

Detailed circular basepair diagrams

Muhammed Abubaker Syed, Joey Thaman, Craig L. Zirbel

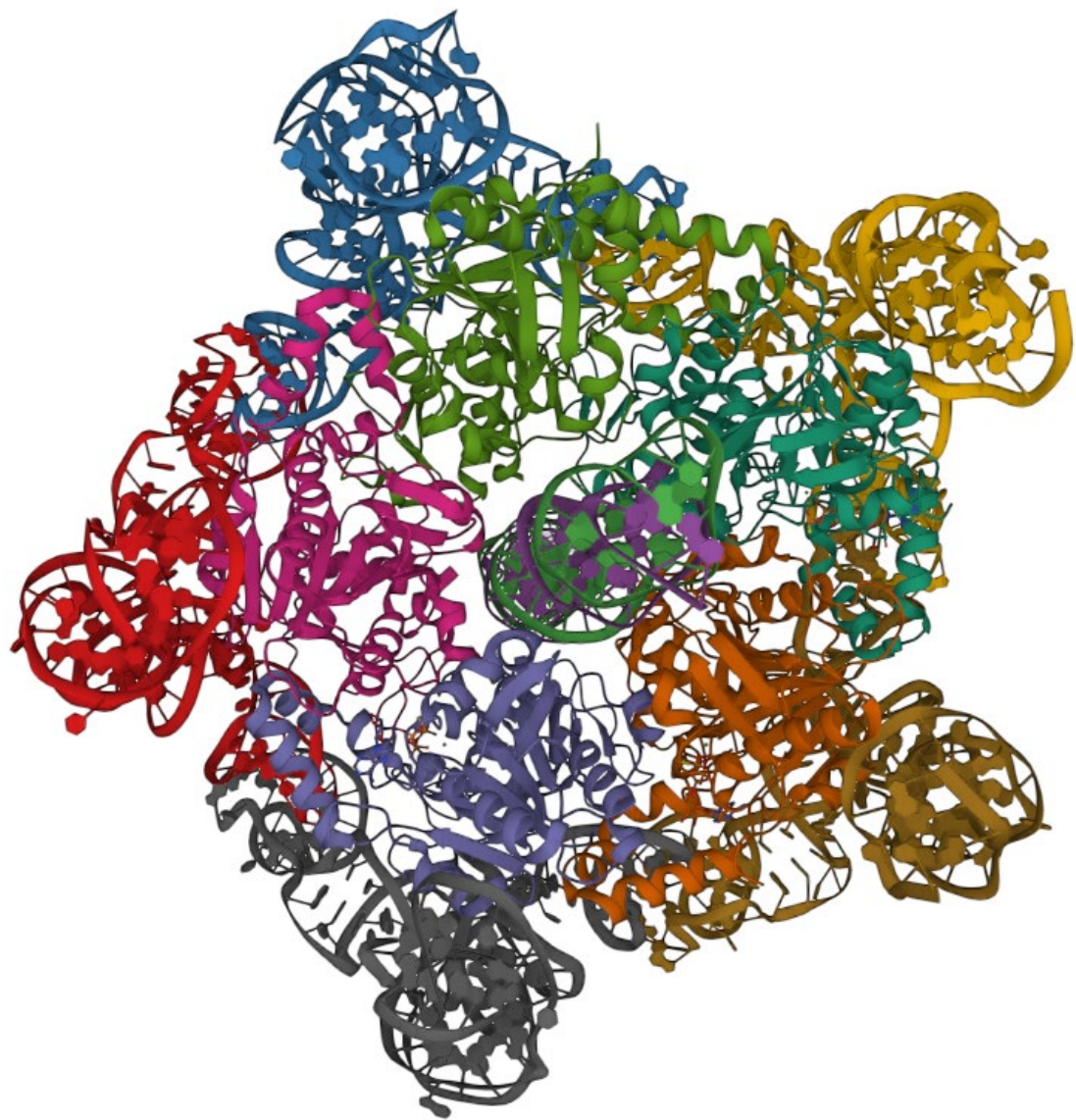
Bowling Green State University

Benasque

19 August 2022

7JQQ

The bacteriophage Phi-29 viral genome packaging motor assembly

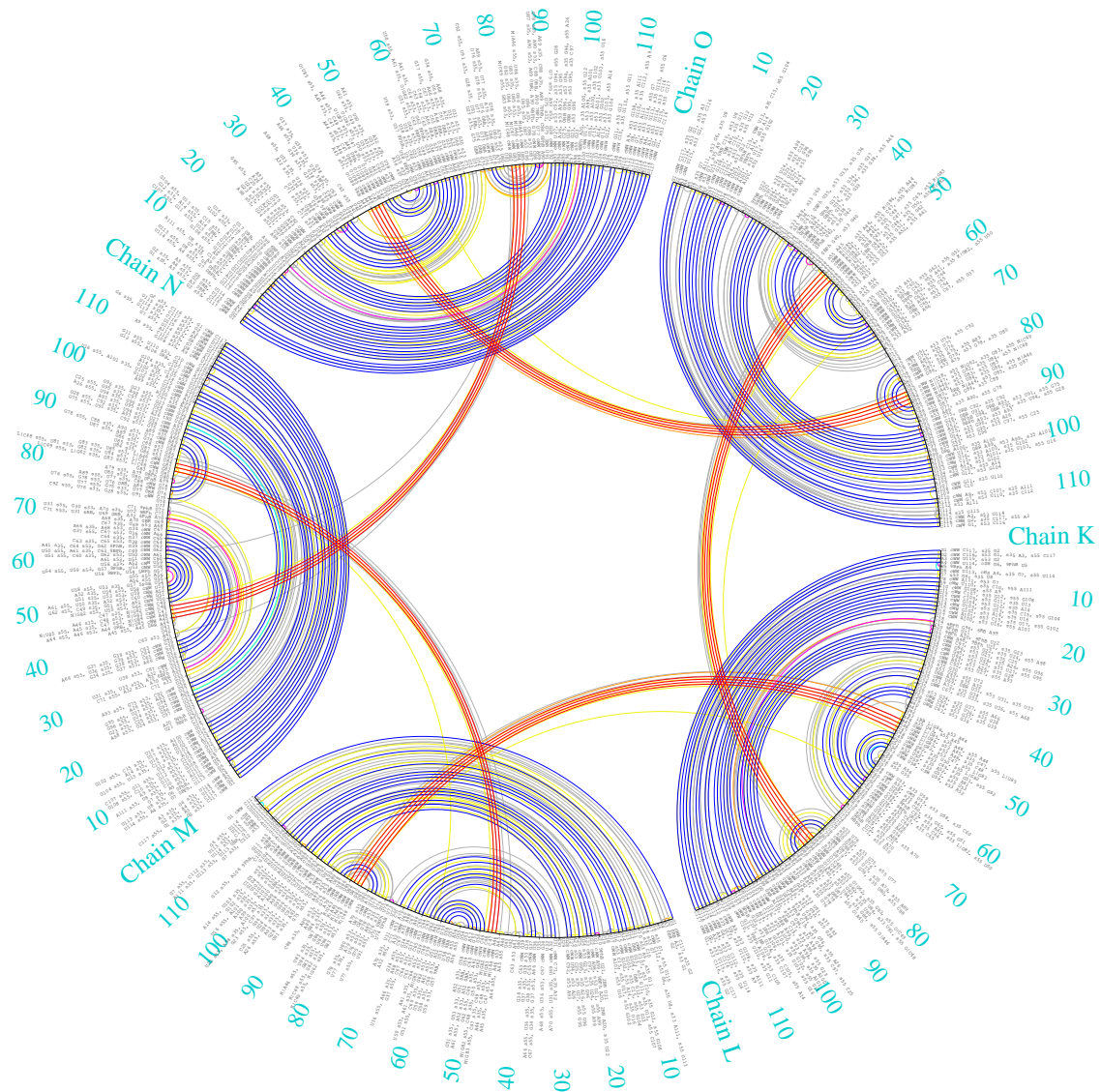


FR3D basepairs and near basepairs

7JQQ 1 K G 1	cWW	7JQQ 1 K C	7JQQ 1 K G 39	ntHW	7JQQ 1 K U 35	7JQQ 1 K G 88	cWW	7JQQ 1 K G 78
7JQQ 1 K G 2	cWW	7JQQ 1 K C	7JQQ 1 K G 39	cWW	7JQQ 1 K C 63	7JQQ 1 K C 92	cWW	7JQQ 1 K G 28
7JQQ 1 K A 3	cWW	7JQQ 1 K U	7JQQ 1 K U 43	ntWS	7JQQ 1 L G 86	7JQQ 1 K A 93	cWW	7JQQ 1 K U 27
7JQQ 1 K A 4	cWW	7JQQ 1 K U	7JQQ 1 K A 45	cWW	7JQQ 1 L U 85	7JQQ 1 K U 94	cWW	7JQQ 1 K A 26
7JQQ 1 K A 4	cSH	7JQQ 1 K	7JQQ 1 K A 46	cWW	7JQQ 1 L U 84	7JQQ 1 K G 95	cWW	7JQQ 1 K C 25
7JQQ 1 K G 6	cWW	7JQQ 1 K U	7JQQ 1 K C 47	cWW	7JQQ 1 L G 83	7JQQ 1 K G 96	cWW	7JQQ 1 K U 24
