



wwPDB X-ray Structure Validation Summary Report ⓘ

Oct 3, 2023 – 11:37 PM EDT

PDB ID : 4V59
Title : Crystal structure of fatty acid synthase complexed with nadp+ from thermomyces lanuginosus at 3.1 angstrom resolution.
Authors : Jenni, S.; Leibundgut, M.; Boehringer, D.; Frick, C.; Mikolasek, B.; Ban, N.
Deposited on : 2007-03-09
Resolution : 3.10 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 ⓘ 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 ⓘ](#)) 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 : 2.35.1
buster-report : 1.1.7 (2018)
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

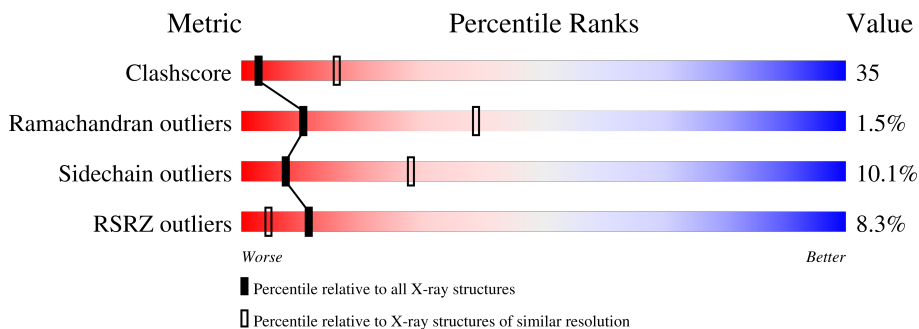
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.10 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))
Clashscore	141614	1184 (3.10-3.10)
Ramachandran outliers	138981	1141 (3.10-3.10)
Sidechain outliers	138945	1141 (3.10-3.10)
RSRZ outliers	127900	1067 (3.10-3.10)

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 $\leq 5\%$. 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	1878	 2% 39% 35% 22%
1	B	1878	 2% 40% 34% 22%
1	C	1878	 2% 39% 34% 22%
1	D	1878	 3% 39% 34% 5% 22%
1	E	1878	 3% 38% 35% 22%
1	F	1878	 2% 40% 33% 22%
2	G	2060	 8% 43% 49% 8%

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Mol	Chain	Length	Quality of chain
2	H	2060	
2	I	2060	
2	J	2060	
2	K	2060	
2	L	2060	

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
4	FMN	G	2101	-	-	X	-
4	FMN	H	2101	-	-	X	-
4	FMN	I	2101	-	-	X	-
4	FMN	J	2101	-	-	X	-
4	FMN	K	2101	-	-	X	-
4	FMN	L	2101	-	-	X	-

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 167247 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 FATTY ACID SYNTHASE ALPHA SUBUNITS.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	1457	11514	7290	2005	2170	49	0	0	0
1	B	1464	11571	7323	2015	2183	50	0	0	0
1	C	1462	11555	7312	2012	2181	50	0	0	0
1	D	1467	11593	7336	2021	2186	50	0	0	0
1	E	1456	11506	7285	2004	2169	48	0	0	0
1	F	1461	11546	7307	2010	2179	50	0	0	0

- Molecule 2 is a protein called FATTY ACID SYNTHASE BETA SUBUNITS.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	G	2060	16200	10314	2781	3051	54	0	0	0
2	H	2060	16200	10314	2781	3051	54	0	0	0
2	I	2060	16200	10314	2781	3051	54	0	0	0
2	J	2060	16200	10314	2781	3051	54	0	0	0
2	K	2060	16200	10314	2781	3051	54	0	0	0
2	L	2060	16200	10314	2781	3051	54	0	0	0

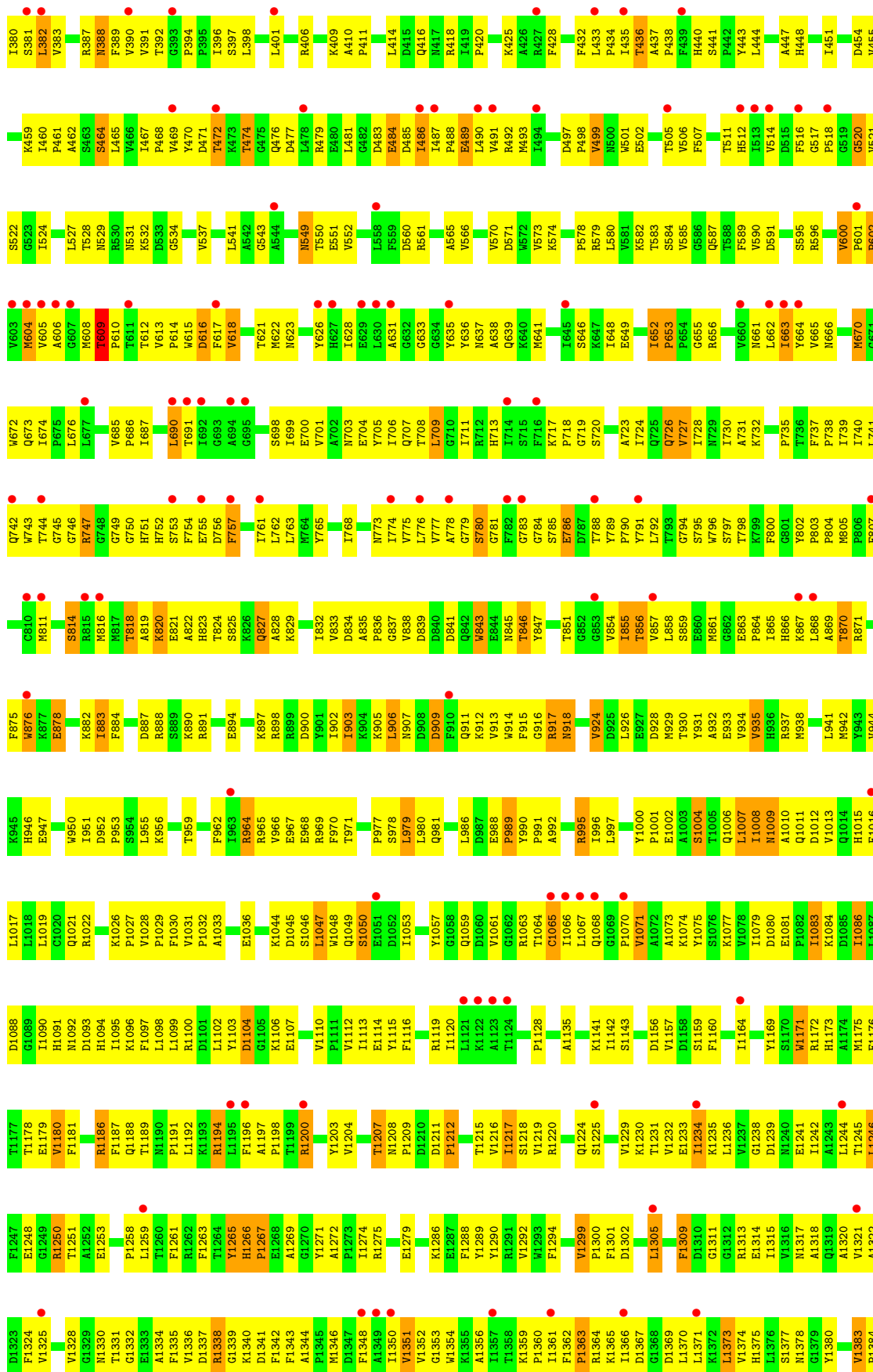
- Molecule 3 is NADP NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NAP) (formula: $C_{21}H_{28}N_7O_{17}P_3$).

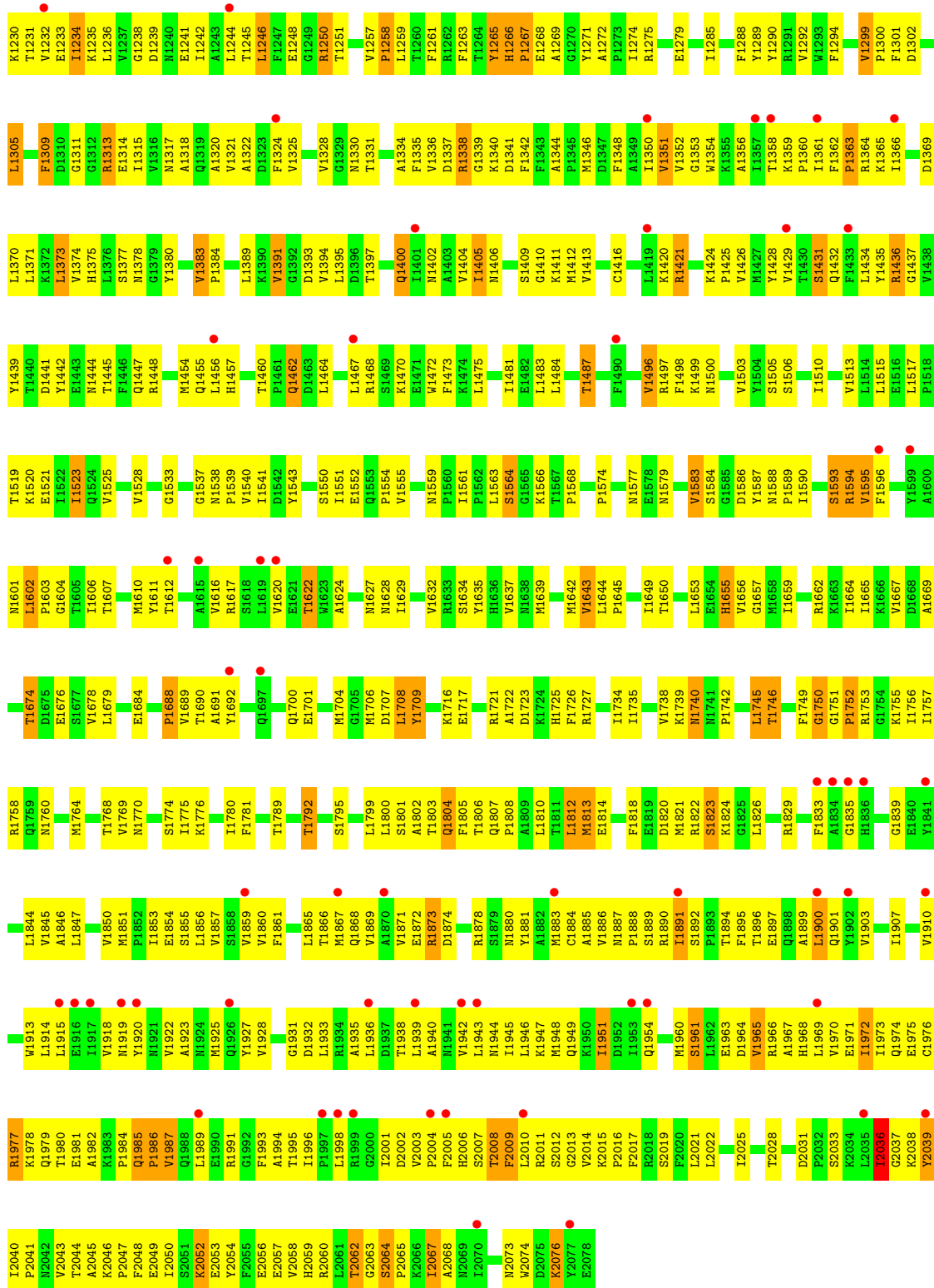


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
4	G	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
4	H	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
4	I	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
4	J	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
4	K	1	Total	C	N	O	P	0	0
			31	17	4	9	1		
4	L	1	Total	C	N	O	P	0	0
			31	17	4	9	1		

G1306	G1307	F1308	D1309	F1310	F1311	E1312	E1313	Y1316	E1317	A1323	A1327	E1330	R1333	G1334	R1335	E1336	P1337	G1338	E1339	M1340	S1341	A1342	A1260	T1344	S1345	T1346	T1347	F1351	M1352	E1353	Q1354	Q1355	C1357	Q1360	V1361	I1362	Q1363	Q1366	L1367	A1368	M1371	G1372	P1373	A1299	I1375	Y1376	A1380																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
S1216	E1217	V1218	G1223	G1224	G1225	V1226	T1229	L1232	L1233	G1234	M1235	A1236	K1237	K1238	T1249	L1250	Q1251	E1252	P1253	F1254	T1257	M1258	A1259	A1260	T1284	L1287	S1268	S1269	T1270	G1271	F1272	K1274	T1275	P1276	V1277	G1278	A1279	C1280	A1281	T1282	D1288	T1293	K1298	P1374	I1375	Y1376	A1380																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
T1138	V1140	R1141	L1142	A1146	T1147	L1148	L1149	I1150	A1153	L1154	G1155	F1156	D1157	R1158	L1159	V1160	A1161	K1162	Q1163	I1164	P1165	T1166	G1167	W1168	D1169	A1170	R1171	R1172	Y1173	G1174	P1175	P1176	E1177	D1178	I1179	I1180	V1183	D1184	P1185	V1186	T1187	L1188	L1191	L1198	L1199	Y1207	E1208	F1209	K1298	P1374	I1375	Y1376	A1380																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
V1059	D1060	K1061	K1062	V1063	V1064	K1065	Y1068	E1069	Y1072	W1075	I1078	R1079	L1080	I1081	E1082	F1083	E1084	L1085	F1086	Y1089	D1090	P1091	M1092	R1093	K1094	Q1095	L1096	L1097	V1100	V1101	V1102	E1103	Q1104	H1105	L1106	E1107	P1108	K1113	E1117	E1118	F1119	K1120	R1121	Y1207	E1208	F1209	K1298	P1374	I1375	Y1376	A1380																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
Q893	Q893	F898	A899	D900	L901	N902	G903	G904	L905	Q906	F907	L908	P909	D910	L911	G915	L916	K917	T850	G851	L852	M853	S854	R855	R856	R857	L858	R859	A860	E861	G862	V863	F864	K865	V868	R869	T870	E949	A950	L951	P952	R953	R954	Y955	P956	P959	R960	A961	N962	L963	K964	Y965	P966	F967	P968																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
D731	K630	R631	L632	T633	G634	Y635	L636	L637	L640	G647	L648	A655	Q583	I584	M585	Q586	G518	L519	S440	M441	L443	L444	F447	M448	W375	D449	Y450	L451	Y383	A394	I387	D382	P393	L394	K395	A396	R397	V398	Y399	L469	S401	L470	L471	W405	A406	R407	Q408	D409	A410	L411	S412	M413	Y414	Y415																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															
L821	E822	T823	L824	W828	E831	S832	W833	L837	T838	L839	V843	L844	G845	W846	R847	T848	G849	K917	T850	G851	L852	M853	S854	R855	R856	R857	L858	R859	A860	E861	G862	V863	F864	K865	V868	R869	T870	E949	A950	L951	P952	R953	R954	Y955	P956	P959	R960	A961	N962	L963	K964	Y965	P966	F967	P968																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
L821	E822	T823	L824	W828	E831	S832	W833	L837	T838	L839	V843	L844	G845	W846	R847	T848	G849	K917	T850	G851	L852	M853	S854	R855	R856	R857	L858	R859	A860	E861	G862	V863	F864	K865	V868	R869	T870	E949	A950	L951	P952	R953	R954	Y955	P956	P959	R960	A961	N962	L963	K964	Y965	P966	F967	P968																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
W973	K978	P979	L980	Q983	L984	R985	G986	M987	W988	N989	L990	V995	T997	G998	A1000	E1001	P1004	M1005	M1007	A1008	R1011	M1012	E1013	M1014	Y1017	L1022	E1023	M1031	M1032	M1037	H1038	M1039	L1042	K1043	S1048	W1050	V1051	D1052	T1055	G1056	P1058	L1062	L1063	L1064	L1065	L1066	L1067	L1068	L1069	L1070	L1071	L1072	L1073	L1074	L1075	L1076	L1077	L1078	L1079	L1080	L1081	L1082	L1083	L1084	L1085	L1086	L1087	L1088	L1089	L1090	L1091	L1092	L1093	L1094	L1095	L1096	L1097	L1098	L1099	L1100	L1101	L1102	L1103	L1104	L1105	L1106	L1107	L1108	L1109	L1110	L1111	L1112	L1113	L1114	L1115	L1116	L1117	L1118	L1119	L1120	L1121	L1122	L1123	L1124	L1125	L1126	L1127	L1128	L1129	L1130	L1131	L1132	L1133	L1134	L1135	L1136	L1137	L1138	L1139	L1140	L1141	L1142	L1143	L1144	L1145	L1146	L1147	L1148	L1149	L1150	L1151	L1152	L1153	L1154	L1155	L1156	L1157	L1158	L1159	L1160	L1161	L1162	L1163	L1164	L1165	L1166	L1167	L1168	L1169	L1170	L1171	L1172	L1173	L1174	L1175	L1176	L1177	L1178	L1179	L1180	L1181	L1182	L1183	L1184	L1185	L1186	L1187	L1188	L1189	L1190	L1191	L1192	L1193	L1194	L1195	L1196	L1197	L1198	L1199	L1200	L1201	L1202	L1203	L1204	L1205	L1206	L1207	L1208	L1209	L1210	L1211	L1212	L1213	L1214	L1215	L1216	L1217	L1218	L1219	L1220	L1221	L1222	L1223	L1224	L1225	L1226	L1227	L1228	L1229	L1230	L1231	L1232	L1233	L1234	L1235	L1236	L1237	L1238	L1239	L1240	L1241	L1242	L1243	L1244	L1245	L1246	L1247	L1248	L1249	L1250	L1251	L1252	L1253	L1254	L1255	L1256	L1257	L1258	L1259	L1260	L1261	L1262	L1263	L1264	L1265	L1266	L1267	L1268	L1269	L1270	L1271	L1272	L1273	L1274	L1275	L1276	L1277	L1278	L1279	L1280	L1281	L1282	L1283	L1284	L1285	L1286	L1287	L1288	L1289	L1290	L1291	L1292	L1293	L1294	L1295	L1296	L1297	L1298	L1299	L1300	L1301	L1302	L1303	L1304	L1305	L1306	L1307	L1308	L1309	L1310	L1311	L1312	L1313	L1314	L1315	L1316	L1317	L1318	L1319	L1320	L1321	L1322	L1323	L1324	L1325	L1326	L1327	L1328	L1329	L1330	L1331	L1332	L1333	L1334	L1335	L1336	L1337	L1338	L1339	L1340	L1341	L1342	L1343	L1344	L1345	L1346	L1347	L1348	L1349	L1350	L1351	L1352	L1353	L1354	L1355	L1356	L1357	L1358	L1359	L1360	L1361	L1362	L1363	L1364	L1365	L1366	L1367	L1368	L1369	L1370	L1371	L1372	L1373	L1374	L1375	L1376	L1377	L1378	L1379	L1380	L1381	L1382	L1383	L1384	L1385	L1386	L1387	L1388	L1389	L1390	L1391	L1392	L1393	L1394	L1395	L1396	L1397	L1398	L1399	L1400	L1401	L1402	L1403	L1404	L1405	L1406	L1407	L1408	L1409	L1410	L1411	L1412	L1413	L1414	L1415	L1416	L1417	L1418	L1419	L1420	L1421	L1422	L1423	L1424	L1425	L1426	L1427	L1428	L1429	L1430	L1431	L1432	L1433	L1434	L1435	L1436	L1437	L1438	L1439	L1440	L1441	L1442	L1443	L1444	L1445	L1446	L1447	L1448	L1449	L1450	L1451	L1452	L1453	L1454	L1455	L1456	L1457	L1458	L1459	L1460	L1461	L1462	L1463	L1464	L1465	L1466	L1467	L1468	L1469	L1470	L1471	L1472	L1473	L1474	L1475	L1476	L1477	L1478	L1479	L1480	L1481	L1482	L1483	L1484	L1485	L1486	L1487	L1488	L1489	L1490	L1491	L1492	L1493	L1494	L1495	L1496	L1497	L1498	L1499	L1500	L1501	L1502	L1503	L1504	L1505	L1506	L1507	L1508	L1509	L1510	L1511	L1512	L1513	L1514	L1515	L1516	L1517	L1518	L1519	L1520	L1521	L1522	L1523	L1524	L1525	L1526	L1527	L1528	L1529	L1530	L1531	L1532	L1533	L1534	L1535	L1536	L1537	L1538	L1539	L1540	L1541	L1542	L1543	L1544	L1545	L1546	L1547	L1548	L1549	L1550	L1551	L1552	L1553	L1554	L1555	L1556	L1557	L1558	L1559	L1560	L1561	L1562	L1563	L1564	L1565	L1566	L1567	L1568	L1569	L1570	L1571	L1572	L1573	L1574	L1575	L1576	L1577	L1578	L1579	L1580	L1581	L1582	L1583	L1584	L1585	L1586	L1587	L1588	L1589	L1590	L1591	L1592	L1593	L1594	L1595	L1596	L1597	L1598	L1599	L1600	L1601	L1602	L1603	L1604	L1605	L1606	L1607	L1608	L1609	L1610	L1611	L1612	L1613	L1614	L1615	L1616	L1617	L1618	L1619	L1620	L1621	L1622	L1623	L1624	L1625	L1626	L1627	L1628	L1629	L1630	L1631	L1632	L1633	L1634	L1635	L1636	L1637	L1638	L1639	L1640	L1641	L1642	L1643	L1644	L1645	L1646	L1647	L1648	L1649	L1650	L1651	L1652	L1653	L1654	L1655	L1656	L1657	L1658	L1659	L1660	L1661	L1662	L1663	L1664	L1665	L1666	L1667	L1668	L1669	L1670	L1671	L1672	L1673	L1674	L1675	L1676	L1677	L1678	L1679	L1680	L1681	L1682	L1683	L1684	L1685	L1686	L1687	L1688	L1689	L1690	L1691	L1692	L1693	L1694	L1695	L1696	L1697	L1698	L1699	L1700	L1701	L1702	L1703	L1704	L1705	L1706	L1707	L1708	L1709	L1710	L1711	L1712	L1713	L1714	L1715	L1716	L1717	L1718	L1719	L1720	L1721	L1722	L1723	L1724	L1725	L1726	L1727	L1728	L1729	L1730	L1731	L1732	L1733	L1734	L1735	L1736	L1737	L1738	L1739	L1740	L1741	L1742	L1743	L1744	L1745	L1746	L1747	L1748	L1749	L1750	L1751	L1752	L1753	L1754	L1755	L1756	L1757	L1758	L1759	L1760	L1761	L1762	L1763	L1764	L1765	L1766	L1767	L1768	L1769	L1770	L1771	L1772	L1773	L1774	L1775	L1776	L1777	L1778	L1779	L1780	L1781	L1782	L1783	L1784	L1785	L1786	L1787	L1788	L1789	L1790	L1791	L1792	L1793	L1794	L1795	L1796	L1797	L1798	L1799	L1800	L1801	L1802	L1803	L1804	L1805	L1806	L1807	L1808	L1809	L1810	L1811	L1812	L1813	L1814	L1815	L1816	L1817	L1818	L1819	L1820	L1821	L1822	L1823	L1824	L1825	L1826	L1827	L1828	L1829	L1830	L1831	L1832	L1833	L1834	L1835	L1836	L1837	L1838	L1839	L1840	L1841	L1842	L1843	L1844	L1845	L1846	L1847	L1848	L1849	L1850	L1851	L1852	L1853	L1854	L1855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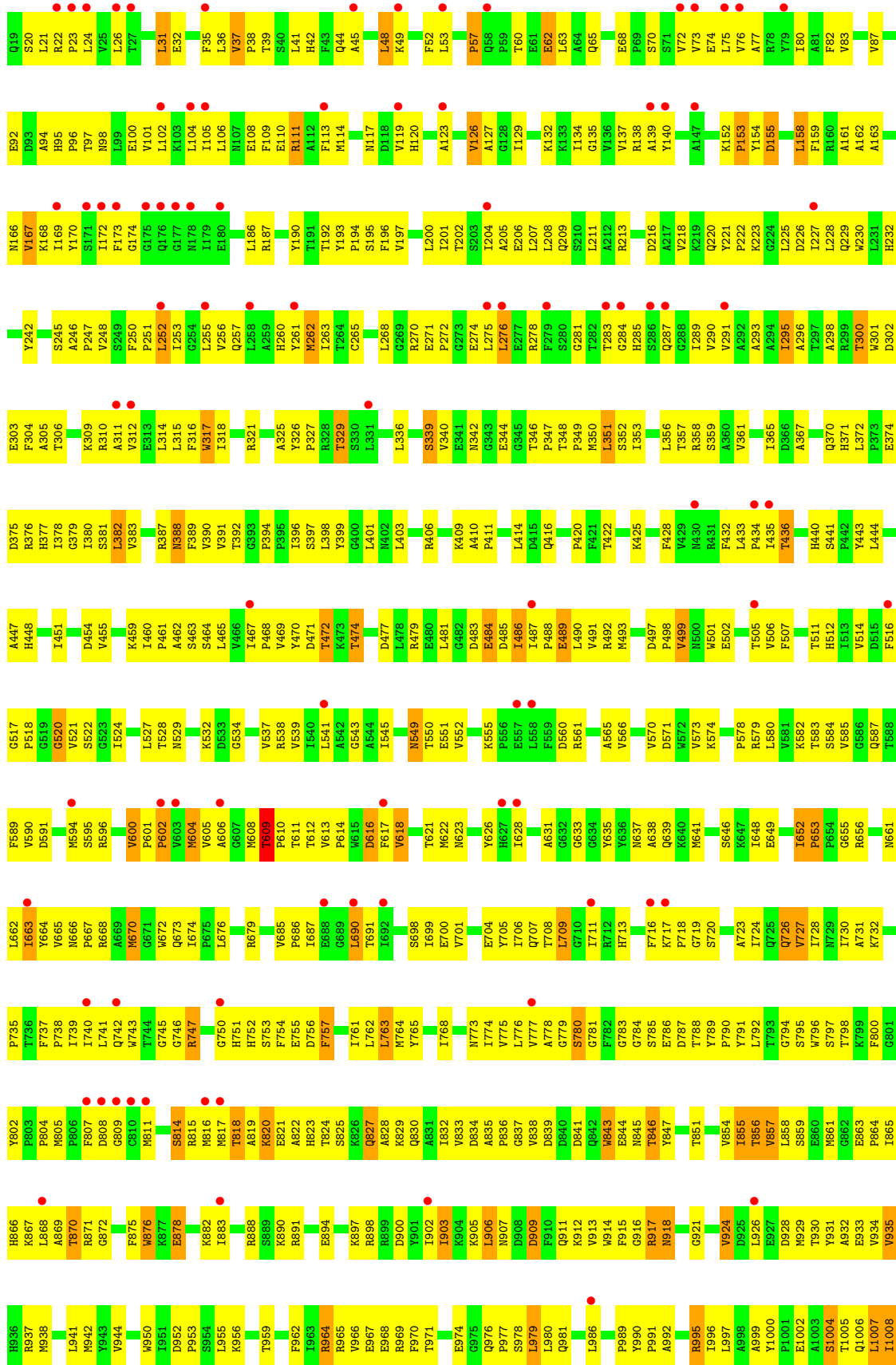
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L1513	S1345	Q1444	T1270	T1270	D1178	P1108	E949	I933	V863	I781	O696	L616
I1514	T1346	Q1444	T1270	T1270	I1180	K1113	E949	I933	V863	I781	O696	L616
T1509	T1347	E1445	I1273	I1273	I1180	E1117	E949	I933	V863	I781	O696	L616
W1510	R1342	E1446	K1274	K1274	I1180	E1117	E949	I933	V863	I781	O696	L616
G1511	P1343	L1441	S1268	S1268	V1175	E1117	E949	I933	V863	I781	O696	L616
L1512	T1344	L1441	S1269	S1269	E1177	E1107	E949	I933	V863	I781	O696	L616
L1513	S1345	Q1444	T1270	T1270	D1178	P1108	E949	I933	V863	I781	O696	L616
I1514	T1346	Q1444	T1270	T1270	I1180	K1113	E949	I933	V863	I781	O696	L616
T1509	T1347	E1445	I1273	I1273	I1180	E1117	E949	I933	V863	I781	O696	L616
W1510	R1342	E1446	K1274	K1274	I1180	E1117	E949	I933	V863	I781	O696	L616
G1511	P1343	L1441	S1268	S1268	V1175	E1117	E949	I933	V863	I781	O696	L616
L1512	T1344	L1441	S1269	S1269	E1177	E1107	E949	I933	V863	I781	O696	L616
L1513	S1345	Q1444	T1270	T1270	D1178	P1108	E949	I933	V863	I781	O696	L616
I1514	T1346	Q1444	T1270	T1270	I1180	K1113	E949	I933	V863	I781	O696	L616
T1509	T1347	E1445	I1273	I1273	I1180	E1117	E949	I933	V863	I781	O696	L616
W1510	R1342	E1446	K1274	K1274	I1180	E1117	E949	I933	V863	I781	O696	L616
G1511	P1343	L1441	S1268	S1268	V1175	E1117	E949	I933	V863	I781	O696	L616
L1512	T1344	L1441	S1269	S1269	E1177	E1107	E949	I933	V863	I781	O696	L616
L1513	S1345	Q1444	T1270	T1270	D1178	P1108	E949	I933	V863	I781	O696	L616
I1514	T1346	Q1444	T1270	T1270	I1180	K1113	E949	I933	V863	I781	O696	L616
T1509	T1347	E1445	I1273	I1273	I1180	E1117	E949	I933	V863	I781	O696	L616
W1510	R1342	E1446	K1274	K1274	I1180</							



