PURCHASE AGREEMENT

concluded in compliance with the provision of § 2079 and following of the Act no. 89/2012 Coll., Civil Code, as amended, on the below given day, month and year between

Scientific Volume Imaging BV
as Seller

and

Ústav molekulární genetiky AV ČR, v.v.i.
as Buyer

Contracting Parties:

Name (trading company): Scientific Volume Imaging
Company ID: RSIN: 803512831 / Commercial Register number: 32058526
Seat/Place of business: Hilversum, The Netherlands
Tax ID: NL813599519B01
Represented by: Hans van der Voort, PhD, Research & Development Manager

[redacted]

Registered in the Trade Register held by The Netherlands Chamber of Commerce
(hereinafter referred to as "**Seller**")

and

Name: **Ústav molekulární genetiky AV ČR, v.v.i.**
Company ID: 68378050
Tax ID: CZ68378050
Seat: Vídeňská 1083, 142 20 Prague 4
Represented by: RNDr. Petr Dráber, DrSc., Director
Registered in the Register of Public Research Institutes
(hereinafter referred to as "**Purchaser**")

(hereinafter referred to as "**Contracting Parties**")

have agreed in compliance with the provision of § 2079 and following, of the Act no. 89/2012 Coll., Civil Code, as amended, on the given day, month and year, and in compliance with the provisions stipulated in this

Purchase Agreement

Preamble

1. Contracting Parties unanimously declare that they are concluding this Agreement on the basis of the tender procedure in compliance with the rules stipulated for awarding public contracts.

2. The basis of this Agreement conclusion is the Provider's offer submitted on the basis of the Invitation to submit a tender offer namely within the public contract called Software Package for Server Deconvolution of Image. Contracting Parties agree that all the tender conditions stipulated within the above given public contract are part of this Agreement.

3. The Seller takes into account that with regard to the fact that the Buyer is a public institute managing public resources, the Seller is a person liable to collaborate on the performance of a financial control within the meaning of the Act no. 320/2001 Coll., on Financial Control in Public Administration and on the Amendment to some Acts (Act on Financial Control).

4. The Seller further declares that he is aware of the obligations and consequences resulting from the Act no. 340/2015 Coll., on the Register of Contracts, as amended, when the Buyer is a public research institute, and he hereby explicitly agrees with publishing of this Agreement in the Register of Contracts where for the purpose of publishing of the Agreement, the Contracting Parties do not consider anything from the content of this Agreement or metadata related to it excluded from publishing.

5. The Seller declares that he is not a VAT payer.

6. Contracting Parties declare that before concluding this Agreement, they properly met all the material conditions of the valid conclusion of this Agreement resulting from the valid legal regulations as well as from their valid internal regulations and further, they declare that the conclusion of this Agreement does not breach any of their legal or contractual obligations.

Article 1
Subject Matter of the Agreement

1. The subject matter of this Agreement is the obligation of the Seller to deliver and install for the Buyer a software package for "high-throughput" processing and restoration of image data through deconvolution and other algorithms, including a licence authorization related to it, where the performance is specified in details below in paragraph 2 of this article (hereinafter referred to as "Subject of Performance") and the Buyer undertakes to accept the Subject of Performance and pay the Seller a purchase price specified in article 2 of this Agreement.

2. The Seller declares that the Subject of Performance shows following functional and technical properties:

➢ "Compute engine" for image processing and deconvolution:

- Compatibility with operating systems Linux, Windows and MacOS which the Ordering Party is entitled to use due to relevant licences;
- Support of large multiprocessor servers - software must support at least 48 physical processing cores and 96 logical cores;
- Support of calculation with the use of graphical cards - the system must support at least 8 high-performance graphical cards with at least 8,000 calculation cores and 24 GB videoRAM;
- Support of file formats of the wide range of manufacturers of microscopic and standard file formats, however at least TIFF, OME XML, OME TIFF, multilayer TIFF, numbered series TIFF, BigTIFF, JPEG, Imaris Classic (IMS), ICS, ICS2, HDF5, Zeiss (ZVI, CZI, LSM), Leica (LIF, TIFF), Olympus (OIF, VSI, TIFF), Delta Vision (R3D, DV), Nikon (ND2), Metamorph (STK, ND);
- Possibility to save image data in different file formats, however at least HDF5, OME XML, OME TIFF, ICS, ICS2, TIFF, numbered series TIFF
- Possibility to process large image data up to the size of 1 TB;
- Interpreter of commands for direct input of commands with the use of the verified programming environment;
- A large set of specialized algorithms must be available for image data processing in the form of commands for direct processing or scripting. This set must contain at least following functions:
    - Commands for manipulation with image files and their saving;
    - A set of statistical functions enabling to extract from image data any statistical information either from the entire image or from the area of interest (ROI);
    - Commands for manipulation with image data - at least for their thresholding, cropping, resampling, zooming, rotating, shifting, mirroring, extracting any slice, channels or time points from image data, manipulation with image data geometry (X, Y, Z, C, T), joining images;
    - Creating different views of image data, including MIP and Sum projections namely from any perspective, and histograms creation;
    - Image data filters (Gauss, Laplace, Kuwahara, maximum, minimum, variance, percentile, median);
    - Automatic "baseline" adjustment;
    - Automatic correction of the background;
    - Automatic correction of illumination instability;
    - Automatic bleaching correction;
    - Chromatic aberration correction tools;
    - Automatic estimation of the ratio of signal to noise;
    - Crosstalk correction tools;

- Fast Fourier transformation of image data;
- Algorithms of theoretical PSF generation and tools for the extraction of PSF optical system from measured image data of fluorescent beads;
- Depth-dependent PSF with a correction of spherical aberration;
- Function for the automatic correction of instability scanning in the axis Z and Z-drift over time;
- Automatic 5D image stabilization;
- Different deconvolution algorithms, - at least "classic maximum likelihood estimation", "quick maximum likelihood estimation", "Good's roughness maximum likelihood estimation"

- Tools for image deconvolution enabling the fully automatic course of the entire process of image data deconvolution;
- Deconvolution algorithms must enable deconvolution of data obtained in pass-through light, wide field, one and two photon confocal data, "spinning disc" confocal data, STED and SPIM/Light Sheet of microscopic data;
- Deconvolution algorithms must enable using of theoretical and measured PSF for calculations;
- Deconvolution algorithms must support deconvolution of multichannel time-lapse image data;

➢ Web-based interface for deconvolution tasks configuration

- Multi-user web-based interface for remote access to the image processing server; no need for the installation of any other specialized software on the client's station;
- Support of directory services (LDAP which is owned and used by the Ordering Party);
- Loading of data files from the central data storage or upload of image files to the processing server from the network;
- Support of the exchange of image data between web interface and servers using OMERO technology which is owned by the Ordering Party;
- Selection and performance of operations with one or more files - both file operations and image data processing operations;
- Preview of image data directly in web interface;
- Tools of the configuration of tasks used for image data processing which can be then integrated into the queue of the compute engine to be processed later;
- Importing, creating, editing, copying, sharing and saving templates of microscopic data parameters for repeated application to image data. Templates must enable at least following parameters: a number of channels, microscope type, numerical aperture of the objective, excitation and emission wave lengths, refractive index of immersion used, voxel size, time-lapse step, aperture diameter;

- Importing, creating, editing, copying, sharing and saving of templates of planned deconvolution parameters for repeated processing of image data by deconvolution algorithms. Templates must enable at least following parameters: type of deconvolution algorithm (CMLE, QMLE, GMLE), the value of use of the automatic estimation of the ratio of signal to noise for each channel, the value or use of automatic calculation of image background using at least two different algorithms, selection of theoretical or measured PSF, stopping criteria - quality change value and number of interactions;
- Tools of templates administration and share - the system must enable shared templates as well as the templates for individual users only;
- Tools for users administration, adding, removing users and tracking of the usage;
- Views of results of image data deconvolution directly in web interface;
- The application must enable the configuration of fully automatic deconvolution tasks and automatic estimation of the ratio of signal to noise, so the entire process of image deconvolution can be performed without the special knowledge of a user.

The Subject of Performance is specified in details in **Appendix no. 1** to this Agreement which is called "Table of Technical Parameters".

