wwPDB X-ray Structure Validation Summary Report (i)

Aug 29, 2023 – 03:53 PM EDT

PDB ID	:	3PVM
Title	:	Structure of Complement C5 in Complex with CVF
Authors	:	Laursen, N.S.; Andersen, K.R.; Braren, I.; Sottrup-Jensen, L.; Spillner, E.; Andersen, G.R.
Deposited on	:	2010-12-07
Resolution	:	4.30 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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/XrayValidationReportHelp
with specific help available everywhere you see the (i) 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 (1)) were used in the production of this report:

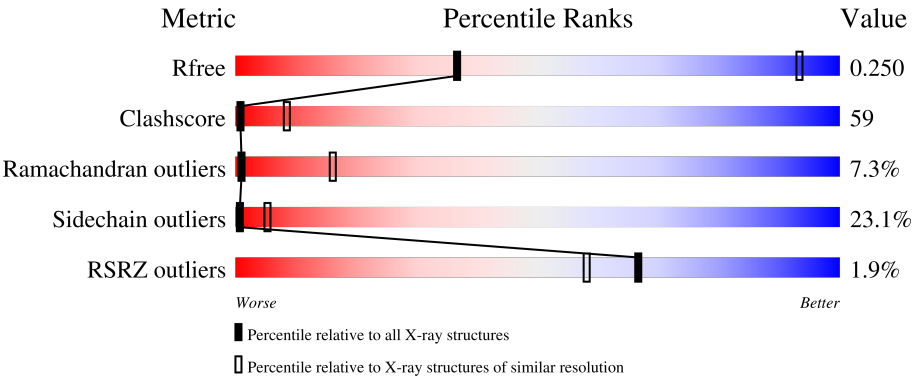
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 4.30 Å.

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)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1014 (4.80-3.80)
Clashscore	141614	1077 (4.80-3.80)
Ramachandran outliers	138981	1029 (4.80-3.80)
Sidechain outliers	138945	1012 (4.80-3.80)
RSRZ outliers	127900	1075 (4.90-3.70)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. 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 <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1676	2% 24% 52% 20%
1	C	1676	2% 24% 52% 20%
2	B	1642	2% 23% 38% 13% 25%
2	D	1642	% 23% 38% 13% 25%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	NAG	B	2002	-	-	-	X
3	NAG	D	2002	-	-	-	X

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 45268 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.

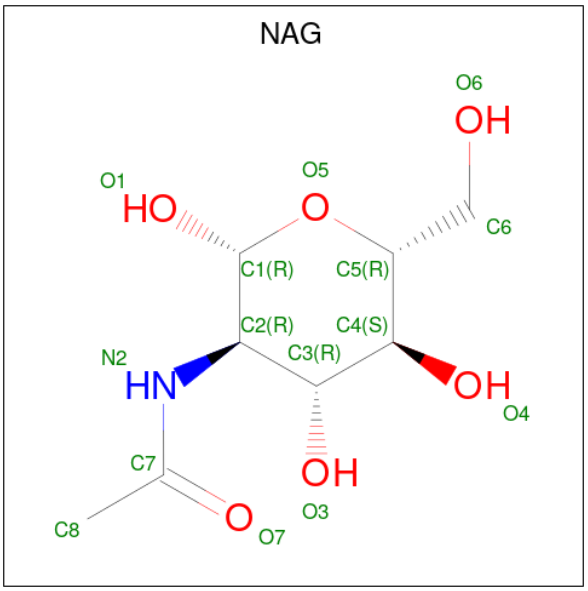
- Molecule 1 is a protein called Complement C5.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	1627	Total	C	N	O	S	0	0	0
			12881	8246	2114	2469	52			
1	C	1627	Total	C	N	O	S	0	0	0
			12881	8246	2114	2469	52			

- Molecule 2 is a protein called Cobra venom factor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	1225	Total	C	N	O	S	0	0	0
			9711	6187	1633	1851	40			
2	D	1225	Total	C	N	O	S	0	0	0
			9711	6187	1633	1851	40			

- Molecule 3 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



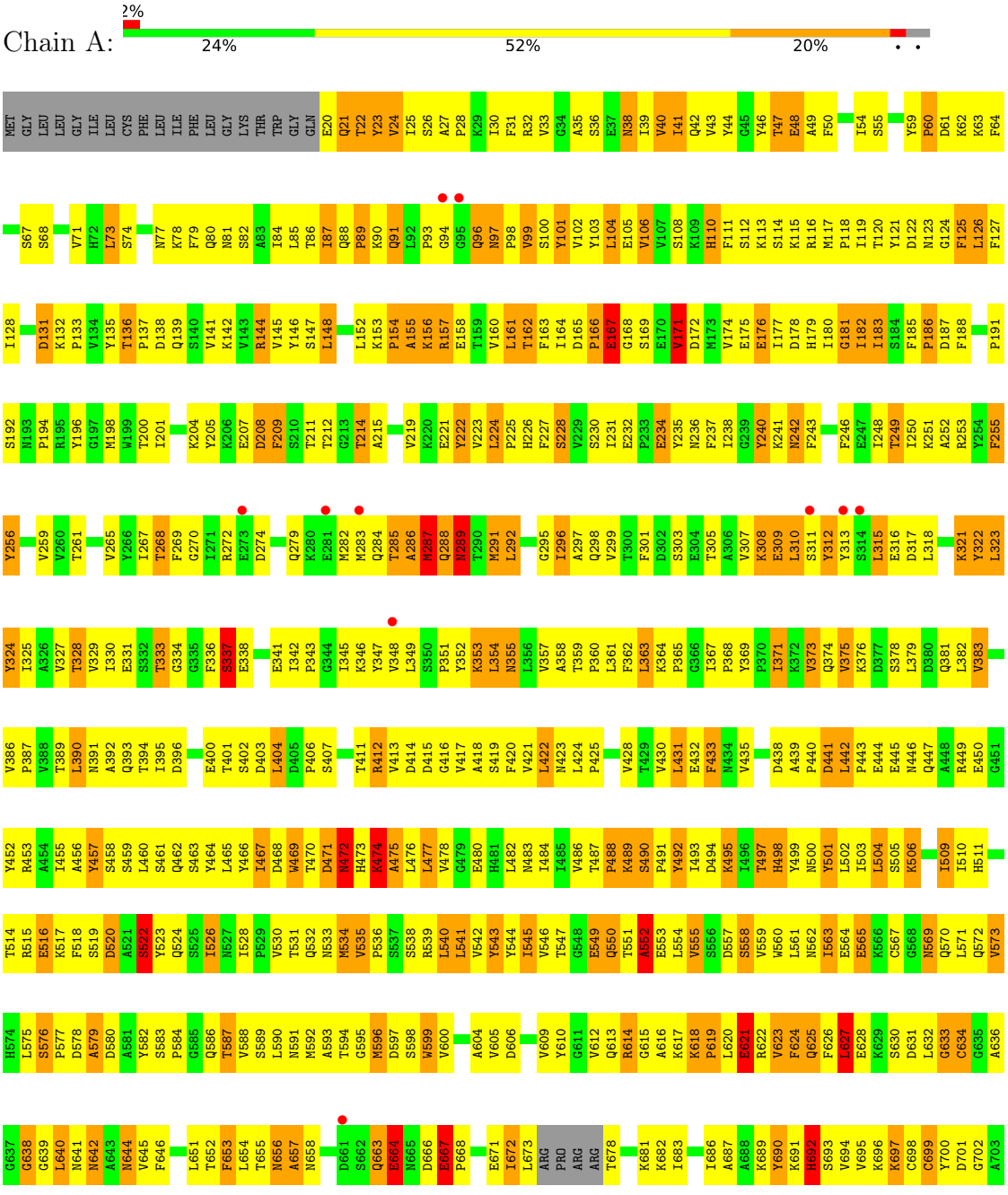
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total	C	N	O	0	0
			14	8	1	5		
3	B	1	Total	C	N	O	0	0
			14	8	1	5		
3	B	1	Total	C	N	O	0	0
			14	8	1	5		
3	C	1	Total	C	N	O	0	0
			14	8	1	5		
3	D	1	Total	C	N	O	0	0
			14	8	1	5		
3	D	1	Total	C	N	O	0	0
			14	8	1	5		