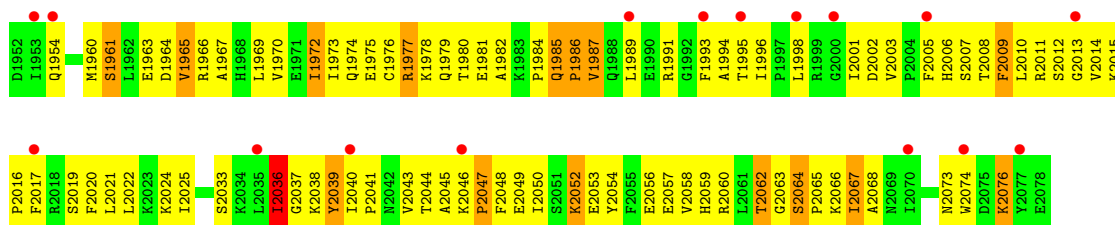


● Molecule 2: FATTY ACID SYNTHASE BETA SUBUNITS

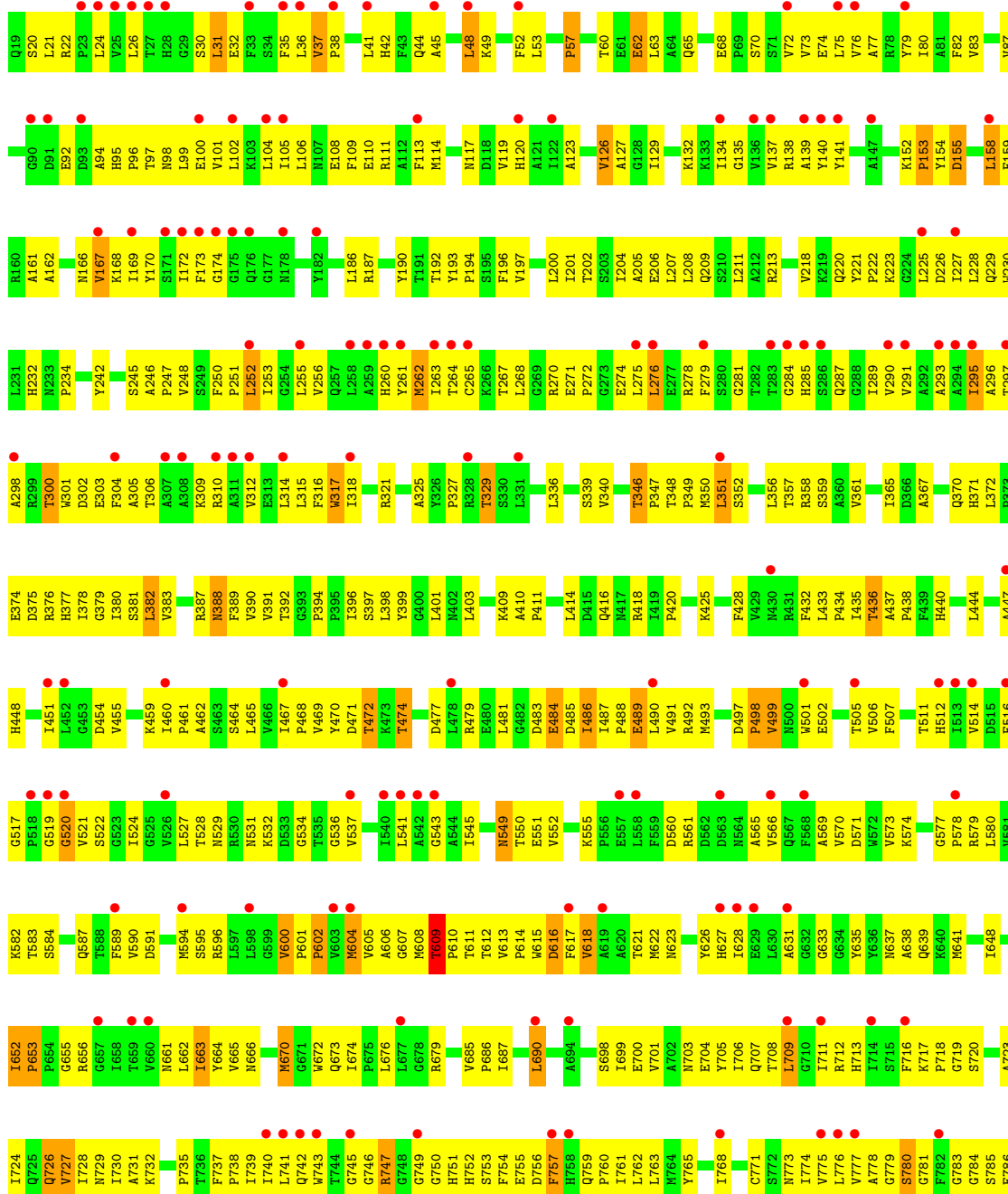


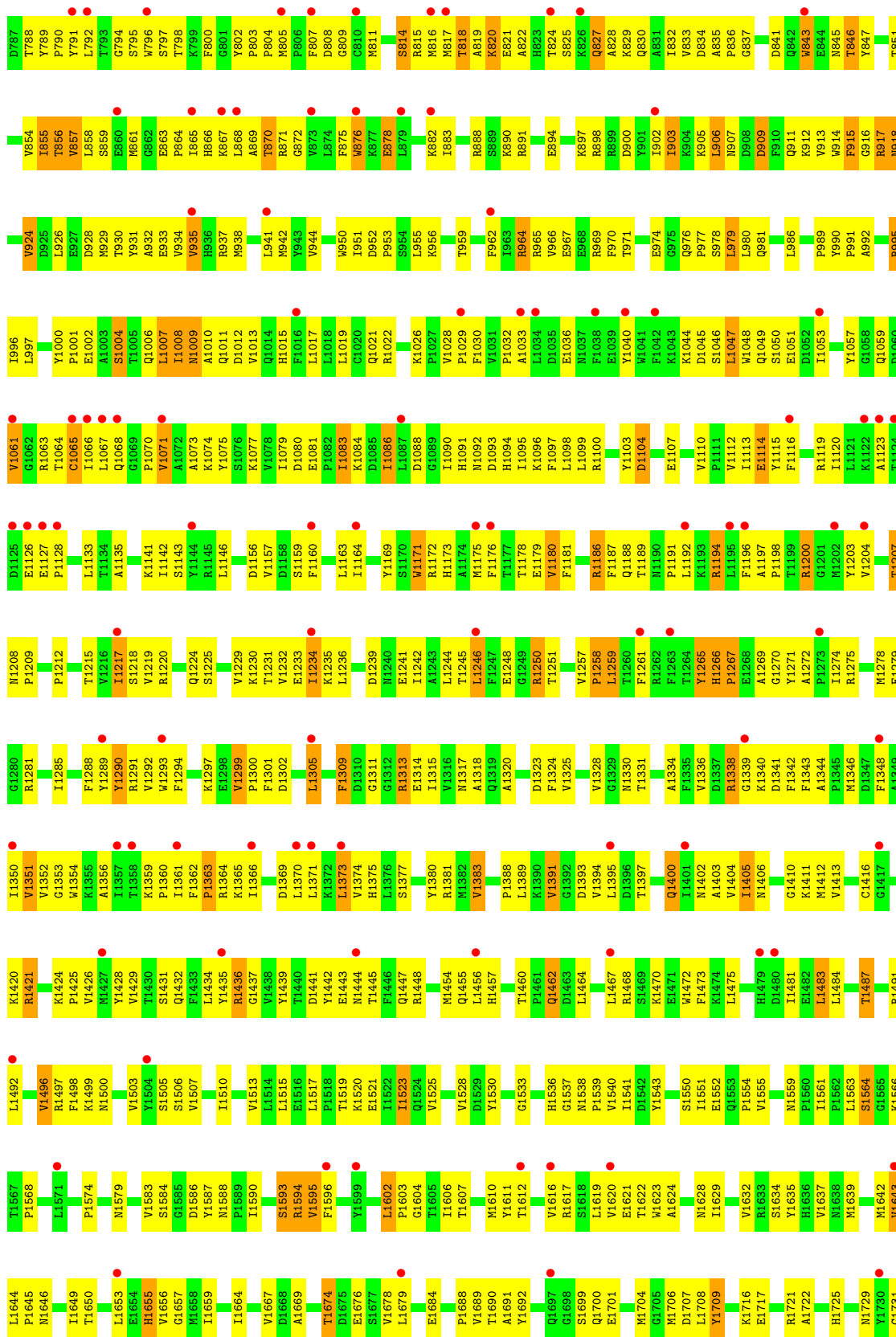


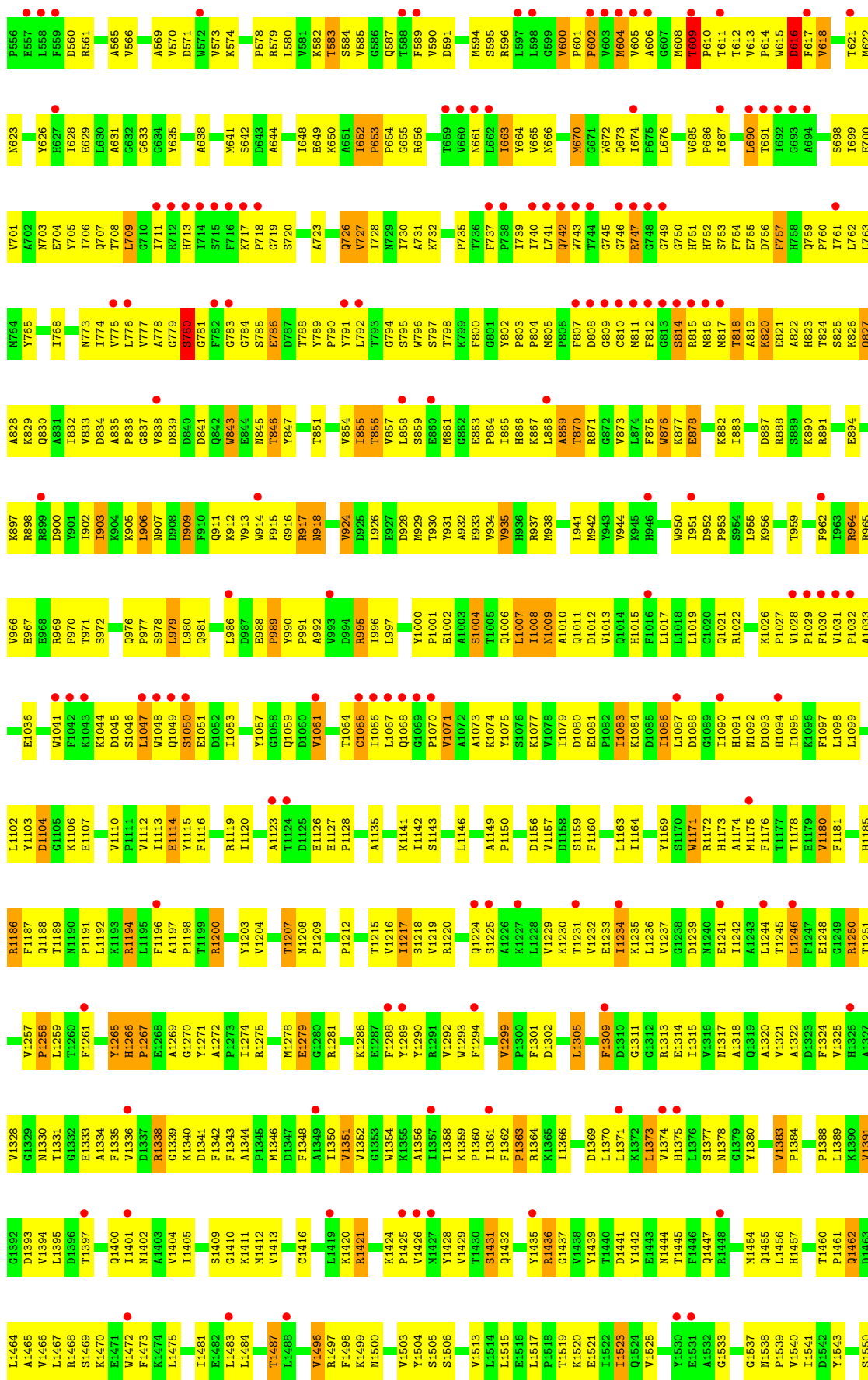
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D1820	M1821	S1822	S1823	L1826	R1829	F1832	F1833	Q1834	Y1835	Y1836	G1839	E1840	Y1841	L1844	V1845	L1846	L1847	V1850	M1851	F1852	L1853	S1854	S1855	L1856	V1857	S1858	V1859	V1860	F1861	L1865	T1866	M1867	Q1868	V1869	V1870	V1871	E1872	R1873	D1874	R1878	S1879	M1880	M1881	M1882	C1883	C1884	C1885	V1886	P1887	P1888	S1889							
V1747	H1748	G1749	G1750	G1751	P1752	R1753	G1754	A1755	T1756	L1757	R1758	Y1761	M1762	S1763	M1764	F1765	E1766	E1767	S1774	I1775	K1776	K1779	I1780	S1781	K1782	E1783	T1789	T1792	Y1793	R1794	S1795	L1799	L1800	S1801	A1802	Q1803	Q1804	F1805	Q1806	Q1807	P1808	I1809	L1810	T1811	L1812	M1813	E1814	F1818	E1819									
G1657	H1658	I1659	I1664	V1667	D1668	A1669	T1674	D1675	E1676	S1677	V1678	M1679	E1684	P1688	V1689	T1690	A1691	Y1692	Q1700	E1701	G1702	G1703	M1704	G1705	M1706	D1707	L1708	Y1709	K1716	E1717	R1721	A1722	H1725	F1726	R1727	E1728	M1729	Y1730	G1731	F1732	S1733	I1734	I1735	Y1738	K1739	M1740	L1745	T1746										
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S1505	S1506	V1507	I1510	V1513	L1514	L1515	L1516	L1517	L1518	L1519	K1520	E1521	I1522	F1523	I1524	V1525	V1528	D1529	Y1530	G1533	H1536	G1537	M1538	P1539	V1540	I1541	D1542	Y1543	S1550	I1551	E1552	P1553	V1555	I1561	P1562	L1563	S1564	G1565	M1566	T1567	P1568	L1571	P1574	F1579	M1579	V1583	S1584	G1585										
S1431	Q1432	F1433	L1434	Y1435	R1436	G1437	V1438	Y1439	T1440	D1441	Y1442	H1443	L1444	T1445	Y1451	M1454	Q1455	L1456	H1457	T1460	Q1461	Q1462	D1463	L1464	A1465	V1466	L1467	R1468	S1469	W1472	F1473	L1475	I1481	E1482	L1483	L1484	T1487	L1488	V1489	F1490	V1496	L1497	F1498	K1499	M1500	V1503	Y1504											
R1364	K1365	I1366	D1367	G1368	D1369	L1370	L1371	S1372	L1373	G1374	H1375	L1376	S1377	Y1380	V1383	P1384	P1388	L1389	K1390	V1391	H1392	D1393	V1394	M1395	Q1396	T1397	Q1400	I1401	A1403	V1404	I1405	M1406	S1409	K1410	K1411	P1412	V1413	E1414	G1415	G1416	G1417	T1418	L1419	K1420	K1421	K1424	P1425	V1426	M1427	V1428	V1429	T1430						
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V1157	D1158	S1159	F1160	M1161	Q1162	L1163	I1164	Y1169	S1170	M1171	D1172	H1173	A1174	M1175	F1176	T1177	T1178	E1179	V1180	F1181	R1186	Q1188	L1189	M1190	P1191	L1192	K1193	R1194	L1195	F1196	A1197	P1198	T1199	R1200	Y1203	V1204	E1205	I1206	T1207	M1208	P1209	P1212	E1217	P1218	D1215	T1216	I1217	S1218	V1219	R1220	Q1224	S1225	K1227					
F1301	D1302	T1303	L1305	F1309	D1310	G1311	L1312	R1313	G1314	L1315	V1316	M1317	A1318	Q1319	A1320	V1321	A1322	D1323	F1324	V1325	H1326	A1327	V1328	M1329	L1330	T1331	A1334	F1335	V1336	D1337	R1338	G1339	D1341	F1342	F1343	A1344	K1345	P1346	D1347	F1348	A1349	I1350	V1351	G1353	M1354	K1355	L1356	L1357	R1358	K1359	P1360	I1361	F1362	P1363				
R1228	V1229	T1230	T1231	V1232	E1233	I1234	L1235	L1236	Y1169	L1237	G1238	M1171	H1172	H1173	I1090	H1091	M1092	D1093	H1094	L1095	K1096	F1097	V1098	L1099	R1100	D1101	L1102	Y1103	D1104	G1105	K1106	E1107	V1110	P1111	V1112	I1113	E1114	Y1115	F1116	I1120	L1121	K1122	I1123	T1124	D1125	E1126	P1128	D1129	I1130	A1135	V1219	R1220	K1141	L1142	S1143	Y1144	D1156	

