UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

DAFTAR PUSTAKA

Agu, P. C., Afiukwa, C. A., Orji, O. U., Ezeh, E. M., Ofoke, I. H., Ogbu, C. O., Ugwuja, E. I., & Aja, P. M. (2023). Molecular Docking as A Tool for The Discovery of Molecular Targets of Nutraceuticals in Diseases Management. *Scientific Reports*, *13*(1), 13398. Https://Doi.Org/10.1038/S41598-023-40160-2

Ahmed, N., Erlista, G. P., Raharjo, T. J., Swasono, R. T., & Raharjo, S. (2023). Anticancer Activity of Venom Protein Hydrolysis Fraction of Equatorial Spitting Cobra (*Naja sumatrana*). *Indonesian Journal Of Chemistry*, *23*(2), 510–522. Https://Doi.Org/10.22146/Ijc.80720

Ahmed, T., Zahid, S., Mahboob, A., & Farhat, S. M. (2016). Cholinergic System and Post-Translational Modifications: An Insight on The Role in Alzheimer's Disease. *Current Neuropharmacology*, *15*(4), 480–494. Https://Doi.Org/10.2174/1570159x14666160325121145

Alavi Naini, S. M., & Soussi-Yanicostas, N. (2015). Tau Hyperphosphorylation and Oxidative Stress, A Critical Vicious Circle in Neurodegenerative Tauopathies? in *Oxidative Medicine and Cellular Longevity* (Vol. 2015). Hindawi Limited. Https://Doi.Org/10.1155/2015/151979

Alfaro, J. A., Bohländer, P., Dai, M., Filius, M., Howard, C. J., Van Kooten, X. F., Ohayon, S., Pomorski, A., Schmid, S., Aksimentiev, A., Anslyn, E. V., Bedran, G., Cao, C., Chinappi, M., Coyaud, E., Dekker, C., Dittmar, G., Drachman, N., Eelkema, R., … Joo, C. (2021). The Emerging Landscape of Single-Molecule Protein Sequencing Technologies. In *Nature Methods* (Vol. 18, Issue 6, Pp. 604–617). Nature Research. Https://Doi.Org/10.1038/S41592-021-01143-1

Alijagic, A., Bonura, A., Barbero, F., Puntes, V. F., Gervasi, F., & Pinsino, A. (2021). Immunomodulatory Function of Polyvinylpyrrolidone (Pvp)-Functionalized Gold Nanoparticles in Vibrio-Stimulated Sea Urchin Immune Cells. *Nanomaterials*, *11*(10), 2646. Https://Doi.Org/10.3390/Nano11102646

Alwi, D., Muhammad, S. Hi., & Tae, I. (2020). Karakteristik Morfologi dan Indeks Ekologi Bulu Babi (Echinoidea) di Perairan Desa Wawama Kabupaten Pulau Morotai. *Jurnal Sumberdaya Akuatik Indopasifik*, *4*(1), 23. Https://Doi.Org/10.46252/Jsai-Fpik-Unipa.2020.Vol.4.No.1.95

Archana, A., & Babu, K. R. (2016). Nutrient Composition and Antioxidant Activity of Gonads of Sea Urchin *Stomopneustes variolaris*. *Food Chemistry*, *197*, 597–602. Https://Doi.Org/10.1016/J.Foodchem.2015.11.003

Arthaz, C. P., Suryanti, & Ruswahyuni. (2015). Hubungan Kelimpahan Bulu Babi (Sea Urchin) Dengan Bahan Organik Substrat Dasar Perairan di Pantai Krakal, Yogyakarta. *Diponegoro Journal of Maquares*, *4*, 148–155.

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Asteggiano, A., Occhipinti, A., Capuzzo, A., Mecarelli, E., Aigotti, R., & Medana, C. (2021). Quali-Quantitative Characterization of Volatile and Non-Volatile Compounds In *Protium heptaphyllum* (Aubl.) Marchand Resin By Gc-Ms Validated Method, Gc-Fid and Hplc-Hrms2. *Molecules*, *26*(5). Https://Doi.Org/10.3390/Molecules26051447

Avallin, J., Nilsson, A., Asplund, M., Pettersson, N., Searle, T., & Jägersten, C. (2016). *Columns up to 1600 Mm in Diameter Packed with Protein A Chromatography Medium Using Axial Mechanical Compression*.

Bacalhau, P., San Juan, A. A., Goth, A., Caldeira, A. T., Martins, R., & Burke, A. J. (2016). Insights Into (S)-Rivastigmine Inhibition of Butyrylcholinesterase (Buche): Molecular Docking and Saturation Transfer Difference Nmr (Std-Nmr). *Bioorganic Chemistry*, *67*, 105–109. Https://Doi.Org/10.1016/J.Bioorg.2016.06.002

Bahadir, O. (2013). Ion-Exchange Chromatography And Its Applications. In *Column Chromatography*. Intech. Https://Doi.Org/10.5772/55744

Baião, L. F., Oliveira, A. S., Gonçalves, A., Guedes De Pinho, P., Valente, L. M. P., & Cunha, L. M. (2020). Analysis of Volatile Compounds in *Paracentrotus lividus* By Hs-Spme/Gs-Ms and Relation to Its Sensorial Properties. *Lwt*, *130*. Https://Doi.Org/10.1016/J.Lwt.2020.109629

Banerjee, S., & Mazumdar, S. (2012). Electrospray Ionization Mass Spectrometry: A Technique to Access The Information Beyond The Molecular Weight Of The Analyte. *International Journal Of Analytical Chemistry*, *2012*, 1–40. Https://Doi.Org/10.1155/2012/282574

Barman, P., Joshi, S., Sharma, S., Preet, S., Sharma, S., & Saini, A. (2023). Strategic Approaches to Improvise Peptide Drugs As Next Generation Therapeutics. *International Journal Of Peptide Research And Therapeutics*, *29*(4), 61. Https://Doi.Org/10.1007/S10989-023-10524-3

Basha, F. H., Waseem, M., & Srinivasan, H. (2021). Cellular and Molecular Mechanism in Neurodegeneration: Possible Role of Neuroprotectants. In *Cell Biochemistry And Function* (Vol. 39, Issue 5, Pp. 613–622). John Wiley and Sons Ltd. Https://Doi.Org/10.1002/Cbf.3630

Blakeley-Ruiz, J. A., & Kleiner, M. (2022). Considerations for Constructing A Protein Sequence Database for Metaproteomics. *Computational And Structural Biotechnology Journal*, *20*, 937–952. Https://Doi.Org/10.1016/J.Csbj.2022.01.018

Bouvier, E. S. P., & Koza, S. M. (2014). Advances In Size-Exclusion Separations of Proteins and Polymers by Uhplc. In *Trac - Trends In Analytical Chemistry* (Vol. 63, Pp. 85–94). Elsevier B.V. Https://Doi.Org/10.1016/J.Trac.2014.08.002

