

CIPKEBIP Raziskovalna infrastruktura in Raziskovalne platforme

Center za integrirane pristope v kemiji in biologiji proteinov je neprofitna raziskovalna institucija. Pridobljena sredstva v okviru Evropskega sklada za regionalni razvoj (85%) in Ministrstva za izobraževanje, znanost in šport smo ustanovili 5 platform in platformo za dodatno opremo ultrazvočni sistem za vizualizacijo delovanja srca.

Platforme so:

- A. Visoka in super-ločljiva svetlobna mikroskopija za vizualizacijo molekul in njihovih interakcij v celicah ali organih ali organizmih.
- B. Masna spektroskopija za analizo strukture proteinov v kompleksnih vzorcih in določitvijo posameznih bioloških molekul in njihovih modifikacij.
- C. Proteinska in strukturna produkcijska platforma za analizo molekularnih mehanizmov od biokemijskih do atomskih resolucijskih študij (3D kristalne strukture, kinetika interakcij in lastnosti biološko aktivnih proteinskih molekul ter majhnih organskih molekul).
- D. Platforma za razvoj biološko aktivnih organskih molekul izdelanih z biološkimi in kemijskimi sintezami.
- E. Računalniška analiza kompleksnih bioloških in drugih eksperimentalnih podatkov z namenom izdelave opisnih in napovedovalnih modelov, s pridobivanjem znanja in njegovo integracijo, kot tudi optimizacijo eksperimentalnih pristopov in tehnoloških procesov.
- F. Dodatna platforma: ultrazvočni sistem za vizualizacijo delovanja srca.

CIPKEBIP Research Infrastructure & Scientific Platforms

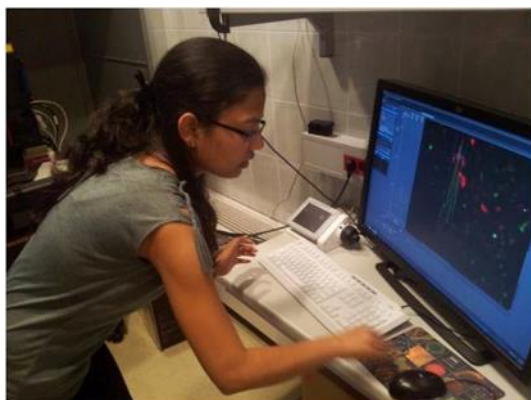
The Centre of excellence for integrated approaches in chemistry and biology of proteins is a non-profit research institution. Using the Centre of excellence grant (European fund for regional development-85% and Ministry for Education, Science and Sport-15%) as the startup money we have established research infrastructure / scientific platforms and one additional platform for ultrasound system used for hearth visualization.

The platforms are:

- A. High resolution light microscopy for visualization of molecules and their interactions in cells or in tissues and organisms.
- B. Mass spectroscopy for analysis of protein composition in complex samples and analysis and identification of individual biological molecules and their modifications.
- C. Protein and structure production platform for analysis of molecular mechanisms from biochemical to atomic resolution studies (3D crystal structures, kinetics of interactions and properties of biologically active molecules - proteins and small organic molecules).
- D. Platform for development of biologically active organic molecules based on biological and chemical synthesis.
- E. Computational analysis of complex biological and other experimental data with the purpose of descriptive and predictive modeling, knowledge extraction and integration, as well as optimization of experimental approaches and technological processes.
- F. Other instruments i.e. ultrasound system for hearth visualization.

A. High resolution light microscopy for visualization of molecules and their interactions in cells or in tissues and organisms.

Nano-optical microscopy with technology STED
Ti:Sapphire laser; Microscope with laser diode 405 nm
CW; Components for fluorescence signal
manipulation; The Supercontinuum Triple Laser for the
microscope; Superresolution Combined Light
Microscopy/
Nano-optična mikroskopija s tehnologijo STED



Custom two-channel STED microscope based on Zeiss Axio-Observer and
Fianium super-continuum laser



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Robert Zorec, Univerza v Ljubljani, Medicinska fakulteta, Institut za patološko fiziologijo, Zaloška 4, 1000 Ljubljana

Year of purchase/Leto nakupa: 2012

Purchase value/Nakupna vrednost: 1.201.413,72 EUR

Description of equipment

Research equipment Nano-optical microscopy with technology STED represents the most advanced technology in the field of optical microscopy, comprising of most advanced optics, mechanics and electronics. This equipment allows the observation of live objects at resolution of 35 to 40 nm. The key parts of the system consist of the upright and inverted microscopes with stable body to prevent long term focus drifts. These are to be mounted on an antivibrational table with a Faraday cage to enable use of electrical equipment in optical measurements. Laser scanning module with electronics, pulse lasers with long (tunable) wavelength, lasers and diodes for excitation of probes, software equipment for data acquisition and data analysis (permitting own software implementation). This equipment represents the-state-of-the-art European invention with the origins in 2000 and has recently seen wide applications in biological experimentations (see Nature comment June 4th, 2009). In addition to the key instrumentation one needs to acquire bench top centrifuge, CO2 incubator with a chamber to be mounted onto the stage of the microscope, freezer/refrigerator and a routine inverted microscope.

