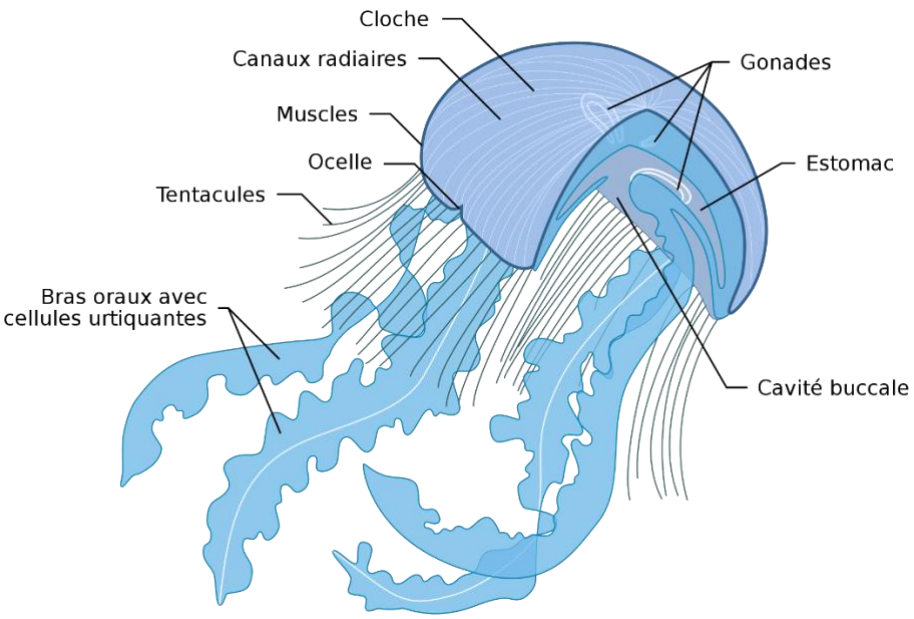
General recommendations for Medusozoa and Ctenophora Phylum

Revised by: Lucas LECLERE (04/03/2024)

Medusozoans are distinguished by having a medusa stage in their complex life cycle. A medusa is typically an umbrella-shaped body with stinging tentacles around the edge. With the exception of some Hydrozoa (and Polypodiozoa), all are called jellyfish in their free-swimming medusa phase. **Ctenophora**, also known as comb jellies, sea gooseberries, sea walnuts, or Venus's girdles, are typically predators. Unlike medusozoans, with which they share several superficial similarities, they lack stinging cells.



Note: some medusozoan species have stinging cells. Species which are known to be dangerous to humans should be avoided unless adequate safety measures are in place. This SOP does not cover precautions against stings and other potential risks.

Sampling

For medusae, sample gently with a hand net to damage it the least possible.
For polyps, sampling can be performed during diving or by dredging.
Specimens are maintained in ambient seawater containers. At this step, specimens are identified with:

- sampling date
- station number

- name species / taxon
- “GENOME” label (to indicate that this specimen will follow the ATLASea cold chain)

Photography

Ideally, images should be taken in the highest quality resolution (macro lens recommended) and where no voucher specimen parts are retained the pictures will serve as voucher and should include identifying features.
Specimen will be photographed in a glass container with sea water.
Water should be clean and changed between each specimen.
Take as many detailed pictures of the different parts of the medusae and polyps. For medusae, be sure to take pictures of the bell margin, in addition of pictures of the whole medusae, oral arm, tentacles and of the mouth part. The diagnostic taxonomic characters are at different locations depending on the medusozoan subgroup.
One picture is taken with a **scale**, the **code identifier** (e.g. ATLASea QR code, **MNHN-IK** barcode) and the station label with the specimen.

Animals can be **anesthetized** (instantly and reversibly) in a 400µM solution of **menthol** (prepare a stock solution of 1M menthol + ethanol; dilute 1:2500 in FSW at time of use).

Dissection for DNA barcoding and Genome Sequencing

1. Ideally, to avoid contamination medusae or polyps should be kept for 24h in filtered sea water (change the water 2 or 3 times during the first few hours) prior to dissection and sample preparation.
2. Rinse in filtered sea water (FSW) and blot out any slime.
3. Use any **soma**/body tissue, **gonads**, **oral arms** or tentacles,
4. **Avoid any obvious digestive tissue or mesoglea**.
5. Dissect at least **10 pieces** (approx. **500 mg** each). Cut each piece into smaller before putting them in separate tubes (with unique identification labels).
6. Ensure that all tissues from the same individual are correctly identified on the log sheet.
7. Weight the tubes and scan the barcode on the log sheet.
8. Tubes should be flash-frozen in liquid nitrogen.

Backup/Biobanking:

1. Dissect at least 1 and up to 5 pieces in separate tubes (with unique identification labels).
2. Tubes should be flash-frozen in a liquid nitrogen.

Voucher & Taxonomic Assignation samples:

Voucher will be storage at MNHN.

For polyps: place in 90% ethanol (or better in 4% formaldehyde) a few polyps of the colony used for tissue sampling.

For medusae: since it will have to be dissected, preparing voucher will not be possible, unless several individuals of the same species are collected at the same time. In that case, place an entire medusa in 90% ethanol (or better in 4% formaldehyde).

Place a barcode **MNHN-IK** identifier and the station label with the organism in tube/container.

Put the tube/container with the others specimens in the ATLASea barrels for shipment to the MNHN.