



## wwPDB EM Validation Summary Report ⓘ

Nov 17, 2022 – 08:01 AM EST

PDB ID : 7LDD  
EMDB ID : EMD-23283  
Title : native AMPA receptor  
Authors : Yu, J.; Rao, P.; Gouaux, E.  
Deposited on : 2021-01-13  
Resolution : 3.40 Å (reported)

This is a wwPDB EM Validation Summary 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/EMValidationReportHelp>

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:

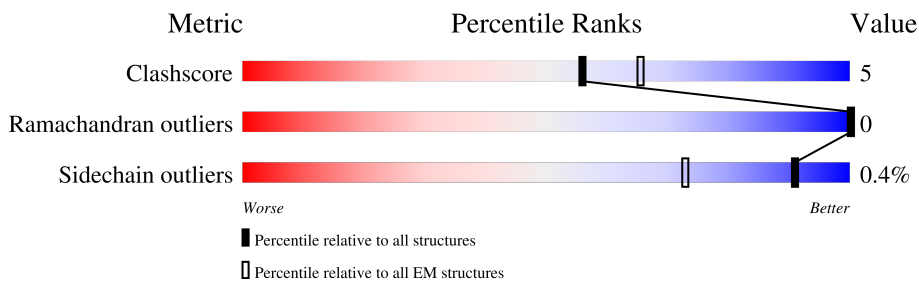
EMDB validation analysis : 0.0.1.dev43  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.2

# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:  
*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.40 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)	EM structures (#Entries)
Clashscore	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	907	23% (Poor fit) 71% (0 outliers) 15% (1 outlier) 14% (2+ outliers)
1	C	907	23% (Poor fit) 70% (0 outliers) 15% (1 outlier) 14% (2+ outliers)
2	B	883	24% (Poor fit) 79% (0 outliers) 10% (1 outlier) 12% (2+ outliers)
2	D	883	23% (Poor fit) 78% (0 outliers) 10% (1 outlier) 12% (2+ outliers)
3	E	160	69% (Poor fit) 72% (0 outliers) 5% (1 outlier) 22% (2+ outliers)
3	F	160	66% (Poor fit) 75% (0 outliers) • (1 outlier) 22% (2+ outliers)
4	G	423	31% (Poor fit) 34% (0 outliers) 5% (1 outlier) 62% (2+ outliers)
4	H	423	31% (Poor fit) 34% (0 outliers) • (1 outlier) 62% (2+ outliers)

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Mol	Chain	Length	Quality of chain
5	I	257	
5	L	257	
6	J	225	
6	M	225	
7	K	262	
7	N	262	
8	O	2	
8	P	2	
8	Q	2	
8	R	2	
8	S	2	
8	T	2	

## 2 Entry composition [i](#)

There are 18 unique types of molecules in this entry. The entry contains 34528 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 Glutamate receptor 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	776	Total	C	N	O	S	1	0
			5868	3792	977	1069	30		
1	C	776	Total	C	N	O	S	1	0
			5868	3792	977	1069	30		

- Molecule 2 is a protein called Glutamate receptor.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	778	Total	C	N	O	S	0	0
			5687	3664	925	1070	28		
2	D	778	Total	C	N	O	S	0	0
			5687	3664	925	1070	28		

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	586	ARG	GLN	variant	UNP G5E8H1
D	586	ARG	GLN	variant	UNP G5E8H1

- Molecule 3 is a protein called Protein cornichon homolog 2.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	E	124	Total	C	N	O	S	0	0
			974	671	142	150	11		
3	F	124	Total	C	N	O	S	0	0
			978	673	142	152	11		

- Molecule 4 is a protein called Voltage-dependent calcium channel gamma-8 subunit.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	G	162	Total	C	N	O	S	0	0
			1134	751	182	196	5		

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	H	162	1134	751	182	196	5	0	0

- Molecule 5 is a protein called 11B8 scFv.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
5	I	229	1124	666	229	229	0	0
5	L	229	1124	666	229	229	0	0

- Molecule 6 is a protein called 15F1 Fab light chain.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
6	J	211	1042	620	211	211	0	0
6	M	211	1042	620	211	211	0	0

- Molecule 7 is a protein called 15F1 Fab heavy chain.

Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
7	K	215	1059	629	215	215	0	0
7	N	215	1059	629	215	215	0	0

- Molecule 8 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



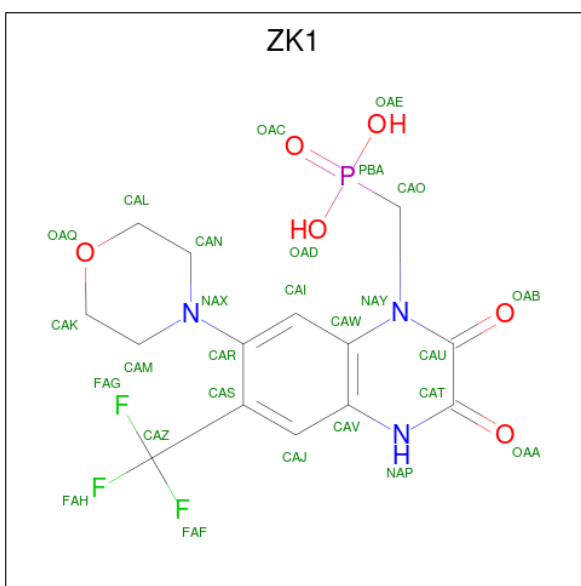
Mol	Chain	Residues	Atoms				AltConf	Trace
			Total	C	N	O		
8	O	2	28	16	2	10	0	0
8	P	2	28	16	2	10	0	0
8	Q	2	28	16	2	10	0	0

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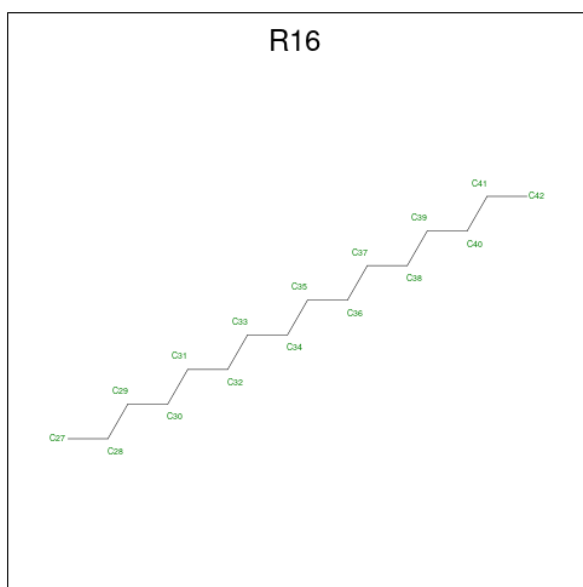
Mol	Chain	Residues	Atoms				AltConf	Trace
8	R	2	Total	C	N	O	0	0
			28	16	2	10		
8	S	2	Total	C	N	O	0	0
			28	16	2	10		
8	T	2	Total	C	N	O	0	0
			28	16	2	10		

- Molecule 9 is {[7-morpholin-4-yl-2,3-dioxo-6-(trifluoromethyl)-3,4-dihydroquinoxalin-1(2H)-yl]methyl}phosphonic acid (three-letter code: ZK1) (formula: C<sub>14</sub>H<sub>15</sub>F<sub>3</sub>N<sub>3</sub>O<sub>6</sub>P).



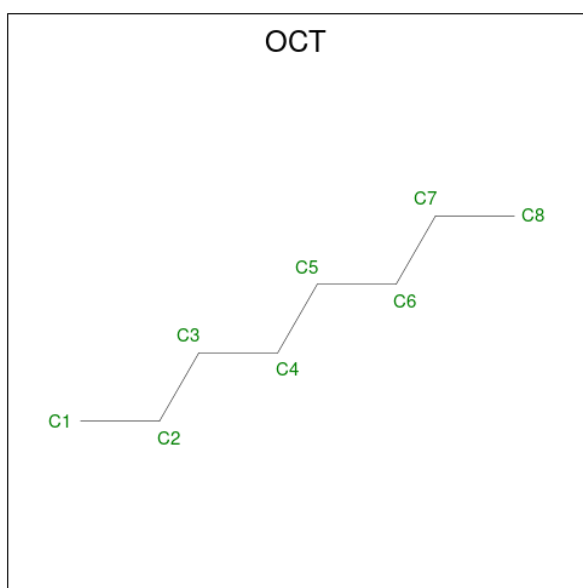
Mol	Chain	Residues	Atoms					AltConf	
9	A	1	Total	C	F	N	O	P	0
			27	14	3	3	6	1	
9	B	1	Total	C	F	N	O	P	0
			27	14	3	3	6	1	
9	C	1	Total	C	F	N	O	P	0
			27	14	3	3	6	1	
9	D	1	Total	C	F	N	O	P	0
			27	14	3	3	6	1	

- Molecule 10 is HEXADECANE (three-letter code: R16) (formula: C<sub>16</sub>H<sub>34</sub>).



Mol	Chain	Residues	Atoms	AltConf
10	A	1	Total C 13 13	0
10	C	1	Total C 13 13	0

- Molecule 11 is N-OCTANE (three-letter code: OCT) (formula:  $C_8H_{18}$ ).



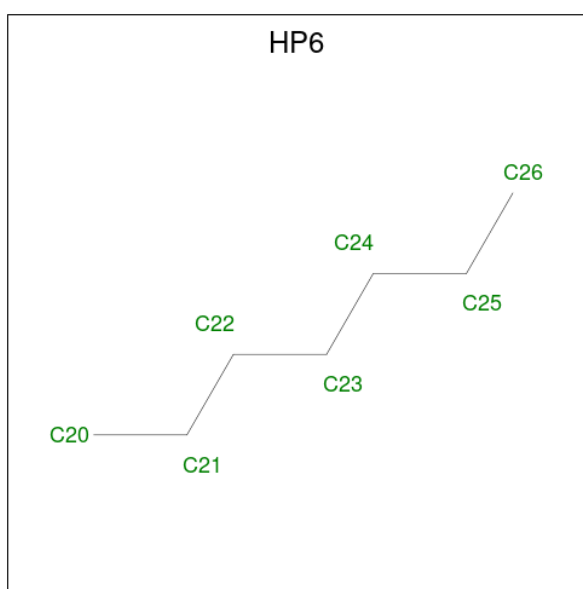
Mol	Chain	Residues	Atoms	AltConf
11	A	1	Total C 8 8	0
11	B	1	Total C 8 8	0

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Mol	Chain	Residues	Atoms	AltConf
11	C	1	Total C 8 8	0
11	D	1	Total C 8 8	0
11	G	1	Total C 8 8	0
11	H	1	Total C 8 8	0

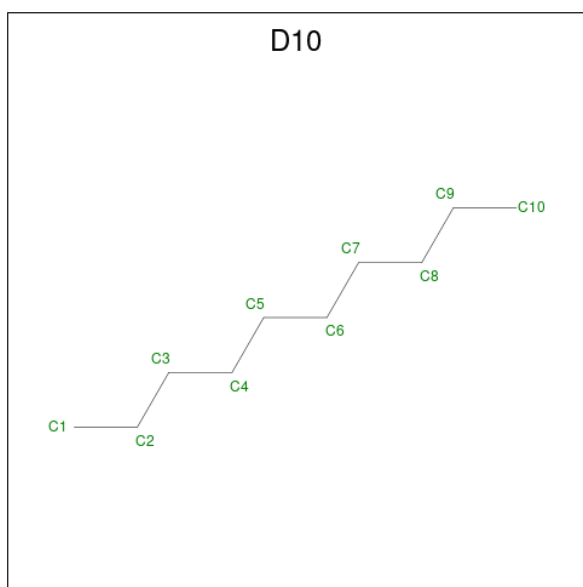
- Molecule 12 is HEPTANE (three-letter code: HP6) (formula: C<sub>7</sub>H<sub>16</sub>).



Mol	Chain	Residues	Atoms	AltConf
12	A	1	Total C 14 14	0
12	A	1	Total C 14 14	0
12	C	1	Total C 14 14	0
12	C	1	Total C 14 14	0

- Molecule 13 is DECANE (three-letter code: D10) (formula: C<sub>10</sub>H<sub>22</sub>).





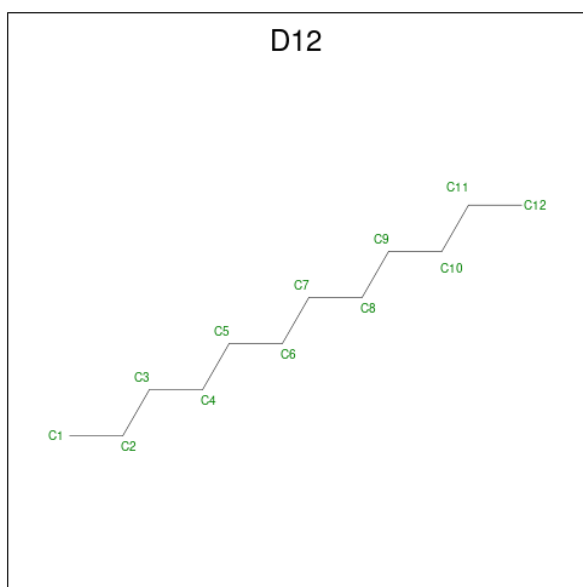
Mol	Chain	Residues	Atoms	AltConf
13	A	1	Total C 10 10	0
13	C	1	Total C 10 10	0
13	E	1	Total C 7 7	0
13	F	1	Total C 7 7	0
13	G	1	Total C 10 10	0
13	H	1	Total C 10 10	0

- Molecule 14 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: C<sub>8</sub>H<sub>15</sub>NO<sub>6</sub>).



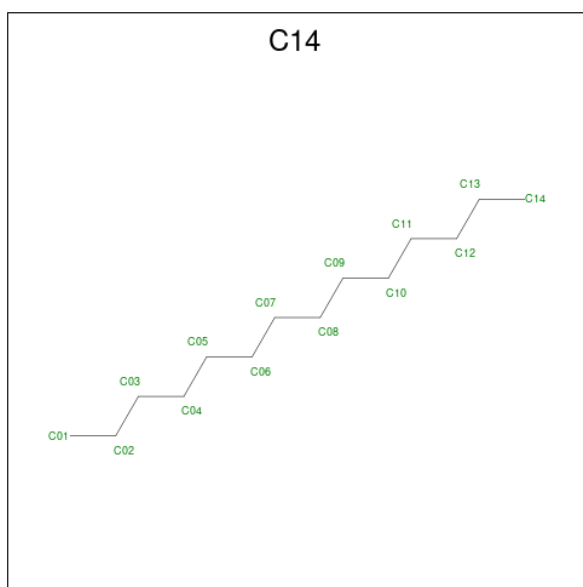
Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
14	A	1	Total	C	N	O	0
			28	16	2	10	
14	A	1	Total	C	N	O	0
			28	16	2	10	
14	B	1	Total	C	N	O	0
			14	8	1	5	
14	C	1	Total	C	N	O	0
			28	16	2	10	
14	C	1	Total	C	N	O	0
			28	16	2	10	
14	D	1	Total	C	N	O	0
			14	8	1	5	

- Molecule 15 is DODECANE (three-letter code: D12) (formula: C<sub>12</sub>H<sub>26</sub>).



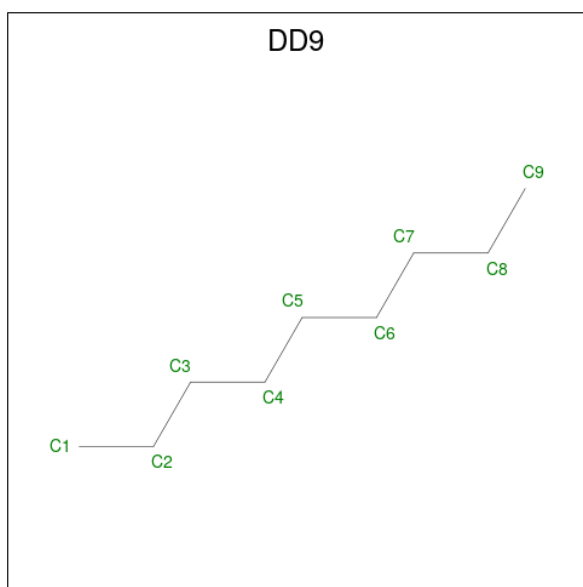
Mol	Chain	Residues	Atoms	AltConf
15	B	1	Total C 12 12	0
15	D	1	Total C 12 12	0
15	G	1	Total C 24 24	0
15	G	1	Total C 24 24	0
15	H	1	Total C 24 24	0
15	H	1	Total C 24 24	0

- Molecule 16 is TETRADECANE (three-letter code: C14) (formula: C<sub>14</sub>H<sub>30</sub>).



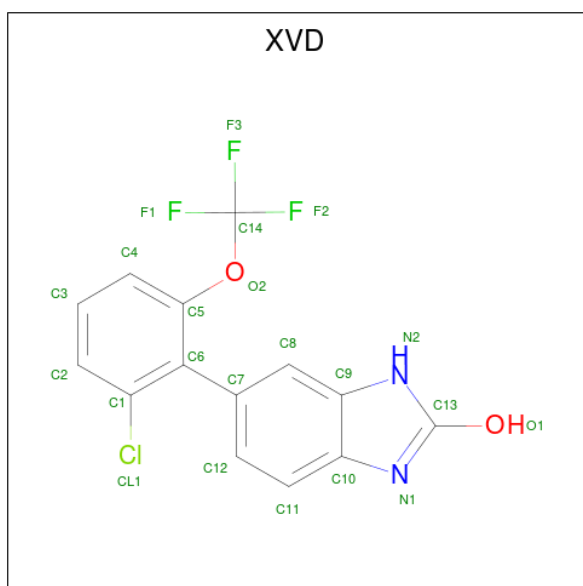
Mol	Chain	Residues	Atoms	AltConf
16	B	1	Total C 14 14	0
16	D	1	Total C 14 14	0
16	E	1	Total C 14 14	0
16	F	1	Total C 14 14	0
16	G	1	Total C 13 13	0
16	H	1	Total C 13 13	0

- Molecule 17 is nonane (three-letter code: DD9) (formula: C<sub>9</sub>H<sub>20</sub>).



Mol	Chain	Residues	Atoms	AltConf
17	B	1	Total C 17 17	0
17	B	1	Total C 17 17	0
17	D	1	Total C 17 17	0
17	D	1	Total C 17 17	0

- Molecule 18 is 6-[2-chloro-6-(trifluoromethoxy)phenyl]-1H-benzimidazol-2-ol (three-letter code: XVD) (formula:  $C_{14}H_8ClF_3N_2O_2$ ) (labeled as "Ligand of Interest" by depositor).

