UNIVERSITAS GADJAH MADA
Isolasi, Kloning, dan Ekspresi Open Reading Frame Alcohol Dehydrogenase dari Planococcus plakortidis JS01
Rr. Angelicha Larasati Chandra Diningrat, M. Saifur Rohman, S.P., M.Si., M.Eng., Ph.D.; Susanti Mugi Lestari, S.P.,
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Anton, B. P. and E. A. Raleigh. 2016. Complete genome sequence of NEB 5-alpha, a derivative of *Escherichia coli* K-12 DH5α. Genome Announcements 4(6).

Aupič, J., F. Lapenta, Ž. Strmšek, E. Merljak, T. Plaper, and R. Jerala. 2022. Metal ion–regulated assembly of designed modular protein cages. Science Advances 8: 1–12.

Baker, P. J., K. L. Britton, M. Fisher, J. Esclapez, C. Pire, M. J. Bonete, J. Ferrer, and D. W. Rice. 2009. Active site dynamics in the zinc-dependent medium chain alcohol dehydrogenase superfamily. Proceedings of the National Academy of Sciences 106(3): 779–784.

Balakrishnan, R., M. Mori, I. Segota, Z. Zhang, R. Aebersold, C. Ludwig, and T. Hwa. 2022. Principles of gene regulation quantitatively connect DNA to RNA and proteins in bacteria. Science 378(6624): 1–29.

Bhatwa, A., W. Wang, Y. I. Hassan, N. Abraham, X. Z. Li, and T. Zhou. 2021. Challenges associated with the formation of recombinant protein inclusion bodies in *Escherichia coli* and strategies to address them for industrial applications. In Frontiers in Bioengineering and Biotechnology 9(630551): 1–18.

Chen, C. and V. C. Ward. 2024. Recombinant protein expression and its biotechnological applications in *Chlorella* spp. SynBio 2: 223–239.

Dumorne, K., D. C. Córdova, M. Astorga-Eló, and P. Renganathan. 2017. Extremozymes: a potential source for industrial applications. Journal of Microbiology and Biotechnology 27(4): 649–659.

Fakhrizal, N. F. 2025. Analisis Aktivitas Lipolitik dari *Planococcus* sp. JS01. Fakultas Pertanian. Universitas Gadjah Mada. Skripsi.

Farahani, S., A. R. Bandani, H. Alizadeh, S. H. Goldansaz, and S. Whyard. 2020. Differential expression of heat shock proteins and antioxidant enzymes in response to temperature, starvation, and parasitism in the Carob moth larvae, Ectomyelois ceratoniae (Lepidoptera: Pyralidae). PloS One 15(1): 1–18.

Heyde, S. A. H. and M. H. H. Nørholm. 2021. Tailoring the evolution of BL21(DE3) uncovers a key role for RNA stability in gene expression toxicity. Communications Biology 4(963): 1–9.

Hong, S. H., K. R. Kim, and D. K. Oh. 2015. Biochemical properties of retinoid-converting enzymes and biotechnological production of retinoids. Applied Microbiology and Biotechnology 99(19): 7813–7826.

Hopkinson, R. J., I. K. Leung, T. J. Smart, N. R. Rose, L. Henry, T. D. Claridge, and C. J. Schofield. 2015. Studies on the glutathione-dependent formaldehyde-activating enzyme from *Paracoccus denitrificans*. PLoS One 10(12): 1–17.

Hussain, S. M., A. Sharif, F. Bashir, S. Ali, A. Javid, A. I. Hussain, A. Ghafoor, M. A. Alshehri, A. Naeem, E. Naeem, and M. Amjad. 2026. Polymerase chain reaction: a toolbox for molecular discovery. Molecular Biotechnology 68: 409–421.

