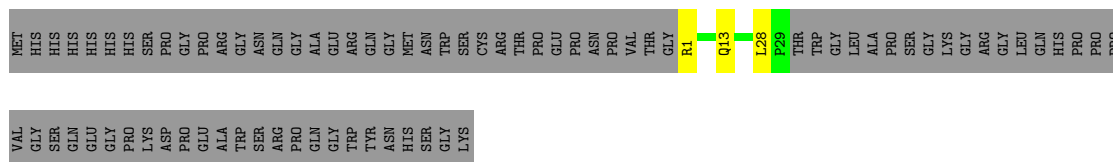
Chain C:  23% . 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	HIS	SER	PRO	PRO	GLY	ARG	ASN	GLN	GLY	ALA	GLU	ARG	GLN	R1	Q13	L20	L28	P29	THR	TRP	GLY	LEU	ALA	PRO	SER	GLY	LYS	ARG	GLY	GLY	GLN	HIS	PRO	PRO
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

PRO	PRO	VAL	GLY	SER	GLN	GLU	GLY	PRO	PRO	LYS	ASP	GLU	ALA	TRP	SER	ARG	GLY	GLN	GLY	TRP	TYR	ASN	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

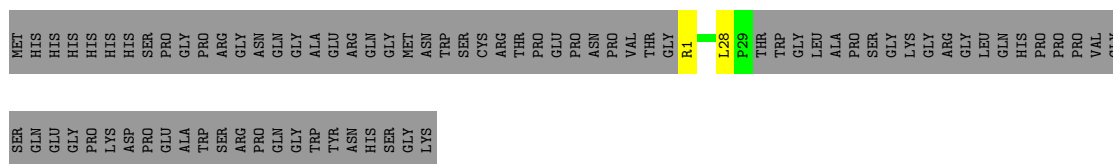
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain D:  24% 73%



- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

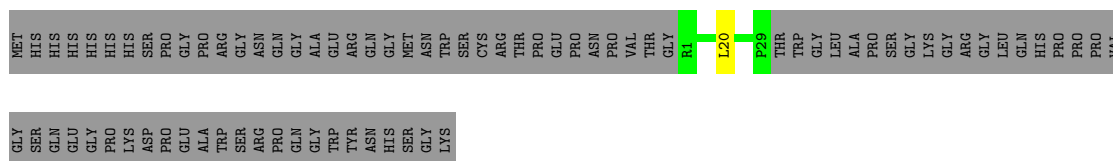
Chain E:  25% 73%



4.2.10 Score per residue for model 10

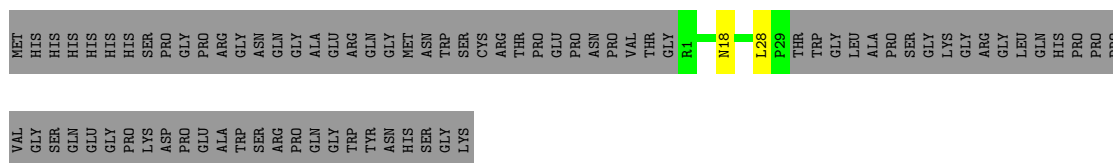
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain A:  26% 73%



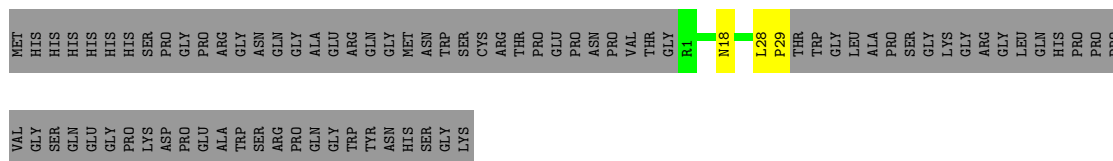
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain B:  25% 73%



- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain C:  24% 73%



- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain D:  26% 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	HIS	SER	PRO	PRO	GLY	ALA	ARG	GLY	ASN	GLN	GLY	ALA	GLU	ARG	GLN	MET	ASN	TRP	SER	CYS	ARG	THR	PRO	GLU	PRO	ASN	PRO	VAL	THR	GLY	R1	L28	P29	THR	TRP	GLY	LEU	ALA	PRO	SER	GLY	LYS	GLY	ARG	GLY	LEU	GLN	HIS	PRO	PRO	VAL	GLY
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