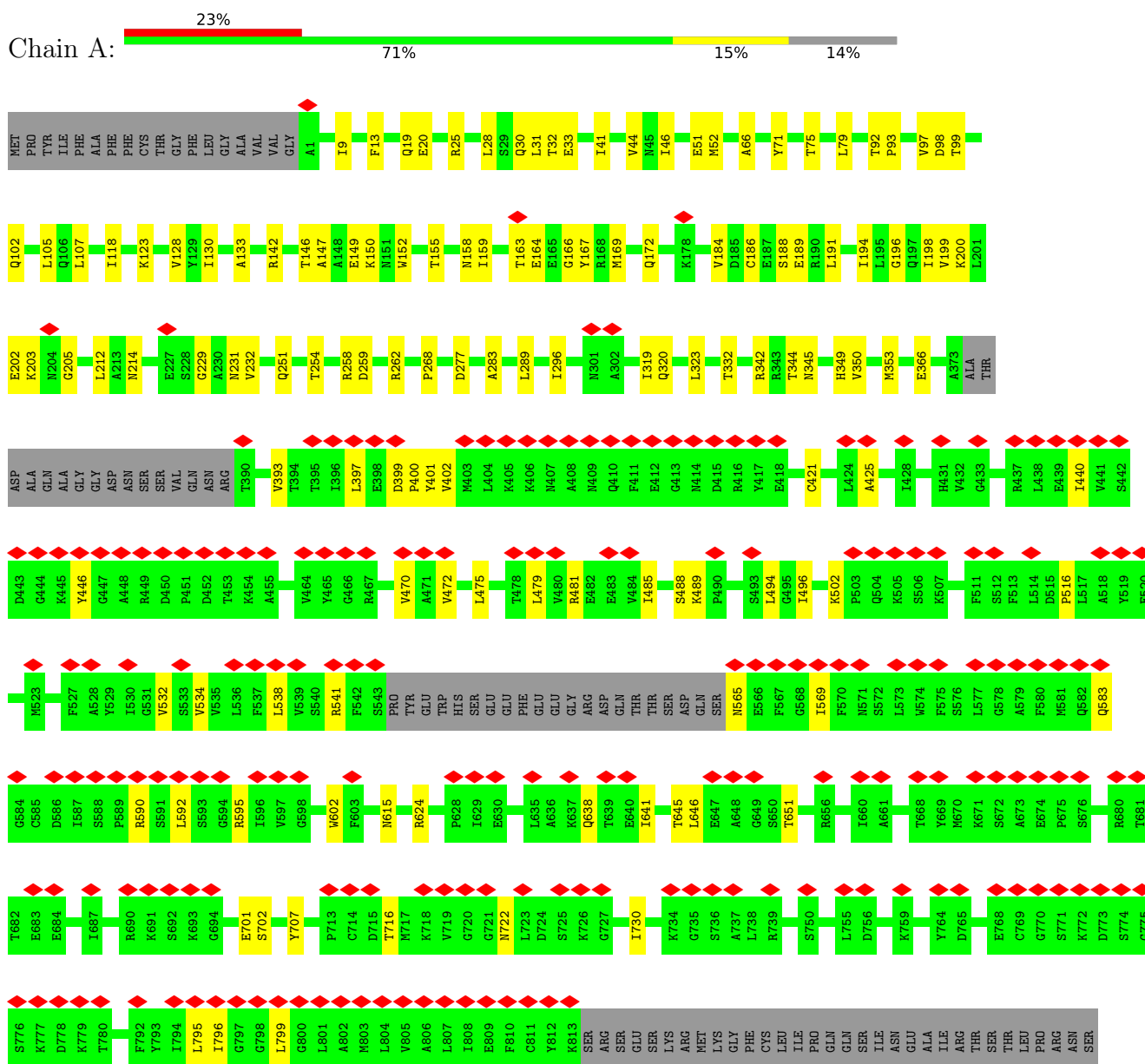


Mol	Chain	Residues	Atoms					AltConf	
			Total	C	Cl	F	N		O
18	G	1	22	14	1	3	2	2	0
18	H	1	22	14	1	3	2	2	0

### 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 atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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: Glutamate receptor 1



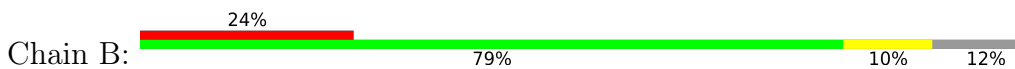
GLY ALA PRO GLY ILE PHE GLY PHE GLY THR GLY GLU ASN ARG VAL VAL SER GLN ASP PHE PRO LYS SER MET GLM SER ILE CYS MET MET PRO MET GLY LEU LEU ALA THR GLY

• Molecule 1: Glutamate receptor 1



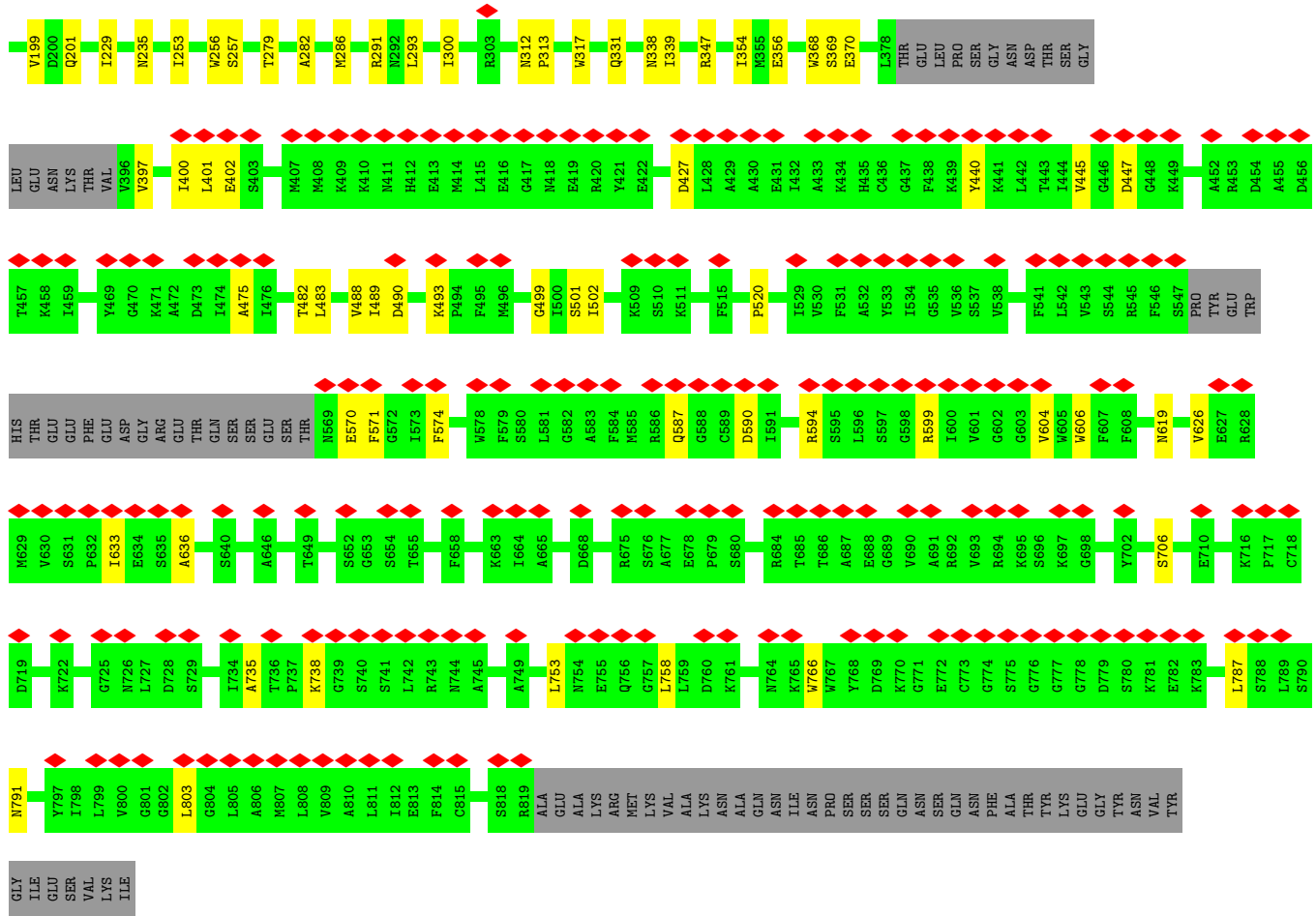
MET 199 PRO 200 TYR 201 ILE 202 PHE 203 SER 204 ALA 205 PHE 206 GLY 207 THR 208 CYS 209 LYS 210 MET 211 MET 212 PRO 213 MET 214 LEU 215 LEU 216 ALA 217 THR 218 THR 219 GLY 220 THR 221 CYS 222 LEU 223 LEU 224 VAL 225 VAL 226 VAL 227 VAL 228 ARG 229 ASP 230 GLY 231 THR 232 CYS 233 LEU 234 LEU 235 VAL 236 VAL 237 LEU 238 LEU 239 LEU 240 LEU 241 VAL 242 VAL 243 VAL 244 VAL 245 VAL 246 VAL 247 VAL 248 VAL 249 VAL 250 VAL 251 VAL 252 VAL 253 VAL 254 VAL 255 VAL 256 VAL 257 VAL 258 VAL 259 VAL 260 VAL 261 VAL 262 VAL 263 VAL 264 VAL 265 VAL 266 VAL 267 VAL 268 VAL 269 VAL 270 VAL 271 VAL 272 VAL 273 VAL 274 VAL 275 VAL 276 VAL 277 VAL 278 VAL 279 VAL 280 VAL 281 VAL 282 VAL 283 VAL 284 VAL 285 VAL 286 VAL 287 VAL 288 VAL 289 VAL 290 VAL 291 VAL 292 VAL 293 VAL 294 VAL 295 VAL 296 VAL 297 VAL 298 VAL 299 VAL 300 VAL 301 VAL 302 VAL 303 VAL 304 VAL 305 VAL 306 VAL 307 VAL 308 VAL 309 VAL 310 VAL 311 VAL 312 VAL 313 VAL 314 VAL 315 VAL 316 VAL 317 VAL 318 VAL 319 VAL 320 VAL 321 VAL 322 VAL 323 VAL 324 VAL 325 VAL 326 VAL 327 VAL 328 VAL 329 VAL 330 VAL 331 VAL 332 VAL 333 VAL 334 VAL 335 VAL 336 VAL 337 VAL 338 VAL 339 VAL 340 VAL 341 VAL 342 VAL 343 VAL 344 VAL 345 VAL 346 VAL 347 VAL 348 VAL 349 VAL 350 VAL 351 VAL 352 VAL 353 VAL 354 VAL 355 VAL 356 VAL 357 VAL 358 VAL 359 VAL 360 VAL 361 VAL 362 VAL 363 VAL 364 VAL 365 VAL 366 VAL 367 VAL 368 VAL 369 VAL 370 VAL 371 VAL 372 VAL 373 VAL 374 VAL 375 VAL 376 VAL 377 VAL 378 VAL 379 VAL 380 VAL 381 VAL 382 VAL 383 VAL 384 VAL 385 VAL 386 VAL 387 VAL 388 VAL 389 VAL 390 VAL 391 VAL 392 VAL 393 VAL 394 VAL 395 VAL 396 VAL 397 VAL 398 VAL 399 VAL 400 VAL 401 VAL 402 VAL 403 VAL 404 VAL 405 VAL 406 VAL 407 VAL 408 VAL 409 VAL 410 VAL 411 VAL 412 VAL 413 VAL 414 VAL 415 VAL 416 VAL 417 VAL 418 VAL 419 VAL 420 VAL 421 VAL 422 VAL 423 VAL 424 VAL 425 VAL 426 VAL 427 VAL 428 VAL 429 VAL 430 VAL 431 VAL 432 VAL 433 VAL 434 VAL 435 VAL 436 VAL 437 VAL 438 VAL 439 VAL 440 VAL 441 VAL 442 VAL 443 VAL 444 VAL 445 VAL 446 VAL 447 VAL 448 VAL 449 VAL 450 VAL 451 VAL 452 VAL 453 VAL 454 VAL 455 VAL 456 VAL 457 VAL 458 VAL 459 VAL 460 VAL 461 VAL 462 VAL 463 VAL 464 VAL 465 VAL 466 VAL 467 VAL 468 VAL 469 VAL 470 VAL 471 VAL 472 VAL 473 VAL 474 VAL 475 VAL 476 VAL 477 VAL 478 VAL 479 VAL 480 VAL 481 VAL 482 VAL 483 VAL 484 VAL 485 VAL 486 VAL 487 VAL 488 VAL 489 VAL 490 VAL 491 VAL 492 VAL 493 VAL 494 VAL 495 VAL 496 VAL 497 VAL 498 VAL 499 VAL 500 VAL 501 VAL 502 VAL 503 VAL 504 VAL 505 VAL 506 VAL 507 VAL 508 VAL 509 VAL 510 VAL 511 VAL 512 VAL 513 VAL 514 VAL 515 VAL 516 VAL 517 VAL 518 VAL 519 VAL 520 VAL 521 VAL 522 VAL 523 VAL 524 VAL 525 VAL 526 VAL 527 VAL 528 VAL 529 VAL 530 VAL 531 VAL 532 VAL 533 VAL 534 VAL 535 VAL 536 VAL 537 VAL 538 VAL 539 VAL 540 VAL 541 VAL 542 VAL 543 VAL 544 VAL 545 VAL 546 VAL 547 VAL 548 VAL 549 VAL 550 VAL 551 VAL 552 VAL 553 VAL 554 VAL 555 VAL 556 VAL 557 VAL 558 VAL 559 VAL 560 VAL 561 VAL 562 VAL 563 VAL 564 VAL 565 VAL 566 VAL 567 VAL 568 VAL 569 VAL 570 VAL 571 VAL 572 VAL 573 VAL 574 VAL 575 VAL 576 VAL 577 VAL 578 VAL 579 VAL 580 VAL 581 VAL 582 VAL 583 VAL 584 VAL 585 VAL 586 VAL 587 VAL 588 VAL 589 VAL 590 VAL 591 VAL 592 VAL 593 VAL 594 VAL 595 VAL 596 VAL 597 VAL 598 VAL 599 VAL 600 VAL 601 VAL 602 VAL 603 VAL 604 VAL 605 VAL 606 VAL 607 VAL 608 VAL 609 VAL 610 VAL 611 VAL 612 VAL 613 VAL 614 VAL 615 VAL 616 VAL 617 VAL 618 VAL 619 VAL 620 VAL 621 VAL 622 VAL 623 VAL 624 VAL 625 VAL 626 VAL 627 VAL 628 VAL 629 VAL 630 VAL 631 VAL 632 VAL 633 VAL 634 VAL 635 VAL 636 VAL 637 VAL 638 VAL 639 VAL 640 VAL 641 VAL 642 VAL 643 VAL 644 VAL 645 VAL 646 VAL 647 VAL 648 VAL 649 VAL 650 VAL 651 VAL 652 VAL 653 VAL 654 VAL 655 VAL 656 VAL 657 VAL 658 VAL 659 VAL 660 VAL 661 VAL 662 VAL 663 VAL 664 VAL 665 VAL 666 VAL 667 VAL 668 VAL 669 VAL 670 VAL 671 VAL 672 VAL 673 VAL 674 VAL 675 VAL 676 VAL 677 VAL 678 VAL 679 VAL 680 VAL 681 VAL 682 VAL 683 VAL 684 VAL 685 VAL 686 VAL 687 VAL 688 VAL 689 VAL 690 VAL 691 VAL 692 VAL 693 VAL 694 VAL 695 VAL 696 VAL 697 VAL 698 VAL 699 VAL 700 VAL 701 VAL 702 VAL 703 VAL 704 VAL 705 VAL 706 VAL 707 VAL 708 VAL 709 VAL 710 VAL 711 VAL 712 VAL 713 VAL 714 VAL 715 VAL 716 VAL 717 VAL 718 VAL 719 VAL 720 VAL 721 VAL 722 VAL 723 VAL 724 VAL 725 VAL 726 VAL 727 VAL 728 VAL 729 VAL 730 VAL 731 VAL 732 VAL 733 VAL 734 VAL 735 VAL 736 VAL 737 VAL 738 VAL 739 VAL 740 VAL 741 VAL 742 VAL 743 VAL 744 VAL 745 VAL 746 VAL 747 VAL 748 VAL 749 VAL 750 VAL 751 VAL 752 VAL 753 VAL 754 VAL 755 VAL 756 VAL 757 VAL 758 VAL 759 VAL 760 VAL 761 VAL 762 VAL 763 VAL 764 VAL 765 VAL 766 VAL 767 VAL 768 VAL 769 VAL 770 VAL 771 VAL 772 VAL 773 VAL 774 VAL 775 VAL 776 VAL 777 VAL 778 VAL 779 VAL 780 VAL 781 VAL 782 VAL 783 VAL 784 VAL 785 VAL 786 VAL 787 VAL 788 VAL 789 VAL 790 VAL 791 VAL 792 VAL 793 VAL 794 VAL 795 VAL 796 VAL 797 VAL 798 VAL 799 VAL 800 VAL 801 VAL 802 VAL 803 VAL 804 VAL 805 VAL 806 VAL 807 VAL 808 VAL 809 VAL 810 VAL 811 VAL 812 VAL 813 VAL 814 VAL 815 VAL 816 VAL 817 VAL 818 VAL 819 VAL 820 VAL 821 VAL 822 VAL 823 VAL 824 VAL 825 VAL 826 VAL 827 VAL 828 VAL 829 VAL 830 VAL 831 VAL 832 VAL 833 VAL 834 VAL 835 VAL 836 VAL 837 VAL 838 VAL 839 VAL 840 VAL 841 VAL 842 VAL 843 VAL 844 VAL 845 VAL 846 VAL 847 VAL 848 VAL 849 VAL 850 VAL 851 VAL 852 VAL 853 VAL 854 VAL 855 VAL 856 VAL 857 VAL 858 VAL 859 VAL 860 VAL 861 VAL 862 VAL 863 VAL 864 VAL 865 VAL 866 VAL 867 VAL 868 VAL 869 VAL 870 VAL 871 VAL 872 VAL 873 VAL 874 VAL 875 VAL 876 VAL 877 VAL 878 VAL 879 VAL 880 VAL 881 VAL 882 VAL 883 VAL 884 VAL 885 VAL 886 VAL 887 VAL 888 VAL 889 VAL 890 VAL 891 VAL 892 VAL 893 VAL 894 VAL 895 VAL 896 VAL 897 VAL 898 VAL 899 VAL 900 VAL 901 VAL 902 VAL 903 VAL 904 VAL 905 VAL 906 VAL 907 VAL 908 VAL 909 VAL 910 VAL 911 VAL 912 VAL 913 VAL 914 VAL 915 VAL 916 VAL 917 VAL 918 VAL 919 VAL 920 VAL 921 VAL 922 VAL 923 VAL 924 VAL 925 VAL 926 VAL 927 VAL 928 VAL 929 VAL 930 VAL 931 VAL 932 VAL 933 VAL 934 VAL 935 VAL 936 VAL 937 VAL 938 VAL 939 VAL 940 VAL 941 VAL 942 VAL 943 VAL 944 VAL 945 VAL 946 VAL 947 VAL 948 VAL 949 VAL 950 VAL 951 VAL 952 VAL 953 VAL 954 VAL 955 VAL 956 VAL 957 VAL 958 VAL 959 VAL 960 VAL 961 VAL 962 VAL 963 VAL 964 VAL 965 VAL 966 VAL 967 VAL 968 VAL 969 VAL 970 VAL 971 VAL 972 VAL 973 VAL 974 VAL 975 VAL 976 VAL 977 VAL 978 VAL 979 VAL 980 VAL 981 VAL 982 VAL 983 VAL 984 VAL 985 VAL 986 VAL 987 VAL 988 VAL 989 VAL 990 VAL 991 VAL 992 VAL 993 VAL 994 VAL 995 VAL 996 VAL 997 VAL 998 VAL 999 VAL 1000

