



Latvian Institute of
Organic Synthesis

ANNUAL REPORT 2020

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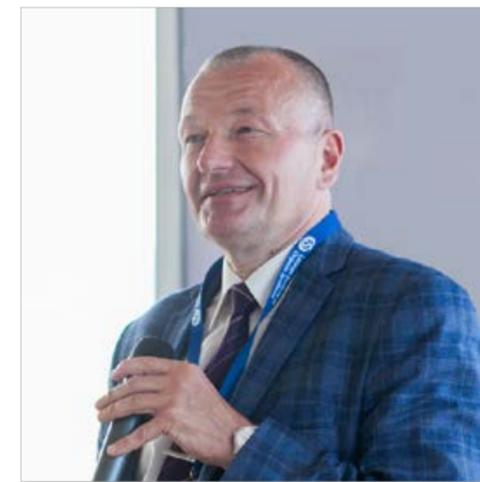
Letter from the Director

The year 2020 was a stress test for the whole scientific community. Scientists all over the world had to cope with limitations and precautions caused by the pandemics, however high expectations from society had to be met in the meantime. Latvian Institute of Organic Synthesis (LIOS) dealt brilliantly with the unforeseen challenges. Not only we continued our ongoing research projects but also quickly joined an anti-COVID research program covering a wide spectrum of activities from early stage drug discovery to translational research.

According to SCOPUS, LIOS researchers have published 103 scientific papers in 2020 which is an all times high figure and up by 54% compared to 2019. Remarkable scientific quality is illustrated by the share of research articles published in Q1 journals (CiteScore) reaching 52%.

LIOS has considerably extended publicly funded research activities. In addition to projects launched in previous years, 31 research projects with a total of EUR 8 million have been signed this year. During the reporting period, decisions have been received to support applications for 16 new projects for a total amount of EUR 3 million and are scheduled to be launched in 2021, thereby ensuring a stable development basis over the coming periods.

The impact factor of the scientific journal issued by LIOS *Chemistry of Heterocyclic Compounds* has shown continuous growth reaching 1.519 according to CiteScore2019 metrics.



The Institute continued to contribute to the development of academic education. In 2020, LIOS has supervised 17 graduate and undergraduate thesis, of which 4 PhD thesis, 8 MSc thesis and 5 BSc thesis.

LIOS has managed to keep a robust development trend of collaborative research projects. Revenues from pharmaceutical companies reached EUR 4.6 million exceeding 1/3 of the research funding.

LIOS financial performance reflects the academic and research excellence of the institute. The revenues from operative activities have reached MEUR 11.11. On 31st of December 2020, the total book value of LIOS financial position was fixed at MEUR 25.86, whereas long term liabilities were constituting a mere 3.8% of it. Within the reporting period, LIOS has managed to sustain a high liquidity ratio¹ of 1.85 enabling LIOS to fuel ongoing research projects with necessary working capital.

Last but not least, in 2020, an international evaluation of Latvian

¹ Current assets / Current liabilities

research organisations was carried out, which is scheduled once every 6 years under the Law on Scientific Activities. LIOS performance was assessed by the International Panel of Experts on Medical Sciences. According to the evaluation report, LIOS was awarded the highest possible score in all the performance parameters evaluated.

Taking this opportunity I would like to express my sincerest gratitude to the whole staff of the Latvian Institute of Organic Synthesis. I admire your passion for science and composed manner to deal with unexpected circumstances.



Osvalds Pugovics

Director

Research

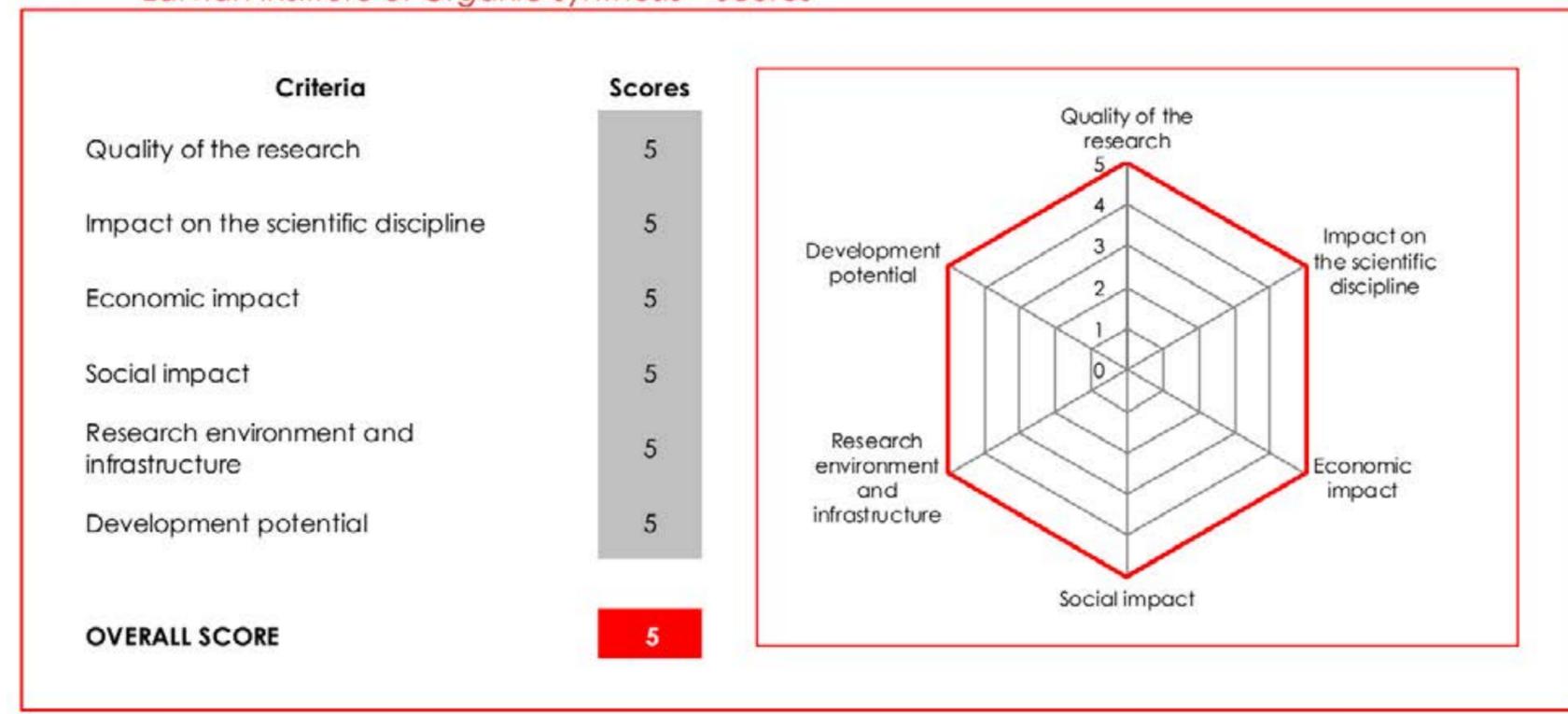
The year 2020 has been remarkable in terms of scientific excellence.

