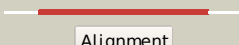
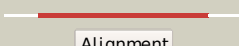
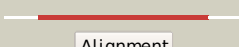
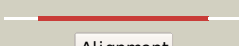
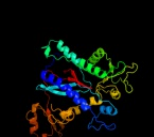
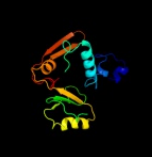
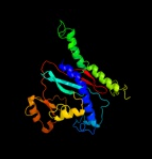
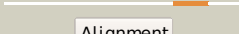
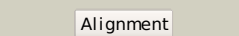
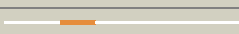
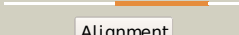
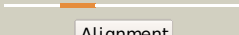
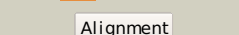
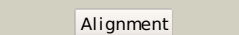
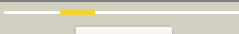
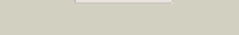


#	Template	Alignment Coverage	3D Model	Confidence	% i.d.	Template Information
1	c2ioaA_	 Alignment		100.0	27	PDB header: ligase, hydrolase Chain: A: PDB Molecule: bifunctional glutathionylspermidine PDBTitle: e. coli bifunctional glutathionylspermidine2 synthetase/amidase incomplex with mg2+ and adp and3 phosphinate inhibitor
2	c2vpmB_	 Alignment		100.0	27	PDB header: ligase Chain: B: PDB Molecule: trypanothione synthetase; PDBTitle: trypanothione synthetase
3	d2io8a3	 Alignment		100.0	29	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: Glutathionylspermidine synthase ATP-binding domain-like
4	c3n6xA_	 Alignment		100.0	11	PDB header: ligase Chain: A: PDB Molecule: putative glutathionylspermidine synthase; PDBTitle: crystal structure of a putative glutathionylspermidine synthase2 (mfla_0391) from methylobacillus flagellatus kt at 2.35 a resolution
5	d2io8a1	 Alignment		99.9	19	Fold: PreATP-grasp domain Superfamily: PreATP-grasp domain Family: Glutathionylspermidine synthase substrate-binding domain-like
6	c2hgsA_	 Alignment		99.6	13	PDB header: amine/carboxylate ligase Chain: A: PDB Molecule: protein (glutathione synthetase); PDBTitle: human glutathione synthetase
7	c3kalB_	 Alignment		99.5	14	PDB header: ligase Chain: B: PDB Molecule: homoglutathione synthetase; PDBTitle: structure of homoglutathione synthetase from glycine max in2 closed conformation with homoglutathione, adp, a sulfate3 ion, and three magnesium ions bound
8	c1m0tB_	 Alignment		99.4	16	PDB header: ligase Chain: B: PDB Molecule: glutathione synthetase; PDBTitle: yeast glutathione synthase
9	c2wyoC_	 Alignment		99.3	14	PDB header: ligase Chain: C: PDB Molecule: glutathione synthetase; PDBTitle: trypanosoma brucei glutathione synthetase
10	c1gshA_	 Alignment		99.0	16	PDB header: glutathione biosynthesis ligase Chain: A: PDB Molecule: glutathione biosynthetic ligase; PDBTitle: structure of escherichia coli glutathione synthetase at ph 7.5
11	d2hgsa4	 Alignment		98.6	15	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: Eukaryotic glutathione synthetase ATP-binding domain

12	c2p0aA_	Alignment		98.2	12	PDB header: neuropeptide Chain: A: PDB Molecule: synapsin-3; PDBTitle: the crystal structure of human synapsin iii (syn3) in complex with2 amppnp
13	c1uc8B_	Alignment		98.0	15	PDB header: biosynthetic protein Chain: B: PDB Molecule: lysine biosynthesis enzyme; PDBTitle: crystal structure of a lysine biosynthesis enzyme, lysx,2 from thermus thermophilus hb8
14	c1i7nA_	Alignment		97.9	10	PDB header: neuropeptide Chain: A: PDB Molecule: synapsin ii; PDBTitle: crystal structure analysis of the c domain of synapsin ii2 from rat brain
