

CONTRACT No.

1 / OSI 2018/03 MI ERAF / 1.1.1.1/16/A/294

Riga

18-04-2018

Latvian Institute of Organic Synthesis, represented by its **Director Osvalds Pugovičs**, hereinafter referred to as the Contracting Authority, on the one hand,
and

Tallinn University of Technology, registration No. **74000323** represented by its Director of Department of Chemistry and Biotechnology **Ivar Järving** acting pursuant to the Articles of Association (hereinafter 'the Contractor'), on the other hand,

Both together and each separately referred to as the Party or the Parties, based on the results of the procurement „**Crystallographic analysis of metal-organic frameworks (MOFs) using X-ray diffractometer for ERDF project id. No. 1.1.1.1/16/A/294**”, id. No. **OSI 2018/03 MI ERAF**, organised by Latvian Institute of Organic Synthesis pursuant to Article 9 of the PPL, hereinafter 'the Procurement', and on the Tender submitted by the Tenderer, have entered into the following contract:

1. Subject of the Contract

1.1. With this Contract, the Contracting Authority entrusts and the Contractor undertakes to provide **crystallographic analysis of metal-organic frameworks (MOFs) using X-ray diffractometer** (hereinafter – the Service) in accordance with the provisions of this Contract, the Technical Specification (Annex 1 to the Contract), the Contractor's Technical Tender (Annex 2 to the Contract), and the Contractor's Financial Tender (Annex 3 to the Contract).

2. The Contract Documents

2.1. The Contract consists of the following documents, which are to be considered an integral part thereof:

- 1) The Contract terms;
- 2) Technical Specification (Annex 1 to the Contract);
- 3) Technical Tender (Annex 2 to the Contract)
- 4) Financial Tender (Annex 3 to the Contract).

3. The Contract Performance

3.1. The Contractor shall ensure timely, high-quality **Services** in accordance with the provisions and deadlines provided for in this Contract and its annexes by **18-04-2019**.

3.2. Deliverables (study results) must be supplied to the Contracting Authority electronically, on an external medium or sent via e-mail.

4. The Contract Price and Payment Procedure

- 4.1. The price of the services paid by the Contracting Authority to the Contractor, including taxes, fees and any other necessary expenses, excluding VAT, **EUR 18 000,00** (eighteen thousand euro 00 cents), where VAT is not applicable and is **EUR 0,00** (zero euro 00 cents) and the service price, including applicable VAT, shall be **EUR 18 000,00** (eighteen thousand euro 00 cents), hereinafter referred to as the Contract Price.
- 4.2. The Contract Price shall be paid by the Contracting Authority to the Contractor as follows:
- 1) An advance payment of **30%** (thirty percent) of the Contract Price in amount of **EUR 5 400,00** (five thousand four hundred euro 00 cents) must be transferred within thirty (30) days after the signing of the Contract and the receipt of the Contractor's invoice;
 - 2) the intermediate payment of **20%** (twenty per cent) of the Contract price in amount of **EUR 3 600,00** (three thousand six hundred euro 00 cents) shall be transferred within 30 (thirty) days following the submission of the Intermediate report to the Contracting Authority and the acceptance of the corresponding acceptance act, which, by the time of signature, becomes an integral part of this Contract;
 - 3) The Contracting Authority shall make the final payment of **50%** (fifty percent) of the total Contract Price in amount of **EUR 9 000,00** (nine thousand euro 00 cents) after receiving the full study results. The Contracting Authority shall make the payment within thirty (30) days after signing the transfer and acceptance certificate and after the receipt of the Contractor's invoice, by transferring the funds to the bank account indicated in the Contractor's invoice.

5. Obligations, Rights and Responsibilities of the Parties

- 5.1. The Contractor undertakes to perform the services in accordance with the Technical Specification included in Annex 1 to this Contract.
- 5.2. The Contractor undertakes not to disclose the information, refrain from storing and not to transfer to any third parties any documents or copies thereof, which have been made available in connection with the performance of this Contract.
- 5.3. The Contracting Authority undertakes:
- 5.3.1. To send a sample to the Contractor for testing;
 - 5.3.2. To pay in accordance with the procedures set out in Chapter 4 of the Contract;
 - 5.3.3. Within its capabilities, provide the Contractor with all the information requested by the Contractor and directly necessary for the execution of the Contract, as well as the information which the Contracting Authority or the Contractor considers necessary to facilitate the performance of the Contract.
- 5.4. In the event that the Contractor fails to fulfil its obligations within the deadlines provided for in this Contract, it must pay the Contractor a penalty of 0.1% of the Contract Price for each day delayed, but not more than 10% of the Order amount.
- 5.5. In the event that the Contracting Authority fails to pay the Contractor within the time limits provided for in this Contract, it shall pay the Contractor a penalty of 0.1% of the amount not paid on time, for each day delayed, but not more than 10% of the Contract price.
- 5.6. The Contracting Authority shall appoint a person responsible for the performance of obligations under the Contract (hereinafter 'the Contracting Authority's contact person') **Arturs Aksjonovs**, phone +371-67014884, e-mail: **arturs@osi.lv**.

