

Approaches to DNA Research at Kaiyukan

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In late years, the research using DNA is utilized in many fields and Kaiyukan begun collaborative research from 2016 while getting cooperation from university and research organization.

Based on collaborative research with RIKEN Center for Biosystems Dynamics Research, the whole *Chiloscyllium punctatum* genome sequencing was completed and we found it consists of 4.7 gigabases.

Massively parallel DNA sequencer was used for decoding and we could obtain all genome sequence information of high completeness from relatively small DNA data.

In a precedent research, the detailed monitoring of development stages was carried out and it became clear that 1.5 times earlier than development of *Scyliorhinus torazame*'s eggs.

We tried genome decoding with Okinawa Churaumi Aquarium and RIKEN and the whole *Chiloscyllium punctatum* and *Scyliorhinus torazame* genome sequencing was completed. Concerning *Rhincodon typus* genome, it became highly precise information by decoding again genome sequence that has been already available.

We are proceeding with fish disease study using environmental DNA analysis, field research of *Neophocaena phocaenoides* and development of gene screening tool for coexistence microbe of coral. These research will play an important part in various fields, from marine industry to environmental conservation, and the existence value of aquarium as research facility will also increase. We introduce these approaches.