
ANNUAL REPORT

2023

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MANAGEMENT REPORT

The year 2023 was highly significant for the Latvian Institute of Organic Synthesis (LIOS). A historic decision was made to merge with the Latvian Biomedical Research and Study Centre (BMC). Only quite recently—in 1990—the Molecular Biology Department separated from LIOS, becoming an independent institute now known as BMC. Since that time, both LIOS and BMC have successfully developed and established themselves as the foremost research organisations in their respective fields, gaining extensive international recognition. With evolving trends in drug development and the advancement of Latvia's scientific ecosystem, it became clear that reuniting the two institutes to form a qualitatively new research organisation would accelerate growth and bring both institutes closer to their goal of becoming European leaders in addressing public health issues. The consolidation was approved by the Scientific Councils of both institutes. A significant amount of work remains to ensure that the merger provides the greatest possible benefit to both scientists and society as a whole.

Continuing the path towards improving scientific management, LIOS has reinstated the International Advisory Board, which

comprises both academic scientists and representatives from innovative biotechnology companies.

The board also includes our strategic collaboration partners—Universities of Latvia and the Trade Union of Science and Education Workers. In December, the first board meeting took place, during which board members were introduced to the LIOS and BMC consolidation plan. The board unanimously endorsed this initiative, reaffirming the correctness and timeliness of the decision. LIOS also received a series of valuable recommendations to enhance its scientific and innovative activities.

This year, LIOS completed the implementation of a significant scientific infrastructure development project by inaugurating the Biotechnology Campus. The new equipment and facilities provide the opportunity to more effectively develop new research directions and address scientifically significant issues for society.

However, the foundation of the institute's successful development is excellent science, that is, the work of our people. This year, we are justifiably proud of the historically highest number of publications, with nearly 70% of these 112 publications appearing in Q1 journals. This would not have been possible

without the selfless research efforts of LIOS scientists, their involvement in preparing scientific project applications, and their contribution to mentoring the next generation of scientists. We are proud that our most experienced colleagues have managed to pass on their expertise to the new generation, ensuring that four bachelor's and eight master's theses were successfully defended, as well as serving as scientific supervisors for ten doctoral dissertations defended over the past ten years. Overall, out of approximately 270 LIOS employees, 83 are students of various levels. This proportion allows us to look to the future with confidence. By investing nearly €260,000 in human capital development, we have been able to support the individual research projects of nine students. To foster a creative spirit within LIOS, we have invested nearly €170,000 in the employee motivation system.

The performance indicators of LIOS's activities, detailed in the report, allow us to confidently state that the right course has been taken in the LIOS strategy to achieve the vision of becoming one of Europe's leaders in chemistry and biomedicine.



Osvalds Pugovičs
LIOS Acting Director

HIGHLIGHTS

Major Decision of 2023 – Institute Merger

In May 2023, LIOS and the BMC announced their decision to merge, creating the largest and most capable life sciences centre in the Baltics. By 31 May 2026, a new research organisation will be established based on the foundations of both institutes. Both LIOS and BMC work in areas such as drug and biopharmaceutical discovery, diagnostics, and precision medicine. The merger will enable the creation of a leading life sciences institution in the Baltic region. The combined organisation will have a workforce of at least 450 people and an annual budget slightly over €25 million. The new research centre will be the largest scientific institute in the Baltic states. The centre aspires to become

a regional leader in biomedicine, while also attaining the status of a Centre of Excellence in Latvia for the fields of biomedicine, medical technology, and pharmaceuticals under the RIS3 framework. Nationally, the plan is to further collaboration with Latvian universities, making a substantial contribution to the training of high-level students and thus fostering university growth and a new influx of specialists for the country's economy. Additionally, the new centre will continue its collaboration with the manufacturing sector, both domestically and internationally, through contract research and involvement in various applied research projects and technology transfer activities.

In the next two years, both LIOS and BMC's Scientific Councils and administrative teams will work on developing the governance system for the new centre. The institutes have committed to retaining their individual strengths in governance and research organisation, which have enabled them to develop into the leading research institutions in Latvia. It has been decided to preserve both brands, LIOS and BMC. For a successful consolidation process, external consultants with practical expertise in management process planning will be engaged. Financial resources required for the merger will be drawn from the Recovery and Resilience Facility funds.