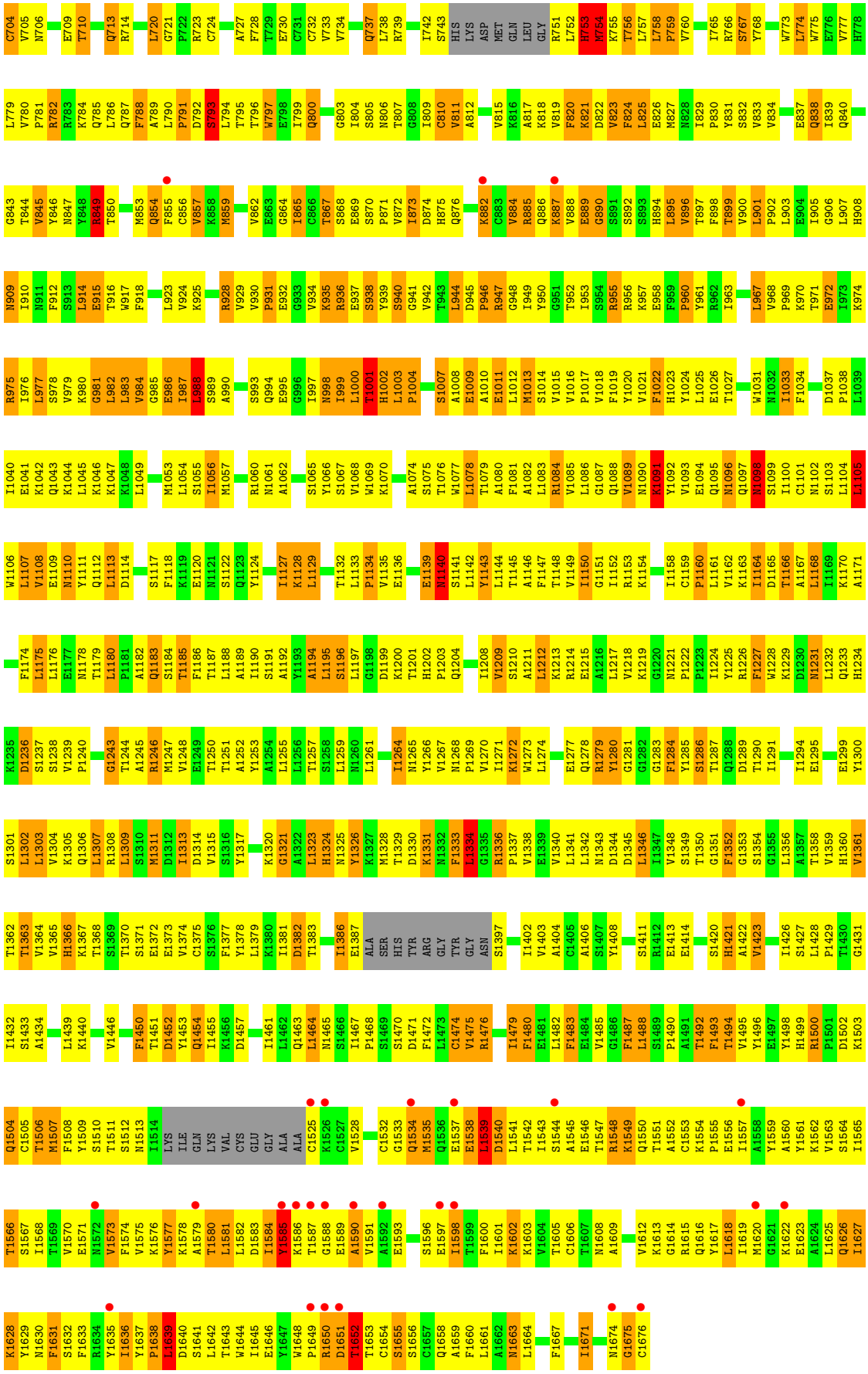
3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-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. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: Complement C5