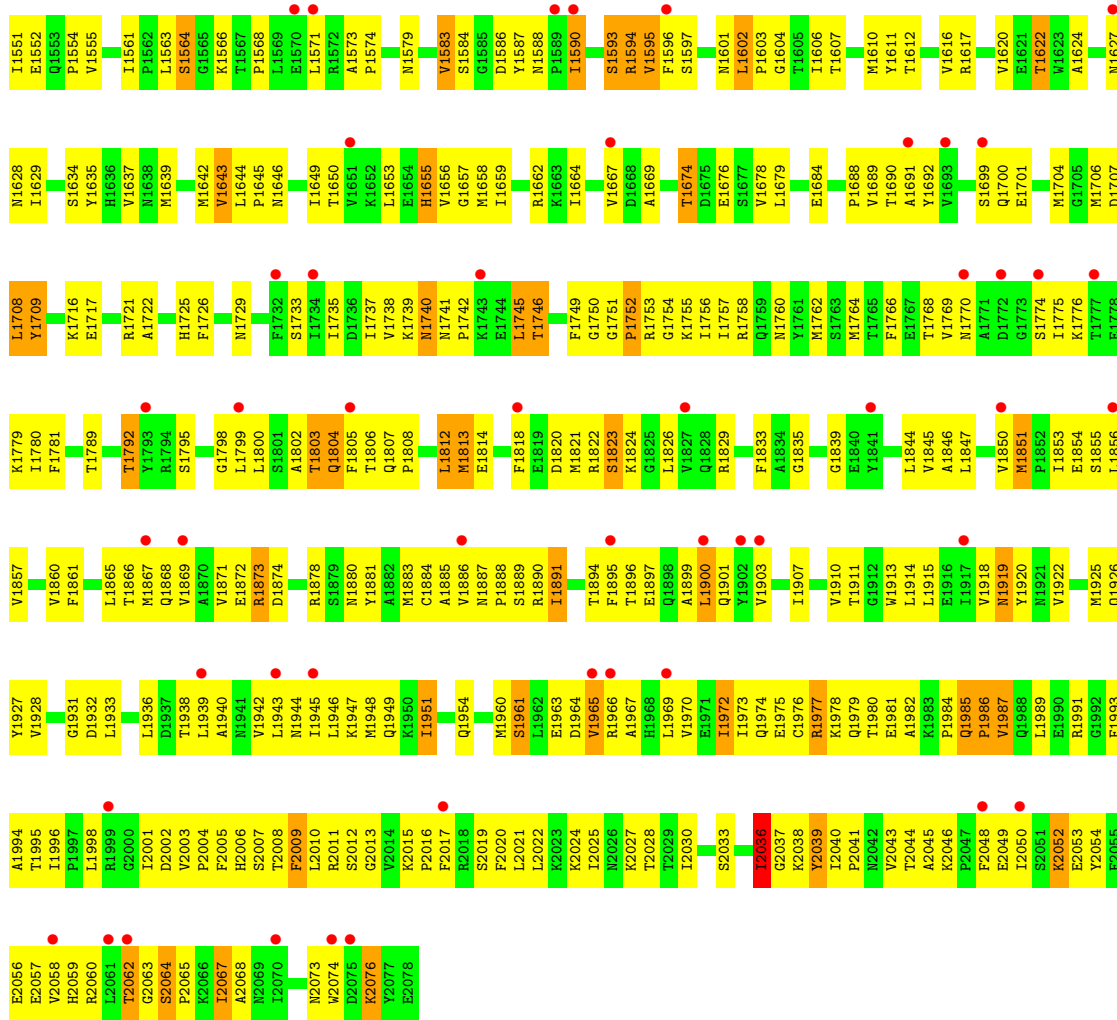


● Molecule 2: FATTY ACID SYNTHASE BETA SUBUNITS

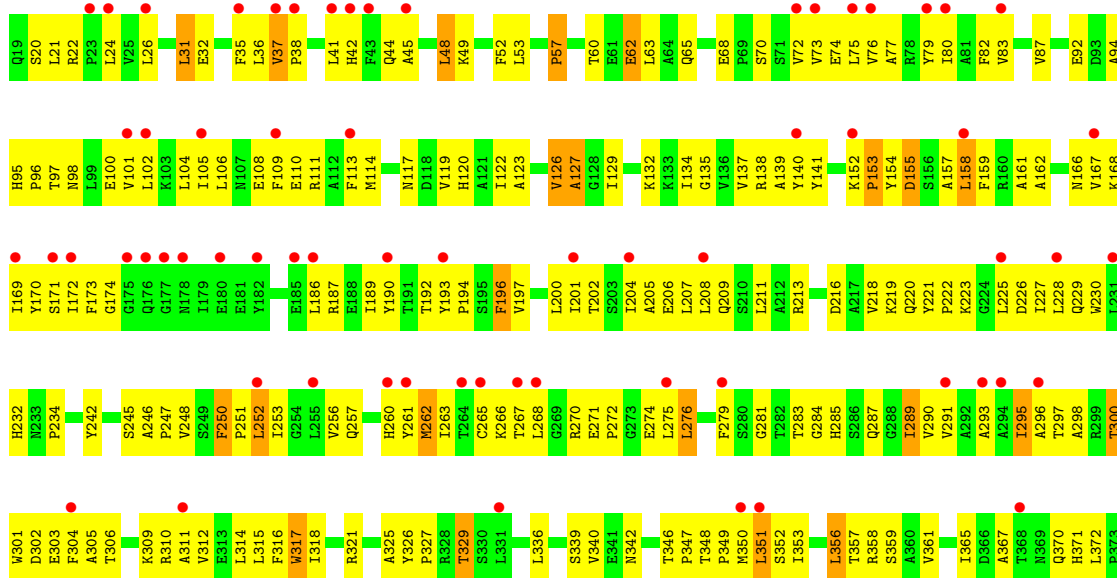


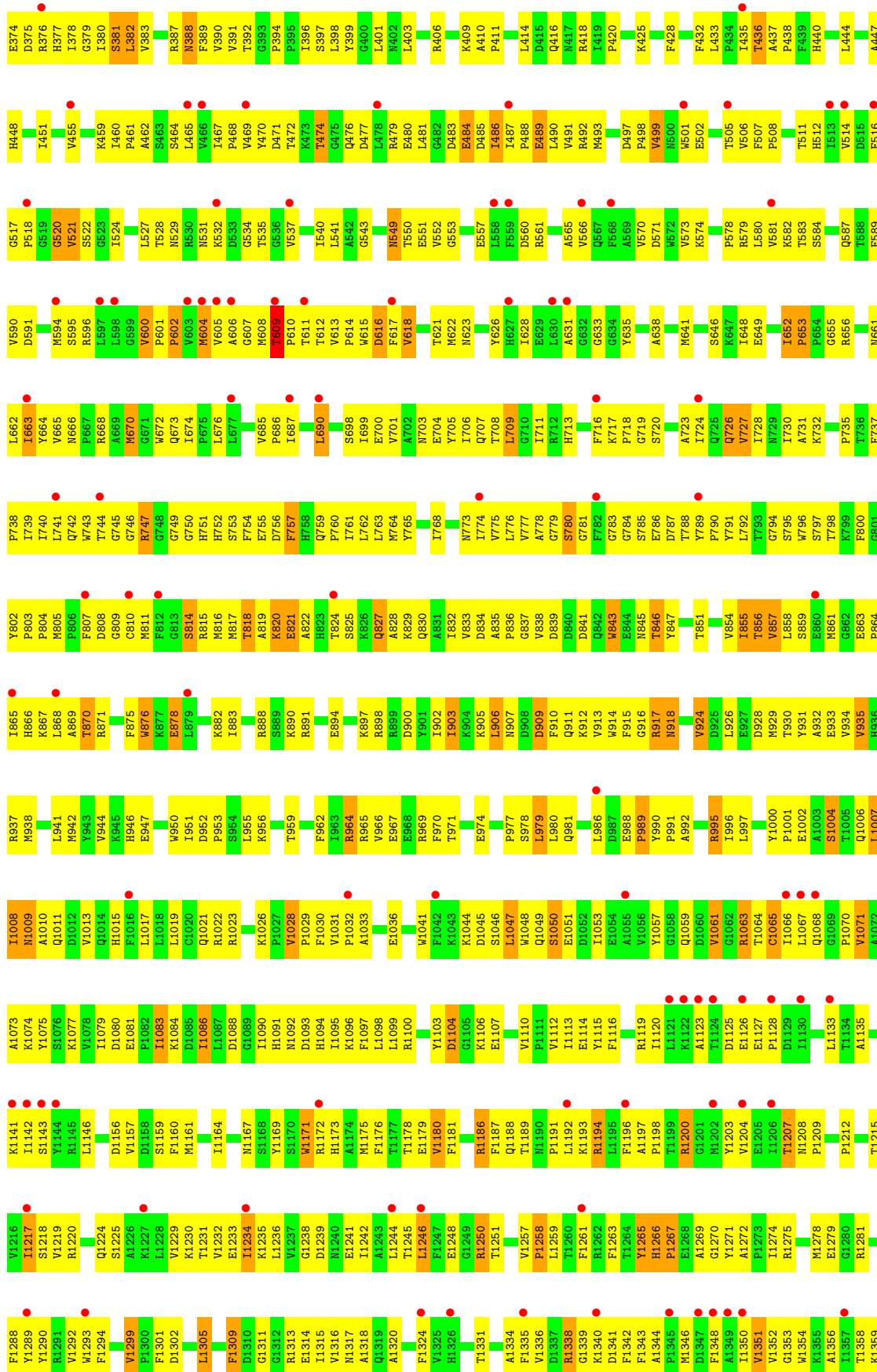






• Molecule 2: FATTY ACID SYNTHASE BETA SUBUNITS





K2066	V2003	T1938	D1874	T1806	L1734	T1650	V1583	Y1504	V1429	P1360
L2067	P2004	L1939	R1878	Q1807	L1736	L1653	S1584	S1505	T1430	L1361
A2068	F2005	A1940	S1879	P1808	L1653	L1653	S1585	S1506	S1431	F1362
N2069	H2006	M1941	S1879	A1809	L1654	L1654	D1586	F1507	F1432	P1363
I2070	S2007	M1942	M1880	L1810	K1739	H1655	G1587	Q1508	F1433	R1364
V2073	T2008	L1943	Y1881	L1811	M1740	V1656	N1588	L1509	L1434	K1365
W2074	F2009	M1944	A1882	L1812	M1741	G1657	P1589	L1510	Y1435	I1366
W2075	L2010	M1883	M1883	M1813	P1742	H1658	I1590	V1513	R1436	D1369
K2076	R2011	L1946	C1884	L1814	K1743	L1659	H1591	L1514	G1437	L1370
Y2077	S2012	K1947	A1885	F1818	E1744	L1662	S1593	L1515	V1438	L1371
E2078	G2013	M1948	V1886	L1745	L1745	R1662	S1593	E1516	L1439	K1372
	V2014	Q1949	P1887	L1746	T1746	I1664	R1594	L1517	T1440	L1373
	K2015	P1888	P1888	D1820	F1749	F1596	F1596	F1516	D1441	V1374
	P2016	M1821	M1821	M1821	E1750	V1667	S1597	T1519	E1443	H1375
	F2017	R1822	R1822	R1822	G1751	D1668	S1598	K1520	E1444	L1376
	R2018	S1823	S1823	S1823	G1751	D1668	S1598	L1376	L1444	L1377
	S2019	K1824	K1824	K1824	P1752	A1669	Y1599	E1521	T1445	S1377
	F2020	G1825	G1825	G1825	R1753	A1600	A1600	I1522	F1446	N1378
	L2021	L1826	L1826	L1826	G1754	T1674	N1601	I1523	Q1447	G1379
	L2022	L1826	L1826	L1826	K1755	D1676	L1602	Q1524	R1448	Y1380
	I2025	R1829	R1829	R1829	E1676	E1676	P1603	V1525	M1454	V1383
	N2026	F1833	F1833	F1833	S1677	S1677	G1604	V1528	Q1455	P1384
	K2027	A1834	A1834	A1834	V1678	V1678	T1605	D1529	L1456	P1384
	I2030	G1835	G1835	G1835	M1759	I1607	I1607	Y1530	H1457	P1388
	S2033	H1836	H1836	H1836	Y1761	Q1680	T1607	G1533	L1389	L1389
	K2034	G1839	G1839	G1839	M1762	E1684	M1610	G1533	T1460	K1390
	L2035	E1840	E1840	E1840	S1763	P1688	T1612	G1537	P1461	V1391
	I2036	Y1841	Y1841	Y1841	T1765	V1689	T1612	M1538	Q1462	G1392
	G2037	S1842	S1842	S1842	F1766	T1690	V1616	V1540	D1463	L1393
	K2038	A1843	A1843	A1843	E1767	A1691	R1617	L1464	L1464	V1394
	Y2039	L1844	L1844	L1844	V1692	V1692	S1618	V1466	V1466	L1395
	I2040	V1845	V1845	V1845	V1693	L1619	L1619	D1542	L1467	D1396
	P2041	L1847	L1847	L1847	F1694	V1694	V1620	L1467	L1467	T1397
	V2043	A1848	A1848	A1848	E1621	E1621	E1621	R1468	T1398	A1399
	T2044	V1850	V1850	V1850	Q1700	E1701	T1622	S1469	Q1400	Q1400
	A2045	M1851	M1851	M1851	E1701	E1701	W1693	W1472	I1401	I1401
	P2047	P1852	P1852	P1852	M1704	G1705	A1624	F1473	A1402	A1402
	F2048	I1853	I1853	I1853	M1706	M1706	N1627	K1474	A1403	A1403
	E2049	E1854	E1854	E1854	D1707	D1707	I1629	L1475	V1404	V1404
	I2050	S1855	S1855	S1855	L1708	L1708	I1629	P1554	I1405	I1405
	S2051	L1856	L1856	L1856	Y1709	Y1709	V1632	V1555	N1406	N1406
	K2052	V1857	V1857	V1857	K1716	K1716	R1632	P1560	S1409	S1409
	E2053	S1858	S1858	S1858	E1717	E1717	R1633	I1561	G1410	G1410
	Y2054	V1859	V1859	V1859	A1717	A1717	Y1635	P1562	K1411	K1411
	F2055	F1861	F1861	F1861	R1721	R1721	H1636	L1563	L1487	M1412
	E2056	L1865	L1865	L1865	A1722	A1722	V1637	G1565	T1487	V1413
	E2057	T1866	T1866	T1866	D1723	D1723	H1638	K1566	C1416	C1416
	V2058	M1867	M1867	M1867	D1723	D1723	M1639	T1567	K1420	K1420
	R2060	Q1868	Q1868	Q1868	H1725	H1725	M1642	P1568	R1491	R1491
	P1997	V1869	V1869	V1869	F1726	F1726	V1643	L1492	V1496	K1420
	L1998	A1870	A1870	A1870	S1801	S1801	P1645	M1574	R1497	R1497
	I2001	V1871	V1871	V1871	A1802	A1802	N1646	M1577	F1498	K1424
	S2064	E1872	E1872	E1872	R1803	R1803	M1646	E1578	K1499	P1425
	P2065	R1873	R1873	R1873	Y1730	Y1730	I1649	M1579	M1500	V1426
					F1805	F1805		Y1580	M1427	M1427
									V1503	Y1428

4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	215.78Å 412.67Å 220.90Å 90.00° 111.57° 90.00°	Depositor
Resolution (Å)	12.00 – 3.10 96.48 – 3.10	Depositor EDS
% Data completeness (in resolution range)	99.7 (12.00-3.10) 92.6 (96.48-3.10)	Depositor EDS
R_{merge}	0.24	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.89 (at 3.13Å)	Xtrriage
Refinement program	PHENIX	Depositor
R, R_{free}	0.270 , 0.300 0.252 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å ²)	66.0	Xtrriage
Anisotropy	0.182	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 64.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.39$, $\langle L^2 \rangle = 0.21$	Xtrriage
Estimated twinning fraction	0.078 for l,-k,h	Xtrriage
F_o, F_c correlation	0.89	EDS
Total number of atoms	167247	wwPDB-VP
Average B, all atoms (Å ²)	75.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.40% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical 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.

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: NAP, FMN

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	0.43	0/11744	0.60	1/15873 (0.0%)
1	B	0.43	0/11801	0.60	1/15949 (0.0%)
1	C	0.44	0/11785	0.59	0/15928
1	D	0.43	0/11824	0.60	0/15980
1	E	0.42	0/11736	0.59	0/15863
1	F	0.44	0/11776	0.60	5/15916 (0.0%)
2	G	0.36	0/16573	0.53	0/22516
2	H	0.35	0/16573	0.53	0/22516
2	I	0.35	0/16573	0.53	0/22516
2	J	0.36	0/16573	0.54	0/22516
2	K	0.39	0/16573	0.55	0/22516
2	L	0.36	0/16573	0.54	0/22516
All	All	0.39	0/170104	0.56	7/230605 (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	1
1	F	0	1
All	All	0	2

There are no bond length outliers.

The worst 5 of 7 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	585	MET	N-CA-C	9.44	136.48	111.00
1	B	608	LYS	N-CA-C	-8.94	86.85	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	614	PHE	N-CA-C	6.04	127.30	111.00
1	F	613	PRO	CA-C-N	5.57	129.46	117.20
1	A	579	MET	N-CA-C	5.39	125.55	111.00

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	578	ALA	Peptide
1	F	613	PRO	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	11514	0	11476	746	1
1	B	11571	0	11529	708	1
1	C	11555	0	11507	717	0
1	D	11593	0	11552	725	0
1	E	11506	0	11467	754	0
1	F	11546	0	11499	701	0
2	G	16200	0	16081	1290	1
2	H	16200	0	16081	1326	1
2	I	16200	0	16081	1344	0
2	J	16200	0	16081	1326	0
2	K	16200	0	16081	1391	0
2	L	16200	0	16081	1366	0
3	A	48	0	25	5	0
3	B	48	0	25	5	0
3	C	48	0	25	4	0
3	D	48	0	25	6	0
3	E	48	0	25	4	0
3	F	48	0	25	4	0
3	G	48	0	25	4	0
3	H	48	0	25	5	0
3	I	48	0	25	4	0
3	J	48	0	25	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	K	48	0	25	4	0
3	L	48	0	25	4	0
4	G	31	0	19	17	0
4	H	31	0	19	16	0
4	I	31	0	19	16	0
4	J	31	0	19	15	0
4	K	31	0	19	15	0
4	L	31	0	19	15	0
All	All	167247	0	165930	11767	2

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 35.