Idowu, O. S., D. O. Idoko, S. O. Ogundipe, and E. Mensah. 2025. Optimizing SDS-PAGE for accurate protein characterization in nutritional research and food quality

UNIVERSITAS GADJAH MADA
Isolasi, Kloning, dan Ekspresi Open Reading Frame Alcohol Dehydrogenase dari Planococcus plakortidis
JS01
Rr. Angelicha Larasati Chandra Diningrat, M. Saifur Rohman, S.P., M.Si., M.Eng., Ph.D.; Susanti Mugi Lestari, S.P.,
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

assessment. International Journal of Innovative Science and Research Technology 10(1): 1008–1045.

Jain, N., F. Richter, I. Adzhubei, A. J. Sharp, and B. D. Gelb. 2023. Small open reading frames: a comparative genetics approach to validation. BMC Genomics 24(226): 1–11.

Kanaya, O. N. dan A. Achyar. 2023. Analisis variasi genetik sekuen gen pht1 pada padi (*Oryza sativa*) NCBI Popset 240028097 menggunakan RFLP secara *In Silico*. Jurnal Serambi Biologi 8(1): 5–9.

Kasamatsu, S., A. Nishimura, M. M. Alam, M. Morita, K. Shimoda, T. Matsunaga, M. Jung, S. Ogata, U. Barayeu, T. Tomoakilda, M. Nishida, A. Nishimura, H. Motohashi, and T. Akaike. 2023. Supersulfide catalysis for nitric oxide and aldehyde metabolism. Science Advances 9(8631): 1–16.

Kaur, I., A. P. Das, M. Acharya, H. P. Klenk, A. Sree, and S. Mayilraj. 2012. *Planococcus plakortidis* sp. nov., isolated from the marine sponge *Plakortis simplex* (Schulze). International Journal of Systematic and Evolutionary Microbiology 62(4): 883–889.

Khehra N, I. S. Padda, and M. Zubair. 2023. Polymerase Chain Reaction (PCR). In: StatPearls. Treasure Island (FL): StatPearls Publishing. PMID: 36943981.

Klein, V. J., S. H. Troøyen, L. F. Brito, G. Courtade, T. Brautaset, and M. Irla. 2024. Identification and characterization of a novel formaldehyde dehydrogenase in *Bacillus subtilis*. Applied and Environmental Microbiology 90(11): 1–15.

Kulasekaran, N. T., M. Leema, V. Vasavan, D. Gopal, and J. Marimuthu. 2025. Improved total carotenoid content from *Planococcus plakortidis* NIOT3 through microwave assisted extraction and genome-guided pathway annotation. Enzyme and Microbial Technology 190(110707): 1–11.

Li, N., J. Ma, H. Fu, Z. Yang, C. Xu, H. Li, Y. Zhao, Y. Zhao, S. Chen, L. Gou, X. Zhang, S. Zhang, M. Li, X. Hou, L. Zhang, and Y. Lu. 2024. Four parallel pathways in T4 Ligase-catalyzed repair of nicked DNA with diverse bending angles. Advanced Science 11(2401150): 1–9.

Liu, M., Z. Li, J. Huang, J. Yan, G. Zhao, Y. Zhang. 2024. OptoLacI: optogenetically engineered lactose operon repressor LacI responsive to light instead of IPTG. Nucleic Acids Research 52(13): 8003–8016.

López, C. G, A. J. Sánchez, and H. R. Rosas. 2016. Diversity and evolutionary analysis of iron-containing (Type-III) alcohol dehydrogenases in eukaryotes. PLoS One 11(11): 1–30.

Madan, L. N., O. M. Boldura, C. Balta, and S. Enany. 2020. Synthetic Biologi: New Interdisciplinary Science. IntechOpen, United Kingdom.

Madigan, M. T., K. S. Bender, D. H. Buckley, W. M. Sattley, D. A. Stahl, and T. D. Brock. 2019. Brock Biology of Microorganisms Fifteenth Edition. Pearson Education, United Kingdom.