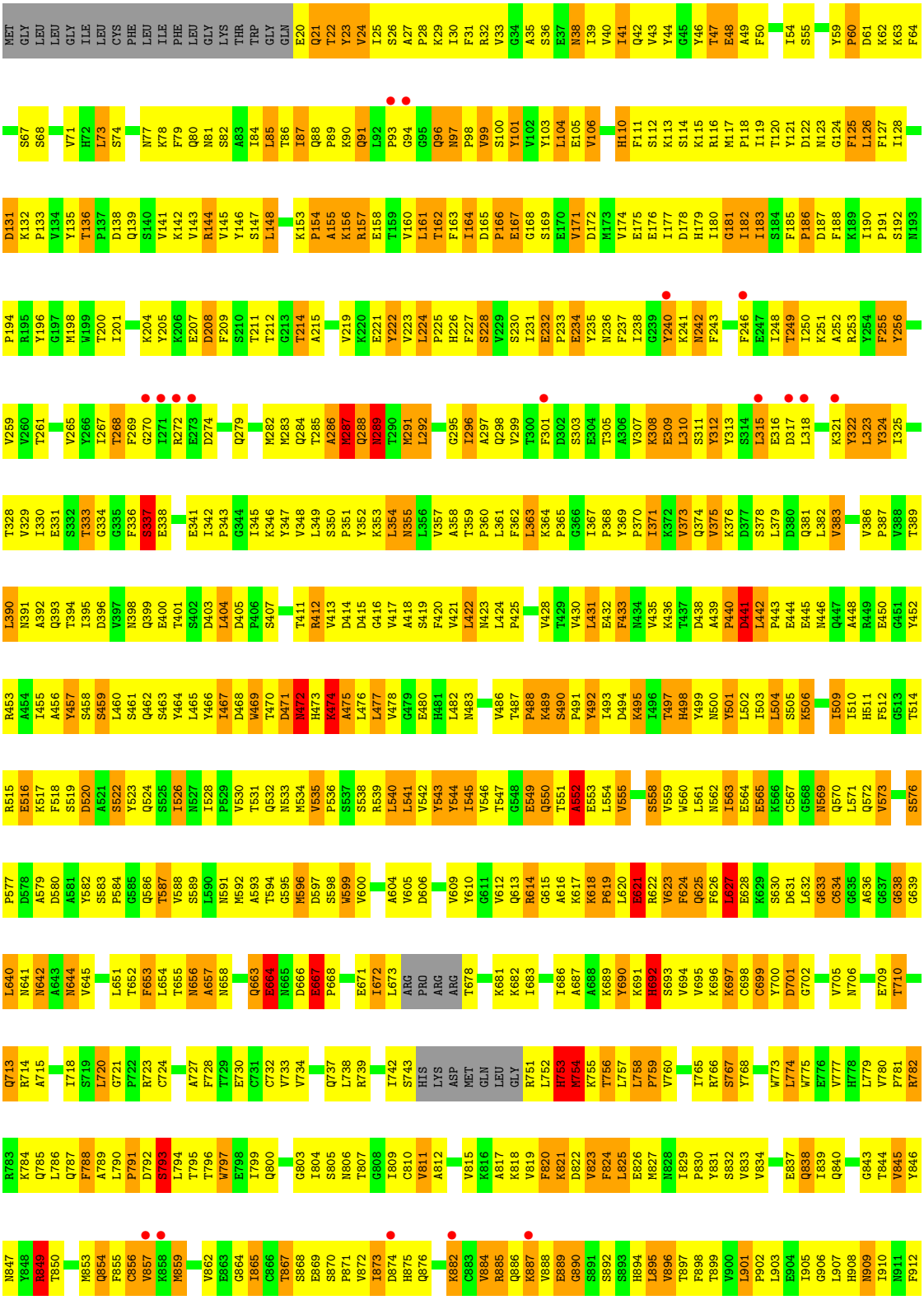
Chain A:

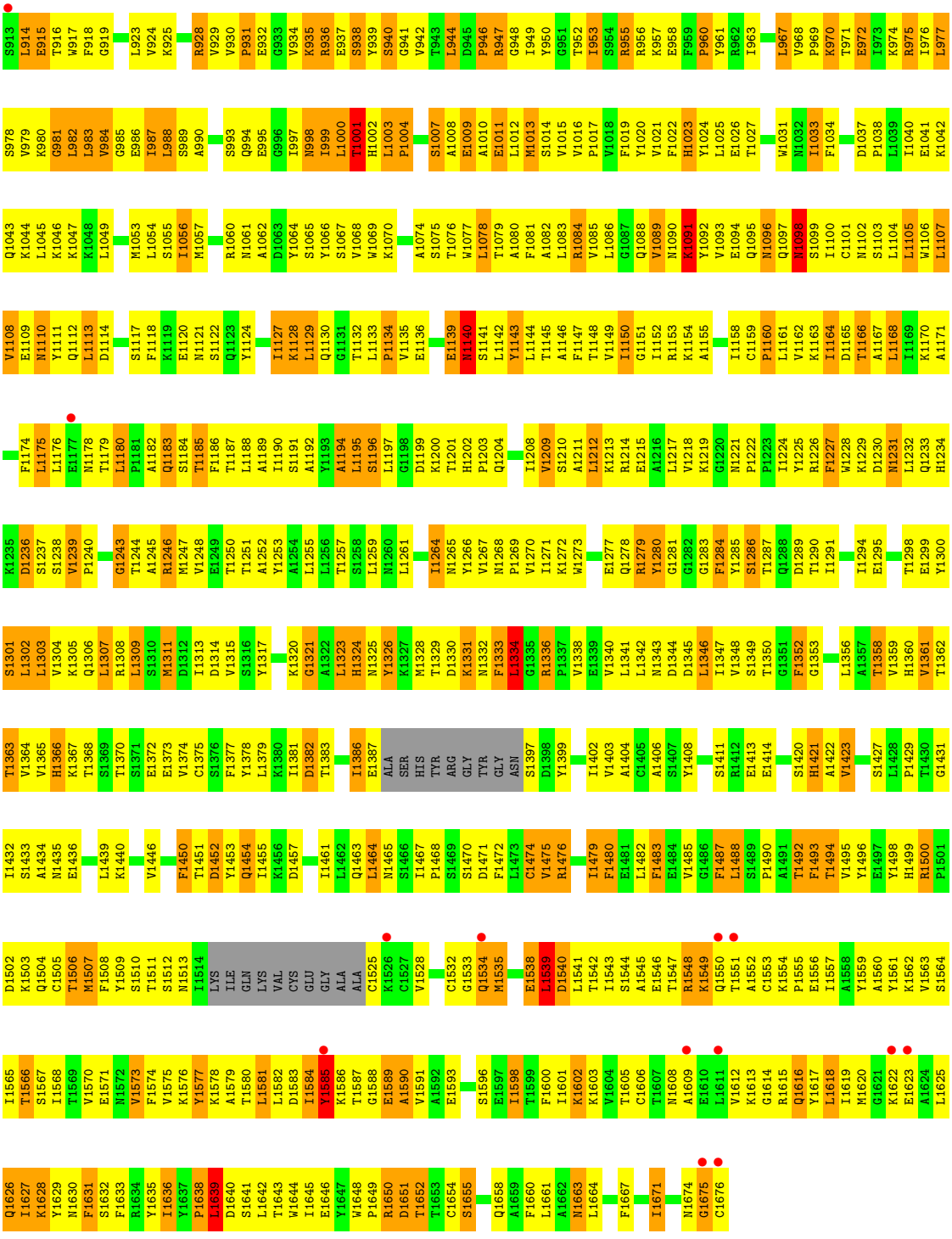



WORLDWIDE
PDB
PROTEIN DATA BANK

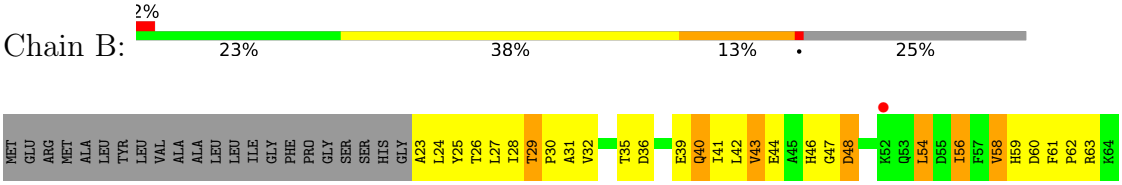
• Molecule 1: Complement C5

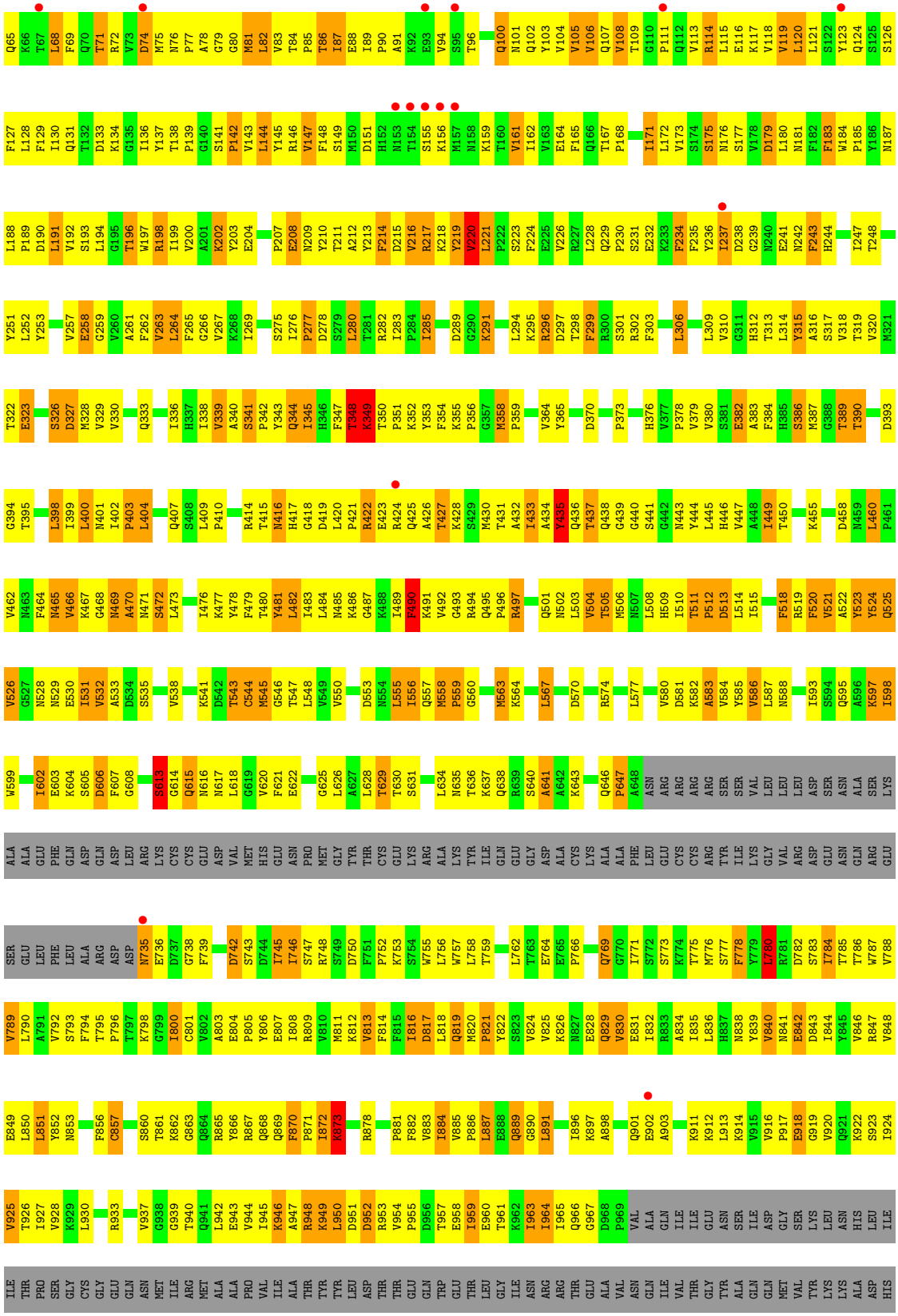
Chain C:

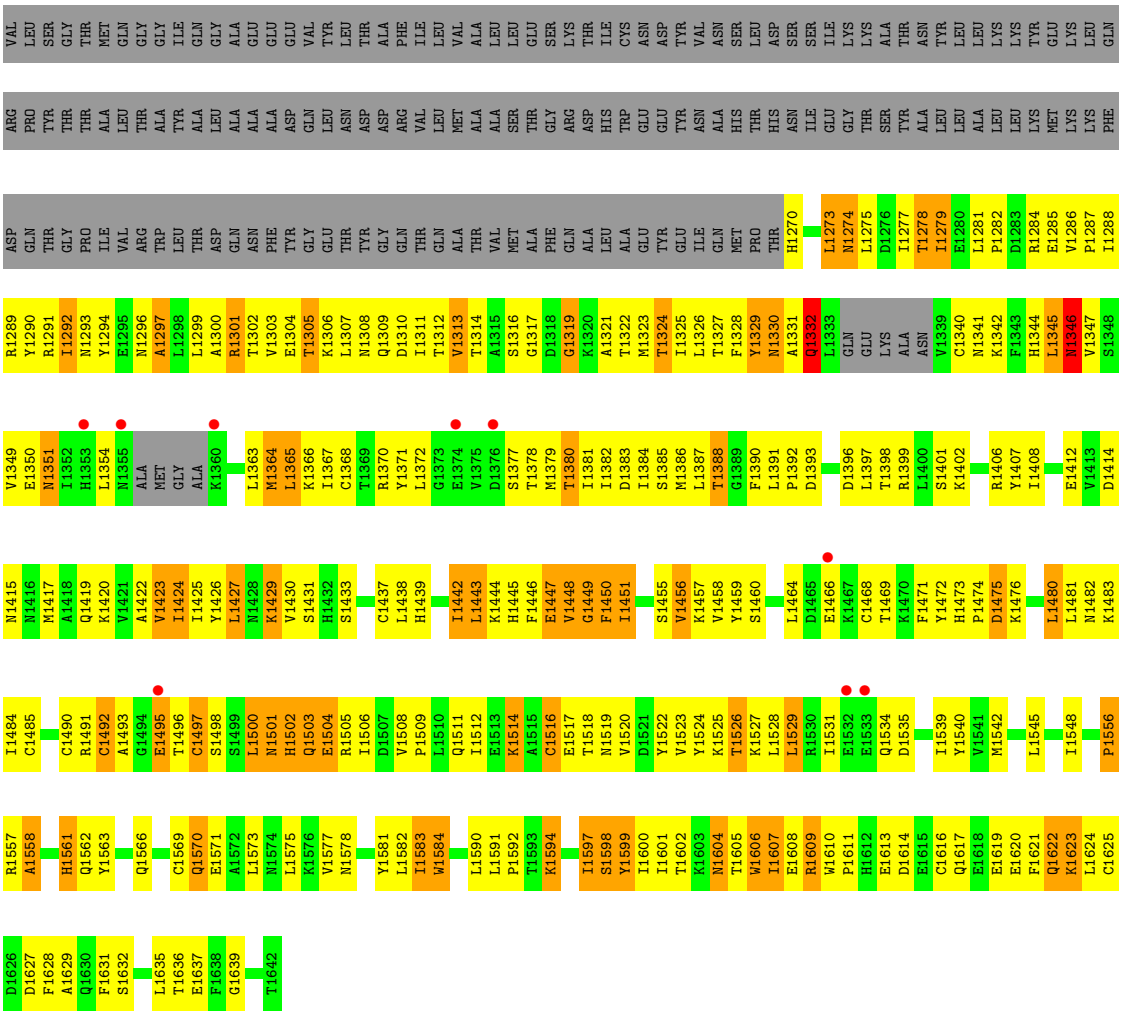




• Molecule 2: Cobra venom factor

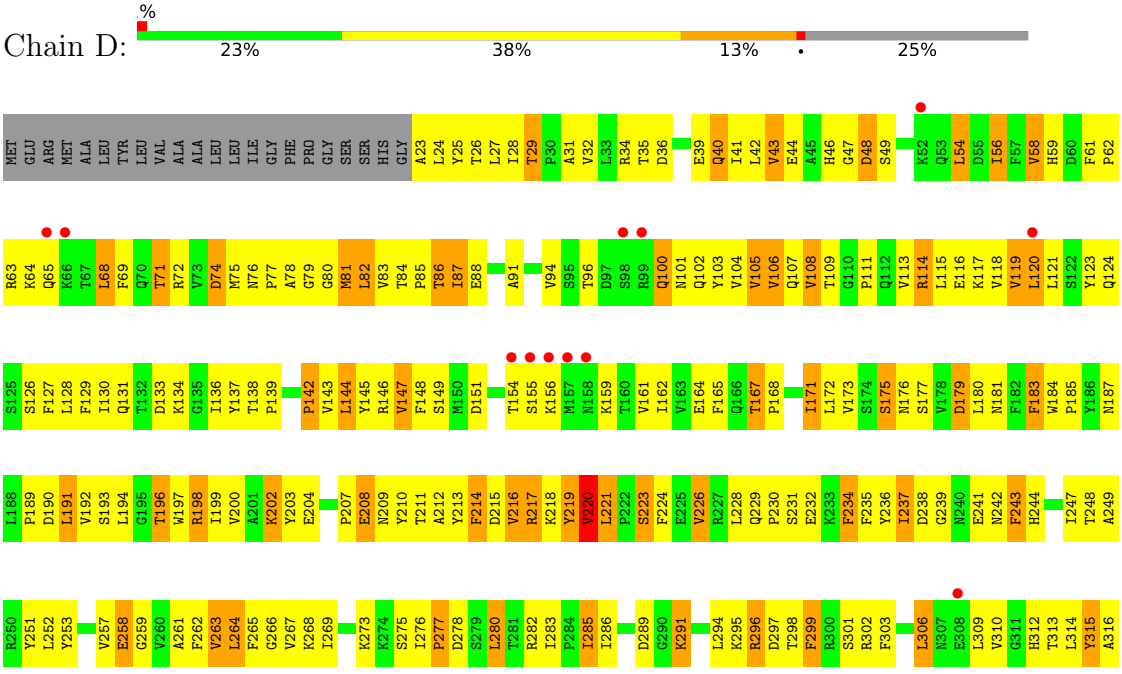


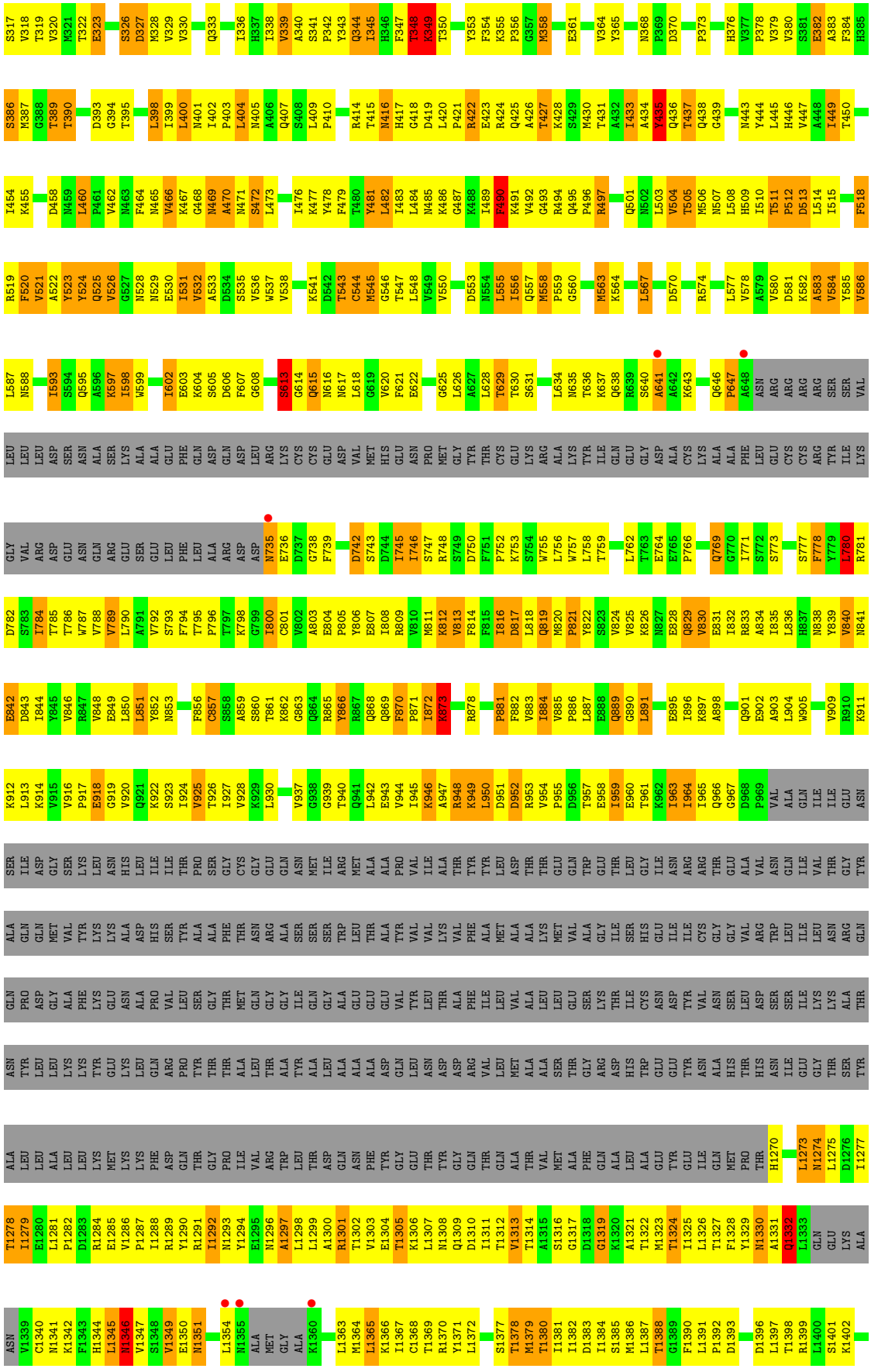

Q65 K66 T67 L68 F69 Q70 T71 R72 V73 D74 M75 N76 P77 A78 G79 G80 M81 L82 V83 T84 P85 T86 I87 E88 I89 P90 A91 K92 E93 V94 S95 T96 Q100 N101 Q102 Y103 V104 V105 V106 Q107 V108 T109 G110 P111 Q112 V113 R114 L115 E116 K117 V118 V119 L120 L121 S122 Y123 Q124 S125 S126
F127 L128 F129 I130 Q131 T132 D133 K134 G135 I136 Y137 T138 P139 G140 S141 P142 V143 L144 Y145 R146 V147 F148 S149 M150 D151 H152 N153 T154 S155 K156 M157 N158 K159 T160 V161 I162 V163 E164 F165 Q166 T167 P168 I171 L172 V173 S174 S175 N176 S177 V178 D179 L180 N181 F182 F183 W184 P185 Y186 N187
L188 P189 D190 L191 V192 S193 L194 G195 T196 W197 R198 I199 V200 A201 K202 Y203 E204 P207 E208 N209 Y210 T211 A212 Y213 F214 D215 V216 R217 K218 Y219 V220 L221 P222 S223 F224 E225 V226 R227 L228 Q229 P230 S231 E232 K233 F234 F235 Y236 I237 D238 G239 N240 E241 N242 F243 H244 I247 T248
Y251 L252 Y253 V257 E258 G259 V260 A261 F262 V263 L264 F265 G266 V267 K268 I269 S275 I276 P277 D278 S279 L280 T281 R282 I283 P284 I285 D289 G290 K291 L294 K295 R296 D297 T298 F299 R300 S301 R302 F303 L306 L309 V310 G311 H312 T313 L314 Y315 A316 S317 V318 T319 V320 M321
T322 E323 S326 D327 M328 V329 V330 Q333 I336 H337 I338 V339 A340 S341 P342 Y343 Q344 I345 H346 F347 T348 K349 T350 P351 K352 Y353 F354 K355 P356 G357 M358 P359 V364 Y365 D370 P373 H376 V377 P378 V379 V380 S381 E382 A383 F384 H385 S386 M387 G388 T389 T390 D393
G394 T395 L398 I399 L400 N401 I402 P403 L404 Q407 S408 L409 P410 R414 T415 N416 H417 G418 D419 L420 P421 R422 E423 R424 Q425 A426 T427 K428 S429 M430 T431 A432 I433 A434 Y435 Q436 T437 Q438 G439 G440 S441 G442 N443 Y444 L445 H446 V447 A448 I449 T450 K455 D458 N459 L460 P461
V462 N463 F464 N465 V466 K467 G468 N469 A470 N471 S472 L473 I476 K477 Y478 F479 T480 Y481 L482 I483 L484 N485 K486 G487 K488 I489 F490 K491 V492 G493 R494 Q495 P496 R497 Q501 N502 L503 V504 T505 M506 N507 L508 H509 I510 T511 P512 D513 L514 I515 F518 R519 F520 V521 A522 Y523 Y524 Q525
V526 G527 N528 N529 E530 I531 V532 A533 D534 S535 V538 K541 D542 T543 C544 M545 G546 T547 L548 V549 V550 D553 N554 L555 I556 Q557 M558 F559 G560 M563 K564 L567 D570 R574 L577 V580 D581 K582 A583 V584 Y585 V586 L587 N588 I593 S594 Q595 A596 K597 I598
