

Paid short-term courses program of the “National Center for Biotechnology” LLP

Molecular genetic profile (identification, genotyping)

№	Name of classes	Form of classes	Number of people	Duration	Time	Cost, tenge	Form of completion	Laboratory, base
1	Sample preparation. <i>Isolation of nucleic acids from customer samples (no more than 3 samples) of various origins: biological material (blood, animal sperm, etc.); microorganisms (bacteria, fungi, yeast, viruses)</i>	Lecture Practical lessons	Target groups of 3-4 people (veterinary medicine, medicine, agronomy)	72 hours (10 working days)	January - July November - December	110 000	Certificate	National Scientific Shared Laboratory Of Biotechnology, Laboratory Of Applied Genetics
2	Basics of PCR and setting up PCR. <i>Detection of PCR products by electrophoresis: preparing a buffer, preparing an agarose gel, applying samples and markers to prepared wells, performing detection, viewing the gel in a transilluminator</i>							
3	Real-time PCR (SNP genotyping): - Identification of microorganisms (non-pathogenic) based on DNA sequencing of 16s RNA and ITS - region with the construction of a tree of phylogenetic trees; - <i>Identification of animals based on the cytochrome gene region with the construction of phylogenetic - SNP genotyping (customer's Taqman probes);</i> - <i>Whole-genome sequencing of bacterial strains on a high-throughput MiSeq sequencer;</i> - <i>Genotyping of non-pathogenic bacterial strains or fungi, based on analysis of the nucleotide sequence of the 16SrRNA gene or ITS region with the construction of phylogenetic trees.</i>							

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Cultivation of cell cultures under aseptic conditions

№	Name of classes	Form of classes	Number of people	Duration	Time	Cost, tenge	Form of completion	Laboratory, base
1	1) Laboratory safety rules; 2) Basic equipment for the culture laboratory and their maintenance; 3) Preparation of sterile containers for cultural work; 4) Preparation of buffer solutions and culture media.	Lecture Practical lessons	Target groups of 3-4 people (veterinary medicine, medicine, agronomy)	72 hours (10 working days)	January - July November - December	105 000	Certificate	Laboratory Of Stem Cells
2	1) Method for cryopreservation of cells and defrosting cell culture; 2) Cell culture subculturing.							
3	1) Characterization of cell culture; 2) Checking the cell culture for the presence of bacterial, fungal and mycoplasma contamination; 3) Freezing cell culture; 4) Microscopy (introduction) and analysis of cell culture patterns.							

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