

## DAFTAR PUSTAKA

- Abinaya, R.V. dan P. Viswanathan. 2021. Biotechnology-based therapeutics. *In*: Y. Hasija (Eds). Translational Biotechnology: A Journey from Laboratory. Elsevier Ltd, UK, p: 27-52.
- Alberts, B., A. Johnson, J. Lewis, M. Raff, K. Roberts, dan P. Walter. 2002. Molecular Biology of the Cell. 4<sup>th</sup> ed. Garland Science, New York.
- Andrew, C.D., S. Penel, G.R. Jones, dan A.J. Doig. 2001. Stabilizing nonpolar/polar side-chain interactions in the  $\alpha$ -helix. *Proteins* 45(4): 449-455.
- Bhatwa, A., W. Wang, Y.I. Hassan, N. Abraham, X. Li, dan T. Zhou. 2021. Challenges associated with the formation of recombinant protein inclusion bodies in *Escherichia coli* and strategies to address them for industrial applications. *Frontiers in Bioengineering and Biotechnology* 9: 630551.
- Bhaumik, S., dan S.S. Gambhir. 2001. Optical imaging of *Renilla* luciferase reporter gene expression in living mice. *PNAS* 99(1): 377-382.
- Briand, L., G. Marcion, A. Kriznik, J.M. Heydel, Y. Artur, C. Garrido, R. Seigneuric, dan F. Neiers. 2016. A self-inducible heterologous protein expression system in *Escherichia coli*. *Scientific Reports* 6: 1-11.
- Chaiyen, P., M.W. Fraaije, dan A. Mattevi. 2012. The enigmatic reaction of flavins with oxygen. *Trends in Biochemical Sciences* 37(9): 373-380.
- Chen, X., C. Li, dan H. Liu. 2021. Enhanced recombinant protein production under special environmental stress. *Frontiers in Microbiology* 12: 630814.
- Culver, J.A., X. Li, M. Jordan, dan M. Mariappan. 2022. A second chance for protein targeting/folding: Ubiquitination and deubiquitination of nascent proteins. *Bioessays* 44(6): 2200014.
- Delroisse, J., L. Duchatelet, P. Flammang, dan J. Mallefet. 2021. Leaving the dark side? Insights into the evolution of luciferases. *Frontiers in Marine Science* 8: 673620.
- Dragan, A., P. Privalov, dan C. Crane-Robinson. 2019. Thermodynamics of DNA: heat capacity changes on duplex unfolding. *European Biophysics Journal* 48: 773–779.
- Dudek, H.M., P. Popken, E. van Bloois, W.A. Duetz, dan M.W. Fraaije. 2013. A generic, whole-cell-based screening method for Baeyer-Villiger monooxygenases. *Journal of Biomolecular Screening* 18(6): 678-687.
- Fagan, R.L. dan B.A. Palfey. 2010. Cofactors: Flavin-Dependent Enzymes. *In*: H. Liu and L. Mander (Eds). *Comprehensive Natural Products II*. Elsevier Ltd, UK, p: 37-113.
- Fakruddin, M., R.M. Mazumdar, K.S.B. Mannan, A. Chowdhury, dan M.N. Hossain. 2013. Critical factors affecting the success of cloning, expression, and mass production of enzymes by recombinant *E. coli*. *ISRN Biotechnology* 2013: 590587.
- Furst, M.J.L.J., A. Gran-Scheuch, F.S. Aalbers, dan M.W. Fraaije. 2019. Baeyer–Villiger monooxygenases: tunable oxidative biocatalysts. *ACS Catalysis* 9: 11207–11241.