W599 I602 E603 K604 S605 D606 F607 G608 S613 G614 Q615 N616 N617 L618 G619 V620 F621 E622 G625 L626 A627 L628 T629 T630 S631 L634 N635 T636 K637 Q638 R639 S640 A641 A642 K643 Q646 P647 A648 ASN ARG ARG ARG SER SER VAL LEU LEU LEU ASP SER ASN ALA SER LYS
ALA ALA GLU PHE GLN ASP GLN ASP LEU ARG LYS CYS CYS GLU ASP VAL MET HIS GLU ASN PRO MET GLY TYR THR CYS GLU LYS ARG ALA LYS TYR ILE GLN GLU GLY ASP ALA CYS LYS ALA ALA PHE LEU GLU CYS ARG TYR ILE LYS GLY VAL ARG ASP GLU ASN GLN ARG GLU
SER GLU LEU PHE LEU ALA ARG ASP N735 E736 D737 G738 F739 D742 S743 D744 I745 I746 S747 R748 S749 D750 F751 P752 K753 S754 W755 L756 W757 L758 T759 L762 T763 E764 E765 P766 Q769 G770 I771 S772 S773 K774 T775 M776 S777 F778 Y779 L780 R781 D782 S783 I784 T785 T786 W787 V788
V789 L790 A791 V792 S793 F794 T795 P796 T797 K798 G799 I800 C801 V802 A803 E804 P805 Y806 E807 I808 R809 V810 M811 K812 V813 F814 F815 I816 D817 L818 Q819 M820 P821 Y822 S823 V824 V825 K826 N827 E828 Q829 V830 E831 I832 R833 A834 I835 L836 H837 N838 Y839 V840 N841 E842 D843 I844 Y845 V846 R847 V848
E849 L850 L851 Y852 N853 F856 C857 S860 T861 K862 G863 Q864 R865 Y866 R867 Q868 Q869 F870 P871 I872 K873 R878 P881 F882 V883 I884 V885 P886 L887 E888 Q889 G890 L891 I896 K897 A898 Q901 E902 A903 K911 K912 L913 K914 V915 V916 P917 E918 G919 V920 Q921 K922 S923 I924
V925 T926 I927 V928 K929 L930 R933 V937 G938 G939 T940 Q941 L942 E943 V944 I945 K946 A947 R948 K949 L950 D951 D962 R953 V954 P955 D956 T957 E958 I959 E960 T961 K962 I963 I964 I965 Q966 G967 D968 P969 VAL ALA GLN ILE ILE GLU ASN ARG GLN GLN ILE PRO ASP GLY ALA PHE LYS GLU ASN ALA ASP PRO
ILE THR PRO SER GLY CYS GLY GLU GLN ASN SER MET ILE ARG MET ALA ALA PRO VAL ILE ALA THR TYR LEU ASP THR THR GLU GLN VAL ALA TRP GLU THR GLY ILE ASN ARG ARG THR GLU GLU ALA VAL ASN GLN ILE VAL THR GLY TYR ALA GLN GLN PRO ASP GLY ALA PHE LYS GLU ASN ALA ASP HIS
SER TYR ALA ALA PHE THR ASN ARG ALA SER SER SER TRP LEU VAL VAL LYS VAL PHE TYR ALA MET ALA ALA LYS MET VAL ALA GLY ILE ILE SER HIS GLU ILE ILE CYS GLY GLY VAL ALA ARG TRP LEU ILE LEU ASN ARG GLN GLN PRO ASP GLY ALA PHE LYS GLU ASN ALA ASP PRO

