Kratek opis usposabljanja mladega raziskovalca (*Short description of the Young Researcher's training)*

1. Raziskovalna organizacija (*Research organisation)*:

UL Medicinska fakulteta

2. Ime, priimek in elektronski naslov mentorja (*Mentor's name, surname and email*):

Prof. dr. Matej Podbregar, dr. med.

3. Šifra in naziv raziskovalnega področja (*Research field*):

3.03 Medicina - Nevrobiologija

4. Kratek opis usposabljanja mladega raziskovalca (*Short description of the Young Researcher's training)*:

Navedite tudi morebitne druge zahteve, vezane na usposabljanje mladega raziskovalca (npr. znanje angleškega jezika, izkušnje z laboratorijskim delom, potrebne licence za usposabljanje…).

slo: Mladi raziskovalec (m/ž) se bo usposabljal v Laboratoriju za molekularno nevrobiologijo, ki je del raziskovalnega programa P3-0043 (Molekularni mehanizmi razvoja in delovanja skeletne mišice). Mladi raziskovalec bo preučeval molekularne mehanizme uravnavanja in delovanja presnove v skeletni mišici. Skeletne mišice po svoji masi predstavljajo največje tkivo v telesu in so ključnega pomena za ohranjanje presnovnega zdravja. Presnovne motnje na ravni skeletnih mišic pomembno prispevajo k razvoju bolezni in/ali z njimi povezanih bolezenskih stanj, kot so debelost, sladkorna bolezen tipa 2, starostna sarkopenija in kaheksija pri rakastih in drugih obolenjih. Preučevanje molekularnih mehanizmov, ki so podlaga motenega delovanja presnove, bi lahko vodile k novim oblikam zdravljenja ali diagnostike teh bolezni in bolezenskih stanj. Pri preučevanju molekularnih mehanizmov, ki uravnavajo presnovo v skeletni mišici bo mladi raziskovalec med drugim uporabljal kulture skeletnomišičnih celic, model oživčenja mišičnih celic in vitro, odtis western, qPCR, gensko utišanje z interferenčno RNA, ELISA, MAGPIX, pretočno citometrijo, teste za oceno celične presnove, merjenje porabe kisika z aparatom Seahorse idr. Za usposabljanje mladega raziskovalca je pomembno poznavanje temeljev molekularne biologije, farmakologije, fiziologije, patološke fiziologije in biokemije ter aktivno znanje angleškega jezika. Zaželjeno je temeljno znanje farmacevtske kemije in analizne kemije. Zaželjene so tudi izkušnje z delom v celičnem laboratoriju, še zlasti z delom s skeletnomišičnimi celicami.

eng: Young researcher will train in Laboratory for Molecular Biology, which is a part of research programme P3-0043 (Molecular mechanisms of development and function of skeletal muscle). Young researcher will investigate molecular mechanisms involved in regulation of energy metabolism in skeletal muscle. Skeletal muscles are the largest body tissues and play essential roles in maintenance of metabolic health. Metabolic derangements in skeletal muscle contribute to development and/or complications of various diseases or disease states, such as obesity, type 2 diabetes, ageing-related sarcopenia, and cancer cachexia. Elucidation of the underlying

molecular mechanisms could lead to uncovering new pharmacological targets and/or diagnostic approaches. Young researcher will investigate molecular mechanisms that regulate energy metabolism using a combination of experimental and analytical approaches, including skeletal muscle cell cultures, in vitro innervation, western blot, qPCR, gene silencing with RNAi, ELISA, MAGPIX, flow cytometry, various metabolic tests, and measurement of oxygen consumption with Seahorse. Young researchers training requires solid understanding of basic molecular biology, pharmacology, physiology, pathophysiology and biochemistry as well as active knowledge of English. It is desirable that young researcher has at least fundamental knowledge of medicinal chemistry and analytical chemistry. Prior experience with work in a cell laboratory, especially practical experience of working with skeletal muscle cells, is also desirable.