Organ communication in aging of zebrafish

Telomere shortening is a hallmark of aging, counteracted by telomerase. In zebrafish, the intestine is among the first organs to show signs of aging, such as short telomeres and functional decline. This is particularly pronounced in telomerase mutant zebrafish (tert-/-). Our study reveals that inducing telomerase expression in enterocytes in the gut of tert mutants prevents premature aging. This intervention not only reverses intestinal senescence, apoptosis, and inflammation but also restores gut barrier functions and microbiota dysbiosis to young WT zebrafish. Remarkably, this gut-specific enhancement also improves conditions in remote organs like the testis and kidney marrow, restores fertility, and extends lifespan. These findings highlight the gut's central role in systemic aging, suggesting that maintaining telomere length there can broadly counteract the aging process in zebrafish.

Dr. Miguel Godinho Ferreira

Directeur de Recherche CNRS Institute for Research on Cancer and Aging of Nice NICE, France

Time and Date

16:00-17:00 Thursday, August 22, 2024



Venue

Biken Hall, 1F Main building, Research Institute for Microbial Diseases (RIMD)

Osaka University

* This seminar is a credit seminar for the Graduate School of Medicine and Graduate School of Frontier Biosciences (No registration required)





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