Breijyeh, Z., & Karaman, R. (2020). Comprehensive Review on Alzheimer's Disease: Causes and Treatment. In *Molecules* (Vol. 25, Issue 24). Mdpi. Https://Doi.Org/10.3390/Molecules25245789

Bronstein, O., & Loya, Y. (2013). The Taxonomy and Phylogeny of Echinometra (Camarodonta: Echinometridae) From The Red Sea and Western Indian

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Ocean. *Plos One*, *8*(10), E77374. Https://Doi.Org/10.1371/Journal.Pone.0077374

Brus, B., Košak, U., Turk, S., Pišlar, A., Coquelle, N., Kos, J., Stojan, J., Colletier, J. P., & Gobec, S. (2014). Discovery, Biological Evaluation, and Crystal Structure of A Novel Nanomolar Selective Butyrylcholinesterase Inhibitor. *Journal of Medicinal Chemistry*, *57*(19), 8167–8179. Https://Doi.Org/10.1021/Jm501195e

Butré, C. I., Wierenga, P. A., & Gruppen, H. (2014). Influence of Water Availability on The Enzymatic Hydrolysis of Proteins. *Process Biochemistry*, *49*(11), 1903–1912. Https://Doi.Org/10.1016/J.Procbio.2014.08.009

Castro-Alvarez, A., Costa, A., & Vilarrasa, J. (2017). The Performance of Several Docking Programs at Reproducing Protein–Macrolide-Like Crystal Structures. *Molecules*, *22*(1), 136. Https://Doi.Org/10.3390/Molecules22010136

Chamika, W. A. S., Ho, T. C., Roy, V. C., Kiddane, A. T., Park, J. S., Kim, G. Do, & Chun, B. S. (2021). In Vitro Characterization of Bioactive Compounds Extracted From Sea Urchin (*Stomopneustes variolaris*) Using Green and Conventional Techniques. *Food Chemistry*, *361*. Https://Doi.Org/10.1016/J.Foodchem.2021.129866

Che, X., Liu, Q., & Zhang, L. (2023). An Accurate And Universal Protein-Small Molecule Batch Docking Solution Using Autodock Vina. *Results In Engineering*, *19*, 101335. Https://Doi.Org/10.1016/J.Rineng.2023.101335

Coroneo, V., Corrias, F., Brutti, A., Addis, P., Scano, E., & Angioni, A. (2022). Effect of High-Pressure Processing on Fresh Sea Urchin Gonads in Terms of Shelf Life, Chemical Composition, and Microbiological Properties. *Foods*, *11*(3). Https://Doi.Org/10.3390/Foods11030260

Cummins, P. M., Rochfort, K. D., & O'connor, B. F. (2017). Ion-Exchange Chromatography: Basic Principles and Application. In *Methods In Molecular Biology* (Vol. 1485, Pp. 209–223). Humana Press Inc. Https://Doi.Org/10.1007/978-1-4939-6412-3_11

Daggupati, T., Chitrala, K. N., Pamanji, R., & Yeguvapalli, S. (2017). Molecular Screening and Analysis of Novel Therapeutic Inhibitors Against C-Jun N-Terminal Kinase. *Medicinal Chemistry Research*, *26*(9), 2112–2118. Https://Doi.Org/10.1007/S00044-017-1919-5

Dehghani, H., Rashedinia, M., Mohebbi, G., & Vazirizadeh, A. (2024). Studies on Secondary Metabolites and In Vitro And In Silico Anticholinesterases Activities Of The Sea Urchin *Echinometra mathaei* Crude Venoms From The Persian Gulf-Bushehr. *The Natural Products Journal*, *14*(2). Https://Doi.Org/10.2174/2210315514666230622144244

Deture, M. A., & Dickson, D. W. (2019). The Neuropathological Diagnosis of Alzheimer's Disease. In *Molecular Neurodegeneration* (Vol. 14, Issue 1). Biomed Central Ltd. Https://Doi.Org/10.1186/S13024-019-0333-5

Dimitrov, I., Bangov, I., Flower, D. R., & Doytchinova, I. (2014). Allertop V.2—A Server For In Silico Prediction of Allergens. *Journal Of Molecular Modeling*, *20*(6), 2278. Https://Doi.Org/10.1007/S00894-014-2278-5

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Dos Santos, C. W. V., Da Costa Marques, M. E., De Araújo Tenório, H., De Miranda, E. C., & Vieira Pereira, H. J. (2016). Purification and Characterization of Trypsin from *Luphiosilurus alexandri* Pyloric Cecum. *Biochemistry and Biophysics Reports*, *8*, 29–33. Https://Doi.Org/10.1016/J.Bbrep.2016.08.003

Du, X., Wang, X., & Geng, M. (2018). Alzheimer's Disease Hypothesis and Related Therapies. In *Translational Neurodegeneration* (Vol. 7, Issue 1). Biomed Central Ltd. Https://Doi.Org/10.1186/S40035-018-0107-Y

Elgendy, A. S., & Al-Ruweidi, M. K. (2016). *A Literature Review on Trypsin Enzyme*. Https://Www.Researchgate.Net/Publication/289376015

Elnaggar, A., Osama, A., Anwar, A. M., Ezzeldin, S., Abou Elhassan, S., Ebeid, H., Leona, M., & Magdeldin, S. (2022). Paleoproteomic Profiling for Identification of Animal Skin Species in Ancient Egyptian Archaeological Leather Using Liquid Chromatography Coupled with Tandem Mass Spectrometry (LC-MS/MS). *Heritage Science*, *10*(1), 182. Https://Doi.Org/10.1186/S40494-022-00816-0

Elokely, K. M., & Doerksen, R. J. (2013). Docking Challenge: Protein Sampling and Molecular Docking Performance. *Journal Of Chemical Information And Modeling*, *53*(8), 1934–1945. Https://Doi.Org/10.1021/Ci400040d

Fadlan, A., & Nusantoro, Y. R. (2021). The Effect Of Energy Minimization on The Molecular Docking of Acetone-Based Oxindole Derivatives. *Jkpk (Jurnal Kimia dan Pendidikan Kimia)*, *6*(1), 69. Https://Doi.Org/10.20961/Jkpk.V6i1.45467

Farina, N., Jacobs, R., Turana, Y., Fitri, F. I., Schneider, M., Theresia, I., Docrat, S., Sani, T. P., Augustina, L., Albanese, E., Comas-Herrera, A., Du Toit, P., Ferri, C. P., Govia, I., Ibnidris, A., Knapp, M., & Banerjee, S. (2023). Comprehensive Measurement of The Prevalence of Dementia In Low- and Middle-Income Countries: Stride Methodology and Its Application In Indonesia and South Africa. *Bjpsych Open*, *9*(4). Https://Doi.Org/10.1192/Bjo.2023.76

Ferreira De Freitas, R., & Schapira, M. (2017). A Systematic Analysis of Atomic Protein–Ligand Interactions in The Pdb. *Medchemcomm*, *8*(10), 1970–1981. Https://Doi.Org/10.1039/C7md00381a

Ferreira-Vieira, T. H., Guimaraes, I. M., Silva, F. R., & Ribeiro, F. M. (2016). Send Orders for Reprints To Reprints@Benthamscience. Ae Alzheimer's Disease: Targeting The Cholinergic System. In *Current Neuropharmacology* (Vol. 14).

