

Integrative Structure Validation Report

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The following software was used in the production of this report:

Python-IHM Version 1.3

MolProbity Version 4.5.2

Integrative Modeling Validation Version 1.2

PDB ID	8ZZ7
PDB-Dev ID	PDBDEV_00000007
Structure Title	Serum Albumin Domain C Structure
Structure Authors	Belsom A; Schneider M; Fischer L; Brock O; Rappsilber J

This is a PDB-Dev IM Structure Validation Report for a publicly released PDB-Dev entry.

We welcome your comments at pdb-dev@mail.wwpdb.org

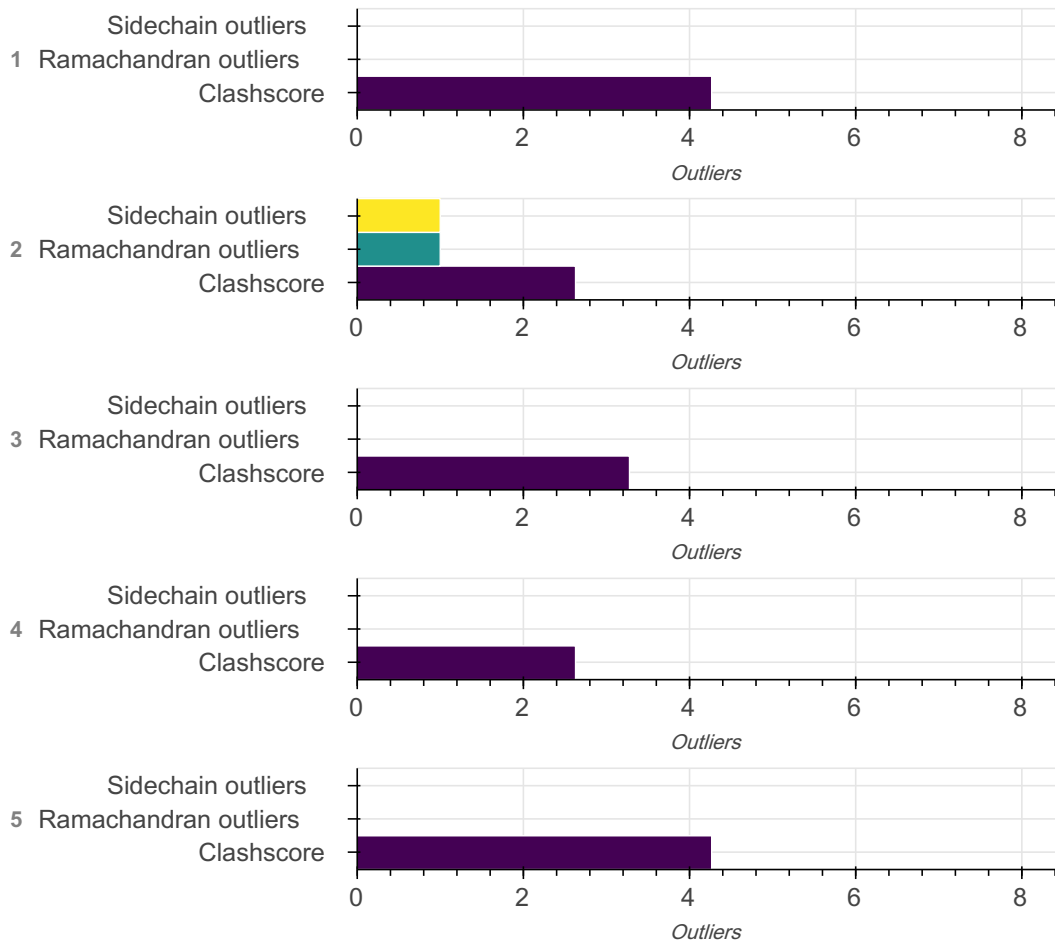
A user guide is available at https://pdb-dev.wwpdb.org/validation_help.html with specific help available everywhere you see the  symbol.