- Galloway, C.A., M.P. Sowden, dan H.C. Smith. 2003. Increasing the yield of soluble recombinant protein expressed in *E. coli* by induction during late log phase. *BioTechniques* 34:524-530.
- Gonzalo, G. dan A.R. Alcántara. 2021. Multienzymatic Processes Involving Baeyer–Villiger Monooxygenases. *Catalysts* 11(5): 605-629.
- Gorania, M. dan H. Seker. 2010. Predicting a protein's melting temperature from its amino acid sequence. *Annual International Conference of the IEEE Engineering in Medicine and Biology* 2010: 1820-1823.
- Groot, N.S., A. Espargaró, M. Morell, dan S. Ventura. 2008. Studies on bacterial inclusion bodies. *Future Microbiology* 3(4): 423–435.
- Hamada, H., T. Arakawa, dan K. Shiraki. 2009. Effect of additives on protein aggregation. *Current Pharmaceutical Biotechnology* 10: 400-407.
- Huynh, K. dan C.L. Partch. 2015. Analysis of protein stability and ligand interactions by thermal shift assay. *Current Protocols in Protein Science* 79: 1-14.
- Islam, M.S., A. Aryasomayajula, dan P.R. Selvaganapathy. 2017. A review on macroscale and microscale cell lysis methods. *Micromachines (Basel)* 8(3): 83.
- Ji, X., J. Tu, Y. Song, C. Zhang, L. Wang, Q. Li, dan J. Ju. 2020. A luciferase-like monooxygenase and flavin reductase pair AbmE2/AbmZ catalyzes baeyer–villiger oxidation in neoabyssomicin biosynthesis. *ACS Catalysis* 10: 2591–2595.
- Koley, D., dan A.J. Bard. 2010. Triton X-100 concentration effects on membrane permeability of a single HeLa cell by scanning electrochemical microscopy (SECM). *Biochemistry* 107(39): 16783-16787.
- Kramer, R.M., V.R. Shende, N. Motl, C.N. Pace, dan J.M. Scholtz. 2012. Toward a molecular understanding of protein solubility: Increased negative surface charge correlates with increased solubility. *Biophysical Journal* 102(8): 1907–1915.
- Ku, T., P. Lu, C. Chan, T. Wang, S. Lai, P. Lyu, dan N. Hsiao. 2009. Predicting melting temperature directly from protein sequences. *Computational Biology and Chemistry* 33(6): 445-450.
- Kuczyńska-Wiśnik, D., M. Moruno-Algara, K. Stojowska-Swędryńska, dan E. Laskowska. 2016. The effect of protein acetylation on the formation and processing of inclusion bodies and endogenous protein aggregates in *Escherichia coli* cells. *Microbial Cell Factories* 15(1): 189.
- Li, Z., dan U. Rinas. 2021. Recombinant protein production-associated metabolic burden reflects anabolic constraints and reveals similarities to a carbon overfeeding response. *Biotechnology and Bioengineering* 118(1): 94-105.
- Liu, P., L.V. Avramova, dan C. Park. 2009. Revisiting absorbance at 230 nm as a protein unfolding probe. *Analytical Biochemistry* 389(2): 165-170.
- Maier, S., T. Heitzler, K. Asmus, E. Brotz, U. Hardter, K. Hesselbach, T. Paululat, dan A. Bechthold. 2015. Functional characterization of different ORFs including

- luciferase-like monooxygenase genes from the mensacarcin gene cluster. *Chembiochem* 16(8): 1175-1182.
- Mamipour, M., M. Yousefi, dan M. Hasanzadeha. 2017. An overview on molecular chaperones enhancing solubility of expressed recombinant proteins with correct folding. *International Journal of Biological Macromolecules* 102: 367–375.
- Martinez, L.M. 2021. Sonication cell lysis protocol. <<https://www.sepmag.eu/blog/sonication-cell-lysis-protocol>>. Diakses pada 18 Juni 2021.
- Mascotti, M.L., M.J. Ayub, N. Furnham, J.M. Thornton, dan R.A. Laskowski. 2016. Chopping and changing: the evolution of the flavin-dependent monooxygenases. *Journal of Molecular Biology* 428(15): 3131–3146.
- Nowakowski, A.B., W.J. Wobig, dan D.H. Petering. 2014. Native SDS-PAGE: High resolution electrophoretic separation of proteins with retention of native properties including bound metal ions. *Metallomics* 6(5): 1068–1078.
- Paul, C.E., D. Eggerichs, A.H. Westphal, D. Tischler, dan W.J.H. van Berkel. 2021. Flavoprotein monooxygenases: Versatile biocatalysts. *Biotechnology Advances* 51: 1-25.
- Pazmino, D.E.T., M. Winkler, A. Glieder, dan M.W. Fraaije. 2010. Monooxygenases as biocatalysts: Classification, mechanistic aspects and biotechnological applications. *Journal of Biotechnology* 146: 9–24.
- Pelegrine, D.H.G. dan C.A. Gasparetto. 2005. Whey proteins solubility as function of temperature and pH. *LWT - Food Science and Technology* 38(1): 77-80.
- Prasad, S., P.B. Khadatare, dan I. Roy. 2011. Effect of chemical chaperones in improving the solubility of recombinant proteins in *Escherichia coli*. *Applied and Environmental Microbiology* 77(13): 4603–4609.
- Restrepo-Pineda, S., N. Sánchez-Puig, N.O. Pérez, E. García-Hernández, N.A. Valdez-Cruz, dan M.A. Trujillo-Roldán. 2022. The pre-induction temperature affects recombinant HuGM-CSF aggregation in thermoinducible *Escherichia coli*. *Applied Microbiology and Biotechnology* 106: 2883–2902.
- Rizkia, P.R., S. Silaban, K. Hasan, D.S. Kamara, T. Subroto, S. Soemitro, dan I.P. Maksum. 2015. Effect of isopropyl- $\beta$ -D-thiogalactopyranoside concentration on prethrombin-2 recombinan gene expression in *Escherichia coli* ER2566. *Procedia Chemistry* 17: 118-124.
- Romero, E., J.R.G. Castellanos, G. Gadda, M.W. Fraaije, dan A. Mattevi. 2018. Same substrate, many reactions: oxygen activation in flavoenzymes. *Chemical Reviews* 118: 1742-1769.
- Schmidt, S., dan U.T. Bornscheuer. 2020. Baeyer-Villiger monooxygenases: From protein engineering to biocatalytic applications. *The Enzymes* 47: 231-281.
- Shire, S.J. 2015. Monoclonal Antibodies: Meeting the Challenges in Manufacturing, Formulation, Delivery and Stability of Final Drug Product. Elsevier Ltd, UK, p: 93-120.