Figueiredo, D. A. L., Santos, W. S., Montoni, F., Iwai, L. K., & Silva Junior, P. I. (2021). Toposome: Source Of Antimicrobial Molecules In The Gonads of The Sea Urchin *Lytechinus variegatus* (Lamarck, 1816). *Fish And Shellfish Immunology*, *109*, 51–61. Https://Doi.Org/10.1016/J.Fsi.2020.11.023

Ganeshpurkar, A., Singh, R., Gore, P. G., Kumar, D., Gutti, G., Kumar, A., & Singh, S. K. (2020). Structure-Based Screening and Molecular Dynamics Simulation Studies for The Identification of Potential Acetylcholinesterase Inhibitors. *Molecular Simulation*, *46*(3), 169–185. Https://Doi.Org/10.1080/08927022.2019.1682572

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Gentile, D., Floresta, G., Patamia, V., Chiaramonte, R., Mauro, G. L., Rescifina, A., & Vecchio, M. (2020). An Integrated Pharmacophore/Docking/3d-Qsar Approach to Screening A Large Library of Products in Search of Future Botulinum Neurotoxin A Inhibitors. *International Journal of Molecular Sciences*, *21*(24), 9470. Https://Doi.Org/10.3390/Ijms21249470

Ghiandoni, G. M., & Caldeweyher, E. (2023). Fast Calculation of Hydrogen-Bond Strengths and Free Energy of Hydration of Small Molecules. *Scientific Reports*, *13*(1), 4143. Https://Doi.Org/10.1038/S41598-023-30089-X

Gholami, A., Minai-Tehrani, D., & Eriksson, L. A. (2023). In Silico And In Vitro Studies Confirm Ondansetron As A Novel Acetylcholinesterase and Butyrylcholinesterase Inhibitor. *Scientific Reports*, *13*(1), 643. Https://Doi.Org/10.1038/S41598-022-27149-Z

Gonzalez, J., Ramirez, J., & Schwans, J. P. (2016). Evaluating Fmoc-Amino Acids As Selective Inhibitors Of Butyrylcholinesterase. *Amino Acids*, *48*(12), 2755–2763. Https://Doi.Org/10.1007/S00726-016-2310-4

Grant, G. A. (2016). Isolation/Purification of Proteins. In *Encyclopedia of Cell Biology* (Vol. 1, Pp. 66–74). Elsevier Inc. Https://Doi.Org/10.1016/B978-0-12-394447-4.10018-5

Grönberg, A. (2018). Ion Exchange Chromatography. In *Biopharmaceutical Processing: Development, Design, and Implementation of Manufacturing Processes* (Pp. 379–399). Elsevier. Https://Doi.Org/10.1016/B978-0-08-100623-8.00018-9

Hadinoto, S., Sukaryono, I. D., & Siahay, Y. (2017). Kandungan Gizi Gonad Dan Aktivitas Antibakteri Ekstrak Cangkang Bulu Babi (*Diadema setosum*). *Jurnal Pascapanen dan Bioteknologi Kelautan dan Perikanan*, *12*(1). Https://Doi.Org/10.15578/Jpbkp.V12i1.281

Jakubczyk, A., Karaś, M., Rybczyńska-Tkaczyk, K., Zielińska, E., & Zieliński, D. (2020). Current Trends of Bioactive Peptides—New Sources and Therapeutic Effect. *Foods*, *9*(7), 846. Https://Doi.Org/10.3390/Foods9070846

Jasiecki, J., & Wasąg, B. (2019). Butyrylcholinesterase Protein Ends in The Pathogenesis of Alzheimer's Disease—Could Bche Genotyping Be Helpful In Alzheimer's Therapy? *Biomolecules*, *9*(10). Https://Doi.Org/10.3390/Biom9100592

Jaziri, A. A. S. Dan, & Firdaus, M. (2017). *Karakteristik Protease dari Ekstrak Kasar Khamir Laut dan Aktivitasnya dalam Menghidrolisis Protein Ikan Rucah*. Http://Jfmr.Ub.Ac.Id

Jin, S. K., Choi, J. S., & Yim, D. G. (2020). Hydrolysis Conditions of Porcine Blood Proteins and Antimicrobial Effects of Their Hydrolysates. *Food Science Of Animal Resources*, *40*(2), 172–182. Https://Doi.Org/10.5851/Kosfa.2020.E2

Jin, Y., Yi, Y., & Yeung, B. (2022). Mass Spectrometric Analysis of Protein Deamidation–A Focus on Top-Down and Middle-Down Mass Spectrometry. In *Methods* (Vol. 200, Pp. 58–66). Academic Press Inc. Https://Doi.Org/10.1016/J.Ymeth.2020.08.002

John, A., & Reddy, P. H. (2021). Synaptic Basis of Alzheimer's Disease: Focus on Synaptic Amyloid Beta, P-Tau and Mitochondria. In *Ageing Research*

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Reviews (Vol. 65). Elsevier Ireland Ltd. Https://Doi.Org/10.1016/J.Arr.2020.101208

Kalantarian, S. M., Archangi, B., Valinassab, T., Rajabi-Maham, H., & Abdi, R. (2022). A Phylogenetic Study of A Tropical Sea Urchin, *Echinometra* Sp. Ez (Echinoidea: Camarodonta: Echinometridae) from The Persian Gulf. *Journal Of The Marine Biological Association of The United Kingdom*, *102*(3–4), 244–251. Https://Doi.Org/10.1017/S0025315422000431

Kandiah, N., Pai, M. C., Senanarong, V., Looi, I., Ampil, E., Park, K. W., Karanam, A. K., & Christopher, S. (2017). Rivastigmine: The Advantages of Dual Inhibition of Acetylcholinesterase and Butyrylcholinesterase and Its Role in Subcortical Vascular Dementia and Parkinson's Disease Dementia. In *Clinical Interventions In Aging* (Vol. 12, Pp. 697–707). Dove Medical Press Ltd. Https://Doi.Org/10.2147/Cia.S129145

Karnila, R., Iriani, D., Shaarani, S. M., Yunus, A. A., & Salma, R. (2022). Nutritional Characteristics of Sea Urchin (*Diadema setosum*) In Bungus, West Sumatera Province. *Iop Conference Series: Earth And Environmental Science*, *1118*(1). Https://Doi.Org/10.1088/1755-1315/1118/1/012037

Khalil, E. A., Swelim, H., El-Tantawi, H., & Abdellatif, A. (2023). Sea Urchin (Diadema Savignyi) Extract As A Novel Protective Agent Against Cisplatin Induced Neurotoxicity In Rats. *Bmc Pharmacology And Toxicology*, *24*(1), 11. Https://Doi.Org/10.1186/S40360-023-00651-4