List of references used to build this report is available [here](#).

Overall quality

This validation report contains model quality assessments for all structures, data quality assessment for SAS datasets and fit to model assessments for SAS datasets. Data quality and fit to model assessments for other datasets and model uncertainty are under development. Number of plots is limited to 256.

Model Quality: MolProbity Analysis



Ensemble information ?

This entry consists of 0 distinct ensemble(s).

Summary ?

This entry consists of 5 unique models, with 1 subunits in each model. A total of 2 datasets or restraints were used to build this entry. Each model is represented by 1 rigid bodies and 0 flexible or non-rigid units.

Entry composition ?

There are 5 unique types of models in this entry. These models are titled Best scoring model (domain C), 2nd best scoring model (domain C), 3rd best scoring model (domain C), 4th best scoring model (domain C), 5th best scoring model (domain C) respectively.

Model ID	Subunit number	Subunit ID	Subunit name	Chain ID	Chain ID [auth]	Total residues

Model ID	Subunit number	Subunit ID	Subunit name	Chain ID	Chain ID [auth]	Total residues
1	1	1	HSA_C	A	A	192
2	1	1	HSA_C	A	A	192
3	1	1	HSA_C	A	A	192
4	1	1	HSA_C	A	A	192
5	1	1	HSA_C	A	A	192

Datasets used for modeling

There are 2 unique datasets used to build the models in this entry.

ID	Dataset type	Database name	Data access code
1	Crosslinking-MS data	PRIDE	PXD001692
2	Other	File	10.5281/zenodo.1035833

Representation

This entry has only one representation and includes 1 rigid bodies and 0 flexible units

Chain ID	Rigid bodies	Non-rigid segments
A	1-192:None	-

Methodology and software

This entry is a result of 1 distinct protocol(s).

Step number	Protocol ID	Method name	Method type	Method description	Number of computed models	Multi state modeling	Multi scale modeling
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Step number	Protocol ID	Method name	Method type	Method description	Number of computed models	Multi state modeling	Multi scale modeling
1	1	Model-based search (MBS) in Rosetta	Conformational search	None	5000	False	False

There are 2 software packages reported in this entry.

ID	Software name	Software version	Software classification	Software location
1	Rosetta MBS	Not available	Model Building	https://compbio.robotics.tu-berlin.de/rbo_aleph
2	EPC-map	Not available	Contact Predictor	https://compbio.robotics.tu-berlin.de/epsilon

Data quality

Crosslinking-MS

Validation for this section is under development.

Model quality

For models with atomic structures, molprobability analysis is performed. For models with coarse-grained or multi-scale structures, excluded volume analysis is performed.

Standard geometry: bond outliers

There are 7680 bond outliers in this entry. A summary is provided below, and a detailed list of outliers can be found [here](#).

Bond type	Observed distance (Å)	Ideal distance (Å)	Number of outliers
N--H1	1.00	0.89	5
N--H2	1.00	0.89	5
N--H3	1.00	0.89	5
CB--HB3	1.09	0.97	730

Bond type	Observed distance (Å)	Ideal distance (Å)	Number of outliers
CG--HG3	1.09	0.97	300
CE--HE2	1.09	0.97	125
CB--HB2	1.09	0.97	730
CD--HD2	1.09	0.97	150
CG2--HG23	1.09	0.97	170
CG1--HG13	1.09	0.97	105
CG2--HG21	1.09	0.97	170
CG1--HG12	1.09	0.97	105
CD--HD3	1.09	0.97	150
CD1--HD13	1.09	0.97	95
CG--HG2	1.09	0.97	300
CE--HE3	1.09	0.97	125
OG1--HG1	0.96	0.84	65
CG2--HG22	1.09	0.97	170
NZ--HZ1	1.01	0.89	115
CA--HA	1.09	0.97	900
CA--HA3	1.09	0.97	20
CB--HB1	1.09	0.97	85
CD2--HD23	1.09	0.97	85
CB--HB	1.09	0.97	170
CD2--HD22	1.09	0.97	85
NZ--HZ3	1.01	0.89	115
CD1--HD11	1.09	0.97	95

