

Working groups	August			September												
	29 Wed	30 Thu	31 Fri	01 Sat	02 Sun	03 Mon	04 Tue	05 Wed	06 Thu	07 Fri	08 Sat	09 Sun	10 Mon	11 Tue	12 Wed	
Veronika Olejničkova Artem Razumov Ksenia Butova	PC	PC	PC	CI/IC	CI/IC	CI/IC	Sea trip to Kastyan island	MIT	MIT	AP	AP	Free day	ECG	ECG	Departure from WSBS	
Nuno Ramalho James Hinchcliffe Per Hjelmstedt	AP	AP	Free day	PC	PC	PC		CI/IC	CI/IC	CI/IC	ECG	ECG	ECG	MIT		MIT
James Marchant Martins Ainerua Daniel Morgenroth	ECG	ECG	MIT	MIT	AP	AP		PC	PC	PC	Free day	CI/IC	CI/IC	CI/IC		
Charlotte Marris Kasja Pavlovič Jann Zwahlen	CI/IC	CI/IC	CI/IC	Free day	ECG	ECG		AP	AP	MIT	MIT	PC	PC	PC		

PC – patch-clamp recording of ionic currents in isolated fish cardiomyocytes; Instructors – Prof. Matti Vornanen, Dr. Denis Abramochkin; lab №14

AP – recording of action potentials in multicellular preparations with sharp microelectrodes; Instructors – Alexandra Ivanova, Tatiana Filatova; lab №14

CI – confocal calcium imaging in isolated fish cardiomyocytes; Instructor – Dr. Holly Shiels; lab №7

IC – immunocytochemical staining of isolated fish cardiomyocytes – Dr. Halina Dobrzynski; lab №7

ECG – in vivo ECG recording in free-swimming fish; Instructors – Dr. Vladislav Kuzmin, Dr. Erik Sandblom, Viktoria Potekhina; lab №4 + small aquarial building

MIT – in vitro measurement of cardiac mitochondria respiration rate; Instructor – Dr. Gina Galli, Dr. Javier Iglesias-Gonzalez; lab №4

Daily schedule:

Tuesday, August 28

- 10:30 – 12:00 – arrival and accommodation
- 12:00 – 13:00 – registration (administrative building), payments for train tickets and me
- 13:00 – 14:00 – lunch (dining hall)
- 14:00 – 14:15 – “Microelectrode registration of electrical activity” - lecture by **Dr. Denis Abramochkin** (main conference hall)
- 14:15 – 15:00 – “Introduction to patch-clamp technique” – lecture by **Dr. Matti Vornanen** (main conference hall)
- 15:00 – 15:45 – “Biological fluorescence” – lecture by **Dr. Holly Shiels** (main conference hall)
- 15:45 – 16:30 – “Principles of immunocytochemistry” – lecture by **Dr. Halina Dobrzynski** (main conference hall)
- 16:30 – 20:00 – banya (sauna), free time
- 20:00 – 21:00 – dinner (dining hall)
- 21:00 – 21:15 – Opening of the School (main conference hall)
- 21:15 – 22:00 – Opening lecture by **Dr. Holly Shiels**, “Comparative physiology: challenges for the future” (main conference hall)
- 22:00 – morning – **Welcome party (dining hall + central campfire Baikonur)**

Wednesday, August 29

- 09:00 – 10:00 – breakfast
- 10:00 – 11:00 – “Preconditioning of the cardiovascular system by exercise and hyperbaric oxygenation” – lecture by **Dr. Vladimir Jakovljevic**
- 11:00 – 11:10 – coffee-break
- 11:10 – 14:00 – practicums (laboratories №4, 7, 14 – see the table of laboratory exercises)
- 14:00 – 15:00 – lunch
- 15:00 – 20:00 – practicums
- 20:00 – 20:30 – dinner
- 20:30 – 21:00 – daily discussion of results
- 21:00 – 22:00 – “In vivo and in vitro examination of cardiac function” –lecture by **Dr. Ivan Srejovic**

Thursday, August 30

- 08:00 – 09:00 – breakfast
- 09:00 – 10:00 – “Fish heart physiology in an era of climate change” – lecture by **Dr. Holly Shiels**
- 10:00 – 10:10 – coffee-break
- 10:10 – 13:00 – practicums
- 13:00 – 14:00 – lunch
- 14:00 – 20:00 – practicums
- 20:00 – 20:30 – dinner
- 20:30 – 21:15 – daily discussion of results
- 21:15 – 22:30 – “Mechanisms of alcoholism and principles of safe vodka consumption” – lecture by **Dr. Maxim Lovat** (optional)

Friday, August 31

- 08:00 – 09:00 – breakfast
- 09:00 – 09:30 – “Principles of mitochondrial respiration rate measurement” – lecture by **Dr. Gina Galli**
- 09:30 – 10:15 – “Mitochondrial adaptations to hypoxia” – lecture by **Dr. Gina Galli**
- 10:15 – 10:30 – coffee-break
- 10:30 – 13:00 – practicums
- 13:00 – 14:00 – lunch
- 14:00 – 20:00 – practicums
- 20:00 – 20:30 – dinner
- 20:30 – 21:15 – daily discussion of results
- 21:15 – 22:30 – Russian movies (main conference hall)

Saturday, September 1

- 08:00 – 09:00 – breakfast
- 09:00 – 10:00 – “In vivo cardiorespiratory effects of temperature in fish” – lecture by **Dr. Erik Sandblom**
- 10:00 – 10:10 – coffee-break
- 10:10 – 13:00 – practicums
- 13:00 – 14:00 – lunch
- 14:00 – 20:00 – practicums, in parallel with banya (find your banya time in the schedule at the doors of laboratory building)
- 20:00 – 20:30 – dinner
- 20:30 – 21:15 – daily discussion of results
- 21:15 – late – **Russian salmon party** (central campfire Baikonur)