Khangembam, B. K., & Chakrabarti, R. (2015). Trypsin From The Digestive System Of Carp Cirrhinus Mrigala: Purification, Characterization and Its Potential Application. *Food Chemistry*, *175*, 386–394. Https://Doi.Org/10.1016/J.Foodchem.2014.11.140

Kielkopf, C. L., Bauer, W., & Urbatsch, I. L. (2020). Bradford Assay for Determining Protein Concentration. *Cold Spring Harbor Protocols*, *2020*(4), 136–138. Https://Doi.Org/10.1101/Pdb.Prot102269

Kim Hoa, D. T., Bich, H. T., Long, P. Q., Toan, T. Q., & Phuong, D. L. (2019). Protein Hydrolysis Of Eggs From The Sea Urchin *Tripneustes gratilla* by The Industrial Enzyme Alcalase. *Vietnam Journal Of Science And Technology*, *57*(2), 133–138. Https://Doi.Org/10.15625/2525-2518/57/2/12894

Kitagishi, Y., Nakanishi, A., Ogura, Y., & Matsuda, S. (2014). *Dietary Regulation of Pi3k/Akt/Gsk-3β Pathway In Alzheimer's Disease*. Http://Alzres.Com/Content/6/3/35

Kosanović, M., Milutinović, B., Goč, S., Mitić, N., & Janković, M. (2017). Ion-Exchange Chromatography Purification of Extracellular Vesicles. *Biotechniques*, *63*(2), 65–71. Https://Doi.Org/10.2144/000114575

Kumar, V., Saha, A., & Roy, K. (2020). In Silico Modeling For Dual Inhibition Of Acetylcholinesterase (Ache) And Butyrylcholinesterase (Buche) Enzymes In Alzheimer's Disease. *Computational Biology and Chemistry*, *88*. Https://Doi.Org/10.1016/J.Compbiolchem.2020.107355

Lane, C. A., Hardy, J., & Schott, J. M. (2018). Alzheimer's Disease. In *European Journal of Neurology* (Vol. 25, Issue 1, Pp. 59–70). Blackwell Publishing Ltd. Https://Doi.Org/10.1111/Ene.13439

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Lee, C. H. (2017). A Simple Outline of Methods for Protein Isolation and Purification. In *Endocrinology And Metabolism* (Vol. 32, Issue 1, Pp. 18–22). Korean Endocrine Society. Https://Doi.Org/10.3803/Enm.2017.32.1.18

Lee, S. R., Pronto, J. R. D., Sarankhuu, B. E., Ko, K. S., Rhee, B. D., Kim, N., Mishchenko, N. P., Fedoreyev, S. A., Stonik, V. A., & Han, J. (2014). Acetylcholinesterase Inhibitory Activity of Pigment Echinochrome A from Sea Urchin *Scaphechinus mirabilis*. *Marine Drugs*, *12*(6), 3560–3573. Https://Doi.Org/10.3390/Md12063560

Lee, T.-J., & Shin, S. (2013). New Record Of A Sea Urchin *Echinometra mathaei* (Echinoidea: Camarodonta: Echinometridae) From Jeju Island, Korea and Its Molecular Analysis. *Animal Systematics, Evolution and Diversity*, *28*(3), 178–184. Https://Doi.Org/10.5635/Ased.2012.28.3.178

Li, M., Josephs, R. D., Daireaux, A., Choteau, T., Westwood, S., Wielgosz, R. I., & Li, H. (2018). Identification and Accurate Quantification of Structurally Related Peptide Impurities in Synthetic Human C-Peptide by Liquid Chromatography–High Resolution Mass Spectrometry. *Analytical And Bioanalytical Chemistry*, *410*(20), 5059–5070. Https://Doi.Org/10.1007/S00216-018-1155-Y

Li, S., Li, A. J., Travers, J., Xu, T., Sakamuru, S., Klumpp-Thomas, C., Huang, R., & Xia, M. (2021b). Identification of Compounds for Butyrylcholinesterase Inhibition. *Slas Discovery*, *26*(10), 1355–1364. Https://Doi.Org/10.1177/24725552211030897

Liu, L., Sun, J., Zhan, Y., Zhao, T., Zou, Y., Yan, H., Zhang, W., & Chang, Y. (2020). Gonadal Traits and Nutrient Compositions of Novel Sea Urchin Hybrids of *Hemicentrotus Pulcherrimus* (♀) and *Strongylocentrotus intermedius* (♂). *Aquaculture Reports*, *18*. Https://Doi.Org/10.1016/J.Aqrep.2020.100439

Liu, Y., D'agostino, L. A., Qu, G., Jiang, G., & Martin, J. W. (2019). High-Resolution Mass Spectrometry (Hrms) Methods for Nontarget Discovery and Characterization of Poly- and Per-Fluoroalkyl Substances (Pfass) In Environmental and Human Samples. In *Trac - Trends In Analytical Chemistry* (Vol. 121). Elsevier B.V. Https://Doi.Org/10.1016/J.Trac.2019.02.021

López-Camacho, E., García-Godoy, M. J., García-Nieto, J., Nebro, A. J., & Aldana-Montes, J. F. (2016). *A New Multi-Objective Approach for Molecular Docking Based on Rmsd and Binding Energy* (Pp. 65–77). Https://Doi.Org/10.1007/978-3-319-38827-4_6

Ma, X. (2022). Recent Advances In Mass Spectrometry-Based Structural Elucidation Techniques. In *Molecules* (Vol. 27, Issue 19). Mdpi. Https://Doi.Org/10.3390/Molecules27196466

Maccoss, M. J., Alfaro, J. A., Faivre, D. A., Wu, C. C., Wanunu, M., & Slavov, N. (2023). Sampling The Proteome by Emerging Single-Molecule and Mass Spectrometry Methods. *Nature Methods*, *20*(3), 339–346. Https://Doi.Org/10.1038/S41592-023-01802-5

Machado, I., Moura, P., Pereira, F., Vasconcelos, P., & Gaspar, M. B. (2019). Reproductive Cycle of The Commercially Harvested Sea Urchin

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

(*Paracentrotus lividus*) Along The Western Coast of Portugal. *Invertebrate Biology*, *138*(1), 40–54. Https://Doi.Org/10.1111/Ivb.12238

Macias, L. A., Santos, I. C., & Brodbelt, J. S. (2020). Ion Activation Methods for Peptides and Proteins. In *Analytical Chemistry* (Vol. 92, Issue 1, Pp. 227–251). American Chemical Society. Https://Doi.Org/10.1021/Acs.Analchem.9b04859

Madushanka, A., Moura, R. T., Verma, N., & Kraka, E. (2023). Quantum Mechanical Assessment of Protein–Ligand Hydrogen Bond Strength Patterns: Insights from Semiempirical Tight-Binding and Local Vibrational Mode Theory. *International Journal of Molecular Sciences*, *24*(7), 6311. Https://Doi.Org/10.3390/Ijms24076311