The worst 5 of 11767 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)
1:D:542:GLN:HB3	1:D:579:MET:HE2	1.25	1.17
1:F:1443:LEU:HD21	1:F:1470:ARG:HB3	1.18	1.17
1:B:1268:SER:HB3	1:D:1389:ILE:HG13	1.23	1.16
1:D:1504:ARG:HG3	1:D:1504:ARG:HH11	1.02	1.15
1:F:1504:ARG:HH11	1:F:1504:ARG:HG3	1.04	1.15

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:575:ARG:NH1	2:H:164:GLU:O[2_555]	2.01	0.19
1:B:1452:SER:O	2:G:1092:ASN:ND2[1_556]	2.18	0.02

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	1451/1878 (77%)	1270 (88%)	164 (11%)	17 (1%)	13	44
1	B	1458/1878 (78%)	1278 (88%)	160 (11%)	20 (1%)	11	40
1	C	1456/1878 (78%)	1283 (88%)	156 (11%)	17 (1%)	13	44
1	D	1461/1878 (78%)	1276 (87%)	161 (11%)	24 (2%)	9	37
1	E	1450/1878 (77%)	1276 (88%)	155 (11%)	19 (1%)	12	42
1	F	1455/1878 (78%)	1282 (88%)	153 (10%)	20 (1%)	11	40
2	G	2058/2060 (100%)	1789 (87%)	237 (12%)	32 (2%)	9	37
2	H	2058/2060 (100%)	1791 (87%)	230 (11%)	37 (2%)	8	34
2	I	2058/2060 (100%)	1787 (87%)	238 (12%)	33 (2%)	9	37
2	J	2058/2060 (100%)	1784 (87%)	240 (12%)	34 (2%)	9	36
2	K	2058/2060 (100%)	1785 (87%)	239 (12%)	34 (2%)	9	36
2	L	2058/2060 (100%)	1780 (86%)	241 (12%)	37 (2%)	8	34
All	All	21079/23628 (89%)	18381 (87%)	2374 (11%)	324 (2%)	10	39

5 of 324 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	614	PHE
1	A	1566	LYS
1	B	614	PHE
1	B	624	GLY
1	B	1566	LYS

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	1220/1527 (80%)	1107 (91%)	113 (9%)	9	32
1	B	1227/1527 (80%)	1117 (91%)	110 (9%)	9	34
1	C	1225/1527 (80%)	1110 (91%)	115 (9%)	8	32
1	D	1229/1527 (80%)	1107 (90%)	122 (10%)	8	29

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	E	1219/1527 (80%)	1106 (91%)	113 (9%)	9	32
1	F	1224/1527 (80%)	1111 (91%)	113 (9%)	9	33
2	G	1752/1752 (100%)	1569 (90%)	183 (10%)	7	27
2	H	1752/1752 (100%)	1569 (90%)	183 (10%)	7	27
2	I	1752/1752 (100%)	1565 (89%)	187 (11%)	6	26
2	J	1752/1752 (100%)	1567 (89%)	185 (11%)	6	26
2	K	1752/1752 (100%)	1566 (89%)	186 (11%)	6	26
2	L	1752/1752 (100%)	1563 (89%)	189 (11%)	6	25
All	All	17856/19674 (91%)	16057 (90%)	1799 (10%)	7	28

5 of 1799 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	H	814	SER
2	L	1746	THR
2	I	1079	ILE
2	L	1583	VAL
2	K	1972	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 492 such sidechains are listed below:

Mol	Chain	Res	Type
2	G	1759	GLN
2	L	166	ASN
2	H	1974	GLN
2	K	1968	HIS
2	L	1400	GLN

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](#)

18 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	NAP	D	1901	-	45,52,52	1.44	4 (8%)	56,80,80	1.26	2 (3%)
3	NAP	H	2102	-	45,52,52	1.27	4 (8%)	56,80,80	1.12	1 (1%)
4	FMN	I	2101	-	33,33,33	6.14	21 (63%)	48,50,50	1.33	9 (18%)
3	NAP	J	2102	-	45,52,52	1.30	4 (8%)	56,80,80	1.13	1 (1%)
3	NAP	G	2102	-	45,52,52	1.26	4 (8%)	56,80,80	1.12	2 (3%)
3	NAP	A	1901	-	45,52,52	1.29	3 (6%)	56,80,80	1.18	3 (5%)
4	FMN	H	2101	-	33,33,33	6.22	21 (63%)	48,50,50	1.25	6 (12%)
3	NAP	E	1901	-	45,52,52	1.28	3 (6%)	56,80,80	1.26	4 (7%)
4	FMN	J	2101	-	33,33,33	6.47	23 (69%)	48,50,50	1.33	7 (14%)
3	NAP	I	2102	-	45,52,52	1.18	3 (6%)	56,80,80	1.14	1 (1%)
4	FMN	L	2101	-	33,33,33	6.19	21 (63%)	48,50,50	1.34	10 (20%)
3	NAP	L	2102	-	45,52,52	1.24	4 (8%)	56,80,80	1.11	1 (1%)
3	NAP	F	1901	-	45,52,52	1.30	3 (6%)	56,80,80	1.20	3 (5%)
3	NAP	B	1901	-	45,52,52	1.25	3 (6%)	56,80,80	1.19	3 (5%)
3	NAP	K	2102	-	45,52,52	1.22	4 (8%)	56,80,80	1.09	2 (3%)
3	NAP	C	1901	-	45,52,52	1.33	4 (8%)	56,80,80	1.20	2 (3%)
4	FMN	K	2101	-	33,33,33	6.40	23 (69%)	48,50,50	1.43	9 (18%)
4	FMN	G	2101	-	33,33,33	6.20	21 (63%)	48,50,50	1.33	10 (20%)

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	NAP	D	1901	-	-	11/31/67/67	0/5/5/5
3	NAP	H	2102	-	-	10/31/67/67	0/5/5/5
4	FMN	I	2101	-	-	5/18/18/18	0/3/3/3
3	NAP	J	2102	-	-	10/31/67/67	0/5/5/5
3	NAP	G	2102	-	-	11/31/67/67	0/5/5/5
3	NAP	A	1901	-	-	11/31/67/67	0/5/5/5
4	FMN	H	2101	-	-	5/18/18/18	0/3/3/3
3	NAP	E	1901	-	-	11/31/67/67	0/5/5/5
4	FMN	J	2101	-	-	5/18/18/18	0/3/3/3
3	NAP	I	2102	-	-	10/31/67/67	0/5/5/5
4	FMN	L	2101	-	-	5/18/18/18	0/3/3/3
3	NAP	L	2102	-	-	10/31/67/67	0/5/5/5
3	NAP	F	1901	-	-	11/31/67/67	0/5/5/5
3	NAP	B	1901	-	-	11/31/67/67	0/5/5/5
3	NAP	K	2102	-	-	11/31/67/67	0/5/5/5
3	NAP	C	1901	-	-	11/31/67/67	0/5/5/5
4	FMN	K	2101	-	-	5/18/18/18	0/3/3/3
4	FMN	G	2101	-	-	5/18/18/18	0/3/3/3

The worst 5 of 173 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	H	2101	FMN	C9-C9A	12.70	1.60	1.39
4	J	2101	FMN	C9-C9A	12.69	1.60	1.39
4	J	2101	FMN	C9-C8	12.66	1.58	1.39
4	K	2101	FMN	C9-C9A	12.66	1.60	1.39
4	J	2101	FMN	C6-C7	12.58	1.58	1.39

The worst 5 of 76 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	I	2102	NAP	N3A-C2A-N1A	-5.93	119.41	128.68
3	D	1901	NAP	N3A-C2A-N1A	-5.90	119.45	128.68
3	G	2102	NAP	N3A-C2A-N1A	-5.69	119.78	128.68
3	J	2102	NAP	N3A-C2A-N1A	-5.68	119.80	128.68
3	L	2102	NAP	N3A-C2A-N1A	-5.63	119.88	128.68

There are no chirality outliers.

5 of 158 torsion outliers are listed below:

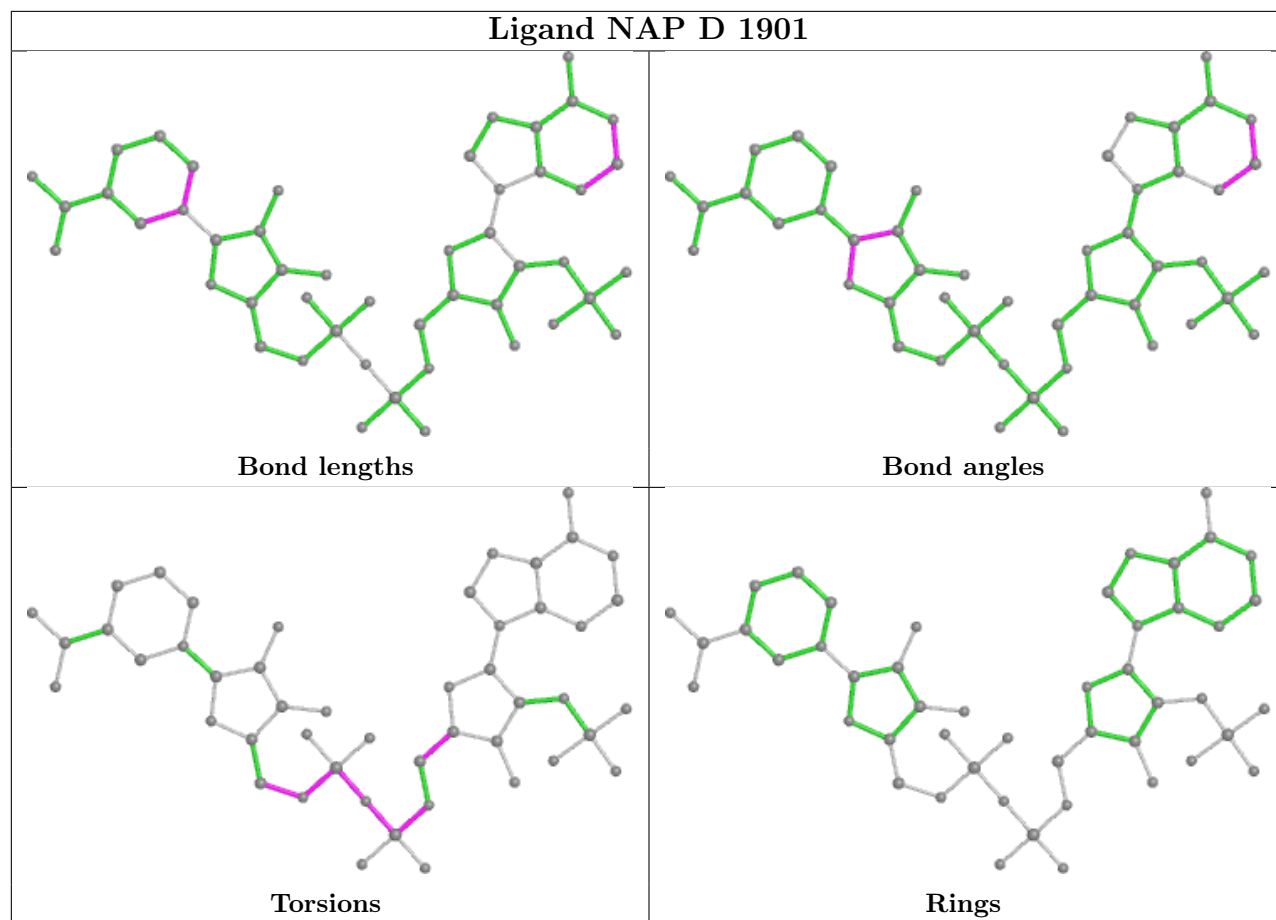
Mol	Chain	Res	Type	Atoms
3	A	1901	NAP	C5B-O5B-PA-O3
3	A	1901	NAP	PA-O3-PN-O5D
3	A	1901	NAP	C5D-O5D-PN-O1N
3	A	1901	NAP	C5D-O5D-PN-O2N
3	B	1901	NAP	C5B-O5B-PA-O3

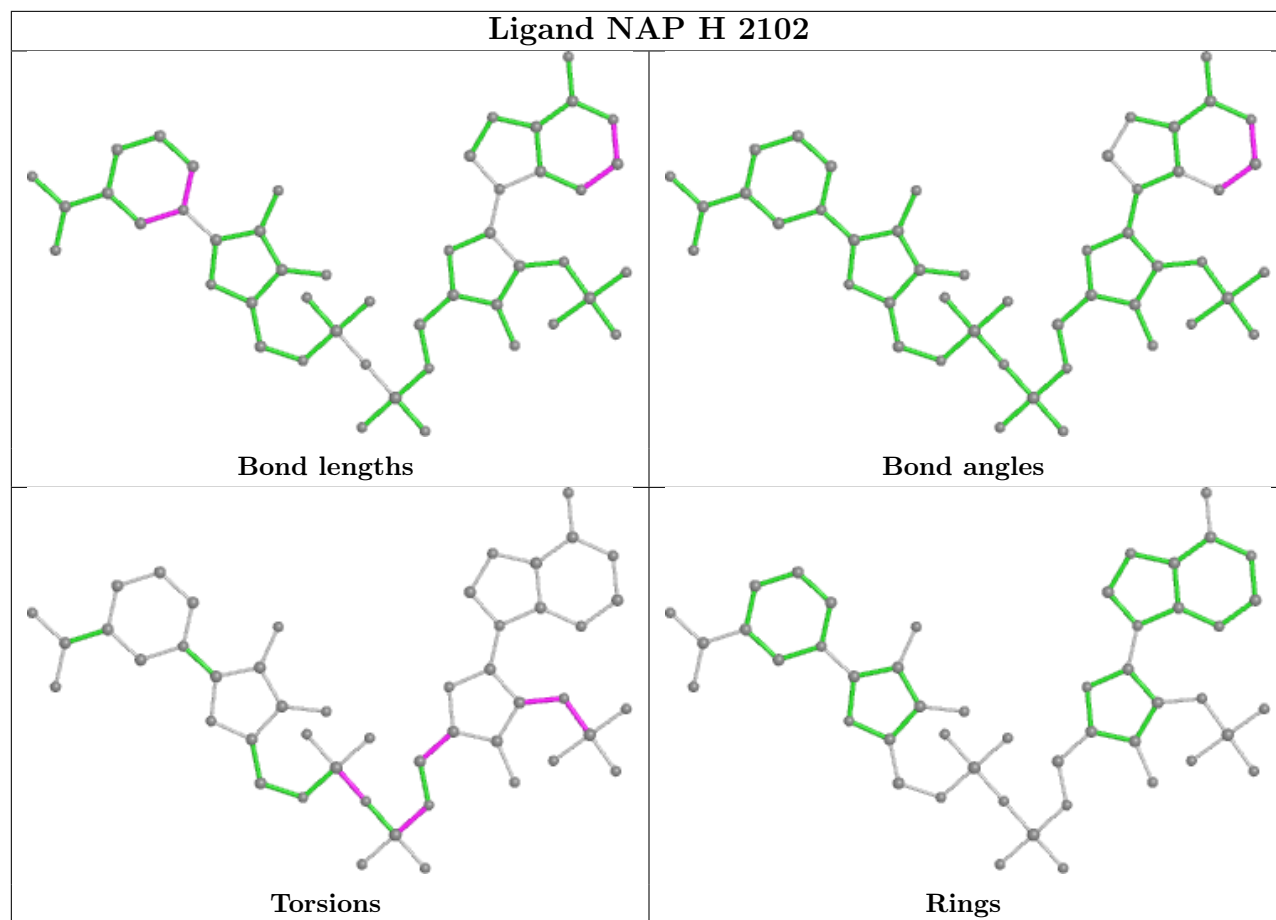
There are no ring outliers.

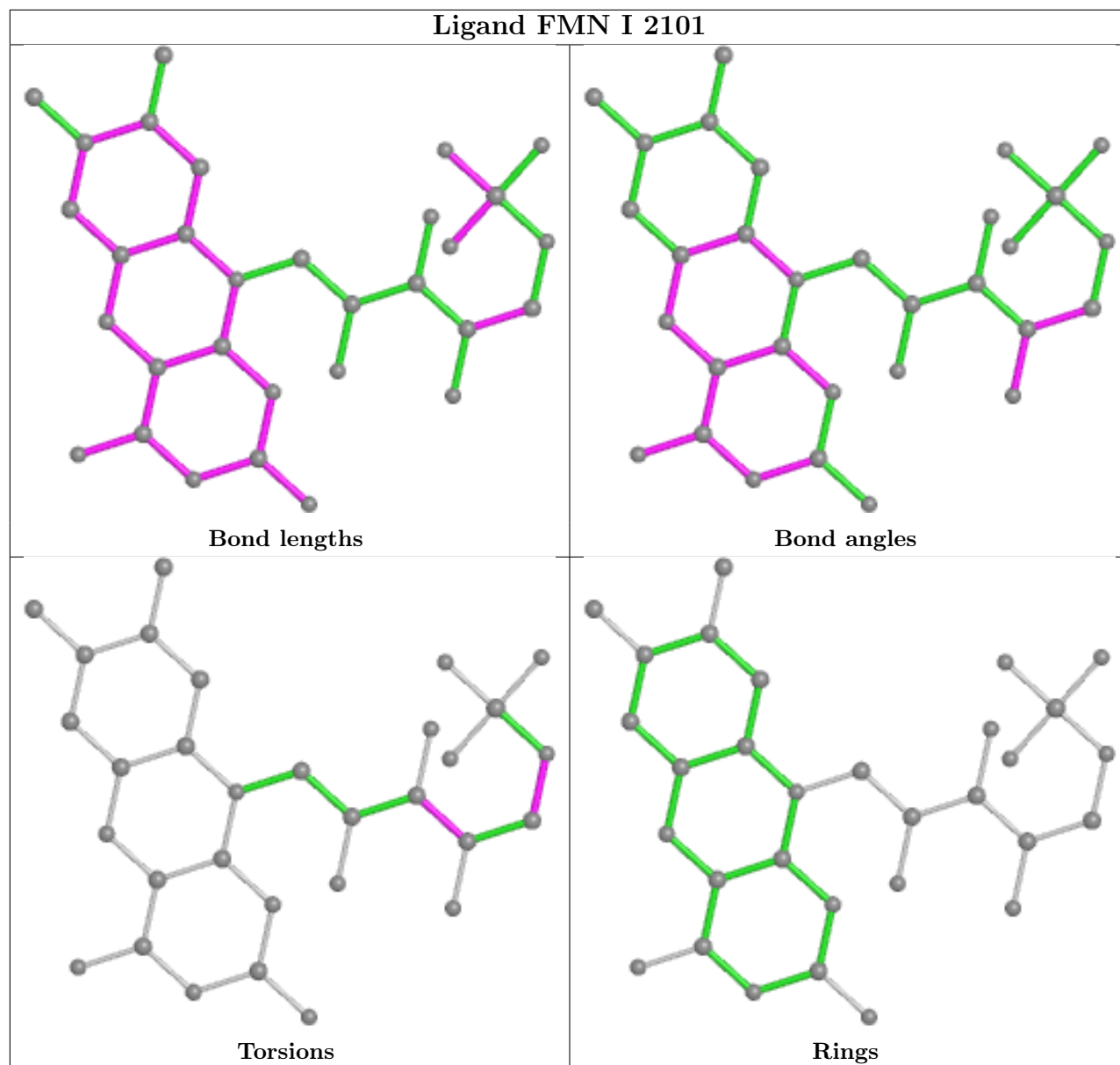
18 monomers are involved in 147 short contacts:

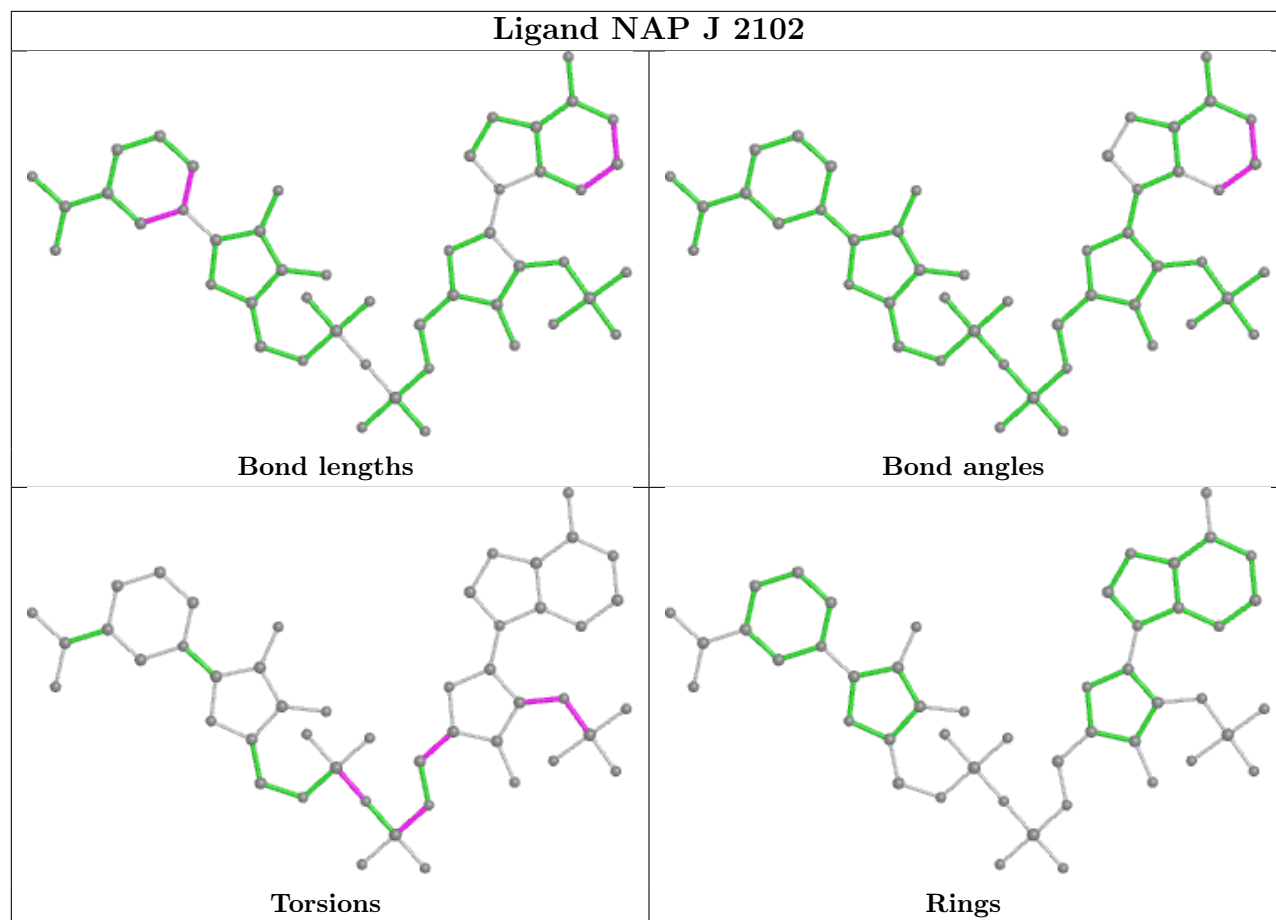
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	1901	NAP	6	0
3	H	2102	NAP	5	0
4	I	2101	FMN	16	0
3	J	2102	NAP	4	0
3	G	2102	NAP	4	0
3	A	1901	NAP	5	0
4	H	2101	FMN	16	0
3	E	1901	NAP	4	0
4	J	2101	FMN	15	0
3	I	2102	NAP	4	0
4	L	2101	FMN	15	0
3	L	2102	NAP	4	0
3	F	1901	NAP	4	0
3	B	1901	NAP	5	0
3	K	2102	NAP	4	0
3	C	1901	NAP	4	0
4	K	2101	FMN	15	0
4	G	2101	FMN	17	0

