



# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 5, 2023 – 02:45 AM EDT

PDB ID : 6VY4  
Title : Crystal structure of Hendra receptor binding protein head domain in complex with human neutralizing antibody HENV-32  
Authors : Dong, J.; Crowe, J.E.  
Deposited on : 2020-02-25  
Resolution : 2.00 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

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

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>.

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

MolProbity : **FAILED**  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtrriage (Phenix) : 1.13  
EDS : **FAILED**  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.35.1

## 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.00 Å.

There are no overall percentile quality scores available for this entry.

MolProbity and EDS failed to run properly - the sequence quality summary graphics cannot be shown.

## 2 Entry composition i

There are 7 unique types of molecules in this entry. The entry contains 13613 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called receptor binding protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	422	3317	2116	559	623	19	0	1	0
1	B	426	3343	2135	561	628	19	0	2	0

There are 26 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	605	GLU	-	expression tag	UNP F4YH71
A	606	ASN	-	expression tag	UNP F4YH71
A	607	LEU	-	expression tag	UNP F4YH71
A	608	TYR	-	expression tag	UNP F4YH71
A	609	PHE	-	expression tag	UNP F4YH71
A	610	GLN	-	expression tag	UNP F4YH71
A	611	GLY	-	expression tag	UNP F4YH71
A	612	HIS	-	expression tag	UNP F4YH71
A	613	HIS	-	expression tag	UNP F4YH71
A	614	HIS	-	expression tag	UNP F4YH71
A	615	HIS	-	expression tag	UNP F4YH71
A	616	HIS	-	expression tag	UNP F4YH71
A	617	HIS	-	expression tag	UNP F4YH71
B	605	GLU	-	expression tag	UNP F4YH71
B	606	ASN	-	expression tag	UNP F4YH71
B	607	LEU	-	expression tag	UNP F4YH71
B	608	TYR	-	expression tag	UNP F4YH71
B	609	PHE	-	expression tag	UNP F4YH71
B	610	GLN	-	expression tag	UNP F4YH71
B	611	GLY	-	expression tag	UNP F4YH71
B	612	HIS	-	expression tag	UNP F4YH71
B	613	HIS	-	expression tag	UNP F4YH71
B	614	HIS	-	expression tag	UNP F4YH71
B	615	HIS	-	expression tag	UNP F4YH71
B	616	HIS	-	expression tag	UNP F4YH71

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Chain	Residue	Modelled	Actual	Comment	Reference
B	617	HIS	-	expression tag	UNP F4YH71

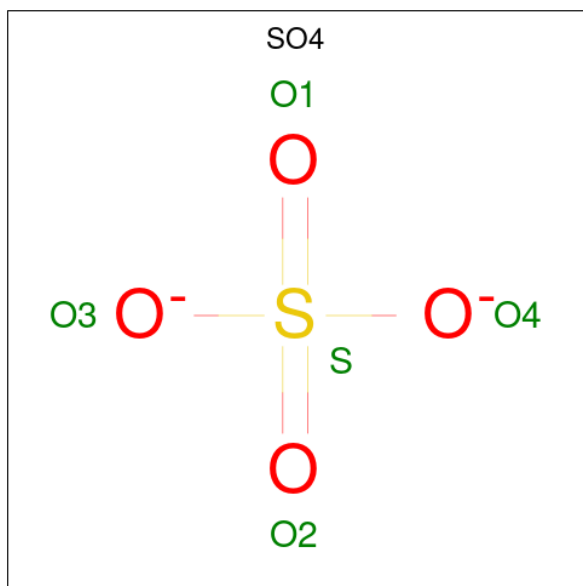
- Molecule 2 is a protein called Anti-Hendra receptor binding protein antibody HENV-32 Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	C	207	1555	990	269	290	6	0	0	0
2	H	211	1582	1007	269	300	6	0	0	0

- Molecule 3 is a protein called Anti-Hendra receptor binding protein antibody HENV-32 Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	D	198	1389	861	242	282	4	0	0	0
3	L	210	1543	961	264	314	4	0	0	0