Bond type	Observed distance (Å)	Ideal distance (Å)	Number of outliers
CA--HA2	1.09	0.97	20
CD1--HD12	1.09	0.97	95
CG--HG	1.09	0.97	85
OG--HG	0.96	0.84	45
CG1--HG11	1.09	0.97	95
NZ--HZ2	1.01	0.89	115
CD2--HD21	1.09	0.97	85
OH--HH	0.96	0.84	20
CE--HE1	1.09	0.97	10
SG--HG	1.33	1.20	60
CG--HG2	1.10	0.97	40
CD--HD2	1.10	0.97	40
CG--HG3	1.10	0.97	40
CB--HB3	1.10	0.97	40
CB--HB2	1.10	0.97	40
CA--HA	1.10	0.97	40
CD--HD3	1.10	0.97	40
ND2--HD22	1.00	0.86	30
NE2--HE22	1.00	0.86	40
ND2--HD21	1.00	0.86	30
NE2--HE21	1.00	0.86	40
NH2--HH22	1.01	0.86	35
N--H	1.01	0.86	915

Bond type	Observed distance (Å)	Ideal distance (Å)	Number of outliers
NH1--HH11	1.01	0.86	35
NH1--HH12	1.01	0.86	35
NE2--HE2	1.01	0.86	20
NH2--HH21	1.01	0.86	35
NE--HE	1.01	0.86	35
CE2--HE2	1.09	0.93	65
CZ--HZ	1.09	0.93	45
CE1--HE1	1.09	0.93	85
CD1--HD1	1.09	0.93	65
CD2--HD2	1.09	0.93	85

Standard geometry: angle outliers

There are 220 angle outliers in this entry. A summary is provided below, and a detailed list of outliers can be found [here](#).

Angle type	Observed angle (°)	Ideal angle (°)	Number of outliers
N-CA-CB	110.50	102.69	2
N-CA-CB	110.50	102.71	1
N-CA-CB	110.50	102.72	6
N-CA-CB	110.50	102.73	3
N-CA-CB	110.50	102.74	9
N-CA-CB	110.50	102.75	8
N-CA-CB	110.50	102.76	10
N-CA-CB	110.50	102.77	1
N-CA-CB	110.50	102.78	6
N-CA-CB	110.50	102.79	8

Angle type	Observed angle (°)	Ideal angle (°)	Number of outliers
N-CA-CB	110.50	102.80	4
N-CA-CB	110.50	102.81	2
CZ-NE-HE	105.89	117.90	1
CZ-NE-HE	105.88	117.90	1
CZ-NE-HE	105.87	117.90	3
CZ-NE-HE	105.84	117.90	3
CZ-NE-HE	105.83	117.90	5
CZ-NE-HE	105.82	117.90	1
CZ-NE-HE	105.81	117.90	3
CZ-NE-HE	105.80	117.90	3
CZ-NE-HE	105.79	117.90	4
CZ-NE-HE	105.78	117.90	5
CZ-NE-HE	105.77	117.90	2
CZ-NE-HE	105.76	117.90	3
CZ-NE-HE	105.74	117.90	1
H1-N-H2	97.26	109.47	1
H1-N-H3	97.22	109.47	2
H1-N-H2	97.22	109.47	1
H1-N-H2	97.21	109.47	1
H2-N-H3	97.21	109.47	1
H2-N-H3	97.20	109.47	1
H2-N-H3	97.18	109.47	1
H1-N-H2	97.17	109.47	1