International Evaluation of Scientific Institutions' Activity was undertaken by Technopolis Group for the Ministry of Education and Science of the Republic of Latvia. LIOS performance was assessed by the International Panel of Experts on Medical Sciences. According to the evaluation report¹, LIOS was awarded the highest possible score in all the performance parameters evaluated.

“The panel of experts have assigned the institute an overall score of 5. This is based on panel unanimously assigning a score of 5 to all of the criteria. LIOS scored 5 overall in the 2013 evaluation although at that point it did not score 5 for every criteria.”

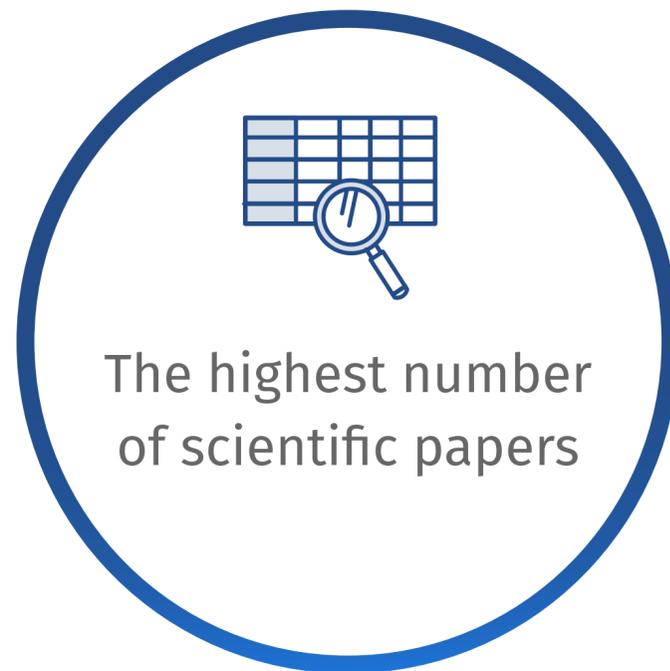
LIOS has made improvements over the last six years, improving the quality and impact of its research and its impact on the scientific discipline. The panel unanimously recognised the excellence in all the criteria and were pleased by the outstanding preparation of the visit”.

Latvian Institute of Organic Synthesis – Scores

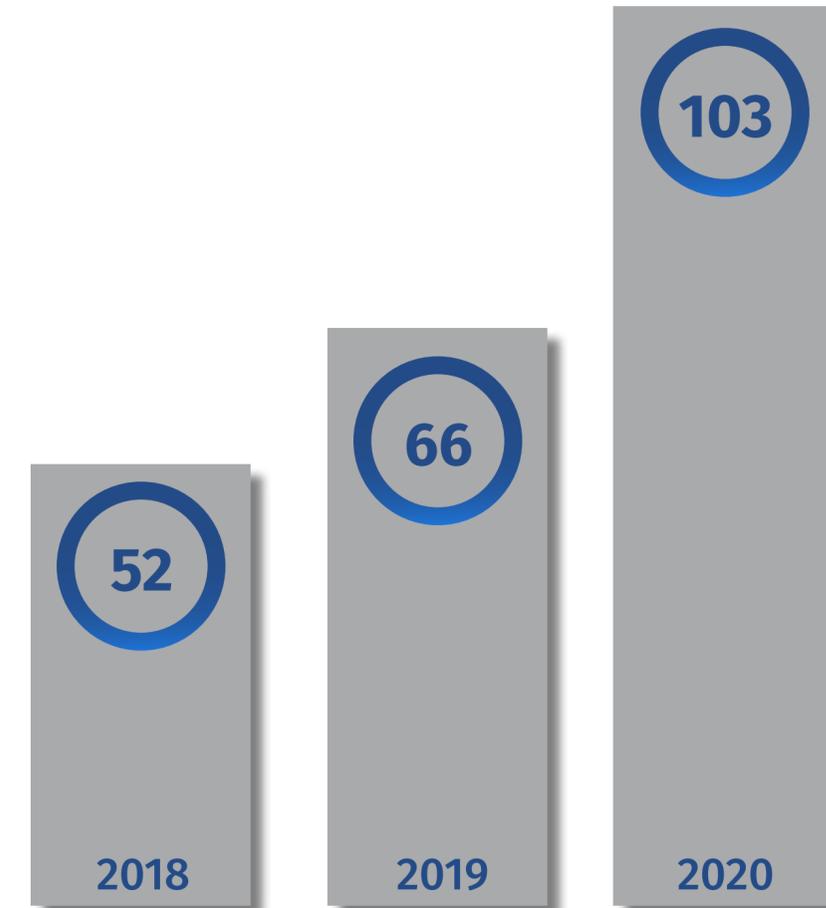


¹ <https://www.izm.gov.lv/lv/2019-gada-zinatnisko-instituciju-starptautiskais-novertejums>

RESEARCH OUTPUT



In 2020 we have reached an all times high in the number of published scientific papers 103. Simultaneously, an increase in scientific quantity was not achieved at the expense of quality as the average impact factor of journals where we published our research was 3.30 in 2020.



Development

To mark the development prospects for the next years, we have put considerable efforts to secure competitive research funding. Contracts for 31 research projects with a total of EUR 8 million have been signed this year. During the reporting period, decisions have been affirmed to support applications for 16 new projects for a total amount of EUR 3 million and are scheduled to be launched in 2021, thereby ensuring a stable turnover over the coming periods.

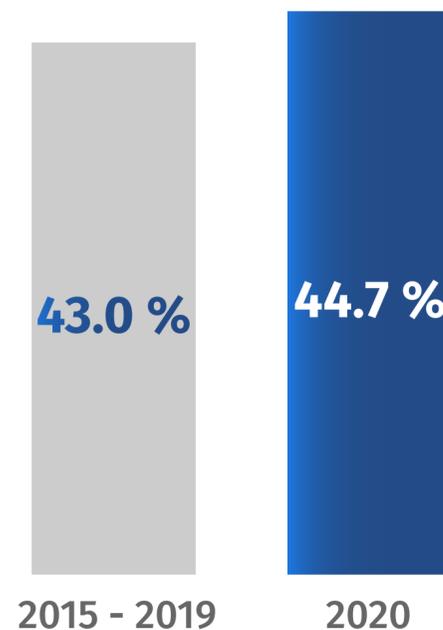


Partnerships with Academia

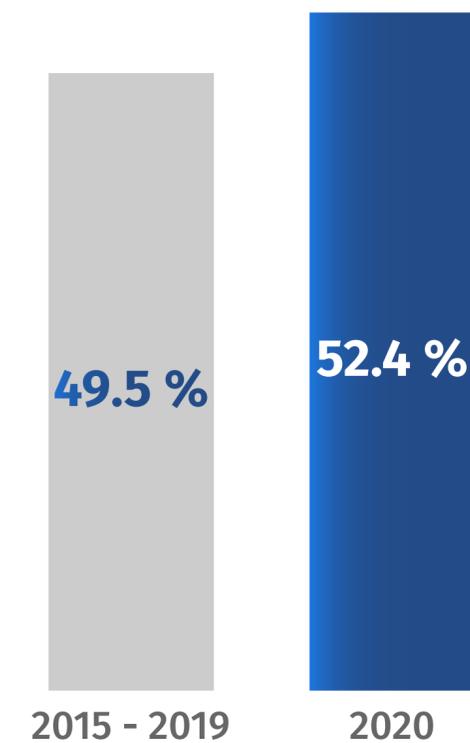
Within 2020 we have actively contributed to the development and maintenance of our collaboration networks with academic partners.