• Molecule 2: Glutamate receptor

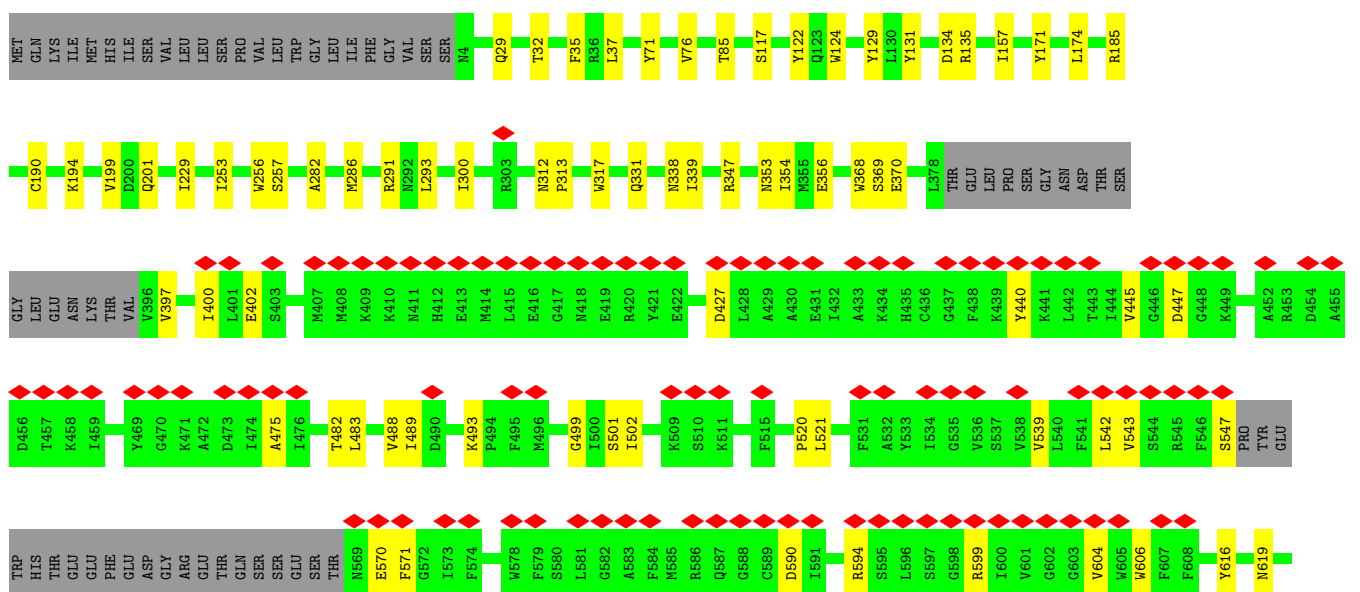
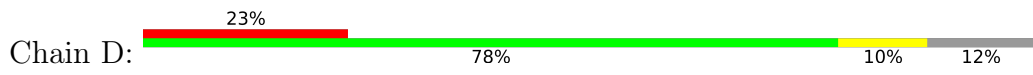


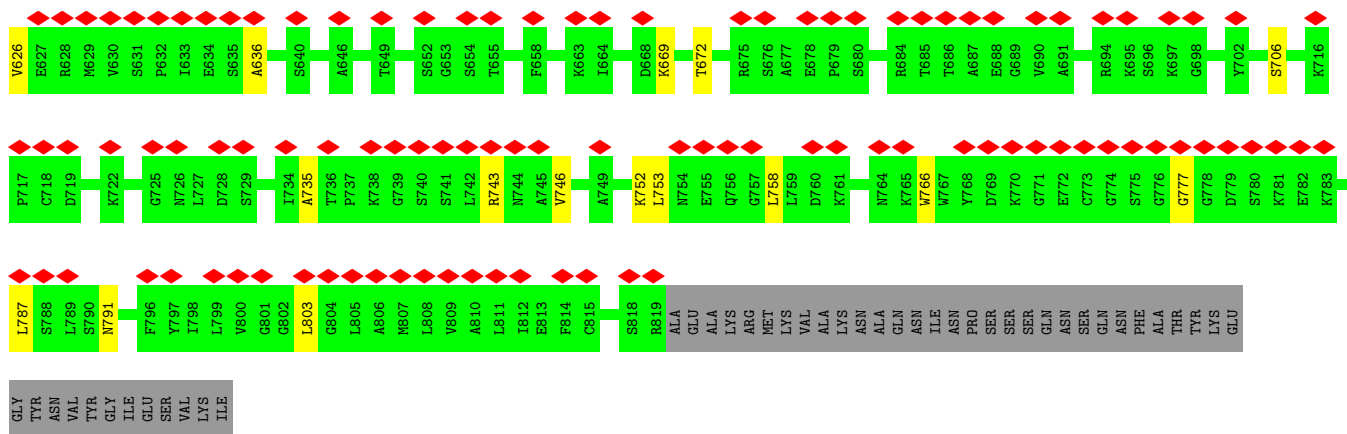
MET 29 GLN 30 LYS 31 ILE 32 MET 33 HIS 34 ILE 35 SER 36 VAL 37 VAL 38 LEU 39 LEU 40 SER 41 LEU 42 LEU 43 VAL 44 LEU 45 LEU 46 VAL 47 VAL 48 VAL 49 ASP 50 ASP 51 ASP 52 ASP 53 ASP 54 ASP 55 ASP 56 ASP 57 ASP 58 ASP 59 ASP 60 ASP 61 ASP 62 ASP 63 ASP 64 ASP 65 ASP 66 ASP 67 ASP 68 ASP 69 ASP 70 ASP 71 ASP 72 ASP 73 ASP 74 ASP 75 ASP 76 ASP 77 ASP 78 ASP 79 ASP 80 ASP 81 ASP 82 ASP 83 ASP 84 ASP 85 ASP 86 ASP 87 ASP 88 ASP 89 ASP 90 ASP 91 ASP 92 ASP 93 ASP 94 ASP 95 ASP 96 ASP 97 ASP 98 ASP 99 ASP 100 ASP 101 ASP 102 ASP 103 ASP 104 ASP 105 ASP 106 ASP 107 ASP 108 ASP 109 ASP 110 ASP 111 ASP 112 ASP 113 ASP 114 ASP 115 ASP 116 ASP 117 ASP 118 ASP 119 ASP 120 ASP 121 ASP 122 ASP 123 ASP 124 ASP 125 ASP 126 ASP 127 ASP 128 ASP 129 ASP 130 ASP 131 ASP 132 ASP 133 ASP 134 ASP 135 ASP 136 ASP 137 ASP 138 ASP 139 ASP 140 ASP 141 ASP 142 ASP 143 ASP 144 ASP 145 ASP 146 ASP 147 ASP 148 ASP 149 ASP 150 ASP 151 ASP 152 ASP 153 ASP 154 ASP 155 ASP 156 ASP 157 ASP 158 ASP 159 ASP 160 ASP 161 ASP 162 ASP 163 ASP 164 ASP 165 ASP 166 ASP 167 ASP 168 ASP 169 ASP 170 ASP 171 ASP 172 ASP 173 ASP 174 ASP 175 ASP 176 ASP 177 ASP 178 ASP 179 ASP 180 ASP 181 ASP 182 ASP 183 ASP 184 ASP 185 ASP 186 ASP 187 ASP 188 ASP 189 ASP 190 ASP 191 ASP 192 ASP 193 ASP 194 ASP 195 ASP 196 ASP 197 ASP 198 ASP 199 ASP 200



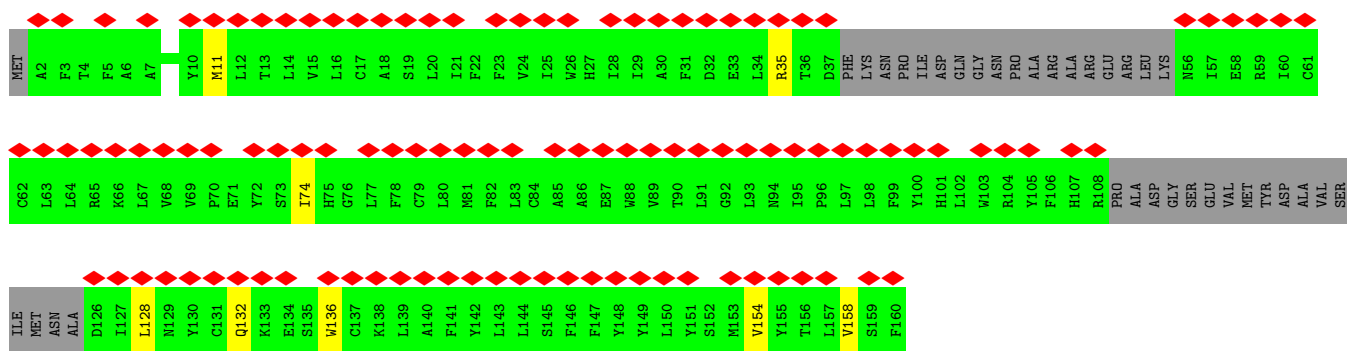
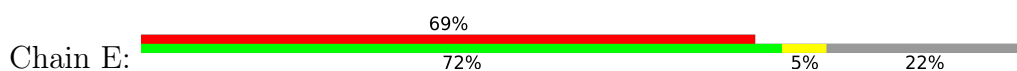


• Molecule 2: Glutamate receptor

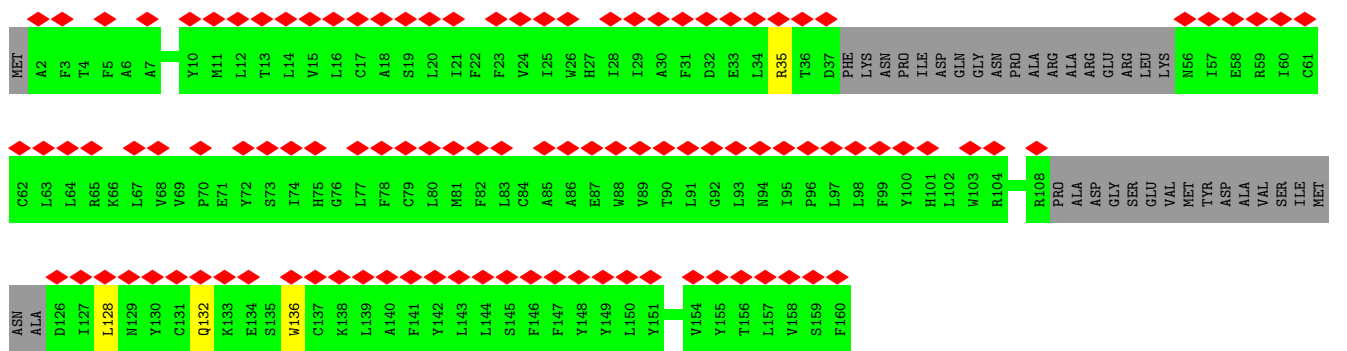
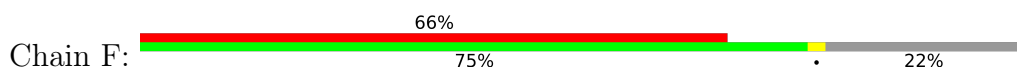




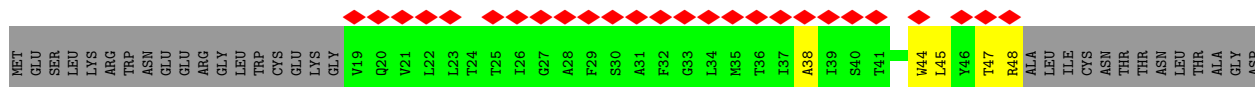
• Molecule 3: Protein cornichon homolog 2

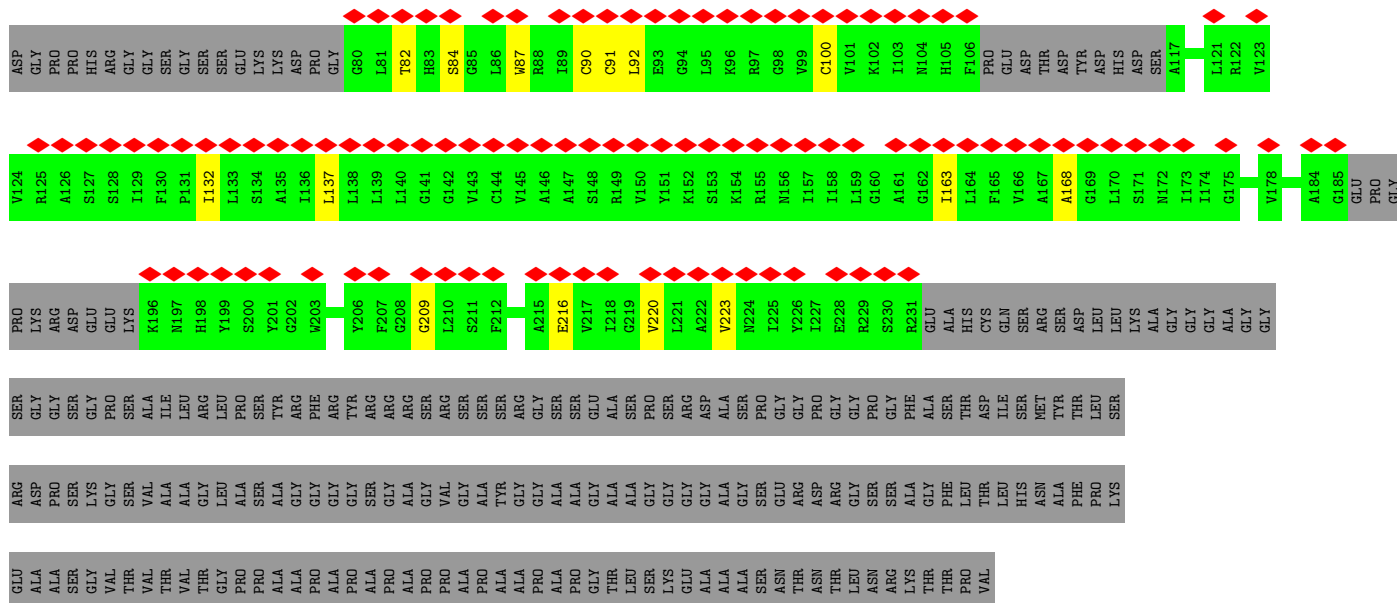


• Molecule 3: Protein cornichon homolog 2

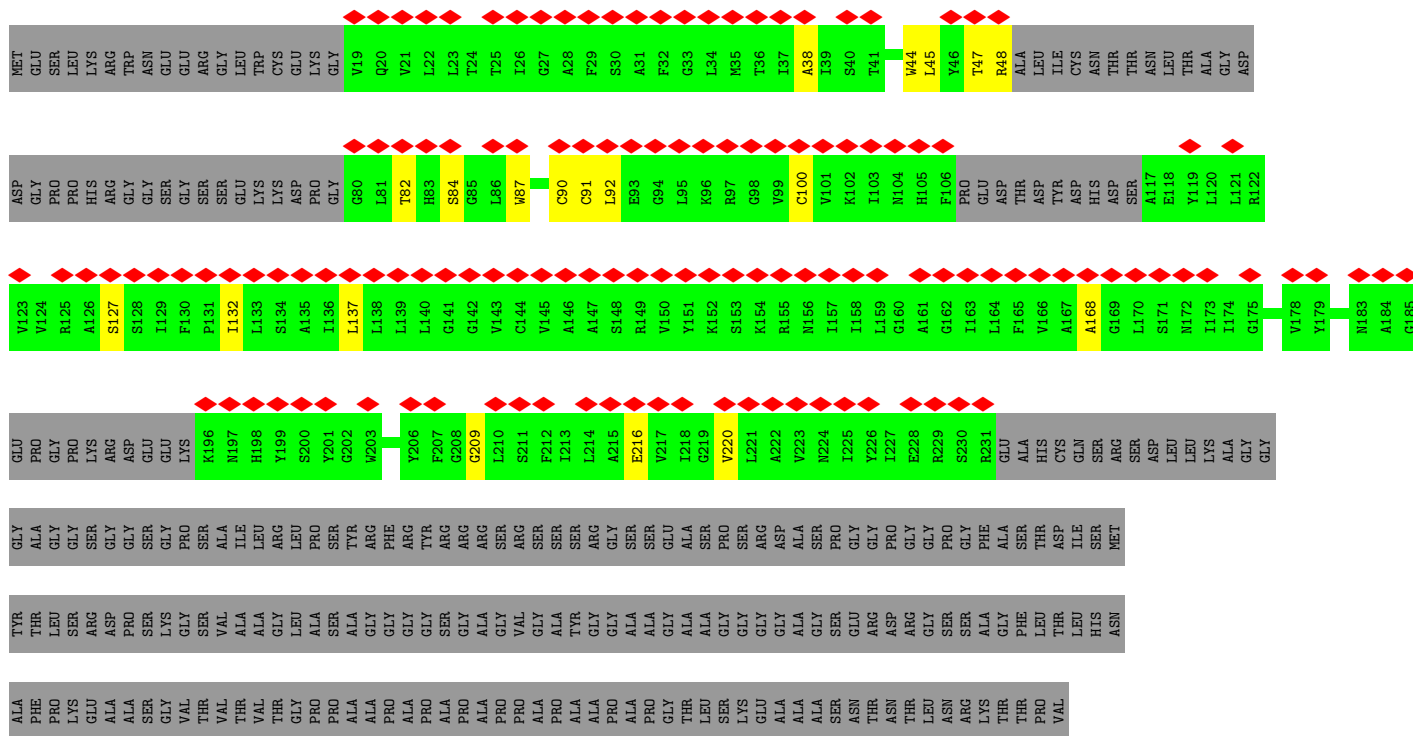


• Molecule 4: Voltage-dependent calcium channel gamma-8 subunit

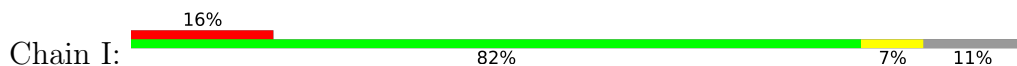


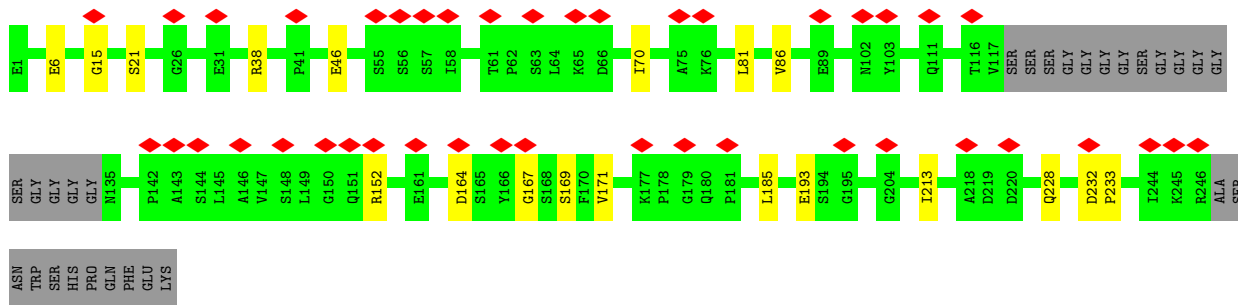


• Molecule 4: Voltage-dependent calcium channel gamma-8 subunit

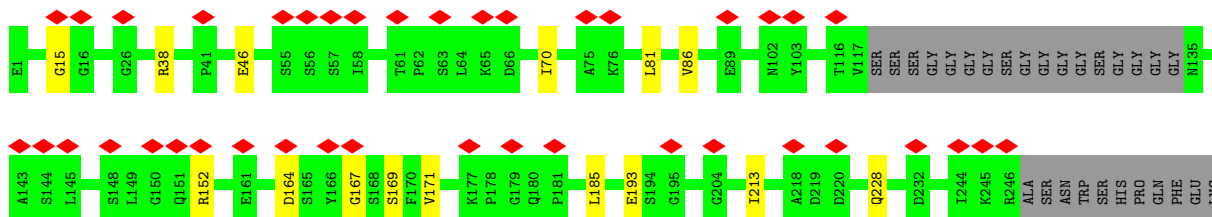
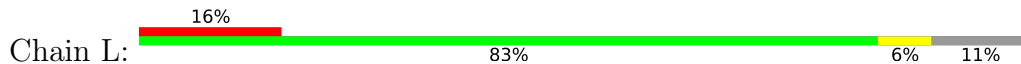