Sunday, September 2

- 09:00 – 10:00 – breakfast
- 10:00 – 11:00 – “Mathematical models in comparative electrophysiology. From the Hodgkin-Huxley model to personalized human heart models.” – lecture by **Dr. Olga Solovyeva**
- 11:00 – 11:10 – coffee-break
- 11:10 – 14:00 – practicums
- 14:00 – 15:00 – lunch
- 15:00 – 20:00 – practicums
- 20:00 – 20:30 – dinner
- 20:30 – 21:15 – daily discussion of results

Monday, September 3

- 08:00 – 09:00 – breakfast
- 09:00 – 10:00 – “The hypothesis of thermal deterioration of electrical excitability (TDEE)” – lecture by **Dr. Matti Vornanen**
- 10:00 – 10:10 – coffee-break
- 10:10 – 13:00 – practicums
- 13:00 – 14:00 – lunch
- 14:00 – 20:00 – practicums
- 20:00 – 20:30 – dinner
- 20:30 – 21:15 – daily discussion of results
- 21:15 – 22:30 – Russian folk games and songs (main conference hall) – organized by **Eugenia Volkova**

Tuesday, September 4

- 08:00 – 09:00 – breakfast
- 09:30 – 17:00 – Sea trip to Kastyan island (or another location - depending on weather and other circumstances)
- 17:00 – 20:00 – banya
- 20:00 – 21:00 – dinner
- 22:00 – late – **Russian shashlyk (kebab) party** (central campfire Baikonur)

Wednesday, September 5

- 08:00 – 09:00 – breakfast
- 09:00 – 10:00 – “Gasotransmitters in the regulation of vascular tone in mammalian and nonmammalian vertebrates” – lecture by **Dr. Olga Tarasova**
- 10:00 – 10:10 – coffee-break
- 10:10 – 13:00 – practicums
- 13:00 – 14:00 – lunch
- 14:00 – 20:00 – practicums
- 20:00 – 20:30 – dinner
- 20:30 – 21:15 – daily discussion of results
- 21:15 – 22:30 – Russian movies

Thursday, September 6

- 08:00 – 09:00 – breakfast
- 09:00 – 10:00 – “ROS regulation of early embryonic development” – lecture by **Dr. Javier Iglesias-Gonzalez**
- 10:00 – 10:10 – coffee-break
- 10:10 – 13:00 – practicums
- 13:00 – 14:00 – lunch
- 14:00 – 20:00 – practicums
- 20:00 – 20:30 – dinner
- 20:30 – 21:15 – daily discussion of results
- 21:15 – 22:30 – “Introduction to Russian history – from Slavic tribes to Russian Empire” – lecture by **Dr. Denis Abramochkin** (optional)

Friday, September 7

- 08:00 – 09:00 – breakfast
- 09:00 – 10:00 – “Mapping of the mammalian cardiac conduction system” – lecture by **Dr. Halina Dobrzynski**
- 10:00 – 10:10 – coffee-break
- 10:10 – 13:00 – practicums
- 13:00 – 14:00 – lunch
- 14:00 – 20:00 – practicums
- 20:00 – 20:30 – dinner
- 20:30 – 21:15 – daily discussion of results
- 21:15 – 22:30 – “The glorious history of Russian cuisine” – lecture by **Alexander Kotsky** (optional)

Saturday, September 8

- 08:00 – 09:00 – breakfast
- 09:00 – 10:00 – “Electrophysiology of peacemaking tissues in vertebrate animals: evolutionary and embryological aspects” – lecture by **Dr. Vladislav Kuzmin**
- 10:00 – 10:10 – coffee-break
- 10:10 – 13:00 – practicums
- 13:00 – 14:00 – lunch
- 14:00 – 20:00 – practicums, in parallel with banya (find your banya time in the schedule at the doors of laboratory building)
- 20:00 – 20:30 – dinner
- 20:30 – 21:15 – daily discussion of results
- 21:15 – 22:30 – “Introduction to Russian history – XX century” – lecture by **Dr. Denis Abramochkin** (optional)

Sunday, September 9

- 09:00 – 10:00 – breakfast
- 10:00 – 10:30 – “Patch-clamp in the raging sea” – lecture by **Dr. Denis Abramochkin**
- 10:30 – 10:40 – coffee-break
- 10:40 – 14:00 – practicums
- 14:00 – 15:00 – lunch
- 15:00 – 20:00 – practicums
- 20:00 – 20:30 – dinner
- 20:30 – 21:15 – daily discussion of results
- 21:15 – 23:00 – Russian movies

Monday, September 10

- 08:00 – 09:00 – breakfast
- 09:00 – 10:00 – “Excitation propagation in the fish heart” – lecture by **Dr. Jan Azarov**
- 10:00 – 10:10 – coffee-break
- 10:10 – 13:00 – practicums
- 13:00 – 14:00 – lunch
- 14:00 – 20:00 – practicums
- 20:00 – 20:30 – dinner
- 20:30 – 22:00 – final general discussion of results
- 22:00 – morning – **Farewell party + birthday party of Dr. Denis Abramochkin** (dining hall + central campfire Baikonur)

Tuesday, September 11

- 08:00 – 09:00 – breakfast
- 09:00 – 13:00 – practicums
- 13:00 – 14:00 – lunch
- 14:00 – 20:00 – practicums
- 20:00 – 20:30 – dinner

Wednesday, September 12

- 08:00 – 09:00 – breakfast
- 09:00 – 13:00 – free time
- 13:00 – 14:00 – lunch
- 14:00 – 18:00 – free time, prepare for departure!
- 18:00 – Departure from White Sea Biological Station