Involvement in international scientific networks and increased international visibility is clearly reflected in SCOPUS metrics - the scientific publications with international collaboration have increased to 44.7% in 2020 compared to the average of 43.0% in the period of 2015 - 2019 period. It has brought a positive impact on the scientific quality as the weight of LIOS's scientific publications in Q1 Journal Quartile by CiteScore has reached 52.4%.

International collaboration



Publications in Q1 Journal Quartile



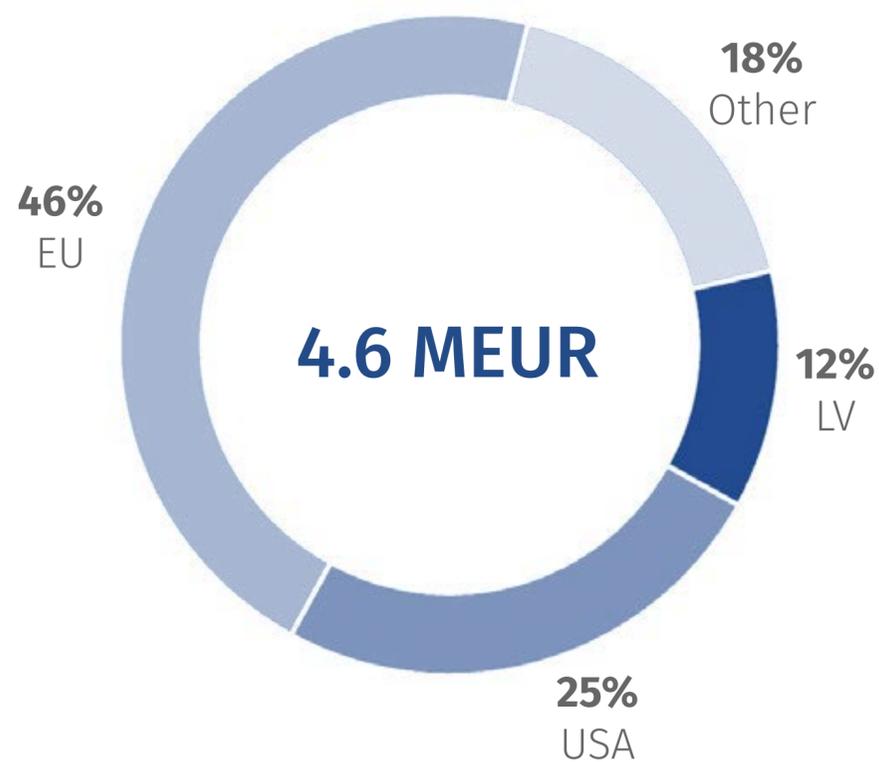
COLLABORATION HIGHLIGHTS

- + Prof. Ivars Kalviņš together with researchers from the Jagiellonian University and Hirszfeld Institute of Immunology and Experimental Therapy (Poland) have identified a new target for anti-metastatic treatment in breast cancer (Cancers 2020, 12(10), 2850, DOI: 10.3390/cancers12102850).
- + The group of Prof. Maija Dambrova and the group of Prof. Tatiana Borisova (Palladin Institute of Biochemistry, Ukraine) have described new pharmacological activities of sigma-1 receptor ligands that could be used to better understand the molecular function of the sigma-1 receptor. (Experimental Neurology 2020, 333, 113434, DOI: 10.1016/j.expneurol.2020.113434).
- + The group of Dr. Pēteris Trapencieris together with researchers from the University of Oxford have identified bicyclic boronates as promising broad-spectrum β -lactamase inhibitors (ACS Infectious Diseases 2020, 6 (6), pp. 1398-1404 DOI: 10.1021/acsinfecdis.9b00330).
- + The group of Dr. Pavel Arsenyan in collaboration with researchers from the Kaunas University of Technology have contributed to the discovery of new OLEDs (Dalton Transactions 2020, 49 (11), pp. 3393-3397. DOI: 10.1039/d0dt00214c).