3. The Subject of Performance according to this Agreement is as follows:
   - Delivery of the Subject of Performance and its installation in the place of performance;
   - Putting software into operation;
   - Initial training of workers in operating the delivered subject to the necessary extent by a qualified worker;
   - Providing full support and free updating of software for the entire period of guarantee;
   - Guarantee of at least two software updates on an annual basis;
   - Handing over all documentation, including the manual in Czech or English language;
   - Free access of the Buyer to all supporting and education materials or videos, documentation and knowledge data basis which the Seller produces and maintains;
   - Direct negotiation with the department of technical and application support of the Seller for the minimum of two assigned workers of the Buyer;
   - Possibility of a video conference with application specialists of the Seller for the two assigned workers of the Buyer;
   - Possibility to participate in dedicated meetings with software users (users group meeting) at least once every two years, if such meetings take place;
   - Guarantee of a support of software equipment and its update at least for a period of 10 years from the Subject of Performance delivery.

Article 2
Purchase Price

1. Contracting Parties have agreed that the purchase price for the transfer of the proprietary rights to the Subject of Performance specified in Article 1 of this Agreement (i.e. for the properly delivered and functional software package for "high-throughput" processing and restoration of microscopic image data by deconvolution and other algorithms) amounts to:

   Total price excl. VAT: **878,885 CZK (*eight hundred seventy eight thousand eight hundred and eighty five Czech crowns)***
   VAT 21 % not applicable CZK
   Total price incl. VAT: not applicable **CZK**
   (hereinafter referred to as "**Purchase Price**")

2. The amount of the Purchase Price cannot be fundamentally exceeded. It is possible to exceed the Purchase Price only in case when there occur VAT rate changes in the course of the performance of the subject of this Agreement.

3. Purchase Price includes all works and deliveries necessary for the proper performance of the subject matter of this Agreement, all costs related to the complete delivery and proper putting of the Subject of Performance into operation and costs of transport to the place of performance as well as all other costs related to the Subject of Performance and related activities according to the article 1 par. 2 of the Agreement.

4. The Purchase Agreement also includes free support and update of software during the guarantee period which is specified in article 5 of this Agreement. The guarantee period starts running from the day of the proper handover of the subject of performance without any defects or backlogs of work and after putting the Subject of Performance into operation.

Article 3
Maturity of the Purchase Price

1. Contracting Parties have agreed that the total Purchase Price will be paid after the proper handover of the Subject of Performance (i.e. without any defects and backlogs) and putting the subject matter of the Agreement into operation in the place of performance given in article 4 par. 2 of this Agreement. A written handover certificate will be made about the proper handover of the Subject of Performance signed by both Contracting Parties.

2. The Buyer undertakes to pay the Purchase Price on the basis of an invoice issued by the Seller which will be agreed by the Buyer in advance and will be payable within 30 days from its issue. For the purpose of this Agreement, the invoice is considered paid at the moment of writing off the particular amount from the Buyer's account. The objection to data given in the invoice might be applied by the Buyer by the end of its maturity date on condition that he will send it to the Seller and will state his reservations. At the moment of sending reservations, the maturity period is suspended.

3. The invoice must meet all requisites of a tax document according to the Act no. 563/1991 Coll., on Accounting, as amended, and the Act no. 235/2004 Coll., on Value Added Tax, as amended, and also all requisites required by the Rules for an Applicant and Recipient of the Operational Programme Research, Development and Education.

4. If the invoice does not contain some of mandatory or agreed requisites or the price or VAT is incorrectly billed, the Ordering Party is entitled to return the invoice to the other Contracting Party before the term of payment expires to be corrected and he also must give the reason of returning it. The Provider will make the correction through the issue of a new invoice. On the date of sending the incorrect invoice to the Provider, the term of payment is suspended and the new term of payment starts running at the moment of the delivery of a new invoice to the Ordering Party.

Article 4
Period and Place of Performance

1. The Seller undertakes to deliver and put the Subject of Performance into operation within four (4) weeks from the effective date of this Agreement. The exact date of delivery will be made through the phone agreement or via e-mail correspondence between the Seller and Buyer well in advance, however at the minimum of 5 working days before the planned delivery.

2. The place of delivery of the subject of performance is the place of business of the Buyer in Vídeňská 1083, 142 20 Prague 4.

