DAFTAR PUSTAKA

1. Lenny, S. Senyawa Flavonoida, Fenipropanoida, dan Alkaloida. *USU Respiratory*. 2006. hal : 18.

2. Evans, WC. *Pharmacopoeial and Related Drugs of Biological Origin*. WB Saunders Co. Ltd. London. 1996. hal : 353. Available as PDF file.

3. Nafriadi, S.A. Famakologi dan Terapi Edisi 5. *Departemen Farmakologi dan Terapeutik Fakultas Kedokteran UI*. Jakarta. hal : 732.

4. Rifai, Y. Search of Bioactive Natural Products Targeting Hedgehog Signaling Pathway. *Laboratory of Natural Products Chemistry Graduate School of Pharmaceutical Science Chiba University*. 2011. hal : i-88 .

5. Evangelista M, Tian H, dan Sauvage FJd. The Hedgehog Signaling Pathway in Cancer. *Clin Cancer Res*. 2006. hal : 5924-5925.

6. Istyastono, EP. Seri Kimia Medisinal Komputasi : Langkah Praktis Docking Gratis. *Moldmog.org*. 2010. hal : 3-4, 7. E-Book.

7. Kroemer R.T. Molecular Modelling Probes : Docking and Scoring.Computational Sciences. Depart. 2003. hal : 980-981.

8. Leach AR, Shoichet BK, dan Peishoff CE. Docking and Scoring, Perspective : Prediction of Protein-Ligan Interactions. Docking and Scoring Success and Gaps. *Journal of Medicinal Chemistry*. 2006. hal : 5851-5855.

9. Corwin EJ. *Handbook of Pathophysiology 3rd edition*. USA: Lippincott Williams and Wilkins. 2008. hal : 66-81. E-Book.

10. Evangelista M, Tian H, dan de Sauvage FJ. The Hedgehog Signaling Pathway in Cancer. *Clin. Cancer Res*. 2006. hal : 5924-5928 .

11. Gerhadt D, Horn AP, Gaezer MM, Frozza RL, Delgado- Cañedo A, Pelegrini AL, Henriques AT, Lenz G, dan Salbego C. [Serial the Internet]. 2009. Available online from http://www.ncbi.nlm.nih.gov/ pubmed/19050827, accessed at May, 15, 2013.

12. Jiang J dan Hu C. Evodiamine : a Novel Anti-Cancer Alkaloid from *Evodia rutaecarpa*. *Molecules*. 2009. hal : 1852-1856.

13. Kumar D dan Rawat DS. Marine Natural Alkaloids as Anticancer Agents. *Research Signpost*. 2011. hal : 213-268.

14. Shoeb, Mohammad. Anticancer Agents Form Medicinal Plants. *Bangladesh J. Phamacol*. 2006. hal : 35-40.

15. Ying-Yue Z, Xue-Shi H, De-Quan Y, dan Shi-Shan Y. Antitumor Alkloids Isolated from *Tylophora ovate*. *Acta Botanica Sinica*. 2002. hal : 349-353.

16. Padmanabha BV, Chandrashekar M, Ramesha BT, Gowda HCH, Gunaga RP, Suhas S, Vasudeva R, Ganeshaiah KN, dan Shaanker RU. Patterns of Accumulation of Camptothecin, an Anti-Cancer Alkaloid in Nothapodytes nimmoniana Graham., in The Western Ghats, India : Implications for Identifying High-Yielding Sources of The Alkaloid. Current Science. 2006. hal : 95-100.

17. Powel RG, Rogovin SP, dan JR Smith CR. Isolation of Antitumor Alkalois from *Cephalotaxus harringtonia.Ind. Eng. Chem. Prod. Res. Develop*. 1974. hal : 129-132.

18. Lucio ASSC, Almeida JRGdS, Barbosa-Filho JM, Pita JCLR, Branco MVSC, Diniz MdFFM, Agra MdF, da-Cunha EVL, da Silva MS, dan Tavares JF. Azaphenanthrene Alkaloids with antitumoral Activity from *Anaxagorea dolichocarpa* Sprague & Sandwith (Annonaceae). *Molecules*. 2011. hal : 7125-7131.

19. Ingrassia L, Lefranc F, Mathieu V, Darro F, dan Kiss R. Amaryllidaceae Isocarbostyril Alkaloids and Their Derivates as Promosing Antitumor Agents. *Neoplasia Press, Inc*. 2008. hal : 1-13.

20. Adhami VM, Aziz MH, Reagan-Shaw SR, Nihal M, Mukhtar H, dan Ahmad N. Sanguinarine cause Cell Cycle Blockade and Apoptosis of Human Prostate Carcinoma Cells via Modulation of Cyclin Kinase Inhibitor-Cyclin-Cyclin-Dependent Kinase Machinery. [Serial on the Internet]. 2008. Available online from http://www.ncbi.nlm.nih.gov/pubmed/15299076, accessed at May, 15, 2013.

21. Liu XS, Jiang J, Jiao XY, Wu YE, Lin JH, dan Cai YM. Lycorine Induces Apoptosis and Down-Regulation of Mcl-1 in Human. *Cancer Letter*. 2007. hal : 16-23.

22. Kaur R, Singh J, Singh G, dan Kaur H. Anticancer Plants : A Review. *Scholar Research Library*. 2011. hal : 131-136.

23. Mahindroo N, Punchihewa C, dan Fujii N. Hedgehog-Gli Signaling Pathway Inhibitors as Anticancer Agents. *J. Med. Chem*. 2009. hal : 3829-3845.

24. Wei YL, Xu L, Liang Y, Xu XH, dan Zhao XY. Berbamine Exhibits Potent Antitumor Effects on Imatinib-Resistant CML Cells *In Vitro* and *In Vivo*. Acta Pharmacol Sin. 2009. 451-457.

25. Noureini SK. dan Wink M. Transcriptional Down Regulation of hTERT and Senescence Induction in HepG2 Cells by Chelidonine. *World of Journal Gastroenterol*. 2009. hal : 3603-3610.

26. Balasubramanian E. dan Gajendran T. Comparative Studies on The Anticancer Activity of Colchicine by Various Controlled Drug Delivery Modes. Int. *J. Pharm. Bio. Sci.* 2013. hal : 9-26.

27. Zhang, Y, Zhang H, Yu PF, Liu Q, Liu K, Duan HY, Luan GL, Yagasaki K, dan Zhang GY. Effects of Matrine Against The Growth of Human Lung Cancer and Hepatoma Cells as well as Lung Cancer Cell Migration. *Journal of Medicinal Plants Research*. 2009. hal : 191-200.

28. Ee GCL, Lim MC, Rahmani M, Shaari K, dan Bong CFJ. Pellitorine, a Potential Anti-Cancer Lead Compound Against HL60 and MCT-7 Cell Lines and Microbial Transformation of *Piper ningrum*. *Molecules*. 2010. hal : 2398-2404.

29. Bezerra DP, Castro FO, Alves APNN, Pessoa C, Moraes MO, Silveira ER, Lima MAS, Elmiro FJM, dan Costa-Lotufo LV. *In Vivo* Growth-Inhibition of Sarcoma 180 by Piplartine and Piperine, Two Alkaloid Amides from Piper. *Brazilian Journal of Medical and Biological Research*. 2006. hal : 801-807.

30. Gao SY, Wang QJ, dan Ji YB. Effect of Solanine on The Membrane Potential of Mitochondria in $HepG_2$ Cells and $(Ca^{2+})_i$ in The Cells. *World Journal of Gastroenterol*. 2006. Hal : 3359-3367.

31. Xu W, Dedeb BG, Lacerda L, Li J, dan Woodward WA. Tetrandrine, a Compound Commond in Chinese Traditional Medicine, Preferentially Kills Breast Cancer Tumor Initiating Cells (TICs) *In Vitro*. *Cancers*. 2011. hal : 2274-2285.

32. Abraham D.J, editor. *Burger's Medicinal Chemistry and Drug Discovery*. 6th ed. Volume 1. Willey Interscience. New York. 2003. hal : 286-290. E-Book.

33. Nadendla R.R. Molecular Modelling : A Powerfull Tool for Drug Design and Molecular Docking. *J. Resonance*. 2004. hal : 51-58.

34. Mohan V, Gibbs AC, Cummings MD, Jaeger EP, dan DesJarlais RL. Docking : Successes and Challenges. *Current Pharmaceutical Design*. 2005. hal : 323-333.

35. Korb O, Stützle T, dan Exner TE. Ant Colony Optimization Approach to Flexible Protein-Ligand Docking. *Swarm Intell*. 2007. hal : 115-134.