Partnerships with Industry

PRIVATE FUNDING



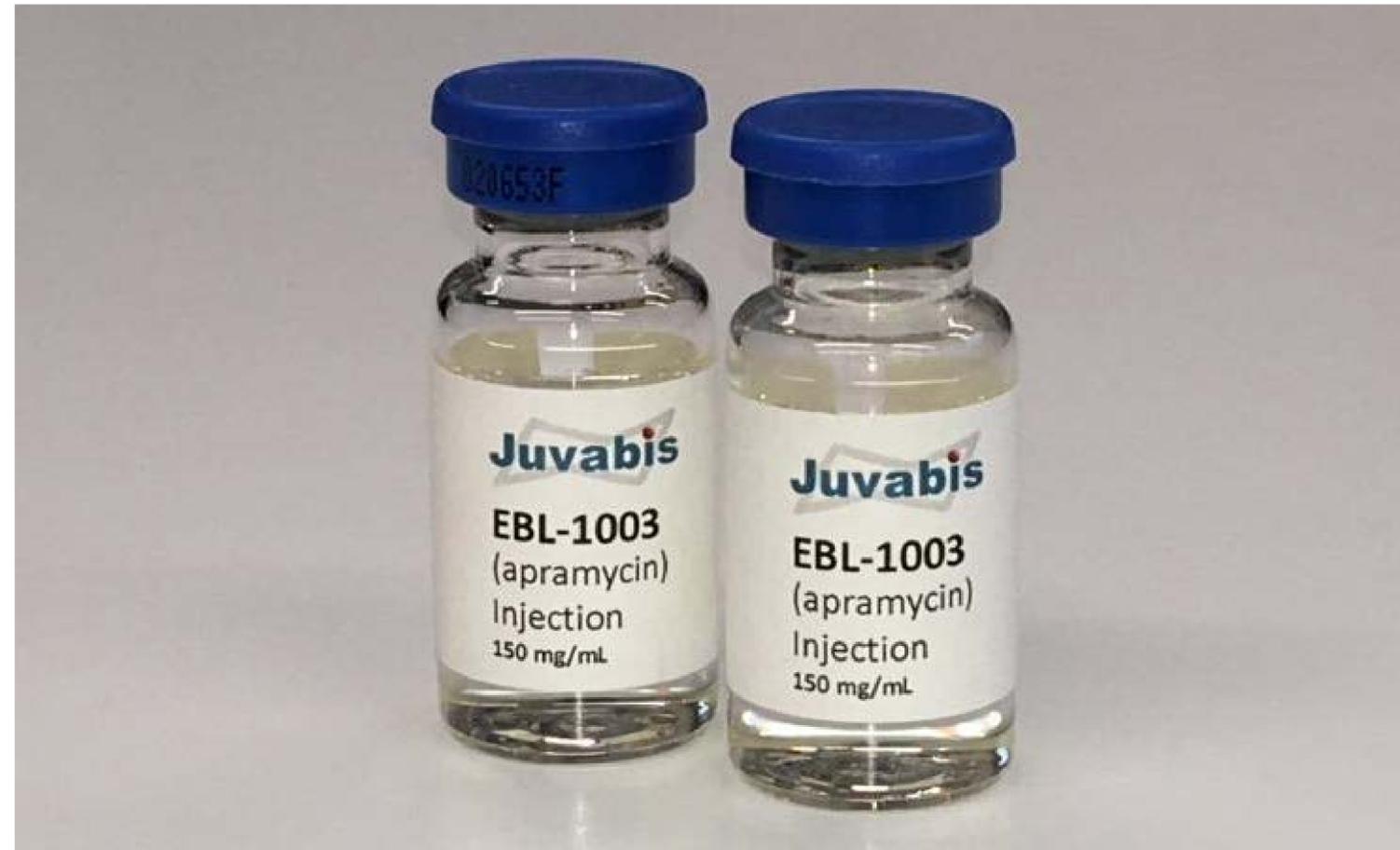
Last year, around 33% of funding (MEUR 4.6) has been secured by our collaboration projects with industry partners. EU and USA based pharmaceutical companies clearly dominate our customer portfolio. We are highly committed in developing further ties with the industry to bring our knowledge and results of the research closer to the market and patients.



Success Story

This year we as part of ENABLE consortium contributed to be one step closer to delivering new resistance free antibiotics to the market.

Within ENABLE platform funded by Innovative Medicines Initiative, where private and public funding meet for the development of new resistance free anti-bacterials, Phase 1 clinical trials of new antibiotics EBL1003 were completed.





Major Scientific Breakthroughs

NEW CHEMOTYPES FOR THE DEVELOPMENT OF ANTI-CANCER DRUGS

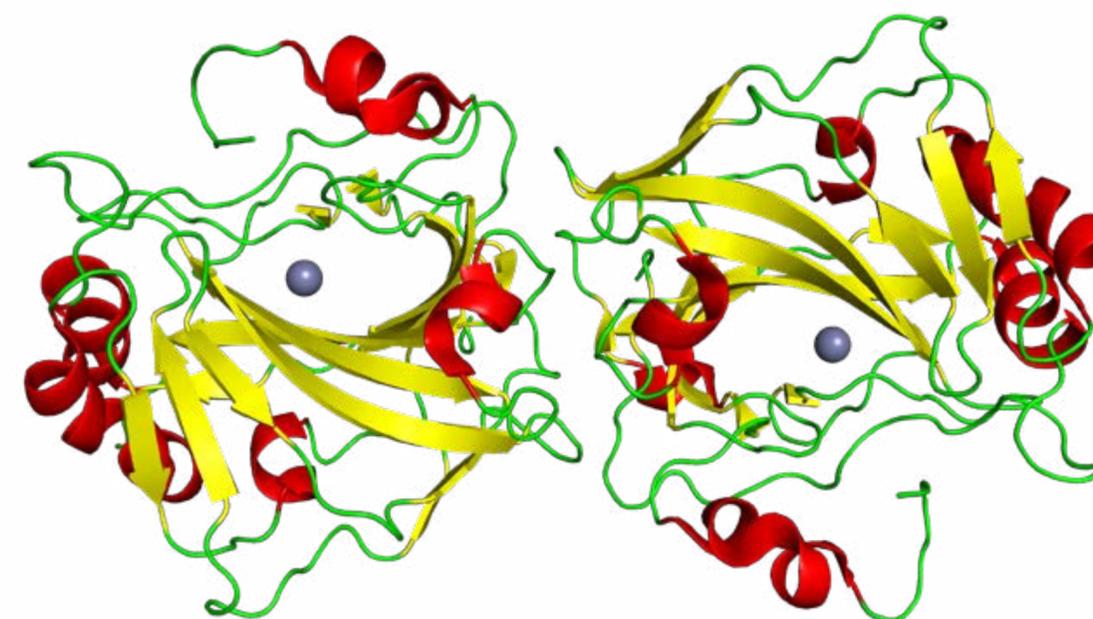
Leading researcher at LIOS prof. PhD **Raivis Žalubovskis** together with co-workers PhD Aleksandrs Pustenko, Dr. chem. Aiga Grandāne, BSc. Anastasija Balašova have demonstrated a new direction for the development of anti-cancer drugs. This approach is based on the construction of molecules that bind to carbonic anhydrases in cancer cells. The Latvian Academy of Sciences has announced this research as one of the most significant achievements in Latvian science in 2020.

The scientific background of the research is published in the following journals:

Eur. J. Med. Chem. 2020, 200, 112300. DOI: 10.1016/j.ejmech.2020.112300

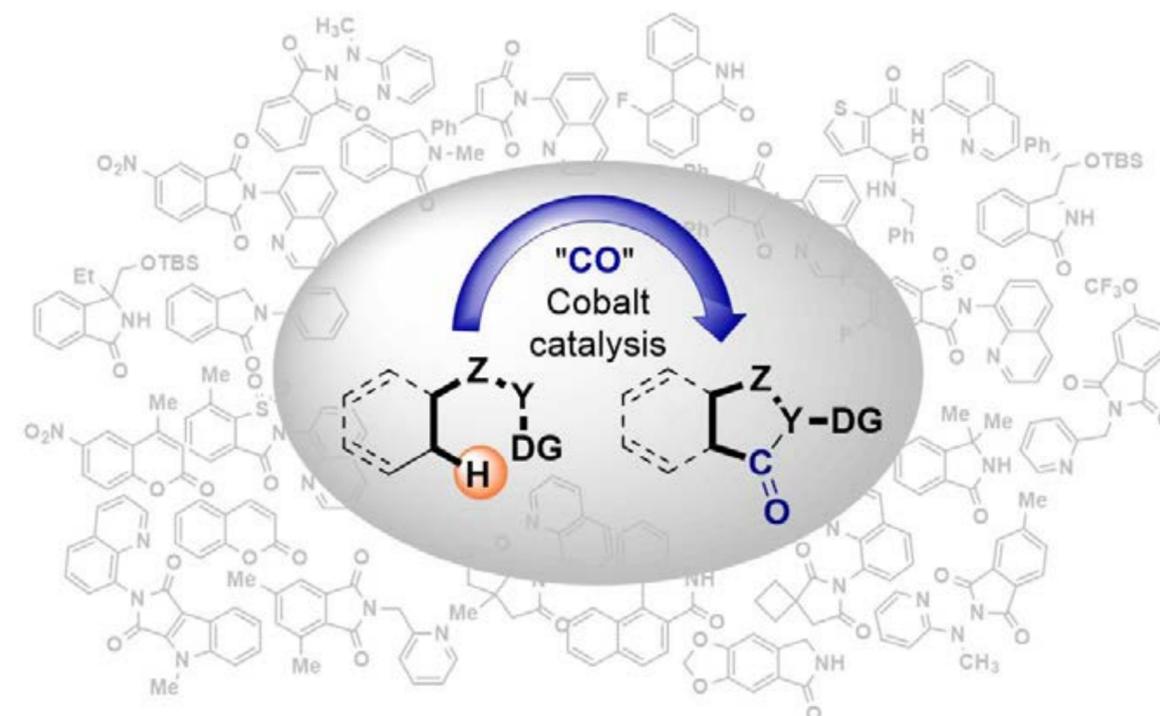
J. Enzyme Inhib. Med. Chem. 2020, 35(1), 650. DOI: 10.1080/14756366.2020.1722658

J. Enzyme Inhib. Med. Chem. 2020, 35 (1), 1011. DOI: 10.1080/14756366.2020.1752201



A SUSTAINABLE METHOD FOR THE SYNTHESIS OF ORGANIC COMPOUNDS

Leading researcher at LIOS PhD **Liene Grigorjeva** together with her group members MSc. Lūkass T. Lukašēvics, BSc. Aleksandrs Čižikovs, PhD Jekaterina Bolšakova have proposed an economic and environmentally friendly method for the synthesis of value-added organic compounds. The developed methodology allows to synthesize valuable organic compounds using relatively cheap and non-toxic cobalt catalysts. This research has been awarded the diploma of the President of the Latvian Academy of Sciences in 2020.



The scientific background of the studies is published in the following journals:

Org. Lett. 2020, 22, 2720-2723. DOI:10.1021/acs.orglett.0c00672

J. Org. Chem. 2020, 85, 4482-4499. DOI:10.1021/acs.joc.0c00207

Org. Biomol. Chem., 2020, 18, 7460-7466. DOI:10.1039/D0OB01633K

Awards

We are proud to announce that sixteen LIOS employees were granted various international awards and honours.

Prof. **Edgars Sūna**

State award of Three-star Order

Dr. **Valerjans Kauss**

Award of Latvian Ministry of Education and science for contribution to the research development in Latvia

Dr. **Pavels Arsenjans**

Award of Gustavs Vanags in chemistry for development new synthetic methods and research in material and medicinal chemistry

Mrs. **Dace Kārkle**

Solomon Hiller award for contribution to the development of Latvian Institute of Organic Synthesis



Prof. **Raivis Žalubovskis**
PhD **Aleksandrs Pustenko**
Dr. **Aiga Grandāne**
BSc. **Anastasija Balašova**

Achievement in science of Latvia 2020 awarded by Latvian Academy of Science

PhD **Liene Grigorjeva**
MSc. **Lūkass Tomass Lukašēvics**
BSc. **Aleksandrs Čižikovs**
PhD **Jekaterina Bolšakova**

Diploma of the President of the Latvian Academy of Sciences for achievement in science of Latvia 2020

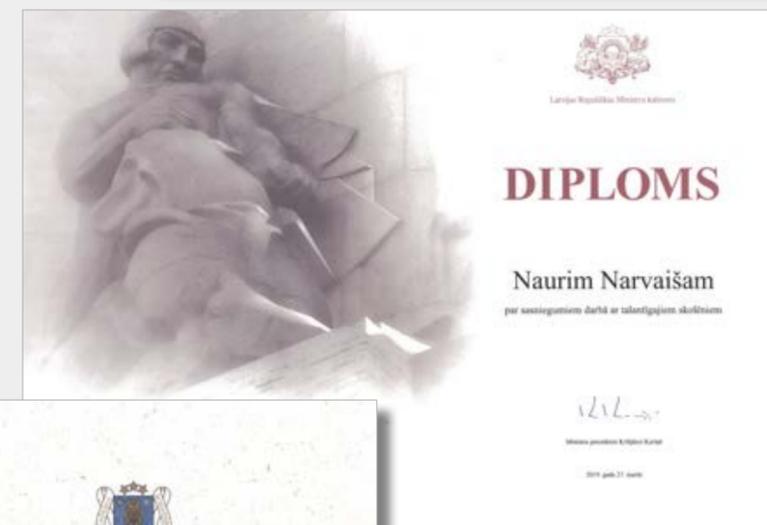
MSc. **Renāte Melngaile**
Chemistry Award of Mārtins Straumanis and Alfrēds Ievins for MSc thesis

MSc. **Lūkass Tomass Lukašēvics**
Junior scientist Award of Latvian Academy of Science for MSc thesis

BSc. **Nauris Narvaišs**
Award of President of Ministers for the achievement in work with school children

BSc. **Anastasija Balašova**
Olainfarm fellowship

BSc. **Gļebs Jeršovs**
Olainfarm fellowship



Visit of the President of Latvia

On 29 June, President of Latvia Egils Levits visited the LIOS to receive the Solomon Hiller Medal, an award honouring scientific achievements and contribution to the development of science.

During the visit, President Levits toured multiple laboratories and met with the administration and members of the Scientific Board to discuss the role of independent institutes in a national scientific framework, support to scientific excellence at the national level, national Covid-19 research programme and financing of science in Latvia.



Photo: Chancery of the President of Latvia

ADDRESS OF THE PRESIDENT OF LATVIA EGILS LEVITS AT THE LIOS

Dear esteemed scientists, Dear family of the Organic Synthesis Institute,

I am happy to visit your institute and flattered to witness how mankind's newest breakthroughs and knowledge become products that people here in Latvia and the whole wide world will appreciate. You belong to the scientific elite of Latvia and we need your organic synthesis innovations now more than ever before.

The world has been hit hard by Covid-19, and it will probably never look the same. Pandemic has changed the world. We have successfully overcome the unexpected challenges. This summer, right now, we are in much better situation than many other countries. And only because we followed warnings of scientists. Instead of panicking, turning a blind eye on them, we did what scientists told us to do, and here we are. We have to believe science. But virus is still out there. We, the people of Latvia, will have to continue looking up to our scientists for guidance.

