LIB Leibniz Institute for the Analysis of Biodiversity Change

Biobank

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LIB Biobank: deposition of tissue / DNA / cells

You are considering material donations to the LIB Biobank – thank you for your interest and trust!

- The LIB Biobank stores samples derived from **animals** (no human, bacterial etc. samples) and **environmental samples** (e.g. eDNA, community DNA, soil samples, gut samples).
- We accept samples that have been preserved for molecular analysis (e.g. frozen **tissue**; tissue in 96% ethanol, DMSO, RNAlater; extracted **DNA**, RNA, etc.; also **viable cells**) .
- Samples should be **documented extensively** (taxonomic determination ideally down to species or genus level; detailed collecting/field information; **permits**, if necessary –> we take the Nagoya Protocol seriously) and must be free from third-party claims.
- Except for eDNA etc., the samples should also be referenced to a **voucher specimen** (for morphological examination) deposited in a public collection (e.g., LIB), or can alternatively be submitted as whole organisms if small enough (see below). If there is no other way, high-quality, informative photographs can function as e-vouchers instead.
- Samples can be blocked for requests from third parties for a specified period. Should they wish so, sample donors can also be asked for their consent when a request for the respective sample is made.

The following page contains suggestions / details on animal tissue preservation and submission.

- Pre-labeled, cryogenic 2 mL **collecting tubes can be provided** by us. We also have an alternative format (for limited sample numbers) with 5 mL tubes.
- Samples should be **fresh** or only a **few years old**. In case of doubt, we can test DNA integrity.
- Please remember: Water/humidity and elevated temperature are the greatest threats to DNA preservation
    - **Short-term storage**: do not freeze samples, keep them **in refrigerator**.
    - **Medium-term storage**, from ~3 weeks on: preferably **freeze and do not thaw** until delivery; **repeated freezing/thawing damages** the DNA considerably
- Samples for **DNA analysis** should be stored **in 96% (or 100%) ethanol as soon as possible**.
    - **The ratio of sample:ethanol should not exceed ca. 1:10** (high 'excess' of ethanol necessary); otherwise, please replace ethanol after a few hours so it is not diluted.
    - **Avoid low percentage alcohol!** The water in it leads to DNA degradation; 100% ethanol contains traces of desiccants: 96% ethanol is optimal.
    - If possible, please use **non-denatured alcohol only**
    - Avoid contact with formalin (formol) and solutions of acetic acid (or any other acid).
- Samples for **RNA analysis** should be stored in RNAlater (if large, partly homogenized) and frozen as soon as possible (after 1 night); for 'homebrew' RNAlater, please provide the recipe
- If you would like to supply **viable cell samples** (e.g. from animals not dead more than ~2 days), please contact us beforehand: biobank@leibniz-zfmk.de and **do not freeze**
- Other preservation fluids may be suitable as well (e.g. propylene glycol), please contact us.
- For LIB staff: we can provide **dry/vapor shippers** for transport (also by plane) of samples at liquid nitrogen temperatures. These can also be used to directly snap freeze the samples in the field, e.g. **in case you want to avoid exposure to preservation fluids** by maintaining an uninterrupted cold chain (shippers hold the temperature for 1.5 weeks and more).

- Small animals (up to ca. 4 cm) can enter the biobank as **complete individuals**, if so wished. Cuts/punctures into the tissue or removal of a leg/s enable quicker penetration by the fluid.
- If you wish to split the material, or if you have larger animals, please collect them as for morphological examination and immediately preserve molecular **subsamples, e.g. arthropod legs** (2-3 from ideally the right side of the body) or muscle tissue into tubes with preservation fluid. Sterilize instruments after subsampling (please ask if you do not know how).
- **Do not put more than one animal into a single tube**; never mix subsamples from 2 animals.
- If you have to use a killing jar, always let the killing medium act aerially (e.g., a droplet on cotton) and - very importantly - do not leave the sample in the jar for more than max. very few hours (enzymes swiftly eat away at the DNA). Protect the jar from sun/heat!
  Also in general, always **avoid direct sun** exposition or heated-up vehicles.
- Vertebrate tissue samples:
    - **muscle tissue** preferred. Avoid slimy/mucous or hardened tissue and esp. intestines.
    - Preserve a **tissue piece of max. 0,5cm³**, ideally as several small pieces; additional tissue from the same animal can go into a second or third tube.
    - Easy-to-sample tissues: amphibians/reptiles/birds: toes, toepads, tip of tail (if any); small mammals: piece of ear or tail; fish: eye, pectoral fin; **for cell culture: eyes**
- We will ask you for the metadata of your samples (taxonomy, collecting data); you can submit your own tables or better: we provide our scaffold in which you see all available data categories (using this minimizes questions from our side).
- We gladly accept photographs of specimens (or habitats) and can give you the specifications.