

VIII International Vereshchagin Baikal Conference

Baikal School of Young Scientists (BSYS-2025)

Practical School on DNA Genotyping (with the participation of Sintol Company)

September 9-12, 2025

Day 1. Preparation of samples for sequencing and fragment analysis of DNA

- Sample preparation and DNA extraction from samples of various fish species using the DNA MAG Isolation Kit reagent kit on the Kolibri automatic station.
- Determination of DNA concentration on Qubix using the SinQuant HS DNA, SinQuant BR DNA kits.
- PCR setup, analysis of the obtained amplicons using electrophoresis, their enzymatic purification on magnetic particles.

Day 2. DNA sequencing by the Sanger method

- Setting up a sequencing reaction with labeled terminators, cleaning the obtained samples using reagents from the kit for establishing the taxonomic affiliation of objects of animal origin by sequencing the CO1 region of mtDNA and loading into the NanoFor 05 genetic analyzer (GenSeq DNA sequencing and SeqMag purification reagent kit).
- Working with the obtained nucleotide sequences in the Mutation Surveyor program.

Day 3. DNA fragment analysis

- Setting up PCR using the GenExpert-Osetr reagent kit for genetic certification and determining the relationship of sturgeon fish by multiplex amplification of 7 STR loci, followed by analysis of the lengths of PCR products using capillary electrophoresis on the NanoFor 05 genetic analyzer.
- Working with the obtained data in the GeneMarker program.

Day 4. Preparation of NGS libraries

- Purification of DNA before library preparation.
- Preparation of Illumina type libraries (NanoFor SPS) using a rapid protocol with tagging (Sintera reagent kit).
- Control of the quantity and quality of the resulting libraries (PCR curve analysis, fluorimetrically, electrophoresis in ND conditions on NanoFor 05 and/or classical electrophoresis in agarose gel).

All stages of sample preparation are carried out using reagents manufactured by Sintol (Moscow, Russia).