



Full wwPDB NMR Structure Validation Report ⓘ

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PDB ID : 1N3H / pdb_00001n3h
Title : Coupling of Folding and Binding in the PTB Domain of the Signaling Protein Shc
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Deposited on : 2002-10-28

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 : 4-5-2 with Phenix2.0
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
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) : 2.49

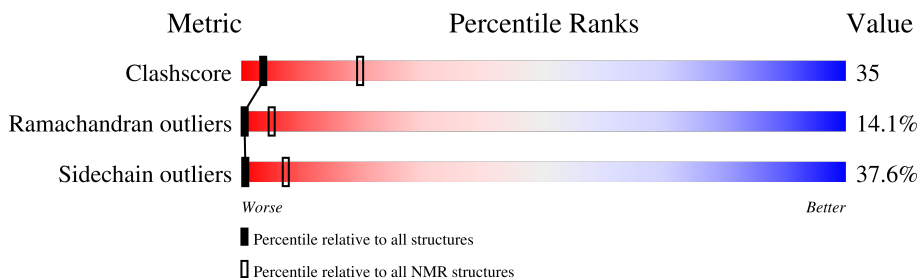
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

SOLUTION NMR

The overall completeness of chemical shifts assignment was not calculated.

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	229148	14424
Ramachandran outliers	224038	12848
Sidechain outliers	223484	12823

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	207	

2 Ensemble composition and analysis

This entry contains 1 models. Identification of well-defined residues and clustering analysis are not possible.

3 Entry composition

There is only 1 type of molecule in this entry. The entry contains 3181 atoms, of which 1598 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called SHC Transforming protein.

Mol	Chain	Residues	Atoms					Trace	
			Total	C	H	N	O		S
1	A	207	3181	982	1598	296	292	13	0

4 Residue-property plots [i](#)

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: SHC Transforming protein



5 Refinement protocol and experimental data overview

The models were refined using the following method: *Distance Geometry, Simulated Annealing, Molecular Dynamics, ARIA*.

Of the 200 calculated structures, 1 were deposited, based on the following criterion: ?.

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

Software name	Classification	Version
X-PLOR	structure solution	3.1
ARIA	structure solution	1.1
X-PLOR	refinement	3.1

No chemical shift data was provided.

6 Model quality

6.1 Standard geometry

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

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	A	1583	1598	1593	112
All	All	1583	1598	1593	112

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 35.

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

Atom-1	Atom-2	Clash(Å)	Distance(Å)
1:A:88:ALA:HB1	1:A:115:LEU:HD22	0.95	1.35
1:A:126:VAL:HG23	1:A:131:LEU:HD11	0.93	1.39
1:A:186:LEU:HD12	1:A:190:VAL:HG13	0.87	1.46
1:A:73:THR:HG21	1:A:109:ILE:HG21	0.87	1.46
1:A:50:VAL:O	1:A:126:VAL:HG12	0.85	1.71
1:A:120:MET:HE2	1:A:122:ILE:CG2	0.83	2.03
1:A:82:ILE:O	1:A:85:VAL:HG12	0.81	1.75
1:A:69:LEU:HD13	1:A:70:ASP:N	0.76	1.95
1:A:53:LEU:HD13	1:A:54:VAL:N	0.72	1.99
1:A:73:THR:HG22	1:A:77:VAL:HG23	0.71	1.62
1:A:159:ASP:O	1:A:160:THR:HG23	0.70	1.87
1:A:135:ALA:HB1	1:A:138:CYS:HB2	0.69	1.64
1:A:39:LEU:HA	1:A:194:ILE:HD13	0.69	1.64
1:A:182:CYS:SG	1:A:190:VAL:HG21	0.68	2.29
1:A:64:GLN:CB	1:A:109:ILE:HG22	0.66	2.19