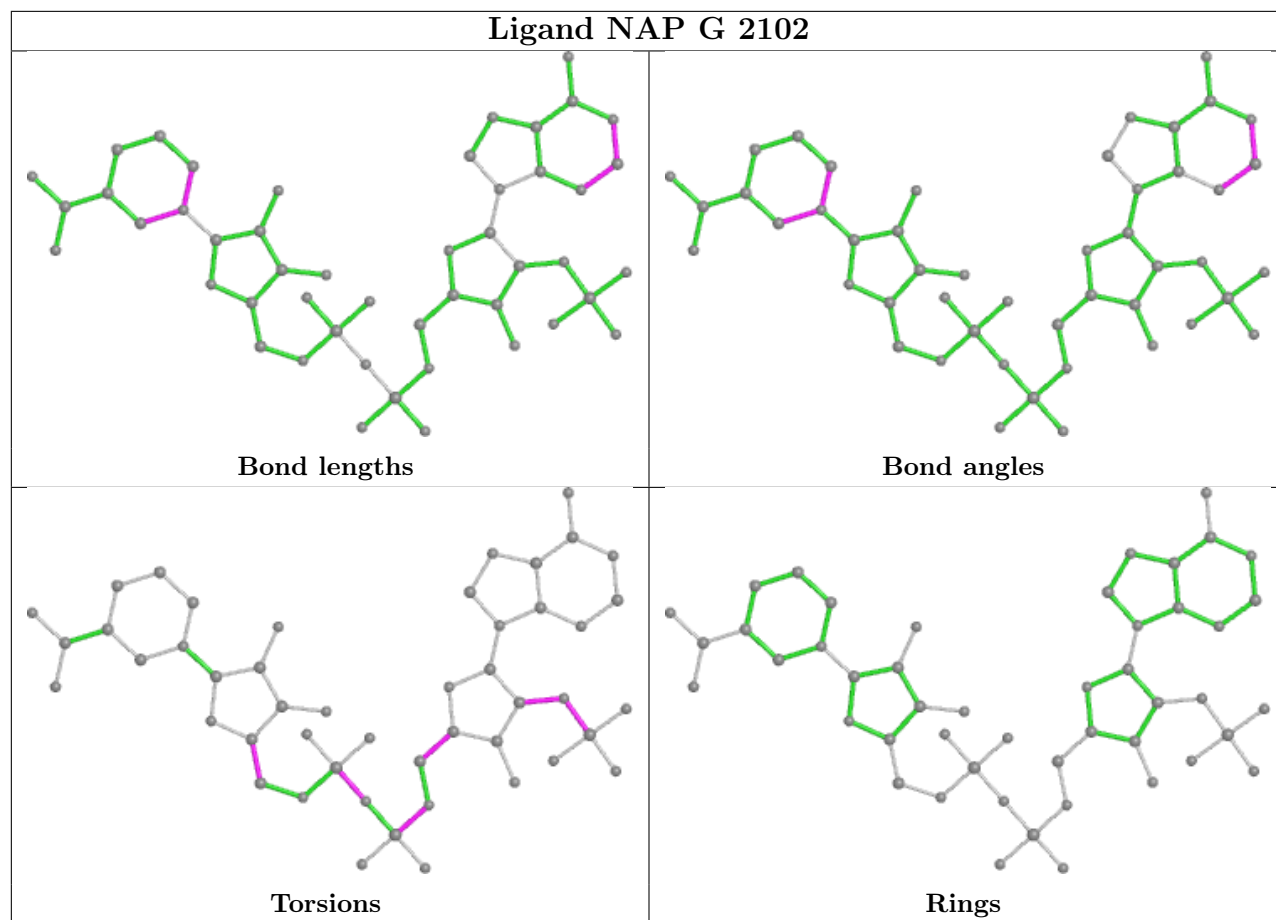
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