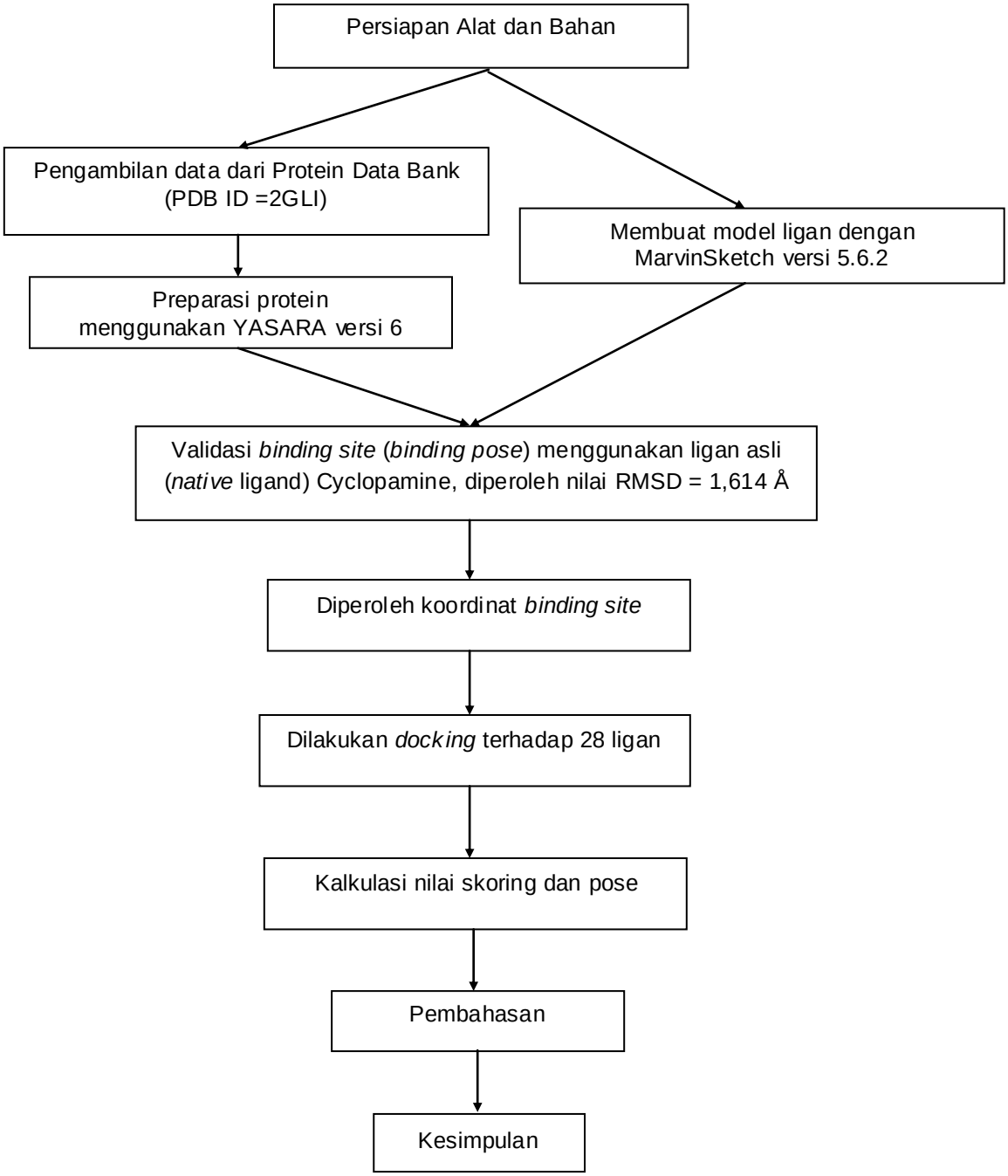
36. Chemaxon. Welcome to the chemaxon: *Introduction.* Available from:http://www.chemaxon.com/ .Accesed at Maret 5, 2013.

37. Anonim. About YASARA-Watching Nature@Work. Available from :http://www.yasara.org/. Accessed at Maret, 5 2013.

38. Molegro Aps. molegro molecular viewer user manual MMV 2011.2.2 for Windows, Linux, and Mac OS X. 2011. hal.85-87. E-Book.

39. Pavletch NP dan Pabo CO. Crystal Structure of a Five-Finger GLI-DNA Complex : New Perspectives on Zinc Finger. *Science*. 1993. Available online from http://www.pdb.org/pdb/explore/explore.do?structureId=2GLI accessed at Jan,18, 2013.

LAMPIRAN 1
Skema Kerja



LAMPIRAN 2

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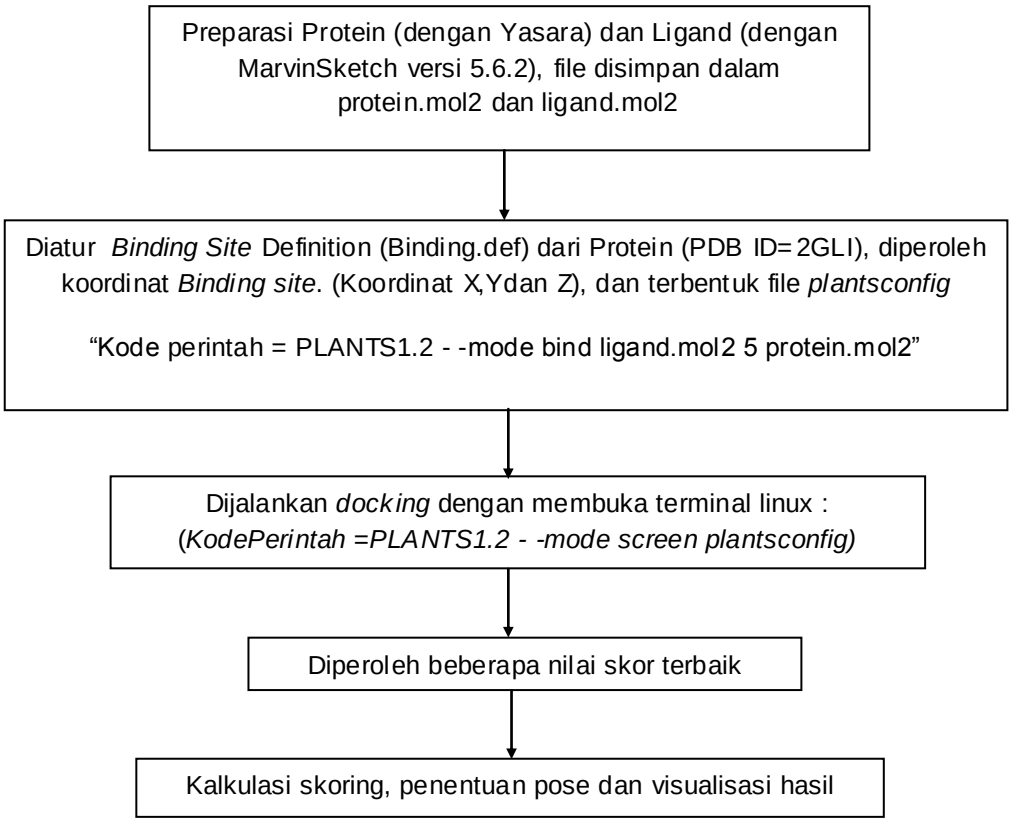