7JQQ 1 K G 6	cHS	7JQQ 1 K	7JQQ 1 K C 48	cWW	7JQQ 1 L G 82	7JQQ 1 K C 97	cWW	7JQQ 1 K G 23
7JQQ 1 K G 7	ncWW	7JQQ 1 K U	7JQQ 1 K C 49	cWW	7JQQ 1 K G 62	7JQQ 1 K A 98	cWW	7JQQ 1 K U 22
7JQQ 1 K G 7	ncWW	7JQQ 1 K U	7JQQ 1 K U 50	cWW	7JQQ 1 K A 61	7JQQ 1 K A 98	ncHS	7JQQ 1 K C 19
7JQQ 1 K U 8	ntSH	7JQQ 1 K C	7JQQ 1 K G 51	ncWW	7JQQ 1 K C 60	7JQQ 1 K A 100	cWW	7JQQ 1 K U 17
7JQQ 1 K U 8	cWW	7JQQ 1 K C	7JQQ 1 K A 52	cWW	7JQQ 1 K U 59	7JQQ 1 K A 101	cWW	7JQQ 1 K U 16
7JQQ 1 K A 9	cWW	7JQQ 1 K G	7JQQ 1 K U 53	cSW	7JQQ 1 K U 59	7JQQ 1 K G 102	cWW	7JQQ 1 K C 15
7JQQ 1 K C 10	cWW	7JQQ 1 K G	7JQQ 1 K U 53	cWW	7JQQ 1 K U 58	7JQQ 1 K U 103	cWW	7JQQ 1 K A 14
7JQQ 1 K G 11	cWW	7JQQ 1 K C	7JQQ 1 K U 58	cWW	7JQQ 1 K U 53	7JQQ 1 K G 104	cWW	7JQQ 1 K U 13
7JQQ 1 K G 12	cWW	7JQQ 1 K C	7JQQ 1 K U 59	cWS	7JQQ 1 K U 53	7JQQ 1 K C 105	cWW	7JQQ 1 K G 12
7JQQ 1 K U 13	cWW	7JQQ 1 K G	7JQQ 1 K U 59	cWW	7JQQ 1 K A 52	7JQQ 1 K C 107	cWW	7JQQ 1 K G 11
