

Actividad biológica de Péptidos antimicrobianos de NK-Lisina de *Salmo salar*

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- Acosta, J., Roa, F., González-Chavarría, I., Astuya, A., Maura, R., Montesino, R., Muñoz, C., Camacho, F., Saavedra, P., & Valenzuela, A. (2019). In vitro immunomodulatory activities of peptides derived from *Salmo salar* NK-lysin and cathelicidin in fish cells. *Fish & shellfish immunology*, 88, 587-594.
- Andersson, M., Curstedt, T., Jörnvall, H., & Johansson, J. (1995). An amphipathic helical motif common to tumourolytic polypeptide NK-lysin and pulmonary surfactant polypeptide SP-B. *FEBS letters*, 362(3), 328-332.
- Brunner, S. R., Varga, J. F., & Dixon, B. (2020). Antimicrobial peptides of salmonid fish: from form to function. *Biology*, 9(8), 233.
- Hao, D.-f., Wang, G.-h., Li, N.-q., Liu, H.-m., Wang, C.-b., Liu, W.-c., Yan, X., & Zhang, M. (2022). Antimicrobial and immunoregulatory activities of the derived peptide of a natural killer lysozyme from black rockfish (*Sebastodes schlegelii*). *Fish & shellfish immunology*, 123, 369-380.
- Hirono, I., Kondo, H., Koyama, T., Arima, N. R., Hwang, J. Y., Nozaki, R., Midorikawa, N., & Aoki, T. (2007). Characterization of Japanese flounder (*Paralichthys olivaceus*) NK-lysin, an antimicrobial peptide. *Fish & shellfish immunology*, 22(5), 567-575.
- Kim, W. H., Lillehoj, H. S., & Min, W. (2017). Evaluation of the immunomodulatory activity of the chicken NK-lysin-derived peptide cNK-2. *Scientific Reports*, 7(1), 45099.
- Lama, R., Pereiro, P., Costa, M., Encinar, J. A., Medina-Gali, R. M., Pérez, L., Lamas, J., Leiro, J., Figueras, A., & Novoa, B. (2018). Turbot (*Scophthalmus maximus*) NK-lysin induces protection against the pathogenic parasite *Philasterides dicentrarchi* via membrane disruption. *Fish & shellfish immunology*, 82, 190-199.
- Leyton, A., Urrutia, H., Vidal, J. M., de la Fuente, M., Alarcón, M., Aroca, G., González-Rocha, G., & Sossa, K. (2015). Actividad inhibitoria del sobrenadante de la bacteria Antártica *Pseudomonas* sp. M19B en la formación de biopelículas de *Flavobacterium psychrophilum* 19749. *Revista de biología marina y oceanografía*, 50(2), 375-381.
- Ma, H., Han, Y.-C., Palti, Y., Gao, G., Liu, S., Palmquist, D. E., Wiens, G. D., & Shepherd, B. S. (2021). Structure and regulation of the NK-lysin (1–4) and NK-lysin like (a and b) antimicrobial genes in rainbow trout (*Oncorhynchus mykiss*). *Developmental & Comparative Immunology*, 116, 103961.
- Otvos, L., & Cudic, M. (2007). Broth microdilution antibacterial assay of peptides. Peptide characterization and application protocols, 309-320.
- Santibañez, N., Vega, M., Pérez, T., Yáñez, A., González-Stegmaier, R., Figueira, J., Enríquez, R., Oliver, C., & Romero, A. (2020). Biofilm produced in vitro by *Piscirickettsia salmonis* generates differential cytotoxicity levels and expression patterns of immune genes in the Atlantic salmon cell line SHK-1. *Microorganisms*, 8(10), 1609.
- Secombes, C. (1990). Isolation of salmonid macrophages and analysis of their killing activity. *Techniques in fish immunology*, 1, 137-163.
- Wang, G. L., Wang, M. C., Liu, Y. L., Zhang, Q., Li, C. F., Liu, P. T., Li, E. Z., Nie, P., & Xie, H. X. (2018). Identification, expression analysis, and antibacterial activity of NK-lysin from common carp *Cyprinus carpio*. *Fish & shellfish immunology*, 73, 11-21.
- Wang, Q., Bao, B., Wang, Y., Peatman, E., & Liu, Z. (2006). Characterization of a NK-lysin antimicrobial peptide gene from channel catfish. *Fish and Shellfish Immunology*, 20(3), 419-426.
- Wong-Benito, V., Barraza, F., Trujillo-Imarai, A., Ruiz-Higgs, D., Montero, R., Sandino, A. M., Wang, T., Maisey, K., Secombes, C. J., & Imarai, M. (2022). Infectious pancreatic necrosis virus (IPNV) recombinant viral protein 1 (VP1) and VP2-Flagellin fusion protein elicit distinct expression profiles of cytokines involved in type 1, type 2, and regulatory T cell response in rainbow trout (*Oncorhynchus mykiss*). *Fish & shellfish immunology*, 131, 785-795.
- Xu, H., Yuan, Z., & Sun, L. (2022). A non-canonical teleost nk-lysin: Antimicrobial activity via multiple mechanisms. *International Journal of Molecular Sciences*, 23(21), 12722.
- Zhang, M., Li, M.-f., & Sun, L. (2014). NKLP27: a teleost NK-lysin peptide that modulates immune response, induces degradation of bacterial DNA, and inhibits bacterial and viral infection. *PLoS one*, 9(9), e106543.
- Zhang, M., Long, H., & Sun, L. (2013). A NK-lysin from *Cynoglossus semilaevis* enhances antimicrobial defense against bacterial and viral pathogens. *Developmental & Comparative Immunology*, 40(3-4), 258-265.
- Zhou, Q.-J., Wang, J., Liu, M., Qiao, Y., Hong, W.-S., Su, Y.-Q., Han, K.-H., Ke, Q.-Z., & Zheng, W.-Q. (2016). Identification, expression and antibacterial activities of an antimicrobial peptide NK-lysin from a marine fish *Larimichthys crocea*. *Fish & shellfish immunology*, 55, 195-202.