Kratek opis opreme

Raziskovalna oprema Nano-optična mikroskopija s tehnologijo STED je plod najnovejših dognanj na področju mikroskopske optike, mehanike in elektronike in omogoča opazovanje živih struktur z ločljivostjo 20 do 60 nm. Temeljni del opreme sta fluorescenčna mikroskopa s stabilnim ogrodjem, kar omogoča dolgotrajno snemanje celic brez premikov goriščne ravnine ali vidnega polja. Mikroskopa s pripadajočo strojno in programsko opremo morata stati na protitresljajni mizi, opremljeni s Faradayevo kletko, laserski skenirni modul za nelinearno optiko, pulzna laserja, laserji in diode za tri valovne dolžine, optoakustični modulator in deflector, programska oprema za zajemanje in analizo (odprtega značaja da omogoča lasten razvoj). Ta oprema predstavlja najsodobnejšo vrhunsko tehnologijo Evrope, ki ima svoje začetke v letu 2000, v zadnjih mesecih pa se je pričela široko uporabljati v bioloških poskusih zelo široko (glej komentar Nature, 4.06.2009). Zato predstavlja investicija v to opremo pravi trenutek za spodbujanje razvoja na področju bioznanosti v Sloveniji. Poleg ključne opreme, je potrebno v laboratoriju imeti namizno centrifugo, CO2 inkubator z nastavkom za mikroskop, zmrzovalnik/hladilnik, in preprost invertni delovni mikroskop za pregledovanje preparatov.

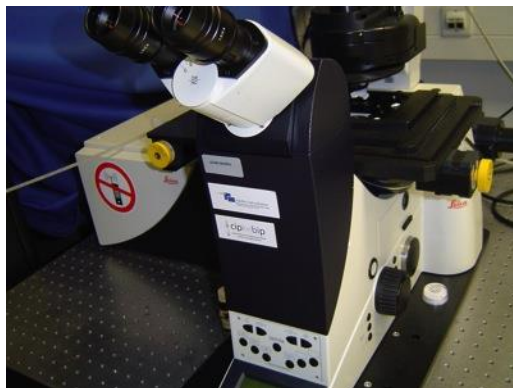
Trajanje poskusa / Duration of experiments

Najmanj 1 teden/At least one week

Contact details regarding CIPKeBiP research equipment /Kontaktni podatki glede CIPKeBiP raziskovalne opreme:

Prof.Dr. Dušan Turk, Scientific Director, e-mail: dusan.turk@ijs.si ; Dr. Livija Tušar, General Director, e-mail: livija.tusar@cipkebiop.org

Leica System for non-linear nanoscopy in tandem configuration /Sistem za nelinearno nanoskopijo v tandemski izvedbi



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Marjan Slak Rupnik, Univerza v Mariboru, Medicinska fakulteta, Ljubljanska 5, 2000 Maribor

Year of purchase/Leto nakupa: 2011

Purchase value/Nakupna vrednost: 244.920,00 EUR

Description of equipment

An upright nonlinear microscope is used to monitor and quantification of physiological processes in intact tissues and organs. The basis of this microscope enables mounting of biological samples of bigger dimensions and at the same time utilizes deep-penetrating infrared laser light to excite fluorescence. Handling of the laser beam used for fluorescence excitation can be relatively slow to improve the high spatially resolved morphological images or monitoring of relatively slow physiological processes. On the other hand we can move the laser beam over the sample using a high speed mode, which enables monitoring of the physiological processes with millisecond time resolution. The detector side consists of a classical system of high gain photodiodes with a possibility of spectral resolution. The major advance in detection of the faintest signals of fluorescence or bioluminescence comes from the direct mounting the system of non-descanned high resolution photodiodes.

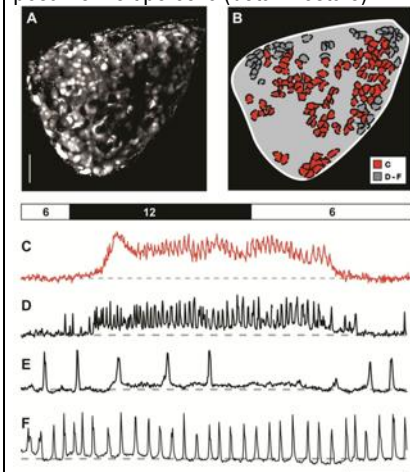
Kratek opis opreme

Pokončni nelinearni mikroskop se uporablja za spremljanje in kvantifikacijo fizioloških procesov v intaktnih tkivih in organih. Osnova tega mikroskopa omogoča montiranje bioloških vzorcev večjih dimenzij, hkrati pa za vzbujanje fluorescence uporablja infrardeči laser, ki prodira globoko v tkivo. Upravljanje s laserskim žarkom, ki je podlaga vzbujanju fluorescence je lahko relativno počasno za zajemanje visokoločljive morfološke slike oziroma spremljanje počasnih fizioloških sprememb. Po drugi strani pa lahko laser premikamo po vzorcu tudi z veliko hitrostjo, kar omogoča snemanje fizioloških procesov z milisekundno časovno ločljivostjo. Na detektorski strani je v skenirni glavi nameščen klasičen sistem visokoobčutljivih fotodiod z možnostjo spektralne ločljivosti. Za doseganje izjemnega napredka v detekciji najšibkejših signalov fluorescence in bioluminescence pa je neposredno na mikroskop nameščen še sistem ne-deskeniranih visokoobčutljivih fotodiod.

Trajanje poskusa / Duration of experiments

Leica Acoustooptical beamsplitter (AOBS) with spectral detectors

Image of tissue with marker that shows the changes in intracellular free calcium concentration in the cells of the islets of Langerhans and schedules of individual cell types (beta and others). / Slika tkiva z označevalcem, ki kaže spremembe znotrajcelične koncentracije prostega kalcija v celicah Langerhansovega otočka in časovni poteki za posamezne tipe celic (beta in ostale).