• Molecule 5: 11B8 scFv

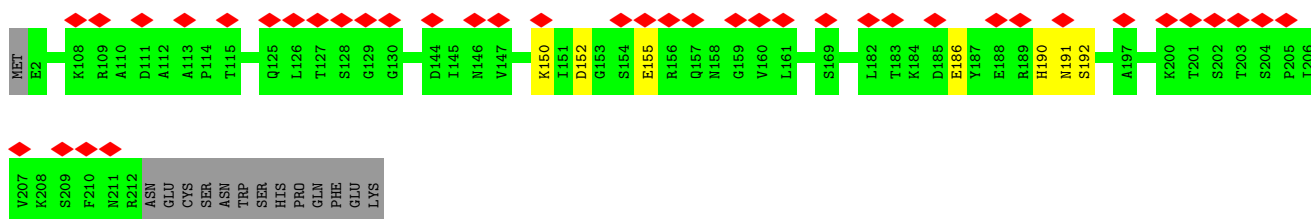
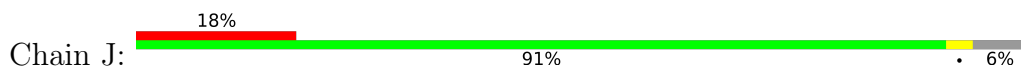




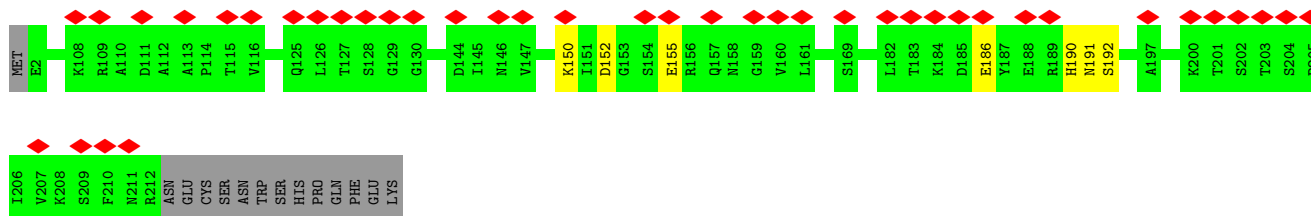
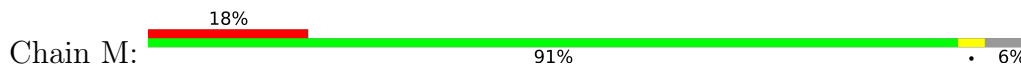
• Molecule 5: 11B8 scFv



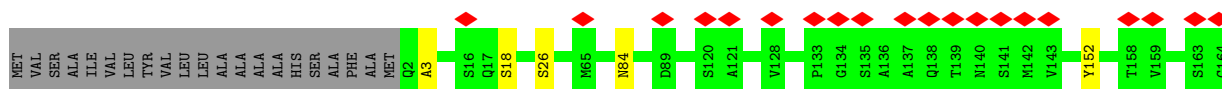
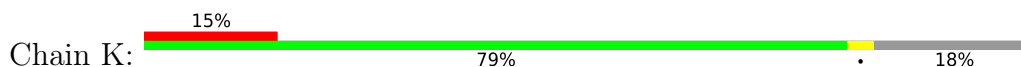
• Molecule 6: 15F1 Fab light chain

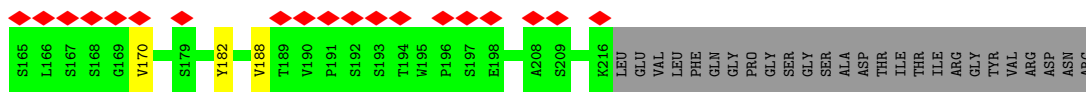


• Molecule 6: 15F1 Fab light chain

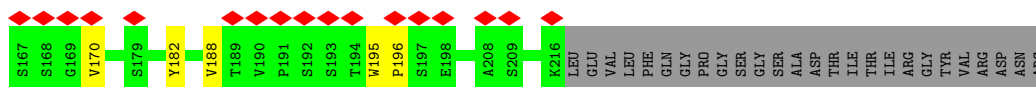
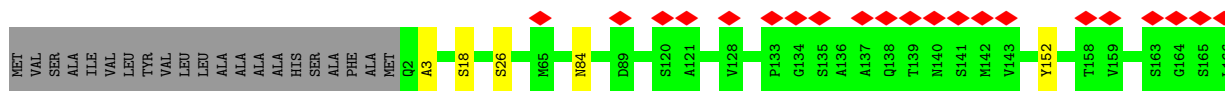
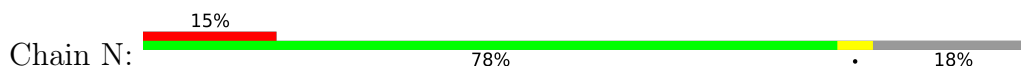


• Molecule 7: 15F1 Fab heavy chain





- Molecule 7: 15F1 Fab heavy chain



- Molecule 8: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose



- Molecule 8: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain S:  50% 50%



- Molecule 8: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain T:  50% 100%



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	829000	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	Not provided	
Maximum defocus (nm)	Not provided	
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	1.621	Depositor
Minimum map value	-0.962	Depositor
Average map value	-0.000	Depositor
Map value standard deviation	0.017	Depositor
Recommended contour level	0.12	Depositor
Map size ( $\text{\AA}$ )	515.51746, 515.51746, 515.51746	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles ( $^\circ$ )	90.0, 90.0, 90.0	wwPDB
Pixel spacing ( $\text{\AA}$ )	1.00687, 1.00687, 1.00687	Depositor

## 5 Model quality [i](#)

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

Bond lengths and bond angles in the following residue types are not validated in this section: NAG, D10, XVD, DD9, D12, OCT, HP6, C14, ZK1, R16

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	0.25	0/6007	0.39	0/8170
1	C	0.25	0/6007	0.39	0/8170
2	B	0.25	0/5811	0.39	0/7931
2	D	0.25	0/5811	0.40	0/7931
3	E	0.24	0/1005	0.36	0/1371
3	F	0.25	0/1009	0.36	0/1376
4	G	0.24	0/1154	0.38	0/1574
4	H	0.23	0/1154	0.38	0/1574
5	I	0.25	0/1122	0.47	0/1555
5	L	0.25	0/1122	0.47	0/1555
6	J	0.24	0/1041	0.45	0/1448
6	M	0.24	0/1041	0.45	0/1448
7	K	0.25	0/1058	0.46	0/1470
7	N	0.25	0/1058	0.45	0/1470
All	All	0.25	0/34400	0.40	0/47043

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 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	5868	0	5591	88	0
1	C	5868	0	5591	90	0
2	B	5687	0	5261	48	0
2	D	5687	0	5261	54	0
3	E	974	0	923	5	0
3	F	978	0	927	2	0
4	G	1134	0	1096	14	0
4	H	1134	0	1096	14	0
5	I	1124	0	513	10	0
5	L	1124	0	513	8	0
6	J	1042	0	453	4	0
6	M	1042	0	453	4	0
7	K	1059	0	470	4	0
7	N	1059	0	470	5	0
8	O	28	0	25	0	0
8	P	28	0	25	1	0
8	Q	28	0	25	3	0
8	R	28	0	25	0	0
8	S	28	0	25	1	0
8	T	28	0	25	3	0
9	A	27	0	13	0	0
9	B	27	0	13	1	0
9	C	27	0	13	0	0
9	D	27	0	13	1	0
10	A	13	0	25	0	0
10	C	13	0	25	0	0
11	A	8	0	18	1	0
11	B	8	0	18	0	0
11	C	8	0	18	0	0
11	D	8	0	18	0	0
11	G	8	0	16	1	0
11	H	8	0	16	1	0
12	A	14	0	30	0	0
12	C	14	0	30	0	0
13	A	10	0	22	0	0
13	C	10	0	22	0	0
13	E	7	0	13	0	0
13	F	7	0	13	0	0
13	G	10	0	22	0	0
13	H	10	0	22	0	0
14	A	28	0	26	1	0
14	B	14	0	13	0	0
14	C	28	0	26	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
14	D	14	0	13	0	0
15	B	12	0	26	0	0
15	D	12	0	26	1	0
15	G	24	0	52	0	0
15	H	24	0	52	0	0
16	B	14	0	30	0	0
16	D	14	0	30	0	0
16	E	14	0	30	0	0
16	F	14	0	30	0	0
16	G	13	0	25	0	0
16	H	13	0	25	0	0
17	B	17	0	35	0	0
17	D	17	0	35	0	0
18	G	22	0	0	1	0
18	H	22	0	0	1	0
All	All	34528	0	29622	332	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 5.

The worst 5 of 332 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)
5:I:152:ARG:HA	5:I:213:ILE:O	1.82	0.80
5:L:152:ARG:HA	5:L:213:ILE:O	1.82	0.79
5:L:15:GLY:HA2	5:L:86:VAL:H	1.55	0.72
5:I:15:GLY:HA2	5:I:86:VAL:H	1.55	0.71
1:A:258:ARG:NH1	1:A:259:ASP:OD2	2.27	0.67

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 PDB entries followed by that with respect to all EM 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	771/907 (85%)	749 (97%)	22 (3%)	0	100	100
1	C	771/907 (85%)	750 (97%)	21 (3%)	0	100	100
2	B	772/883 (87%)	753 (98%)	19 (2%)	0	100	100
2	D	772/883 (87%)	754 (98%)	18 (2%)	0	100	100
3	E	118/160 (74%)	117 (99%)	1 (1%)	0	100	100
3	F	118/160 (74%)	117 (99%)	1 (1%)	0	100	100
4	G	154/423 (36%)	151 (98%)	3 (2%)	0	100	100
4	H	154/423 (36%)	151 (98%)	3 (2%)	0	100	100
5	I	225/257 (88%)	213 (95%)	12 (5%)	0	100	100
5	L	225/257 (88%)	213 (95%)	12 (5%)	0	100	100
6	J	209/225 (93%)	197 (94%)	12 (6%)	0	100	100
6	M	209/225 (93%)	196 (94%)	13 (6%)	0	100	100
7	K	213/262 (81%)	207 (97%)	6 (3%)	0	100	100
7	N	213/262 (81%)	207 (97%)	6 (3%)	0	100	100
All	All	4924/6234 (79%)	4775 (97%)	149 (3%)	0	100	100

There are no Ramachandran outliers to report.

### 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 PDB entries followed by that with respect to all EM 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	583/770 (76%)	581 (100%)	2 (0%)	92	97
1	C	583/770 (76%)	581 (100%)	2 (0%)	92	97
2	B	551/755 (73%)	548 (100%)	3 (0%)	88	94
2	D	551/755 (73%)	548 (100%)	3 (0%)	88	94
3	E	95/143 (66%)	95 (100%)	0	100	100
3	F	96/143 (67%)	96 (100%)	0	100	100
4	G	105/310 (34%)	105 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
4	H	105/310 (34%)	105 (100%)	0	100	100
All	All	2669/3956 (68%)	2659 (100%)	10 (0%)	91	95

5 of 10 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	D	117	SER
2	D	257	SER
2	D	317	TRP
2	B	257	SER
2	B	317	TRP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 22 such sidechains are listed below:

Mol	Chain	Res	Type
2	D	312	ASN
3	E	94	ASN
3	E	75	HIS
3	E	132	GLN
2	B	312	ASN

### 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](#)

12 monosaccharides 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
8	NAG	O	1	1,8	14,14,15	0.19	0	17,19,21	0.42	0
8	NAG	O	2	8	14,14,15	0.23	0	17,19,21	0.39	0
8	NAG	P	1	1,8	14,14,15	0.64	1 (7%)	17,19,21	0.75	0
8	NAG	P	2	8	14,14,15	0.49	0	17,19,21	0.33	0
8	NAG	Q	1	2,8	14,14,15	0.59	1 (7%)	17,19,21	0.74	0
8	NAG	Q	2	8	14,14,15	0.43	0	17,19,21	1.24	1 (5%)
8	NAG	R	1	1,8	14,14,15	0.20	0	17,19,21	0.42	0
8	NAG	R	2	8	14,14,15	0.22	0	17,19,21	0.40	0
8	NAG	S	1	1,8	14,14,15	0.63	1 (7%)	17,19,21	0.75	0
8	NAG	S	2	8	14,14,15	0.49	0	17,19,21	0.34	0
8	NAG	T	1	2,8	14,14,15	0.61	1 (7%)	17,19,21	0.74	0
8	NAG	T	2	8	14,14,15	0.44	0	17,19,21	1.25	1 (5%)

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
8	NAG	O	1	1,8	-	0/6/23/26	0/1/1/1
8	NAG	O	2	8	-	2/6/23/26	0/1/1/1
8	NAG	P	1	1,8	-	4/6/23/26	0/1/1/1
8	NAG	P	2	8	-	0/6/23/26	0/1/1/1
8	NAG	Q	1	2,8	-	4/6/23/26	0/1/1/1
8	NAG	Q	2	8	-	5/6/23/26	0/1/1/1
8	NAG	R	1	1,8	-	0/6/23/26	0/1/1/1
8	NAG	R	2	8	-	2/6/23/26	0/1/1/1
8	NAG	S	1	1,8	-	4/6/23/26	0/1/1/1
8	NAG	S	2	8	-	0/6/23/26	0/1/1/1
8	NAG	T	1	2,8	-	4/6/23/26	0/1/1/1
8	NAG	T	2	8	-	5/6/23/26	0/1/1/1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	P	1	NAG	O5-C1	-2.23	1.40	1.43
8	S	1	NAG	O5-C1	-2.17	1.40	1.43
8	T	1	NAG	O5-C1	-2.10	1.40	1.43
8	Q	1	NAG	O5-C1	-2.05	1.40	1.43

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	T	2	NAG	C2-N2-C7	4.28	129.00	122.90
8	Q	2	NAG	C2-N2-C7	4.25	128.96	122.90

There are no chirality outliers.

5 of 30 torsion outliers are listed below:

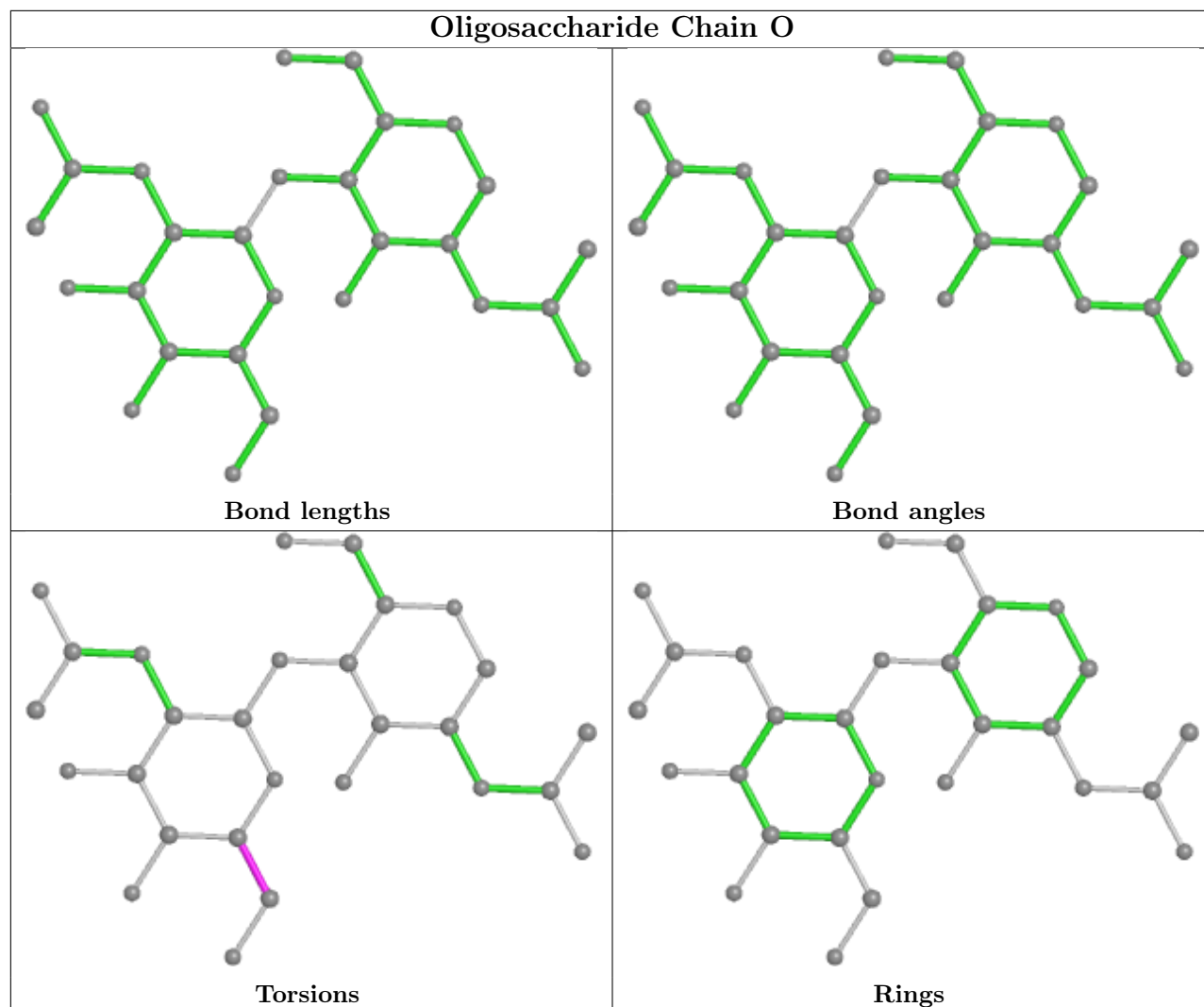
Mol	Chain	Res	Type	Atoms
8	P	1	NAG	O5-C5-C6-O6
8	S	1	NAG	O5-C5-C6-O6
8	O	2	NAG	O5-C5-C6-O6
8	R	2	NAG	O5-C5-C6-O6
8	Q	1	NAG	O5-C5-C6-O6

There are no ring outliers.

