

## The Third White Sea Comparative Physiology Summer School

**28 August -12 September 2018**

N.A.Pertsov White Sea Biological Station of Lomonosov Moscow State University (WSBS MSU) invites master students, PhD students and young post-docs to take part in the forthcoming Third summer school on comparative physiology (28 August – 12 September, 2018).

Since modern animal physiology is believed to be the theoretical basis of medicine, the majority of physiology courses are focused primarily on mammals. However, studies in comparative physiology dealing with a diversity of vertebrate and invertebrate animals explore the evolution of physiological functions and allow one to understand fundamental physiological mechanisms. The aim of the White Sea Comparative Physiology Summer School is to demonstrate the application of established experimental methods for studying physiology of marine fishes in a small focused teaching environment. Technical and practical skills will be taught alongside lectures on various aspects of comparative physiology with a focus on the cardiovascular physiology. In addition to the scientific program WSBS MSU provides a unique opportunity to explore beautiful and severe nature of the Russian North and to experience and enjoy Russian culture and traditions. The First school (8-22 September, 2012, for details see: <http://en.wsbs-msu.ru/doc/index.php?ID=124> ) and the Second school (31 August - 15 September, 2015, for details see: <http://en.wsbs-msu.ru/news/view.php?ID=640> ) were a resounding success, encouraging us to organization of the Third school.

Please note that participants are not required to pay a registration fee – the School is free for all accepted applicants.

## Location

The White Sea Biological Station is located on the wild and scenic coast of Kandalaksha Bay of the White Sea (66° 34' N, 33° 08' E) exactly on the Polar Circle. It is a remote and isolated University settlement accessible only by boat from the nearest village Poyakonda. Poyakonda is connected to major cities by train: 21 hours from St. Petersburg, and 30 hours from Moscow. For more information about the station see

- <http://en.wsbs-msu.ru/>
- [http://wsbs-msu.ru/res/DOCFOLDER73/wsbs\\_visitor\\_handbook.pdf](http://wsbs-msu.ru/res/DOCFOLDER73/wsbs_visitor_handbook.pdf)

## Preliminary program

The program consists of 13 morning lectures and the practical course. The latter includes the following experimental tasks:



1. Whole-cell patch clamp registration of ionic currents in isolated cardiac myocytes from cod, navaga or sculpin (3 days). Instructors – Dr. Matti Vornanen (University of Eastern Finland) and Dr. Denis Abramochkin (MSU).
2. Confocal calcium imaging of isolated cardiac myocytes stained with fluo-4-AM fluorescent dye (3 days). Instructors - Dr. Holly Shiels (University of Manchester) and Dr. Ed White (University of Leeds).
3. Immunocytochemical staining of isolated fish cardiomyocytes (3 days, combined with confocal calcium imaging). Instructor – Dr. Halina Dobrzynski (University of Manchester).
4. Intracellular registration of action potentials in isolated atrial preparations from cod using sharp glass microelectrodes (2 days). Instructors – Alexandra Ivanova and Tatiana Filatova (MSU).
5. Long-term ECG registration in conscious unrestrained sculpin (2 days). Instructors – Dr. Vladislav Kuzmin (MSU), Dr. Erik Sandblom (University of Gothenburg).
6. Measurement of mitochondrial respiration rate in permeabilised cardiac fibers and isolated mitochondria from fish heart (2 days). Instructor – Dr. Gina Galli (University of Manchester).

Students will work in small groups of 3-4 persons, each group will pass through all of 6 experimental tasks.

#### **Tentative list of lecturers:**

1. Dr. Denis Abramochkin (Lomonosov Moscow State University, RUSSIA)
2. Dr. Ed White (University of Leeds, UK)
3. Dr. Erik Sandblom (University of Gothenburg, SWEDEN)
4. Dr. Gina Galli (University of Manchester, UK)
5. Dr. Halina Dobrzynski (University of Manchester, UK)
6. Dr. Holly Shiels (University of Manchester, UK)
7. Dr. Jan Azarov (Komi Institute of Physiology, Syktyvkar, RUSSIA)
8. Dr. Matti Vornanen (University of Eastern Finland, Joensuu, FINLAND)
9. Dr. Olga Tarasova (Lomonosov Moscow State University, RUSSIA)
10. Dr. Vladislav Kuzmin (Lomonosov Moscow State University, RUSSIA)

## **Conditions and costs for students**

### **Tuition**

The course itself is free for all students, whose applications were accepted.

### **Accommodation**

Accommodation is free of charge for all accepted students. WSBS provides dormitory rooms for 4–6 persons.

### **Meal**

The full-board meal plan is obligatory for all persons living in dormitories. Full-board consists of three meals a day and costs about 500 RUR (≈7 €) per day.

**Payment must be done in Russian Roubles (RUR) in cash directly at the Station.**

There are no shops at the station, however some goods may be purchased from Kandalaksha town and delivered to the station in 3-4 days. Please, indicate your food limitations (no meat, no alcohol, etc) in the application form. Vegetarian options are available, however there is no halal and kosher food.

Welcome party, farewell party and one more party during the school are free of charge for all participants. It is a unique chance to taste traditional Russian dishes and beverages.

**Medical insurance**

All students enrolled in the class are obligated to have personal medical insurance including medical evacuation coverage. It is a personal responsibility of each participant, the cost of insurance is not covered by the Organizing Committee.

The doctor will be on duty at WSBS during the school, however participation is strictly not recommended to people suffering from serious chronic illnesses.

**Travel from Moscow to WSBS**

Due to Russian visa regulations it is obligatory for all participants to travel via Moscow. The most suitable way of travel from Moscow to Kandalaksha is by train.

The second class round trip ticket Moscow-Kandalaksha-Moscow costs approximately 13000 RUR (≈180€), the third class fare is about 8000 RUR (≈110€) if the tickets were bought 45 days before the travel date (the price increases with time). Free bus transfer from Kandalaksha to Poyakonda and back will be provided by Organising Committee.

**The train tickets are purchased by Organizing Committee. Participants should pay for these tickets in cash (Russian Roubles) after arrival at WSBS. Note, that the Organizing Committee is not able to cover the travel cost.**

Boat from Poyakonda to WSBS will be arranged for all participants for free.

Organizing Committee will discuss the details of trip with each participant and try to advice the most suitable and cheap options.

**Visa**

Most of international students are required to have entry visas to Russian Federation. Russian entry visas can be obtained at local Russian Embassy or Consulate. The cost of visa is not covered by the Organizing Committee. All supportive materials needed for visa application will be sent via express mail upon acceptance to the school.

Citizens of the following countries are not required to have Russian entry visas: Abkhazia, Azerbaijan, Argentina, Armenia, Belarus, Bosnia and Herzegovina, Brazil, Venezuela, Israel, Kazakhstan, Kyrgyzstan, Columbia, Cuba, Macedonia, Moldova, Nicaragua, Peru, Serbia, Tajikistan, Thailand, Turkey, Uzbekistan, Ukraine, Uruguay, Montenegro, Chili, South Korea.

## Application process

**Each applicant must submit:**

1. Application form with personal data (please download from this web page, complete, sign, scan and return as TIF, JPEG or PDF file );
2. Curriculum Vitae with list of publications, if any. It should also contain a short description of applicant's research interests;

Complete applications should be sent to the following e-mail address: [abramochkin340@gmail.com](mailto:abramochkin340@gmail.com) with the following subject line: "Physiology summer school + your last name".

**Maximum 12-14 students**

**Application deadline: May 10, 2018**

**Acceptance announcement: May 15, 2018**