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Marjan Slak Rupnik, Univerza v Mariboru, Medicinska fakulteta, Ljubljanska 5, 2000 Maribor

Year of purchase/Leto nakupa: 2011

Purchase value/Nakupna vrednost: 244.920,00 EUR

Description of equipment

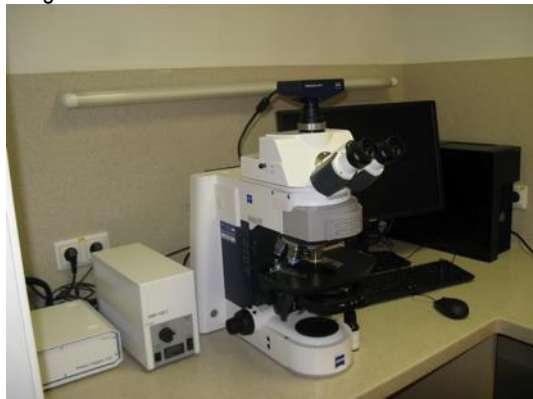
Acoustooptical beamsplitter (AOBS) with spectral detectors is used to interfere with physiological processes in intact tissues and organs. The basis of this microscope enables spatially limited interference within single cells in biological samples of bigger dimensions. Handling of the laser beam used for photolysis or depletion of stimulated emission can be relatively slow to enable long-term spatially resolved manipulation of the cellular processes or in high speed mode, which enables triggering of transient sub-millisecond events. The basis of laser light manipulation is electrooptical modulator that can precisely set the duration and power of the laser light in the focal point.

Kratek opis opreme

Sistem za upravljanje z nelinearnim virom svetlobe se uporablja za poseganje v fiziološke procese v intaktnih tkivih in organih. Osnova tega sistema omogoča prostorsko omejeno vplivanje na fiziološke procese znotraj posamezne celice tudi globlje v intaktnem tkivu. Upravljanje s laserskim žarkom, ki je podlaga procesom fotolize ali deplecije stimulirane emisije je lahko relativno počasno za dolgoročno spreminjanje razmer v celici ali pa izredno kratkotrajno za sprožanje izredno kratkoživih pojavov, pod milisekundno časovno ločljivostjo. Osnova spreminjanja laserskega žarka je elektrooptični modulator, ki natančno določa trajanje in moč laserske svetlobe v žarišču.

Trajanje poskusa / Duration of experiments

Motorized upright research microscope Axio Imager M2 / Motoriziran pokončni raziskovalni mikroskop Axio Imager M2



Location and Contact details/Lokacija in Kontaktni podatki:

Dr. Metka Lenassi, Univerza v Ljubljani, Medicinska fakulteta, Institut za biokemijo, Vrazov trg 2, 1000 Ljubljana.

Year of purchase/Leto nakupa: 2013

Purchase value/Nakupna vrednost: 51.087,60 EUR

Description of equipment

The microscope is used for the study of the localization of protein components of HOG signaling pathway in different organisms, and the monitoring of morphological changes of cells as a function of the factors in the environment as well as for the study of interactions between proteins.

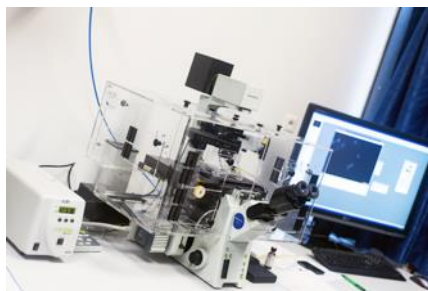
Kratek opis opreme

Mikroskop se uporablja za študij lokalizacije proteinskih komponent HOG signalne poti pri različnih organizmih, pri spremljanju morfoloških sprememb celic v odvisnosti od dejavnikov v okolju ter študiju interakcij med proteini.

Trajanje poskusa / Duration of experiments

Odvisno od eksperimenta in števila vzorcev/ Dependent of the experiment and the number of samples.

Inverted fluorescence microscope Olympus IX81 with the incubation chamber (from Solent Scientific) attached to the platform of the Olympus microscope and »Cell counter«/Nadgradnja mikroskopa Olympus IX81 in števec celic



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Boris Turk, Jožef Stefan Institute, Jamova cesta 39, 1000 Ljubljana

Year of purchase/Leto nakupa: 2010

Purchase value/Nakupna vrednost: 28.390,84 EUR

Description of equipment

To preserve the characteristics of cells observed under the microscope these cells must be kept under optimal and controlled conditions, i.e. temperature, CO₂ level (5%) and humidity must be controlled and maintained. Therefore, special incubation chamber together with control units must be mounted on the platform of the microscope, adjusted to the microscope type. Incubation chamber must enable optimal growing milieu for the cells, on the other hand it must allow the operator to access the sample as well as to perform all the necessary manipulation with the microscope. Temperature control is achieved with warm, filtered air, circulating from the separated heater unit into the acrylic enclosure where it is continuously circulated.

Kratek opis opreme

Da bi pod mikroskopom celice ohranile svoje značilnosti, jih moramo gojiti ter jih mikroskopirati pri optimalnih in kontroliranih pogojih, t. j. vzdrževati moramo primerno temperaturo, vsebnost ogljikovega dioksida ter s tem povezano stopnjo kislosti (pH gojišča) ter primerno vlažnost. Za vzdrževanje omenjenih delovnih pogojev med samim potekom mikroskopiranja, mora biti v ta namen na mikroskop pritrjena inkubacijska komora, prirejena tipu mikroskopa, ki vzdržuje optimalne pogoje za rast celic, hkrati pa mora omogočiti operaterju vso potrebno manipulacijo vzorca. Kontrola temperature poteka s pomočjo toplega zraka, ki prihaja iz ločene grelne enote ter nato kroži znotraj inkubacijske komore.

Trajanje poskusa / Duration of experiments

BD FACSCanto II 2LSR 5/3 COMPLETE Flow Cytometry/Pretočni citometer-analizator BD FACSCanto II



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Igor Križaj, Institut »Jožef Stefan«, Jamova cesta 39, 1000 Ljubljana

Year of purchase/Leto nakupa: 2011

Purchase value/Nakupna vrednost: 174.000,00 EUR

Description of equipment

Flow cytometry with a routine inverted microscope is used to measure and analyse physical and chemical characteristics of individual cells as they travel in suspension one by one through sensor. As the cells pass through the laser (488nm, 633nm), the fluorochromes attached to the cells absorb light and then emit a specific color of light depending on the type of fluorochrome.

Kratek opis opreme

Pretočna citometrija z rutinskim invertnim mikroskopom se uporablja za merjenje in analiziranje fizikalnih in kemijskih lastnosti posameznih celic, ki potujejo v suspenziji preko senzorja. Ko celice prehajajo skozi laser (488nm, 633nm), fluorokromi vezani na celice absorbirajo svetlobo in nato oddajajo specifično barvo svetlobe glede na vrsto fluorokroma.

Trajanje poskusa / Duration of experiments

B. Mass spectroscopy for analysis of protein composition in complex samples and analysis and identification of individual biological molecules and their modifications.

Bruker Mass spectrometer ULTRAFLEXEXTREME tm
maldi tof



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Boris Turk, Institut Jožef Stefan, Jamova cesta 39, 1000 Ljubljana.

Year of purchase/Leto nakupa: 2010

Purchase value/Nakupna vrednost: 792.044,16 EUR

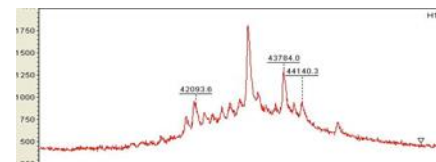
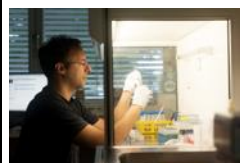
Description of equipment

High resolution mass spectrometer is used for the identification of proteins and their posttranslational modifications. It enables molecular mass determination of intact proteins and protein complexes.

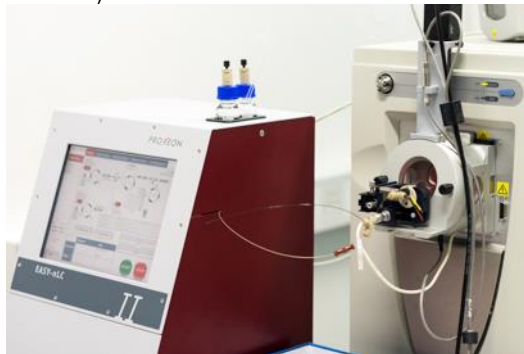
Kratek opis opreme

Visoko resolucijska masna spektrometrija se uporablja za identifikacijo proteinov in njihovih posttranslacijskih modifikacij. To omogoča določitev molekulske mase proteinov in proteinskih kompleksov.

Trajanje poskusa / Duration of experiments



Thermo Scientific Nano-HPLC instrument(EASY-nLC II LC-446) / Thermo Scientific Nano HPLC instrument



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Boris Turk, Institut Jožef Stefan, Jamova cesta 39, 1000 Ljubljana.

Year of purchase/Leto nakupa: 2010

Purchase value/Nakupna vrednost: 64.284,00 EUR

Description of equipment

Nanoflow HPLC unit is used for low flow chromatographic analysis (10-1000 nL/min). It is connected directly to the ESI source of mass spectrometer Thermo Scientific Orbitrap Velos. Nanoflow HPLC unit is equipped with vacuum degasser and temperature regulated autosampler (1-10 uL injection volumes).

Kratek opis opreme

Nanoflow HPLC enota se uporablja za nizko pretočno kromatografsko analizo (10-1000 nL / min). To je neposredno povezan z virom ESI masnega spektrometra tipa Thermo Scientific Orbitrap Velos. Nanoflow HPLC enota je opremljena z vakumskim razplinjevalnikom in temperaturno reguliranim avtovzorčevalnikom (1-10 obseg jul injiciranje).

Trajanje poskusa / Duration of experiments

Upgrade of N-terminal aminoacid sequencer/Nadgradnja N-terminalnega aminokislinskega sekvenatorja



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Igor Križaj, Institut Jožef Stefan, Jamova cesta 39, 1000 Ljubljana.

Year of purchase/Leto nakupa: 2010

Purchase value/Nakupna vrednost: 111.552,17 EUR

Description of equipment

Upgrading of instrument for determination of sequence of proteins.

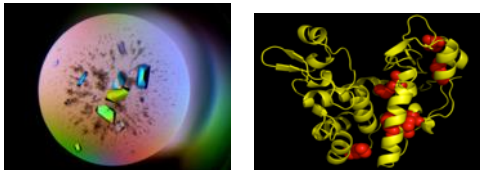
Kratek opis opreme

Prenova instrumenta za določanje zaporedja proteinov.

Trajanje poskusa / Duration of experiments

C. Protein and structure production platform for analysis of molecular mechanisms from biochemical to atomic resolution studies (3D crystal structures, kinetics of interactions and properties of biologically active molecules - proteins and small organic molecules).

System for isolation of recombinant proteins: Preparative HPLC system, ÄKTAexpress Single System with its upgrade/Sistem za izolacijo rekombinantnih proteino: preparativni HPLC sistem, ÄKTAexpress sistem za izolacijo rekombinantnih proteinov z nadgradnjo 	<i>Location and Contact details/Lokacija in Kontaktni podatki:</i> Prof.Dr. Dušan Turk, Institut Jožef Stefan, Jamova cesta 39, 1000 Ljubljana. <i>Year of purchase/Leto nakupa:</i> 2010 <i>Purchase value/Nakupna vrednost:</i> 150.229,40 EUR <i>Description of equipment</i> Automated protein purification workstation AKTAexpress (GE Healthcare) is chromatographic system designed for automated two-step protein purification on affinity columns and desalting and size exclusion columns. The system capacity is purification of 8 proteins in a single day. <i>Kratek opis opreme</i> Delovna postaja AKTAexpress (GE Healthcare) je kromatografski sistem zasnovan za avtomatizirano dvostopenjskega čiščenja proteinov na afinitetnih kolonah in na kolonah za razsoljevanje in separacijo glede na velikost delcev. Zmožljivost sistema je, da lahko očisti do 8 proteinov v enem dnevu. <i>Trajanje poskusa / Duration of experiments</i>
Robot for chrystallization / Kristalizacijski robot 	<i>Location and Contact details/Lokacija in Kontaktni podatki:</i> Prof.Dr. Dušan Turk, Institut Jožef Stefan, Jamova cesta 39, 1000 Ljubljana. <i>Year of purchase/Leto nakupa:</i> 2013 <i>Purchase value/Nakupna vrednost:</i> 77.689,20 EUR <i>Description of equipment</i> Crystallization robot capable of pipetting of nano volumes <i>Kratek opis opreme</i> Kristalizacijski robot s sposobnostjo pipetiranja nano volumnov. <i>Trajanje poskusa / Duration of experiments</i>

System for macromolecular crystal structure determination (Bruker X8 PROTEUM) / Sistem za določevanje kristalnih struktur makromolekul 	<i>Location and Contact details/Lokacija in Kontaktni podatki:</i> Prof.Dr. Dušan Turk, Institut Jožef Stefan, Jamova cesta 39, 1000 Ljubljana. <i>Year of purchase/Leto nakupa:</i> 2011 <i>Purchase value/Nakupna vrednost:</i> 621.414,94 EUR <i>Description of equipment</i> The "System for macromolecular crystal structure determination" is composed of x-ray generator, detector system, computers and software, accessories for crystallization, and crystal storage. <i>Kratek opis opreme</i> Sistem za določevanje struktur kristalov makromolekul je sestavljen iz rentgenskega generatorja, vir x-žarkov, detektorja, računalnikov in programske opreme, pribora za kristalizacijo in skladiščenja kristalov. <i>Trajanje poskusa / Duration of experiments</i> 
ITC Isothermal titration calorimetry/Proteinska mikrokolorimetrija 	<i>Location and Contact details/Lokacija in Kontaktni podatki:</i> Prof.Dr. Dušan Turk, Institut Jožef Stefan, Jamova cesta 39, 1000 Ljubljana. <i>Year of purchase/Leto nakupa:</i> 2012 <i>Purchase value/Nakupna vrednost:</i> 77.992,32 EUR <i>Description of equipment</i> Protein microcalorimetry is based on measurements of heat that is released or consumed during the interaction between protein and ligand. <i>Kratek opis opreme</i> Proteinska mikrokolorimetrija temelji na meritvah toplote, ki se sprosti ali porabi v interakciji med proteini in ligandi. <i>Trajanje poskusa / Duration of experiments</i>

D. Platform for development of biologically active organic molecules based on biological and chemical synthesis.

INFORS Multitron II (two-deck), Centrifugal evaporator, Sartorius Stedim Systems GmbH Fermenter BIOSTAT Dplus 150L for microbial fermentation and cell culture, Sartorius Stedim Systems GmbH Fermenter BIOSTAT D-DCU II 100L, Sartorius Stedim Systems GmbH Fermenter BIOSTAT Cplus 20L/Stresalni incubator (multitron), centrifugalni evaporator, Pilotski bioreaktor I (150 L), Pilotski bioreaktor (100 L) in Laboratorijski bioreaktor (20 L)

20L Bioreactor



150L Bioreactor



100L Bioreactor



Multitron/Stresalniki



Location and Contact details/Lokacija in Kontaktni podatki:

Dr. Enej Kuščer, Acies Bio d.o.o., Tehnološki park 21, 1000 Ljubljana.

Year of purchase/Leto nakupa: 2011

Purchase value/Nakupna vrednost: 655.574,14 EUR

Description of equipment

Production of proteins and synthetic bio-active molecules - System for cultivation of microorganisms and cell cultures, includes a series of shakers, incubators and bioreactors that will allow parallel cultivation of a larger number of MO and CC cultures on a different volume scale (from a few milliliters to 100 liters), allowing precise regulation and optimization of growth and expression conditions (temperature, pH, aeration, feeding and mixing speed) and providing the conditions for sterile work, and preventing the release of genetically modified organisms into the environment.

Kratek opis opreme

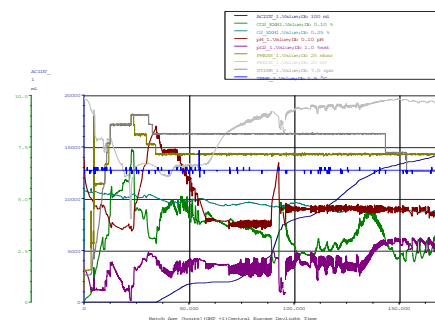
Sistem za gojenje mikroorganizmov (MO) in celičnih kultur (CC) vključuje serijo stresalnikov, inkubatorjev in bioreaktorjev, ki bodo omogočali sočasno gojenje večjega števila MO in CC kultur v različnih volumnih (od volumna nekaj mililitrov do 100 litrov), zagotavljali natančno regulacijo in optimizacijo pogojev za pridobivanje bio mase in izražanje proteinov (uravnavanje temperature, pH, prezračevanje, dodajanje hranil in hitrost mešanja), zagotavljali pogoje za sterilno delo in preprečevali izpust genetsko spremenjenih organizmov v okolje.

Trajanje poskusa / Duration of experiments

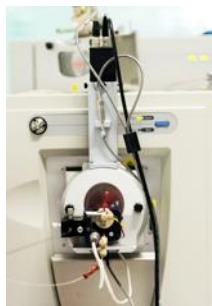
Centrifugal evaporator



HPLC



Easy max Mettler and React IR45FTIR InSitu/Paralelni reakcijski sistem s kontinuirnim sistemom spremljanja reakcij v realnem času



Location and Contact details/Lokacija in Kontaktni podatki:

Dr. Peter Rodič, Jožef Stefan Institute, Jamova cesta 39, 1000 Ljubljana

Year of purchase/Leto nakupa: 2011

Purchase value/Nakupna vrednost: 172.320,00 EUR

Description of equipment

System is used for automated parallel chemical synthesis on a smaller scale. It includes an instrument for monitoring of the reaction progress and analysis. System allows precise regulation conditions for synthesis (temperature, Ph, pressure).

Kratek opis opreme

Sistem se uporablja za avtomatizirane vzporedne kemijske sinteze v manjšem obsegu. To vključuje instrument za spremljanje reakcij in analizo. Sistem omogoča natančne določitev pogojev za sintezo (temperatura, pH, tlak).

Trajanje poskusa / Duration of experiments

Rotary evaporator R-215, Laboratory chemical reactors from 100 to 500 ml/Rotavapor R-215, Sklop kemijskih reaktorjev od 100 do 500 ml



Location and Contact details/Lokacija in Kontaktni podatki:

Branko Jenko, Jenko d.o.o., Vrbljene 58, 1298 Ig

Year of purchase/Leto nakupa: 2011

Purchase value/Nakupna vrednost: 61.826,88 EUR

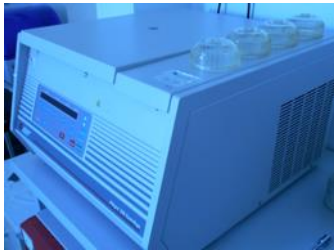
Description of equipment

Laboratory equipment: rotary evaporator and Laboratory chemical reactors.

Kratek opis opreme

Laboratorijska oprema rotavapor in sklop kemijskih reaktorjev.

Trajanje poskusa / Duration of experiments

Labcaire Microbiological Safety Cabinet, On-or-under bench incubator shaker Innova 42R with added refrigerator, Low temperature incubator, Orbital shaker/Mikrobiološka zaščitna komora, Inkubatorski stresalnik s hlajenjem, Hlajeni inkubator, Orbitalni stresalnik 	<i>Location and Contact details/Lokacija in Kontaktni podatki:</i> Prof.Dr. Nina Gunde Cimerman, Univerza v Ljubljani, Biotehniška fakulteta, Katedra za molekularno genetiko in biologijo mikroorganizmov, Oddelek za biologijo, Večna pot 111, 1000 Ljubljana <i>Year of purchase/Leto nakupa:</i> 2010 <i>Purchase value/Nakupna vrednost:</i> 35.062,40 EUR <i>Description of equipment</i> Small laboratory equipment <i>Kratek opis opreme</i> Manjša laboratorijska oprema <i>Trajanje poskusa / Duration of experiments</i>
Cooling centrifuge for volumes to 500 ml/Hlajena centrifuga za volumne do 500ml 	<i>Location and Contact details/Lokacija in Kontaktni podatki:</i> Prof.Dr. Maja Rupnik, Zavod za zdravstveno varstvo Maribor, Prvomajska ulica 1, 2000 Maribor <i>Year of purchase/Leto nakupa:</i> 2011 <i>Purchase value/Nakupna vrednost:</i> 23.501,09 EUR <i>Description of equipment</i> Small laboratory equipment <i>Kratek opis opreme</i> Manjša laboratorijska oprema <i>Trajanje poskusa / Duration of experiments</i>

LC-MS system for identification and quantification of small molecules (Thermo Scientific TSQ Quatum Access MAX/Accela 1250)/ LC-MS sistem za identifikacijo in kvantifikacijo malih molekul
Preparativni HPLC



Location and Contact details/Lokacija in Kontaktni podatki:

Enej Kuščer d.o.o., Tehnološki park 21, 1000 Ljubljana

Year of purchase/Leto nakupa: 2011

Purchase value/Nakupna vrednost: 248.943,00 EUR

Description of equipment

LC-MS system is used for identification, structural confirmation and quantitative determination of small compounds. The system is composed of a HPLC system, equipped with a pump, autosampler and UV/VIS detector.

Kratek opis opreme

LC-MS sistem se uporablja za identifikacijo, strukturno potrditev in količinsko določitev majhnih molekul. Sistem je sestavljen iz HPLC sistema, ki je opremljen s črpalko, avtomatski vzorčevalnikom in UV / VIS detektorjem.

Trajanje poskusa / Duration of experiments

High performance HPLC (Agilent Technologies Agilent 1260)/Visokozmogljivi tekočinski kromatograf



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Nataša Poklar Ulrih, Univerza v Ljubljani, Biotehniška fakulteta, Jamnikarjeva 101, 1000 Ljubljana.

Year of purchase/Leto nakupa: 2010

Purchase value/Nakupna vrednost: 86.193,67 EUR

Description of equipment

High performance HPLC for analysis of small molecules.

Kratek opis opreme

Visokozmogljivi tekočinski kromatograf za analizo majhnih molekul.

Trajanje poskusa / Duration of experiments

High-pressure HPLC system /Aparatura za visokotlačno kromatografijo



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Peter Rodič, Jožef Stefan Institute, Jamova cesta 39, 1000 Ljubljana

Year of purchase/Leto nakupa: 2011

Purchase value/Nakupna vrednost: 37.664,72 EUR

Description of equipment

HPLC system for high-pressure liquid chromatography is used for analytics of special organic compounds: difficult-volatile and thermolabile compounds.

Kratek opis opreme

HPLC sistem za visokotlačno tekočinsko kromatografijo se uporablja za analitiko posebnih organskih spojin: težko hlapnih in termolabilnih spojin.

Trajanje poskusa / Duration of experiments

Tecan Multi-functional spectrophotometer for microtiter plates /Čitalec mikrotiterskih ploščic



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Dušan Turk, Institut Jožef Stefan, Jamova cesta 39, 1000 Ljubljana.

Year of purchase/Leto nakupa: 2012

Purchase value/Nakupna vrednost: 68.999,18 EUR

Description of equipment

The microplate monochromator reader is used at multiple levels of our research: for basic qualitative and quantitative spectral analysis of macromolecules, analysis of the changes in various cellular processes in living cells and analysis of specific interactions between macromolecules.

Kratek opis opreme

Čitalec mikrotiterskih ploščic se uporablja na več stopnjah naših raziskav: za osnovno kvalitativno in kvantitativno spektralno analizo makromolekul, za analizo sprememb v različnih celičnih procesih v živih celicah in analizo specifičnih interakcij med makromolekulami.

Trajanje poskusa / Duration of experiments

Multi-functional spectrophotometer for microtiter plates/ Čitalec mikrotiterskih ploščic



Location and Contact details/Lokacija in Kontaktni podatki:

Dr. Metka Lenassi, Univerza v Ljubljani, Medicinska fakulteta,

Year of purchase/Leto nakupa: 2010

Purchase value/Nakupna vrednost: 32.368,54 EUR

Description of equipment

The multi-functional microplate reader has very diverse functions (UV-VIS, fluorescence, chemiluminescence detectors) and is used for measuring concentrations and enzymatic activities of proteins involved in halotolerance (like Hog1 kinase, Hal2 phosphatase); optical density of growing cells and concentration and quality of nucleic acids.

Kratek opis opreme

Multifunkcionalen čitalec mikrotiterskih ploščic ima zelo raznolike funkcije (detektorje za UV-VIS, fluorescenco, kemiluminiscenco), uporabljamo pa ga za merjenje koncentracij in encimskih aktivnosti proteinov vpletenih v halotoleranco (npr. Hog1 kinaza, Hal2 fosfataza); optične gostote rastočih celic in koncentracij in kvalitete nukleinski kislin.

Trajanje poskusa / Duration of experiments

Odvisno od eksperimenta in števila vzorcev/ Dependent of the experiment and the number of samples.

Flow cytometry/ Pretočni citometer



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Igor Križaj, Institut Jožef Stefan, Jamova cesta 39, 1000 Ljubljana.

Year of purchase/Leto nakupa: 2011

Purchase value/Nakupna vrednost: 74.940,00 EUR

Description of equipment

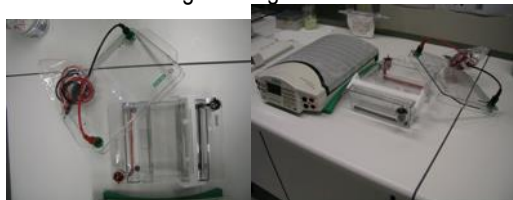
Flow cytometer - the analyzer is used for the precise determination and separation of cells in a population who have certain morphological and biochemical characteristics.

Kratek opis opreme

Pretočni citometer – analizator se bo uporabljal za natančno določanje in ločevanje celic v populaciji, ki imajo določene morfološke ali biokemijske lastnosti.

Trajanje poskusa / Duration of experiments

Electrophoresis system for agaroses gel with rectifier /
Elektroforeza za agarozne gele z umernikom



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Nina Gunde Cimerman, Univerza v Ljubljani, Biotehniška fakulteta, Katedra za molekularno genetiko in biologijo mikroorganizmov, Oddelek za biologijo, Večna pot 111, 1000 Ljubljana

Year of purchase/Leto nakupa: 2012

Purchase value/Nakupna vrednost: 4.004,86 EUR

Description of equipment

Small laboratory equipment.

Kratek opis opreme

Manjša laboratorijska oprema

Trajanje poskusa / Duration of experiments

Aparat ROTOR-GENE Q, 5-PLEX HRMReal-time PCR
device with HRM (High Resolution Melt) option/Aparat
za reakcijo PCR v realnem času z opcijo reakcije
HRM



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Maja Rupnik, Zavod za zdravstveno varstvo Maribor, Prvomajska ulica 1, 2000 Maribor

Year of purchase/Leto nakupa: 2010

Purchase value/Nakupna vrednost: 44.714,36 EUR

Description of equipment

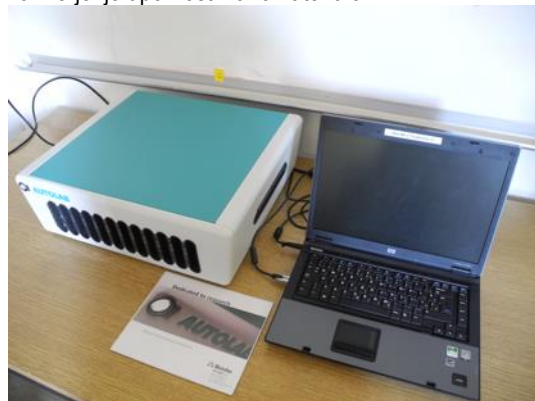
Real time PCR is used for detection of genes or gene regions within the genome and in the quantitative form also for analysis of gene expression. Melting curve analysis of amplified fragments is used for detection of mutations in amplified products, for genotyping or for analysis of metilation. High resolution melting is further upgrade that enables much more exact analysis and alsodetection of single mutations.

Kratek opis opreme

Reakcija PCR v realnem času se uporablja za zaznavanje genov ali genskih odsekov v genomu ter v kvantitativni izvedbi za spremljanje izražanja genov. Z analizo talitvene krivulje pomnoženih odsekov se lahko določajo mutacije v pomnoženih odsekih, genotipizacija ter analiza metilacije. Talitvena krivulja z visoko ločljivostjo je izboljšava te metode, ki natančnejšo omogoča analizo variabilnosti in lahko zazna eno samo spremenjeno bazo.

Trajanje poskusa / Duration of experiments

Integrated measurement system for measuring the resistance of nanomaterials./ Integrirani merilni sistem za merjenje upornosti nanomaterialov.



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Dragan Mihailović, Institut Jožef Stefan, Jamova cesta 39, 1000 Ljubljana.

Year of purchase/Leto nakupa: 2013

Purchase value/Nakupna vrednost: 9.377,76 EUR

Description of equipment

Integrated measurement system for measuring the resistance of nanomaterials.

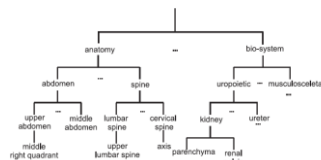
Kratek opis opreme

Integrirani merilni sistem za merjenje upornosti nanomaterialov.

Trajanje poskusa / Duration of experiments

E. Computational analysis of complex biological and other experimental data with the purpose of descriptive and predictive modeling, knowledge extraction and integration, as well as optimization of experimental approaches and technological processes.

High performance cluster computer/Računalniška gruča



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Sašo Džeroski, Institut Jožef Stefan, Jamova cesta 39, 1000 Ljubljana.

Year of purchase/Leto nakupa: 2011, 2012

Purchase value/Nakupna vrednost: 133.553,20 EUR

Description of equipment

High performance cluster computer for complex analysis of data.

Kratek opis opreme

Visokozmogljiv računalnik za kompleksno analizo podatkov.

Trajanje poskusa / Duration of experiments

F. Other instruments i.e. for ultrasound system.

ALOKA ProSound ALPHA 7 Premier/ Ultrazvočni aparat za pregled srca ALOKA ProSound ALPHA 7 Premier



Location and Contact details/Lokacija in Kontaktni podatki:

Prof.Dr. Dušan Turk, Institut Jožef Stefan, Jamova cesta 39, 1000 1000 Ljubljana

Year of purchase/Leto nakupa: 2011

Purchase value/Nakupna vrednost: 161.360,83 EUR

Description of equipment

Instrument is diagnostic ultrasound system used for hearth visualization/imiging and the assesmet of cardiac function. System includes standard ultrasound configuration with several different probes for heart examination and additional software equipment for data retrieval and analysis.

Kratek opis opreme

Instrument je diagnostični ultrazvočni sistem za vizualizacijo delovanja srca in oceno srčne funkcije. Sistem vključuje standardno ultrazvočno konfiguracijo z več različnimi sondami za pregled srca in dodatno programsko opremo za zajemanje in analizo podatkov.

Trajanje poskusa / Duration of experiments

Prepared by Prof.Dr. Dušan Turk, Dr. Livija Tušar and CIPKEBiP principal investigators responsible for research equipment. May 2013.

Pripravili: prof.dr.Dušan Turk, dr. Livija Tušar in CIPKEBiP glavni raziskovalci, ki so odgovorni za raziskovalno opremo. Maj 2013.