5.7. The Contractor shall appoint a person responsible for the performance of obligations under the Contract (hereinafter 'the Contractor's contact person') **Riina Aav**, phone +372 xxxxxxxx, e-mail: xxxxxxxx@xxxxxx.ee.

6. The Contract Term and Amendment

- 6.1. The Contract shall enter into force upon its mutual signature and be valid until the complete fulfilment of the obligations stipulated therein.
- 6.2. If necessary, any amendments to the procurement contract shall be made in compliance with the provisions of Article 61 of the PPL.

7. Other Provisions

- 7.1. Upon payment of the full Contract Price, the Contracting Authority shall acquire all economic rights to the information/study results derived by performing the services. Thereafter, the Contracting Authority is free to handle the study results at his own discretion.
- 7.2. The Contract has been drawn up and signed in two (2) original copies, on 8 (eight) pages, both copies being of the same legal force. One copy of the Contract is kept by the Contracting Authority and one by the Contractor.
- 7.3. The Procurement Regulations, the Contractor's Tender and the three (3) Annexes to the Contract shall form an integral part of this Contract and are binding on the Parties during the performance of this Contract.

8. Details and Signatures of the Parties

The Contracting Authority:
APP Latvian Institute of Organic Synthesis
Reg. No. 90002111653
VAT Reg. No. LV90002111653
Aizkraukles iela 21,
Riga, LV-1006, Latvia
A/S SEB Banka
Code: UNLALV2X
Account: LV08UNLA0050005032194

Director of
Latvian Institute of Organic Synthesis:

Osvalds Pugovičs

Riga
18-04-2018

The Contractor
Tallinn University of Technology
74000323
VAT Reg. No. EE100224841
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Tallinn, 19086, Estonia
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Account: EE201010052037382001

Title:
Director of Department of Chemistry and
Biotechnology
Tallinn University of Technology

Ivar Järving

Riga
18-04-2018

**Annex 1 to
Contract No. 1 / OSI 2018/03 MI ERAF / 1.1.1.1/16/A/294**

TECHNICAL SPECIFICATION

- Main research tasks:
 - Determination of crystal structure and physico-chemical properties of metal-organic frameworks (MOFs) using single-crystal X-ray diffractometer with Cu source, which is more suited for crystallographic analysis of macromolecules with potentially larger crystallographic parameters (cell size volume at least 8000 Å³);
 - MOF stability testing in non-polar solvents via diffusion experiments (solvent exchange) and according assessment of potential changes within the crystal structure using single-crystal X-ray diffractometry (SCXRD).
 - Quantitative assessment of solvent exchange dynamics within the MOF's crystal structure using nuclear magnetic resonance (NMR) spectroscopy.
- In total 20 samples (MOFs) will need to be analyzed. A following workflow for each sample should be used:
 - characterization of the MOF using SCXRD;
 - selection of 20 to 100 individual single crystals for further examination/analysis;
 - administration of diffusion experiments using 1 to 3 different solvents;
 - Visual examination of single crystals and identification of successful diffusion experiments, in which MOF crystals have retained their form and appearance.
 - repeated characterization of MOF using SCXRD.
- Total time for diffusion experiment of single sample: not more than 1 week.
- For selected 4 best experiments, dynamics of the solvent exchange using NMR techniques will need to be assessed. Conditions of these experiments must ensure the structural integrity of MOF crystals and should be carried out in suspension of a deuterated solvent.
- Main expected results for each MOF sample:
 - results of SCXRD analysis – raw data and provision of solved (where applicable) crystal structure (.cif or equivalent file format; validated – contains no structure factor errors);
 - detailed description of diffusion experiments;

- results of NMR experiments in a form of detailed report (accompanied with NMR spectra);
- MOF single crystal samples (after successful diffusion experiments) need to be sent back to the Customer.
- Timeframe of the work: 12 months.
- Reports:
 - Intermediate report after 6 months.
 - Final report after 12 months.

Additional conditions.

1. Contracting Authority does ship samples to the place of analysis on its own expenses.

**Annex 2 to
Contract No. 1 / OSI 2018/03 MI ERAF / 1.1.1.1/16/A/294**

TECHNICAL PROPOSAL

**Annex 3 to
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FINANCIAL PROPOSAL