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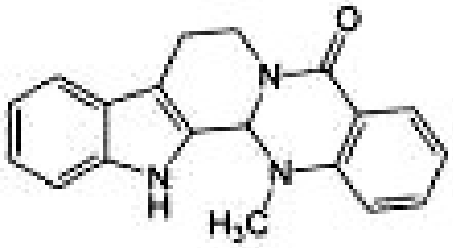
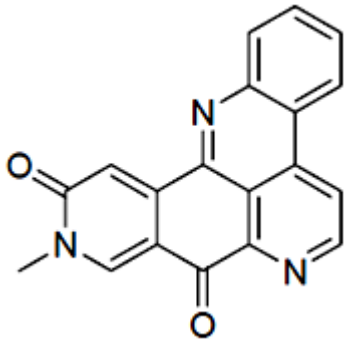
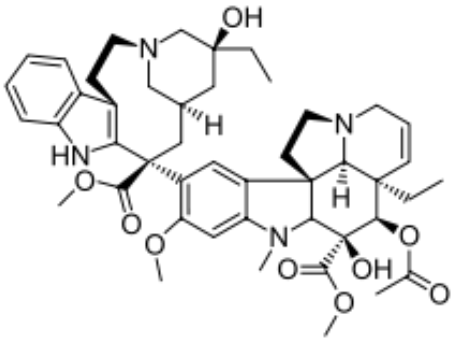
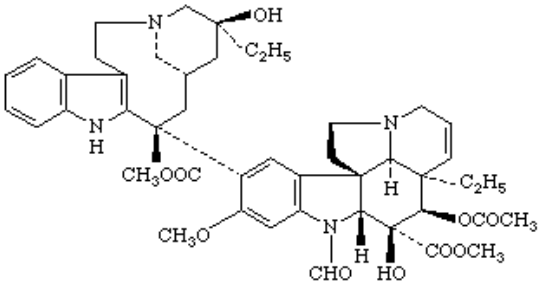
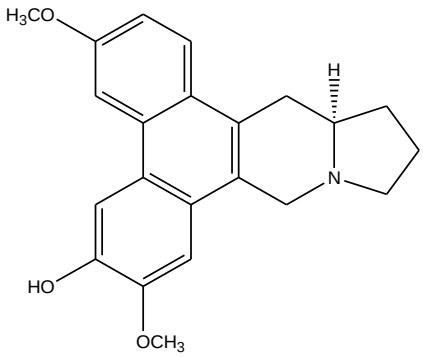
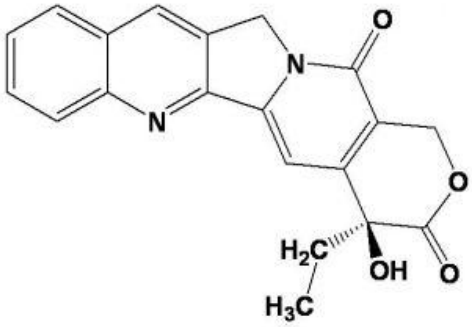
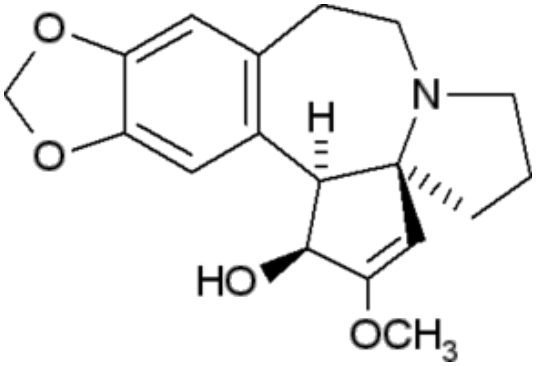
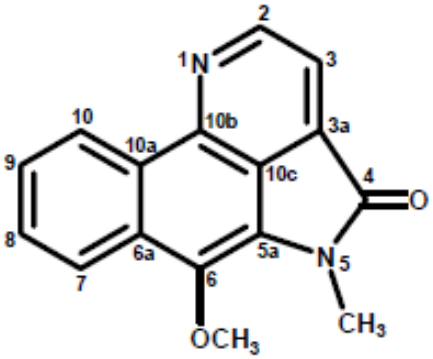
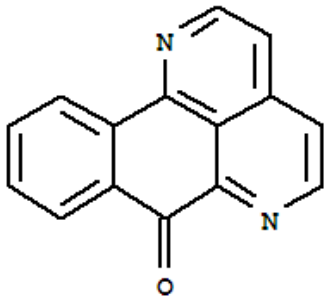
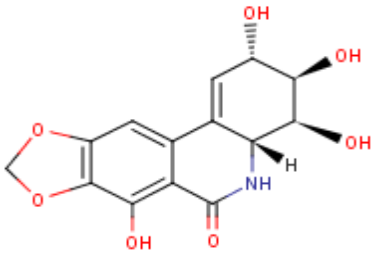
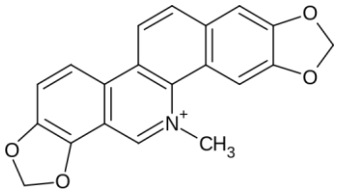
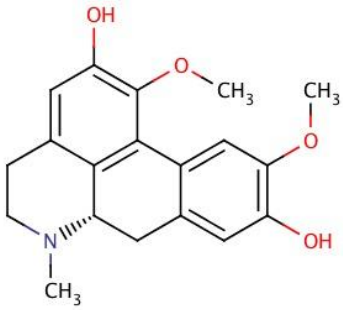
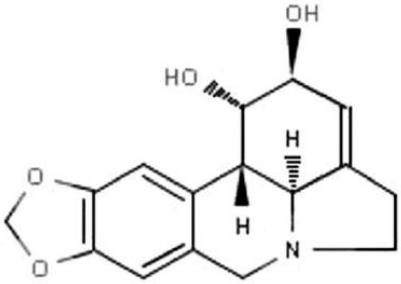
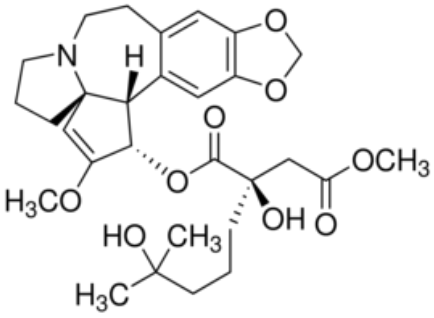
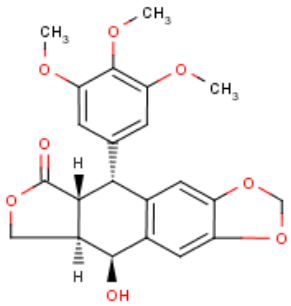
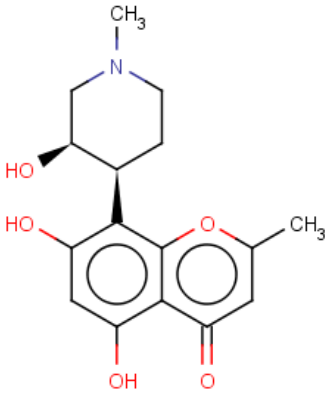
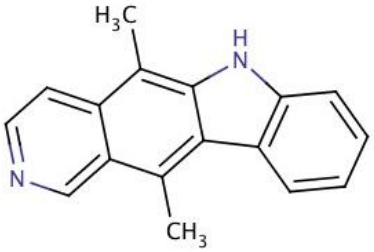
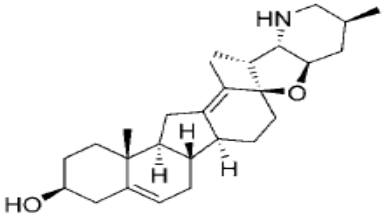
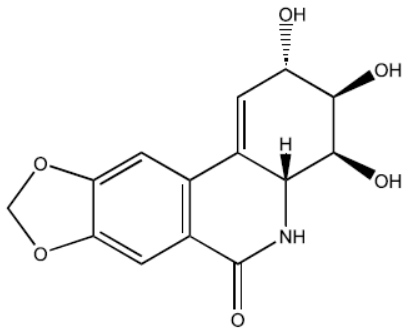
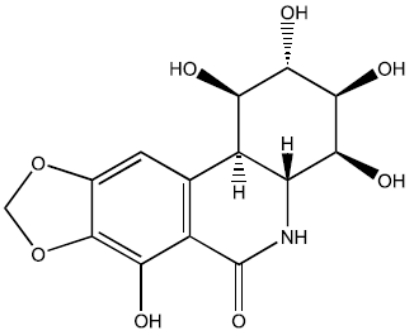
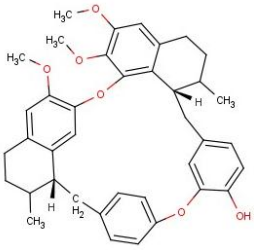
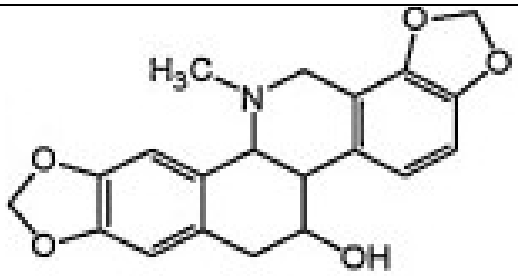
Evodiamine	
Amphimedine	
Vinblastine	
Vincristine	

Tylophoridicine A	
Camptothecin	
Cephalotaxine	
Eupolauramine	

Sampangine	
Narciclasine	
Sanguinarine	
Boldine	
Lycorine	

Homoharringtonine	
Epipodophyllotoxin	
Rohitukine	
Ellipticine	
Cyclopamnie	

Lycoricidine	
Pancratistatin	
Berbamine	
Chelidonine	
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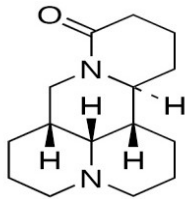
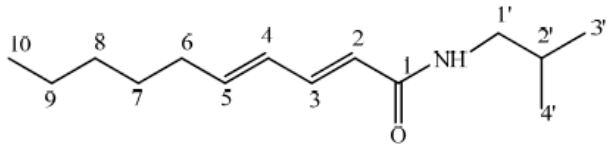
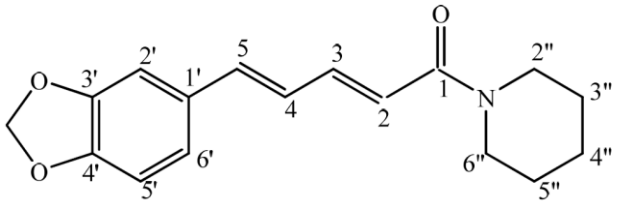
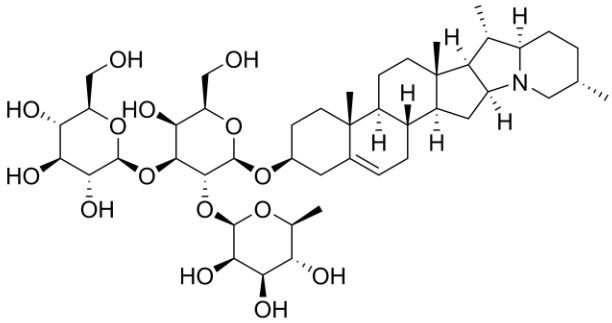
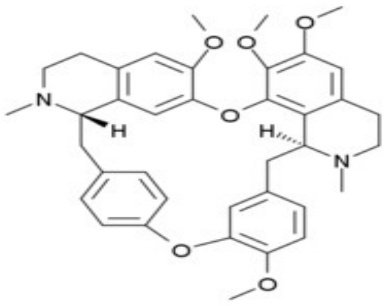
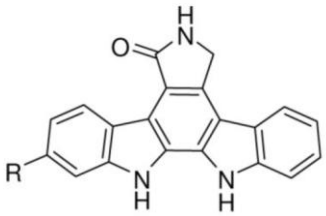
Matrine	
Pellitorine	
Piperine	
Solanine	
Tetrandrine	
Staurosporinone	