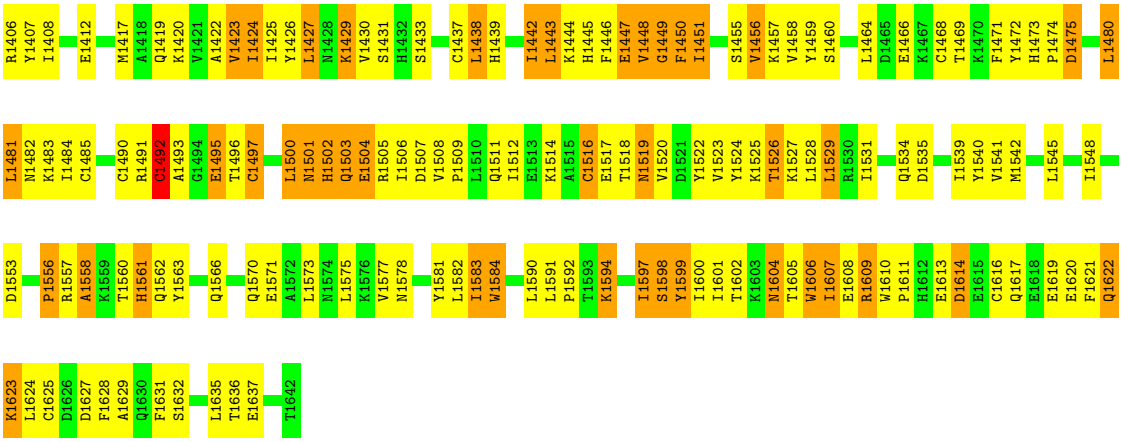


• Molecule 2: Cobra venom factor

Chain D:






R1406 Y1407 I1408 E1412 M1417 A1418 Q1419 K1420 V1421 A1422 V1423 I1424 I1425 Y1426 L1427 N1428 K1429 V1430 S1431 H1432 S1433 C1437 L1438 H1439 I1442 L1443 K1444 H1445 F1446 E1447 V1448 G1449 F1450 I1451 S1455 V1456 K1457 V1458 Y1459 S1460 L1464 D1465 E1466 K1467 C1468 T1469 K1470 F1471 Y1472 H1473 P1474 D1475 L1480
L1481 N1482 K1483 I1484 C1485 C1490 R1491 C1492 A1493 G1494 E1495 T1496 C1497 L1500 N1501 H1502 Q1503 E1504 R1505 I1506 D1507 V1508 P1509 L1510 Q1511 I1512 E1513 K1514 A1515 C1516 E1517 T1518 N1519 V1520 D1521 Y1522 V1523 Y1524 K1525 T1526 K1527 L1528 L1529 R1530 I1531 Q1534 D1535 I1539 Y1540 V1541 M1542 L1545 I1548
D1553 P1556 R1557 A1558 K1559 T1560 H1561 Q1562 Y1563 Q1566 Q1570 E1571 A1572 L1573 N1574 L1575 K1576 V1577 N1578 Y1581 L1582 I1583 W1584 L1590 L1591 P1592 T1593 K1594 I1597 S1598 Y1599 I1600 I1601 T1602 K1603 N1604 T1605 W1606 I1607 E1608 R1609 W1610 P1611 H1612 E1613 D1614 E1615 C1616 Q1617 E1618 E1619 E1620 F1621 Q1622
K1623 L1624 C1625 D1626 D1627 F1628 A1629 Q1630 F1631 S1632 L1635 T1636 E1637 T1642

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	176.52Å 179.20Å 389.69Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.47 – 4.30 49.47 – 4.30	Depositor EDS
% Data completeness (in resolution range)	94.2 (49.47-4.30) 94.3 (49.47-4.30)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.14	Depositor
$< I/\sigma(I) >$ [1]	3.12 (at 4.29Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.6.4_486)	Depositor
R, R_{free}	0.233 , 0.262 0.225 , 0.250	Depositor DCC
R_{free} test set	1734 reflections (2.17%)	wwPDB-VP
Wilson B-factor (Å^2)	135.2	Xtriage
Anisotropy	0.503	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 172.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.026 for k,h,-l	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	45268	wwPDB-VP
Average B, all atoms (Å^2)	192.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.37% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NAG

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 $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	A	0.57	1/13158 (0.0%)	0.77	6/17851 (0.0%)
1	C	0.58	0/13158	0.76	5/17851 (0.0%)
2	B	0.55	0/9912	0.74	1/13454 (0.0%)
2	D	0.55	0/9912	0.74	2/13454 (0.0%)
All	All	0.57	1/46140 (0.0%)	0.75	14/62610 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	3
1	C	0	3
2	B	0	1
2	D	0	1
All	All	0	8

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	810	CYS	CB-SG	-5.27	1.73	1.81

The worst 5 of 14 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	1539	LEU	CA-CB-CG	6.88	131.12	115.30
1	A	1539	LEU	CA-CB-CG	6.87	131.10	115.30
1	A	1195	LEU	CA-CB-CG	-6.42	100.53	115.30
1	C	1195	LEU	CA-CB-CG	-6.27	100.87	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	1346	ASN	CA-CB-CG	5.54	125.58	113.40

There are no chirality outliers.