15	c1pk8D_	Alignment		97.9	13	PDB header: membrane protein Chain: D: PDB Molecule: rat synapsin i; PDBTitle: crystal structure of rat synapsin i c domain complexed to2 ca.atp
16	c2qb5B_	Alignment		97.8	10	PDB header: transferase Chain: B: PDB Molecule: inositol-tetrakisphosphate 1-kinase; PDBTitle: crystal structure of human inositol 1,3,4-trisphosphate 5/6-kinase2 (itpk1) in complex with adp and mn2+
17	d1pk8a2	Alignment		97.8	12	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: Synapsin C-terminal domain
18	d1m0wa2	Alignment		97.6	17	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: Eukaryotic glutathione synthetase ATP-binding domain
19	c3ln7A_	Alignment		97.4	18	PDB header: ligase Chain: A: PDB Molecule: glutathione biosynthesis bifunctional protein gshab; PDBTitle: crystal structure of a bifunctional glutathione synthetase from2 pasteurilla multocida
20	c1kjjA_	Alignment		97.3	13	PDB header: transferase Chain: A: PDB Molecule: phosphoribosylglycinamide formyltransferase 2; PDBTitle: crystal structure of glyciniamide ribonucleotide2 transformylase in complex with mg-atp-gamma-s
21	d1gsaa2	Alignment	not modelled	97.2	15	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: ATP-binding domain of peptide synthetases
22	c3t9aA_	Alignment	not modelled	97.1	20	PDB header: transferase Chain: A: PDB Molecule: inositol pyrophosphate kinase; PDBTitle: crystal structure of the catalytic domain of human diphosphoinositol2 pentakisphosphate kinase 2 (ppip5k2) in complex with amppnp at ph 7.0
23	c2dlnA_	Alignment	not modelled	97.0	11	PDB header: ligase(peptidoglycan synthesis) Chain: A: PDB Molecule: d-alanine--d-alanine ligase; PDBTitle: vancomycin resistance: structure of d-alanine:d-alanine2 ligase at 2.3 angstroms resolution
24	d1i7na2	Alignment	not modelled	96.9	10	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: Synapsin C-terminal domain
25	c3ln6A_	Alignment	not modelled	96.9	13	PDB header: ligase Chain: A: PDB Molecule: glutathione biosynthesis bifunctional protein gshab; PDBTitle: crystal structure of a bifunctional glutathione synthetase from2 streptococcus agalactiae
26	c2xd4A_	Alignment	not modelled	96.2	11	PDB header: ligase Chain: A: PDB Molecule: phosphoribosylamine--glycine ligase; PDBTitle: nucleotide-bound structures of bacillus subtilis glyciniamide2 ribonucleotide synthetase
27	c2yyaB_	Alignment	not modelled	96.2	11	PDB header: ligase Chain: B: PDB Molecule: phosphoribosylamine--glycine ligase; PDBTitle: crystal structure of gar synthetase from aquifex aeolicus
28	c3bg5C_	Alignment	not modelled	95.8	13	PDB header: ligase Chain: C: PDB Molecule: pyruvate carboxylase; PDBTitle: crystal structure of staphylococcus aureus pyruvate2

						carboxylase
29	c3lwbA_	Alignment	not modelled	95.8	11	PDB header: ligase Chain: A: PDB Molecule: d-alanine--d-alanine ligase; PDBTitle: crystal structure of apo d-alanine:d-alanine ligase (ddl) from2 mycobacterium tuberculosis
30	c3orgA_	Alignment	not modelled	95.6	8	PDB header: ligase,biosynthetic protein Chain: A: PDB Molecule: n5-carboxyaminoimidazole ribonucleotide synthetase; PDBTitle: crystal structure of n5-carboxyaminoimidazole synthetase from2 staphylococcus aureus complexed with adp
31	c2ip4A_	Alignment	not modelled	95.5	11	PDB header: ligase Chain: A: PDB Molecule: phosphoribosylamine--glycine ligase; PDBTitle: crystal structure of glycylamide ribonucleotide synthetase from2 thermus thermophilus hb8