Article 5
Guarantee Period, Guarantee and Post-Warranty Services

1. The Seller undertakes to provide the subject matter of the Agreement (i.e. the Subject of Performance) with the guarantee of twenty four (24) months from the date of the handover certificate signature.

2. The Seller also undertakes that he will repair a defect of the Subject of Performance not later than within 72 hours from reporting a defect and will remove the reported defect as soon as possible with regard to the nature of the defect, however, not later than within 5 working days from reporting it, unless the Contracting Parties agree otherwise in writing. The period for removal of the defect starts running from the moment of reporting it by the Buyer to the Seller. The Buyer is entitled to report the defect during working days from 8 a.m. to 4 p.m., namely to some of the following contacts:

   - Phone: +31 (0)35 642 1626
   - E-mail: support@svi.nl

   or in writing to the Seller's address given in the heading of this Agreement.

   In case of changes of contact data the Seller is obliged to inform the Buyer about this change namely within 3 days from the date of such change. According to this paragraph the change of contacts is not the change of the Agreement, so it is not necessary to conclude between the Contracting Parties an amendment about this change.

3. The Seller undertakes to send the confirmation of service intervention to the Buyer not later than the following day after reporting the defect through e-mail or phone and give the time of service intervention which must not exceed the period given in par. 2 of this article of the Agreement.

4. The Seller guarantees the availability of software support to the Buyer for the period of at least 10 years from the day of handing over the Subject of Performance.

3. The Seller undertakes to provide the Buyer with service support, namely for free within the quality guarantee for the period according to par. 1 of this article of the Agreement.

Article 6
Gaining the Proprietary Right and the Way of Handing Over the Subject Matter of the Agreement

1. The Buyer becomes an owner of the Subject of Performance by handing it over. On this date, all uses, dangers and obligations will pass over to the Buyer as well as the rights related to the ownership of the Subject of Performance.

2. Together with the Subject of Performance, the Seller will hand over to the Buyer all documents needed for the handover and use of the subject.

Article 7
Termination of the Agreement

1. This Agreement expires:
   - By meeting the obligation resulting from the Agreement,
   - By the agreement of the Contracting Parties,
   - When one of the Contracting Parties withdraws from the Agreement.

2. The Seller takes into consideration that the Subject of Performance according to this Agreement is financed from the Operational Programme Research, Development and Education (hereinafter referred to as "OP VVV") within the project Modernization and Support of Research Activities of National Infrastructure for Biological and Medical Imaging Czech-BioImaging CZ.02.1.01/0.0/0.0/16_013/0001775. With respect to the above given source of financing, the Buyer is entitled to withdraw from this Agreement at any time, namely in case when the costs which could result from this Agreement will be designated by the control body of OP VVV as unqualified .

Article 8
Contractual Fines

1. In case of breaching the obligations of the Seller consisting in the delay in delivery and putting the Subject of Performance into operation as specified in article 4 par. 1 of this Agreement, the Seller is obliged to pay the Buyer a contractual fine amounting to 0.05% of the Purchase Price for each day of delay in its delivery and putting into operation.

2. In case of delay in the payment of Purchase Price the Buyer is obliged to pay

the Seller a contractual fine amounting to 0.05% of the amount owed for each day of delay.

3. According to this Agreement, contractual fines are due within 3 days from the delivery of the call of the entitled Contracting Party for its payment to the liable party and will be paid by credit transfer to the bank account of the entitled party given in the call in question. The claim to the payment of the contractual fine according to this Agreement does not affect the right to the compensation of damage caused by breaching the obligations of the relevant Contracting Party and this compensation is paid fully irrespective of the amount of the contractual fine.

Article 9
Claims on Responsibility for Defect of the Subject of Performance

1. Contracting Parties agree that their rights and obligations resulting from the responsibility for defects of performance are governed by the relevant provisions of the Civil Code.

2. Where the Act allows the option of a claim, the choice always depends on the Buyer.

Article 10
Validity and Effectiveness of the Agreement, Final Provisions

1. This Agreement comes into force by the signature of the Contracting Parties or in case of not being signed between the present persons, then on the date of the Agreement delivery to the last of the Contracting Parties to the other Contracting Party. This Agreement takes effect on the date of its publishing in the Register of Contracts. The Contracting Parties have agreed that the publication of this Agreement in the Register of Contracts will be provided by the Buyer namely within five working days from concluding the Agreement.