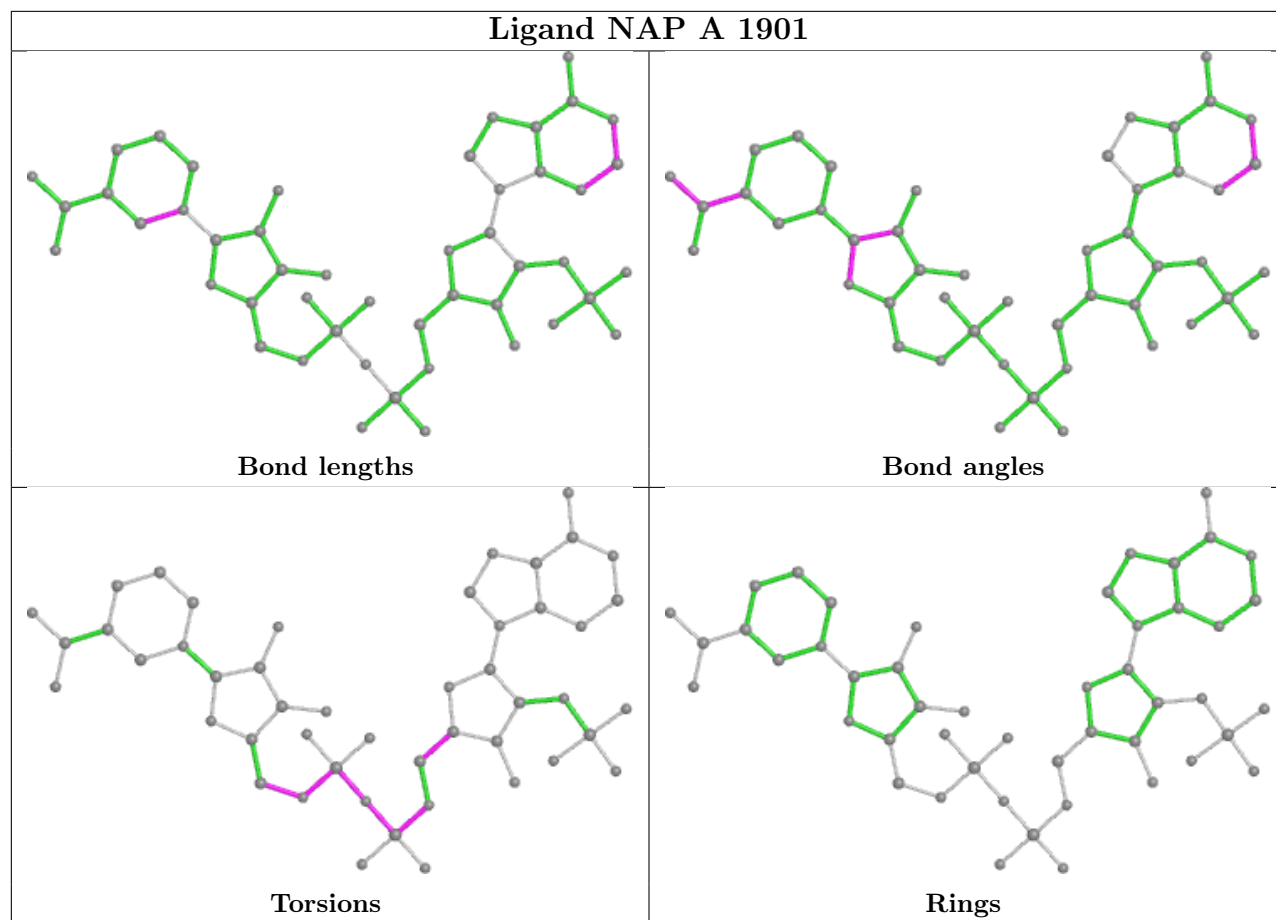


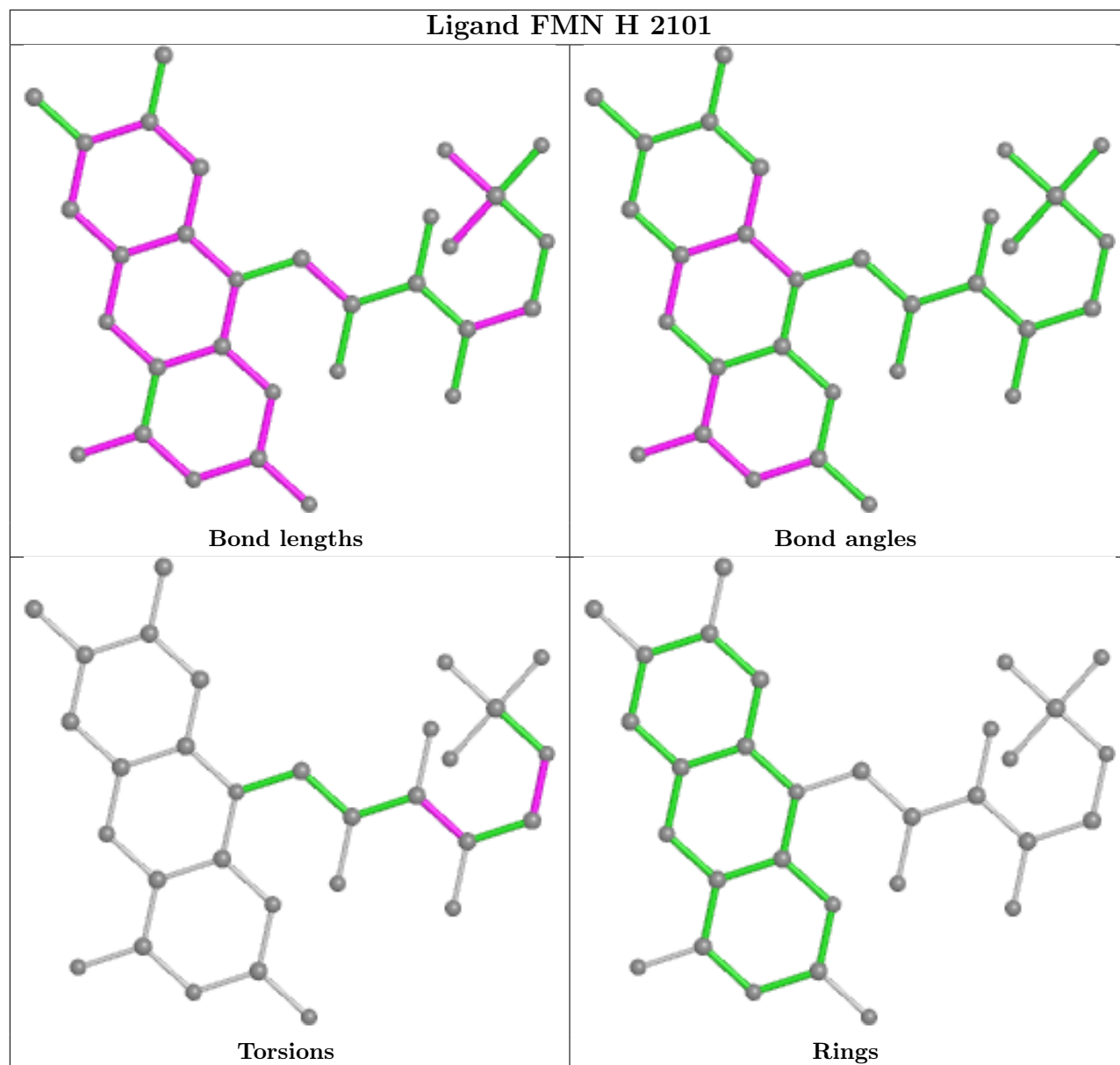


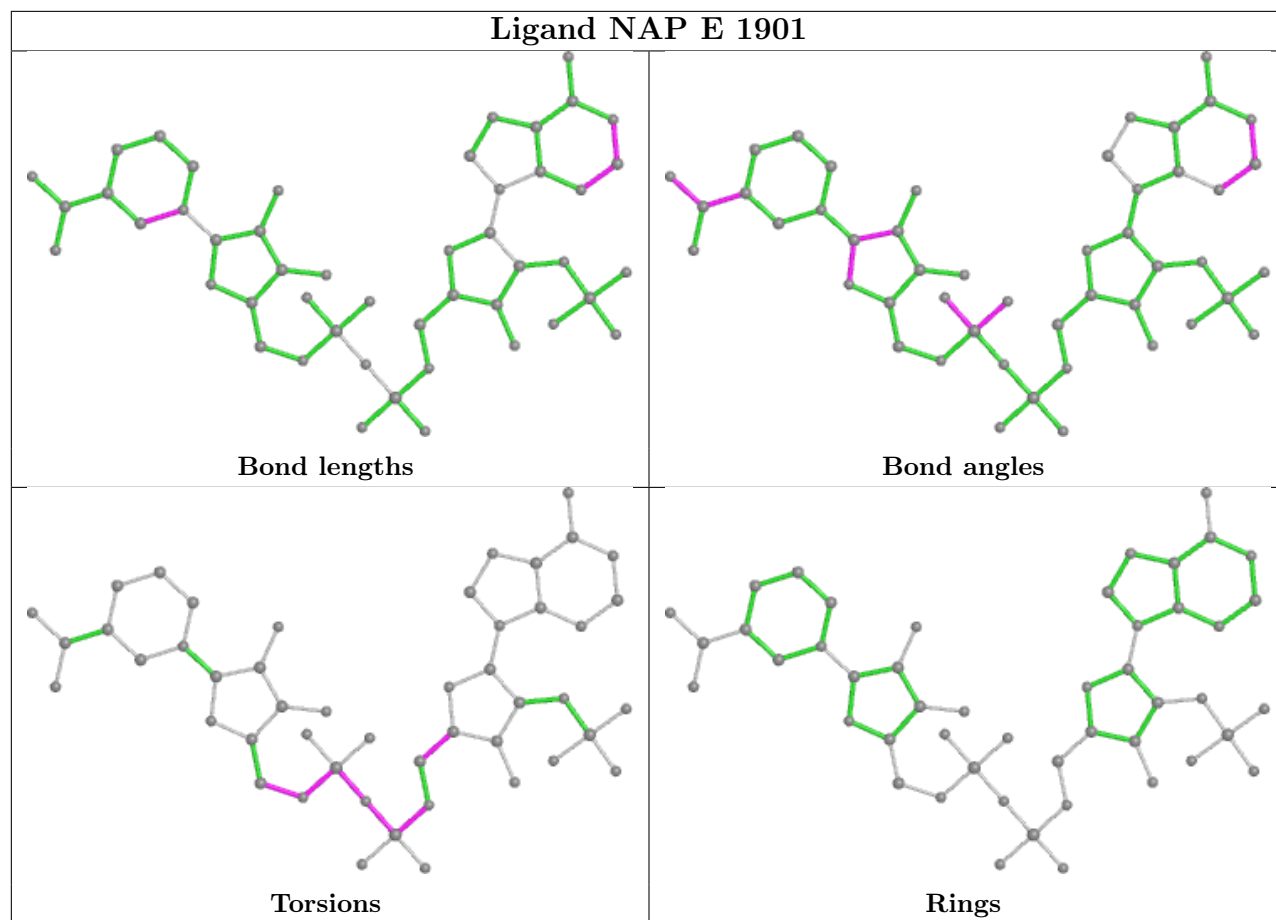


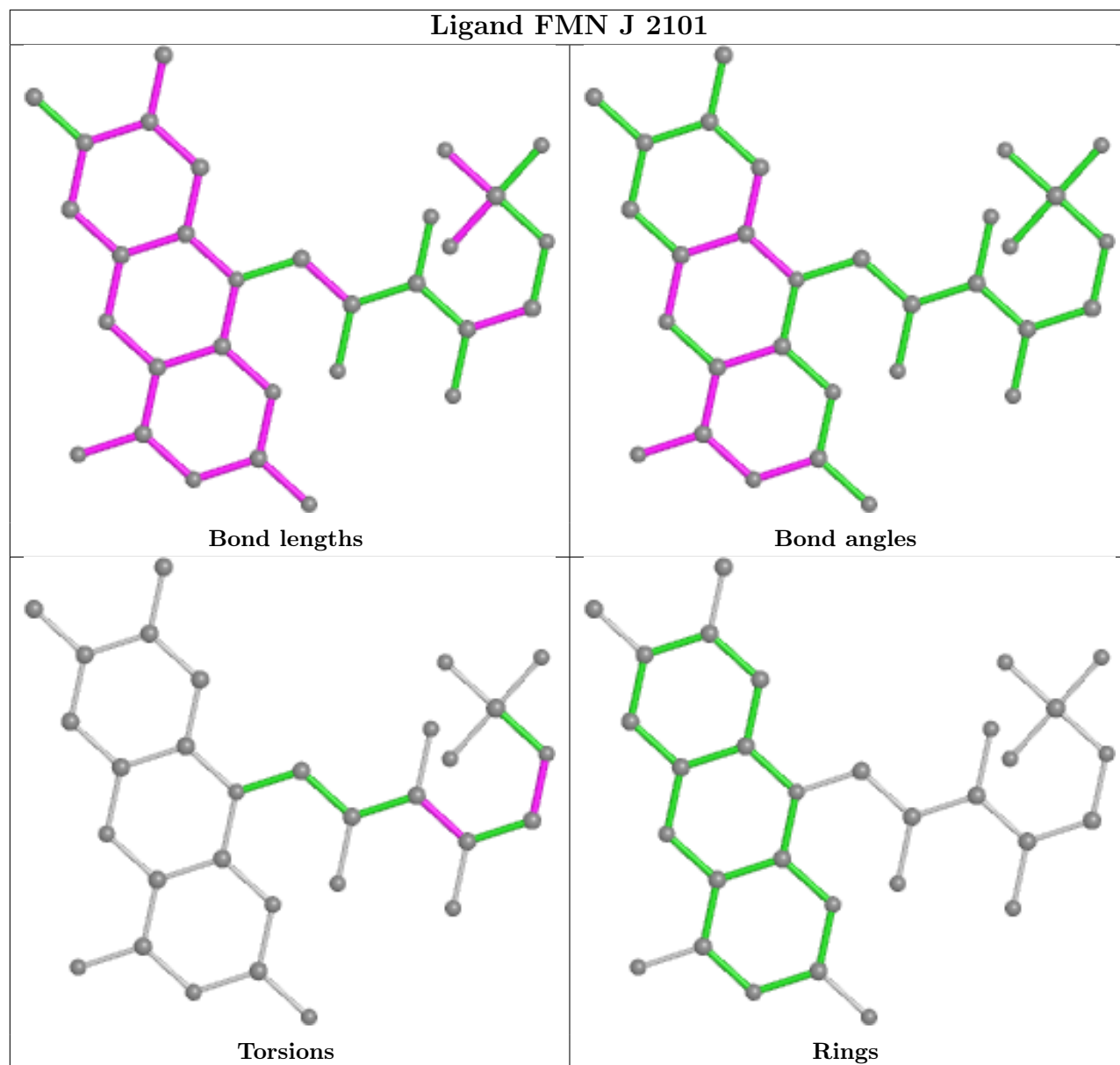


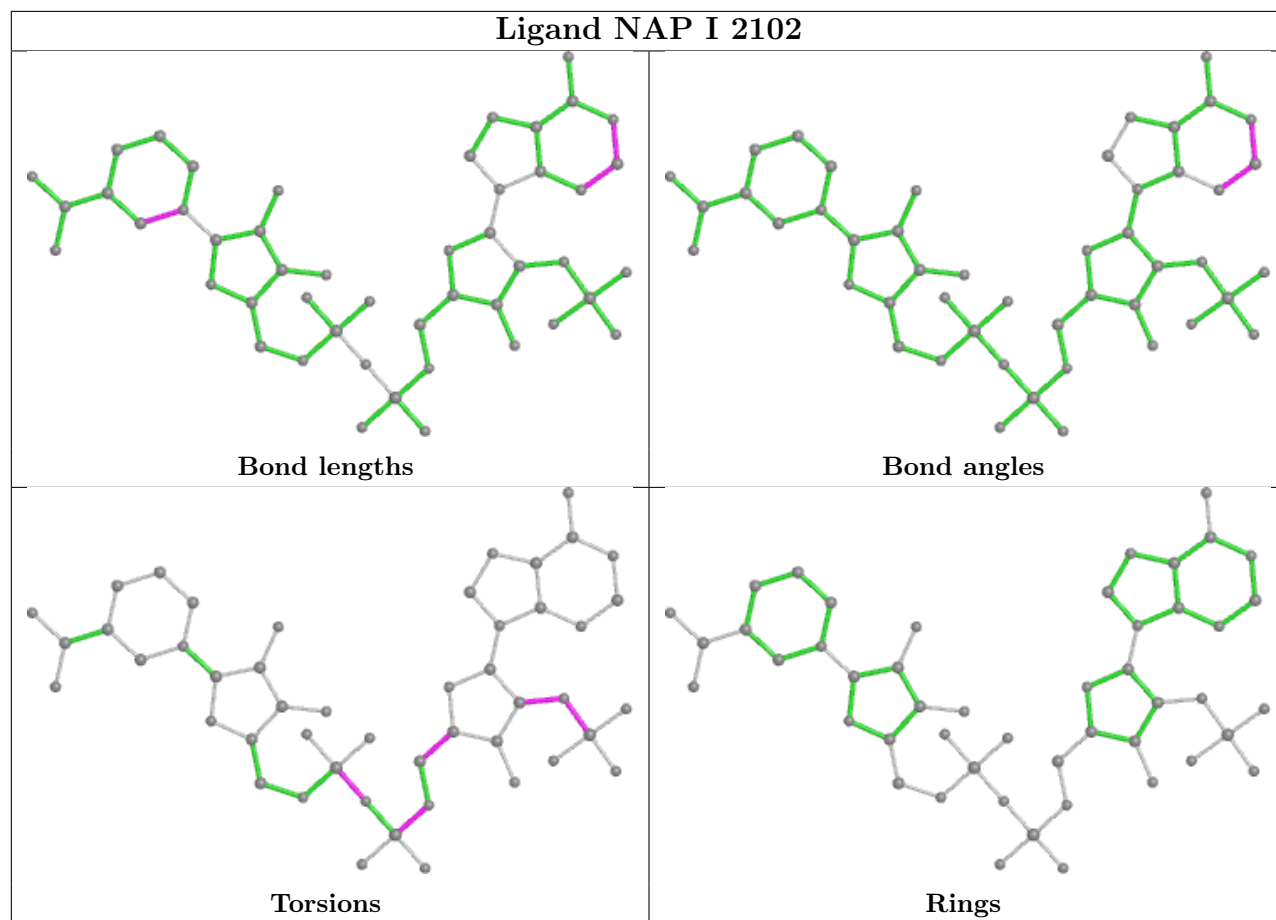


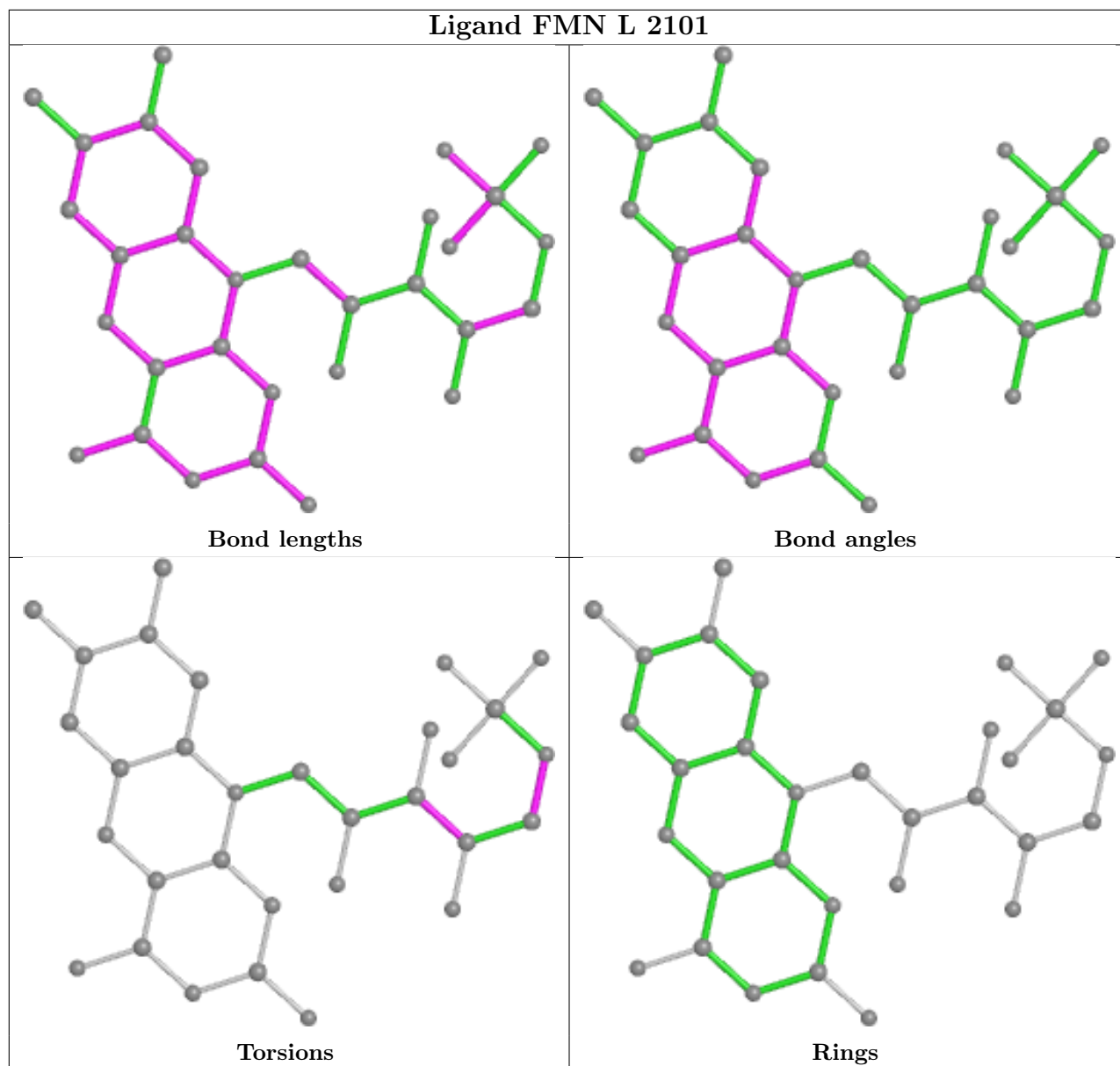


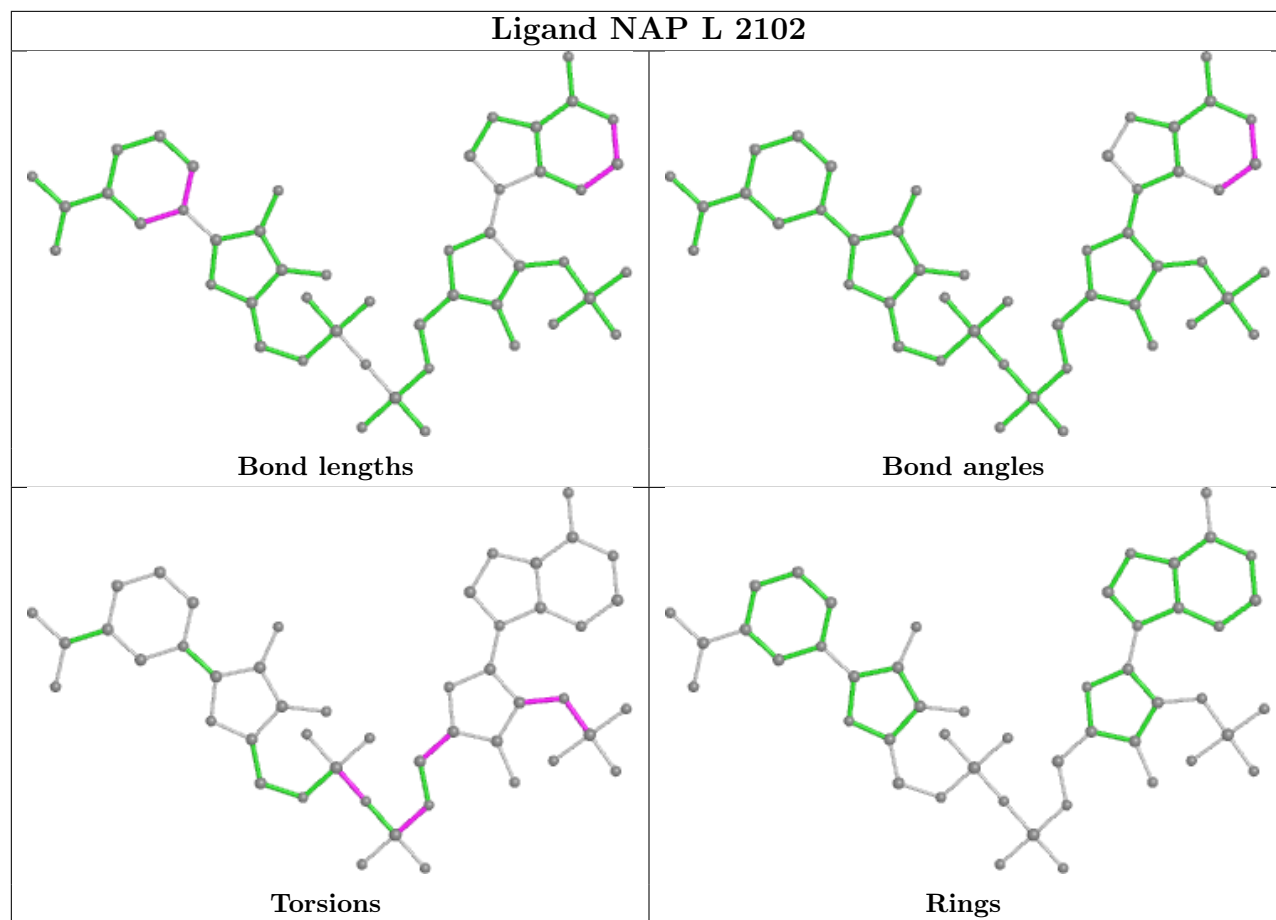


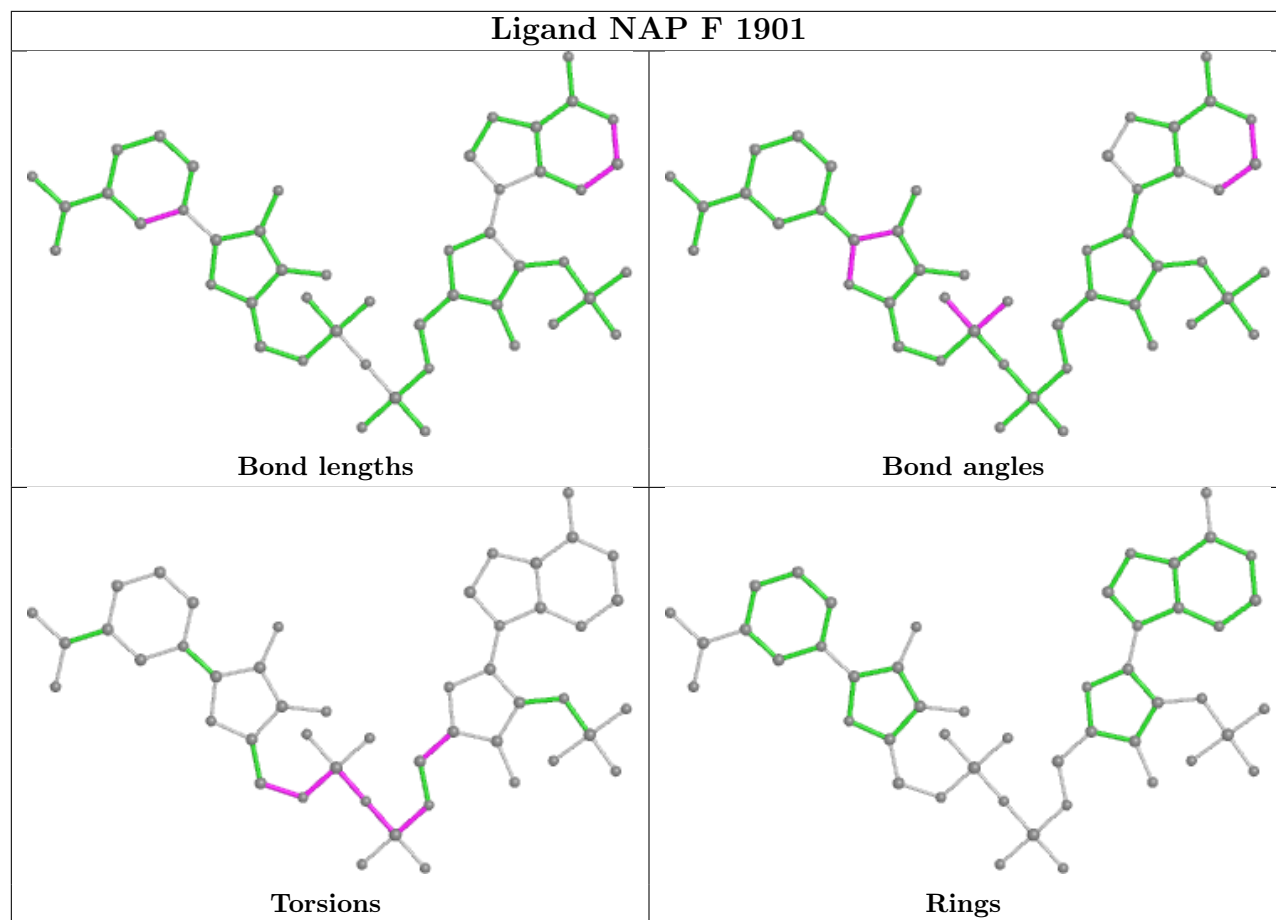


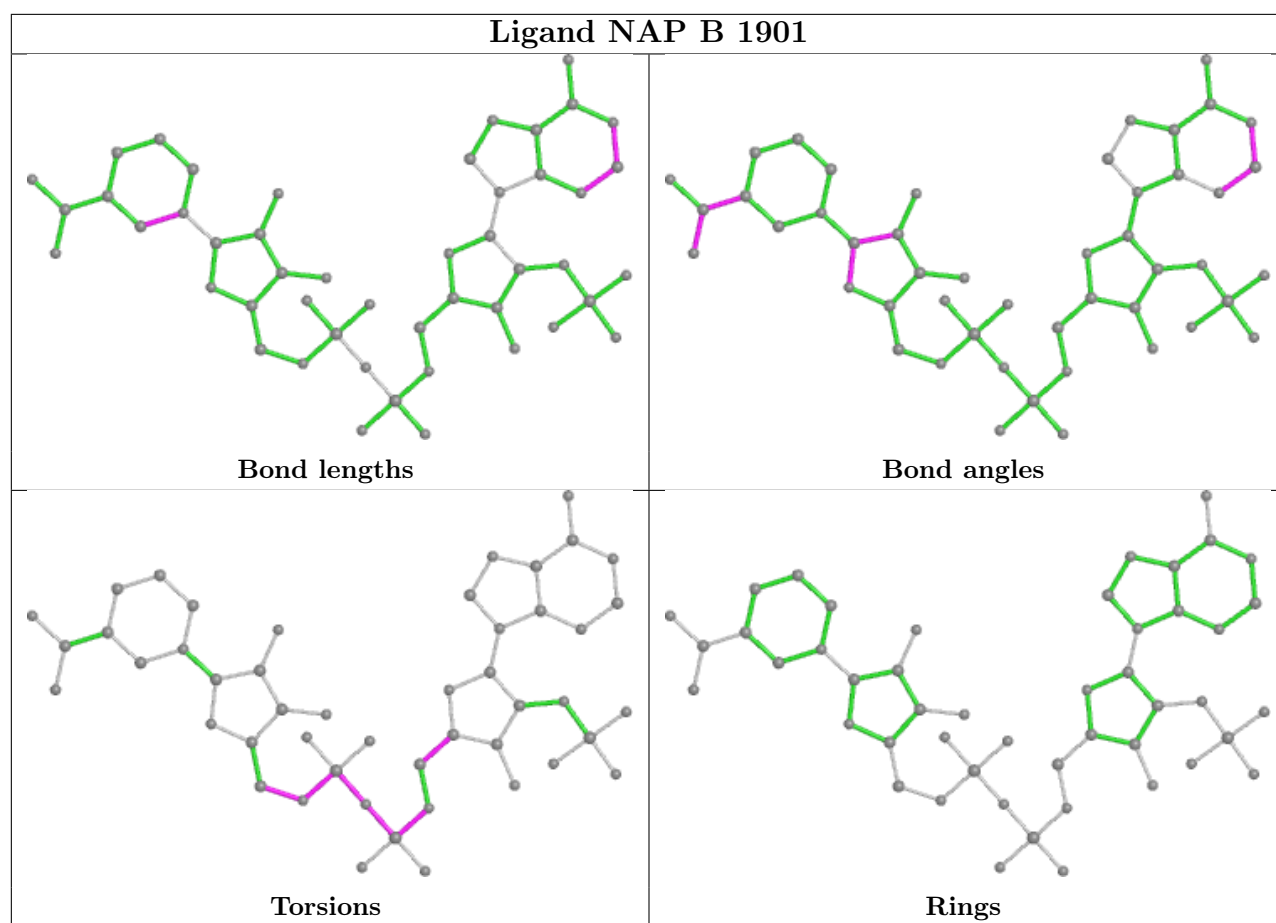


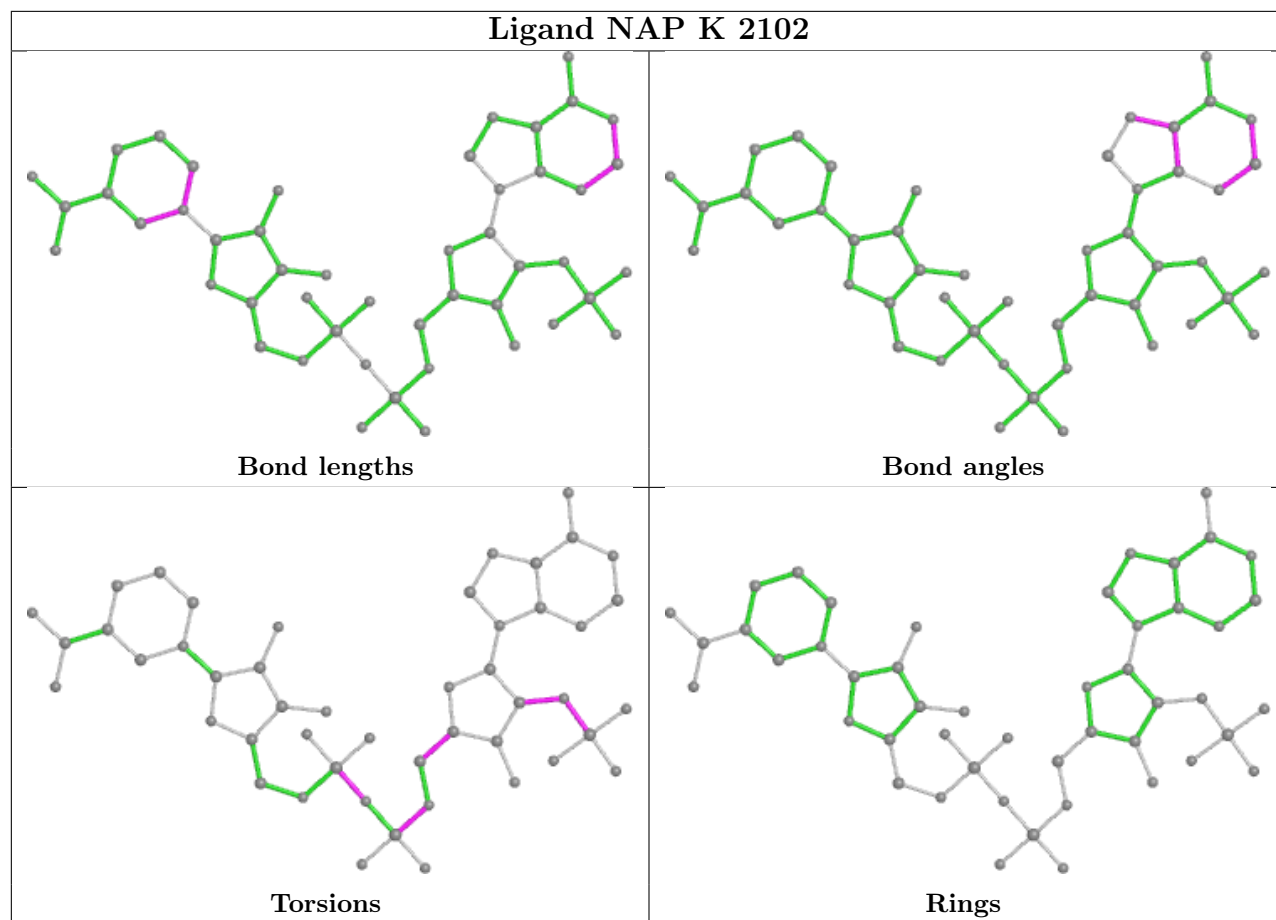


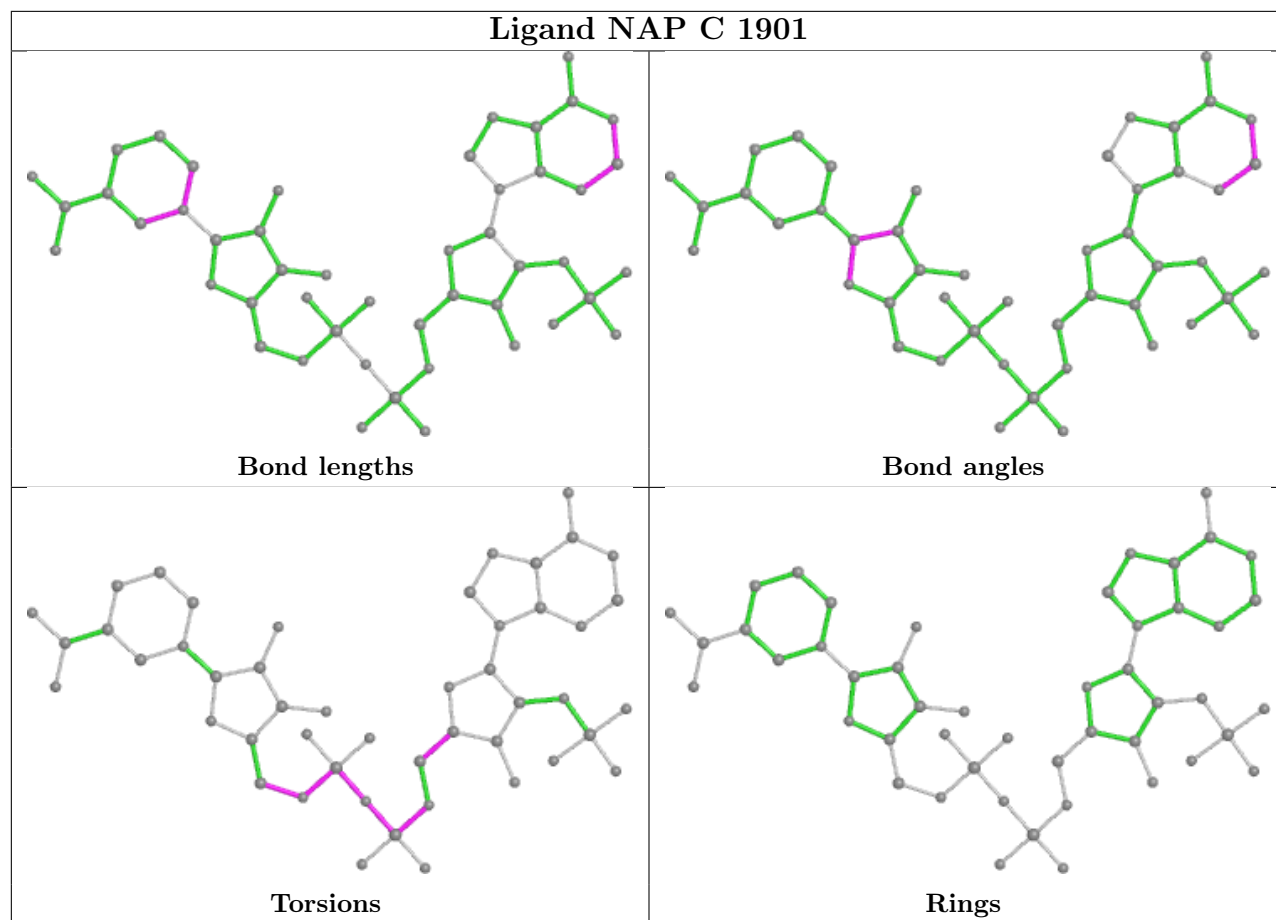


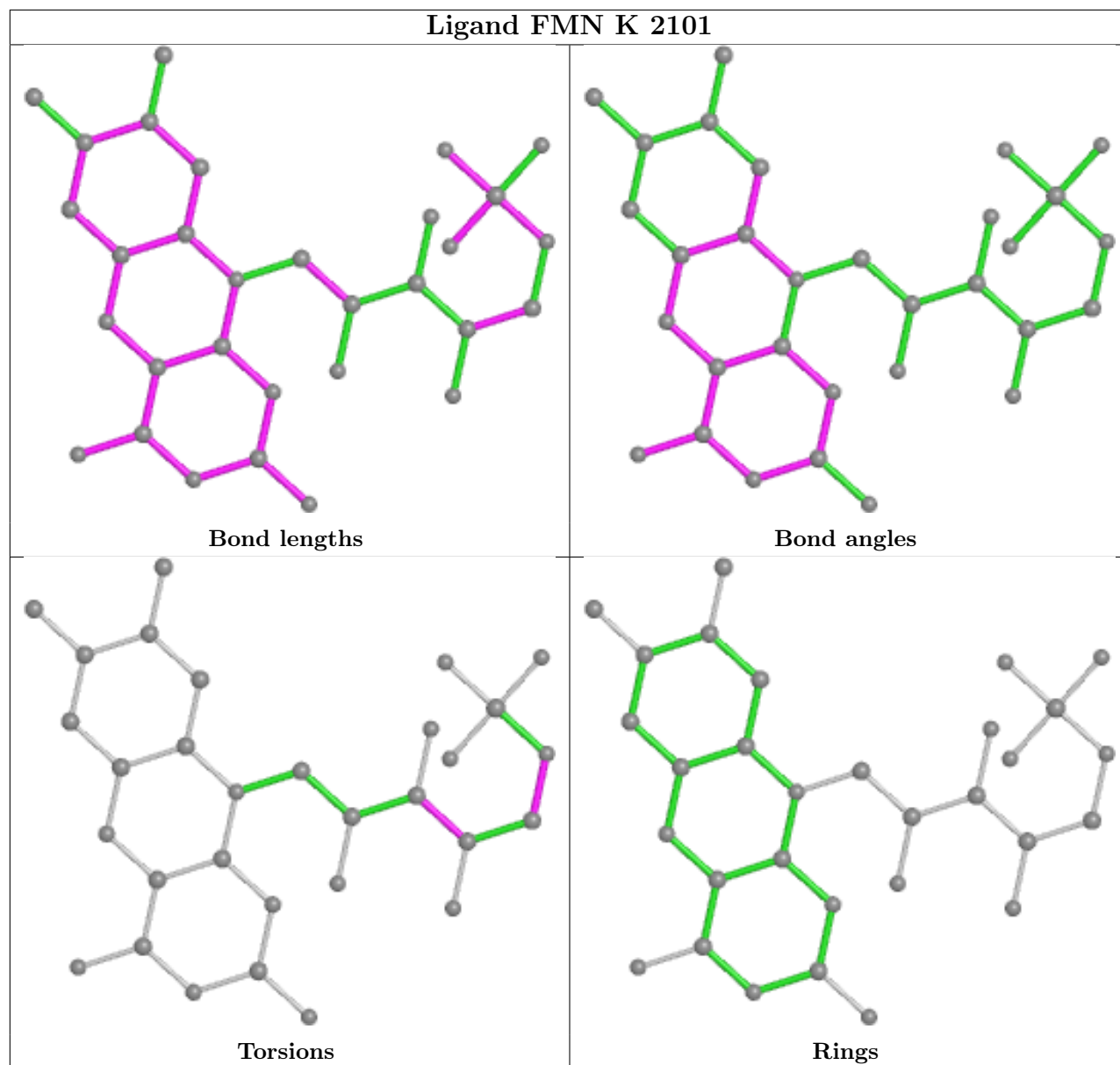


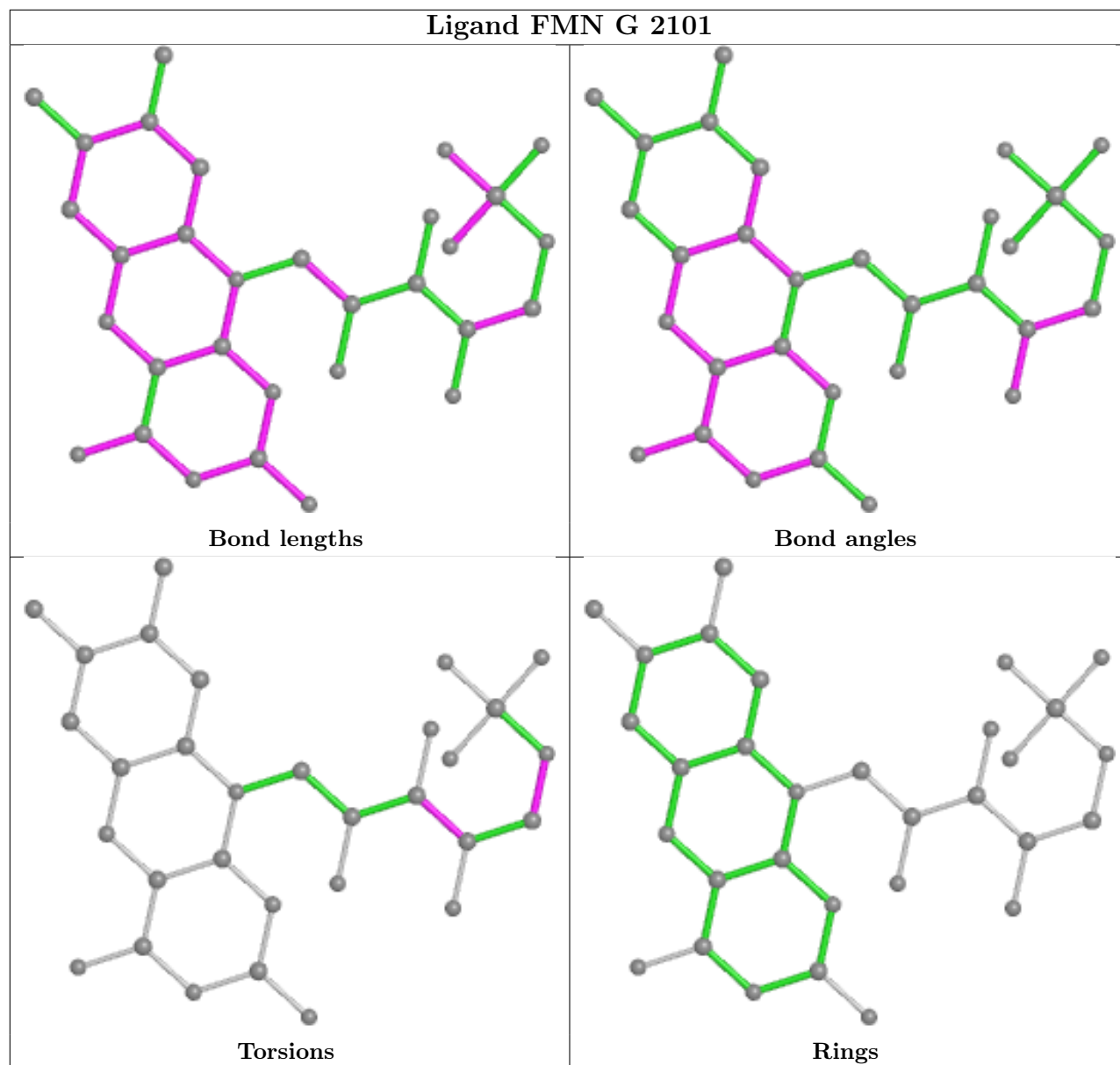












5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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, 95th 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	1457/1878 (77%)	0.30	44 (3%)	50	27	16, 50, 103, 146	0
1	B	1464/1878 (77%)	0.31	38 (2%)	56	33	17, 50, 106, 157	0
1	C	1462/1878 (77%)	0.33	44 (3%)	50	27	15, 48, 107, 155	0
1	D	1467/1878 (78%)	0.29	47 (3%)	47	25	17, 52, 106, 151	0
1	E	1456/1878 (77%)	0.31	47 (3%)	47	25	17, 50, 106, 152	0
1	F	1461/1878 (77%)	0.34	37 (2%)	57	34	17, 47, 106, 156	0
2	G	2060/2060 (100%)	0.48	170 (8%)	11	4	24, 83, 128, 156	0
2	H	2060/2060 (100%)	0.57	222 (10%)	5	2	24, 85, 129, 155	0
2	I	2060/2060 (100%)	0.51	212 (10%)	6	2	20, 85, 129, 158	0
2	J	2060/2060 (100%)	0.61	275 (13%)	3	1	27, 88, 132, 157	0
2	K	2060/2060 (100%)	0.85	353 (17%)	1	0	25, 90, 133, 157	0
2	L	2060/2060 (100%)	0.58	259 (12%)	3	1	22, 86, 131, 158	0
All	All	21127/23628 (89%)	0.48	1748 (8%)	11	4	15, 74, 125, 158	0

The worst 5 of 1748 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	K	176	GLN	16.8
2	H	178	ASN	14.1
2	K	178	ASN	14.0
2	K	175	GLY	12.8
2	K	516	PHE	12.5

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

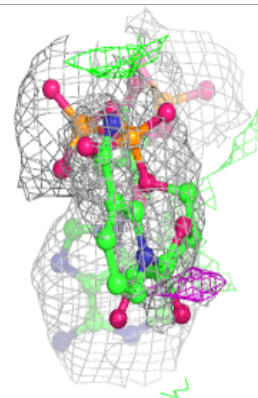
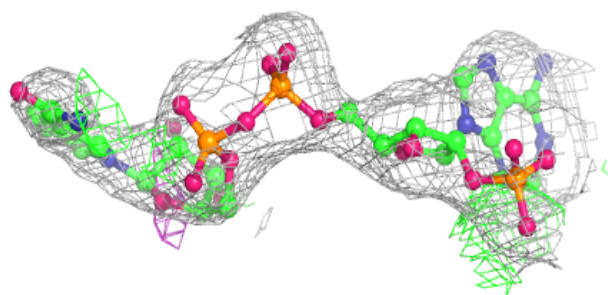