SER	GLN	GLU	GLY	PRO	LYS	ASP	PRO	GLU	ALA	TRP	SER	ARG	PRO	GLN	GLY	TRP	TYR	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain E:  26% 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	SER	PRO	PRO	GLY	ALA	ARG	GLY	ASN	GLN	GLY	ALA	GLU	ARG	GLN	MET	ASN	TRP	SER	CYS	ARG	THR	PRO	GLU	PRO	ASN	PRO	VAL	THR	GLY	R1	L28	P29	THR	TRP	GLY	LEU	ALA	PRO	SER	GLY	LYS	GLY	ARG	GLY	LEU	GLN	HIS	PRO	PRO	VAL	GLY
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

SER	GLN	GLU	GLY	PRO	LYS	ASP	PRO	GLU	ALA	TRP	SER	ARG	PRO	GLN	GLY	TRP	TYR	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

4.2.11 Score per residue for model 11

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain A:  24% 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	SER	PRO	PRO	GLY	ALA	ARG	GLY	ASN	GLN	GLY	ALA	GLU	ARG	GLN	MET	ASN	TRP	SER	CYS	ARG	THR	PRO	GLU	PRO	ASN	PRO	VAL	THR	GLY	R1	Q13	L28	P29	THR	TRP	GLY	LEU	ALA	PRO	SER	GLY	LYS	GLY	ARG	GLY	LEU	GLN	HIS	PRO	PRO	VAL	GLY
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

VAL	GLY	SER	GLN	GLU	GLY	PRO	LYS	ASP	PRO	GLU	ALA	TRP	SER	ARG	GLN	GLY	TRP	TYR	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain B:  23% 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	SER	PRO	PRO	GLY	ALA	ARG	GLY	ASN	GLN	GLY	ALA	GLU	ARG	GLN	GLY	MET	ASN	TRP	SER	CYS	ARG	THR	PRO	GLU	PRO	ASN	PRO	VAL	THR	GLY	R1	I6	V12	Y19	L20	P29	THR	TRP	GLY	LEU	ALA	PRO	SER	GLY	LYS	GLY	ARG	GLY	LEU	GLN	GLN
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

HIS	PRO	PRO	PRO	VAL	GLY	SER	GLN	GLU	GLY	PRO	PRO	LYS	ASP	PRO	GLU	ALA	TRP	SER	ARG	PRO	GLN	GLY	MET	TRP	TYR	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

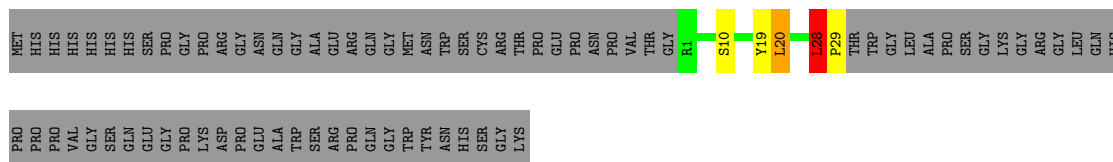
Chain C:  22% 5% 73%

MET	HIS	HIS	HIS	HIS	HIS	HIS	SER	PRO	PRO	GLY	ALA	ARG	GLY	ASN	GLN	GLY	ALA	GLU	ARG	GLN	MET	ASN	TRP	SER	CYS	ARG	THR	PRO	GLU	PRO	ASN	PRO	VAL	THR	GLY	R1	M8	C9	S10	Y19	L20	P29	THR	TRP	GLY	LEU	ALA	PRO	SER	GLY	LYS	GLY	ARG	GLY	LEU	GLN	GLN
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	----	----	----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

HIS	PRO	PRO	PRO	VAL	GLY	SER	GLN	GLU	GLY	PRO	PRO	LYS	ASP	PRO	GLU	ALA	TRP	SER	ARG	PRO	GLN	GLY	MET	TRP	TYR	ASN	HIS	SER	GLY	LYS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

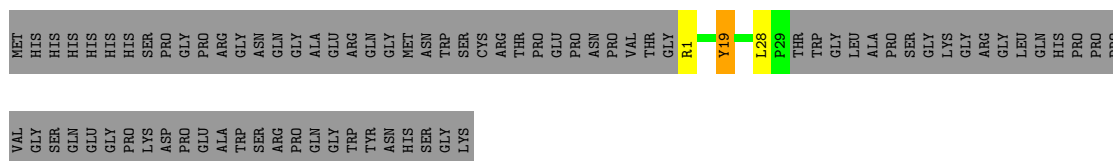
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain D: 22% 73%



- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

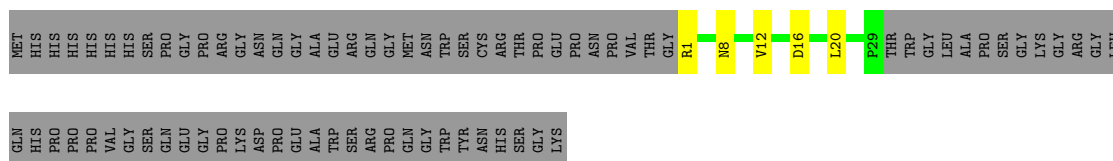
Chain E: 24% 73%



4.2.12 Score per residue for model 12

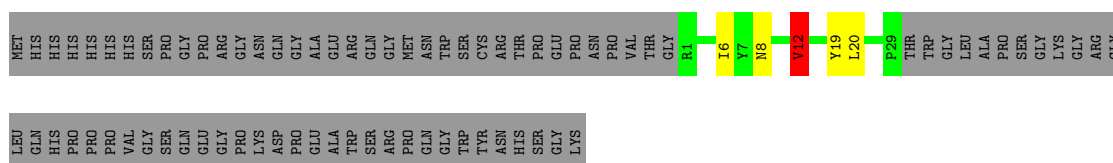
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain A: 22% 5% 73%



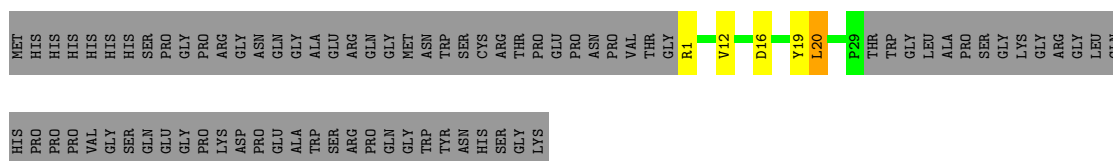
- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain B: 22% 73%



- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain C: 22% 73%



- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain D:  24% .. 73%

MET HIS HIS HIS HIS HIS HIS SER PRO PRO GLY PRO LYS ARG ARG ASN GLN ALA SER ALA ARG ARG GLN MET TRP TRP TRP CYS ARG THR PRO GLU PRO ASN PRO VAL THR THR GLY R1 I6 Y7 N8 L20 P29 THR TRP GLY LEU ALA PRO SER GLY LYS ARG GLY LEU GLN HIS

PRO PRO VAL GLY SER GLM GLU PRO LYS ASP PRO GLU ALA TRP ALA SER ARG PRO GLM TYR ASN TRP MET ASN TRP TRP SER HIS SER ARG LYS

- Molecule 1: Receptor-interacting serine/threonine-protein kinase 3

Chain E:  24% .. 73%

MET HIS HIS HIS HIS HIS HIS SER PRO PRO GLY PRO LYS ARG ARG ASN GLN ALA SER ALA ARG ARG GLN MET TRP TRP TRP CYS ARG THR PRO GLU PRO ASN PRO VAL THR THR GLY R1 N8 N17 N18 P29 THR TRP GLY LEU ALA PRO SER GLY LYS ARG GLY LEU GLN HIS PRO

PRO PRO VAL GLY SER GLM GLU GLY PRO LYS ASP PRO GLU ALA TRP TRP ALA SER ARG PRO GLM TYR ASN TRP TRP SER HIS SER ARG LYS

5 Refinement protocol and experimental data overview

The models were refined using the following method: *simulated annealing*.

Of the 96 calculated structures, 12 were deposited, based on the following criterion: *structures with the lowest energy*.

The following table shows the software used for structure solution, optimisation and refinement.

Software name	Classification	Version
CNS	refinement	
X-PLOR NIH	structure calculation	

The following table shows chemical shift validation statistics as aggregates over all chemical shift files. Detailed validation can be found in section 7 of this report.

Chemical shift file(s)	working_cs.cif
Number of chemical shift lists	1
Total number of shifts	139
Number of shifts mapped to atoms	139
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Assignment completeness (well-defined parts)	7%

Note: This is a solid-state NMR structure, where hydrogen atoms are typically not assigned a chemical shift value, which may lead to lower completeness of assignment measure.

6 Model quality i

6.1 Standard geometry i

There are no covalent bond-length or bond-angle outliers.

There are no bond-length outliers.

There are no bond-angle outliers.

There are no chirality outliers.

There are no planarity outliers.

6.2 Too-close contacts i

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in each chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes averaged over the ensemble.