Angle type	Observed angle (°)	Ideal angle (°)	Number of outliers
H1-N-H3	97.17	109.47	2
H2-N-H3	97.17	109.47	1
H1-N-H2	97.16	109.47	1
H2-N-H3	97.15	109.47	1
H1-N-H3	97.15	109.47	1
CB-CG-HG2	122.70	109.00	1
CB-CG-HG2	122.71	109.00	2
CB-CG-HG2	122.72	109.00	3
CB-CG-HG2	122.73	109.00	1
CB-CG-HG2	122.75	109.00	7
CB-CG-HG2	122.76	109.00	2
CB-CG-HG2	122.77	109.00	3
CB-CG-HG2	122.78	109.00	7
CB-CG-HG2	122.79	109.00	2
CB-CG-HG2	122.80	109.00	1
CB-CG-HG2	122.81	109.00	3
CB-CG-HG2	122.82	109.00	2
CB-CG-HG2	122.83	109.00	2
CB-CG-HG2	122.84	109.00	1
CB-CG-HG2	122.86	109.00	2
CB-CG-HG2	122.90	109.00	1
CB-CG-HG3	94.64	109.00	1
CB-CG-HG3	94.63	109.00	1

Angle type	Observed angle (°)	Ideal angle (°)	Number of outliers
CB-CG-HG3	94.62	109.00	1
CB-CG-HG3	94.61	109.00	1
CB-CG-HG3	94.60	109.00	1
CB-CG-HG3	94.59	109.00	3
CB-CG-HG3	94.58	109.00	4
CB-CG-HG3	94.57	109.00	4
CB-CG-HG3	94.56	109.00	3
CB-CG-HG3	94.55	109.00	3
CB-CG-HG3	94.54	109.00	5
CB-CG-HG3	94.53	109.00	5
CB-CG-HG3	94.52	109.00	3
CB-CG-HG3	94.51	109.00	3
CB-CG-HG3	94.50	109.00	1
CB-CG-HG3	94.49	109.00	1
CA-CB-HB3	93.41	109.00	1
CA-CB-HB3	93.40	109.00	1
CA-CB-HB3	93.38	109.00	1
CA-CB-HB3	93.36	109.00	4
CA-CB-HB3	93.35	109.00	3
CA-CB-HB3	93.34	109.00	4
CA-CB-HB3	93.33	109.00	1
CA-CB-HB3	93.32	109.00	4
CA-CB-HB3	93.31	109.00	3

Angle type	Observed angle (°)	Ideal angle (°)	Number of outliers
CA-CB-HB3	93.30	109.00	2
CA-CB-HB3	93.29	109.00	3
CA-CB-HB3	93.27	109.00	1
CA-CB-HB3	93.26	109.00	1
CA-CB-HB3	93.25	109.00	1

Too-close contacts

The following all-atom clashscore is based on a MolProbity analysis. All-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The table below contains clashscores for all the models in this entry.

Model ID	Clash score	Number of clashes
1	4.27	13
2	2.63	8
3	3.28	10
4	2.63	8
5	4.27	13

All 52 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Model ID	Atom-1	Atom-2	Clash overlap (Å)
1	A:124:CYS:O	A:131:ARG:NH2	0.756
1	A:45:SER:O	A:48:CYS:SG	0.581
1	A:45:SER:HA	A:48:CYS:SG	0.563
1	A:124:CYS:C	A:131:ARG:HH21	0.560
1	A:77:THR:N	A:78:PRO:CD	0.518
1	A:30:THR:HB	A:31:PRO:HD3	0.498
1	A:124:CYS:SG	A:174:LYS:HD2	0.463
1	A:30:THR:N	A:31:PRO:CD	0.456