- Singh, A., V. Upadhyay, A.K. Upadhyay, S.M. Singh, dan A.K. Panda. 2015. Protein recovery from inclusion bodies of *Escherichia coli* using mild solubilization process. *Microbial Cell Factories* 14: 41.
- Sorensen, H.P., dan K.K. Mortensen. 2005. Soluble expression of recombinant proteins in the cytoplasm of *Escherichia coli*. *Microbial Cell Factories* 4(1): 1-8.
- Tauchid, A. 2021. Isolasi, Kloning dan Ekspresi *Open Reading Frame Luciferase-like Monooxygenase Enzyme* Tipe 2 dari *Priestia megaterium* PSA14. Fakultas Pertanian. Universitas Gadjah Mada. Skripsi.
- Terol, G.L., J. Gallego-Jara, R.A.S. Martínez, A.M. Vivancos, M.C. Díaz, dan T.D. Puente. 2021. Impact of the expression system on recombinant protein production in *Escherichia coli* BL21. *Frontiers in Microbiology* 12: 682001.
- Tolmie, C., M.S. Smita, dan D.J. Opperman. 2018. Native roles of Baeyer–Villiger monooxygenases in the microbial metabolism of natural compounds. *Natural Product Reports* 36(2): 1-28.
- Tsumoto, K., D. Ejima, I. Kumagai, dan T. Arakawa. 2003. Practical considerations in refolding proteins from inclusion bodies. *Protein Expression and Purification* 28: 1–8.
- Widder, E. A., dan B. Falls. 2014. Review of bioluminescence for engineers and scientists in biophotonics. *IEEE Journal of Selected Topics in Quantum Electronics* 20(2): 1-10.
- Woo, J., E. Jeon, E. Seo, J. Seo, D. Lee, Y.J. Yeon, dan J. Park. 2018. Improving catalytic activity of the Baeyer–Villiger monooxygenase-based *Escherichia coli* biocatalysts for the overproduction of (Z)-11-(heptanoyloxy)undec-9-enoic acid from ricinoleic acid. *Scientific Reports* 8(1): 10280.
- Yachnin, B.J., T. Sprules, M.B. McEvoy, P.C.K. Lau, dan A.M. Berghuis. 2012. The substrate-bound crystal structure of a Baeyer–Villiger monooxygenase exhibits a Criegee-like conformation. *Journal of American Chemistry Society* 134(18): 7788–7795.
- Yamaguchi, H., dan M. Miyazaki. 2014. Refolding techniques for recovering biologically active recombinant proteins from inclusion bodies. *Biomolecules* 4(1): 235-251.
- Yang, Z., L. Zhang, Y. Zhang, T. Zhang, Y. Feng, X. Lu, W. Lan, J. Wang, H. Wu, C. Cao, dan X. Wang. 2011. Highly efficient production of soluble proteins from insoluble inclusion bodies by a two-step-denaturing and refolding method. *PlosONE* 6(7): 1-8.
- Zeng, H., dan A. Yang. 2019. Quantification of proteomic and metabolic burdens predicts growth retardation and overflow metabolism in recombinant *Escherichia coli*. *Biotechnology and Bioengineering* 116: 1484–1495.
- Zhang, Y., S. Sharan, Å. Rinnan, dan V. Orlien. 2021. Survey on methods for investigating protein functionality and related molecular characteristics. *Foods* 10(11): 2848.