Scientists of Latvian Biomedical Research and Study Centre, Institute of Solid State Physics, University of Latvia, Riga Technical University and Organic Synthesis Institute have decided to collaborate on national research programme project 'New methods for treatment and prevention of Coronavirus and effects of infections caused by it'. Once approved, this project will enable scientists to develop a unique testing platform for assessing the efficiency of new and repurposed active substances against SARS-CoV-2 virus. Latvia and the whole world badly need these new solutions and I truly hope that this project and other socially-significant projects will get the needed support.

Dear friends and colleagues,

Science is not easy. Most people only see the amazing fruits of scientific labour – the astonishing innovations. Very few know how many extra manhours, days and years of relentless and hard work have gone into these inventions, often without tangible results, especially in fundamental sciences. We often do not know what we might stumble upon, yet quite often results are not

only applicable, but also ground-breaking and very innovative. So, let me use this opportunity to underline the role of fundamental sciences in raising the public image of science and bringing scientific policy forward. Dear experts of the Latvian Institute of Organic Synthesis, we do acknowledge and appreciate your work. You are not forgotten. We constantly refer to you, your achievements, accomplishments and selfless dedication. And I will do my best to advocate for increased scientific funding because our future relies on it. Your success is the success of the whole Latvia. You help promote Latvia's name globally and also are responsible for major contribution to our national economy. We all want to become a knowledge society. There just is no other way. We want to become a welfare state and we to do it together with you and other exceptional scientists.

One of the best examples of what years of dedication and excellence can achieve is the new active substance that is a candidate for treatment of cardiovascular diseases. It can save lives. A study conducted last year showed very promising results. Now we just have to wait for the decision on what will happen with this first drug candidate next.

LOSI is a brand well-known in Europe. Your scientists are highly revered around the world. Latvian Institute of Organic Synthesis has successfully participated in various European Commission framework programme activities and projects both with local industries and international companies. This means that you are competitive, inventive and capable of producing European and world class research.

I am very grateful and extremely proud about what you have done for our country. Science is one of the priorities of Latvia and my presidency. We appreciate what you are doing for our people and for our common future.

I wish you success in your scientific endeavours, many great discoveries and, of course, plenty of scientific excellence!

Source of information: Chancery of the President of Latvia

Education

Although LIOS is not a degree issuing institution, we are strongly committed to supporting academic education in Latvia by providing infrastructure, funding and supervision of graduate and undergraduate students for their thesis. In 2020 five BSc, eight MSc and four PhD thesis were defended.

DEFENDED THESIS



To financially support the students attaining their thesis at LIOS, we have launched the LIOS scholarship program. In 2020 we have awarded 8 scholarships and we have allocated EUR 225 thousand in total for that purpose.

Career Development

At the senior level, a remarkable development of their academic career was achieved by several of our employees.



Prof. **Ivars Kalviņš**
President of Latvian
Academy of Sciences



Dr. **Marina Makrecka-Kūka**
President of Latvian
Pharmacology Association



Prof. **Kristaps Jaudzems**
Chief Executive Officer of the
Latvian Junior Researchers
Association



Dr. **Pāvels Arsenans**
Full Member of Latvian
Academy of Science

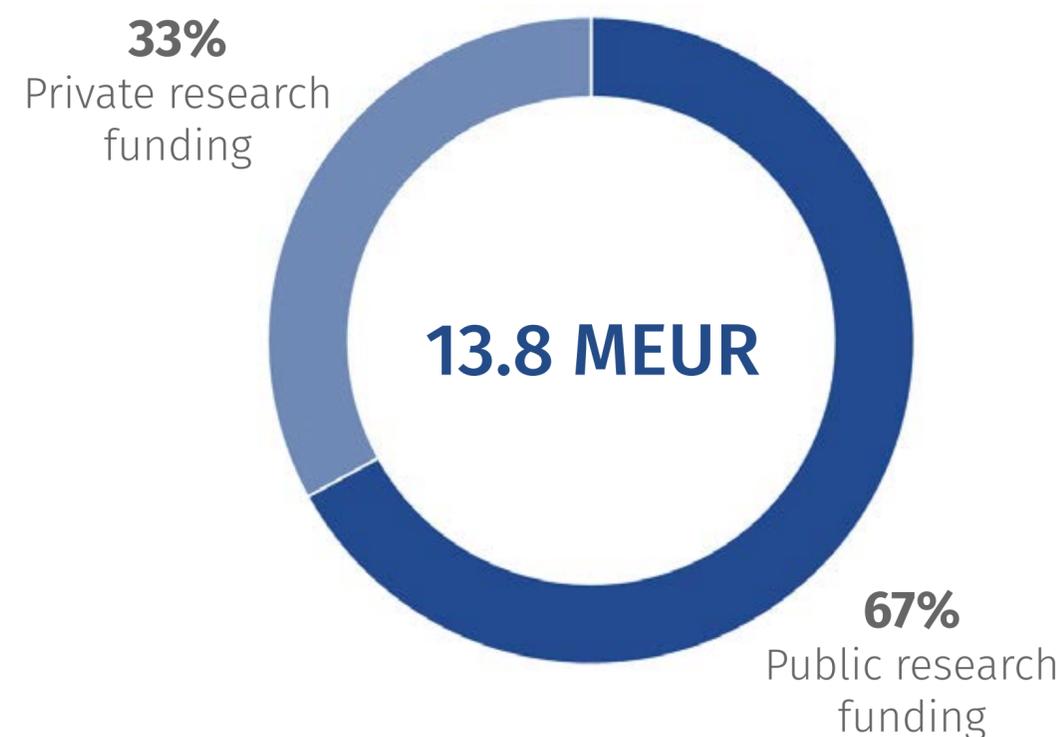
Resources

FINANCIAL RESOURCES

The total funding for 2020 reached MEUR 13.8, where 1/3 of it was supplied by private partners.

At the end of the year 2020, we have achieved a solid financial position for our operations and development.

LIOS has high liquidity (liquidity ratio – 1.85) and low debt burden (long term liabilities as a % of total assets – 3.8%). We closed the books with MEUR 5.5 in deferred revenue account (21% of the total book value), suggesting for a considerable volume of projects in the pipeline. Robust MEUR 8.76 were accumulated in cash on the 31st of December 2020.



RESEARCH EQUIPMENT



In 2020 we have invested around EUR 780 thousand in research equipment. Mainly it was a new protein chromatography system for our Biotechnology Group as well as an additional module for BD FACSMelody cell sorter. This investment is complementary to the general upgrade of the analytical equipment of LIOS.