Mallesh, R., Juhee Khan, N., Gharai, P. K., Gupta, V., Roy, R., & Ghosh, S. (2023). Controlling Amyloid Beta Peptide Aggregation and Toxicity by Protease-Stable Ligands. *Acs Bio and Med Chem Au*, *3*(2), 158–173. Https://Doi.Org/10.1021/Acsbiomedchemau.2c00067

Martinelli, D. D. (2022). In Silico Vaccine Design: A Tutorial in Immunoinformatics. *Healthcare Analytics*, *2*, 100044. Https://Doi.Org/10.1016/J.Health.2022.100044

Marucci, G., Buccioni, M., Ben, D. D., Lambertucci, C., Volpini, R., & Amenta, F. (2021). Efficacy of Acetylcholinesterase Inhibitors in Alzheimer's Disease. *Neuropharmacology*, *190*, 108352. Https://Doi.Org/10.1016/J.Neuropharm.2020.108352

Metaxas, A., & Kempf, S. J. (2016). Neurofibrillary Tangles In Alzheimer's Disease: Elucidation of The Molecular Mechanism by Immunohistochemistry and Tau Protein Phospho-Proteomics. *Neural Regeneration Research*, *11*(10), 1579–1581. Https://Doi.Org/10.4103/1673-5374.193234

Mohanty, M., & Mohanty, P. S. (2023). Molecular Docking In Organic, Inorganic, and Hybrid Systems: A Tutorial Review. In *Monatshefte Fur Chemie* (Vol. 154, Issue 7, Pp. 683–707). Springer. Https://Doi.Org/10.1007/S00706-023-03076-1

Monroe, E. B., Annangudi, S. P., Wadhams, A. A., Richmond, T. A., Yang, N., Southey, B. R., Romanova, E. V., Schoofs, L., Baggerman, G., & Sweedler, J. V. (2018). Exploring The Sea Urchin Neuropeptide Landscape ny Mass Spectrometry. *Journal Of The American Society For Mass Spectrometry*, *29*(5), 923–934. Https://Doi.Org/10.1007/S13361-018-1898-X

Mos, B., & Dworjanyn, S. A. (2019). Ready To Harvest? Spine Colour Predicts Gonad Index and Gonad Colour Rating of A Commercially Important Sea Urchin. *Aquaculture*, *505*, 510–516. Https://Doi.Org/10.1016/J.Aquaculture.2019.03.010

Mouratidis, I., Chan, C. S. Y., Chantzi, N., Tsiatsianis, G. C., Hemberg, M., Ahituv, N., & Georgakopoulos-Soares, I. (2023). Quasi-Prime Peptides: Identification of The Shortest Peptide Sequences Unique to A Species. *Nar Genomics and Bioinformatics*, *5*(2). Https://Doi.Org/10.1093/Nargab/Lqad039

Moussa, N., & Dayoub, N. (2023). Exploring The Role of Cox-2 In Alzheimer's Disease: Potential Therapeutic Implications of Cox-2 Inhibitors. *Saudi Pharmaceutical Journal*.

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Najafian, L., & Babji, A. S. (2012). A Review of Fish-Derived Antioxidant and Antimicrobial Peptides: Their Production, Assessment, And Applications. In *Peptides* (Vol. 33, Issue 1, Pp. 178–185). Https://Doi.Org/10.1016/J.Peptides.2011.11.013

Naseri, N. N., Wang, H., Guo, J., Sharma, M., & Luo, W. (2019). The Complexity of Tau In Alzheimer's Disease. In *Neuroscience Letters* (Vol. 705, Pp. 183–194). Elsevier Ireland Ltd. Https://Doi.Org/10.1016/J.Neulet.2019.04.022

Neagu, A. N., Jayathirtha, M., Baxter, E., Donnelly, M., Petre, B. A., & Darie, C. C. (2022). Applications of Tandem Mass Spectrometry (Ms/Ms) In Protein Analysis for Biomedical Research. In *Molecules* (Vol. 27, Issue 8). Mdpi. Https://Doi.Org/10.3390/Molecules27082411

Nicolau, L., Vasconcelos, P., Machado, I., Pereira, F., Moura, P., Carvalho, A. N., & Gaspar, M. B. (2022). Morphometric Relationships, Relative Growth and Roe Yield Of The Sea Urchin (*Paracentrotus lividus*) from The Portuguese Coast. *Regional Studies in Marine Science*, *52*. Https://Doi.Org/10.1016/J.Rsma.2022.102343

Nong, N. T. P., & Hsu, J.-L. (2022). Bioactive Peptides: An Understanding From Current Screening Methodology. *Processes*, *10*(6), 1114. Https://Doi.Org/10.3390/Pr10061114

Nordberg, A., Ballard, C., Bullock, R., Darreh-Shori, T., & Somogyi, M. (2013a). A Review of Butyrylcholinesterase As A Therapeutic Target in The Treatment of Alzheimer's Disease. *Primary Care Companion To The Journal of Clinical Psychiatry*, *15*(2). Https://Doi.Org/10.4088/Pcc.12r01412

Nordberg, A., Ballard, C., Bullock, R., Darreh-Shori, T., & Somogyi, M. (2013b). A Review of Butyrylcholinesterase as A Therapeutic Target in The Treatment of Alzheimer's Disease. *Primary Care Companion to The Journal of Clinical Psychiatry*, *15*(2). Https://Doi.Org/10.4088/Pcc.12r01412

Nurhayati, T., Nugraha, R., & Lihuana, D. N. (2020). *Karakterisasi Fraksi Amonium Sulfat Tripsin yang Diisolasi dari Usus Ikan Tongkol (Euthynnus affinis)*.

Pinho, B. R., Ferreres, F., Valentão, P., & Andrade, P. B. (2013). Nature As A Source of Metabolites with Cholinesterase-Inhibitory Activity: An Approach to Alzheimer's Disease Treatment. In *Journal of Pharmacy and Pharmacology* (Vol. 65, Issue 12, Pp. 1681–1700). Https://Doi.Org/10.1111/Jphp.12081

Piryaei, F., Ghavam Mostafavi, P., Shahbazzadeh, D., & Pooshang Bagheri, K. (2018). Description on Anatomy and Histology of *Echinometra mathaei* (Echinoidea: Camarodonta: Echinometidae), The Persian Gulf Sea Urchin. *Iranian Journal of Aquatic Animal Health*, *4*(2), 1–27. Https://Doi.Org/10.29252/Ijaah.4.2.1

Prasasty, V., Radifar, M., & Istyastono, E. (2018). Natural Peptides In Drug Discovery Targeting Acetylcholinesterase. *Molecules*, *23*(9), 2344. Https://Doi.Org/10.3390/Molecules23092344