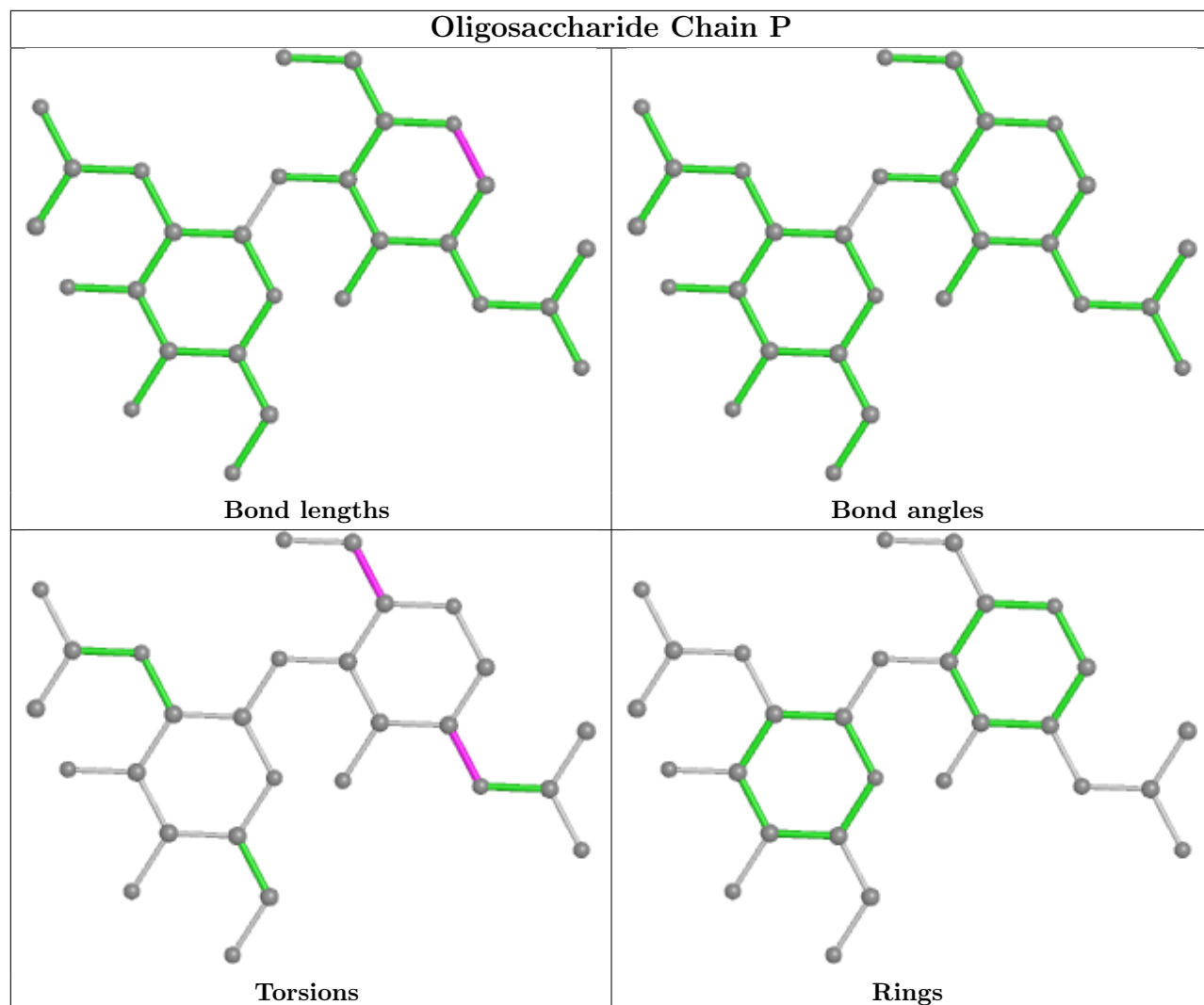
6 monomers are involved in 8 short contacts:

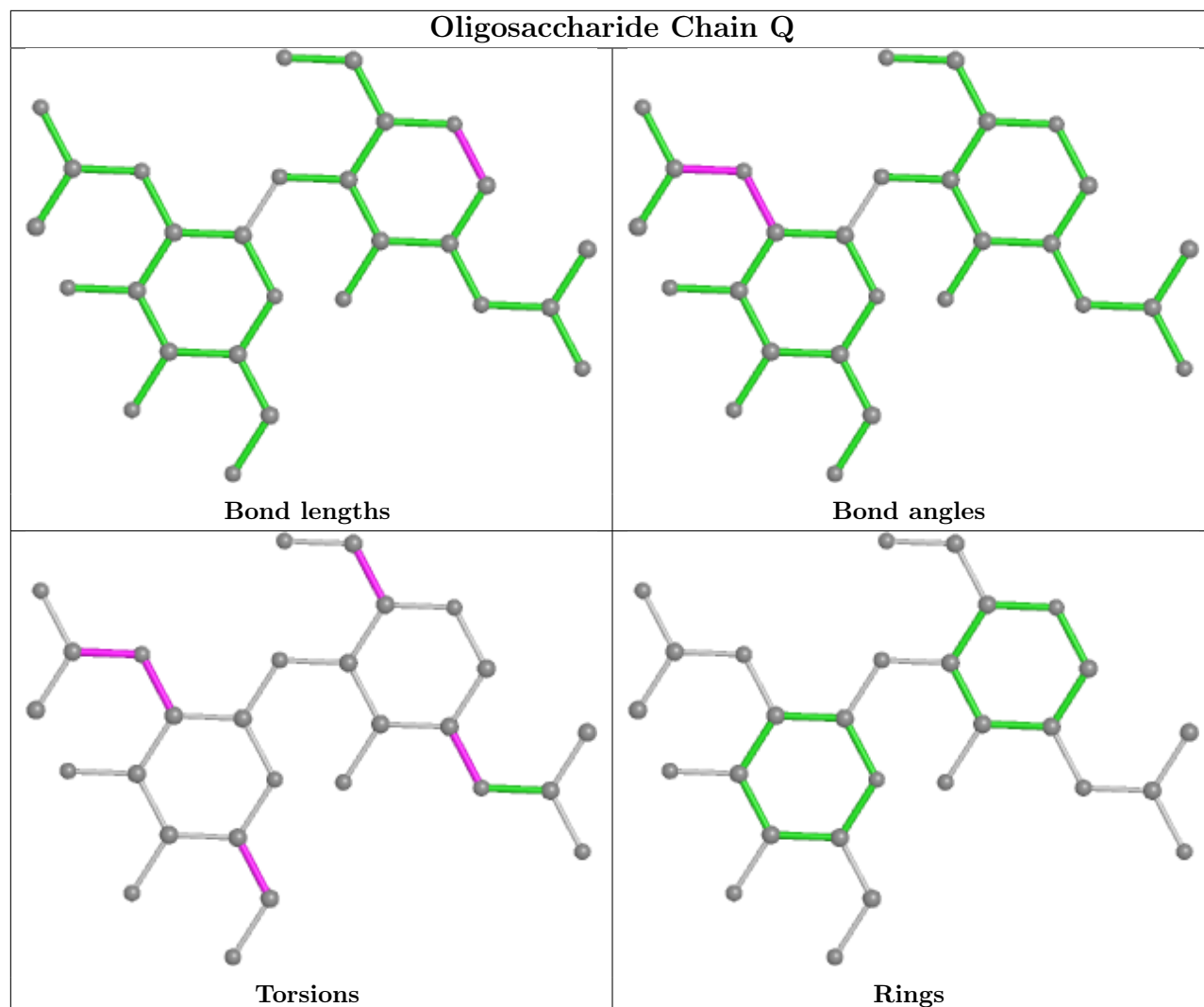
Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	P	1	NAG	1	0
8	T	2	NAG	2	0
8	S	1	NAG	1	0
8	Q	1	NAG	1	0
8	Q	2	NAG	2	0
8	T	1	NAG	1	0

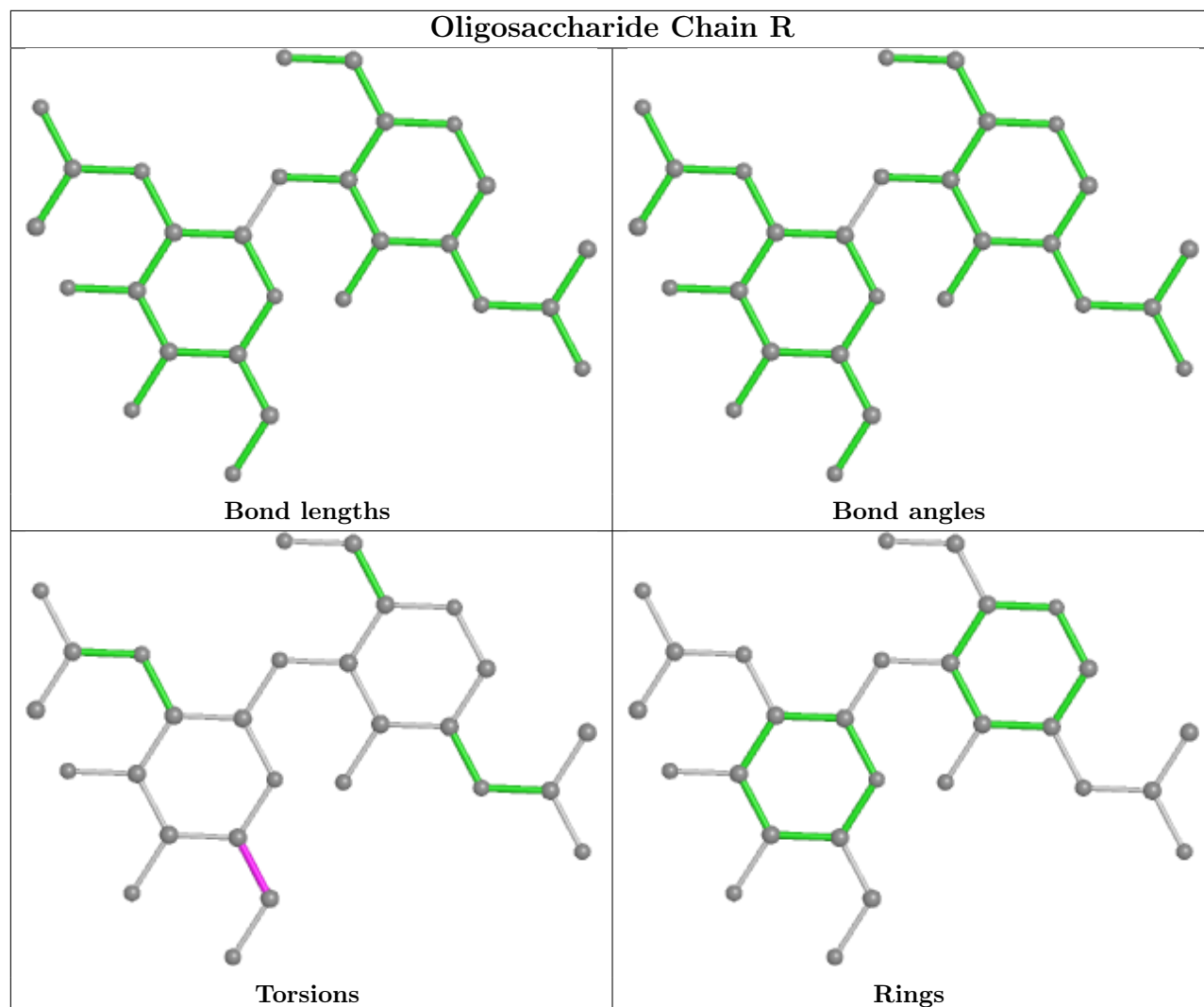
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