32	d1uc8a2	Alignment	not modelled	95.5	18	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: Lysine biosynthesis enzyme LysX ATP-binding domain
33	c1vkzA_	Alignment	not modelled	95.3	18	PDB header: ligase Chain: A: PDB Molecule: phosphoribosylamine--glycine ligase; PDBTitle: crystal structure of phosphoribosylamine--glycine ligase (tm1250) from2 thermotoga maritima at 2.30 a resolution
34	c3lp8A_	Alignment	not modelled	95.1	15	PDB header: ligase Chain: A: PDB Molecule: phosphoribosylamine-glycine ligase; PDBTitle: crystal structure of phosphoribosylamine-glycine ligase from2 ehrlichia chaffeensis
35	c3df7A_	Alignment	not modelled	94.8	18	PDB header: structural genomics, unknown function Chain: A: PDB Molecule: putative atp-grasp superfamily protein; PDBTitle: crystal structure of a putative atp-grasp superfamily2 protein from archaeoglobus fulgidus
36	c2hjwA_	Alignment	not modelled	94.2	12	PDB header: ligase Chain: A: PDB Molecule: acetyl-coa carboxylase 2; PDBTitle: crystal structure of the bc domain of acc2
37	c3ouzA_	Alignment	not modelled	93.6	14	PDB header: ligase Chain: A: PDB Molecule: biotin carboxylase; PDBTitle: crystal structure of biotin carboxylase-adp complex from campylobacter2 jejuni
38	c3tinA_	Alignment	not modelled	93.5	23	PDB header: ligase Chain: A: PDB Molecule: ttl protein; PDBTitle: tubulin tyrosine ligase
39	c2cqyA_	Alignment	not modelled	93.4	16	PDB header: ligase Chain: A: PDB Molecule: propionyl-coa carboxylase alpha chain, PDBTitle: solution structure of b domain from human propionyl-coa2 carboxylase alpha subunit
40	c3gidB_	Alignment	not modelled	93.4	12	PDB header: ligase Chain: B: PDB Molecule: acetyl-coa carboxylase 2; PDBTitle: the biotin carboxylase (bc) domain of human acetyl-coa2 carboxylase 2 (acc2) in complex with soraphen a
41	c1ulzA_	Alignment	not modelled	93.3	15	PDB header: ligase Chain: A: PDB Molecule: pyruvate carboxylase n-terminal domain; PDBTitle: crystal structure of the biotin carboxylase subunit of pyruvate2 carboxylase
42	c1z2pX_	Alignment	not modelled	93.2	10	PDB header: transferase Chain: X: PDB Molecule: inositol 1,3,4-trisphosphate 5/6-kinase; PDBTitle: inositol 1,3,4-trisphosphate 5/6-kinase in complex with mg2+/-amp-2 pcp/ins(1,3,4)p3
43	c2vpqA_	Alignment	not modelled	93.1	13	PDB header: ligase Chain: A: PDB Molecule: acetyl-coa carboxylase; PDBTitle: crystal structure of biotin carboxylase from s. aureus2 complexed with amppnp
44	d1gsaa1	Alignment	not modelled	92.6	16	Fold: PreATP-grasp domain Superfamily: PreATP-grasp domain Family: Prokaryotic glutathione synthetase, N-terminal domain
45	c3uvzB_	Alignment	not modelled	92.4	10	PDB header: lyase Chain: B: PDB Molecule: phosphoribosylaminoimidazole carboxylase, atpase subunit; PDBTitle: crystal structure of phosphoribosylaminoimidazole carboxylase, atpase2 subunit from burkholderia ambifaria
46	c3g8cB_	Alignment	not modelled	92.3	10	PDB header: ligase Chain: B: PDB Molecule: biotin carboxylase; PDBTitle: crystal stucture of biotin carboxylase in complex with2 biotin, bicarbonate, adp and mg ion
47	c3tgtB_	Alignment	not modelled	91.5	22	PDB header: ligase Chain: B: PDB Molecule: d-alanine--d-alanine ligase; PDBTitle: structure of the d-alanine-d-alanine ligase from coxiella burnetii
48	d1a9xa5	Alignment	not modelled	91.3	8	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: BC ATP-binding domain-like
