

## List of FAOPS 2023 Topics

Topic	Sub-topic
1. Muscle Systems	1-A. Muscle excitation and contraction
	1-B. Muscle and molecular motors
	1-C. Muscle disease: atrophy, sarcopenia, injury, and repair
	1-D. Motor behavior and programming
	1-E. Biomechanics and bioengineering
	1-F. Motor Control of Locomotion
	1-G. Others
2. Exercise	2-A. Molecular & integrative physiology of exercise
	2-B. The physiological bases of exercise for health
	2-C. Others
3. Heart	3-A. Cardiac electrophysiology and E-C coupling
	3-B. Computational physiology & pathophysiology of the heart
	3-C. Cardiac remodeling and heart failure
	3-D. Cardiac hypertrophy and ischemia
	3-E. Signal transduction in cardiac myocytes
	3-F. Cardiac energetics and mechanics
	3-G. Others
4. Respiratory Systems	4-A. Computational physiology and pathophysiology of the lungs
	4-B. Airway remodeling and alveolar gas exchange
	4-C. Pulmonary circulation
	4-D. Others
5. Circulatory System	5-A. Gas biology in the vascular system
	5-B. Local control of blood flow and regulation of vascular tone
	5-C. Integrative biology of the vascular wall (vascular integrity)
	5-D. Angiogenesis, vascular injury, vascular remodeling and inflammation
	5-E. Coronary circulation
	5-F. Lymphatic biology
	5-G. Others
6. Endocrine, and Reproduction	6-A. Appetite, nutrition and energy expenditure
	6-B. Adipocyte biology and lipid metabolism
	6-C. Glucose metabolism and insulin signaling
	6-D. Metabolic signaling
	6-E. Steroid hormones
	6-F. Endocrine; others
	6-G. The placenta, fetal growth and development
	6-H. Environmental, hormonal, gonadal and brain interactions
	6-I. Reproduction; others
	6-J. Endocrine disease
	6-K. Pathophysiology of metabolic Disease
6-L. Organs: Hypothalamus, Liver, Thyroid, Parathyroid, Bone, Adrenal gland	
6-M. Others	

7. Neuroscience	7-A. Neural development and repair
	7-B. Synapse and neural cellular communication
	7-C. Neural cell signalling
	7-D. Neuron-glia interactions and functions of glia
	7-E. Brain circuits
	7-F. Brain imaging
	7-G. Learning, memory and neuronal plasticity
	7-H. Higher order brain functions
	7-I. Neurodegenerative diseases
	7-J. Neurologic and psychiatric diseases
	7-L. Somatosensory and pain
	7-M. Autonomic physiology
	7-N. Motor training and neuroplasticity
	7-O. Brain-machine interface
7-P. Others	
8. Epithelial Physiology	8-A. Organic solute transporters (amino acids, peptides, glucose, etc)
	8-B. Epithelial $\text{Ca}^{2+}$ transports: pumps, transporters and channels
	8-C. Epithelial transports of $\text{Na}^+$ , $\text{K}^+$ , $\text{Cl}^-$ , bicarbonate, and phosphates
	8-D. CFTR-the link between physiology and pathology
	8-E. Regulatory mechanisms of epithelial transport (cell signaling, kinase cascades, scaffolding proteins, trafficking, and posttranslational processing)
	8-F. $\text{Ca}^{2+}$ signaling in secretory cells
	8-G. New models of epithelial function (e.g. choroid plexus and model organisms)
	8-H. Others
9. Digestive Physiology	9-A. Upper digestive tract physiology
	9-B. Growth and differentiation of gastrointestinal system
	9-C. Gastrointestinal motility control
	9-D. Acid secretion (ion channels, pumps, cell signal, trafficking and targeting)
	9-E. Nutritional sciences
	9-F. Microbiome
	9-G. Others
10. Renal Physiology	10-A. Transport of ion, amino acids and other small molecules in renal tubular epithelium
	10-B. Role of local factors and sensors in regulation of renal transport
	10-C. Regulation of glomerular filtration
	10-D. Others
	11-A. Ion channels
	11-B. Cell signaling
	11-C. $\text{Ca}^{2+}$ signaling
	11-D. Receptors and sensors
	11-E. Transporters
	11-F. Membrane targeting and protein sorting
	11-G. Protein-protein, protein-lipid interactions
	11-H. Single molecule physiology

11. Molecular and Cell Biology	11-I. Organelle physiology
	11-J. Cell morphology and migration
	11-K. Cell death
	11-L. Cellular stress and homeostasis
	11-M. Endosome
	11-N. Extracellular vesicle
	11-O. Cell cycle and proliferation
	11-P. Cell development and differentiation
	11-Q. Cell migration and biomechanics
	11-R. RNA interference
12. Evolution, Adaptation and Environment	11-S. In vitro and in vivo imaging (non-neuronal)
	11-T. Others
	12-A. Animal physiology
	12-B. Plant physiology
	12-C. Ecophysiology and the future of life on earth: climate change and its consequences
	12-D. Astrophysiology and space travel
	12-E. Environmental stresses
	12-F. Environmental cues and temperature regulation
	12-G. Time cues and biological clocks
12-H. Comparative physiology and model organisms	
13. Genomics and Physiome	12-I. Others
	13-A. Genomes to physiology
	13-B. Omics: transcriptomics, proteomics, metabolomics, physiomics and informatics
	13-C. Epigenetics
	13-D. Computational physiology
	13-E. Computational biology
	13-F. Bioengineering
	13-G. Multi-scale modeling
13-H. Others	
14. Stem Cells and Organoid	14-A. Stem cell culture, differentiation and cellular mechanism
	14-B. Tissue-specific stem cells and Niche
	14-C. Organoids
	14-D. Tissue engineering
	14-E. Reprogramming and disease modeling
	14-F. Therapeutic application of stem cells
	14-G. Stem cells in cancer and aging
	14-H. Others
15. Inflammation and Immune physiology	15-A. Allergy, hypersensitivity and autoimmunity
	15-B. Immune cell development, differentiation and function
	15-C. Immune mediators, their receptors and signaling
	15-D. Immune response regulation and tolerance
	15-E. Innate immune response, infection and inflammation
	15-F. Mucosal and regional immunity

	15-G. Tumor and transplantation immunology
	15-H. Vaccines and immune therapeutics
	15-I. Others
16. Mitochondria	16-A. Mitochondrial dynamics
	16-B. Mitophagy
	16-C. Mitohormesis
	16-D. Mitochondrial respiration
	16-E. Mitochondria-related disease
	16-F. Mitochondrial therapy
	16-G. Others
17. Cancer Physiology	17-A. Oncogene and tumor suppressor gene
	17-B. Cancer metabolism
	17-C. Cancer immunology
	17-D. Preclinical cancer model
	17-E. Angiogenesis and metastasis
	17-F. Tumor microenvironment
	17-G. Precision oncology
	17-H. Cancer treatment
18. Education	18-A. Effective IT in education
	18-B. Effective student lab practice
	18-C. Problem-based learning in physiology education
	18-D. Evidence-based education
	18-E. Education; others
19. Alternative Medicine	19-A. Acupuncture and Moxibustion
	19-B. Aromatherapy
	19-C. Herbal medicine
	19-D. Manual therapy
	19-E. Energy therapy
	19-F. Alternative medicine; others