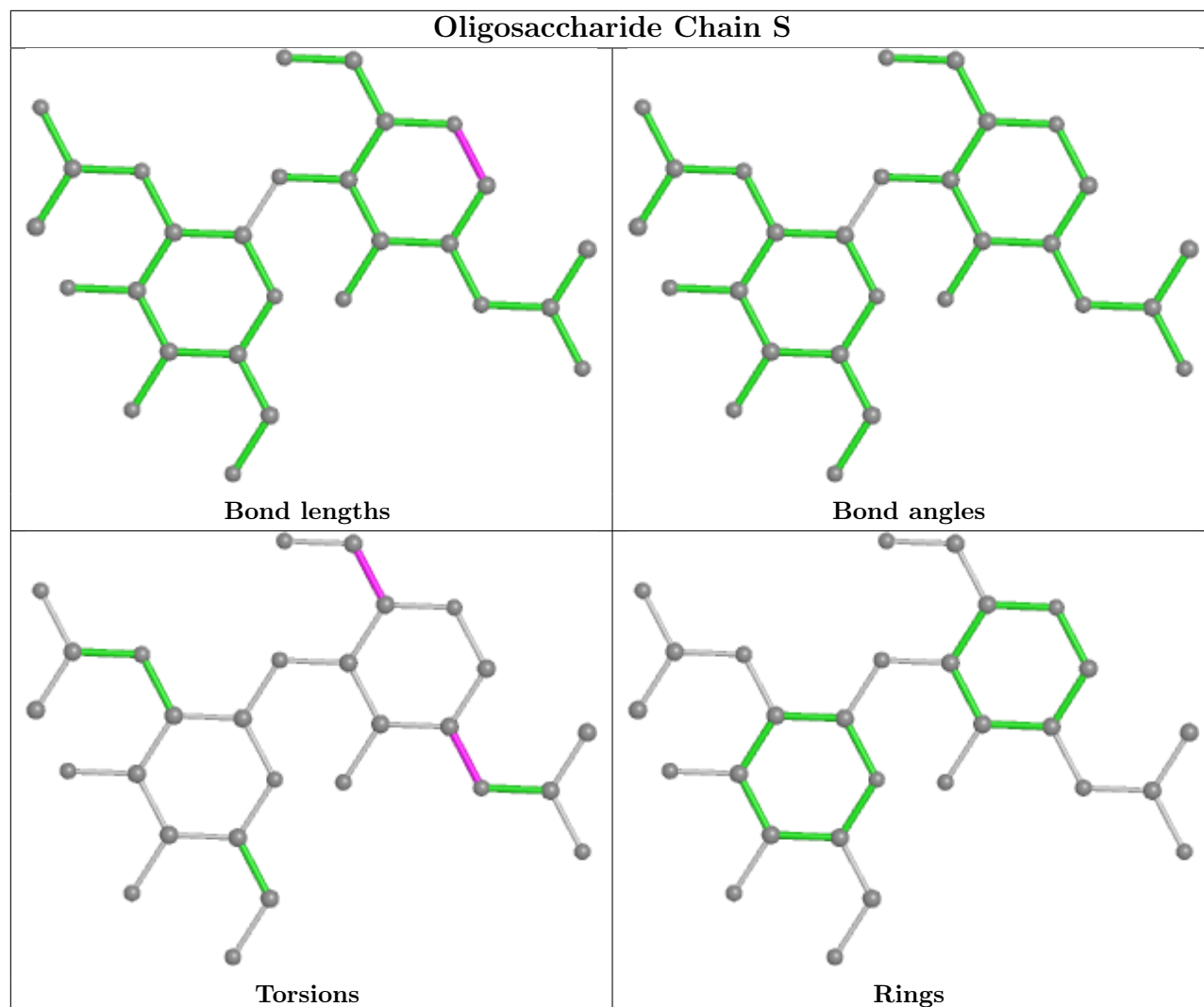


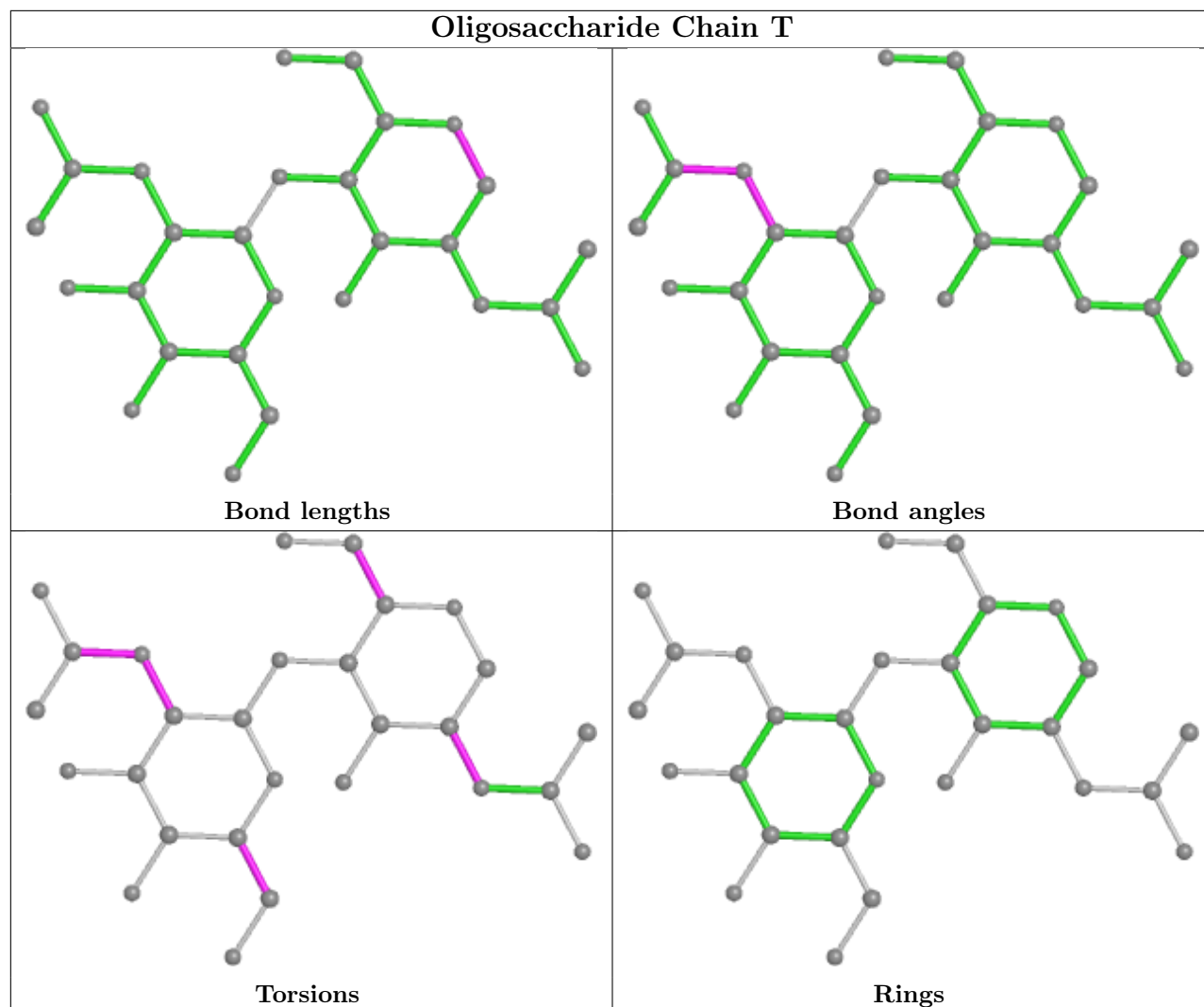












## 5.6 Ligand geometry [i](#)

46 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	$\# Z  > 2$
10	R16	C	902	-	12,12,15	0.29	0	11,11,14	0.38	0
12	HP6	C	904	-	6,6,6	0.30	0	5,5,5	0.29	0
16	C14	F	202	-	13,13,13	0.29	0	12,12,12	0.37	0
17	DD9	D	905	-	8,8,8	0.30	0	7,7,7	0.34	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
11	OCT	A	903	-	7,7,7	0.30	0	6,6,6	0.32	0
13	D10	C	905	-	9,9,9	0.30	0	8,8,8	0.35	0
9	ZK1	D	906	-	28,29,29	2.78	11 (39%)	42,45,45	1.51	6 (14%)
14	NAG	A	906	1	14,14,15	0.18	0	17,19,21	0.42	0
11	OCT	C	903	-	7,7,7	0.30	0	6,6,6	0.32	0
12	HP6	A	908	-	6,6,6	0.31	0	5,5,5	0.30	0
18	XVD	H	504	-	23,24,24	1.75	6 (26%)	26,36,36	0.92	1 (3%)
12	HP6	A	904	-	6,6,6	0.30	0	5,5,5	0.29	0
15	D12	H	501	-	11,11,11	0.29	0	10,10,10	0.37	0
17	DD9	B	907	-	8,8,8	0.30	0	7,7,7	0.33	0
15	D12	G	503	-	11,11,11	0.29	0	10,10,10	0.37	0
15	D12	G	502	-	11,11,11	0.30	0	10,10,10	0.37	0
16	C14	D	902	-	13,13,13	0.29	0	12,12,12	0.37	0
11	OCT	D	904	-	7,7,7	0.30	0	6,6,6	0.32	0
13	D10	E	201	-	6,6,9	0.31	0	5,5,8	0.29	0
11	OCT	G	505	-	7,7,7	0.30	0	6,6,6	0.32	0
9	ZK1	B	901	-	28,29,29	2.79	11 (39%)	42,45,45	1.51	6 (14%)
13	D10	A	905	-	9,9,9	0.30	0	8,8,8	0.35	0
10	R16	A	902	-	12,12,15	0.29	0	11,11,14	0.38	0
17	DD9	B	905	-	7,7,8	0.30	0	6,6,7	0.32	0
15	D12	B	903	-	11,11,11	0.30	0	10,10,10	0.36	0
9	ZK1	A	901	-	28,29,29	2.78	11 (39%)	42,45,45	1.52	6 (14%)
16	C14	E	202	-	13,13,13	0.29	0	12,12,12	0.37	0
16	C14	H	506	-	12,12,13	0.29	0	11,11,12	0.37	0
12	HP6	C	908	-	6,6,6	0.31	0	5,5,5	0.29	0
14	NAG	A	907	1	14,14,15	0.22	0	17,19,21	0.44	0
16	C14	B	904	-	13,13,13	0.29	0	12,12,12	0.38	0
15	D12	H	502	-	11,11,11	0.29	0	10,10,10	0.37	0
14	NAG	D	907	2	14,14,15	0.21	0	17,19,21	0.41	0
9	ZK1	C	901	-	28,29,29	2.78	11 (39%)	42,45,45	1.52	6 (14%)
16	C14	G	506	-	12,12,13	0.29	0	11,11,12	0.37	0
13	D10	G	501	-	9,9,9	0.30	0	8,8,8	0.35	0
14	NAG	B	902	2	14,14,15	0.22	0	17,19,21	0.41	0
18	XVD	G	504	-	23,24,24	1.75	6 (26%)	26,36,36	0.92	1 (3%)
13	D10	H	503	-	9,9,9	0.30	0	8,8,8	0.34	0
11	OCT	B	906	-	7,7,7	0.30	0	6,6,6	0.32	0
14	NAG	C	907	1	14,14,15	0.22	0	17,19,21	0.43	0
15	D12	D	901	-	11,11,11	0.30	0	10,10,10	0.36	0
13	D10	F	201	-	6,6,9	0.31	0	5,5,8	0.30	0
14	NAG	C	906	1	14,14,15	0.19	0	17,19,21	0.42	0
17	DD9	D	903	-	7,7,8	0.30	0	6,6,7	0.32	0
11	OCT	H	505	-	7,7,7	0.31	0	6,6,6	0.33	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
10	R16	C	902	-	-	1/10/10/13	-
12	HP6	C	904	-	-	0/4/4/4	-
16	C14	F	202	-	-	0/11/11/11	-
17	DD9	D	905	-	-	0/6/6/6	-
11	OCT	A	903	-	-	0/5/5/5	-
13	D10	C	905	-	-	0/7/7/7	-
9	ZK1	D	906	-	-	1/13/23/23	0/3/3/3
14	NAG	A	906	1	-	2/6/23/26	0/1/1/1
11	OCT	C	903	-	-	0/5/5/5	-
12	HP6	A	908	-	-	0/4/4/4	-
18	XVD	H	504	-	-	0/9/9/9	0/3/3/3
12	HP6	A	904	-	-	0/4/4/4	-
15	D12	H	501	-	-	0/9/9/9	-
17	DD9	B	907	-	-	0/6/6/6	-
15	D12	G	503	-	-	0/9/9/9	-
15	D12	G	502	-	-	0/9/9/9	-
16	C14	D	902	-	-	0/11/11/11	-
11	OCT	D	904	-	-	0/5/5/5	-
13	D10	E	201	-	-	0/4/4/7	-
11	OCT	G	505	-	-	0/5/5/5	-
9	ZK1	B	901	-	-	1/13/23/23	0/3/3/3
13	D10	A	905	-	-	0/7/7/7	-
10	R16	A	902	-	-	1/10/10/13	-
17	DD9	B	905	-	-	0/5/5/6	-
15	D12	B	903	-	-	1/9/9/9	-
9	ZK1	A	901	-	-	2/13/23/23	0/3/3/3
16	C14	E	202	-	-	0/11/11/11	-
16	C14	H	506	-	-	0/10/10/11	-
12	HP6	C	908	-	-	0/4/4/4	-
14	NAG	A	907	1	-	2/6/23/26	0/1/1/1
16	C14	B	904	-	-	0/11/11/11	-
15	D12	H	502	-	-	0/9/9/9	-
14	NAG	D	907	2	-	2/6/23/26	0/1/1/1
9	ZK1	C	901	-	-	2/13/23/23	0/3/3/3
16	C14	G	506	-	-	0/10/10/11	-
13	D10	G	501	-	-	0/7/7/7	-
14	NAG	B	902	2	-	2/6/23/26	0/1/1/1
18	XVD	G	504	-	-	0/9/9/9	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
13	D10	H	503	-	-	0/7/7/7	-
11	OCT	B	906	-	-	0/5/5/5	-
14	NAG	C	907	1	-	2/6/23/26	0/1/1/1
15	D12	D	901	-	-	1/9/9/9	-
13	D10	F	201	-	-	0/4/4/7	-
14	NAG	C	906	1	-	2/6/23/26	0/1/1/1
17	DD9	D	903	-	-	0/5/5/6	-
11	OCT	H	505	-	-	0/5/5/5	-

The worst 5 of 56 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
9	C	901	ZK1	OAA-CAT	8.57	1.39	1.23
9	A	901	ZK1	OAA-CAT	8.55	1.39	1.23
9	B	901	ZK1	OAA-CAT	8.54	1.39	1.23
9	D	906	ZK1	OAA-CAT	8.51	1.39	1.23
9	C	901	ZK1	OAB-CAU	8.37	1.40	1.23

The worst 5 of 26 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
9	B	901	ZK1	CAN-NAX-CAM	3.81	119.92	111.52
9	D	906	ZK1	CAN-NAX-CAM	3.79	119.89	111.52
9	A	901	ZK1	CAN-NAX-CAM	3.79	119.88	111.52
9	C	901	ZK1	CAV-NAP-CAT	-3.78	119.98	124.80
9	C	901	ZK1	CAN-NAX-CAM	3.76	119.81	111.52

There are no chirality outliers.

5 of 22 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
14	B	902	NAG	C4-C5-C6-O6
14	D	907	NAG	C4-C5-C6-O6
14	A	906	NAG	O5-C5-C6-O6
14	C	906	NAG	O5-C5-C6-O6
14	A	906	NAG	C4-C5-C6-O6

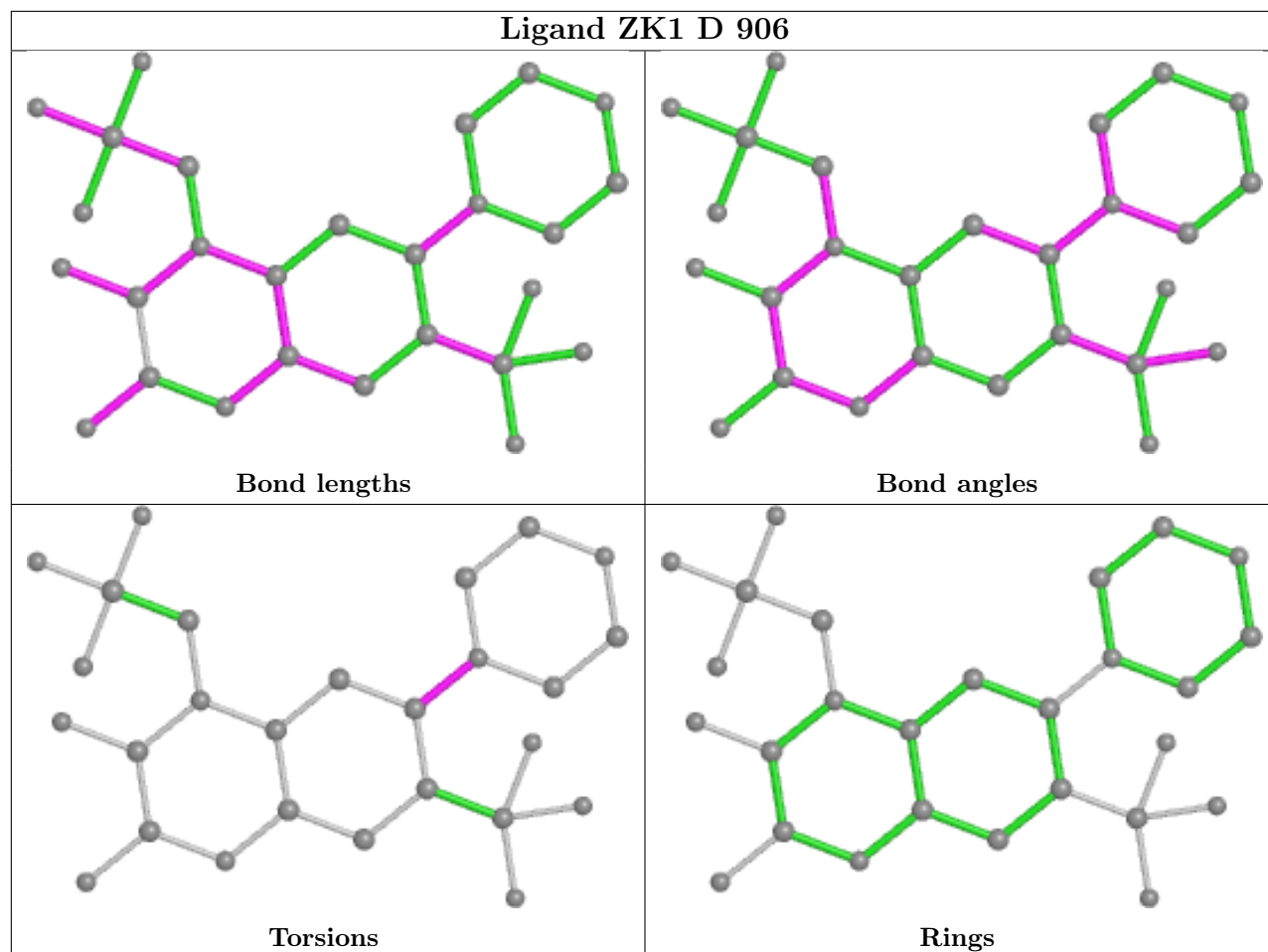
There are no ring outliers.

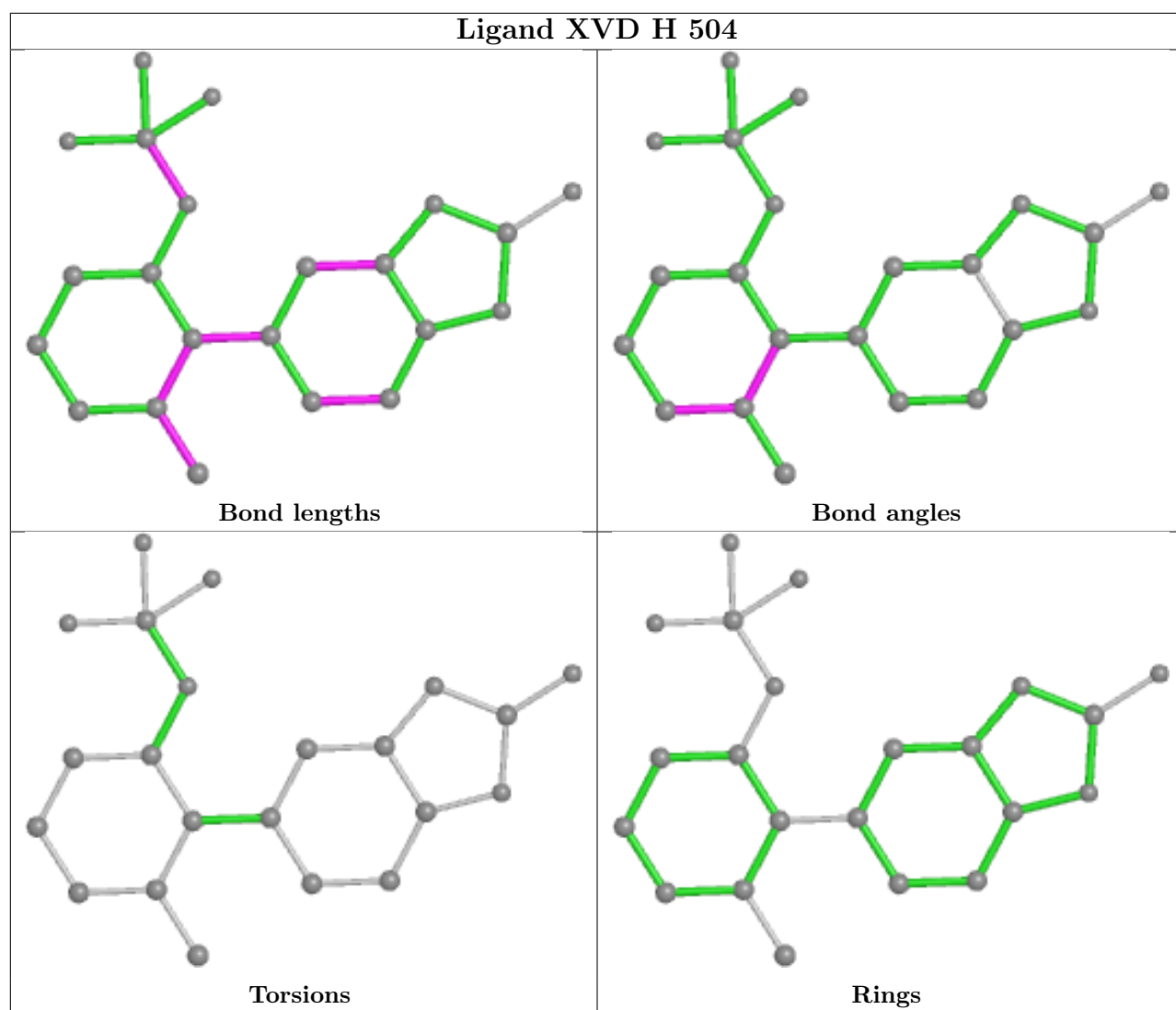
10 monomers are involved in 9 short contacts:

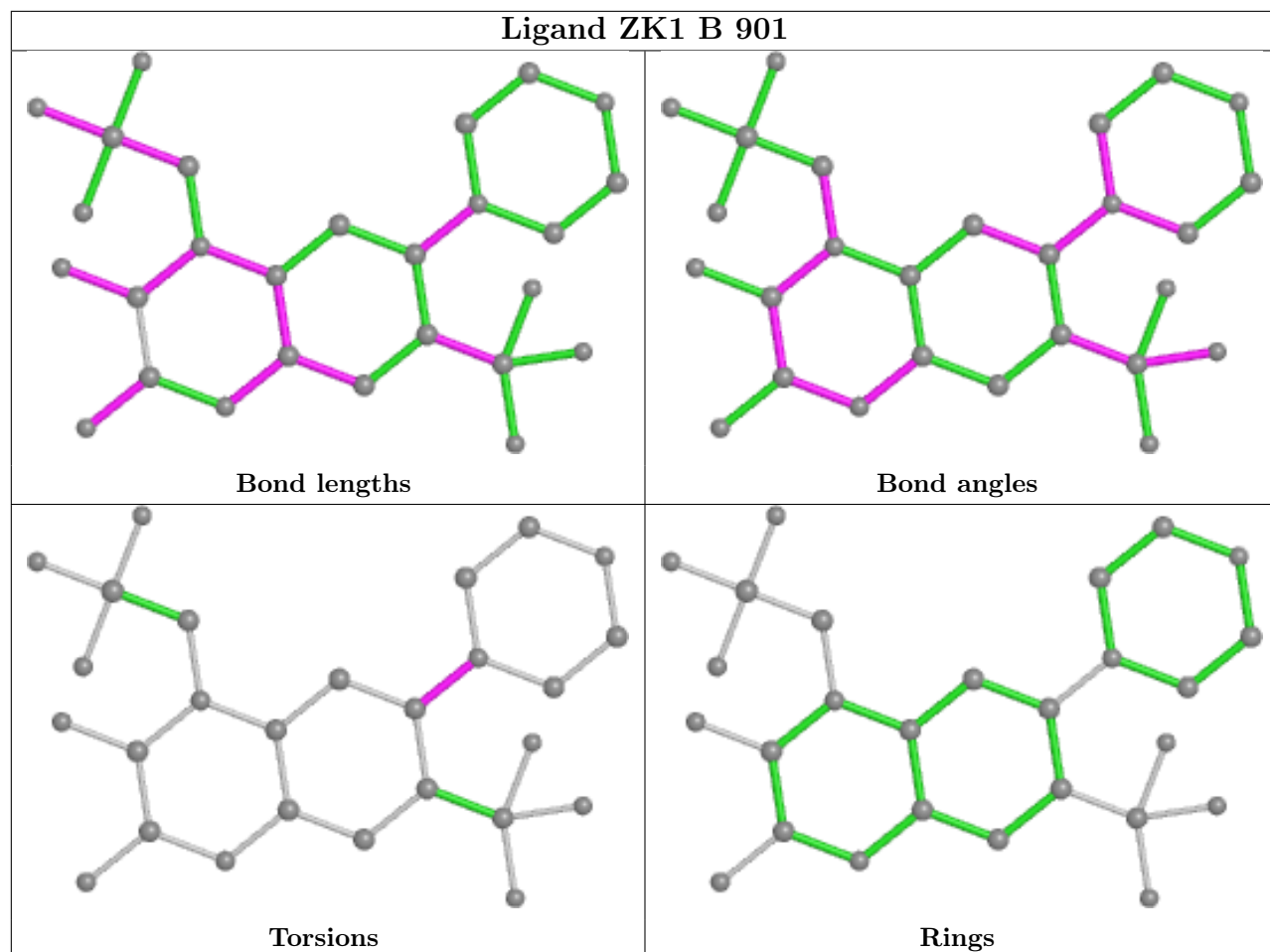


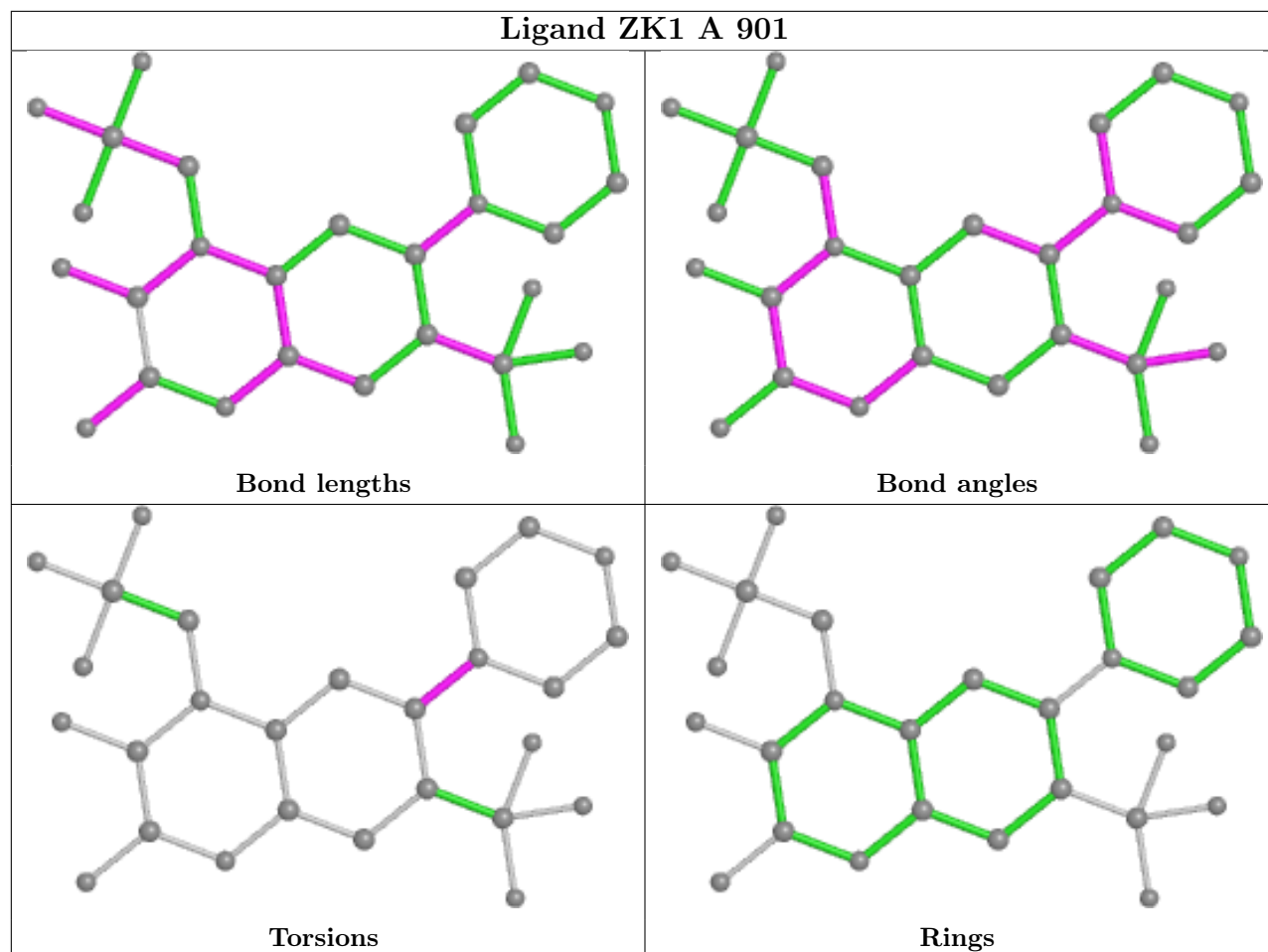
Mol	Chain	Res	Type	Clashes	Symm-Clashes
11	A	903	OCT	1	0
9	D	906	ZK1	1	0
18	H	504	XVD	1	0
11	G	505	OCT	1	0
9	B	901	ZK1	1	0
14	A	907	NAG	1	0
18	G	504	XVD	1	0
14	C	907	NAG	1	0
15	D	901	D12	1	0
11	H	505	OCT	1	0

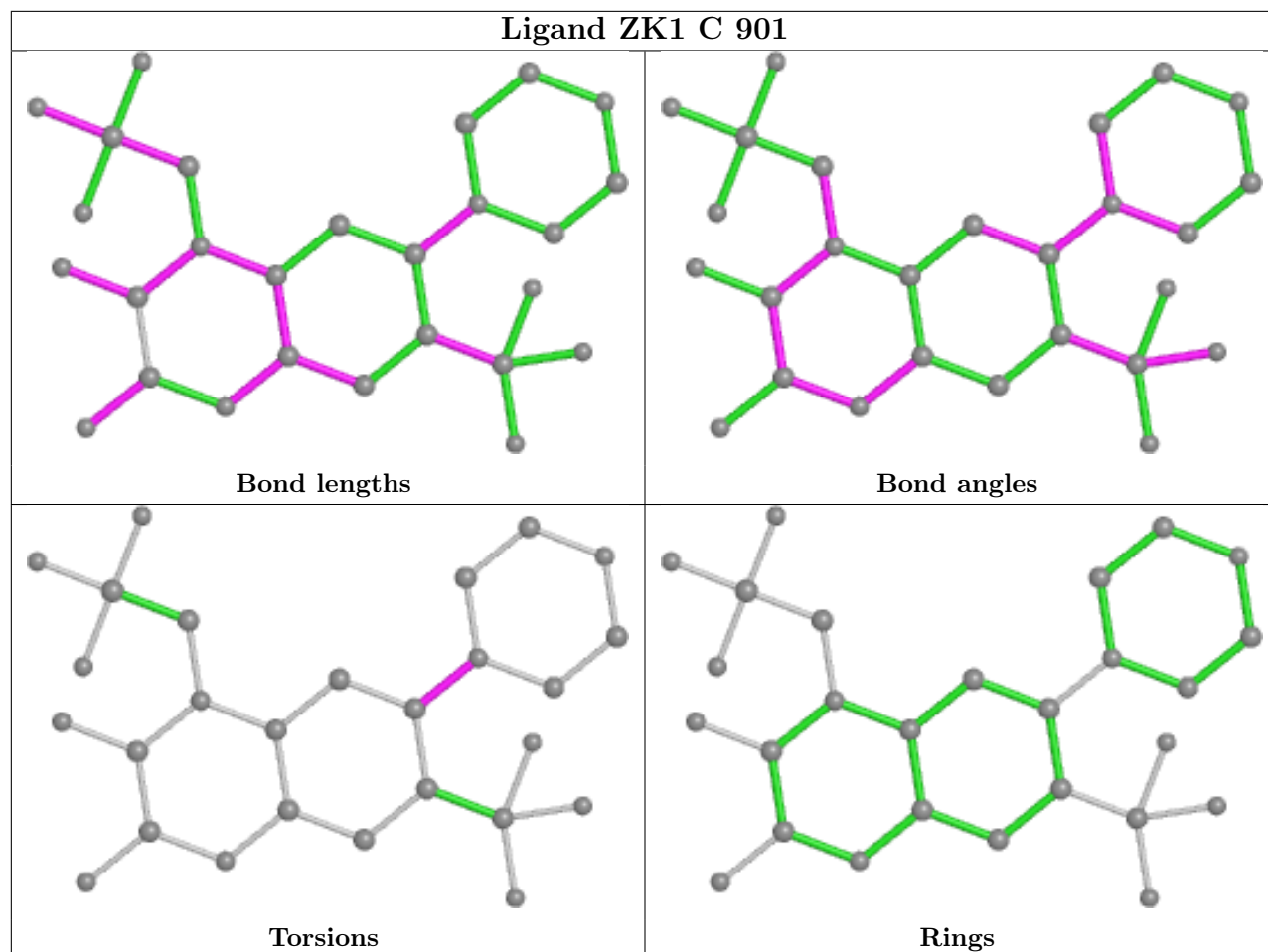
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

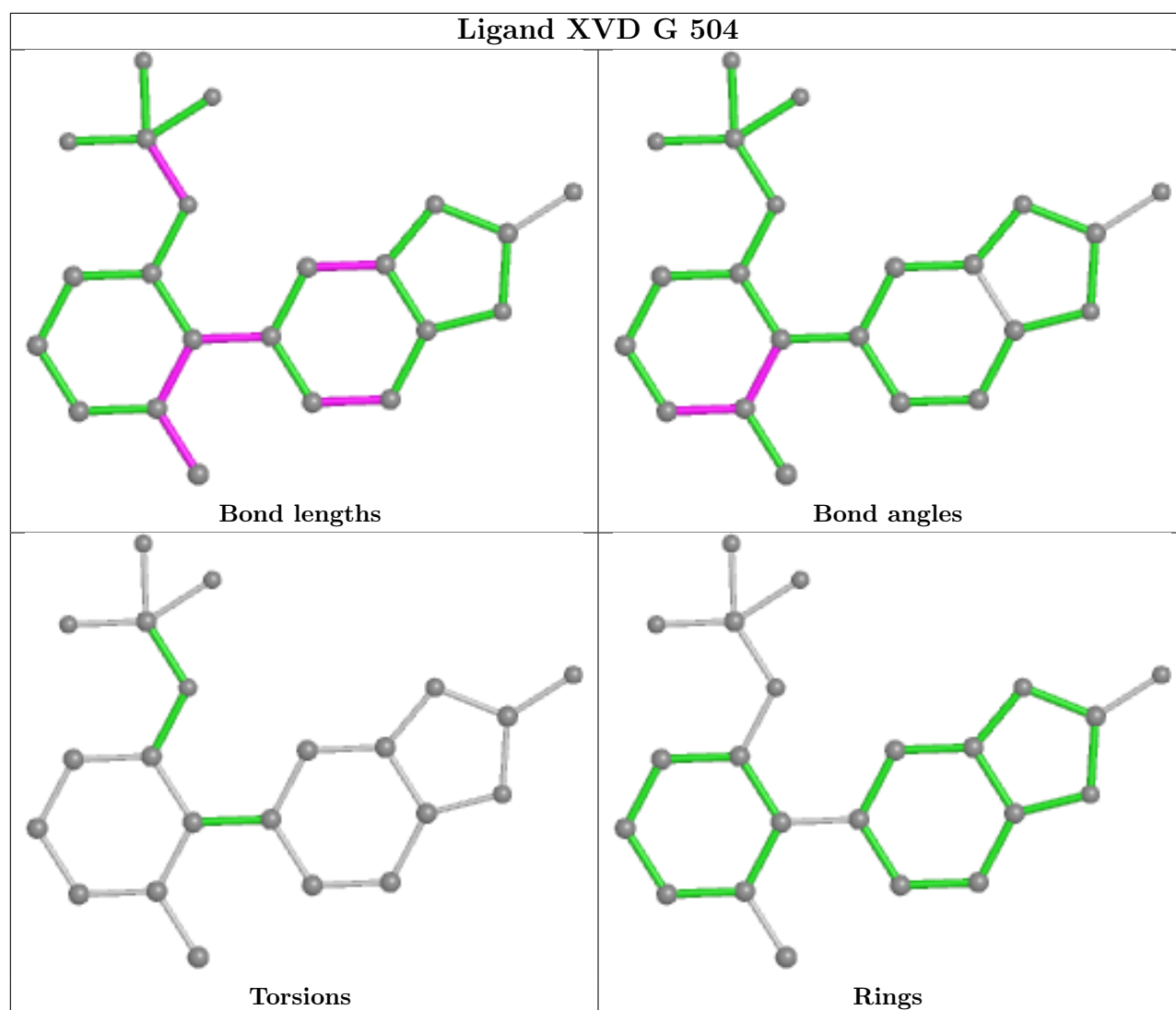












## 5.7 Other polymers [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

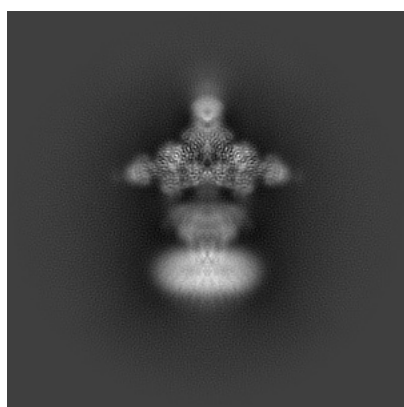
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-23283. These allow visual inspection of the internal detail of the map and identification of artifacts.

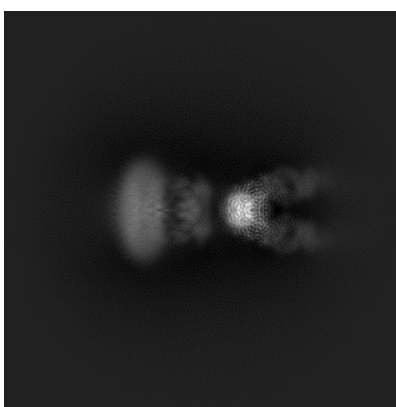
No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections [i](#)

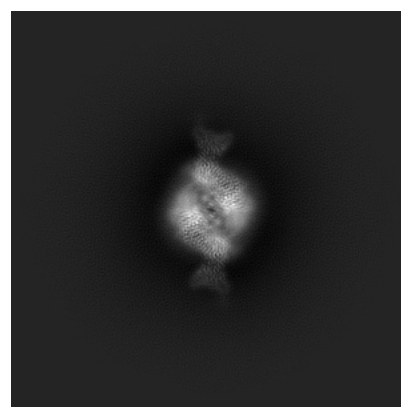
#### 6.1.1 Primary map



X



Y

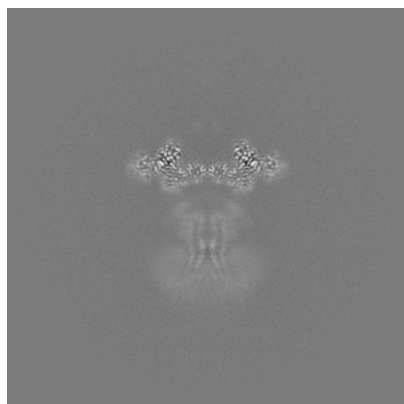


Z

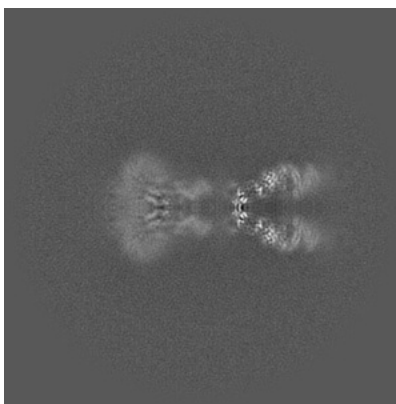
The images above show the map projected in three orthogonal directions.

### 6.2 Central slices [i](#)

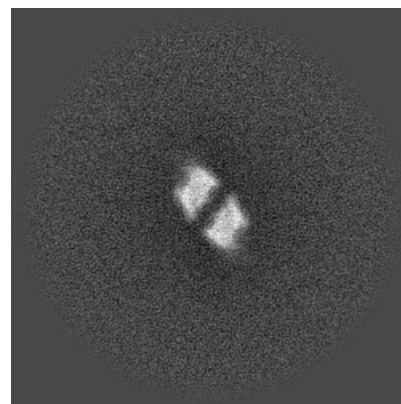
#### 6.2.1 Primary map



X Index: 256



Y Index: 256



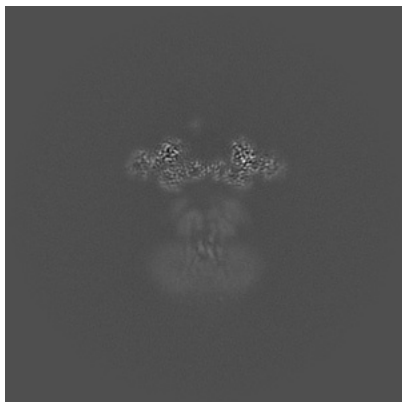
Z Index: 256



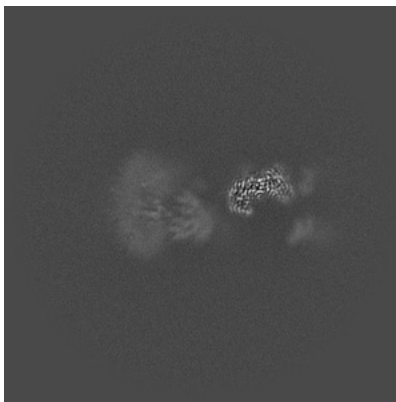
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

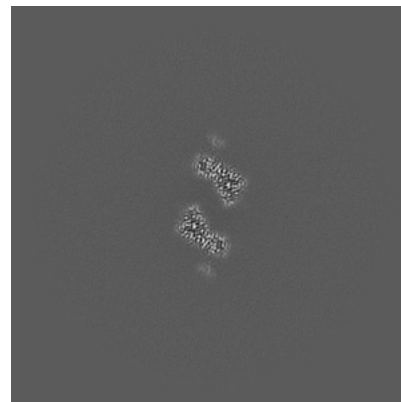
### 6.3.1 Primary map



X Index: 253



Y Index: 272

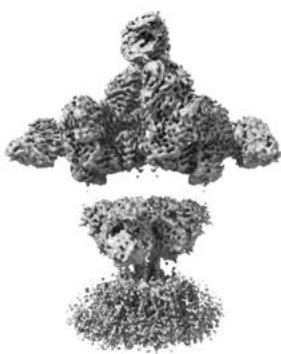


Z Index: 326

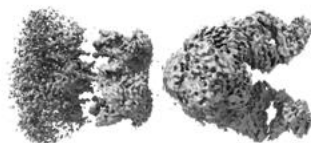
The images above show the largest variance slices of the map in three orthogonal directions.