McCloskey, C. M., J. Y. Liao, S. Bala, and J. C. Chaput. 2019. Ligase-mediated threose nucleic acid synthesis on DNA templates. ACS Synthetic Biology 8(2): 282–286.

UNIVERSITAS GADJAH MADA
Isolasi, Kloning, dan Ekspresi Open Reading Frame Alcohol Dehydrogenase dari Planococcus plakortidis JS01
Rr. Angelicha Larasati Chandra Diningrat, M. Saifur Rohman, S.P., M.Si., M.Eng., Ph.D.; Susanti Mugi Lestari, S.P.,
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Milagre, C. D. and H. M. Milagre. 2022. Alcohol dehydrogenase-catalyzed oxidation. Current Opinion in Green and Sustainable Chemistry 38(100694): 1–11.

Miranda, A. S., C. D. Milagre, and F. Hollmann. 2022. Alcohol dehydrogenases as catalysts in organic synthesis. Frontiers in Catalysis 2(900554): 1–32.

Moyo, A. C., L. Dufossé, D. Giuffrida, L. J. van Zyl, and M. Trindade. 2022. Structure and biosynthesis of carotenoids produced by a novel *Planococcus* sp. isolated from South Africa. Microbial Cell Factories 21(43): 1–13.

Pangestu, N. 2026. Produksi L-asparaginase oleh *Planococcus* sp. JS01 pada Beberapa Konsentrasi. Fakultas Pertanian. Universitas Gadjah Mada. Skripsi.

Plapp, B. V., B. R. Savarimuthu, D. J. Ferraro, J. K. Rubach, E. N. Brown, and S. Ramaswamy. 2017. Horse liver alcohol dehydrogenase: zinc coordination and catalysis. Biochemistry 56(28): 3632–3646.

Putri, J. 2023. Isolasi dan Karakterisasi In-Silico Putatif beta-Karbonik Anhidrase dari *Planococcus* sp. JS01. Fakultas Pertanian. Universitas Gadjah Mada. Skripsi.

Radianingtyas, H. and P. C. Wright. 2003. Alcohol dehydrogenases from thermophilic and hyperthermophilic archaea and bacteria. FEMS Microbiology Reviews 27(5): 593–616.

Ras, J., P. W. Van Ophem, W. N. M. Reijnders, R. J. M.Van Spanning, J. A. Duine, A. H. Stouthamer, and N. Harms. 1995. Isolation, sequencing, and mutagenesis of the gene encoding NAD-and glutathione-dependent formaldehyde dehydrogenase (GD-FALDH) from *Paracoccus denitrificans*, in which GD-FALDH is essential for methylotrophic growth. Journal of Bacteriology 177(1): 247–251.

Ribeiro, S. C., P. H. Oliveira, D. M. Prazeres, and G. A. Monteiro. 2008. High frequency plasmid recombination mediated by 28 bp direct repeats. Molecular Biotechnology 40(3): 252–260.

Rizi, T. S., A. Ebrahimi, F. Moazzen, H. Yousefian, and A. J. Najafabadi. 2019. Improvement of solubility and yield of recombinant protein expression in *E. coli* using a two-step system. Research in Pharmaceutical Sciences 14(5): 400–407.

Rosano, G. L. and A. Ceccarelli. 2014. Recombinant protein expression in *Escherichia coli*: advances and challenges. Frontiers in Microbiology 5(172): 1–17.

Rosano, G. L., E. S. Morales, and E. A. Ceccarelli. 2019. New tools for recombinant protein production in *Escherichia coli*: A 5-year update. Protein Science 28: 1412–1422.

Schmitt, E., P. D. Coureux, A. Monestier, E. Dubiez, and Y. Mechulam. 2019. Start codon recognition in eukaryotic and archaeal translation initiation: a common structural core. International Journal of Molecular Sciences 20(939): 1–21.

Schober, L., H. Dobiašová, V. Jurkaš, F. Parmeggiani, F. Rudroff, and M. Winkler. 2023. Enzymatic reactions towards aldehydes: An overview. Flavour and Fragrance Journal 38(4): 221–242.