7JQQ 1 K A 14	cWW	7JQQ 1 K U	7JQQ 1 K C 60	ncWW	7JQQ 1 K G 51	7JQQ 1 K G 108	cWW	7JQQ 1 K C 10
7JQQ 1 K C 15	cWW	7JQQ 1 K G	7JQQ 1 K A 61	cWW	7JQQ 1 K U 50	7JQQ 1 K U 110	cWW	7JQQ 1 K A 9
7JQQ 1 K U 16	cWW	7JQQ 1 K C	7JQQ 1 K G 62	cWW	7JQQ 1 K C 49	7JQQ 1 K A 111	cWW	7JQQ 1 K U 8
7JQQ 1 K U 17	cWW	7JQQ 1 K G	7JQQ 1 K C 63	cWW	7JQQ 1 K G 39	7JQQ 1 K C 112	ntHS	7JQQ 1 K U 8
7JQQ 1 K C 19	ncSH	7JQQ 1 K U	7JQQ 1 K C 64	cWW	7JQQ 1 K G 38	7JQQ 1 K C 112	ncWW	7JQQ 1 K G 7
7JQQ 1 K U 22	cWW	7JQQ 1 K G	7JQQ 1 K C 65	ncWW	7JQQ 1 K G 38	7JQQ 1 K U 113	ncWW	7JQQ 1 K G 7
7JQQ 1 K G 23	cWW	7JQQ 1 K C	7JQQ 1 K C 65	cWW	7JQQ 1 K G 37	7JQQ 1 K U 113	cWW	7JQQ 1 K G 6
7JQQ 1 K U 24	cWW	7JQQ 1 K A	7JQQ 1 K A 66	ncWW	7JQQ 1 K G 34	7JQQ 1 K U 114	cWW	7JQQ 1 K A 4
7JQQ 1 K C 25	cWW	7JQQ 1 K A	7JQQ 1 K C 67	cWW	7JQQ 1 K G 34	7JQQ 1 K U 115	cWW	7JQQ 1 K A 3