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Atom-1	Atom-2	Clash(Å)	Distance(Å)
1:A:120:MET:HE2	1:A:122:ILE:HG22	0.66	1.68
1:A:69:LEU:HD21	1:A:76:GLN:NE2	0.65	2.05
1:A:150:ILE:N	1:A:150:ILE:HD13	0.65	2.07
1:A:86:CYS:HB2	1:A:96:THR:HG22	0.64	1.67
1:A:89:VAL:HG11	1:A:118:ALA:CB	0.64	2.22
1:A:38:TRP:CD2	1:A:126:VAL:HG21	0.63	2.28
1:A:126:VAL:HG23	1:A:131:LEU:CD1	0.63	2.21
1:A:73:THR:O	1:A:77:VAL:HG23	0.63	1.94
1:A:64:GLN:HB2	1:A:109:ILE:HG22	0.60	1.71
1:A:122:ILE:C	1:A:122:ILE:HD12	0.60	2.21
1:A:39:LEU:O	1:A:194:ILE:HG21	0.58	1.98
1:A:120:MET:HE2	1:A:122:ILE:HG21	0.57	1.75
1:A:135:ALA:HB2	1:A:142:ILE:HD11	0.56	1.76
1:A:73:THR:HG22	1:A:77:VAL:CG2	0.56	2.31
1:A:45:VAL:HG11	1:A:197:ALA:HB2	0.56	1.78
1:A:42:ASN:O	1:A:45:VAL:HG23	0.55	2.02
1:A:186:LEU:HD13	1:A:186:LEU:O	0.54	2.02
1:A:83:SER:HA	1:A:95:ALA:HB3	0.54	1.80
1:A:187:ALA:O	1:A:191:ILE:HG22	0.53	2.04
1:A:187:ALA:HA	1:A:190:VAL:HG22	0.53	1.81
1:A:82:ILE:HD11	1:A:165:ALA:HB2	0.53	1.80
1:A:172:VAL:HG22	1:A:172:VAL:O	0.52	2.02
1:A:124:LEU:HD21	1:A:131:LEU:HD23	0.51	1.81
1:A:69:LEU:HD13	1:A:70:ASP:H	0.51	1.65
1:A:82:ILE:HG12	1:A:179:ILE:HD12	0.51	1.82
1:A:53:LEU:HD22	1:A:122:ILE:C	0.50	2.30
1:A:53:LEU:HD13	1:A:53:LEU:C	0.49	2.32
1:A:62:VAL:HG13	1:A:110:LEU:H	0.49	1.68
1:A:76:GLN:CB	1:A:105:PRO:CB	0.49	2.90
1:A:69:LEU:CD2	1:A:76:GLN:NE2	0.48	2.77
1:A:157:ASP:CB	1:A:158:PRO:CD	0.48	2.91
1:A:85:VAL:O	1:A:89:VAL:HG12	0.48	2.08
1:A:54:VAL:CB	1:A:180:LEU:HD11	0.47	2.39
1:A:150:ILE:N	1:A:150:ILE:CD1	0.47	2.77
1:A:38:TRP:CD1	1:A:126:VAL:HG11	0.47	2.45
1:A:89:VAL:HG13	1:A:89:VAL:O	0.47	2.10
1:A:54:VAL:HB	1:A:180:LEU:HD11	0.46	1.85
1:A:30:PHE:O	1:A:30:PHE:CD2	0.46	2.68
1:A:53:LEU:HD22	1:A:122:ILE:O	0.46	2.11
1:A:170:ASP:CB	1:A:171:PRO:CD	0.46	2.93
1:A:68:ALA:CB	1:A:109:ILE:HG23	0.46	2.41
1:A:89:VAL:HG11	1:A:118:ALA:HB1	0.45	1.88

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Atom-1	Atom-2	Clash(Å)	Distance(Å)
1:A:115:LEU:HD23	1:A:115:LEU:H	0.45	1.71
1:A:109:ILE:H	1:A:109:ILE:HD13	0.45	1.72
1:A:153:ALA:HB2	1:A:167:VAL:HG11	0.45	1.88
1:A:60:VAL:HG13	1:A:179:ILE:HG12	0.45	1.89
1:A:89:VAL:HG21	1:A:118:ALA:HB3	0.45	1.89
1:A:86:CYS:CB	1:A:96:THR:HG22	0.44	2.40
1:A:180:LEU:HD21	1:A:182:CYS:SG	0.44	2.53
1:A:43:ASP:O	1:A:48:PRO:CD	0.44	2.66
1:A:80:GLU:O	1:A:84:LEU:CB	0.44	2.66
1:A:189:ASP:HA	1:A:194:ILE:HD12	0.44	1.88
1:A:76:GLN:HB2	1:A:105:PRO:CB	0.44	2.43
1:A:96:THR:HG23	1:A:97:ARG:N	0.43	2.28
1:A:121:PRO:C	1:A:122:ILE:CG2	0.43	2.91
1:A:124:LEU:C	1:A:124:LEU:CD2	0.43	2.90
1:A:115:LEU:HD23	1:A:115:LEU:N	0.43	2.28
1:A:187:ALA:O	1:A:191:ILE:CG2	0.43	2.66
1:A:52:TYR:CB	1:A:186:LEU:N	0.43	2.82
1:A:72:ASN:O	1:A:73:THR:CB	0.43	2.66
1:A:68:ALA:CB	1:A:109:ILE:CG2	0.43	2.97
1:A:77:VAL:HG22	1:A:109:ILE:HG13	0.43	1.91
1:A:170:ASP:CB	1:A:171:PRO:HD3	0.43	2.44
1:A:84:LEU:HD21	1:A:113:SER:N	0.43	2.29
1:A:30:PHE:O	1:A:30:PHE:CG	0.43	2.72
1:A:57:MET:O	1:A:58:GLY:C	0.43	2.60
1:A:88:ALA:CB	1:A:115:LEU:HD22	0.43	2.25
1:A:53:LEU:C	1:A:53:LEU:CD1	0.42	2.92
1:A:124:LEU:CD2	1:A:125:THR:N	0.42	2.82
1:A:42:ASN:O	1:A:46:MET:CG	0.42	2.67
1:A:157:ASP:CB	1:A:158:PRO:HD3	0.42	2.44
1:A:33:LYS:N	1:A:34:PRO:CD	0.42	2.82
1:A:69:LEU:HB2	1:A:73:THR:HG23	0.42	1.91
1:A:75:THR:OG1	1:A:76:GLN:N	0.42	2.53
1:A:121:PRO:O	1:A:122:ILE:CG2	0.42	2.68
1:A:86:CYS:O	1:A:90:PRO:N	0.42	2.52
1:A:105:PRO:HG2	1:A:109:ILE:CG1	0.42	2.45
1:A:121:PRO:C	1:A:122:ILE:HG23	0.42	2.38
1:A:60:VAL:HG23	1:A:60:VAL:O	0.42	2.14
1:A:38:TRP:O	1:A:40:HIS:N	0.41	2.53
1:A:40:HIS:CD2	1:A:41:PRO:HD2	0.41	2.50
1:A:152:PHE:O	1:A:153:ALA:HB2	0.41	2.16
1:A:38:TRP:CE3	1:A:126:VAL:HG21	0.41	2.51
1:A:43:ASP:O	1:A:48:PRO:HD2	0.41	2.15