49	c1e4eB_	Alignment	not modelled	90.3	8	PDB header: ligase Chain: B: PDB Molecule: vancomycin/teicoplanin a-type resistance protein vana; PDBTitle: d-alanyl-d-lacate ligase
50	d1e4ea2	Alignment	not modelled	89.8	19	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: ATP-binding domain of peptide synthetases
51	c2dzdB_	Alignment	not modelled	89.7	12	PDB header: ligase Chain: B: PDB Molecule: pyruvate carboxylase; PDBTitle: crystal structure of the biotin carboxylase domain of2 pyruvate carboxylase
52	c2i80B_	Alignment	not modelled	89.7	29	PDB header: ligase Chain: B: PDB Molecule: d-alanine-d-alanine ligase; PDBTitle: allosteric inhibition of staphylococcus aureus d-alanine:d-alanine2 ligase revealed by crystallographic studies
53	d1w96a3	Alignment	not modelled	89.3	9	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: BC ATP-binding domain-like
54	c3se7A_	Alignment	not modelled	89.0	31	PDB header: ligase Chain: A: PDB Molecule: vana;

						PDBTitle: ancient vana
55	c2pvpB	 Alignment	not modelled	88.7	11	PDB header: ligase Chain: B: PDB Molecule: d-alanine-d-alanine ligase; PDBTitle: crystal structure of d-alanine-d-alanine ligase from helicobacter2 pylori
56	c1ehiB	 Alignment	not modelled	88.6	38	PDB header: ligase Chain: B: PDB Molecule: d-alanine:d-lactate ligase; PDBTitle: d-alanine:d-lactate ligase (lmdl2) of vancomycin-resistant2 leuconostoc mesenteroides
57	dlgsoa3	 Alignment	not modelled	88.2	14	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: BC ATP-binding domain-like
58	c1w96B	 Alignment	not modelled	88.0	9	PDB header: ligase Chain: B: PDB Molecule: acetyl-coenzyme a carboxylase; PDBTitle: crystal structure of biotin carboxylase domain of acetyl-2 coenzyme a carboxylase from saccharomyces cerevisiae in3 complex with soraphen a
59	c3i12A	 Alignment	not modelled	87.8	24	PDB header: ligase Chain: A: PDB Molecule: d-alanine-d-alanine ligase a; PDBTitle: the crystal structure of the d-alanyl-alanine synthetase a from2 salmonella enterica subsp. enterica serovar typhimurium str. lt2
60	c3etjB	 Alignment	not modelled	87.5	10	PDB header: lyase Chain: B: PDB Molecule: phosphoribosylaminoimidazole carboxylase atpase PDBTitle: crystal structure e. coli purk in complex with mg, adp, and2 pi
61	d1ehia2	 Alignment	not modelled	87.3	38	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: ATP-binding domain of peptide synthetases
62	c3e5nA	 Alignment	not modelled	86.9	24	PDB header: ligase Chain: A: PDB Molecule: d-alanine-d-alanine ligase a; PDBTitle: crystal strcuture of d-alanine-d-alanine ligase from2 xanthomonas oryzae pv. oryzae kacc10331
63	d1iowa2	 Alignment	not modelled	85.7	33	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: ATP-binding domain of peptide synthetases
64	c2ys6A	 Alignment	not modelled	85.3	9	PDB header: ligase Chain: A: PDB Molecule: phosphoribosylglycinamide synthetase; PDBTitle: crystal structure of gar synthetase from geobacillus kaustophilus
65	d2r85a2	 Alignment	not modelled	85.0	8	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: PurP ATP-binding domain-like
66	c3q2oB	 Alignment	not modelled	84.9	11	PDB header: lyase Chain: B: PDB Molecule: phosphoribosylaminoimidazole carboxylase, atpase subunit; PDBTitle: crystal structure of purk: n5-carboxyaminoimidazole ribonucleotide2 synthetase
67	d2r7ka2	 Alignment	not modelled	83.9	12	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: PurP ATP-binding domain-like