7JQQ 1 K A 26	cWW	7JQQ 1 K A	7JQQ 1 K A 68	ncWW	7JQQ 1 K U 33	7JQQ 1 K C 116	cWW	7JQQ 1 K G 2
7JQQ 1 K U 27	cWW	7JQQ 1 K A	7JQQ 1 K U 69	cWW	7JQQ 1 K A 32	7JQQ 1 K C 117	cWW	7JQQ 1 K G 1
7JQQ 1 K G 28	cWW	7JQQ 1 K G	7JQQ 1 K C 71	ncWW	7JQQ 1 K U 31	7JQQ 1 L G 1	cWW	7JQQ 1 L C 117
7JQQ 1 K U 29	ncWS	7JQQ 1 K G	7JQQ 1 K U 72	ncSW	7JQQ 1 K U 29	7JQQ 1 L G 2	ncWS	7JQQ 1 L C 116
7JQQ 1 K U 31	ncWW	7JQQ 1 K C	7JQQ 1 K G 78	cWW	7JQQ 1 K C 88	7JQQ 1 L A 4	ncWW	7JQQ 1 L U 113
7JQQ 1 K A 32	cWW	7JQQ 1 K G	7JQQ 1 K A 79	cWW	7JQQ 1 K C 88	7JQQ 1 L G 7	cWW	7JQQ 1 L C 112
7JQQ 1 K U 33	ncWW	7JQQ 1 K U	7JQQ 1 K U 80	cWW	7JQQ 1 K U 87	7JQQ 1 L U 8	ncWW	7JQQ 1 L A 111
7JQQ 1 K G 34	cWW	7JQQ 1 K C	7JQQ 1 K U 80	ncWW	7JQQ 1 K U 87	7JQQ 1 L A 9	ntHS	7JQQ 1 L U 110
7JQQ 1 K G 34	ncWW	7JQQ 1 K U	7JQQ 1 K U 81	ntWH	7JQQ 1 K G 86	7JQQ 1 L C 10	ncWW	7JQQ 1 L G 108
7JQQ 1 K U 35	ntWH	7JQQ 1 K C	7JQQ 1 K G 82	cWW	7JQQ 1 K U 84	7JQQ 1 L C 10	ntSH	7JQQ 1 L C 109