LAMPIRAN 4
TABEL HASIL PENGAMATAN

Tabel 3. Data Analisis Hasil *Docking* Konformasi Terbaik Senyawa-Senyawa Bahan Alam Alkaloid Dalam Lingkungan Tak Berair Menggunakan MMV

No	Nama Sampel	Asam Amino	Ikatan Hidrogen (Å)	Energi Ikatan (Kkal/mol)		Atom ID		Donor
				Energi Ikatan	Total Energi	Ligan	Target	
1	Cyclopamine	HIS 129	3,0505	-2,0000	-65,3390	N0	O395	Ligan
2	Staurosporine	GLU 175	2,7969	-2,0000	-67,7400	O23	N1145	Target
		THR 173	3,3208	-0,5280		N12	O1120	Ligan
3	Amphimidine	-	-	-	-58,797	-	-	-
4	Berbamine	LEU 184	2,8972	-2,0000	-56,4080	O7	N1284	Target
5	Boldine	GLU 175	3,0315	-2,0000	-55,6400	O18	N1145	Target
		THR 173	3,0277	-2,0000		O17	O1117	Ligan
6	Camptotechin	-	-	-	-63,7870	-	-	-
7	Chephalotaxine	HIS 140	3,2924	-0,7175	-60,8300	O8	N587	Target
		GLU 147	2,7594	-2,0000		O18	O685	Ligan
		GLY 142	2,7564	-2,0000		O18	O619	Ligan
8	Chelidonine	VAL 252	3,0154	-2,0000	-58,1560	O25	O2330	Ligan
9	Colchisine	-	-	-	-45,9990	-	-	-
10	Ellipticine	ARG 178	2,9894	-2	-58,7970	N12	N1195	Target
11	Epipodophyllotoxin	-	-	-	-46,8240	-	-	-
12	Euplauramine	-	-	-	-50,1800	-	-	-
13	Evodiamine	GLU 175	3,0021	-2,0000	-69,6680	O22	N1145	Target
		THR 173	2,9983	-2,0000		N6	O1120	Ligan
14	Lycoridine	ASN 213	2,5383	-1,5883	-57,0710	O19	N1732	Target
		ASN 186	3,0513	-2,0000		O17	N1329	Target
			3,0735	-2,0000		O18	N1329	Target
			3,3286	-0,4758		O17	N1318	Target
		GLU 185	3,1890	-1,4064		O17	O1308	Ligan
		THR 189	2,7721	-2,0000		O17	O1378	Ligan
15	Lycorine	CYS 172	2,5997	-1,5997	-64,4810	O20	O1107	Ligan
		CYS 177	2,5979	-1,9627		O16	O1172	Ligan
		PHE 174	2,7212	-2,0000		O16	O1130	Ligan
		THR 173	3,0294	-2,0000		O16	O1117	Ligan
16	Homoharringtonine	ARG 183	3,0674	-2,0000	-65,6770	O8	N1281	Target
		HIS 170	2,7092	-2,0000		O27	N1081	Target
		LEU 184	2,8802	-2,0000		O29	N1284	Target
		TYR 155	2,8895	-2,0000		O36	O815	Ligan

No	Nama Sampel	Asam Amino	Ikatan Hidrogen (Å)	Energy Ikatan (Kkal/mol)		Atom ID		Donor
				Energy Ikatan	Total Energi	Ligan	Target	
17	Matrine	ARG 241	3,3275	-1,0931	-54,1010	O17	N2161	Target
		GLU 228	2,8131	-2,0000		N13	O1959	Ligan
		CYS 229	2,8695	-2,0000		O17	N1961	Target
18	Pancracristine	ARG 178	2,8625	-2,0000	-63,1980	O18	O1182	Ligan
		CYS 172	3,0560	-2,0000		O19	O1107	Ligan
			2,8692	-2,0000		O17	N1102	Target
			2,6878	-2,0000		N10	O1107	Ligan
		CYS 177	3,3694	-0,2043		N10	O1172	Ligan
		LYS 171	3,0331	-2,0000		O21	N1101	Ligan
		LYS 179	3,0414	-2,0000		O17	N1201	Target
		SER 180	2,3525	-0,3500		O18	O1229	Ligan
			3,1423	-1,7178		O18	N1220	Target
		THR 173	3,2538	-0,9749		O19	O1117	Ligan
19	Pellitorine	LYS 234	2,9553	-2,0000	-61,2460	N10	O2046	Ligan
20	Narciclacine	CYS 233	2,6598	-2,0000	-63,4190	O19	O2035	Ligan
		CYS 238	3,0809	-2,0000		O20	N1200	Target
		GLY 237	2,7622	-2,0000		O20	N2093	Target
		LEU 235	3,0900	-2,0000		O19	O132	Ligan
		THR 239	2,9261	-2,0000		O20	O2119	Ligan
			2,8530	-2,0000		O19	N2111	Target
			3,0803	-2,0000		O20	N2111	Target
21	Piperine	ARG 249	2,8953	-2,0000	-79,6120	O20	N2286	Target
		HIS 220	3,0479	-2,0000		O7	N1820	Target
22	Rohitukine	ARG 163	3,0456	-2,0000	-57,2480	O18	O961	Ligan
		ARG 107	2,7009	-2,0000		O17	N70	Target
		TRP 141	2,7702	-2,0000		O17	N602	Target
			3,1327	-1,7822		O21	N602	Target
23	Sampangine	HIS 256	3,3746	-0,1695	-60,4560	N10	N2399	Target
24	Sanguinarine	-	-	-	-69,3750	-	-	-
25	Tetrandine	GLU 185	2,6661	-2,0000	-45,9990	O17	N1303	Target
		LEU 184	3,0858	-2,0000		043	N1284	Target
			2,8696	-2,0000		O17	N1284	Target
26	Tylophoridicine A	GLU 175	3,0321	-2,0000	-66,2790	O24	N1145	Target
			3,2525	-0,9831		O23	N1145	Target
		THR 173	2,9500	-2,0000		O23	01117	Ligan
27	Solanine	ARG 162	3,1118	-1,9214	-75,0780	O59	N953	Target
			2,9581	-2,0000		O14	N1303	Target
		HIS 170	2,7056	-2,0000		O56	N1081	Target

No	Nama Sampel	Asam Amino	Ikatan Hidrogen (Å)	Energy Ikatan (Kkal/mol)		Atom ID		Donor
				Energy Ikatan	Total Energi	Ligan	Target	
	Solanine	GLU 185	3,0680	-2,0000		O21	N1369	Ligan
			3,0433	-2,0000		O14	N1303	Target
		LYS 188	3,0988	-2,0000		O21	N1369	Ligan
		TYR 155	2,8289	-2,0000		O11	O829	Ligan
28	Vinblastine	GLU 128	3,1896	-1,4025	-70,5910	O19	O389	Ligan
			2,7159	-2,0000		O19	O388	Ligan
29	Vincristine	GLU 175	3,1087	-1,9418	-62,4930	N12	O1158	Ligan

Tabel 4. Data Analisis Hasil *Docking* Konformasi Terbaik Senyawa-Senyawa Bahan Alam Alkaloid Dalam Lingkungan Berair Menggunakan MMV

No	Nama Sampel	Asam Amino	Ikatan Hidrogen (Å)	Energy Ikatan (Kkal/mol)		Atom ID		Donor
				Energi Ikatan	Total Energi	Ligan	Target	
1	Cyclopamine	VAL 252	2,9655	-2,0000	-73,9010	O20	O2320	Ligan
		PRO 230	2,7922	-2,0000		N28	O1976	Ligan
2	Staurosporine	GLU 175	2,8131	-2,0000	-67,5160	O23	N1140	Target
		THR 173	3,3611	-0,5280		N12	O1115	Ligan
3	Amphimidine	-	-	-	-62,9390	-	-	-
4	Berbamine	-	-	-	-51,9560	-	-	-
5	Boldine	GLU 175	3,0452	-2,0000	-55,8740	O18	N1140	Target
		THR 173	3,0028	-2,0000		O17	O1112	Ligan
6	Camptotechin	GLU 175	2,6850	-2,0000	-	O22	N1140	Target
7	Chephalotaxine	GLU 147	2,7535	-2,0000	-60,2960	O18	O680	Ligan
		GLY 142	2,7674	-2,0000		O18	O615	Ligan
8	Chelidonine	ARG 178	3,0271	-2,0000	-72,0870	O19	O1190	Target
		CYS 172	2,8204	-2,0000		O25	O1102	Ligan
		CYS 177	2,7405	-2,0000		O25	O1167	Ligan
		PHE 174	3,2378	-1,0812		O25	O1125	Ligan
		THR 173	3,0876	-2,0000		O25	O1112	Ligan
9	Colchisine	GLU 175	2,9889	-2,0000	-46,6160	O21	N1140	Target
		PHE 174	3,1953	-1,3648		O19	N1120	Target
		H_2O	2,9790	-2,0000		O16	H_2O	Target
10	Ellipticine	GLU 175	3,0514	-2	-61,7870	N2	N1140	Target
11	Epipodophyllotoxin	-	-	-	-46,8240	-	-	-
12	Euplauramine	-	-	-	-46,8080	-	-	-
13	Evodiamine	GLU 175	2,9932	-2,0000	-69,7810	O22	N1140	Target
		THR 173	2,9967	-2,0000		N6	O1115	Ligan
14	Lycoridine	CYS 238	2,9809	-2,0000	-63,4010	O19	N2091	Target
		THR 239	2,5505	-1,6702		O18	N2109	Ligan
			2,8829	-2,0000		O19	N2101	Target
		GLU 237	3,1890	-2,0000		O19	O2084	Target
15	Lycorine	GLU 175	2,9848	-2,0000	-61,4150	O16	O1153	Ligan
		THR 173	2,6270	-2,0000		O16	O1112	Ligan
16	Homoharringtonine	ARG 178	2,7994	-2,0000	-61,4600	O36	O1177	Ligan
		GLN 118	3,3978	-0,0145		N11	O226	Ligan
		LYS 168	2,5981	-1,9874		O37	N1028	Target
		SER 180	2,9152	-2,0000		O36	N1215	Target
			2,9742	-2,0000		O36	N1224	Ligan
17	Matrine	-	-	-	-59,1230	-	-	-

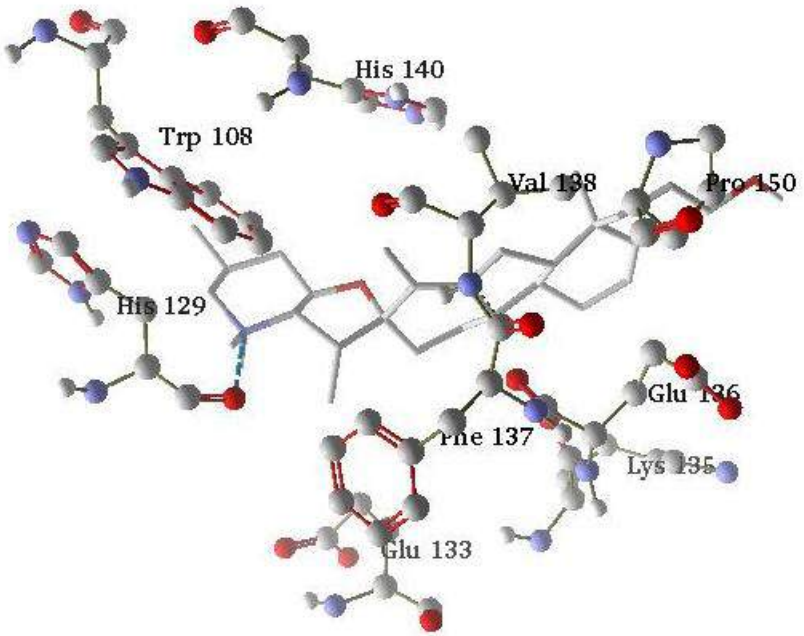
No	Nama Sampel	Asam Amino	Ikatan Hidrogen (Å)	Energy Ikatan (Kkal/mol)		Atom ID		Donor
				Energi Ikatan	Total Energi	Ligan	Target	
18	Pancracristine	ARG 178	2,8665	-2,0000	-63,247	O18	O1177	Ligan
		CYS 172	3,0517	-2,0000		O19	O1102	Ligan
			2,8941	-2,0000		O17	O1097	Target
			2,6973	-2,0000		N10	O1102	Ligan
		CYS 177	3,3744	-0,1705		N10	O1167	Ligan
		LYS 171	3,0413	-2,0000		O21	N1096	Ligan
		LYS 179	3,0463	-2,0000		O17	N1196	Target
		SER 180	2,3684	-0,4563		O18	O1224	Ligan
			3,1813	-1,4581		O18	N1215	Target
		THR 173	3,2455	-1,0301		O19	O1112	Ligan
19	Pellitorine	-	-	-	-61,217	-	-	-
20	Narciclacine	ARG 178	2,5678	-1,7850	-61,6760	O18	N1190	Target
			3,0852	-2,0000		O17	N1190	Target
		CYS 172	2,6515	-2,0000		O19	O1102	Ligan
		CYS 177	3,0631	-2,0000		O21	O1167	Ligan
		GLU 175	2,6085	-2,0000		O20	O1153	Ligan
		THR 173	3,1023	-1,9844		O21	O1112	Ligan
			2,7075	-2,0000		O20	O1112	Ligan
21	Piperine	-	-	-	-63,603	-	-	-
22	Rohitukine	GLU 136	3,0097	-2,0000	-57,168	O21	N507	Target
		GLN 154	2,6948	-2,0000		O21	O801	Ligan
23	Sampangine	-	-	-	-62,205	-	-	-
24	Sanguinarine	-	-	-	-65,263	-	-	-
25	Tetrandine	H_2O	3,2048	-1,3011	-39,8130	O17	H2O	Target
26	Tylophoridicine A	LYS 240	3,0616	-2,0000	-65,8290	O23	N2132	Ligan
			2,8650	-2,0000		N15	O2074	Ligan
27	Solanine	ARG 162	3,1118	-1,9214	-75,0780	O59	N953	Target
			2,9581	-2,0000		O14	N1303	Target
		HIS 170	2,7056	-2,0000		O56	N1081	Target
		GLU 185	3,0680	-2,0000		O21	N1369	Ligan
			3,0433	-2,0000		O14	N1303	Target
		LYS 188	3,0988	-2,0000		O21	N1369	Ligan
		TYR 155	2,8289	-2,0000		O11	O829	Ligan
28	Vinblastine	GLU 128	3,1579	-1,6141	-70,7990	O19	O387	Ligan
			2,6857	-2,0000		O19	O388	Ligan
29	Vincristine	GLU 167	3,0446	-2,0000	-58,4920	N12	O1027	Ligan

LAMPIRAN 5

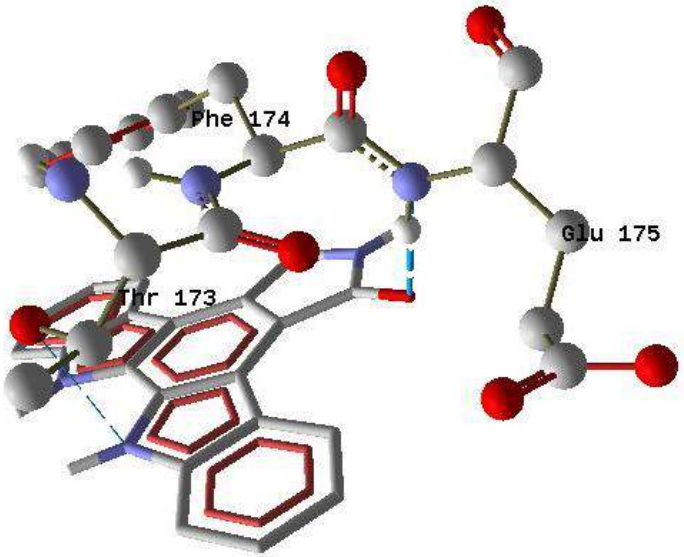
Interaksi Senyawa Uji dengan GLI dalam Lingkungan Tidak Berair

Tabel 5. Keterangan Gambar Senyawa Uji dengan GLI

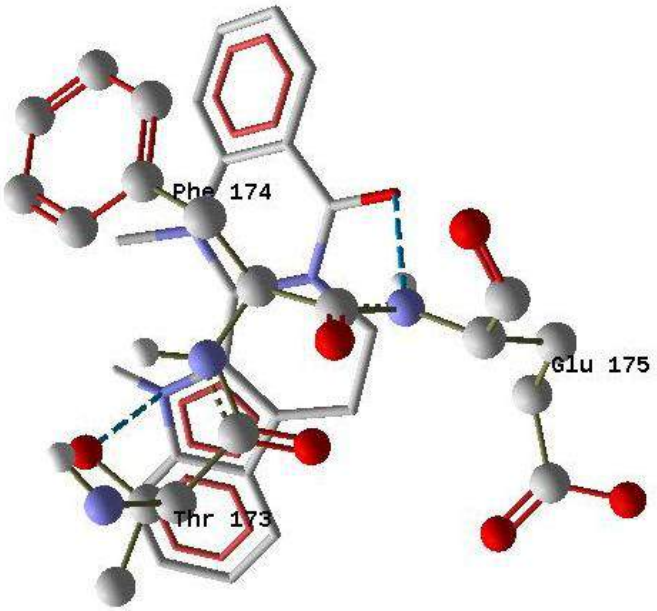
Simbol Bulatan Merah	Menunjukkan atom oksigen (O)
Simbol Bulatan Ungu	Menunjukkan atom nitrogen (N)
Simbol Bulatan Putih	Menunjukkan atom karbon (C)
Simbol Bulatan Kuning	Menunjukkan atom sulfur (S)



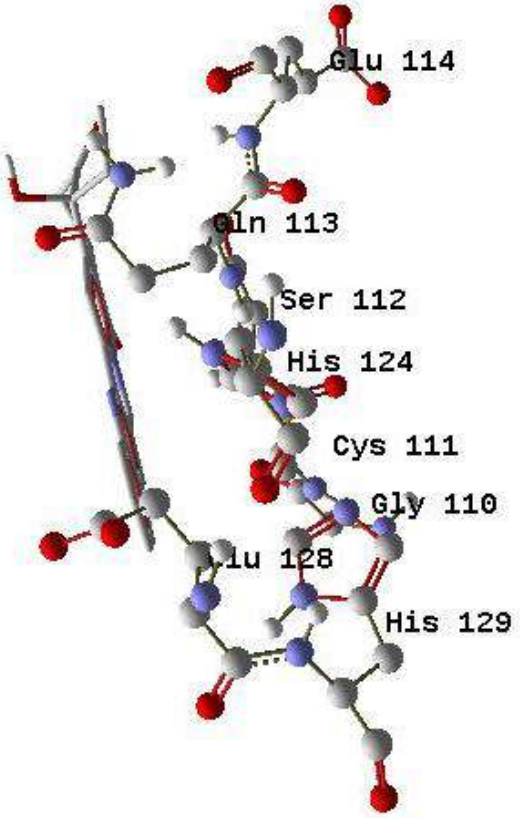
Gambar 4. Interaksi Cyclopamine dengan Protein Glioma (GLI) dalam lingkungan tak berair



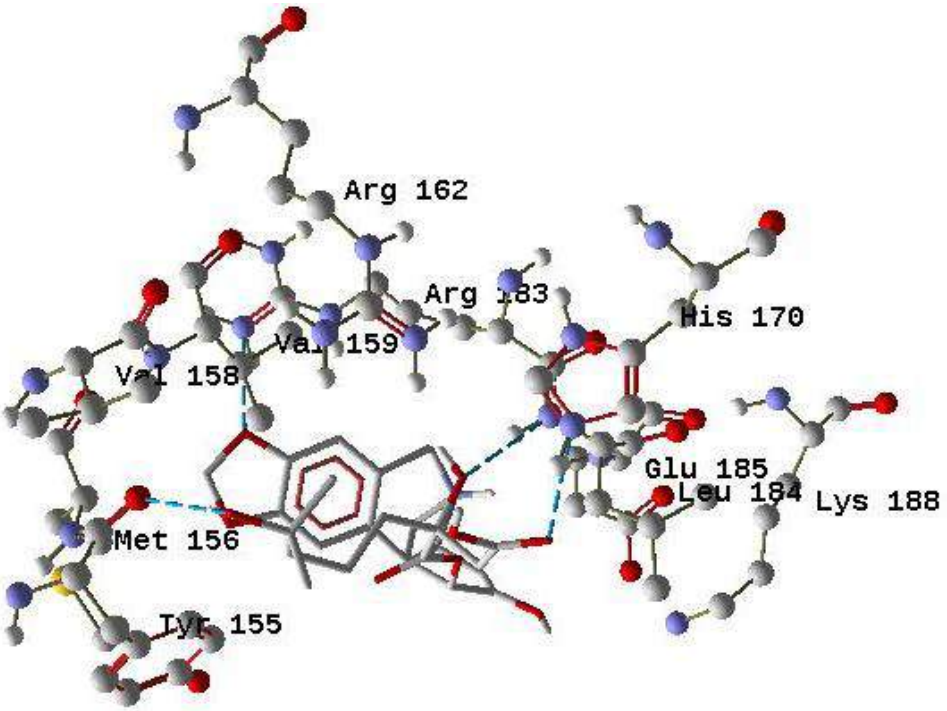
Gambar 5. Interaksi Staurosporinone dengan Protein Glioma (GLI) dalam lingkungan tak berair



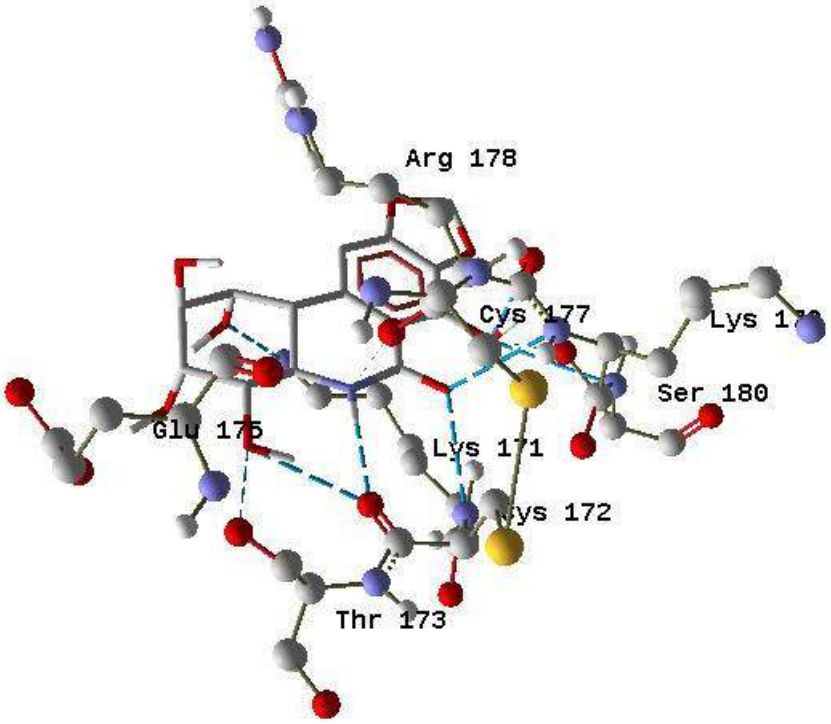
Gambar 6. Interaksi Evodiamine dengan Protein Glioma (GLI) dalam lingkungan tak berair



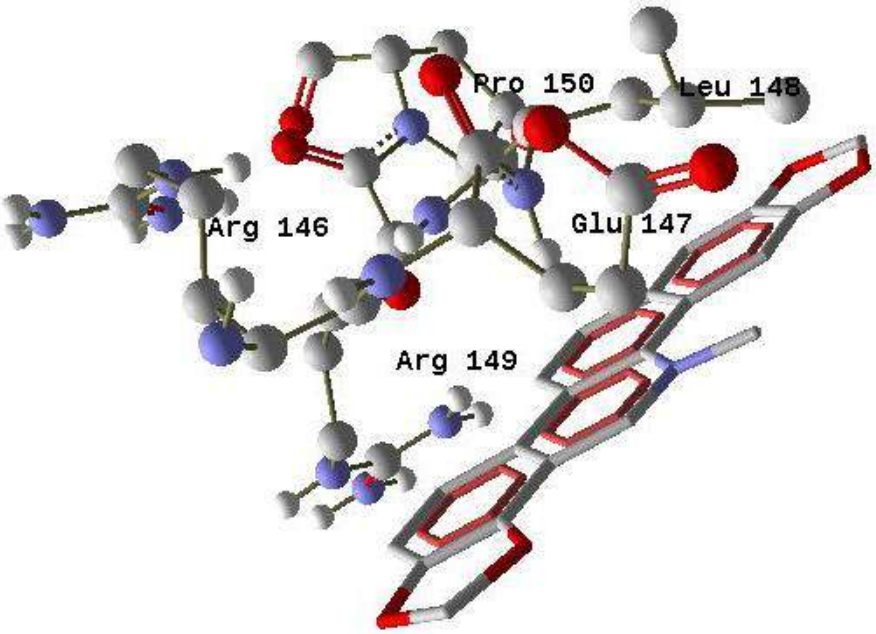
Gambar 7. Interaksi Camptotechin dengan Protein Glioma (GLI) dalam lingkungan tak berair



