

出國報告：浸泡型海豚鏈球菌不活化疫苗改進

生物組

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摘要

在臺灣養殖漁業可產生 350 億元以上的年產值，而鏈球菌感染症造成養殖漁業重大的經濟損失。鏈球菌症的防治可分為幾方面，可以抗生素治療，但是副作用為可能誘導抗藥菌株出現；可以疫苗防治，但要考慮疫苗的保護效力與投予成本；可給予益生菌提升魚隻健康與免疫力，但也要考慮益生菌生產成本。本所為防治魚鏈球菌症，開發以福馬林不活化的海豚鏈球菌（*Streptococcus iniae*）死菌疫苗，以腹腔注射投予方式免疫，可對金目鱸與石斑魚提供免疫保護。然而在水生動物疫苗使用上，除了疫苗保護有效性外，疫苗投予方式與魚隻經濟價值亦為影響疫苗使用意願的重大因素。為提升水生動物疫苗的使用意願，本所精進海豚鏈球菌疫苗研發，計畫添加佐劑將疫苗投予方式改進為浸泡免疫。本次研習重點為學習美方專家已建立或正在研發防治傳染病的技術與策略，協助本所研發浸泡型海豚鏈球菌不活化疫苗，提升水生動物傳染病監控與研究能力。

Report on Official Visit Abroad: Improvement of Immersion type

Inactivated *Streptococcus iniae* Vaccine

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Abstract

In Taiwan, the annual production value of aquaculture and fishery industries is over \$35 billion NTD, and *Streptococcus* infections cause significant economic losses in the aquaculture industry. The prevention and treatment of streptococcosis can be carried out by several means: antibiotics, which can be used to treat the disease, but have the possibility of inducing the emergence of antimicrobial resistance (AMR) as side effect; vaccines, which can be used to prevent the disease, but the efficacy and cost should be put into consideration; and probiotics, which can be given to improve health and immunity of the fish, but the cost must also be taken into judgment. To prevent and control *Streptococcus iniae* in fish, the Veterinary Research Institute (VRI) has developed a formalin-inactivated *Streptococcus iniae* vaccine, which is administrated via intraperitoneal injection, and can induce adequate immune protection in sea bass and grouper. However, in addition to efficacy, the vaccine administration route and the economic value of the target fish are important issues that affecting the willingness to use such vaccines in aquatic animals. To improve the willingness to use among aquatic animal vaccines, VRI has improved the development of *Streptococcus iniae* vaccine, and planned to include adjuvant to improve the vaccine, from injection type to immersion immunization. The objectives of this workshop are to learn about the prevention and treatment, and the already established or under development technologies and strategies for infectious diseases from the ARS-USDA experts, and to assist VRI in developing inactivated immersion vaccine for *Streptococcus iniae*, in order to enhance the capacity of monitoring and research among aquatic animal infectious disease.