68	c3k3pA	 Alignment	not modelled	83.9	33	PDB header: ligase Chain: A: PDB Molecule: d-alanine--d-alanine ligase; PDBTitle: crystal structure of the apo form of d-alanine:d-alanine ligase (ddl)2 from streptococcus mutans
69	c2zdqA	 Alignment	not modelled	82.2	7	PDB header: ligase Chain: A: PDB Molecule: d-alanine--d-alanine ligase; PDBTitle: crystal structure of d-alanine:d-alanine ligase with atp2 and d-alanine:d-alanine from thermus thermophilus hb8
70	c3k5iB	 Alignment	not modelled	82.0	9	PDB header: lyase Chain: B: PDB Molecule: phosphoribosyl-aminoimidazole carboxylase; PDBTitle: crystal structure of n5-carboxyaminoimidazole synthase from2 aspergillus clavatus in complex with adp and 5-3 aminoimidazole ribonucleotide
71	d1vkza3	 Alignment	not modelled	76.5	15	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: BC ATP-binding domain-like
72	d1kjqA3	 Alignment	not modelled	75.0	15	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: BC ATP-binding domain-like
73	c1m6vE	 Alignment	not modelled	71.9	9	PDB header: ligase Chain: E: PDB Molecule: carbamoyl phosphate synthetase large chain; PDBTitle: crystal structure of the g359f (small subunit) point mutant of2 carbamoyl phosphate synthetase
74	c1gsoA	 Alignment	not modelled	69.5	14	PDB header: ligase Chain: A: PDB Molecule: protein (glycinamide ribonucleotide synthetase); PDBTitle: glycinamide ribonucleotide synthetase (gar-syn) from e.2 coli.
75	c3u9sE	 Alignment	not modelled	68.6	19	PDB header: ligase Chain: E: PDB Molecule: methylcrotonyl-coa carboxylase, alpha-subunit; PDBTitle: crystal structure of p. aeruginosa 3-methylcrotonyl-coa carboxylase2 (mcc) 750 kd holoenzyme, coa complex
76	c2z04A	 Alignment	not modelled	68.0	12	PDB header: lyase Chain: A: PDB Molecule: phosphoribosylaminoimidazole carboxylase atpase PDBTitle: crystal structure of phosphoribosylaminoimidazole2 carboxylase atpase subunit from aquifex aeolicus
77	d3etja3	 Alignment	not modelled	67.3	12	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: BC ATP-binding domain-like
78	c3r23B	 Alignment	not modelled	64.5	25	PDB header: ligase Chain: B: PDB Molecule: d-alanine--d-alanine ligase;

78	c3l23B_	Alignment	not modelled	64.3	23	PDBTitle: crystal structure of d-alanine--d-alanine ligase from bacillus2 anthracis PDB header: ligase
79	c3n6rK_	Alignment	not modelled	63.2	29	Chain: K: PDB Molecule: propionyl-coa carboxylase, alpha subunit; PDBTitle: crystal structure of the holoenzyme of propionyl-coa carboxylase (pcc)
80	c2dwcB_	Alignment	not modelled	59.5	11	PDB header: transferase Chain: B: PDB Molecule: 433aa long hypothetical phosphoribosylglycinamide formyl PDBTitle: crystal structure of probable phosphoribosylglycinamide formyl2 transferase from pyrococcus horikoshii ot3 complexed with adp
81	d1ulza3	Alignment	not modelled	54.9	14	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: BC ATP-binding domain-like
82	c2qk4A_	Alignment	not modelled	54.1	12	PDB header: ligase Chain: A: PDB Molecule: trifunctional purine biosynthetic protein adenosine-3; PDBTitle: human glycineamide ribonucleotide synthetase
83	c2gpwC_	Alignment	not modelled	52.8	20	PDB header: ligase Chain: C: PDB Molecule: biotin carboxylase; PDBTitle: crystal structure of the biotin carboxylase subunit, f363a2 mutant, of acetyl-coa carboxylase from escherichia coli.