Mol	Chain	Non-H	H(model)	H(added)	Clashes
1	B	223	219	221	2±2
1	C	223	219	221	2±3
1	D	223	219	221	2±2
1	E	223	219	221	1±1
1	A	223	219	221	1±1
All	All	13380	13140	13260	72

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 3.

All unique clashes are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:C:27:ALA:HB1	1:D:28:LEU:HD13	0.88	1.46	4	1
1:B:27:ALA:HB1	1:C:28:LEU:HD13	0.88	1.44	4	1
1:D:3:LEU:HD23	1:D:4:VAL:H	0.77	1.38	8	1
1:A:12:VAL:HG21	1:B:6:ILE:HD12	0.64	1.68	7	1
1:D:3:LEU:HD22	1:E:4:VAL:HG22	0.64	1.70	8	1
1:B:12:VAL:HG23	1:C:8:ASN:HD21	0.62	1.53	7	1
1:D:20:LEU:HD23	1:E:19:TYR:CD1	0.61	2.29	11	1
1:D:28:LEU:H	1:D:28:LEU:HD23	0.60	1.57	6	3
1:E:28:LEU:H	1:E:28:LEU:HD23	0.59	1.57	8	2
1:D:27:ALA:HB1	1:E:28:LEU:HD23	0.56	1.77	6	1

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:D:3:LEU:CD2	1:D:4:VAL:H	0.55	2.12	8	1
1:C:13:GLN:HG2	1:C:20:LEU:HD22	0.55	1.78	4	1
1:B:20:LEU:HD11	1:C:13:GLN:OE1	0.54	2.02	9	1
1:C:20:LEU:O	1:C:20:LEU:HD23	0.54	2.03	12	1
1:B:13:GLN:HG2	1:B:20:LEU:HD22	0.54	1.79	4	1
1:A:12:VAL:HG21	1:B:6:ILE:HG23	0.53	1.80	12	1
1:B:28:LEU:HD12	1:B:28:LEU:N	0.51	2.20	8	3
1:A:13:GLN:CD	1:A:20:LEU:HD13	0.51	2.25	7	1
1:C:4:VAL:O	1:D:4:VAL:HG13	0.51	2.06	8	1
1:B:20:LEU:HD21	1:C:13:GLN:HE22	0.49	1.67	9	1
1:A:4:VAL:HB	1:B:4:VAL:HG22	0.49	1.83	8	1
1:C:28:LEU:H	1:C:28:LEU:HD12	0.49	1.65	9	1
1:B:27:ALA:HB2	1:C:26:THR:O	0.48	2.08	4	1
1:B:28:LEU:H	1:B:28:LEU:HD23	0.47	1.68	10	1
1:C:28:LEU:H	1:C:28:LEU:HD23	0.47	1.68	6	1
1:C:20:LEU:HD12	1:D:20:LEU:HG	0.47	1.85	12	1
1:D:13:GLN:HE21	1:D:20:LEU:HD22	0.47	1.69	4	1
1:E:28:LEU:HD23	1:E:28:LEU:C	0.47	2.30	11	1
1:D:3:LEU:HD12	1:E:2:PRO:HB2	0.47	1.85	8	1
1:D:20:LEU:HD12	1:E:20:LEU:O	0.46	2.08	5	1
1:B:28:LEU:HD12	1:B:28:LEU:H	0.46	1.71	6	3
1:C:20:LEU:HD12	1:D:20:LEU:O	0.46	2.10	4	1
1:B:20:LEU:HD12	1:C:20:LEU:O	0.46	2.10	4	1
1:C:12:VAL:HG11	1:D:6:ILE:HD13	0.46	1.88	12	1
1:B:20:LEU:HD12	1:C:20:LEU:HB3	0.46	1.87	1	1
1:D:28:LEU:HD12	1:D:28:LEU:H	0.46	1.70	9	1
1:C:27:ALA:HB2	1:D:26:THR:O	0.46	2.11	4	1
1:C:28:LEU:HD12	1:C:28:LEU:N	0.45	2.26	9	1
1:C:28:LEU:HD22	1:C:28:LEU:N	0.45	2.26	4	1
1:D:28:LEU:HD22	1:D:28:LEU:N	0.44	2.27	4	1
1:B:20:LEU:HD21	1:C:13:GLN:NE2	0.44	2.28	9	1
1:A:13:GLN:HB3	1:A:20:LEU:HD22	0.44	1.90	5	1
1:D:27:ALA:HB2	1:E:26:THR:O	0.43	2.12	4	1
1:A:20:LEU:HD21	1:A:22:MET:CE	0.43	2.43	5	1
1:D:28:LEU:H	1:D:28:LEU:CD2	0.43	2.25	6	1
1:E:13:GLN:OE1	1:E:20:LEU:HD22	0.43	2.13	5	1
1:E:17:ASN:O	1:E:18:ASN:CB	0.43	2.66	12	1
1:D:27:ALA:HB1	1:E:28:LEU:HD13	0.43	1.90	4	1
1:C:20:LEU:HD21	1:C:22:MET:HE3	0.43	1.90	4	1
1:A:12:VAL:HG21	1:B:6:ILE:CG2	0.42	2.45	12	1
1:A:12:VAL:HG11	1:B:6:ILE:HD13	0.42	1.92	12	1

