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Effects of cryopreservation-related processes on the settlement competence of coral larvae

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1. Introduction

Larval settlement success represents a crucial phase in the coral life cycle, determining the ability of populations to regenerate and colonize new habitats (Doropoulos et al., 2012; Whalan et al., 2015; Lei et al., 2021). In the context of rapid reef degradation, understanding the mechanisms regulating settlement is fundamental to support coral conservation and restoration efforts (De'ath et al., 2013; Hughes et al., 2018; dela Cruz and Harrison, 2020). Increasing environmental disturbances not only lead to the loss of coral cover (Hughes et al., 2018;

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Negri, A.P., Webster, N.S., Hill, R.T., Heyward, A.J., 2001. Metamorphosis of broadcast spawning corals in response to bacteria isolated from crustose algae. Mar. Ecol. Prog. Ser. 223, 121–131. https://doi.org/10.3354/meps223121.

Nozawa, Y., Harrison, P.L., 2000. Larval settlement patterns , dispersal potential , and the effect of temperature on settlement of larvae of the reef coral. Platygyra daedalea , from the Great Barrier Reef. Heron, October 152, 1181–1185.

Nozawa, Y., Harrison, P.L., 2007. Effects of elevated temperature on larval settlement and post-settlement survival in scleractinian corals, *Acropora solitaryensis* and *Favites chinensis*. Mar. Biol. 152 (5), 1181–1185. https://doi.org/10.1007/s00227-007-0765-2.

Pechenik, J.A., Wendt, D.E., Jarrett, J.N., 1998. Metamorphosis is not a new beginning larval experience influences juvenile performance. Bioscience 48 (11), 901–910. https://doi.org/10.2307/1313294.

Petersen, D., Laterveer, M., Schuhmacher, H., 2005. Innovative substrate tiles to spatially control larval settlement in coral culture. Mar. Biol. 146 (5), 937–942. https://doi.org/10.1007/s00227-004-1503-7.

Putnam, H.M., Edmunds, P.J., Fan, T.Y., 2008. Effect of temperature on the settlement choice and photophysiology of larvae from the reef coral *Stylophora pistillata*. Biol. Bull. 215 (2), 135–142. https://doi.org/10.2307/25470694.

Qian, P.Y., Lau, S.C., Dahms, H.U., Dobretsov, S., Harder, T., 2007. Marine biofilms as mediators of colonization by marine macroorganisms: implications for antifouling and aquaculture. Mar. Biotechnol. 9 (4), 399–410. https://doi.org/10.1007/s10126-007-9001-9.

larval settlement and metamorphosis of coral planulae? Biol. Bull. 222 (2), 128–136. https://doi.org/10.1086/BBLv222n2p128.

Tran, C., Hadfield, M.G., 2013. Localization of sensory mechanisms utilized by coral planulae to detect settlement cues. Invertebr. Biol. 132 (3), 195–206. http://www.jstor.org/stable/24697190.

Tsai, S., Spikings, E., Kuo, F.W., Lin, N.C., Lin, C., 2010. Use of an adenosine triphosphate assay, and simultaneous staining with fluorescein diacetate and propidium iodide, to evaluate the effects of cryoprotectants on hard coral (*Echinopora* spp.) oocytes. Theriogenology 73 (5), 605–611. https://doi.org/10.1016/j.theriogenology.2009.10.016.

Tsai, S., Thongpooe, P., Kuo, F.W., Lin, C., 2015. Impacts of low temperature preservation on mitochondrial DNA copy number in oocytes of the hard coral *Echinopora* sp. Mitochondrial DNA Part A 27 (4), 2512–2515. https://doi.org/10.3109/19401736.2015.1036254.

Tsai, S., Lin, C., 2012. Advantages and applications of cryopreservation in fisheries science. Braz. Arch. Biol. Technol. 55 (3), 425–434. https://doi.org/10.1590/s1516-89132012000300014.

Turnlund, A.C., Vanwonterghem, I., Botté, E.S., Randall, C.J., Giuliano, C., Kam, L., Bell, S., O'Brien, P., Negri, A.P., Webster, N.S., Lurgi, M., 2023. Linking differences in microbial network structure with changes in coral larval settlement. ISME Commun. 3 (1), 1–12. https://doi.org/10.1038/s43705-023-00320-x.

Ueda, N., Degnan, S.M., 2013. Nitric oxide acts as a positive regulator to induce metamorphosis of the ascidian *Herdmania momus*. PLoS One 8 (9), e72797. https://doi.org/10.1371/journal.pone.0072797.