5 of 8 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	472	ASN	Peptide
1	A	552	ALA	Peptide
1	A	667	GLU	Peptide
2	B	1351	ASN	Peptide
1	C	472	ASN	Peptide

5.2 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 the 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 within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	12881	0	12821	1676	0
1	C	12881	0	12821	1666	0
2	B	9711	0	9702	1046	0
2	D	9711	0	9702	1061	0
3	A	14	0	13	2	0
3	B	28	0	26	1	0
3	C	14	0	13	2	0
3	D	28	0	26	1	0
All	All	45268	0	45124	5374	0

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 59.

The worst 5 of 5374 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:380:VAL:HG12	2:B:387:MET:HB3	1.24	1.15
2:D:380:VAL:HG12	2:D:387:MET:HB3	1.26	1.15
2:D:1609:ARG:HG2	2:D:1609:ARG:HH11	1.12	1.13

Continued on next page...

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:386:VAL:H	1:A:411:THR:HG22	1.02	1.12
1:C:386:VAL:H	1:C:411:THR:HG22	1.00	1.11

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 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 X-ray entries followed by that with respect to entries of similar resolution.

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	1617/1676 (96%)	1173 (72%)	292 (18%)	152 (9%)	0	12
1	C	1617/1676 (96%)	1179 (73%)	288 (18%)	150 (9%)	0	12
2	B	1215/1642 (74%)	998 (82%)	161 (13%)	56 (5%)	2	24
2	D	1215/1642 (74%)	995 (82%)	162 (13%)	58 (5%)	2	23
All	All	5664/6636 (85%)	4345 (77%)	903 (16%)	416 (7%)	1	16

5 of 416 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	48	GLU
1	A	60	PRO
1	A	89	PRO
1	A	96	GLN
1	A	97	ASN

5.3.2 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 X-ray entries followed by that with respect to entries of similar resolution.

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	1446/1484 (97%)	1108 (77%)	338 (23%)	1 5
1	C	1446/1484 (97%)	1109 (77%)	337 (23%)	1 5
2	B	1093/1435 (76%)	845 (77%)	248 (23%)	1 6
2	D	1093/1435 (76%)	845 (77%)	248 (23%)	1 6
All	All	5078/5838 (87%)	3907 (77%)	1171 (23%)	1 5

5 of 1171 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	D	54	LEU
2	D	1497	CYS
2	D	191	LEU
2	D	43	VAL
2	D	588	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 139 such sidechains are listed below:

Mol	Chain	Res	Type
2	D	344	GLN
2	D	528	ASN
2	D	1330	ASN
2	B	469	ASN
2	B	417	HIS

5.3.3 RNA (i)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains (i)

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

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

6 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	$\#\|Z\| > 2$
3	NAG	B	2002	2	14,14,15	0.92	0	17,19,21	1.16	1 (5%)
3	NAG	B	2001	2	14,14,15	0.81	1 (7%)	17,19,21	2.07	3 (17%)
3	NAG	C	2003	1	14,14,15	0.58	0	17,19,21	2.21	4 (23%)
3	NAG	A	2003	1	14,14,15	0.60	0	17,19,21	2.19	4 (23%)
3	NAG	D	2002	2	14,14,15	0.92	0	17,19,21	1.16	1 (5%)
3	NAG	D	2001	2	14,14,15	0.74	0	17,19,21	2.16	4 (23%)

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
3	NAG	B	2002	2	-	0/6/23/26	0/1/1/1
3	NAG	B	2001	2	-	2/6/23/26	0/1/1/1
3	NAG	C	2003	1	-	3/6/23/26	0/1/1/1
3	NAG	A	2003	1	-	3/6/23/26	0/1/1/1
3	NAG	D	2002	2	-	0/6/23/26	0/1/1/1
3	NAG	D	2001	2	-	2/6/23/26	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	2001	NAG	C1-C2	2.16	1.55	1.52

The worst 5 of 17 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	2001	NAG	C1-O5-C5	6.57	121.10	112.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	2001	NAG	C1-O5-C5	6.17	120.56	112.19
3	A	2003	NAG	C1-O5-C5	5.70	119.91	112.19
3	C	2003	NAG	C1-O5-C5	5.67	119.87	112.19
3	C	2003	NAG	C4-C3-C2	4.36	117.41	111.02

There are no chirality outliers.

5 of 10 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	2003	NAG	C3-C2-N2-C7
3	A	2003	NAG	C8-C7-N2-C2
3	A	2003	NAG	O7-C7-N2-C2
3	B	2001	NAG	C8-C7-N2-C2
3	B	2001	NAG	O7-C7-N2-C2

There are no ring outliers.

4 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	2001	NAG	1	0
3	C	2003	NAG	2	0
3	A	2003	NAG	2	0
3	D	2001	NAG	1	0

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	1627/1676 (97%)	0.03	37 (2%)	60	51	90, 187, 312, 465	0
1	C	1627/1676 (97%)	0.01	31 (1%)	66	58	97, 186, 299, 486	0
2	B	1225/1642 (74%)	-0.01	25 (2%)	65	56	107, 174, 261, 395	0
2	D	1225/1642 (74%)	-0.01	18 (1%)	73	64	114, 181, 263, 371	0
All	All	5704/6636 (85%)	0.01	111 (1%)	66	58	90, 183, 291, 486	0

The worst 5 of 111 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	D	1355	ASN	5.3
1	A	1650	ARG	5.2
1	A	1622	LYS	4.9
2	B	155	SER	4.8
1	C	1676	CYS	4.8

6.2 Non-standard residues in protein, DNA, RNA chains

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

6.3 Carbohydrates

There are no monosaccharides in this entry.

6.4 Ligands

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	NAG	B	2002	14/15	0.45	0.44	321,327,336,339	0
3	NAG	A	2003	14/15	0.64	0.38	284,286,289,289	0
3	NAG	C	2003	14/15	0.72	0.34	260,272,284,287	0
3	NAG	D	2002	14/15	0.74	0.47	289,293,305,308	0
3	NAG	B	2001	14/15	0.78	0.26	275,285,305,313	0
3	NAG	D	2001	14/15	0.80	0.31	285,296,309,310	0

6.5 Other polymers (i)

There are no such residues in this entry.