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Clash(Å)	Distance(Å)	Models	
				Worst	Total
1:E:28:LEU:H	1:E:28:LEU:CD2	0.41	2.25	8	1
1:E:28:LEU:HD12	1:E:28:LEU:H	0.41	1.76	9	1
1:E:28:LEU:HD12	1:E:28:LEU:N	0.41	2.30	9	1
1:A:20:LEU:HD13	1:B:20:LEU:HD23	0.41	1.92	5	1
1:D:20:LEU:HD21	1:D:22:MET:HG3	0.41	1.93	7	1
1:C:28:LEU:HD23	1:C:28:LEU:N	0.40	2.31	6	1
1:C:28:LEU:N	1:C:29:PRO:CD	0.40	2.84	10	1
1:B:6:ILE:HG21	1:B:12:VAL:HG23	0.40	1.92	12	1
1:B:20:LEU:HD21	1:B:22:MET:HG3	0.40	1.92	7	1
1:D:28:LEU:CB	1:D:29:PRO:HD3	0.40	2.46	11	1
1:B:20:LEU:HD23	1:B:20:LEU:H	0.40	1.75	12	1
1:B:13:GLN:HB3	1:B:20:LEU:HD22	0.40	1.92	6	1
1:A:28:LEU:N	1:A:29:PRO:CD	0.40	2.84	11	1
1:B:6:ILE:HG21	1:B:12:VAL:HG22	0.40	1.94	11	1

6.3 Torsion angles [i](#)

6.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR entries. The Analysed column shows the number of residues for which the backbone conformation was analysed and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	27/108 (25%)	25±1 (93±5%)	2±1 (6±4%)	0±0 (1±1%)	29	74
1	B	27/108 (25%)	24±1 (90±5%)	2±1 (9±4%)	0±0 (1±2%)	21	69
1	C	27/108 (25%)	25±1 (93±4%)	2±1 (6±5%)	0±1 (1±2%)	21	69
1	D	27/108 (25%)	25±1 (92±3%)	2±1 (6±3%)	0±1 (2±3%)	14	59
1	E	27/108 (25%)	25±1 (93±3%)	2±1 (7±2%)	0±0 (0±1%)	44	80
All	All	1620/6480 (25%)	1494 (92%)	112 (7%)	14 (1%)	21	69

All 13 unique Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
1	D	3	LEU	2
1	A	18	ASN	1
1	B	2	PRO	1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Models (Total)
1	D	2	PRO	1
1	B	18	ASN	1
1	C	18	ASN	1
1	C	8	ASN	1
1	C	10	SER	1
1	D	10	SER	1
1	D	28	LEU	1
1	A	8	ASN	1
1	B	12	VAL	1
1	E	18	ASN	1

6.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR entries. The Analysed column shows the number of residues for which the sidechain conformation was analysed and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	26/89 (29%)	25±1 (97±3%)	1±1 (3±3%)	42	88
1	B	26/89 (29%)	25±1 (95±4%)	1±1 (5±4%)	27	77
1	C	26/89 (29%)	25±1 (96±5%)	1±1 (4±5%)	33	82
1	D	26/89 (29%)	25±1 (96±4%)	1±1 (4±4%)	31	80
1	E	26/89 (29%)	26±1 (98±2%)	0±1 (2±2%)	64	94
All	All	1560/5340 (29%)	1502 (96%)	58 (4%)	37	85