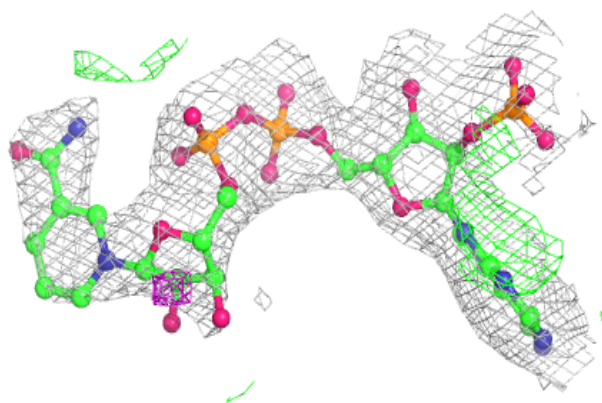
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
3	NAP	C	1901	48/48	0.87	0.34	23,81,130,171	0
3	NAP	D	1901	48/48	0.87	0.34	21,83,127,174	0
3	NAP	F	1901	48/48	0.87	0.31	19,78,125,159	0
3	NAP	J	2102	48/48	0.89	0.21	35,88,118,120	0
3	NAP	A	1901	48/48	0.90	0.32	19,76,121,169	0
3	NAP	K	2102	48/48	0.90	0.29	43,94,127,131	0
3	NAP	H	2102	48/48	0.92	0.25	37,85,113,122	0
3	NAP	B	1901	48/48	0.92	0.32	23,78,115,145	0
3	NAP	G	2102	48/48	0.92	0.24	42,87,119,128	0
4	FMN	K	2101	31/31	0.92	0.36	27,66,110,123	0
3	NAP	L	2102	48/48	0.93	0.31	37,84,116,120	0
3	NAP	E	1901	48/48	0.93	0.26	24,77,123,157	0
4	FMN	J	2101	31/31	0.94	0.32	23,61,101,113	0
3	NAP	I	2102	48/48	0.95	0.26	29,80,104,116	0
4	FMN	G	2101	31/31	0.95	0.31	26,63,101,111	0
4	FMN	H	2101	31/31	0.96	0.32	25,49,105,113	0
4	FMN	L	2101	31/31	0.96	0.29	19,59,102,114	0
4	FMN	I	2101	31/31	0.97	0.30	22,56,87,103	0

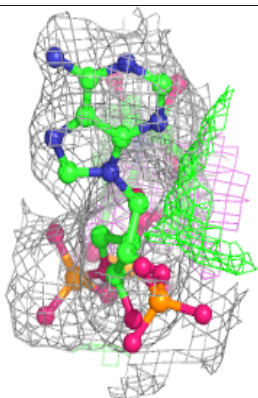
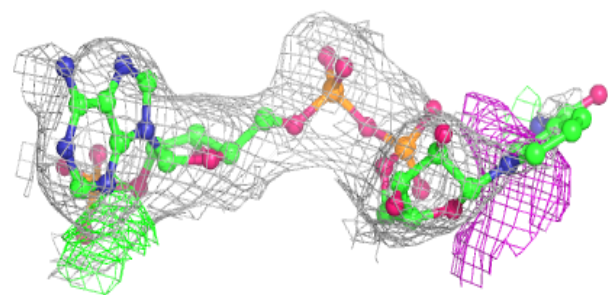
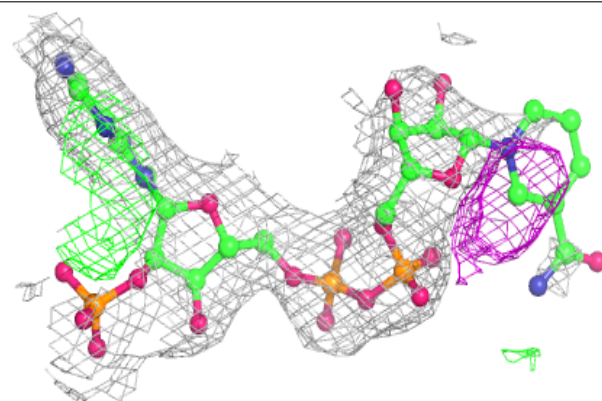
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around NAP C 1901:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

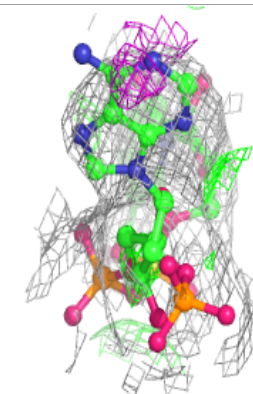
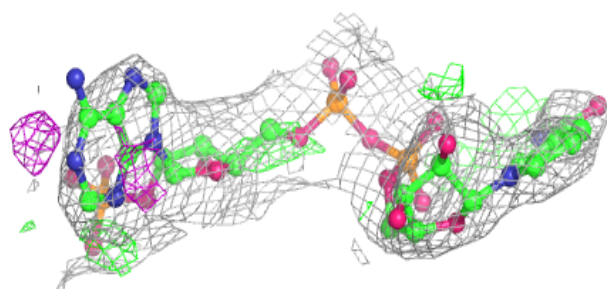
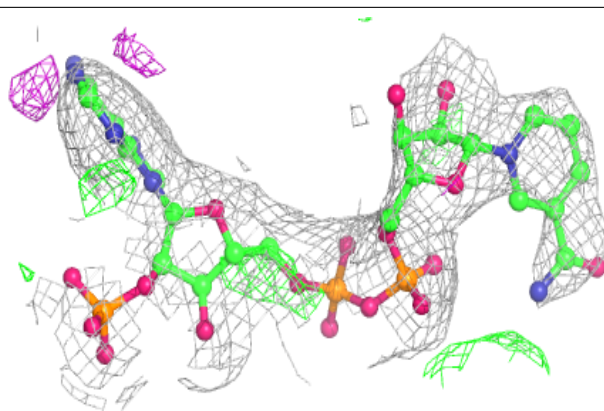
**Electron density around NAP D 1901:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

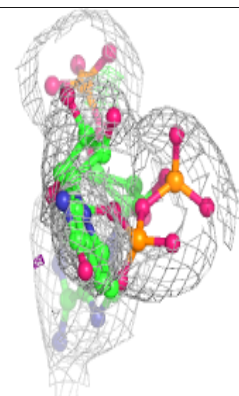
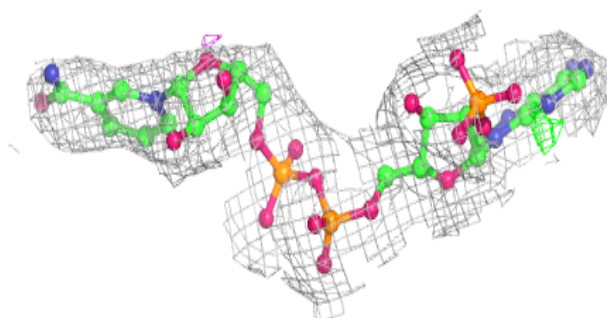
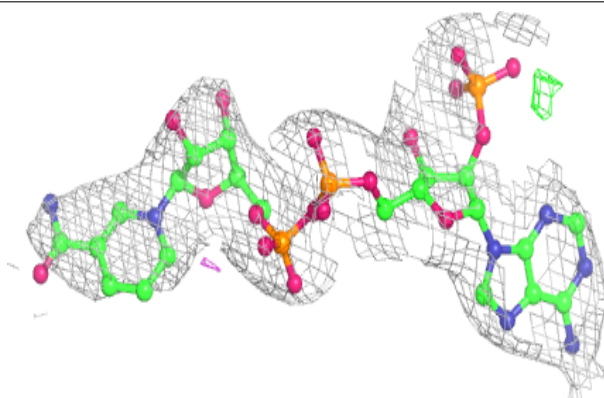


Electron density around NAP F 1901:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

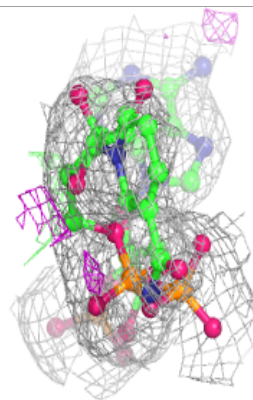
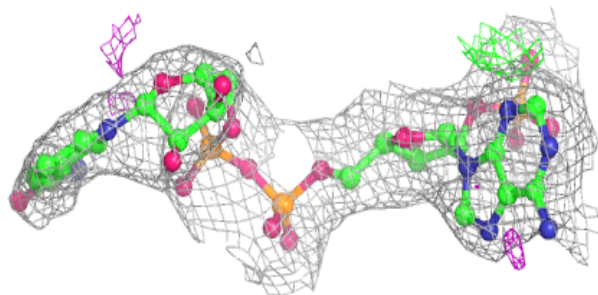
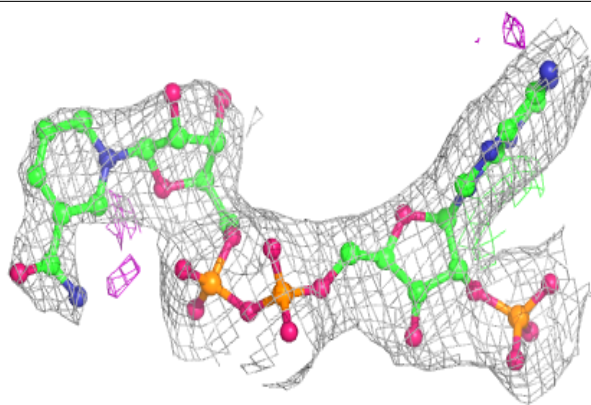
**Electron density around NAP J 2102:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