## 6.4 Orthogonal surface views [i](#)

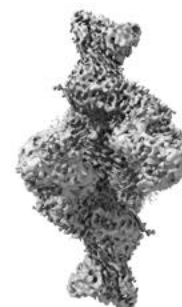
### 6.4.1 Primary map



X



Y



Z

The images above show the 3D surface view of the map at the recommended contour level 0.12. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

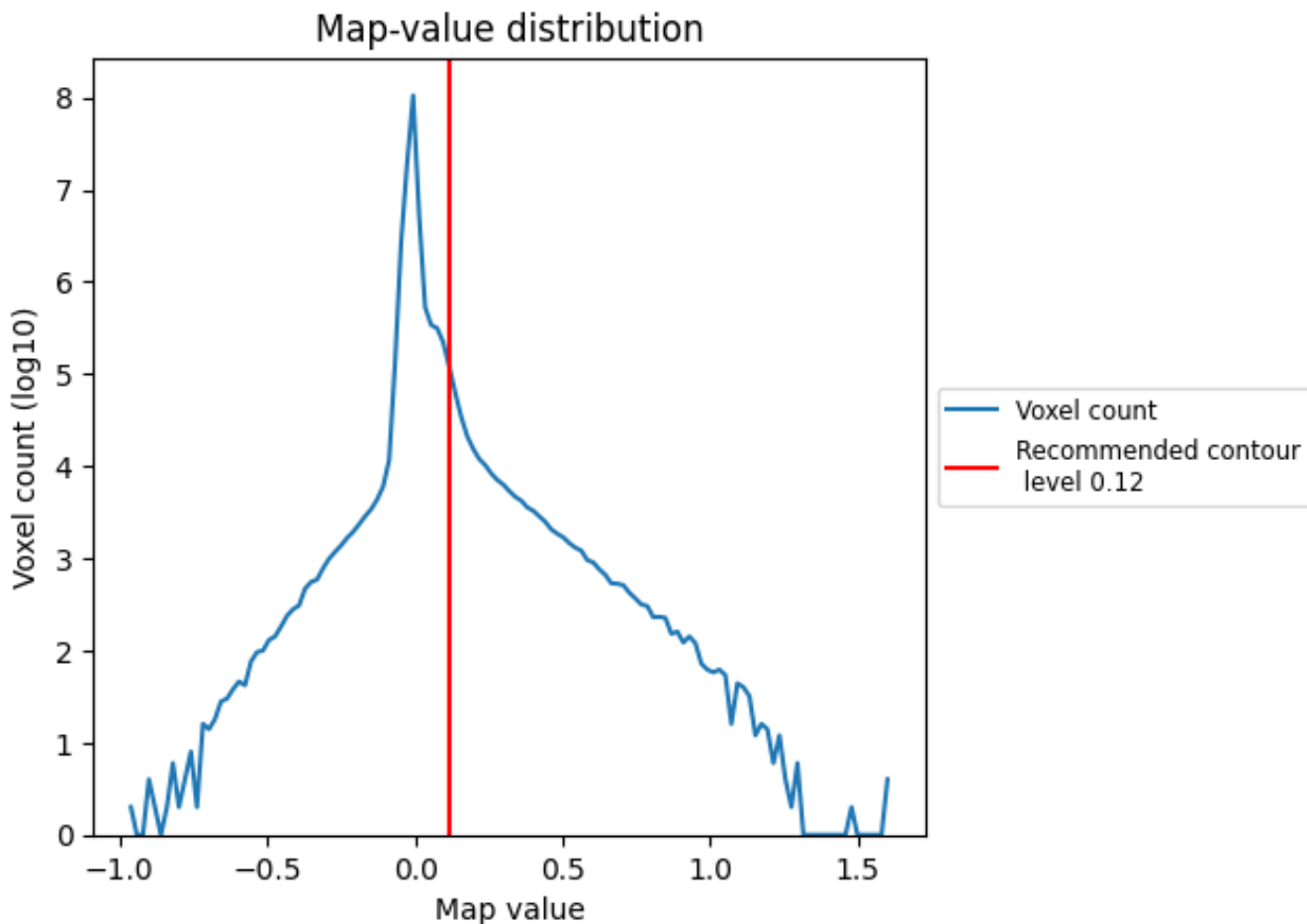
## 6.5 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis [i](#)

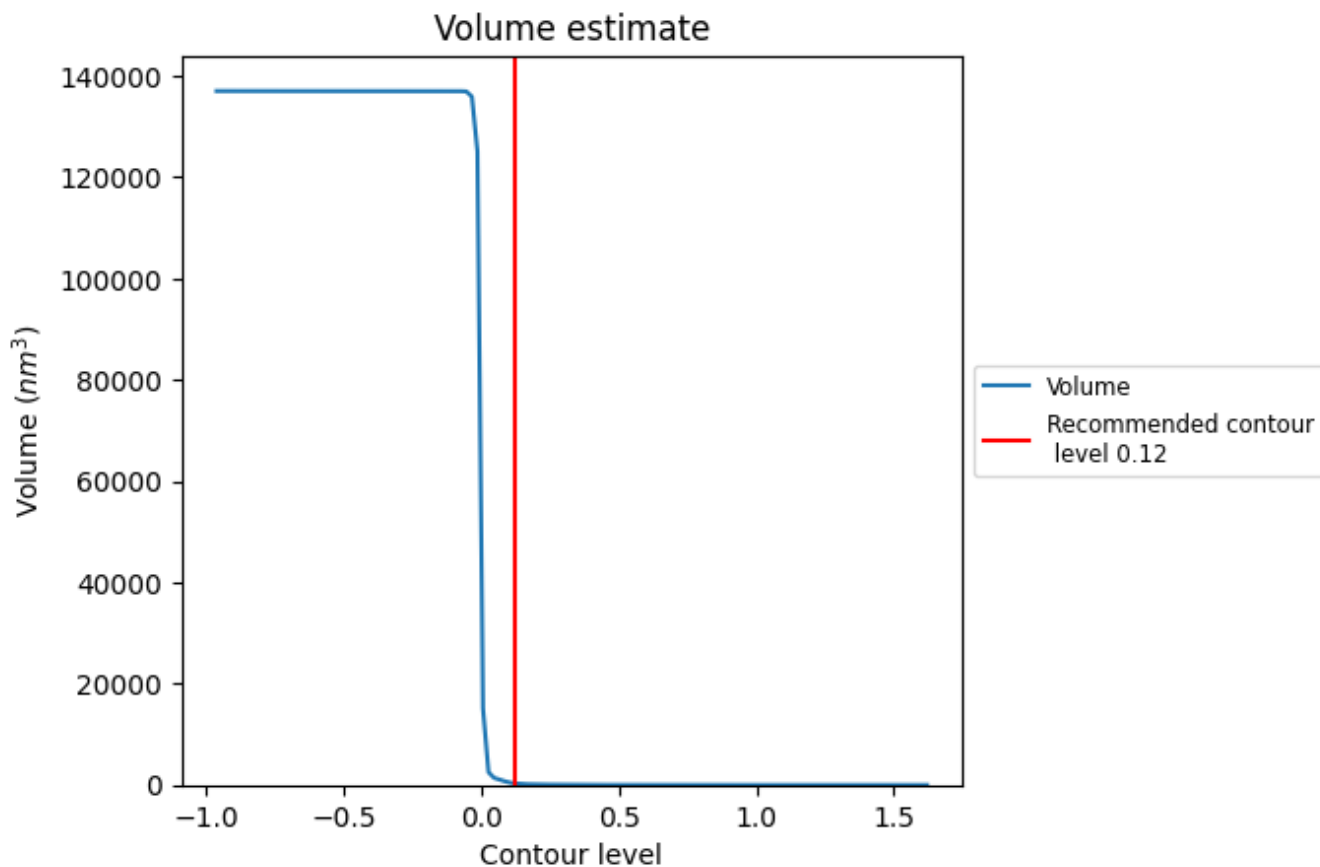
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

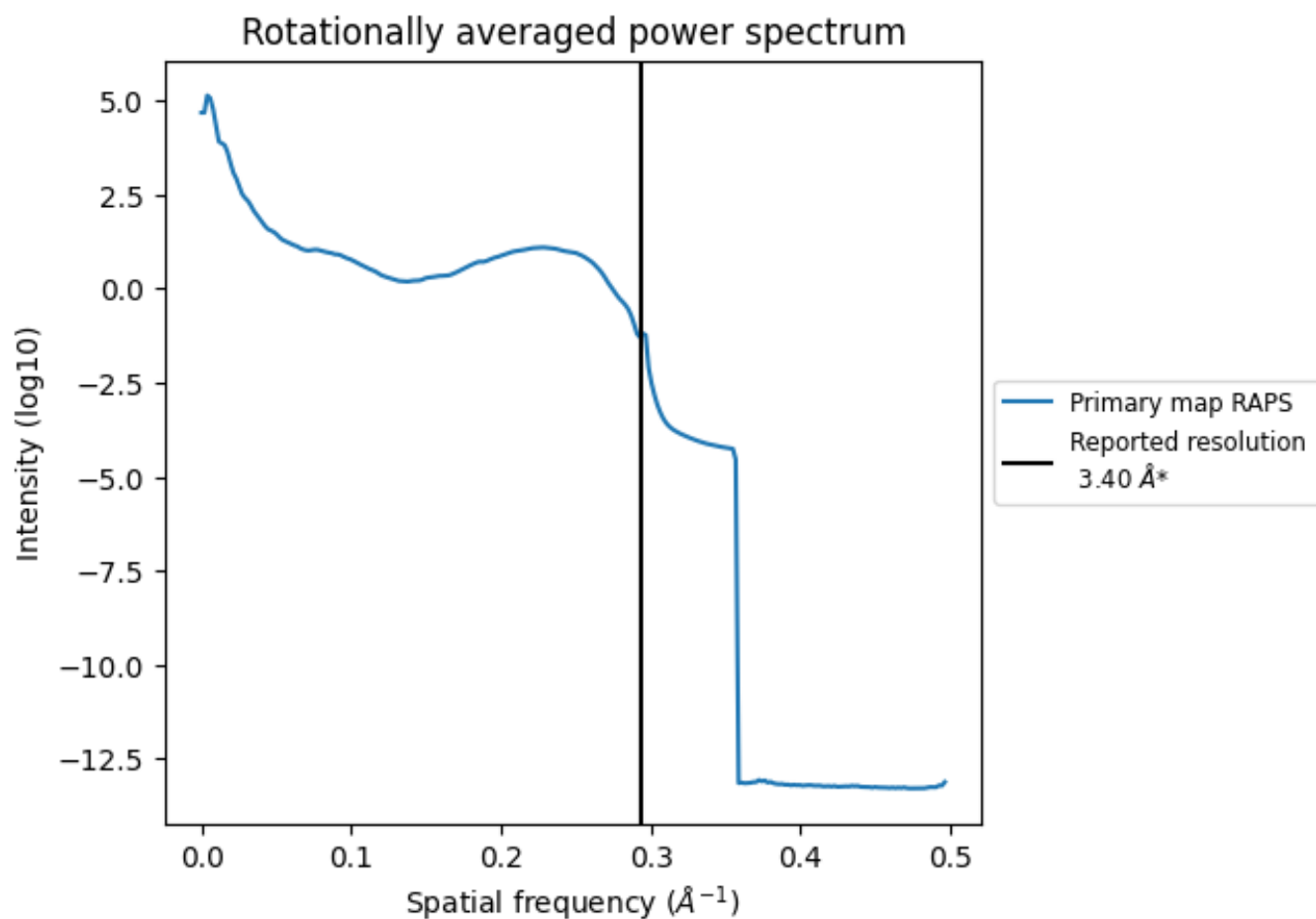
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 333 nm<sup>3</sup>; this corresponds to an approximate mass of 301 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

### 7.3 Rotationally averaged power spectrum [i](#)



\*Reported resolution corresponds to spatial frequency of  $0.294 \text{\AA}^{-1}$

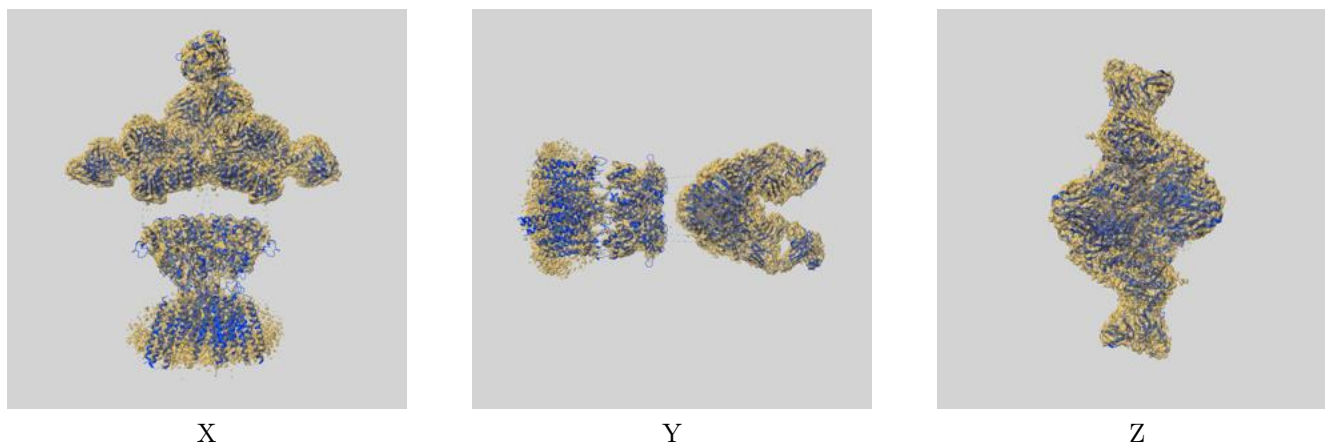
## 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

## 9 Map-model fit [i](#)

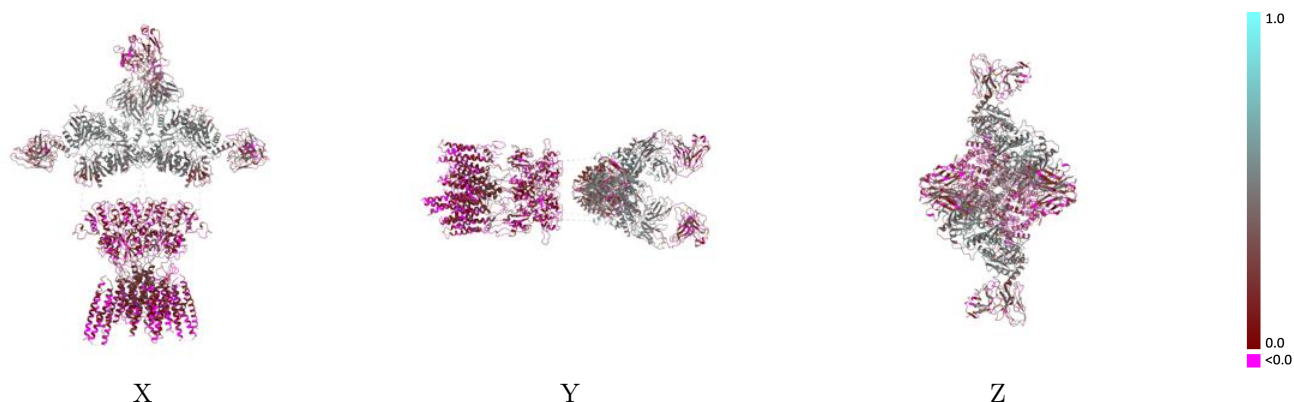
This section contains information regarding the fit between EMDB map EMD-23283 and PDB model 7LDD. Per-residue inclusion information can be found in section 3 on page 15.

### 9.1 Map-model overlay [i](#)



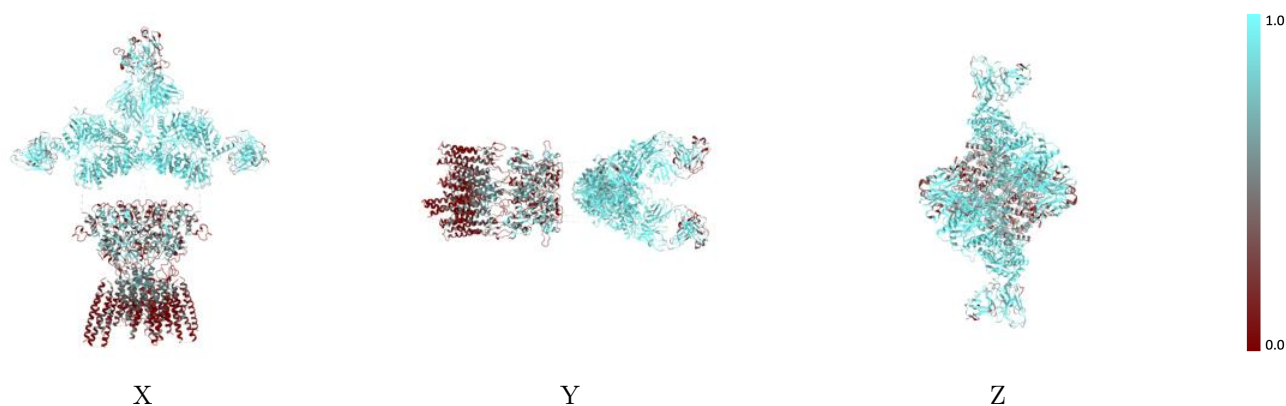
The images above show the 3D surface view of the map at the recommended contour level 0.12 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [\(i\)](#)



The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

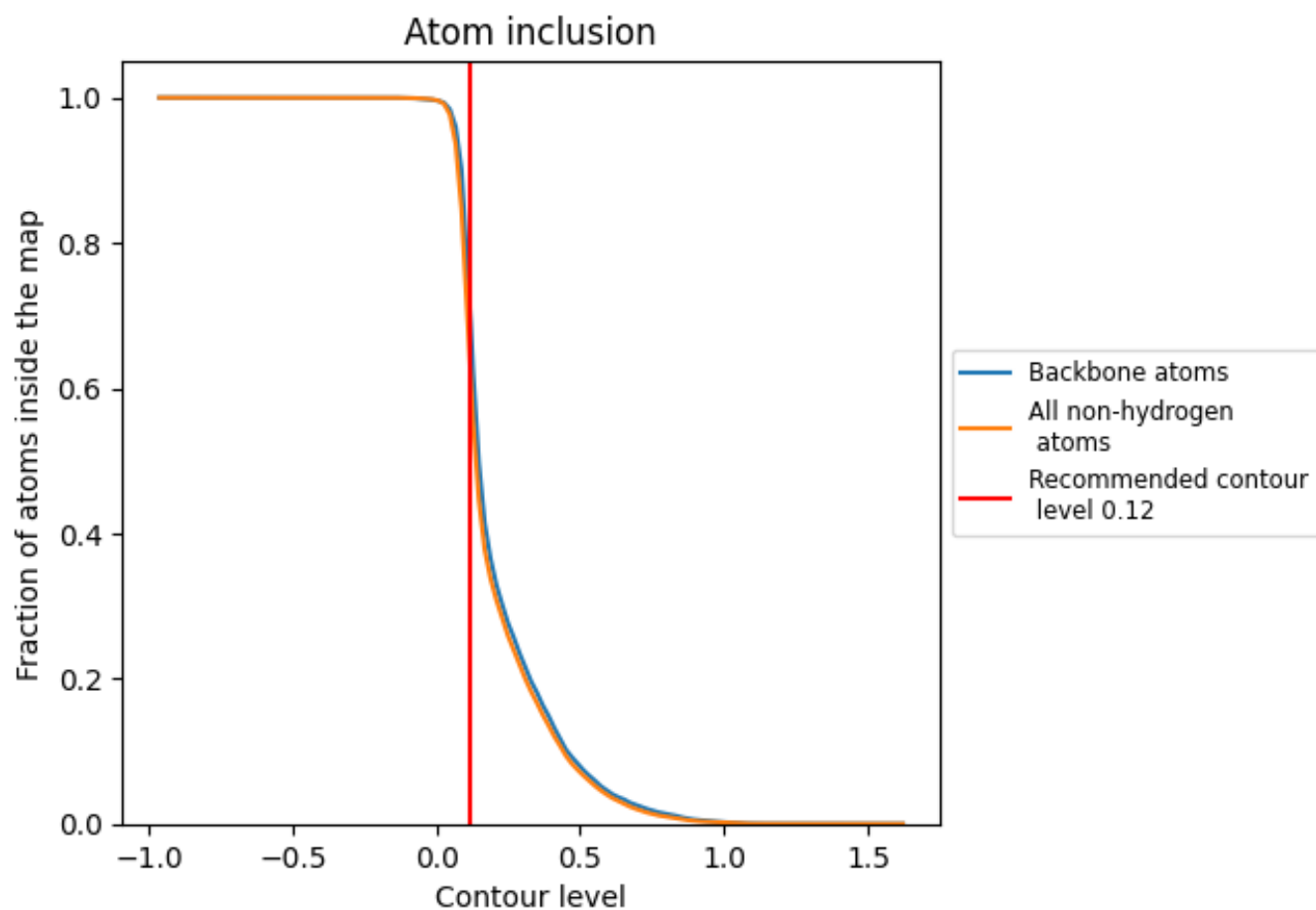
## 9.3 Atom inclusion mapped to coordinate model [\(i\)](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.12).













































## 9.4 Atom inclusion [i](#)



At the recommended contour level, 69% of all backbone atoms, 61% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.12) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6138	 0.2500
A	 0.6502	 0.2690
B	 0.6559	 0.2850
C	 0.6509	 0.2700
D	 0.6559	 0.2830
E	 0.1808	 0.0400
F	 0.1801	 0.0490
G	 0.1845	 0.0670
H	 0.1828	 0.0700
I	 0.7456	 0.2480
J	 0.7658	 0.2980
K	 0.7715	 0.3040
L	 0.7473	 0.2470
M	 0.7620	 0.2980
N	 0.7753	 0.2990
O	 0.8214	 0.3760
P	 0.8571	 0.3690
Q	 0.5357	 0.2210
R	 0.8214	 0.3650
S	 0.8571	 0.3600
T	 0.5357	 0.2320