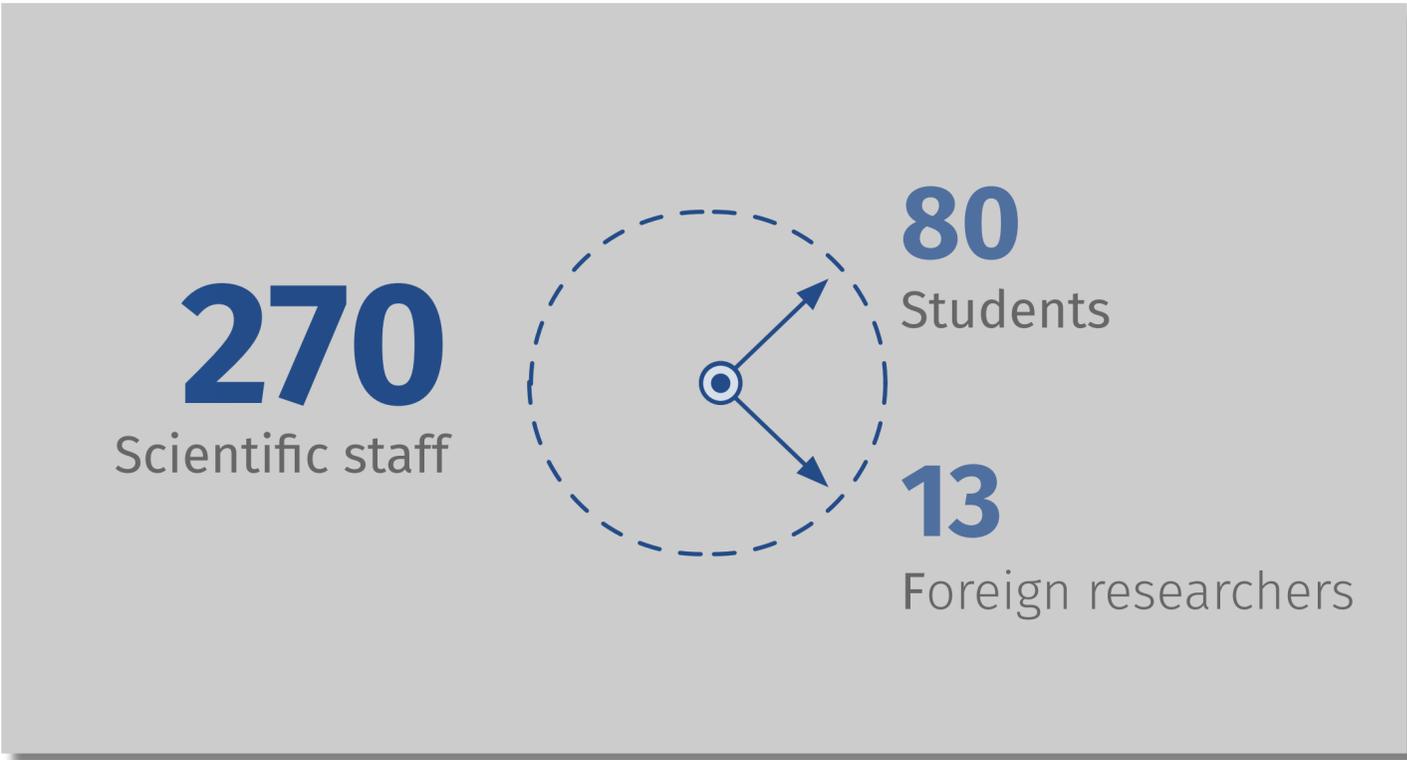


Photo from <https://www.bdbiosciences.com>

PEOPLE

At the end of 2020, we are happy to count around 80 students and 13 foreign researchers among our scientific staff.

We have put considerable efforts to promote early stage researchers and now approximately 47% of the research staff are below 35 years of age and 36% of project leaders are below 35.



An effective motivation scheme is in place to foster grant application writing, project leading and high quality research publishing in high impact journals (highest bonus reaching up to EUR 14,4 thousand per person). In total EUR 110 thousand were allocated to the employee motivation scheme.

ESTATE

No major real estate investments were done in 2020. Instead, we have been engaged in preparatory works for the design of a new Biotechnology building aimed for needs of the Biotechnology group. By 2022 we plan to invest around MEUR 2 in the new estate and it will occupy around 600m². The funding is secured by European Structural and Investment Fund project No. 1.1.1.4/17/I/007.



Governance

SCIENTIFIC BOARD

The functions of the supervisory board at the LIOS are performed by the **Scientific Board** (SB).

The SB of LIOS makes decisions on strategic research directions, approves budgets and elects the Management Board of the LIOS. Members of the SC are elected by the General Assembly of LIOS. The scientific council is composed of 15 members and it is the supervisory body of LIOS.

A new SB was elected at the end of 2018 its powers will expire in December 2022. To avoid conflict of interest and mitigate the agency's problems the supervisory body is entirely separated from the executive level.



Prof. **Edgars Sūna**
Chairman of the SB



Prof. **Kristaps Jaudzems**
Deputy Chairman of the SB



Dr. **Pāvels Arsenjans**



Prof. **Maija Dambrova**



Prof. **Ivars Kalviņš**



Dr. **Mārtiņš Katkevičs**



Dr. **Edgars Liepiņš**



Dr. **Einārs Loža**



Dr. **Vita Ozola**



Dr. **Kārlis Pajuste**



Dr. **Aiva Plotniece**



Dr. **Gints Šmits**



Dr. **Kirills Šubins**



Dr. **Pēteris Trapencieris**



Prof. **Raivis Žalubovskis**

MANAGEMENT BOARD

Executive power is granted to the director of LIOS. The Director is elected by the Scientific Board. The duties of the Director are defined by the Law on Scientific Activity. The Director of LIOS and his deputies are the Management Board (MB) of the Institute.



Dace Kārkle
Deputy Director



Osvalds Pugovičs
Director



Aigars Jirgenšons
Deputy Director

At the beginning of 2019, Osvalds Pugovics was re-elected as Director. This is his second term and it shall expire in 2023.

In spite of efforts taken to bring the best practices of governance into our processes and procedures, we are convinced that we can do more in terms of stakeholder engagement in LIOS governance. Under the governance reform for higher education institutions initiated by the Ministry of Education and Science, we aim to seek ways to engage in the supervisory body our stakeholders – students, industry representatives, international academia, policymakers and the general public.

Summary Annual Report for 2020

Fiscal year	2020
Name	Latvian Institute of Organic Synthesis
Registration number	90002111653
VAT registration number	LV90002111653
Address	Aizkraukles str. 21, Riga LV-1006, Latvia
Phone	+371 67014801
Email	sinta@osi.lv
Website	www.osi.lv/en
Form of ownership	public research organization
Financial year	01.01.2020–31.12.2020
Auditor	KPMG Baltics AS

Independent Auditors' Report



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Independent Auditors' Report

To the Derived Public Person Latvian Institute of Organic Synthesis

Report on the Summary Financial Statements

Opinion

The accompanying summary financial statements on pages 28 to 33, which comprise the statement of financial position as at 31 December 2020, the statement of financial performance and cash flow statement for the year then ended, and related note to the summary financial statements, are derived from the audited financial statements of Derived Public Person Latvian Institute of Organic Synthesis for the year ended 31 December 2020.