HIGHLIGHTS

Most Notable Project of 2023

On 31 January, the kick-off meeting was held for the Horizon Europe ERA Chair project “Natural Product Research as a Driver for Innovation at LIOS” (Natalion). With a budget allocation of €2.5 million, this project will support the development of natural product research at OSI, expand the institute’s scientific capacity, and reinforce its excellence. The Natalion project will advance LIOS’s goal of becoming a distinguished European research centre.



The Natalion project management team, external advisory board, and activity leaders

Opening of the LIOS Biotechnology Building

On 29 March 2023, LIOS officially inaugurated its new Biotechnology Building. The two-storey facility houses laboratories dedicated to producing biologically significant proteins essential for drug development, as well as biomaterials required for tissue engineering. Over the four years of construction



Opening of the Biotechnology Building

the project saw an investment of €2.12 million, funded through the European Union Structural Funds Project No. 1.1.1.4/17/I/007.

HIGHLIGHTS

The 5th World Congress of Latvian Scientists

From 27 to 29 June 2023, the 5th World Congress of Latvian Scientists, titled “Science for Latvia,” took place at the National Library of Latvia. The congress serves as a networking platform for scientists from Latvia and those of Latvian descent abroad, fostering connections and informing Latvian society, including policymakers, about the contributions and achievements of Latvian scientists both locally and internationally.

LIOS was represented at the congress by three senior researchers—Professor Maija Dambrova, Dr Antons Sizovs, and Dr Līga Zvejniece—and three emerging scientists: Valērija Razživina, Baiba Gukālova, and Kristaps Krims-Dāvis, each presenting poster sessions.

The 13th Paul Walden Symposium

Continuing its tradition of organising scientific events, LIOS hosted the 13th Paul Walden Symposium in Organic Chemistry in 2023. The conference featured presentations by eight globally renowned scientists:

Lutz Ackermann, Nicolai Cramer, Olafs Daugulis, Paolo Melchiorre, Rebecca Melen, Pierangelo Metrangolo, Zoltan Novak, and Andrew D. Smith. Additionally, two Latvian PhD students, Gļebs Jeršovs and Renāte Melngaile,

presented their research. The symposium also provided bachelor’s, master’s, and doctoral students an opportunity to showcase their work in a poster presentation session.



The 5th World Congress of Latvian Scientists



The 13th Paul Walden Symposium

Collaboration with Academic Partners

The commitment to international scientific networks and enhancing global recognition has yielded significant results—60.7% of LIOS's 2023 scientific publications were produced through international collaborations (SCOPUS database), exceeding the national average for international collaboration publications by 20%.

Highlights of Scientific Collaborations

PhD student **F. Torres** from ETH Zurich (Swiss Federal Institute of Technology), working in **Professor R. Riek's group**, visited the Latvian Institute of Organic Synthesis and collaborated with **Professor K. Jaudzems' group**.

Together, they developed a high-performance fragment screening method using photo-hyperpolarised (CIDNP) NMR. (J. Am. Chem. Soc. 2023. DOI: 10.1021/jacs.3c01392).

Dr M. Katkevičs and his **PhD student V. Baškevics**, in collaboration with **Professor Ē. Rozner's group** at Binghamton University (USA), developed triplex-forming peptide nucleic acids (PNAs) that recognise A-U RNA duplexes. (Chem. Eur. J. 2024. DOI: 10.1002/chem.202302390.)

As part of his doctoral project, **O. Koleda** from **Professor Sūna's group**, while working in **Professor Waldvogel's group**, developed a new method for synthesising 1H-1-hydroxyquinazolin-4-ones based on electrochemical reduction of nitro groups. (Chem. Sci. 2024. DOI: 10.1039/d3sc00266g).

V. Kovada, Dr R. Bobrovs, H. Cīrule, Dr E. Liepiņš, Dr S. Grīnberga, A. Kreicberga, Dr D. Rasiņa, Professor E. Sūna, Professor K. Jaudzems, and Professor A. Jirgensons from LIOS, in collaboration with scientists from the company TAD in Spain and Professor M. Blackman's group from the Francis Crick Institute in the United Kingdom, developed macrocyclic peptidomimetic PMX inhibitors with high antimalarial activity in animal models. (J. Med. Chem. 2023. DOI: 10.1021/acs.jmedchem.3c00812).