Pratama, M. R. F., & Siswandono, S. (2021). Number of Runs Variations on Autodock 4 Do Not Have A Significant Effect on RMSD from Docking

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Results. *Pharmacy & Pharmacology*, *8*(6), 476–480. Https://Doi.Org/10.19163/2307-9266-2020-8-6-476-480

Puliasis, S. S., Lewandowska, D., Hemsley, P. A., & Zhang, R. (2023). Protview: A Versatile Tool for *In Silico* Protease Evaluation and Selection In A Proteomic and Proteogenomic Context. *Journal Of Proteome Research*, *22*(7), 2400–2410. Https://Doi.Org/10.1021/Acs.Jproteome.3c00135

Qin, L., Zhu, B. W., Zhou, D. Y., Wu, H. T., Tan, H., Yang, J. F., Li, D. M., Dong, X. P., & Murata, Y. (2011). Preparation and Antioxidant Activity of Enzymatic Hydrolysates from Purple Sea Urchin (*Strongylocentrotus nudus*) Gonad. *Lwt*, *44*(4), 1113–1118. Https://Doi.Org/10.1016/J.Lwt.2010.10.013

Rabbani, N., Ashour, A., & Thornalley, P. J. (2016). Mass Spectrometric Determination of Early and Advanced Glycation In Biology. *Glycoconjugate Journal*, *33*(4), 553–568. Https://Doi.Org/10.1007/S10719-016-9709-8

Rasmussen, J., & Langerman, H. (2019). <P>Alzheimer's Disease – Why We Need Early Diagnosis</P>. *Degenerative Neurological and Neuromuscular Disease*, *Volume 9*, 123–130. Https://Doi.Org/10.2147/Dnnd.S228939

Rawat, P., Sehar, U., Bisht, J., Selman, A., Culberson, J., & Reddy, P. H. (2022). Phosphorylated Tau In Alzheimer's Disease and Other Tauopathies. In *International Journal of Molecular Sciences* (Vol. 23, Issue 21). Mdpi. Https://Doi.Org/10.3390/Ijms232112841

Restiani, R. (2016). *Hidrolisis Secara Enzimatis Protein Bungkil Biji Nyamplung (Calophyllum inophyllum) Menggunakan Bromelain Enzymatic Hydrolysis of Protein From Nyamplung (Calophyllum inophyllum) Oilseed Press Cake Using Bromelain* (Vol. 1, Issue 3).

Ristanto, A., Yanti, A. H., & Setyawati, T. R. (2017). Komposisi Jenis Bulu Babi (Kelas: Echinoidea) di Daerah Intertidal Pulau Lemukutan Kabupaten Bengkayang. *Protobiont*, *6*(1), 59–63.

Ritorto, M. S., Cook, K., Tyagi, K., Pedrioli, P. G. A., & Trost, M. (2013). Hydrophilic Strong Anion Exchange (Hsax) Chromatography for Highly Orthogonal Peptide Separation of Complex Proteomes. *Journal Of Proteome Research*, *12*(6), 2449–2457. Https://Doi.Org/10.1021/Pr301011r

Rivai, B., & Umar, Abd. K. (2023). Neuroprotective Compounds from Marine Invertebrates. *Beni-Suef University Journal Of Basic And Applied Sciences*, *12*(1), 71. Https://Doi.Org/10.1186/S43088-023-00407-3

Rocha, F., Baião, L. F., Moutinho, S., Reis, B., Oliveira, A., Arenas, F., Maia, M. R. G., Fonseca, A. J. M., Pintado, M., & Valente, L. M. P. (2019). The Effect Of Sex, Season and Gametogenic Cycle on Gonad Yield, Biochemical Composition And Quality Traits of *Paracentrotus lividus* Along The North Atlantic Coast of Portugal. *Scientific Reports*, *9*(1). Https://Doi.Org/10.1038/S41598-019-39912-W

Rompis, B. R., Langoy, M. L., Ykatili, D., Papu, A., Jurusan Biologi, A., Sam Ratulangi, U., Biologi, J., & Bahu, J. (2013). *Diversitas Echinodermata Di Pantai Meras Kecamatan Bunaken Sulawesi Utara (Diversity Of Echinoderms On The Meras Beach, Bunaken District, North Sulawesi)*.

Roslan, J., Kamal, S. M. M., Yunos, K. F. Md., & Abdullah, N. (2014). Optimization of Enzymatic Hydrolysis of Tilapia Muscle (*Oreochromis*

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

niloticus) Using Response Surface Methodology (Rsm). In *Sains Malaysiana* (Vol. 43, Issue 11).

Salih Istifli, E., & Sarikurkcu, C. (2021). Assessment of Apigenin-7-Glucoside and Luteolin-7-Glucoside as Multi-Targeted Agents Against Alzheimer's Disease: A Molecular Docking Study. In *Int. J. Plant Bas. Pharm* (Vol. 1, Issue 1). Https://Github.Com/Valdes-Tresanco-Ms/Amdock-Win

Sánchez-Trasviña, C., Flores-Gatica, M., Enriquez-Ochoa, D., Rito-Palomares, M., & Mayolo-Deloisa, K. (2021). Purification of Modified Therapeutic Proteins Available on The Market: An Analysis of Chromatography-Based Strategies. In *Frontiers in Bioengineering and Biotechnology* (Vol. 9). Frontiers Media S.A. Https://Doi.Org/10.3389/Fbioe.2021.717326

Sanchis, I., Spinelli, R., Aschemacher, N., & Siano, A. S. (2022). Rational Design And Synthesis of Modified Natural Peptides from *Boana pulchella* (Anura) as Acetylcholinesterase Inhibitors and Antioxidants. *Amino Acids*, *54*(2), 181–192. Https://Doi.Org/10.1007/S00726-021-03096-3

Sbroggio, M. F., Montilha, M. S., Figueiredo, V. R. G. De, Georgetti, S. R., & Kurozawa, L. E. (2016). Influence of The Degree of Hydrolysis and Type of Enzyme on Antioxidant Activity of Okara Protein Hydrolysates. *Food Science And Technology (Brazil)*, *36*(2), 375–381. Https://Doi.Org/10.1590/1678-457x.000216

Scheltens, P., De Strooper, B., Kivipelto, M., Holstege, H., Chételat, G., Teunissen, C. E., Cummings, J., & Van Der Flier, W. M. (2021). Alzheimer's Disease. In *The Lancet* (Vol. 397, Issue 10284, Pp. 1577–1590). Elsevier B.V. Https://Doi.Org/10.1016/S0140-6736(20)32205-4

Shang, W. H., Yan, J. N., Du, Y. N., Cui, X. F., Su, S. Y., Han, J. R., Xu, Y. S., Xue, C. F., Zhang, T. T., Wu, H. T., & Zhu, B. W. (2020). Functional Properties of Gonad Protein Isolates from Three Species of Sea Urchin: A Comparative Study. *Journal Of Food Science*, *85*(11), 3679–3689. Https://Doi.Org/10.1111/1750-3841.15464