Model ID	Atom-1	Atom-2	Clash overlap (Å)
1	A:68:ASN:O	A:71:CYS:HB2	0.452
1	A:121:ALA:O	A:124:CYS:SG	0.428
1	A:21:TYR:C	A:21:TYR:CD1	0.412
1	A:164:PHE:O	A:168:CYS:SG	0.408
1	A:77:THR:HB	A:78:PRO:HD3	0.403
2	A:77:THR:N	A:78:PRO:CD	0.522
2	A:110:LYS:HD3	A:110:LYS:N	0.517
2	A:30:THR:N	A:31:PRO:CD	0.463
2	A:164:PHE:C	A:164:PHE:CD1	0.448
2	A:164:PHE:CE1	A:168:CYS:SG	0.443
2	A:30:THR:HB	A:31:PRO:HD3	0.437
2	A:77:THR:HB	A:78:PRO:HD3	0.417
2	A:164:PHE:CD1	A:164:PHE:O	0.409
3	A:124:CYS:O	A:131:ARG:NH2	0.620
3	A:63:LEU:C	A:63:LEU:HD23	0.580
3	A:168:CYS:HA	A:177:CYS:SG	0.557
3	A:30:THR:HB	A:31:PRO:HD3	0.491
3	A:38:ARG:NH2	A:136:GLN:OE1	0.489
3	A:63:LEU:O	A:63:LEU:HD23	0.487
3	A:54:LYS:HA	A:55:ARG:HA	0.438
3	A:30:THR:N	A:31:PRO:CD	0.436
3	A:63:LEU:C	A:63:LEU:CD2	0.407
3	A:93:ASN:C	A:93:ASN:OD1	0.406

Model ID	Atom-1	Atom-2	Clash overlap (Å)
4	A:166:GLU:O	A:169:CYS:SG	0.621
4	A:43:VAL:O	A:47:CYS:SG	0.534
4	A:77:THR:N	A:78:PRO:CD	0.526
4	A:121:ALA:O	A:124:CYS:SG	0.513
4	A:30:THR:HB	A:31:PRO:HD3	0.484
4	A:126:LEU:O	A:131:ARG:NH1	0.468
4	A:30:THR:N	A:31:PRO:CD	0.452
4	A:77:THR:HB	A:78:PRO:HD3	0.424
5	A:124:CYS:O	A:131:ARG:NH2	0.683
5	A:139:LEU:C	A:139:LEU:HD23	0.646
5	A:139:LEU:O	A:139:LEU:HD23	0.618
5	A:77:THR:N	A:78:PRO:CD	0.525
5	A:2:CYS:SG	A:56:MET:O	0.519
5	A:124:CYS:C	A:131:ARG:HH21	0.515
5	A:30:THR:HB	A:31:PRO:HD3	0.474
5	A:149:ALA:HB2	A:192:ALA:OXT	0.471
5	A:139:LEU:C	A:139:LEU:CD2	0.467
5	A:30:THR:N	A:31:PRO:CD	0.452
5	A:45:SER:O	A:48:CYS:HB2	0.447
5	A:68:ASN:O	A:71:CYS:HB2	0.414
5	A:77:THR:HB	A:78:PRO:HD3	0.412

Torsion angles: Protein backbone

In the following table, Ramachandran outliers are listed. The Analysed column shows the number of residues for which the backbone conformation was analysed.

Model ID	Analyzed	Favored	Allowed	Outliers
1	190	185	5	0
2	190	185	4	1
3	190	189	1	0
4	190	185	5	0
5	190	183	7	0

Detailed list of outliers are tabulated below.

Torsion angles: Protein sidechains ?

In the following table, sidechain outliers are listed. The Analysed column shows the number of residues for which the sidechain conformation was analysed.

Model ID	Analyzed	Favored	Allowed	Outliers
1	171	169	2	0
2	171	169	1	1
3	171	171	0	0
4	171	171	0	0
5	171	171	0	0

Detailed list of outliers are tabulated below.

Model ID	Chain	Residue ID	Residue type
2	A	110	LYS

Fit of model to data used for modeling ?

Crosslinking-MS

Validation for this section is under development.

Fit of model to data used for validation ?

Validation for this section is under development.

Acknowledgements

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