2. All notification made on the basis of this Agreement will be made in the written form (with the exceptions explicitly given in this Agreement) and will be delivered to the below given addresses via recorded delivery or by a courier with the delivery fees paid in advance and will be considered delivered at the moment of their acceptance by the Party to which they are sent to the address given below:

   (a) As for the Seller, delivery address is as follows:

Scientific Volume Imaging BV
Laapersveld 63, 1213VB, Hilversum, The Netherlands

(b) As for the Buyer, delivery address is as follows:
Ústav molekulární genetiky AV ČR, v. v. i.
Vídeňská 1083, 142 20 Prague 4

3. This Agreement will be governed and interpreted according to the legal order of the Czech Republic, mainly according to the relevant provisions of the Act no. 89/2012 Coll., Civil Code, as amended, and other affected generally binding legal regulations.

4. The integral part of this Agreement is the following Appendix:

   - Appendix no. 1 - Table of Technical Parameters

5. Offset of receivables resulting from this Agreement or in relation to it is not admitted.

6. Contracting Parties agree that the rights and obligations of this Agreement or the Agreement on its whole cannot be assigned to the third person without the prior written consent of the other Contracting Party. E-mail correspondence is not considered the written form.

7. This Agreement is made in 2 counterparts in Czech language having the validity of the original. The Seller and Buyer will receive one copy each.

8. After reading this Purchase Agreement, the Contracting Parties confirm that its content, obligations, statements, rights and commitments correspond to their right, true and free will and that the Agreement was concluded after mutual agreement.

In Hilversum, The Netherlands on November 29, 2017

In Prague on 27. 12. 2017

[redacted]

Hans van der Voort, PhD. Research & Development Manager

RNDr. Petr Dráber, DrSc., Director

Seller *Buyer*

Appendix no. 3 to Tender Documentation
Appendix no. 1 to the Agreement

Table of Technical Parameters

„Software Package for Server Deconvolution of Image"

The subject of performance of the public contract is the delivery and installation of the modular software package for "high-throughput" processing and restoration of microscopic image data using deconvolution and other algorithms.

The Supplier Scientific Volume Imaging BV declares up on his honour that the offered subject of performance is of technical properties and meets technical parameters given in article 1 of the Agreement and article 3.5 of tender documentation of the public contract called "Software Package for Server Deconvolution of Image", and specifies below the technical parameters of the subject of performance offered:

Technical parameters of softare package for server deconvolution of image:

"Compute engine" for processing and deconvolution of image:

Parameter description:	**Meeting parameter**	**Parameter value with the subject of performance offered by a participant:**
Compatibility with Linux, Windows a MacOS operating systems	YES	X
Support of large multi-processor servers - software must support at least 48 CPU cores and 96 logical CPU cores	YES	Number of supported physical processor cores: 48 Number of supported logical cores: 96
Support of computation with the use of GPU cards - the system must support at least 8 large GPU cards with at least 8,000 computing cores and at least 24 GB videoRAM	YES	Number of supported graphical cards: 8 Number of supported computing cores on each card: 8,192 Maximum size of videoRAM memory supported on each card: 24Gb
Support of image file formats of the wide range of producers of microscopic and software equipment and other standard image file formats - at least TIFF, OME XML, OME TIFF, vice vrstvý TIFF, numbered TIFF series, BigTIFF, JPEG, Imaris Classic (IMS), ICS, ICS2, HDF5, Zeiss (ZVI,	YES	X