- Molecule 4 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



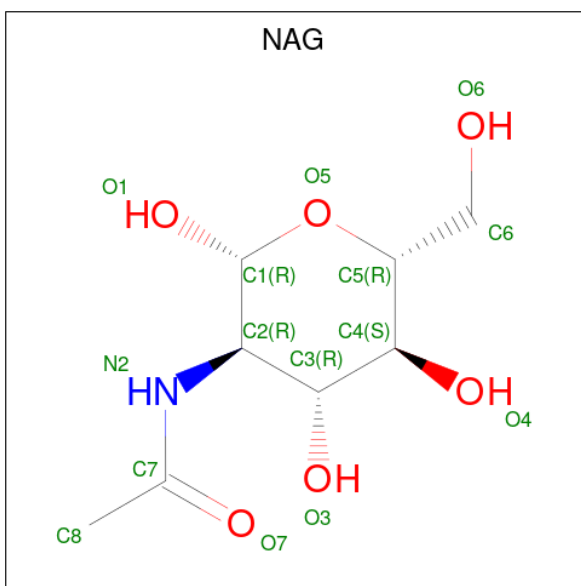
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	O	S		
4	A	1	5	4	1	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	B	1	Total	O	S	0	0
			5	4	1		
4	B	1	Total	O	S	0	0
			5	4	1		
4	C	1	Total	O	S	0	0
			5	4	1		
4	H	1	Total	O	S	0	0
			5	4	1		

- Molecule 5 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula:  $C_8H_{15}NO_6$ ).



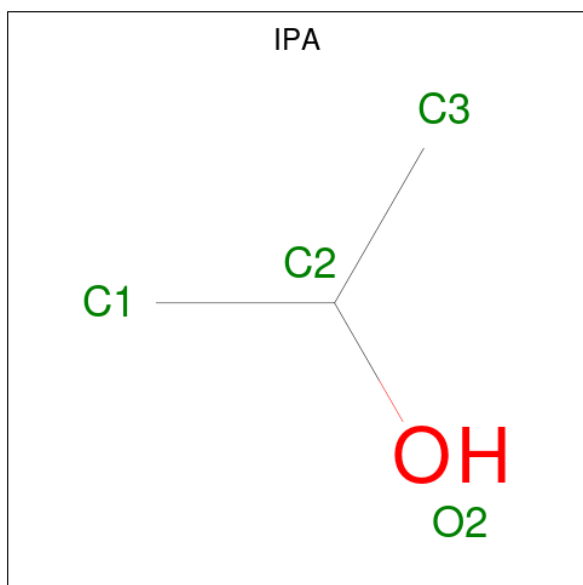
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	A	1	Total	C	N	O	0	0
			14	8	1	5		
5	A	1	Total	C	N	O	0	0
			14	8	1	5		
5	A	1	Total	C	N	O	0	0
			14	8	1	5		
5	A	1	Total	C	N	O	0	0
			14	8	1	5		
5	B	1	Total	C	N	O	0	0
			14	8	1	5		
5	B	1	Total	C	N	O	0	0
			14	8	1	5		
5	B	1	Total	C	N	O	0	0
			14	8	1	5		

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	B	1	Total	C	N	O	0	0
			14	8	1	5		
5	B	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 6 is ISOPROPYL ALCOHOL (three-letter code: IPA) (formula: C<sub>3</sub>H<sub>8</sub>O).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	A	1	Total	C	O	0	0
			4	3	1		
6	A	1	Total	C	O	0	0
			4	3	1		
6	B	1	Total	C	O	0	0
			4	3	1		

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	315	Total	O	0	0
			315	315		
7	B	242	Total	O	0	0
			242	242		
7	C	50	Total	O	0	0
			50	50		
7	D	37	Total	O	0	0
			37	37		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	H	33	Total O 33 33	0	0
7	L	44	Total O 44 44	0	0

MolProbity and EDS failed to run properly - this section is therefore empty.

### 3 Data and refinement statistics

EDS failed to run properly - this section is therefore incomplete.

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	195.89Å 84.49Å 122.83Å 90.00° 95.93° 90.00°	Depositor
Resolution (Å)	49.51 – 2.00	Depositor
% Data completeness (in resolution range)	100.0 (49.51-2.00)	Depositor
$R_{merge}$	0.09	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.49 (at 2.00Å)	Xtrriage
Refinement program	PHENIX 1.14_3260	Depositor
R, $R_{free}$	0.183 , 0.226	Depositor
Wilson B-factor (Å <sup>2</sup> )	33.8	Xtrriage
Anisotropy	0.318	Xtrriage
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	13613	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	49.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.41% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.