7JQQ 1 K U 35	ntWH	7JQQ 1 K U	7JQQ 1 K G 83	cWW	7JQQ 1 K U 84	7JQQ 1 L G 11	cWW	7JQQ 1 L C 107
7JQQ 1 K U 35	ntWH	7JQQ 1 K A	7JQQ 1 K U 84	ntHW	7JQQ 1 K U 84	7JQQ 1 L G 12	ncWW	7JQQ 1 L C 105
7JQQ 1 K G 37	cWW	7JQQ 1 K C	7JQQ 1 K U 84	cWW	7JQQ 1 K U 84	7JQQ 1 L U 13	cWW	7JQQ 1 L G 104
7JQQ 1 K G 38	ntHW	7JQQ 1 K G	7JQQ 1 K U 85	cWW	7JQQ 1 O A 46	7JQQ 1 L U 13	ntSS	7JQQ 1 L A 106
		7JQQ 1 K C	7JQQ 1 K G 86	ntSW	7JQQ 1 O A 45	7JQQ 1 L A 14	cWW	7JQQ 1 L U 103
		7JQQ 1 K G	7JQQ 1 K G 86	ntSW	7JQQ 1 O U 43	7JQQ 1 L C 15	cWW	7JQQ 1 L G 102
		7JQQ 1 K U	7JQQ 1 K G 86	ncWW	7JQQ 1 O A 44	7JQQ 1 L C 15	cWW	7JQQ 1 L G 102
		7JQQ 1 K C	7JQQ 1 K G 86	ncWW	7JQQ 1 K U 80	7JQQ 1 L U 16	ncSW	7JQQ 1 L C 18
		7JQQ 1 K G	7JQQ 1 K U 87	ntSW	7JQQ 1 O U 43	7JQQ 1 L U 17	cWW	7JQQ 1 L A 101
		7JQQ 1 K C	7JQQ 1 K U 87	ncWW	7JQQ 1 K U 80	7JQQ 1 L C 18	ncWS	7JQQ 1 L U 16