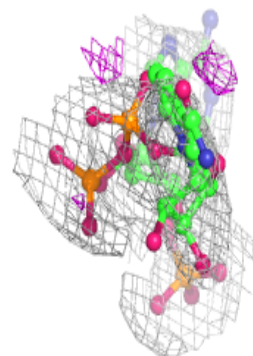
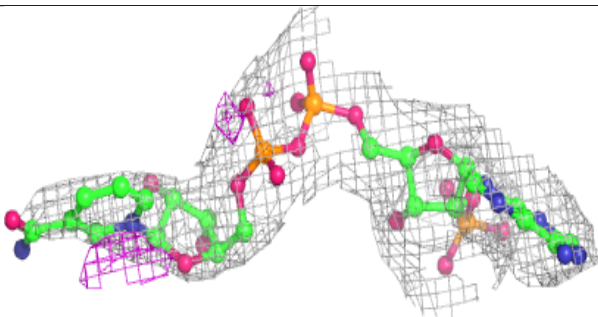
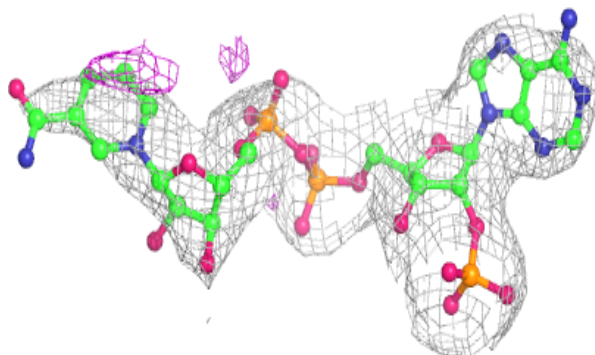


Electron density around NAP A 1901:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

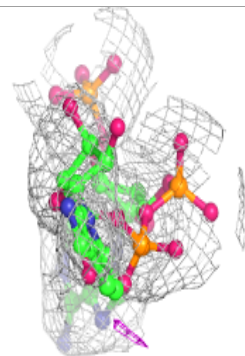
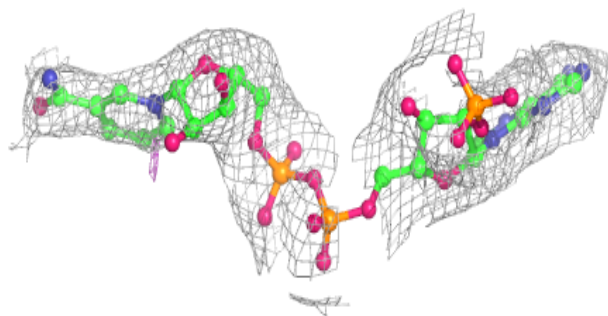
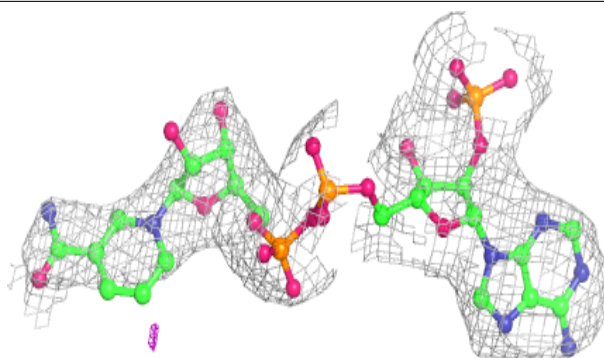
**Electron density around NAP K 2102:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

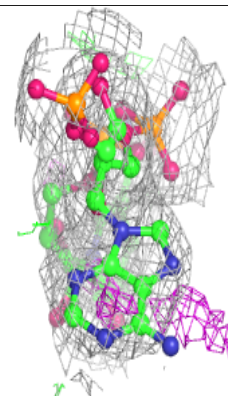
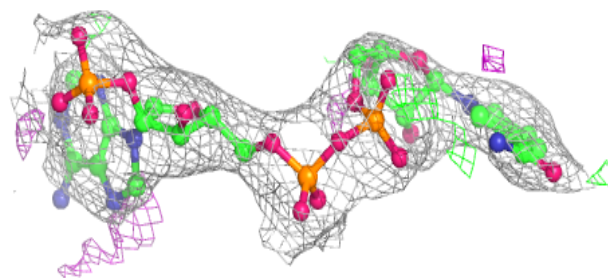
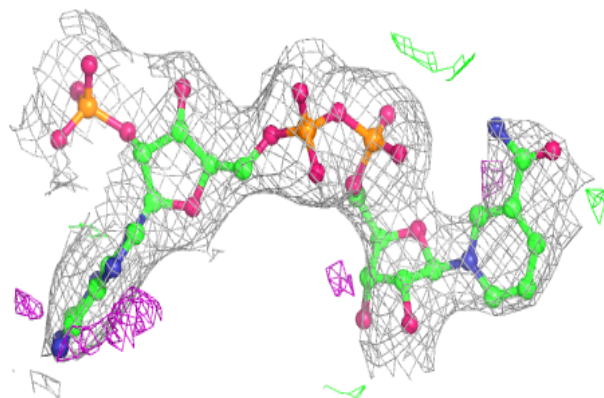


Electron density around NAP H 2102:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

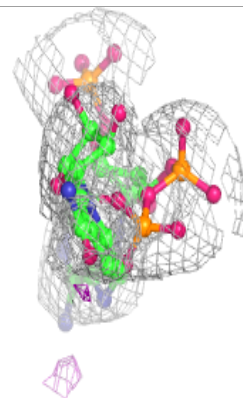
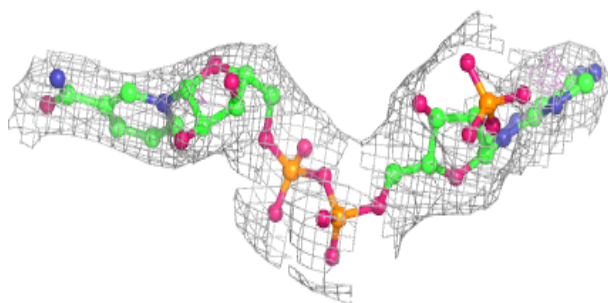
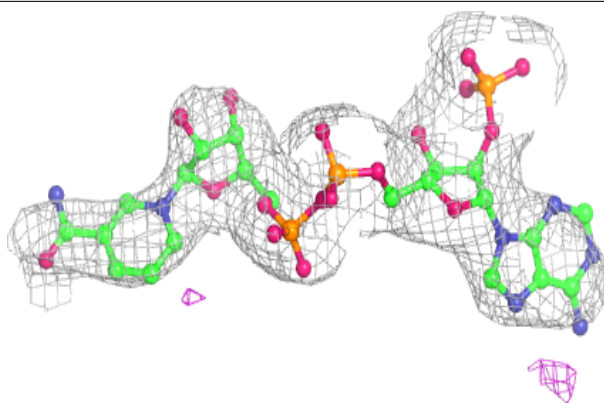
**Electron density around NAP B 1901:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

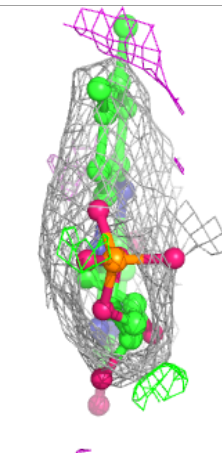
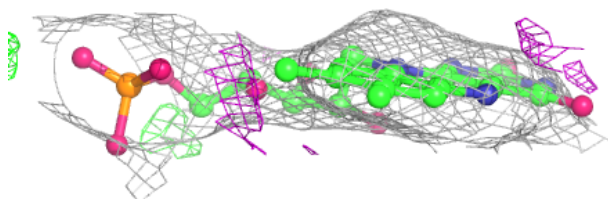
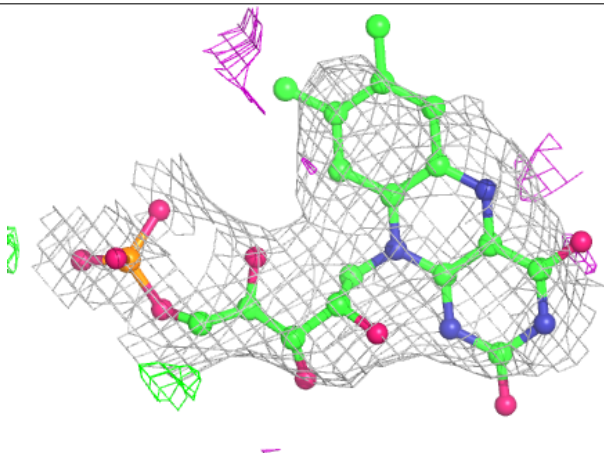


Electron density around NAP G 2102:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

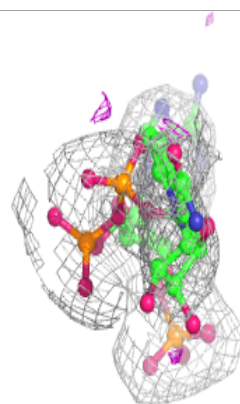
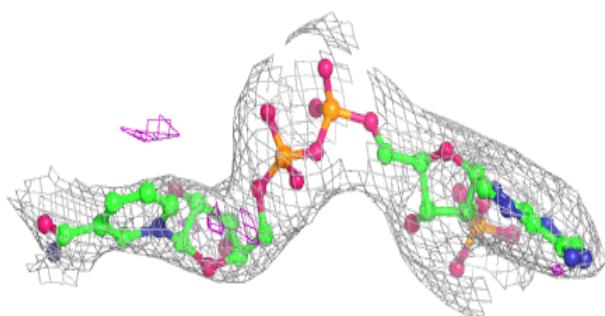
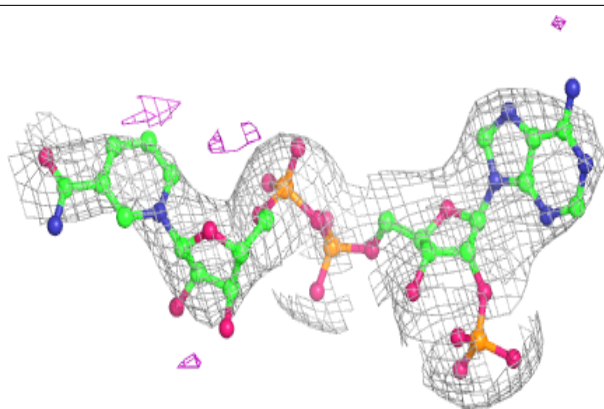
**Electron density around FMN K 2101:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

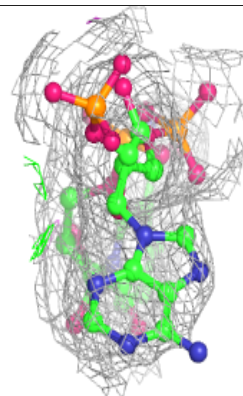
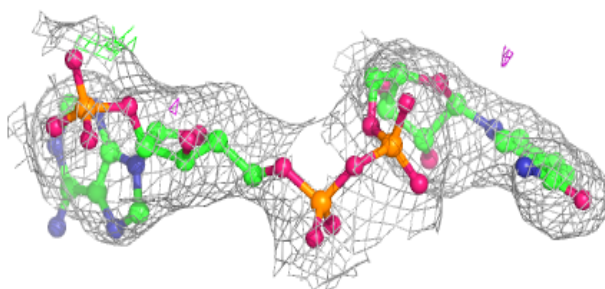
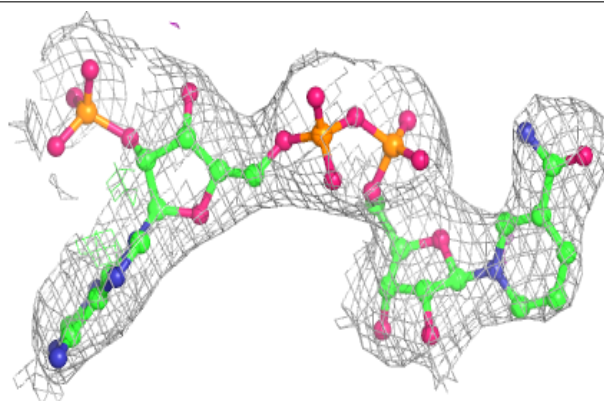


Electron density around NAP L 2102:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

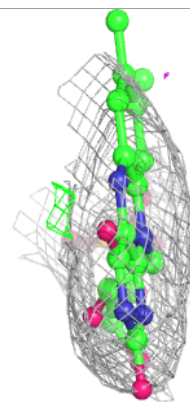
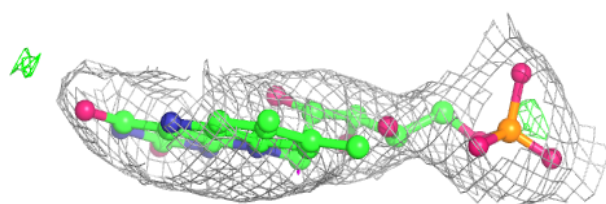
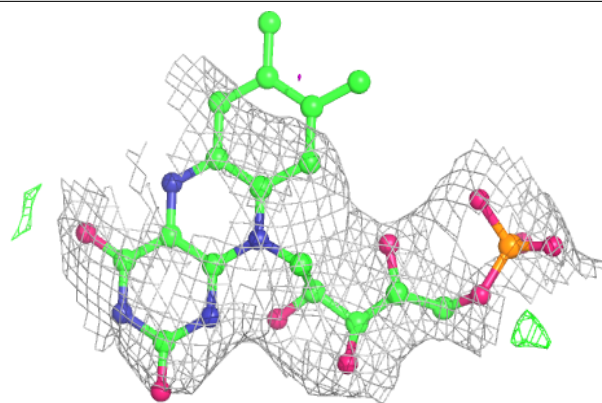
**Electron density around NAP E 1901:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

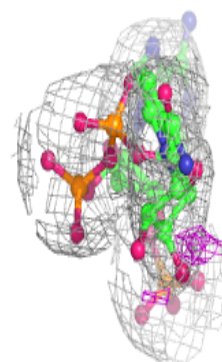
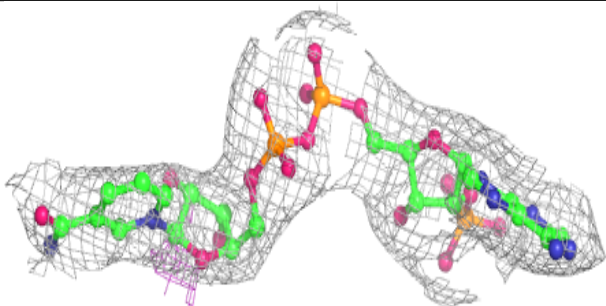
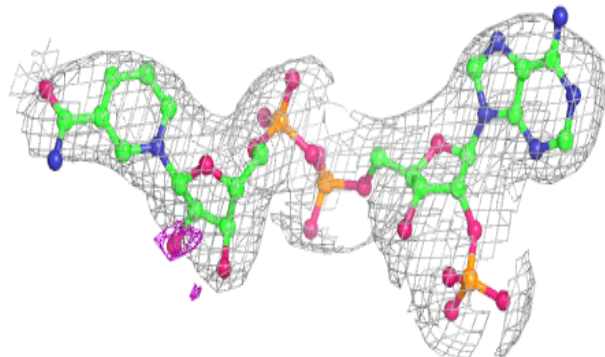


Electron density around FMN J 2101:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

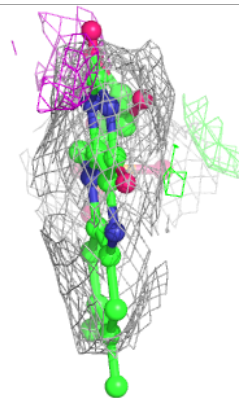
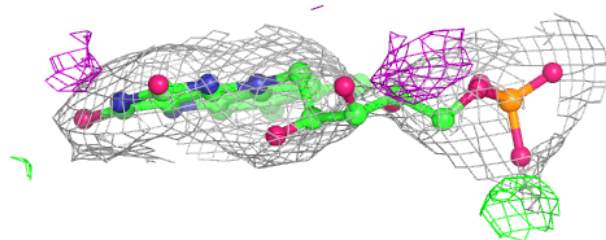
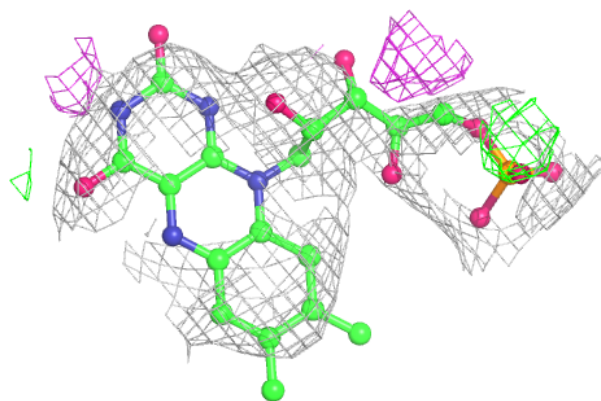
**Electron density around NAP I 2102:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

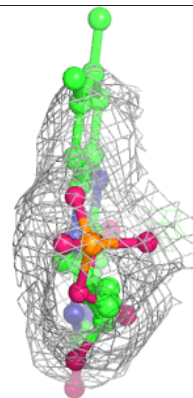
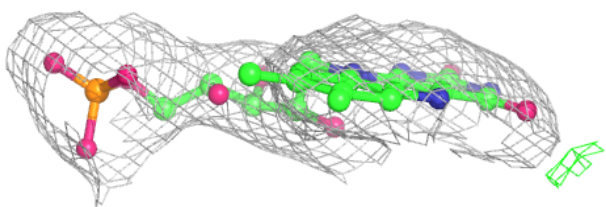
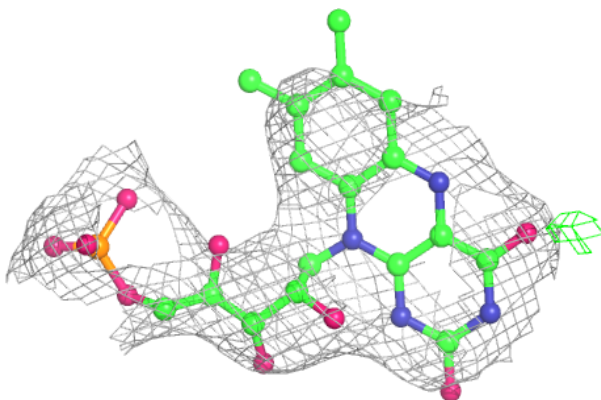


Electron density around FMN G 2101:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

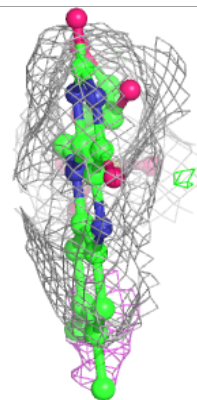
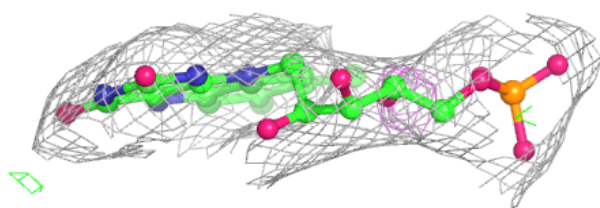
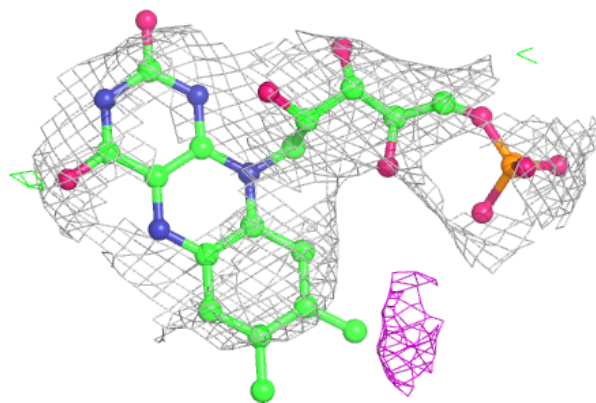
**Electron density around FMN H 2101:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

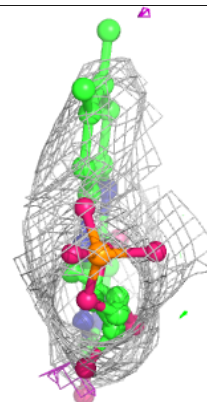
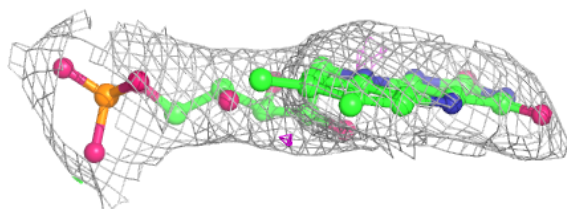
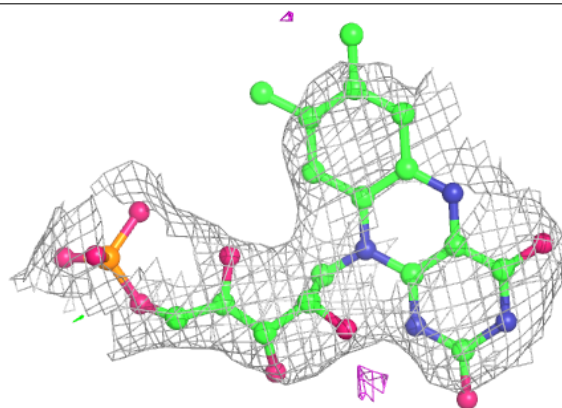


Electron density around FMN L 2101:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around FMN I 2101:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



6.5 Other polymers [i](#)

There are no such residues in this entry.