All 31 unique residues with a non-rotameric sidechain are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type	Models (Total)
1	A	20	LEU	6
1	B	20	LEU	4
1	D	20	LEU	4
1	C	1	ARG	4
1	D	13	GLN	3
1	B	1	ARG	3
1	E	1	ARG	3
1	C	20	LEU	3
1	C	13	GLN	2
1	A	1	ARG	2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Models (Total)
1	D	1	ARG	2
1	B	19	TYR	2
1	C	19	TYR	2
1	C	22	MET	1
1	B	13	GLN	1
1	B	24	GLN	1
1	D	24	GLN	1
1	B	10	SER	1
1	B	16	ASP	1
1	B	3	LEU	1
1	D	3	LEU	1
1	A	13	GLN	1
1	D	19	TYR	1
1	D	28	LEU	1
1	E	19	TYR	1
1	A	16	ASP	1
1	B	8	ASN	1
1	B	12	VAL	1
1	C	16	ASP	1
1	D	8	ASN	1
1	E	8	ASN	1

6.3.3 RNA [i](#)

There are no RNA molecules in this entry.

6.4 Non-standard residues in protein, DNA, RNA chains [i](#)

There are no non-standard protein/DNA/RNA residues in this entry.

6.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.6 Ligand geometry [i](#)

There are no ligands in this entry.

6.7 Other polymers [i](#)

There are no such molecules in this entry.

6.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

7 Chemical shift validation [i](#)

The completeness of assignment taking into account all chemical shift lists is 7% for the well-defined parts and 7% for the entire structure.

7.1 Chemical shift list 1

File name: working_cs.cif

Chemical shift list name: *human_ripk3_cs-nmrstar.txt*

7.1.1 Bookkeeping [i](#)

The following table shows the results of parsing the chemical shift list and reports the number of nuclei with statistically unusual chemical shifts.

Total number of shifts	139
Number of shifts mapped to atoms	139
Number of unparsed shifts	0
Number of shifts with mapping errors	0
Number of shifts with mapping warnings	0
Number of shift outliers (ShiftChecker)	0

7.1.2 Chemical shift referencing [i](#)

The following table shows the suggested chemical shift referencing corrections.

Nucleus	# values	Correction \pm precision, ppm	Suggested action
$^{13}\text{C}_\alpha$	27	-0.05 ± 0.37	None needed (< 0.5 ppm)
$^{13}\text{C}_\beta$	24	—	None (insufficient data)
$^{13}\text{C}'$	24	—	None (insufficient data)
^{15}N	25	-0.35 ± 1.25	None needed (< 0.5 ppm)

7.1.3 Completeness of resonance assignments [i](#)

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 7%, i.e. 138 atoms were assigned a chemical shift out of a possible 1925. 0 out of 30 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	^1H	^{13}C	^{15}N
Backbone	75/715 (10%)	0/290 (0%)	51/290 (18%)	24/135 (18%)
Sidechain	63/1120 (6%)	0/730 (0%)	60/340 (18%)	3/50 (6%)

Continued on next page...

Continued from previous page...

	Total	¹H	¹³C	¹⁵N
Aromatic	0/90 (0%)	0/40 (0%)	0/50 (0%)	0/0 (—%)
Overall	138/1925 (7%)	0/1060 (0%)	111/680 (16%)	27/185 (15%)

Note: This is a solid-state NMR structure, where hydrogen atoms are typically not assigned a chemical shift value, which may lead to lower completeness of assignment measure.

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 7%, i.e. 138 atoms were assigned a chemical shift out of a possible 1925. 0 out of 30 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

	Total	¹H	¹³C	¹⁵N
Backbone	75/715 (10%)	0/290 (0%)	51/290 (18%)	24/135 (18%)
Sidechain	63/1120 (6%)	0/730 (0%)	60/340 (18%)	3/50 (6%)
Aromatic	0/90 (0%)	0/40 (0%)	0/50 (0%)	0/0 (—%)
Overall	138/1925 (7%)	0/1060 (0%)	111/680 (16%)	27/185 (15%)

Note: This is a solid-state NMR structure, where hydrogen atoms are typically not assigned a chemical shift value, which may lead to lower completeness of assignment measure.

7.1.4 Statistically unusual chemical shifts [i](#)

There are no statistically unusual chemical shifts.

7.1.5 Random Coil Index (RCI) plots [i](#)

The image below reports *random coil index* values for the protein chains in the structure. The height of each bar gives a probability of a given residue to be disordered, as predicted from the available chemical shifts and the amino acid sequence. A value above 0.2 is an indication of significant predicted disorder. The colour of the bar shows whether the residue is in the well-defined core (black) or in the ill-defined residue ranges (cyan), as described in section 2 on ensemble composition. If well-defined core and ill-defined regions are not identified then it is shown as gray bars.

Random coil index (RCI) for chain A:

