

DAFTAR PUSTAKA

- Adams, P. D., Afonine, P. V., Bunkoczi, G., Chen, V. B., David, I. W., Echols, N., Head, J. J., Hung, L., Kapral, G. J., Grosse-Kunstleve, R. W., McCoy, A. J., Moriarty, N. W., Oeffener, R., Read, R. J., Richardson, D. C., Richardson, J. S., Terwillinger, T. C., Zwart, P. H. 2010. PHENIX: a comprehensive Python-based system for macromolecular structure solution. *Acta Crystallographica Section D*, D66: 213-221.
- Adivitiya, & Khasa, Y. P. 2017. The evolution of recombinant thrombolytics: Current status and future directions. *Bioengineered*, 8(4), 331–358. <https://doi.org/10.1080/21655979.2016.1229718>.
- Amri, E. & Mamboya, F. 2012. Papain, A Plant Enzyme Of Biological Importance: A Review. *American Journal of Biochemistry and Biotechnology*, 8(2), 99-104
- Altaf, F., Wu, S., & Kasim, V. 2021. Role of Fibrinolytic Enzymes in Anti-Thrombosis Therapy. *Frontiers in molecular biosciences*, 8, 680397. <https://doi.org/10.3389/fmolb.2021.680397>.
- Berger, A., Schechter, I. 1967. Mapping the active site of papain with the aid of peptide substrates and inhibitors. *Philosophical Transactions of the Royal Society B: Biological*, 257(813), 249-264. PMID:4399049
- Baker, S. R. & Ariens, R. B. 2018. *Fibrin Clot Structure and Function: A Novel Risk Factor for Arterial and Venous Thrombosis and Thromboembolism*. United Kingdom: University of Leeds, pp. 31-49.
- Bayat A. 2002. Science, medicine, and the future: Bioinformatics. *BMJ (Clinical research ed.)*, 324(7344), 1018–1022. <https://doi.org/10.1136/bmj.324.7344.1018>.
- Chan, N. N., Weitz, J. I., Eikelboom, J. W. 2016. Advances in Thrombosis and Hemostasis, *American Heart Association*, 118, 1409-142. doi: 10.1161/CIRCRESAHA.116.306925.
- Colman, R. W., Marder, V. J., Clowes, A. W., George, J. N., & Goldhaber, S. Z. (Eds.) 2005. *Hemostasis and Thrombosis* (5th ed.). New York, NY: Lippincott.
- De Vries, S. J., Bonvin, A. M. J. J. 2011. CPORT: A Consensus Interface Predictor and Its Performance in Prediction-Driven Docking with HADDOCK. *PLoS ONE*, 6(3): e17695. doi:10.1371/journal.pone.0017695.
- Edwin, F. and M.V. Jagannadham, 2000. Single disulfide bond reduced papain exists in a compact intermediate state. *Biochimica et Biophysica Acta*, 1479: 69-82. DOI: 10.1016/S0167-4838(00)00062-5.

- Flemmig, M. & Melzig, M. F. 2012. Serine-Proteases as Plasminogen Activators in Terms of Fibrinolysis. *Journal of Pharmacy and Pharmacology*, 64 (8), 1025–1039. 10.1111/j.2042-7158.2012.01457.x.
- Gutteridge, A. & Thornton, J. M. 2005. Understanding nature's catalytic toolkit. *TRENDS in Biochemical Sciences*, 30(11), 622-629.
- Jeong, S. J. & Kwon, G. 2007. Cloning of fibrinolytic enzyme gene from *Bacillus subtilis* isolated from Cheonggukjang and its expression in protease-deficient *Bacillus subtilis*. *Journal of Microbiology and Biotechnology*, 17, 1018-1023.
- Jena, D., Behera, P. C., Bisoi, P. C. 2017. Fibrinolytic effect of python-proteins on animals and poultry blood. *Indian Journal of Traditional Knowledge*, 16(4), 682-688.
- Gosalia, D. N., Salisbury, C. M., Ellman, J. A. Diamond, L. S. 2005. High Throughput Substrate Specificity Profiling of Serine and Cysteine Proteases Using Solution-phase Fluorogenic Peptide Microarrays. The American Society for Biochemistry and Molecular Biology, pp. 626-636.
- Kastritis, P. L., Rodrigues, P.G., Folkers, G. E., Boelens, R., Bonvin, M. J. 2014. Proteins Feel More Than They See: Fine-Tuning of Binding Affinity by Properties of the Non-Interacting Surface. *Journal of Molecular Biology*, pp. 1-67.
- Kim, M. J., Yamamoto, D., Matsumoto, K., Inoue, M., Ishida, T., Mizuno, H., Sumiya, S., Kitamura, K. 1992. Crystal structure of papain-E64-c complex. Binding diversity of E64-c to papain S₂ and S₃ subsites. *Biochemical Journal*, 287(3), 797-803. doi: <https://doi.org/10.1042/bj2870797>.
- Kinnunen, M., Kauppila, A., Karmenyan, A., & Myllylä, R. 2011. Effect of the size and shape of a red blood cell on elastic light scattering properties at the single-cell level. *Biomedical optics express*, 2(7), 1803–1814. <https://doi.org/10.1364/BOE.2.001803>
- Kirschner, M. B., Kao, S. C., Edelman, J. J., Armstrong, N. J., Vallely, M. P., Zandwijk, N. V., Reid, G. 2011. Haemolysis during Sample Preparation Alters microRNA Content of Plasma. *PLoS One*, 6(9), e24145. doi: 10.1371/journal.pone.0024145.
- Krishnamurthy, A., Belur, P. D., Subramanya, S. B. 2018. Methods Available to Assess Therapeutic Potential of Fibrinolytic Enzymes of Microbial Origin: A Review. *Journal of Analytical Science and Technology*, 9(1), 10. Doi: 10.1186/s40543-018-0143-3.
- Kurkuoglu Z., Koukos, P. I., Citro, N., Trellet, M.E., Rodrigues, J.P.G.L.M., Moreira I.S., Roel-Touris, J., Melquiond, A.S.J., Geng, C., Schaarschmidt, J., Xue, L.C., Vangone, A. and Bonvin, A.M.J.J. 2018. Performance of HADDOCK and a simple contact-based protein-ligand binding affinity

- predictor in the D3R Grand Challenge 2. *Journal of Computer-Aided Molecular Design*, 32, 175-185.
- La Corte, A. L. C., Philippou, H., & Ariëns, R. A. S. 2011. Role of fibrin structure in thrombosis and vascular disease. *Advances in Protein Chemistry and Structural Biology*, 83, 75-127. <http://dx.doi.org/10.1016/B978-0-12-381262-9.00003-3> PMID:21570666
- Lucy, J., Raharjo, P. F., Elvina, E., Florencia, L., Susanti, A. I., & Pinontoan, R. 2019. Clot Lysis Activity of *Bacillus subtilis* G8 Isolated from Japanese Fermented Natto Soybeans. *Applied Food Biotechnology*, 6(2), 101-109. <https://doi.org/10.22037/afb.v6i2.22479>.
- Loscalzo, J. & Schafer, A. I. 2003. *Thrombosis and Hemorrhage*. Pennsylvania: Lippincott Williams & Wilkins. pp: 349.
- Maillet, Nicolas. 2020. Rapid Peptides Generator: fast and efficient in silico protein digestion, *NAR Genomics and Bioinformatics*, 2(1), lqz004, <https://doi.org/10.1093/nargab/lqz004>
- Mine, Y., Kwan, W. A. H., Jiang, B. 2005. Fibrinolytic Enzymes in Asian Traditional Fermented Foods. *Food Research International*, 38 (3), 243–250. 10.1016/j.foodres.2004.04.008.
- Nagareddy, P., & Smyth, S. S. 2013. Inflammation and thrombosis in cardiovascular disease. *Current Opinion in Hematology*, 20(5): 457–463. doi:10.1097/moh.0b013e328364219d.
- Novinec, M. & Lenarcic, B. 2013. Papain-like peptidases: structure, function, and evolution. *Biomolecular Concepts*, 4(3), 287-308
- Schöning-Stierand, K., Diedrich, K., Fährrolfes, R., Flachsenberg, F., Meyder, A., Nittinger, E., Steinegger, R., Rarey, M. 2020. ProteinsPlus: interactive analysis of protein–ligand binding interfaces. *Nucleic Acids Research*, 48:W48-W53.
- Stephen F. Altschul, Thomas L. Madden, Alejandro A. Schäffer, Jinghui Zhang, Zheng Zhang, Webb Miller, and David J. Lipman. 1997. "Gapped BLAST and PSI-BLAST: a new generation of protein database search programs", *Nucleic Acids Res.* 25:3389-3402.
- Rose, P. W., Prlić, A., Altunkaya, A., Bi, C., Bradley, A. R., Christie, C. H., Costanzo, L. D., Duarte, J. M., Dutta, S., Feng, Z., Green, R. K., Goodsell, D. S., Hudson, B., Kalro, T., Lowe, R., Peisach, E., Randle, C., Rose, A. S., Shao, C., Tao, Y. P., Burley, S. K. 2017. The RCSB protein data bank: integrative view of protein, gene and 3D structural information. *Nucleic acids research*, 45(D1), D271–D281. <https://doi.org/10.1093/nar/gkw1000>.
- Roy, K., Kar, S., Das, N. 2015. *Understanding the Basics of QSAR for Applications in Pharmaceutical Sciences and Risk Assessment*. Kolkata: Academic Press, 10, 357-425.

- Rzychon, M., Chmielec, D., Stec-Niemczyk, J. 2004. Modes of inhibition of cysteine proteases. *Acta Biochimica Polonica*, 51(4), 861-873.
- Wallace, A. C., Laskowski, R. A., Thornton, J. M. 1995. LIGPLOT: a program to generate schematic diagrams of protein-ligand interactions. *Protein Engineering*, 8(2), 127-134.
- World Health Organization. 2017. *Cardiovascular Diseases (CVDs)*. Retrieved from World Health Organization: [https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-\(cvds\)](https://www.who.int/news-room/fact-sheets/detail/cardiovascular-diseases-(cvds)) (17 Desember 2018).
- Yang, Z., Mochalkin, I., & Doolittle, R. F. 2000. A model of fibrin formation based on crystal structures of fibrinogen and fibrin fragments complexed with synthetic peptides. *Proceedings of the National Academy of Sciences of the United States of America*, 97(26), 14156-14161. <http://dx.doi.org/10.1073/pnas.97.26.14156> PMID:11121023.
- Yogiraj, V., Goyal, P. K., Chauhan, C. S., Goyal, A., Vyas, B. (2014). Carica papaya Linn: An Overview. *International Journal of Herbal Medicine*, 2 (5): 1-8
- Yildiz, S. Y., Kuru, P. Oner, E. T., Agirbasli, M. 2014. Functional Stability of Plasminogen Activator Inhibitor-1. *The Scientific World Journal*, pp. 1-11. Doi: <http://dx.doi.org/10.1155/2014/858293>
- Zamanlu, M., Eskandani, M., Mohammadian, R., Entekhabi, N., Rafi, M., & Farhoudi, M. 2018. Spectrophotometric analysis of thrombolytic activity: SATA assay. *BioImpacts* : *BI*, 8(1), 31-38. <https://doi.org/10.15171/bi.2018.05>.
- Zucker, S., Buttle, D. J. Nicklin, M. J. H., Barret, A. J. 1985. The proteolytic activities of chymopapain, papain, and papaya proteinase III. *Biochimica et Biophysica Acta*, 828, 196-204.
- Zundert, G. C., Rodrigues, J. P., Trellet, M., Schmitz, C., Kastiris, P. L., Karaca, E., Melquiond, A. S., van Djick, M., De Vries, S. J., Bonvin, A. M. 2016. The HADDOCK2.2 Web Server: User-Friendly Integrative Modeling of Biomolecular Complexes. 428 (4), 720-725. DOI: <https://doi.org/10.1016/j.jmb.2015.09.014>.