In our opinion, the summary financial statements derived from the audited financial statements of Derived Public Person Latvian Institute of Organic Synthesis for the year ended 31 December 2020 are consistent, in all material respects, with the audited financial statements on the basis described in the Note to the summary financial statements.

Summary Financial Statements

The summary financial statements do not contain all the disclosures required by the Cabinet of Ministers Regulation of 19 June 2018 No. 344 'Procedures for preparing annual financial statements' of the Republic of Latvia. Reading the summary financial statements, therefore, is not a substitute for reading the audited financial statements of Derived Public Person Latvian Institute of Organic Synthesis and our report thereon.

The Audited Financial Statements and our Report Thereon

We expressed an unmodified audit opinion on Derived Public Person Latvian Institute of Organic Synthesis financial statements in our report dated 4 March 2021.

Management's Responsibility for the Summary Financial Statements

Management is responsible for the preparation of the summary financial statements based on audited financial statements on the basis described in the Note to the summary financial statements.

Auditors' Responsibility

Our responsibility is to express an opinion on the summary financial statements whether based on our procedures, which were conducted in accordance with International Standard of Supreme Audit Institutions No. 1810 "Engagements to Report on Summary Financial Statements" summary financial statements are consistent, in all material respects, with the audited financial statements.

KPMG Baltics AS
License No 55

Irēna Sarma
Member of the Board
Latvian Certified Auditor
Certificate No. 151
Rīga, Latvia
4 March 2021

KPMG Baltics AS, a Latvian joint stock company and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee.

Financial statements

STATEMENT OF FINANCIAL POSITION (in euros as at 31st December)

ASSETS

	2020	2019
Non-current assets	14 643 066	15 823 216
Intangible assets	16 074	58 469
Licenses, patents, trademarks	13 293	58 469
Prepayments for licenses, patents, trademarks	2 781	-
Property, plant and equipment	14 626 964	15 764 434
Land and buildings	6 651 757	6 755 621
Technological equipment	7 731 887	8 835 895
Other equipment	148 046	172 918
Establishment of PPE and assets under construction	62 079	-
Prepayments for assets	33 195	-
Long term financial investments	28	313
Current assets	11 218 569	9 351 432
Inventory	25 272	22 597
Short term receivables	2 110 296	2 850 441
Prepaid expenses and advance payments for services and projects	321 340	233 232
Cash and cash equivalents	8 761 661	6 245 162
TOTAL ASSETS	25 861 635	25 174 648

EQUITY AND LIABILITIES

	2020	2019
Equity	18 808 327	19 471 066
Surpluses/Deficits	18 808 327	19 471 066
Accumulated surpluses	19 471 066	17 855 929
Surplus/Deficit of the financial period	-662 739	1 615 137
Liabilities	7 053 308	5 703 582
Long term liabilities	985 421	1 178 661
Long term loans	703 327	802 363
Long term deferred income and received prepayments	282 094	376 298
Short term part of long term liabilities	102 195	102 574
Accounts payable	50 968	76 699
Current accrued liabilities	298 244	275 385
Current liabilities for taxes and dues	78 878	58 180
Deferred income, received prepayments and transfers	5 537 602	4 012 083
TOTAL EQUITY AND LIABILITIES	25 861 635	25 174 648

STATEMENT OF FINANCIAL PERFORMANCE

(euro)

	2020	2019
Revenue	11 136 224	13 707 830
Contract research revenue	4 116 259	4 346 577
International grants revenue	1 554 195	2 051 105
Transfers	5 436 051	7 245 183
Other revenue	29 719	64 965
Expenses	(11 786 245)	(12 088 496)
Staff cost	(7 245 540)	(6 845 685)
Travel costs	(35 766)	(176 993)
Services	(1 268 394)	(1 335 718)
Goods and materials used	(1 430 419)	(1 762 168)
Taxes	(9 713)	(25 456)
Interest expenses	(8 761)	(9 793)
Depreciation and amortisation	(1 782 236)	(1 794 754)
Other costs	(5 416)	(137 929)
Deficit or Surplus before other gains	(650 021)	1 619 334
Gain or loss on financial instruments	(12 718)	(4 197)
Total Deficit or Surplus	(662 739)	1 615 137

CASH FLOW STATEMENT

(euro)

	2020	2019
Total cash income	13 845 627	11 494 725
Total cash outflow	(11 329 128)	(11 288 490)
Net cash from operating activities	3 261 675	947 263
<i>Cash income from operating activities</i>	13 845 627	11 494 725
Contract research income	4 614 911	4 131 893
International grants income	2 954 570	650 140
Transfers	6 276 146	6 712 692
<i>Cash outflow from operating activities</i>	<i>(10 583 952)</i>	<i>(10 547 462)</i>
Staff cost	(7 204 301)	(6 863 730)
Travel costs	(34 491)	(165 657)
Services	(1 365 294)	(1 437 598)
Goods and materials used	(1 518 235)	(1 742 881)
Taxes	(6 718)	(11 576)
Subsidies, grants and social benefits, current payments to		
European Union budget and international cooperation	(386 061)	(317 461)
Transfers for operating activities	(68 852)	(8 559)

Net cash from investing activities	(637 126)	(594 411)
<i>Cash income from investing activities</i>	-	-
<i>Cash outflow from investing activities</i>	(637 126)	(594 411)
Acquisition of and prepayments for intangible assets	(5 284)	(9 415)
Acquisition of and prepayments for property, plant and equipment	(534 359)	(584 996)
Establishment of PPE and assets under construction	(97 483)	-
Net cash from financing activities	(108 050)	(146 617)
<i>Cash outflow from financing activities</i>	(108 050)	(146 617)
Loans and issued debt securities	(99 036)	(136 519)
Interest expenses	(9 014)	(10 098)
Net cash flow before exchange rate effect	2 516 499	206 235
Net cash flow	2 516 499	206 235
Cash and cash equivalents at beginning of period	6 245 162	6 038 927
Cash and cash equivalents at end of the period	8 761 661	6 245 162

NOTE TO THE SUMMARY FINANCIAL STATEMENT SUMMARY

The financial statement summary comprises the statement of financial position as at 31 December 2020, the statement of financial performance and cash flow statement for the year then ended derived from the audited financial statements of Derived Public Person Latvian Institute of Organic Synthesis in accordance with the Cabinet of Ministers Regulation of 19 June 2018 No. 344 'Procedures for preparing annual financial statements' of the Republic of Latvia.

The full audited financial statements and the Auditors' Report thereon is available at Derived Public Person Latvian Institute of Organic Synthesis, Aizkraukles street 21, Riga, Latvia.

Management believes that the content of the financial statement summary is consistent with the objective of the financial statement summary.