Interinstitutional Collaboration in Latvia

On 12 October 2023, the research platform “BioMedPharm” was established, bringing together six of Latvia’s leading biomedical research organisations with the goal of jointly implementing biomedical research projects of any complexity. The founders of BioMedPharm include the Latvian Biomedical Research and Study Centre, the Latvian Institute of Organic Synthesis, the University of Latvia, the Institute for Food Safety, Animal Health and Environment “BIOR”, Riga Stradiņš University, and Riga Technical University. LIOS has taken on the role of coordinator within this research programme. The concept for the BioMedPharm consortium emerged in 2022,



Founders of "BioMedPharm"

when its members submitted a joint application to the Ministry of Economics Innovation Fund’s sectoral research programme project competition. BioMedPharm aims not only to develop important treatment solutions for patients but also to support

the Latvian pharmaceutical industry in strengthening its global competitiveness. Additionally, BioMedPharm will contribute to the creation of new knowledge by addressing fundamental research challenges.

International Collaboration

In 2023, LIOS scientists, in partnership with colleagues from Sweden, Austria, and Germany, presented research conducted under the FAT4BRAIN project. This study examined how diet-dependent physiological states (e.g., fed/fasted states, dietary type) affect blood concentrations of fatty acids and their metabolic intermediates.

The research was conducted by scientists from LIOS's Laboratory of Pharmaceutical Pharmacology in collaboration with researchers from Uppsala University, the company Oroboros Instruments, the University Hospital of Jena, and the Eberhard Karls University of Tübingen. The project aimed to determine the role of fatty acid metabolism in brain function and the development of neurological diseases. The results led scientists to conclude that the regulation of acylcarnitines, intermediates in fatty acid metabolism, plays an important role in memory formation, nervous system function, and the progression of neurodegenerative diseases.



Prime Minister of Latvia, K. Kariņš visiting LIOS

Collaboration with Industry

In 2023, LIOS's collaborative projects with industry partners provided approximately 29% of the institute's total funding (€4.2 million). The most active collaborations were once again with companies based in the European Union (66.4%), the United States (12.8%), and the United Kingdom (11.9%). LIOS plans to continue its active collaboration with the pharmaceutical industry to help bring the results of its research to patients.

Engagement with Policymakers

On 16 February 2023, the Prime Minister of Latvia, Krišjānis Kariņš, visited LIOS. During his visit, he toured several of the institute's research laboratories to gain insights into their work and discussed LIOS's future plans and development ambitions. Prime Minister Kariņš praised the institute's collaboration with industry and recognised LIOS's contributions to developing export-ready products and technological solutions of significant benefit to public health.

Study: Development of a New Reagent for Synthesising Fluorine- Containing Molecules

Authors: Corresponding Member of the Latvian Academy of Sciences Jānis Veliks, Ph.D. Nagarajan Ram Kumar, Dr. Larisa Baumanė, Dr. Dzintars Začs.
Institution: Latvian Institute of Organic Synthesis.

The introduction of fluorine atoms into organic molecules allows for targeted control over their biological properties, making synthetic methods for these transformations an essential tool in the development of new drug compounds. Although fluorine atoms are present in around one in five active pharmaceutical ingredients, the range of synthetic methods available to introduce fluorine remains limited and often



Corresponding Member of the Latvian Academy of Sciences,
Jānis Veliks

involves aggressive, polluting reagents. These challenges complicate both the design of new drug molecules and the development of efficient manufacturing methods. A research team at the Latvian Institute of Organic Synthesis, led by Dr. Jānis Veliks, has developed a new, stable, non-aggressive reagent. In the presence of a copper catalyst and under blue LED light, this reagent generates a fluoromethyl radical—an active

fluorine-containing particle that can easily bond with organic molecules. This new reagent significantly expands chemists' ability to incorporate fluorine atoms when designing potential new drugs or developing novel synthetic methods for known substances. The new reagent is described in *Angewandte Chemie* (2023). doi: 10.1002/anie.202219027.

Study: Utilising the Principle of Structural Self-Adaptation in Drug Design

Authors: Dr. Jekaterīna Ivanova, Dr. Ilona Domračeva, Corresponding Member of the Latvian Academy of Sciences Raivis Žalubovskis.
Institution: Latvian Institute of Organic Synthesis.

**Academician Kaspars Tārs, Dr. Jānis Leitāns, Dr. Andris Kazāks.
Institution: Latvian Biomedical Research and Study Centre

Cancer remains one of the leading causes of death globally, affecting approximately 10 million people each year, and innovative approaches to treatment are urgently needed. Influencing the activity of enzymes critical for cancer cell growth through drug compounds is a well-established approach in developing new treatments. However, the fundamental problem of selectivity has yet to be fully addressed—how to target



Corresponding Member of the Latvian Academy of Sciences,
Raivis Žalubovskis

only the necessary enzymes among many similar ones required by cancer cells. A team led by Dr. Raivis Žalubovskis at the Latvian Institute of Organic Synthesis, in collaboration with researchers from the Latvian Biomedical Research and Study Centre, has demonstrated the use of structural self-adaptation to address this challenge. In designing new drug molecules, they incorporated elements of limited flexibility within their chemical structures, allowing the molecules to adapt to the spatial structures of target enzymes.

These molecules interact specifically with proteins essential to cancer cell development while sparing other enzymes. Although the phenomenon of self-adaptation is known in organic chemistry, this is the first time it has been applied in drug design. This study not only offers new possibilities for anti-cancer drug design but also aids in explaining the selectivity differences in the effects of known drugs. The new principle is detailed in *Journal of Medicinal Chemistry* (2023).
doi:10.1021/acs.jmedchem.3c00007.

Research Developments

The year 2023 marked outstanding achievements in research, reaching an all-time high publication record with 112 articles in journals indexed in the SCOPUS database.

Simultaneously, publication quality improved, with 67.9% of LIOS's scientific articles published in Q1 quartile journals (CiteScore), exceeding Latvia's national average by nearly 30%. The most prolific author of 2023 was Professor Raivis Žalubovskis, a co-author on 19 publications.

This rate of development and the excellent results achieved would not have been possible without previous years' efforts to expand our academic collaboration network and targeted investments in enhancing researcher motivation and establishing student support schemes. More than a quarter of LIOS's publications were supported by the European Commission Framework Programmes—Horizon Europe and Horizon 2020—clearly demonstrating the institute's path towards increased international competitiveness. Furthering the pursuit of scientific excellence, 17 research projects were initiated in 2023.



The Presentation of the Order of the Three Stars to A. Jirgensons

Awards

On 4 May 2023, **Aigars Jirgensons**, LIOS Deputy Director for Scientific Affairs, was awarded the Order of the Three Stars and appointed as a Commander of the Order. Aigars Jirgensons is a Professor at the RTU Faculty of Materials Science and Applied Chemistry, an academician of the Latvian Academy of Sciences, who significantly contributes to mentoring new generations of chemists and consistently promotes Latvia's integration into the European and global scientific community.

On 18 November 2023, LIOS Director **Osvalds Pugovičs** was awarded the Order of the Three Stars and appointed an Officer of the Order. Osvalds Pugovičs's active involvement in the development of the chemistry and pharmaceutical sectors and his exceptional organisational work have greatly advanced Latvia's integration into European and global research and contributed substantially to research policy in Latvia and the European Union.

SCIENTIFIC ACHIEVEMENTS

Awards

In November 2023, the Latvian Cabinet of Ministers presented LIOS Laboratory Head, Senior Researcher, and Scientific Council Member **Dr. Pavel Arsenyan** with an award for his contribution to enhancing OSI's international visibility through innovation and the education of young researchers.



The Award Presentation to P. Arsenjans

In November, LIOS researchers **Anna Līna Bula** and **Laura Drunka**, along with the IGEM Latvia-Riga team, won a gold medal at the international IGEM Foundation synthetic biology competition and were nominated in the category for best simple genetic component design.

In September 2023, LIOS Senior Researcher and Scientific Council Member **Liene Grigorjeva** received the L'Oréal-UNESCO "For Women in Science" award.



L. Grigorjeva Receives the L'Oréal-UNESCO Prize

Liene Grigorjeva's work focuses on developing methods for synthesising organic compounds using affordable, environmentally friendly, and safe catalysts, aiming to produce valuable compounds quickly and efficiently.

In May 2023, LIOS researcher **Rossella Castagna** was awarded the Universal Scientific Education and Research Network (USERN) prize and appointed as the youngest USERN ambassador

USERN brings together over 600 leading scientists worldwide, including 19 prestigious Nobel and Abel Prize laureates. Rossella Castagna is the first to put Latvia on the USERN map.

Awards

On 2 May 2023, **Dace Kārkle**, LIOS Deputy Director for Administrative, Financial, and Legal Affairs, received a Certificate of Commendation from the Latvian Cabinet of Ministers for her excellent financial management of the institute and her legal expertise.

In April 2023, two young chemists at LIOS received awards from the Latvian Academy of Sciences.

Aleksandrs Čižikovs was awarded the **Mārtiņš Strautmanis** and Alfrēds Ieviņš Prize in Chemistry, while Artūrs Sperga received the Young Scientist Award.

Education

LIOS provides Latvian students with essential infrastructure, funding, and scientific guidance for their qualification theses. In 2023, LIOS supported the development and defence of four bachelor's theses, eight master's theses, and ten doctoral dissertations



LIOS Deputy Director D. Kārkle

across various universities in Latvia.

To further assist students working on their qualification projects, LIOS runs an internal grant programme.

In 2023, nine students benefited from this support, with LIOS allocating 257,000 euros to the initiative.

Career

On 19th December, six prominent LIOS researchers were welcomed into the Latvian Academy of Sciences: **Sergejs Beļakovs** and **Aiva Plotniece** as full members, and **Liene Grigorjeva**, **Kārlis Pajuste**, **Antons Sizovs** and **Jānis Veliks** as corresponding members.

In May 2023, **Artis Kinēns**, a researcher at the LIOS Laboratory of Prospective Organic Synthesis Technologies, was appointed Associate Professor at the University of Latvia's Faculty of Chemistry!

RESOURCES

Finances

In 2023, LIOS's total funding amounted to 14.5 million euros. Nearly a third (29%) of this was private funding. By the end of 2023, we had achieved a secure and stable financial position. LIOS has high liquidity (liquidity ratio – 1.4) and a low debt burden (long-term liabilities as a percentage of total assets – 20%).

We closed the balance with 8.5 million euros in revenue for the upcoming period, consisting of advance payments and transfers (64% of the total balance value). This indicates a stable flow of projects in the upcoming reporting periods. On 31st December 2023, our cash reserves reached 7.1 million euros.

Research Infrastructure

In 2023, LIOS purchased and installed a new mass spectrometry device – the Bruker-produced autoflex maX MALDI TOF-TOF system.

This new equipment is primarily intended for protein and peptide characterisation and is a valuable addition to the research capabilities of the Biotechnology Group.

Staff

We are pleased to report that in 2023, our staff included 83 students and 22 foreign researchers.

We continued to implement the LIOS staff motivation scheme, aimed at encouraging the writing of research project proposals, the development of qualification theses, and the publication of high-quality research in prestigious scientific journals (the highest bonus for a single researcher in 2023 exceeded 16,000 euros). In total, over 168,000 euros were allocated to the staff motivation scheme last year.

Real Estate

On 4th January 2023, we commissioned the new biotechnology building into operation. A total of 2.5 million euros was invested in the building and 2.6 million euros in equipment. The new facility is designed to meet the needs of the Biotechnology Group. The funding was obtained from the European Union Structural Funds project No. 1.1.1.4/17/I/007.

Scientific Council

The highest decision-making body at LIOS is the Scientific Council. In December 2022, the LIOS General Assembly of scientists elected a new Scientific Council for a four-year term, with the next elections scheduled for 2026. The Scientific Council, consisting of 15 members, is responsible for setting LIOS's strategic direction, approving the institute's budget, and electing the LIOS Executive Board.

Executive Board

The institute is led by a Director, who is elected by the Scientific Council. The Director carries out the duties and responsibilities outlined in the Law on Scientific Activity. The LIOS Director and their deputies make up the administration of the institute. In early 2019, Osvalds Pugovičs was re-elected as Director of LIOS for a term lasting until 2023.

In October 2023, the Scientific Council elected Dace Kārkle, the former Deputy Director, as the new LIOS Director. Kārkle had served as Deputy Director since 2004, overseeing financial, administrative, and legal matters.

In recognition of her significant contributions to LIOS's development and to enhancing Latvia's scientific competitiveness, Kārkle has received several awards, including the Cabinet of Ministers' Certificate of Recognition, the Solomon Hiller Academician Medal, and a Certificate of Recognition from the Ministry of Education and Science.

International Advisory Board

In response to expert recommendations received during international scientific evaluations, LIOS has re-established the International Advisory Board. The Board's regulations were approved in March, and the selection of Board members followed, with the first meeting held on 1st December.

The International Advisory Board consists of 15 members representing the international scientific community, the Latvian and foreign commercial sectors, the Latvian Universities Association, and the Latvian Education and Science Workers' Union.

The Board's recommendations have been summarised in the meeting minutes and will guide the further development of LIOS.

We plan to introduce improvements to continue implementing good governance practices, including enhancing stakeholder involvement in LIOS's governance. As part of the higher education management reforms proposed by the Ministry of Education and Science, new governance models will be developed over the next few years, with an emphasis on involving our stakeholders—students, industry representatives, international academic circles, policymakers, and society at large—at the decision-making level.

Despite the progress we have made in implementing good governance practices, we remain committed to further strengthening the involvement of our stakeholders—students, industry representatives, international academics, policymakers, and society—as part of the decision-making process.

FINANCIAL REPORT

Summary of the 2023 Report

Financial Year	2023
Name:	Latvian Institute of Organic Synthesis
Registration Number:	90002111653
VAT Registration Number:	LV90002111653
Address:	Aizkraukles iela 21, Rīga LV-1006, Latvija
Phone nr.:	+371 67014801
Email:	sinta@osi.lv
Website:	www.osi.lv
Legal Status:	Public body with a derived status
Reporting Period:	01.01.2023–31.12.2023
Auditor:	Sandra Dzerele un Partneris SIA

<i>Financial statements</i>			
STATEMENT OF FINANCIAL POSITION (in euros as at 31st December)			
ASSETS			
	2023	2022	2021
Non-current assets	17 168 082	17 771 305	15 220 068
Intangible assets	48 699	58 309	16 041
Licenses, patents, trademarks	48 699	58 309	16 041
Property, plant and equipment	17 029 683	16 161 891	15 204 027
Land and buildings	8 940 285	6 580 852	6 543 197
Technological equipment	7 937 979	6 979 578	7 272 976
Other equipment	147 045	169 567	157 821
Establishment of PPE and assets under construction	-	2 301 905	759 379
Prepayments for assets	4 374	129 989	470 654
Long term receivables	89 700	1 551 105	-
Current assets	13 205 616	11 090 220	10 173 026
Inventory	38 715	46 229	36 246
Short term receivables	2 693 183	1 498 284	2 342 120
Prepaid expenses and advance payments for services and projects	3 343 524	345 522	347 084
Cash and cash equivalents	7 130 194	9 200 185	7 447 576
TOTAL ASSETS	30 373 698	28 861 525	25 393 094
EQUITY AND LIABILITIES			
	2023	2022	2021
Equity	18 620 448	18 458 446	18 638 233
Surpluses/Deficits	18 620 448	18 458 446	18 638 233
Accumulated surpluses	18 458 446	18 638 233	18 808 327
Surplus/Deficit of the financial period	162 002	-179 787	-170 094
Liabilities	11 753 250	10 403 079	6 754 861
Long term liabilities	2 297 422	4 628 552	4 498 363
Long term loans	406 219	505 255	604 291
Long term deferred income and received prepayments	1 891 203	4 123 297	3 894 072
Short term part of long term liabilities	106 541	104 247	101 815
Accounts payable	57 231	110 060	126 257
Current accrued liabilities	411 002	570 007	440 885
Settlements for wages and deductions (excluding taxes)	5	-	-
Current liabilities for taxes and dues	315 463	-	31 788
Other current liabilities	24 555	82 001	51 662
Deferred income, received prepayments and transfers	8 541 031	4 908 212	1 504 091
TOTAL EQUITY AND LIABILITIES	30 373 698	28 861 525	25 393 094

STATEMENT OF FINANCIAL PERFORMANCE			
<i>(euro)</i>			
	2023	2022	2021
Revenue	13 815 641	12 888 751	12 384 380
Contract research revenue	4 171 652	4 340 644	4 310 345
International grants revenue	371 664	646 751	831 640
Transfers	9 230 831	7 825 950	7 096 088
Other revenue	41 494	75 406	146 307
Expenses	-13 650 554	-13 046 711	-12 545 638
Staff cost	-8 160 346	-7 568 815	-7 699 454
Travel costs	-287 888	-270 753	-50 680
Servi c es	-1 809 584	-1 883 757	-1 541 763
Goods and materials used	-1 388 086	-1 310 011	-1 394 907
Taxes	-16 086	-12 986	-15 069
Interest expenses	-19 921	-10 522	-7 830
Depreciation and amortization	-1 940 152	-1 984 495	-1 832 952
Other costs	-28 491	-5 372	-2 983
Deficit or Surplus before other gains	165 087	-157 960	-161 258
Gain (+) or loss (-) on financial instruments	-	-16 937	-8 836
Gain (+) or loss (-) on long term non-financial assets	-3 085	-4 890	-
Total Deficit or Surplus	162 002	-179 787	-170 094

CASH FLOW STATEMENT			
<i>(euro)</i>			
	2023	2022	2021
Total cash inflow	14 540 345	17 579 018	11 978 918
Total cash outflow	-16 610 336	-15 826 409	-13 293 003
Net cash from operating activities	1 140 123	4 747 883	1 298 507
<i>Cash income from operating activities</i>	<i>14 540 345</i>	<i>17 579 018</i>	<i>11 978 918</i>
Contract research income	4 205 082	4 516 355	4 290 042
International grants income	1 007 929	3 113 777	434 513
Transfers	9 327 334	9 948 886	7 254 363
<i>Cash outflow from operating activities</i>	<i>-13 400 222</i>	<i>-12 831 135</i>	<i>-10 680 411</i>
Staff cost	-8 097 644	-7 627 018	-7 601 733
Travel costs	-271 180	-288 468	-54 545
Services	-1 927 923	-1 926 507	-1 469 344
Goods and materials used	-1 441 597	-1 385 773	-1 424 654
Taxes	-8 237	-7 532	-31 898
Subsidies, grants and social benefits, current payments to	-110 544	-23 366	-25 930
Transfers for operating activities	-1 543 097	-1 572 471	-72 307
Net cash from investing activities	-3 093 578	-2 888 222	-2 505 552
<i>Cash income from investing activities</i>	<i>-</i>	<i>-</i>	<i>-</i>
<i>Cash outflow from investing activities</i>	<i>-3 093 578</i>	<i>-2 888 222</i>	<i>-2 505 552</i>
Acquisition of and prepayments for intangible assets	-4 047	-50 553	-9 330
Acquisition of and prepayments for property, plant and equipment	-2 964 184	-1 465 338	-1 624 460
Establishment of PPE and assets under construction	-125 347	-1 372 331	-871 762
Net cash from financing activities	-116 536	-107 052	-107 040
<i>Cash outflow from financing activities</i>	<i>-116 536</i>	<i>-107 052</i>	<i>-107 040</i>
Loans and issued debt securities	-99 036	-99 036	-99 036
Interest expenses	-17 500	-8 016	-8 004
Net cash flow before exchange rate effect	-2 069 991	1 752 609	-1 314 085
Net cash flow	-2 069 991	1 752 609	-1 314 085
Cash and cash equivalents at beginning of period	9 200 185	7 447 576	8 761 661
Cash and cash equivalents at end of the period	7 130 194	9 200 185	7 447 576

SUMMARY FINANCIAL REPORT APPENDIX

The summary financial report includes the balance sheet as of 31st December 2023, the financial performance statement, and the cash flow statement for the year ending 31st December 2023. This report has been prepared based on the audited financial statements

of the derived public entity "Latvian Institute of Organic Synthesis" in accordance with the Latvian Cabinet of Ministers' Regulations No. 652 of 28th September 2021, "Procedure for Preparing the Annual Report". Management believes that the content of

this summary financial report is in line with the objective of issuing the summary financial report.

The full financial statements and the Auditor's Report are available at the derived public entity "Latvian Institute of Organic Synthesis", Aizkraukles iela 21, Riga, Latvia.