Shao, X., Grams, C., & Gao, Y. (2023). Sequence Coverage Visualizer: A Web Application for Protein Sequence Coverage 3d Visualization. *Journal Of Proteome Research*, *22*(2), 343–349. Https://Doi.Org/10.1021/Acs.Jproteome.2c00358

Sharma, K. (2019). Cholinesterase Inhibitors as Alzheimer's Therapeutics (Review). In *Molecular Medicine Reports* (Vol. 20, Issue 2, Pp. 1479–1487). Spandidos Publications. Https://Doi.Org/10.3892/Mmr.2019.10374

Shi, J., Tu, W., Luo, M., & Huang, C. (2017). Molecular Docking and Molecular Dynamics Simulation Approaches for Identifying New Lead Compounds as Potential Ache Inhibitors. *Molecular Simulation*, *43*(2), 102–109. Https://Doi.Org/10.1080/08927022.2016.1237022

Siddique, S. ;, Ayub, Z., & Siddique, S. (2016). Length-Weight Relationships and Condition Factor of The Sea Urchin *Echinometra mathaei* (Echinoidea: Echinodermata) on Buleji Rocky Shore of Karachi, Pakistan Item Type Article Length-Weight Relationships and Condition Factor of The Sea Urchin *Echinometra mathaei* (Echinoidea: Echinodermata) on Buleji Rocky Shore of

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Karachi, Pakistan. In *Pakistan Journal of Marine Sciences* (Vol. 25, Issue 2). Http://Hdl.Handle.Net/1834/40811

Silano, V., Barat Baviera, J. M., Bolognesi, C., Cocconcelli, P. S., Crebelli, R., Gott, D. M., Grob, K., Lambré, C., Lampi, E., Mengelers, M., Mortensen, A., Rivière, G., Steffensen, I. L., Tlustos, C., Van Loveren, H., Vernis, L., Zorn, H., Gundert-Remy, U., Herman, L., … Chesson, A. (2021a). Safety Evaluation Of A Food Enzyme Containing Trypsin, Chymotrypsin, Elastase and Carboxypeptidase from Porcine Pancreas. *Efsa Journal*, *19*(1). Https://Doi.Org/10.2903/J.Efsa.2021.6368

Silano, V., Barat Baviera, J. M., Bolognesi, C., Cocconcelli, P. S., Crebelli, R., Gott, D. M., Grob, K., Lambré, C., Lampi, E., Mengelers, M., Mortensen, A., Rivière, G., Steffensen, I. L., Tlustos, C., Van Loveren, H., Vernis, L., Zorn, H., Gundert-Remy, U., Herman, L., … Chesson, A. (2021b). Safety Evaluation of A Food Enzyme Containing Trypsin, Chymotrypsin, Elastase and Carboxypeptidase from Porcine Pancreas. *Efsa Journal*, *19*(1). Https://Doi.Org/10.2903/J.Efsa.2021.6368

Silva, A. G. Da, Alves, M. Da M., Cunha, A. A. Da, Caires, G. A., Kerkis, I., Vigerelli, H., & Sciani, J. M. (2023). Echinometra Lucunter Molecules Reduce Aβ42-Induced Neurotoxicity In Sh-Sy5y Neuron-Like Cells: Effects on Disaggregation and Oxidative Stress. *Journal of Venomous Animals and Toxins Including Tropical Diseases*, *29*. Https://Doi.Org/10.1590/1678-9199-Jvatitd-2023-0031

Simões, A. E. S., Pereira, D. M., Amaral, J. D., Nunes, A. F., Gomes, S. E., Rodrigues, P. M., Lo, A. C., D'hooge, R., Steer, C. J., Thibodeau, S. N., Borralho, P. M., & Rodrigues, C. M. P. (2013). Efficient Recovery of Proteins from Multiple Source Samples After Trizol® or Trizol®Ls Rna Extraction and Long-Term Storage. *Bmc Genomics*, *14*(1). Https://Doi.Org/10.1186/1471-2164-14-181

Spassov, D. S., Atanasova, M., & Doytchinova, I. (2023). A Role of Salt Bridges in Mediating Drug Potency: A Lesson From The N-Myristoyltransferase Inhibitors. *Frontiers in Molecular Biosciences*, *9*. Https://Doi.Org/ 10.3389/Fmolb.2022.1066029

Subramanian, S. B., Kumaran, S., Sankar Prasath P, & Prabahar, R. (2013). Bioactive Potential of Sea Urchin *Temnopleurus toreumaticus* from Devanampattinam, Southeast Coast of India. In *Journal Of Pharmacy And Alternative Medicine Www.Iiste.Org Issn* (Vol. 2, Issue 3). Online. Https://Www.Researchgate.Net/Publication/258207955

Sulistyowati, E., Salirawati, D., & Amanatie, D. (2016). *Karakterisasi Beberapa Ion Logam Terhadap Aktivitas Enzim Tripsin (The Characterization Of Several Metal Ions Towards The Enzyme Trypsin Activity)*.

Suryanti, S., Fatimah, P. N. P. N., & Rudiyanti, S. (2020a). Morfologi, Anatomi dan Indeks Ekologi Bulu Babi di Pantai Sepanjang, Kabupaten Gunungkidul, Yogyakarta. *Buletin Oseanografi Marina*, *9*(2), 93–103. Https://Doi.Org/ 10.14710/Buloma.V9i2.31740

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Suryanti, S., & Febrianto, S. (2017). *Mapping of Sea Urchin Abundance As Control of Algae Expansion for The Balance of Coral Reef Ecosystem in Karimunjawa Islands*. Www.Textroad.Com

Susabda, Y. T., Prasetyaningsih, A., & Adityarini, D. (2021). *Utilization of Secondary Metabolites Compounds from Diadema Setosum Ether Extract Originated from Kukup and Sundak Beaches as Anti-Inflammatory* (Vol. 2, Issue 2).

Suzuki, H., Yamashiro, D., Ogawa, S., Kobayashi, M., Cho, D., Iizuka, A., Tsukamoto-Yasui, M., Takada, M., Isokawa, M., Nagao, K., & Fujiwara, Y. (2020). Intake of Seven Essential Amino Acids Improves Cognitive Function And Psychological and Social Function in Middle-Aged and Older Adults: A Double-Blind, Randomized, Placebo-Controlled Trial. *Frontiers In Nutrition*, *7*. Https://Doi.Org/10.3389/Fnut.2020.586166

Sweeney, P., Park, H., Baumann, M., Dunlop, J., Frydman, J., Kopito, R., Mccampbell, A., Leblanc, G., Venkateswaran, A., Nurmi, A., & Hodgson, R. (2017). Protein Misfolding in Neurodegenerative Diseases: Implications and Strategies. *Translational Neurodegeneration*, *6*(1). Https://Doi.Org/10.1186/S40035-017-0077-5

Syahputra, G., Ambarsari, L., & Sumaryada, T. (2014). *Simulasi Docking Kurkumin Enol, Bisdemetoksikurkumin dan Analognya Sebagai Inhibitor Enzim12-Lipoksigenase*.