7JQQ|1|K,7JQQ|1|L,7JQQ|1|M,7JQQ|1|N,7JQQ|1|O

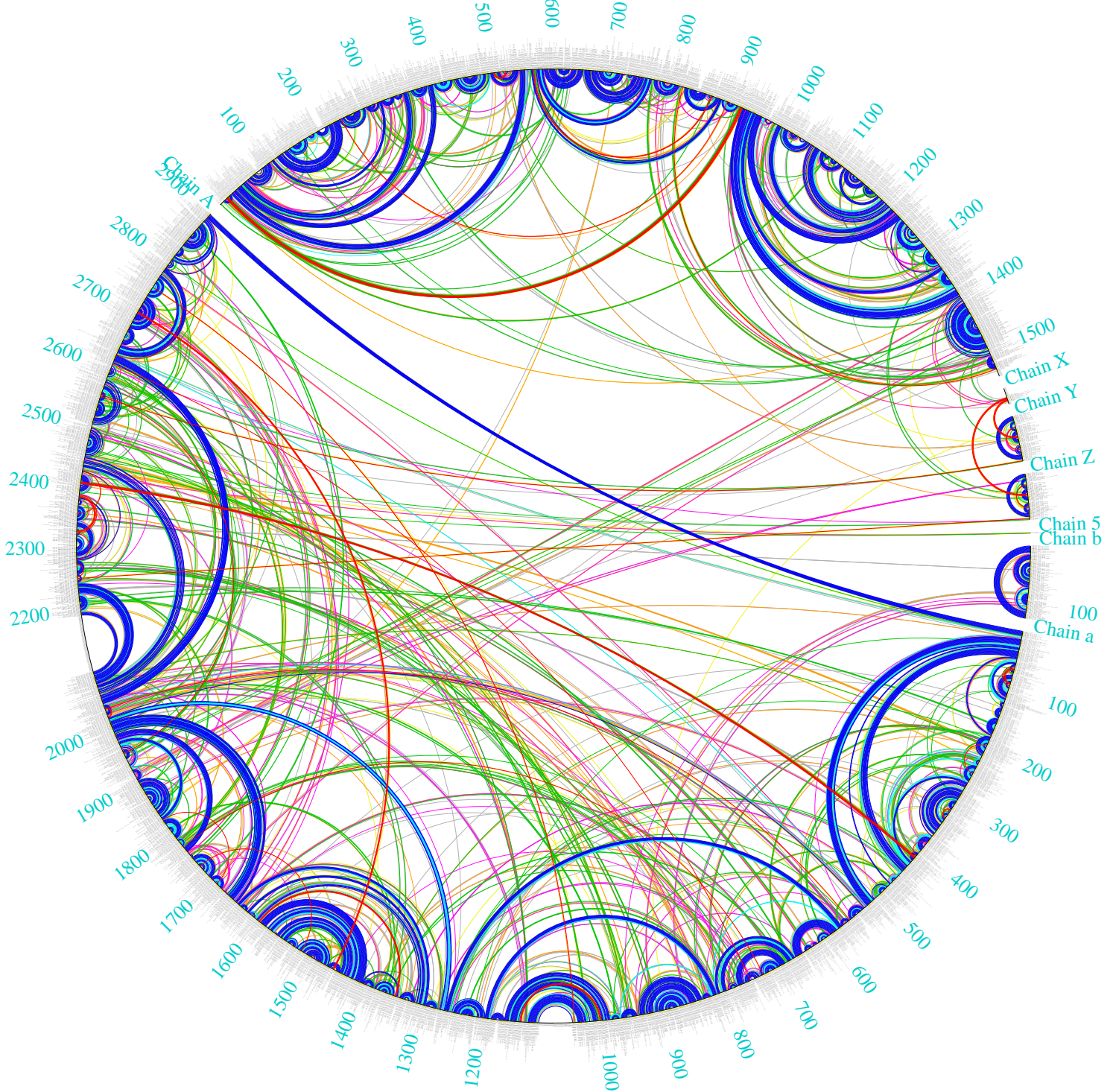
<http://ma.bgsu.edu/correspondence/circular?chains=7JQQ|1|K,7JQQ|1|L,7JQQ|1|M,7JQQ|1|N,7JQQ|1|O>



