Sviatoslav Kharuk

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EXPERIENCE

Internships

- **Vasyl Stefanyk Precarpathian National University of Ukraine**
  - November 2019 – June 2022

Investigating lifespan and aging of *Drosophila melanogaster*. A study of the behaviour of *D. melanogaster* in the conditions of starvation in the early stages of development.
Research design:

- Counting the rate of fruit fly development
- Investigating lifespan and fecundity
- Determination of food consumption (carbs and proteins) using the CAFE (Capillary Feeding) method
- Determination of the resistance to stress factors (starvation and oxidative (menadione) resistance)
- Measuring the content of metabolites (glycogen, glucose, TAG and protein)

Supervisor: Oleh Lushchak (Scopus - https://bit.ly/3F6Oyvw)

  - September 2022 – June 2023

Studying the intranasal administration of peptides to the brain in *Mus Musculus.* Investigating of the amino acid sequence of peptides for effective delivery to the brain of mice through the nasal cavity
Research design:

- Intranasal administration of peptides through nose (N2B drug delivery)
- Dissection
- Fluorescence spectroscopy

Supervisor: Volodymyr Shvadchak (Orcid- https://bit.ly/3IEQG1D)

- **Explogen LLC**

On-site internship

July 2022 – July 2022
Genome assembling, DNA extraction, DNA electrophoresis, PCR, Plasmid Isolation, Bacterial Culturing, Fosmid library construction.

- **Universitätsklinikum Münster**

June 2022 – July 2022

ChIP-seq and RNA-seq analysis
Supervisor: Sebastian T Balbach (ResearchGate - https://bit.ly/3Ai9dMY)

EDUCATION

Bachelors of Biochemistry and Biotechnology at Vasyl Stefanyk Precarpathian National University (with Honors)

September 2019 – June 2023

Thesis topic: “Effect of early life starvation on metabolism in *Drosophila melanogaster*”
Supervisor: Oleh Lushchak (Scopus - https://bit.ly/3F6Oyvw)

Diploma topic: “Effect of peptides amino acid sequence on the efficiency of intranasal delivery to the mouse brain”.

Major courses: Fundamentals of scientific research, Biochemistry, Cell Biology, Molecular Biology
Key courses: Immunology, Bioinformatics, Microbiology, Virology and Metabolic Pathways in Biology.
GPA: 3.8/4.0

- **Successfully completed the Bioinformatics course from DAAD.**

Course program: Introduction to Bioinformatics. Databases. Pairwise sequence alignment. Multiple sequence alignment (MSA). DNA sequencing. Principles of DNA sequence assembly. Biology and evolution… (Certificate and more information - https://bit.ly/3iKMlyX)

HARD SKILLS

- **Bioinformatics skills (Bioinformatics university course, self-study):**
  - Working with the command line on Linux (certificates (bit.ly/3R37SBZ, https://bit.ly/3rWNjtN):
    - Bash (FastQC, BWA-MEM, Samtools, Bcftools).
    - File formats: FASTQ, SAM/BAM, VCF.
    - Shell scripting (automating variant calling forkflow for QC analysis and calling variants)
  - **Programming**:
    - Python (biopython, pandas, seaborn, matplotlib, streamlit) (GitHub - https://github.com/sviatkh)
  - Analysis in Galaxy: ChIP-seq, QC using FastQC, Sequence trimming, Mapping.
  - Visualization of genomic data using Integrative Genomics Viewer.
- **Statistical analysis of the experimental data**:
  - Python (Data analysis, plotting graphs (Pandas, seaborn, matplotlib))
  - GraphPad Prism
  - Excel
- **Experimental Design**
  - Ability to design and plan experiments effectively, including formulating hypotheses, selecting appropriate controls, determining sample sizes, and optimizing experimental conditions.
- **Literature Review**
  - Proficient in conducting literature searches, critically analyzing scientific literature, and staying updated with the latest research developments.
- **Laboratory Instrumentation**
  - Experience with operating and maintaining various scientific instruments and equipment, such as spectrometers, fluorometers, centrifuges, light microscopes.
- **Biochemistry assays (*Drosophila*)**
  - Measuring metabolites (glucose, glycogen, triacylglycerols)
  - Analysis of enzyme activity (catalase, aconitase)
- **Phisiology (*Drosophila*)**
  - Counting the rate of fruit fly development
  - Determination of food consumption (carbs and proteins) using the CAFE (Capillary Feeding) method
  - Determination of the resistance to stress factors (starvation and oxidative (menadione) resistance)
- **Molecular Biology techniques (Microorganisms and *Drosophila*)**
  - DNA extraction, DNA electrophoresis, PCR, Plasmid Isolation, Bacterial Culturing, Fosmid library construction, Western Blot.

SOFT SKILLS

- Self-management
- The ability to study independently
- Decision making

CONFERENCES AND OTHER ACTIVITIES

3rd December, 2020

o Completed training of students in health measurements and feedback within the project “Personalized prevention tools in obesity and diabetes – a joint Romanian-Ukrainian programme of health education” (PrePOD). Ivano-Frankivsk, Ukraine. (https://bit.ly/3ksIXWZ)

4th April, 2021

o “Eating behavior of females *D. melanogaster* is induced by starvation on larvae state”. Reporting and scientific conference of students. Vasyl Stefanyk Precarpathian National University, Ivano Frankivsk, Ukraine. Oral-speech.

22-24th October 2021

o Passed the selection and took part in scientific and practical intensive organized by two companies “Explogen LLC” and “Enzym” which are involved in the fields of synthetic biology, metabolic engineering of microorganisms, genomics, bioinformatics and biotechnology, respectively.

29th October, 2021

o Obtained a personal academic scholarship of Believe in Yourself Foundation (https://bit.ly/3LzDKsi).

7th April, 2022

o “Effect of early life starvation on metabolism in *Drosophila melanogaster*”. Reporting and scientific conference of students. Vasyl Stefanyk Precarpathian National University. Ivano Frankivsk, Ukraine. Oral-speech (https://bit.ly/3rVtR0v - in Ukrainian).

20th June, 2022

o “Effect of early life starvation on metabolism in *Drosophila melanogaster*”. Term thesis defense. Vasyl Stefanyk Precarpathian National University. Ivano Frankivsk, Ukraine. Oral-speech (https://bit.ly/3rVtR0v - in Ukrainian).

4-6th November, 2022

o Passed the selection and took part in scientific and practical intensive organized by biotechnology company “Enzym” which is involved in the field of biotechnology.

24th March, 2023

o “Study of intranasal delivery of peptides to the brain of mice”. 92nd Scientific and Practical Conference of Students and Young

Scientists with International Participation "Innovation in Medicine and Pharmacy", 1-st place for poster presentation. Ivano Frankivsk, Ukraine.

7th April, 2023

o “Study of intranasal delivery of peptides to the brain of mice”. Reporting and scientific conference of students. Vasyl Stefanyk Precarpathian National University, 2nd place oral-speech presentation. Ivano Frankivsk, Ukraine.

2-14th July, 2023

o “Attending the Biological Data Science Summer School in Uzhhorod, Ukraine (bit.ly/3Z2l6RC).

LANGUAGES

English – B2 (Uper-Intermediate)
Ukrainian – Native speaker