CZI, LSM), Leica (LIF, TIFF), Olympus (OIF, VSI, TIFF), Delta Vision (R3D, DV), Nikon (ND2), Metamorph (STK, ND) ;		
Possibility to save image data in different file formats - at least HDF5, OME XML, OME TIFF, ICS, ICS2, TIFF, numbered TIFF series	YES	
The system must be capable to handle large image data up to 1TB	YES	Image data processing up to the size of: 1TB
Interpreter of commands for direct input of commands with the use of verified programming environment;	YES	X
A large set of specialized image processing operations must be available as commands for direct input or scripting. The minimum set of operations must include at least following functions:	YES	X
• Commands for manipulation of image files and their saving	YES	X
• A set of statistical functions enabling the extraction of any statistical information from image data - from the entire image or ROI	YES	X
• Commands for image manipulation, including thresholding, cropping, resampling, zooming, rotating, shifting, mirroring, extracting any slice, channel or time point for image data, manipulating of image data geometry (X, Y, Z, C, T), joining image data	YES	X
• Creating various views of image data, including MIP and Sum projections from any perspective and histograms creation	YES	X
• Image data filters (Gauss, Laplace, Kuwahara, maximum, minimum, variance, percentile, median)	YES	X
• Automatic "baseline" adjustment	YES	X
• Automatic background correction	YES	X
• Automatic correction of	YES	X

illumination instability		
• Automatic bleaching effects correction	YES	X
• Chromatic aberration correction tools	YES	X
• Automatic estimation of the ration of signal to noise	YES	X
• Cross talk correction	YES	X
• Fast Furier transformation of image data	YES	X
• Algorithms for calculation of theoretical PSF and tools for the extraction of PSF optical system from measured image data of fluorescent beads	YES	X
• Depth-dependent PSF with spherical aberration correction	YES	X
• Automatic correction of instability scanning in the axis Z and Z-drift over time	YES	X
• Automatic 5D stabilization	YES	X
• Various deconvolution algorithms - at least "classic maximum likelihood estimation", "quick maximum likelihood estimation", "Good's roughness maximum likelihood estimation"	YES	X
Fully automated processes for image deconvolution so that complete deconvolution workflow can be done fully automatically	YES	X
deconvolution algorithms must enable deconvolution of data gained in pass-through light, wide field, one and two confocal data, "spinning disc" of confocal data, STED and SPIM/Light Sheet of microscopic data	YES	X
Deconvolution algorithms must enable to use theoretical and measured PSF for calculations	YES	X
Deconvolution algorithms must support deconvolution of multichannel time-lapse image data	YES	X

Web-based interface for deconvolution tasks configuration:

Multi-user web-based solution for remote access to the image processing server without using the installation of any other specialized software on the client's workstation	YES	X
Support of directory services (LDAP)	YES	X
Loading of data files from the central storage location or uploading of image files to the processing server from the network	YES	X
Support of image data exchange between web-based interface and the servers using OMERO technology	YES	X
Selection and performance of operation with one or more files - both file operations and image data processing operations	YES	X
View of image data directly from web-based interface	YES	X
Tools of the configuration of tasks used for image data processing which can be integrated into a queue of the compute engine to be processed later	YES	X
Importing, creating, editing, copying, sharing and saving of image microscopic parameters templates. Templates must include at least following parameters: a number of channels, microscope type, numerical aperture of the objective, excitation/emission wavelength, refractive index of immersion used, voxel size, time-laps step, aperture diameter	YES	X
Importing, creating, editing, copying, sharing and saving of planned deconvolution templates for repeated processing of image data by deconvolution algorithms. Templates must enable at least following parameters: selection of deconvolution algorithm (CMLE, QMLE, GMLE), value or use of the	YES	X

automatic estimation of the ratio of signal to noise for each channel, value or use of the automatic calculation of images background using at least two different algorithms, selection of theoretical or measured PSF, stopping criteria - quality change value and number of iterations		
Tools of administrations and share of templates - the system must enable to share templates as well as the templates for individual users only	YES	X
Tools for user management, adding, deleting users and tracking of the usage	YES	X
Preview of the results of image data deconvolution directly in the web interface	YES	X
The application must enable fully automatic deconvolution tasks and the automatic estimation of the ratio of signal to noise so the entire process of image deconvolution can be carried out without the special knowledge of a user	YES	X

The Ordering Party advises the participants that in case that the offered performance does not meet the technical properties and technical parameters (i.e. a participant will tick "NO" in the table given above in his choice YES/NO) given above by the Ordering Party, the offer does not meet tender conditions and the requirements of the Ordering Party, and such offer will be excluded.

In Hilversum, The Netherlands on November 29, 2017	
	Maker of the Huygens So [redacted]