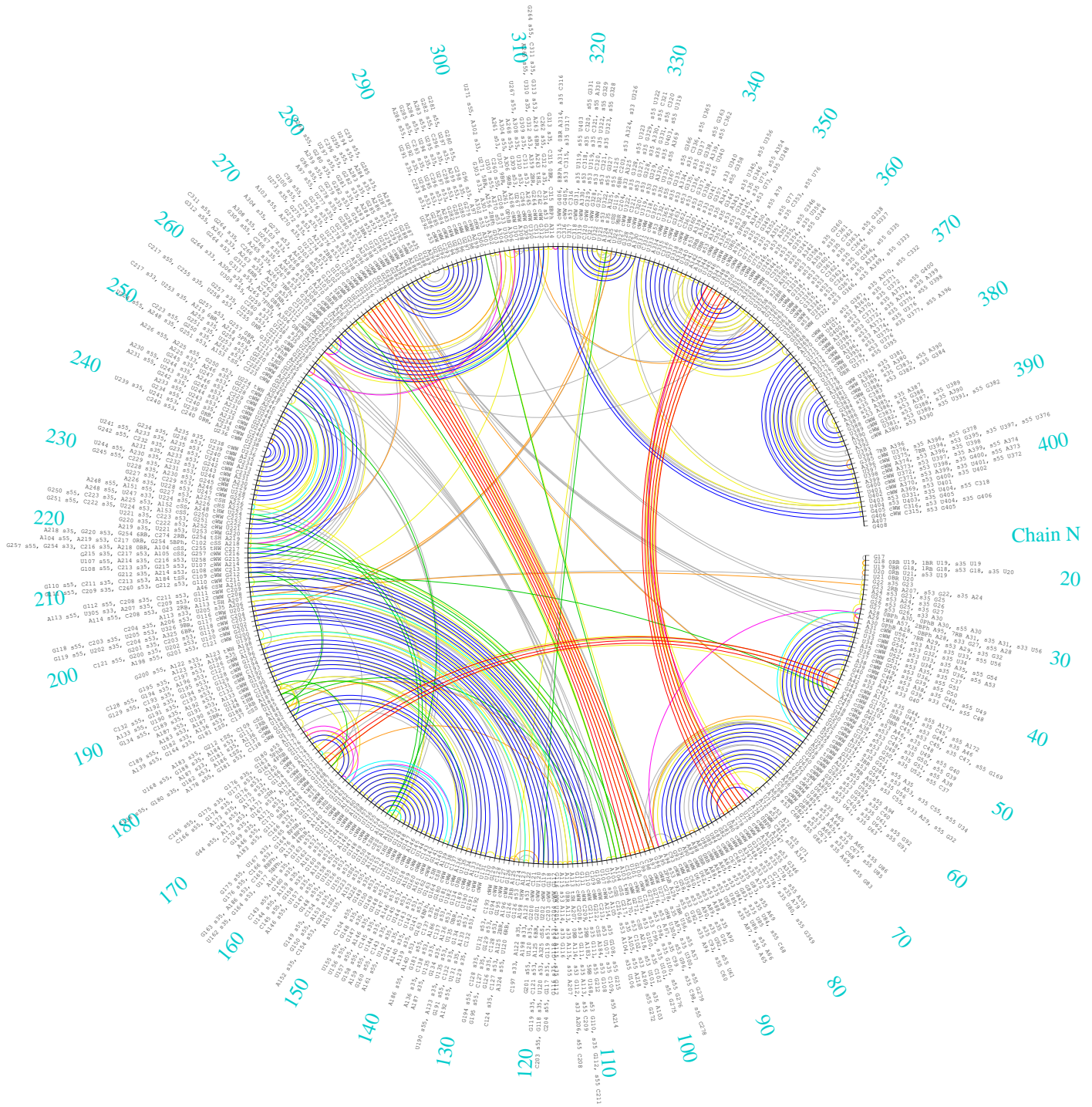
Dark blue chords indicate the 157 nested Watson-Crick basepairs
Red chords indicate the 19 non-nested or inter-chain Watson-Crick basepairs
Cyan chords indicate the 4 nested non-Watson-Crick basepairs
Green chords indicate the 0 non-nested non-Watson-Crick basepairs
Yellow chords indicate the 461 stacking interactions
Magenta chords indicate the 33 base-phosphate interactions
Orange chords indicate the 38 base-ribose interactions
Light gray chords indicate 291 near interactions

7K00|1|b,7K00|1|a,7K00|1|A,7K00|1|X,7K00|1|Y,7K00|1|Z,7K00|1|5

<http://rna.bgsu.edu/correspondence/circular?chains=7K00|1|b,7K00|1|a,7K00|1|A,7K00|1|X,7K00|1|Y,7K00|1|Z,7K00|1|5>



Dark blue chords indicate the 1304 nested Watson-Crick basepairs
Red chords indicate the 59 non-nested or inter-chain Watson-Crick basepairs
Cyan chords indicate the 430 nested non-Watson-Crick basepairs
Green chords indicate the 319 non-nested non-Watson-Crick basepairs
Yellow chords indicate the 4883 stacking interactions
Magenta chords indicate the 507 base-phosphate interactions
Orange chords indicate the 582 base-ribose interactions
Light gray chords indicate 1413 near interactions



- Dark blue chords indicate the 114 nested Watson-Crick basepairs
- Red chords indicate the 16 non-nested or inter-chain Watson-Crick basepairs
- Cyan chords indicate the 12 nested non-Watson-Crick basepairs
- Green chords indicate the 15 non-nested non-Watson-Crick basepairs
- Yellow chords indicate the 417 stacking interactions
- Magenta chords indicate the 12 base-phosphate interactions
- Orange chords indicate the 32 base-ribose interactions
- Light gray chords indicate 120 near interactions