Tavano, O. L. (2013). Protein Hydrolysis Using Proteases: An Important Tool for Food Biotechnology. In *Journal Of Molecular Catalysis B: Enzymatic* (Vol. 90, Pp. 1–11). Https://Doi.Org/10.1016/J.Molcatb.2013.01.011

Tupan, J., Br Silaban, B., Teknologi, J., & Perikanan, H. (2017). *Karakteristik Fisik-Kimia Bulu Babi Diadema setosum dari Beberapa Perairan Pulau Ambon (The Physical-Chemical Characteristics of Diadema Setosum from Some Waters At Ambon Island)* (Vol. 13, Issue 2).

Valle, G. M., Cinelli, L. P., Todeschini, A. R., De Brito-Gitirana, L., Vilela-Silva, A. C. E. S., & Mourão, P. A. S. (2015). Sperm and Egg Jelly Coat From Sea Urchin *Lytechinus variegatus* Collected in Rio De Janeiro Contain Distinct Sialic Acid-Rich Polysaccharides. *Brazilian Archives Of Biology And Technology*, *58*(4), 617–627. Https://Doi.Org/10.1590/S1516-8913201500052

Waku, T., Nishigaki, S., Kitagawa, Y., Koeda, S., Kawabata, K., Kunugi, S., Kobori, A., & Tanaka, N. (2019). Effect of The Hydrophilic-Hydrophobic Balance of Antigen-Loaded Peptide Nanofibers on Their Cellular Uptake, Cellular Toxicity, and Immune Stimulatory Properties. *International Journal Of Molecular Sciences*, *20*(15), 3781. Https://Doi.Org/10.3390/Ijms20153781

Walker, C. W., Böttger, S. A., Unuma, T., Watts, S. A., Harris, L. G., Lawrence, A. L., & Eddy, S. D. (2015). *Enhancing The Commercial Quality of Edible Sea Urchin Gonads-Technologies Emphasizing Nutritive Phagocytes*.

Walker, C. W., Lesser, M. P., & Unuma, T. (2013). Sea Urchin Gametogenesis - Structural, Functional and Molecular/Genomic Biology. In *Developments In Aquaculture And Fisheries Science* (Vol. 38, Pp. 25–43). Elsevier B.V. Https://Doi.Org/10.1016/B978-0-12-396491-5.00003-4

UNIVERSITAS
GADJAH MADA
Identifikasi Peptida Aktif Anti-Butyrylcholinesterase dari Gonad Landak Laut (Echinometra mathaei (Blainville, 1825)) untuk Terapi Penyakit Alzheimer
Laili Fitria Zulfa, Dr. Tri Rini Nuringtyas, M.Sc.
Universitas Gadjah Mada, 2024 | Diunduh dari http://etd.repository.ugm.ac.id/

Wang, H., Ura, K., & Takagi, Y. (2015a). The Major Yolk Protein In Sea Urchin Egg Yolk Granules is A Glycoprotein Complex. *Fisheries Science*, *81*(6), 1127–1134. Https://Doi.Org/10.1007/S12562-015-0929-9

Wang, H., Ura, K., & Takagi, Y. (2015b). The Major Yolk Protein in Sea Urchin Egg Yolk Granules is A Glycoprotein Complex. *Fisheries Science*, *81*(6), 1127–1134. Https://Doi.Org/10.1007/S12562-015-0929-9

Wang, X., Tao, S., Cong, P., Wang, Y., Xu, J., & Xue, C. (2017). Neuroprotection of *Strongylocentrotus nudus* Gangliosides Against Alzheimer's Disease Via Regulation of Neurite Loss and Mitochondrial Apoptosis. *Journal Of Functional Foods*, *33*, 122–133. Https://Doi.Org/10.1016/J.Jff.2017.03.030

Wang, Z., Zheng, L., Wang, S., Lin, M., Wang, Z., Kong, A. W.-K., Mu, Y., Wei, Y., & Li, W. (2023). A Fully Differentiable Ligand Pose Optimization Framework Guided by Deep Learning and A Traditional Scoring Function. *Briefings In Bioinformatics*, *24*(1). Https://Doi.Org/10.1093/Bib/Bbac520

Wisuthiphaet, N., Kongruang, S., & Chamcheun, C. (2015). Production of Fish Protein Hydrolysates by Acid and Enzymatic Hydrolysis. *Journal Of Medical And Bioengineering*, *4*(6), 466–470. Https://Doi.Org/10.12720/Jomb.4.6.466-470

Xijun Liang, Xia, Z., Jian, L., Niu, X., & Link, A. (2015). An Efficient Acs Algorithm for Classification-Based Peptide Identification. *2015. International Conference on Bioinformatics and Biomedicine (Bibm)*, 286–289. Https://Doi.Org/10.1109/Bibm.2015.7359695

Youssef, S. A., Capucchio, M. T., Rofina, J. E., Chambers, J. K., Uchida, K., Nakayama, H., & Head, E. (2016). Pathology of The Aging Brain in Domestic and Laboratory Animals, and Animal Models of Human Neurodegenerative Diseases. *Veterinary Pathology*, *53*(2), 327–348. Https://Doi.Org/10.1177/0300985815623997

Zaikin, V. G., & Borisov, R. S. (2021). Mass Spectrometry as A Crucial Analytical Basis for Omics Sciences. In *Journal Of Analytical Chemistry* (Vol. 76, Issue 14, Pp. 1567–1587). Pleiades Journals. Https://Doi.Org/10.1134/S1061934821140094

Zaky, A. A., Simal-Gandara, J., Eun, J.-B., Shim, J.-H., & Abd El-Aty, A. M. (2022). Bioactivities, Applications, Safety, and Health Benefits of Bioactive Peptides From Food and By-Products: A Review. *Frontiers In Nutrition*, *8*. Https://Doi.Org/10.3389/Fnut.2021.815640

Zambrowicz, A., Timmer, M., Polanowski, A., Lubec, G., & Trziszka, T. (2013). Manufacturing of Peptides Exhibiting Biological Activity. In *Amino Acids* (Vol. 44, Issue 2, Pp. 315–320). Https://Doi.Org/10.1007/S00726-012-1379-7

Zhang, Q. (2023). Mzion Enables Deep and Precise Identification of Peptides In Data-Dependent Acquisition Proteomics. *Scientific Reports*, *13*(1), 7056. Https://Doi.Org/10.1038/S41598-023-34323-4

Zhu, Y.-Z., Liu, J.-W., Wang, X., Jeong, I.-H., Ahn, Y.-J., & Zhang, C.-J. (2018). Anti-Bace1 and Antimicrobial Activities of Steroidal Compounds Isolated From Marine *Urechis unicinctus*. *Marine Drugs*, *16*(3), 94. Https://Doi.Org/10.3390/Md16030094