84	c2r85B_	Alignment	not modelled	52.7	8	PDB header: unknown function Chain: B: PDB Molecule: purp protein pf1517; PDBTitle: crystal structure of purp from pyrococcus furiosus complexed with amp
85	c3k1tA_	Alignment	not modelled	42.6	15	PDB header: ligase Chain: A: PDB Molecule: glutamate--cysteine ligase gsha; PDBTitle: crystal structure of putative gamma-glutamylcysteine synthetase2 (yp_546622.1) from methylobacillus flagellatus kt at 1.90 a3 resolution
86	c2pn1A_	Alignment	not modelled	42.1	9	PDB header: ligase Chain: A: PDB Molecule: carbamoylphosphate synthase large subunit; PDBTitle: crystal structure of carbamoylphosphate synthase large subunit (split2 gene in mj) (zp_00538348.1) from exigubacterium sp. 255-15 at 2.00 a3 resolution
87	d2hgsa1	Alignment	not modelled	38.4	12	Fold: PreATP-grasp domain Superfamily: PreATP-grasp domain Family: Eukaryotic glutathione synthetase, substrate-binding domain
88	d1a9xa6	Alignment	not modelled	37.4	21	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: BC ATP-binding domain-like
89	d2j9ga3	Alignment	not modelled	34.2	9	Fold: ATP-grasp Superfamily: Glutathione synthetase ATP-binding domain-like Family: BC ATP-binding domain-like
90	d2oo3a1	Alignment	not modelled	23.7	14	Fold: S-adenosyl-L-methionine-dependent methyltransferases Superfamily: S-adenosyl-L-methionine-dependent methyltransferases Family: LPG1296-like
91	d1rz3a_	Alignment	not modelled	18.5	9	Fold: P-loop containing nucleoside triphosphate hydrolases Superfamily: P-loop containing nucleoside triphosphate hydrolases Family: Phosphoribulokinase/pantothenate kinase
92	c1w5kB_	Alignment	not modelled	17.7	38	PDB header: four helix bundle Chain: B: PDB Molecule: general control protein gc4; PDBTitle: an anti-parallel four helix bundle
93	c1w5kC_	Alignment	not modelled	17.7	38	PDB header: four helix bundle Chain: C: PDB Molecule: general control protein gc4; PDBTitle: an anti-parallel four helix bundle
94	c1w5kA_	Alignment	not modelled	17.7	38	PDB header: four helix bundle Chain: A: PDB Molecule: general control protein gc4; PDBTitle: an anti-parallel four helix bundle
95	c1w5kD_	Alignment	not modelled	17.7	38	PDB header: four helix bundle Chain: D: PDB Molecule: general control protein gc4; PDBTitle: an anti-parallel four helix bundle
96	c1vraB_	Alignment	not modelled	16.0	14	PDB header: transferase Chain: B: PDB Molecule: arginine biosynthesis bifunctional protein argj; PDBTitle: crystal structure of arginine biosynthesis bifunctional protein argj2 (10175521) from bacillus halodurans at 2.00 a resolution
97	c2vzkD_	Alignment	not modelled	15.6	11	PDB header: transferase Chain: D: PDB Molecule: glutamate n-acetyltransferase 2 beta chain; PDBTitle: structure of the acyl-enzyme complex of an n-terminal2 nucleophile (ntn) hydrolase, oat2
98	c3e90C_	Alignment	not modelled	14.7	20	PDB header: hydrolase Chain: C: PDB Molecule: ns2b cofactor; PDBTitle: west nile vi rus ns2b-ns3protease in complexed with2 inhibitor naph-kr-h
99	c2ijoA_	Alignment	not modelled	14.5	20	PDB header: hydrolase/hydrolase inhibitor Chain: A: PDB Molecule: polyprotein; PDBTitle: crystal structure of the west nile virus ns2b-ns3 protease2 complexed with bovine pancreatic trypsin inhibitor