

Functional autoimmunity to G protein-coupled receptors

Otavio Cabral Marques and Gabriela Riemekasten
University of Lübeck, Germany

G protein-coupled receptors (GPCRs) comprise the largest and most diverse family of integral membrane proteins mediating homeostatic and pathological processes. Here, we discuss the effects of an imbalanced GPCRs physiology in the pathogenesis of inflammatory and autoimmune diseases. In this context, GPCRs are involved in the abnormal cellular infiltration into inflamed tissues as well as determining the time for the presence of immune cells in these sites. Among the molecules able to trigger GPCR signaling, autoantibodies against GPCRs modulate receptor activation in both homeostatic and pathological conditions. This fact supports a change of paradigm from the notion that autoantibodies are an exclusive autoimmune phenomenon to the concept that they are part of the normal human physiology, which become dysregulated under the influence of different factors and subsequently cause autoimmune diseases. Patients with autoimmune diseases still suffer from severe morbidity and high mortality rates. Therefore, the expansion of our understanding about GPCR physiology might bring up novel opportunities to develop therapeutic modalities.

otavio.marques@uksh.de

Strategies for remediation of benthic and pelagic species dependent on coral reefs: Cases of *T. migratorius* and *G. californianus*

James Bjarnison
University of Toronto, Canada

It is well known that severe environmental degradation threatens the existence of species on the world's coral reefs, and that two of the key factors are overharvesting and anthropogenic climate change. We investigated the cases of one pelagic species (*Turdus migratorius*) and one benthic species, (*Geococcyx californianus*), each of which was suffering from habitat loss and from overharvesting in our study area, the northern half of the Caribbean Sea. Population estimates of the free-swimming *T. migratorius* are subject to wide variation, whereas *G. californianus* is a slow-moving species unable to escape wily predators, and this makes population estimates more reliable. Estimates show that the number of coral reefs world-wide will continue to shrink rapidly. The loss of such reefs and the fisheries associated with them is a major economic problem in developing nations of the Caribbean. *G. californianus* in particular is a staple diet of traditional tribes. We examine three potential means of remediation for these species, namely proactive benthic farming to promote species recovery in protected marine areas, a ban on long-line trawlers that are of particular danger to *T. migratorius*, and the regular treatment of the reefs with pelletized 5-deoxyadeno-sylcobalamin.

dr.bjarni@gmail.com