## 4 Model quality [i](#)

### 4.1 Standard geometry [i](#)

MolProbity failed to run properly - this section is therefore empty.

### 4.2 Too-close contacts [i](#)

MolProbity failed to run properly - this section is therefore empty.

### 4.3 Torsion angles [i](#)

#### 4.3.1 Protein backbone [i](#)

MolProbity failed to run properly - this section is therefore empty.

#### 4.3.2 Protein sidechains [i](#)

MolProbity failed to run properly - this section is therefore empty.

#### 4.3.3 RNA [i](#)

MolProbity failed to run properly - this section is therefore empty.

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

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

### 4.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

### 4.6 Ligand geometry [i](#)

17 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
5	NAG	A	703	1	14,14,15	0.56	0	17,19,21	0.51	0
4	SO4	C	301	-	4,4,4	0.15	0	6,6,6	0.27	0
5	NAG	A	705	1	14,14,15	0.59	0	17,19,21	0.39	0
6	IPA	B	706	-	3,3,3	0.49	0	3,3,3	0.48	0
5	NAG	B	704	1	14,14,15	0.29	0	17,19,21	0.53	0
5	NAG	A	702	1	14,14,15	0.39	0	17,19,21	0.53	0
5	NAG	B	707	1	14,14,15	0.68	1 (7%)	17,19,21	1.20	1 (5%)
5	NAG	A	704	1	14,14,15	0.34	0	17,19,21	0.53	0
4	SO4	B	702	-	4,4,4	0.12	0	6,6,6	0.25	0
6	IPA	A	706	-	3,3,3	0.57	0	3,3,3	0.25	0
6	IPA	A	707	-	3,3,3	0.53	0	3,3,3	0.55	0
4	SO4	A	701	-	4,4,4	0.17	0	6,6,6	0.62	0
4	SO4	H	301	-	4,4,4	0.14	0	6,6,6	0.20	0
5	NAG	B	705	1	14,14,15	0.46	0	17,19,21	0.45	0
5	NAG	B	708	1	14,14,15	0.26	0	17,19,21	0.88	1 (5%)
4	SO4	B	701	-	4,4,4	0.17	0	6,6,6	0.31	0
5	NAG	B	703	1	14,14,15	0.17	0	17,19,21	0.46	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	A	703	1	-	0/6/23/26	0/1/1/1
5	NAG	A	705	1	-	0/6/23/26	0/1/1/1
5	NAG	B	704	1	-	0/6/23/26	0/1/1/1
5	NAG	A	702	1	-	0/6/23/26	0/1/1/1
5	NAG	B	707	1	-	3/6/23/26	0/1/1/1
5	NAG	A	704	1	-	0/6/23/26	0/1/1/1
5	NAG	B	705	1	-	2/6/23/26	0/1/1/1
5	NAG	B	708	1	-	3/6/23/26	0/1/1/1
5	NAG	B	703	1	-	0/6/23/26	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	B	707	NAG	C1-C2	2.23	1.55	1.52

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	B	707	NAG	C2-N2-C7	4.18	128.86	122.90
5	B	708	NAG	C1-O5-C5	2.42	115.47	112.19

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	B	705	NAG	C8-C7-N2-C2
5	B	705	NAG	O7-C7-N2-C2
5	B	707	NAG	C8-C7-N2-C2
5	B	707	NAG	O7-C7-N2-C2
5	B	708	NAG	O5-C5-C6-O6
5	B	708	NAG	C4-C5-C6-O6
5	B	708	NAG	C3-C2-N2-C7
5	B	707	NAG	C3-C2-N2-C7

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	701	SO4	0	1

## 4.7 Other polymers [i](#)

There are no such residues in this entry.

## 4.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 5 Fit of model and data

### 5.1 Protein, DNA and RNA chains

EDS failed to run properly - this section is therefore empty.

### 5.2 Non-standard residues in protein, DNA, RNA chains

EDS failed to run properly - this section is therefore empty.

### 5.3 Carbohydrates

EDS failed to run properly - this section is therefore empty.

### 5.4 Ligands

EDS failed to run properly - this section is therefore empty.

### 5.5 Other polymers

EDS failed to run properly - this section is therefore empty.