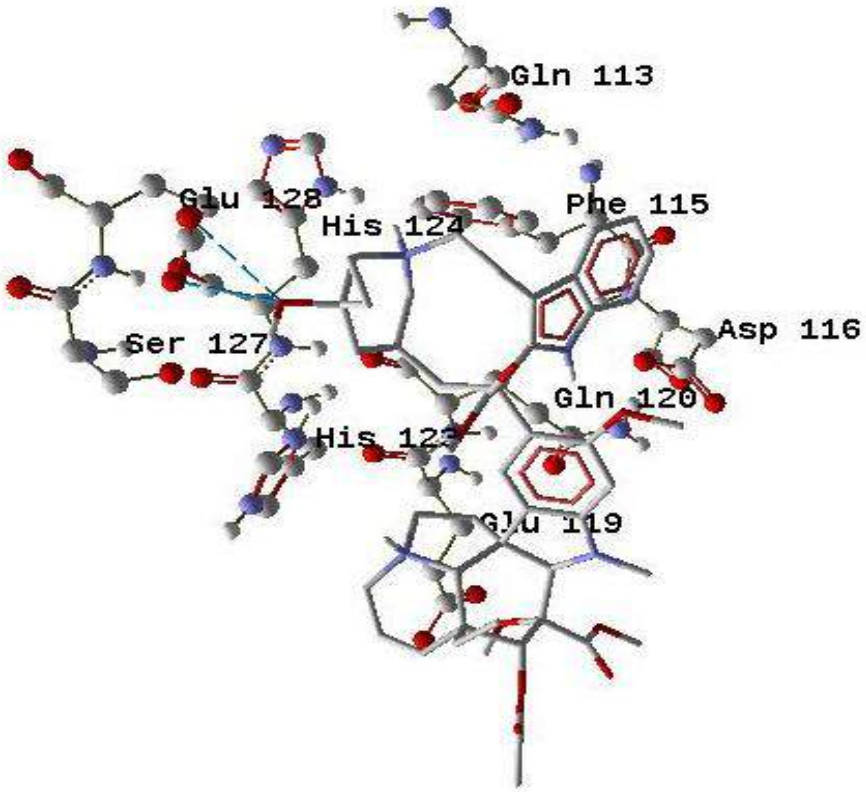
Gambar 8. Interaksi Homoharringtonine dengan Protein Glioma (GLI) dalam lingkungan tak berair



Gambar 9. Interaksi Pancracristine dengan Protein Glioma (GLI) dalam lingkungan tak berair



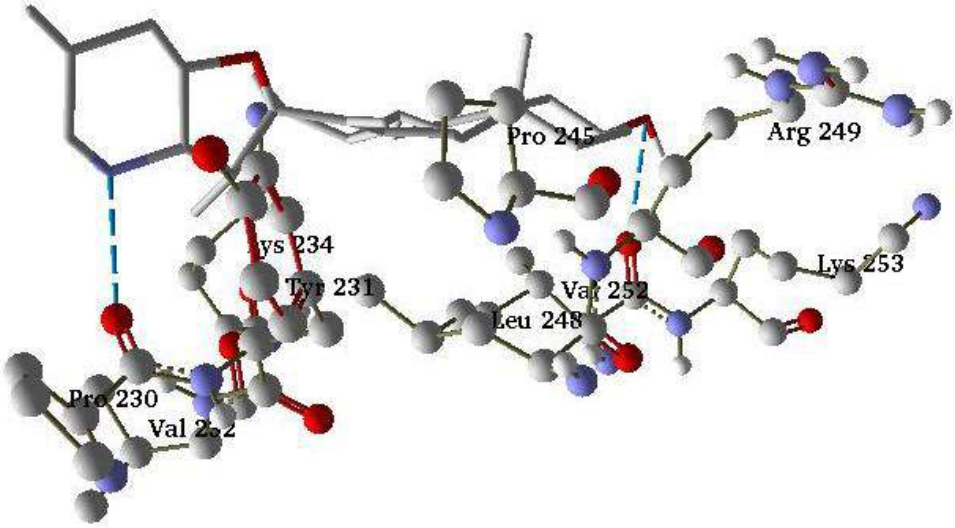
Gambar 10. Interaksi Sanguinarine dengan Protein Glioma (GLI) dalam lingkungan tak berair



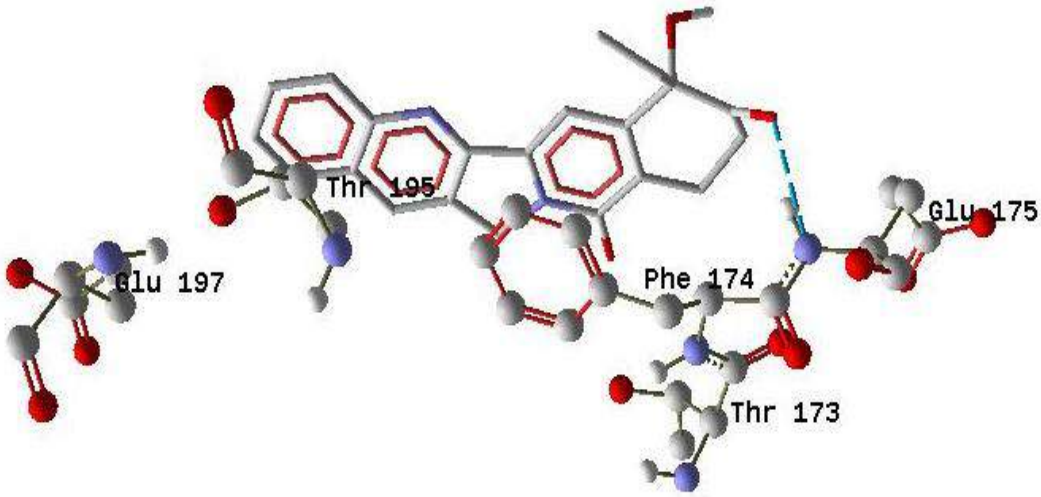
Gambar 11. Interaksi Vinblastine dengan Protein Glioma (GLI) dalam lingkungan tak berair

Lampiran 6

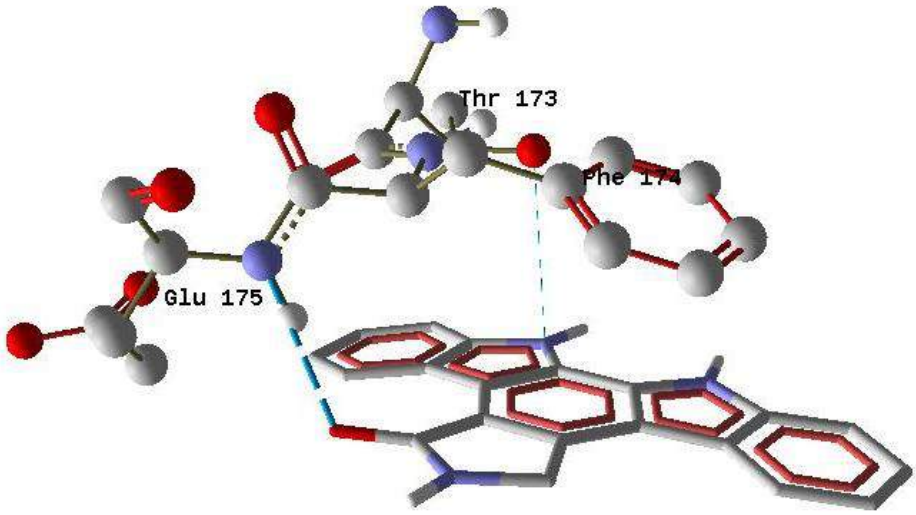
Interaksi Senyawa Uji dengan GLI dalam Lingkungan Berair



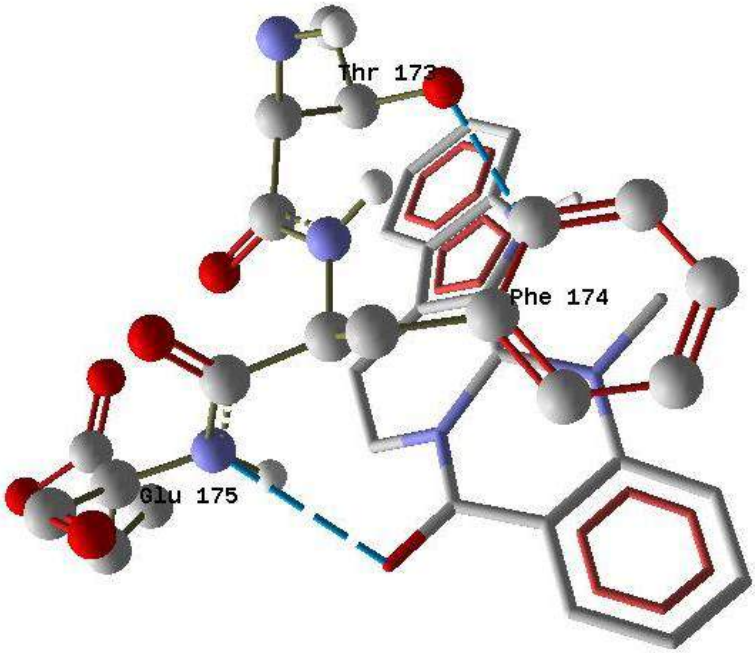
Gambar 12. Interaksi Cyclopamine dengan Protein Glioma (GLI) dalam lingkungan berair



