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Thermal effects on early life history stages of European eel

Knowledge of specific thermal regimes which European eels experience in nature during gametogenesis, as well as how temperature impacts their early life is limited. Thus, in this study, we investigated the thermal tolerance ranges and limits for optimal development during early life history of European eels in culture. This STSM grant enabled the collaboration with the French Research Institute for Exploitation of the Sea (IFREMER) and the laboratory and team of Dr. J.L. Zambonino Infante. In particular, profiting from their long experience and excellence in molecular biology, we investigated the effect of thyroid hormone pathway related gene expression and linked it to the thermally induced phenotypic variability during early life development. Moreover, the STSM grant enabled collaborations with the Helmholtz Centre for Ocean Research, in Kiel (GEOMAR). With the valuable support and supervision of Dr. J.J. Miest, we investigated, on molecular level, the early ontogeny of immunity in eel and how it is influenced by extrinsic environmental influences, such as temperature. Both institutes and supervisors (as well as their teams) combined expertise and applied knowledge of functional genetic tools. Their support by providing the necessary equipment and supervision for this type of molecular analysis was of key importance to conduct this cutting edge science. The knowledge generated will support the understanding of fundamental aspects in developmental and evolutionary fish immunology. Furthermore, understanding the relationship between temperature and early ontogenesis will help estimating the still unknown abundance of early life stages in nature but also identify optimal conditions for early life rearing in aquaculture.



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