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Atom-1	Atom-2	Clash(Å)	Distance(Å)
1:A:135:ALA:HB3	1:A:140:GLN:HG2	0.41	1.91
1:A:196:GLN:O	1:A:198:PHE:N	0.41	2.53
1:A:52:TYR:HB3	1:A:186:LEU:N	0.41	2.31
1:A:186:LEU:O	1:A:186:LEU:CD1	0.41	2.67
1:A:186:LEU:O	1:A:188:GLN:N	0.41	2.53
1:A:105:PRO:HG2	1:A:109:ILE:HD11	0.40	1.92
1:A:124:LEU:HD23	1:A:125:THR:N	0.40	2.31
1:A:76:GLN:CB	1:A:105:PRO:HB2	0.40	2.46
1:A:105:PRO:HG2	1:A:109:ILE:CD1	0.40	2.47
1:A:89:VAL:O	1:A:89:VAL:HG22	0.40	2.17
1:A:109:ILE:O	1:A:110:LEU:CB	0.40	2.69
1:A:135:ALA:HB2	1:A:142:ILE:CD1	0.40	2.46
1:A:189:ASP:O	1:A:193:THR:N	0.40	2.54

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	205/207 (99%)	120 (59%)	56 (27%)	29 (14%)	0	5
All	All	205/207 (99%)	120 (59%)	56 (27%)	29 (14%)	0	5

All 29 Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type
1	A	24	TRP
1	A	33	LYS
1	A	41	PRO
1	A	49	GLY
1	A	58	GLY
1	A	67	ARG
1	A	69	LEU
1	A	71	PHE
1	A	72	ASN
1	A	77	VAL

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Mol	Chain	Res	Type
1	A	94	GLY
1	A	97	ARG
1	A	101	PRO
1	A	102	CYS
1	A	103	SER
1	A	105	PRO
1	A	111	GLY
1	A	130	SER
1	A	153	ALA
1	A	156	GLY
1	A	157	ASP
1	A	160	THR
1	A	161	ALA
1	A	174	GLN
1	A	175	ARG
1	A	187	ALA
1	A	197	ALA
1	A	200	LEU
1	A	203	LYS

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	170/170 (100%)	106 (62%)	64 (38%)	0 7
All	All	170/170 (100%)	106 (62%)	64 (38%)	0 7

All 64 residues with a non-rotameric sidechain are listed below. They are sorted by the frequency of occurrence in the ensemble.

Mol	Chain	Res	Type
1	A	1	MET
1	A	2	ASN
1	A	3	LYS
1	A	11	ARG
1	A	15	GLU
1	A	18	GLN

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Mol	Chain	Res	Type
1	A	23	GLU
1	A	25	THR
1	A	26	ARG
1	A	33	LYS
1	A	36	ARG
1	A	39	LEU
1	A	40	HIS
1	A	43	ASP
1	A	44	LYS
1	A	45	VAL
1	A	46	MET
1	A	50	VAL
1	A	54	VAL
1	A	55	ARG
1	A	57	MET
1	A	61	GLU
1	A	64	GLN
1	A	66	MET
1	A	67	ARG
1	A	69	LEU
1	A	71	PHE
1	A	73	THR
1	A	76	GLN
1	A	78	THR
1	A	98	ARG
1	A	100	LYS
1	A	103	SER
1	A	106	LEU
1	A	108	SER
1	A	109	ILE
1	A	110	LEU
1	A	112	ARG
1	A	116	LYS
1	A	123	THR
1	A	124	LEU
1	A	127	SER
1	A	128	THR
1	A	130	SER
1	A	131	LEU
1	A	134	MET
1	A	138	CYS
1	A	142	ILE

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Mol	Chain	Res	Type
1	A	144	ASN
1	A	146	HIS
1	A	148	GLN
1	A	149	SER
1	A	150	ILE
1	A	159	ASP
1	A	160	THR
1	A	170	ASP
1	A	173	ASN
1	A	174	GLN
1	A	180	LEU
1	A	186	LEU
1	A	192	SER
1	A	199	GLU
1	A	200	LEU
1	A	204	GLN

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 oligosaccharides 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

There are no chain breaks in this entry.

7 Chemical shift validation

No chemical shift data were provided