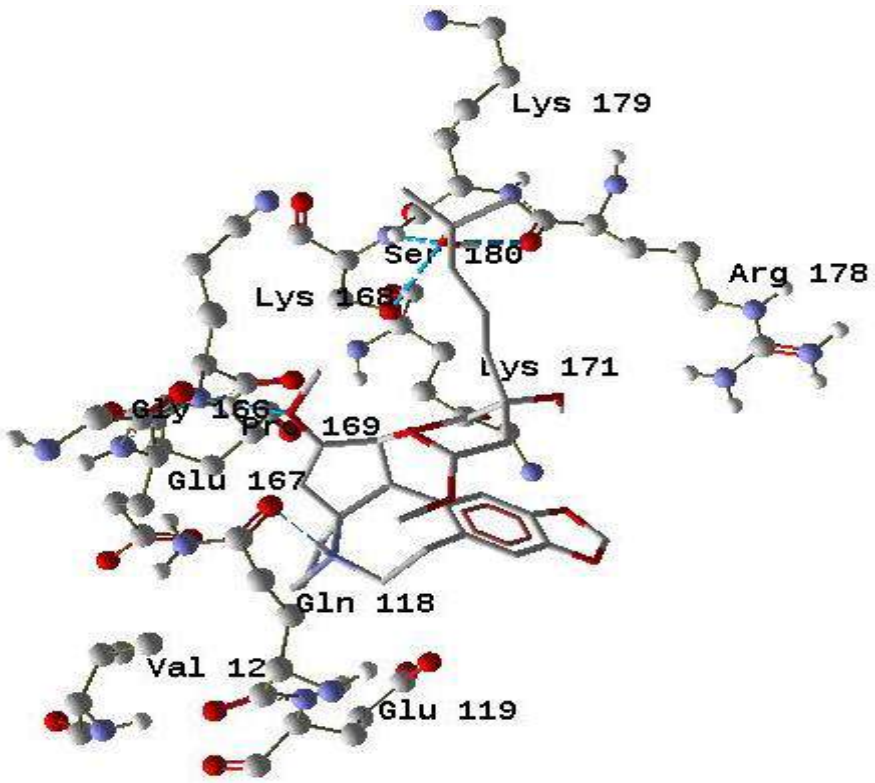
Gambar 13. Interaksi Camptotechin dengan Protein Glioma (GLI) dalam lingkungan berair



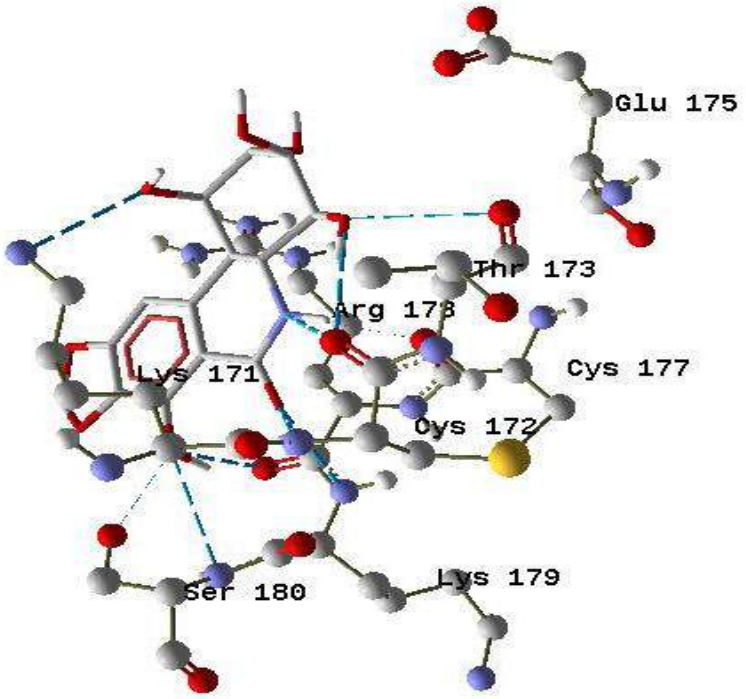
Gambar 14. Interaksi Staurosporinone dengan Protein Glioma (GLI) dalam lingkungan berair



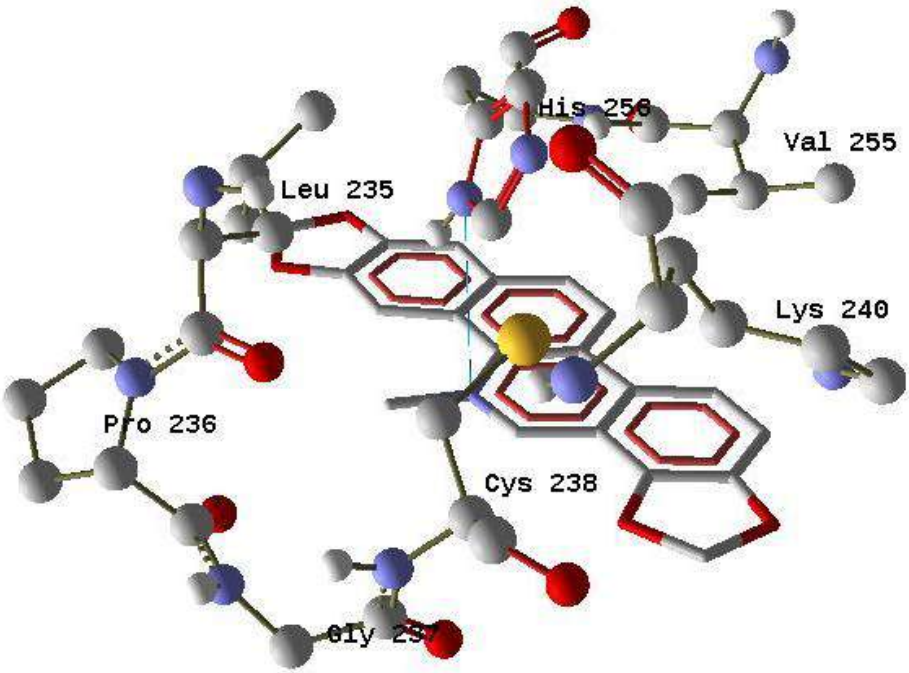
Gambar 15. Interaksi Evodiamine dengan Protein Glioma (GLI) dalam lingkungan berair



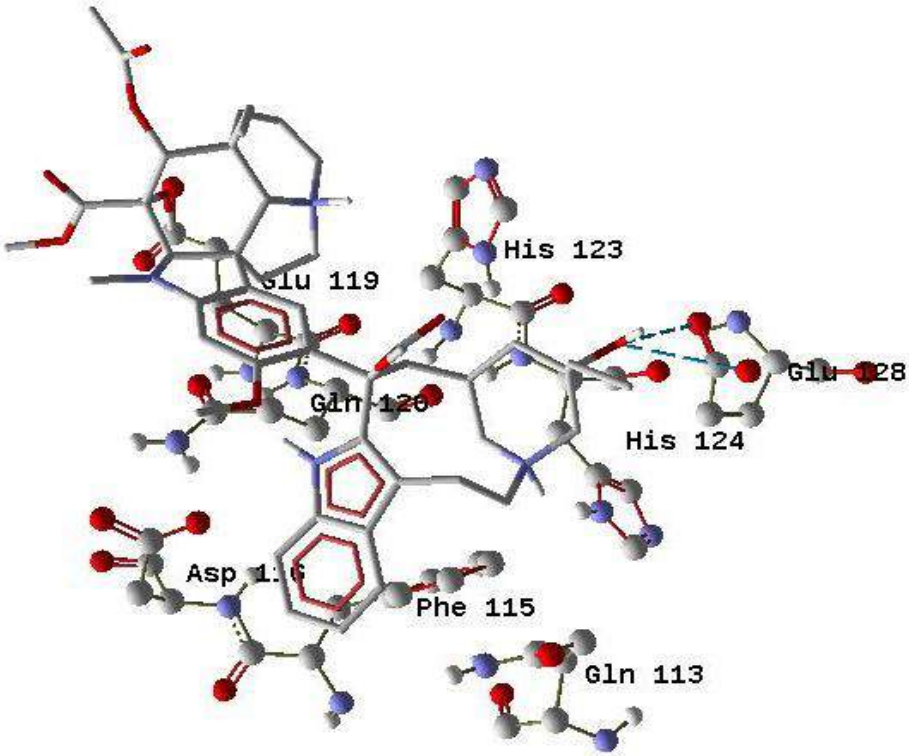
Gambar 16. Interaksi Homoharringtonine dengan Protein Glioma (GLI) dalam lingkungan berair



Gambar 17. Interaksi Pancracristine dengan Protein Glioma (GLI) dalam lingkungan berair



Gambar 18. Interaksi Sanguinarine dengan Protein Glioma (GLI) dalam lingkungan berair



Gambar 19. Interaksi Vinblastine dengan Protein Glioma (GLI) dalam lingkungan berair