Sengar, M., V. Ahirwar, M. Rathore, A. Gupta, A, Sachan, N. Kashyap, and A. Tiwari. 2026. Genome Analysis: Principles and Methods. Academic Press, United Kingdom.

UNIVERSITAS
GADJAH MADA
Isolasi, Kloning, dan Ekspresi Open Reading Frame Alcohol Dehydrogenase dari Planococcus plakortidis JS01
Rr. Angelicha Larasati Chandra Diningrat, M. Saifur Rohman, S.P., M.Si., M.Eng., Ph.D.; Susanti Mugi Lestari, S.P.,
Universitas Gadjah Mada, 2026 | Diunduh dari http://etd.repository.ugm.ac.id/

Shilling, P. J., K. Mirzadeh, A. J. Cumming, M. Widesheim, Z. Köck, and D. O. Daley. 2020. Improved designs for pET expression plasmids increase protein production yield in *Escherichia coli*. Communications Biology 3(214): 1–8.

Sholihatunnisa, H. A. 2025. Isolasi, Produksi, dan Karakterisasi Pigmen Karotenoid *Planococcus* sp. JS01. Fakultas Pertanian. Universitas Gadjah Mada. Skripsi.

Singh, A., V. Upadhyay, A. K. Upadhyay. 2015. Protein recovery from inclusion bodies of *Escherichia coli* using mild solubilization process. Microbial Cell Factories 14(41): 1–10.

Sørensen, H. P. and K. K. Mortensen. 2005. Soluble expression of recombinant proteins in the cytoplasm of *Escherichia coli*. Microbial Cell Factories 4(1): 1–8.

Sowmyapriya, R. and S. Prabakaran. 2024. Recombinant DNA and Gene Cloning. Futuristic Trends in Biotechnology 3: 151–159.

Studier, F. W. 2018. T7 expression systems for inducible production of proteins from cloned genes in *E. coli*. Current Protocols in Molecular Biology 63: 1–33.

Umansky, C., A. E. Morellato, and L. B. Pontel. 2021. Illuminating cellular formaldehyde. Nature Communications 12(580): 1–3.

Wang, Y., X. Wang, L. Yu, Y. Tian, S. Li, F. Leng, J. Ma, and J. Chen. 2020. Effects of Sr2+ on the preparation of *Escherichia coli* DH5α competent cells and plasmid transformation. PeerJ 8: 1–20.

White, B. S., C. Person, I. L. Medintz, and E. R. Goldman. 2018. Restriction enzymes as a target for DNA-based sensing and structural rearrangement. ACS omega 3(1): 495–502.

Young, C. L., Z. T. Britton, and A. S. Robinson. 2012. Recombinant protein expression and purification: a comprehensive review of affinity tags and microbial applications. Biotechnology Journal 7(5): 620–634.

Youngman, E. M., M. E. McDonald, and R. Green. 2008. Peptide release on the ribosome: mechanism and implications for translational control. Annual Review of Microbiology 62: 353–373.

Zhang, H., H. Li, H. Zhu, J. Pekárek, P. Podešva, H. Chang, and P. Neužil. 2019. Revealing the secrets of PCR. Sensors and Actuators B: Chemical 298: 1–6.

Zhang, L., D. Jiang, Y. Li, L. Wu, Q. Liu, K. Dong, and P. Oger. 2021. Characterization of a novel type III alcohol dehydrogenase from *Thermococcus barophilus* Ch5. International Journal of Biological Macromolecules 171: 491–501.

Žigová, K., Z. Marčeková, T. Petrovičová, K. Lorková, F. Čacho, V. Krasňan, and M. Rebroš. 2024. Intensified functional expression of recombinant *Zymomonas mobilis* zinc-dependent alcohol dehydrogenase I. Journal of Biotechnology 395: 141–148.