



All India Institute of Medical Sciences Jodhpur

Admn/Prop/93/2021-AIIMS.JDH

Dated: - 24th January 2022.

Subject: Purchase of Upgradation of Existing Motorized Olympus BX63 Microscope to Imaging & Analysis for Cytogenetics-Karyotyping and FISH Assays for the Department of Pediatrics at AIIMS, Jodhpur on proprietary basis - **Inviting comments thereon.**

The Institute is in the purchase of Upgradation of Existing Motorized Olympus BX63 Microscope to Imaging & Analysis for Cytogenetics-Karyotyping and FISH Assays for the Department of Pediatrics at AIIMS, Jodhpur from M/s Applied Spectral Imaging Ltd, Yokneam High-Tech Park, Alon Building, Entrance B, 2 HaCarmel St., Yokneam 2069204, Israel on proprietary basis. The proposal submitted by M/s Applied Spectral Imaging Ltd, Israel and PAC certification by user are attached.

The above documents are being uploaded for open information to submit objection, comments, if any from any manufacturer regarding proprietary nature of the equipment giving reference Admn/Prop/93/2021-AIIMS.JDH. The comments should be received by office of Deputy Director (Admin), Medical College at AIIMS, Jodhpur on or before 14th February 2022 upto 03:00 PM failing which it will be presumed that any other vendor is having no comment to offer and case will be decided on merits.

Yours faithfully,

Deputy Director (Admin)

Enclosed: Related documents enclosed.



11 January 2022

To:
The Dean Research,
All Indian Institute of Medical Sciences,
Jodhpur, Rajasthan

PROPRIETARY ARTICLE CERTIFICATE

We, Applied Spectral Imaging (ASI) having our registered office at Yokneam High- Tech Park, Alon Building, Entrance B, 2 HaCarmel St., Yokneam- 2069204, Israel, who are established and reputable manufacturers of Cytogenetic & Pathology solutions, hereby declare that the Upgradation of existing Imaging & Analysis system for Karyotyping & FISH Assays quoted by our Indian distributor M/s. DSS IMAGETECH PVT LTD through their quotation No. DSS/DL/PK/AIIMSJRSI/2021 Dated 23-11-2021 is manufactured by ASI and is the proprietary items of ASI. We are the sole manufacturer of these items mentioned in quotation No. DSS/DL/PK/AIIMSJRSI/2021 Dated 23-11-2021 .

Some of our proprietary features are as follows:

1. Single database for all applications – Case Data Manager (ASI)
2. User notification of the next “To Do” item according to roles & permissions.
3. Single database supporting multi-site installations without the need to transfer data between workstations.
4. Ability for multiple users to perform analysis on individual images within the same case simultaneously, for faster analysis of an urgent case.
5. Import and analyse metaphase images captured by third party system in standard image formats – TIFF or JPEG.
6. Single click access to a customizable set of reference websites from the karyotyping application.
7. Indexing on the metaphase image with the ability to associate a “?” or text with a chromosome for visual awareness within the image with automatic display in ISCN format within the results.
8. Automatic ISCN - embedded abnormality text.
9. Automatic measurement of band resolution.
10. Proprietary sophisticated AI-based algorithms for chromosome segmentation and classification for automatic karyotyping allowing the user to save hours of work and reduce the number of manual operations per cell.
11. Ability to perform chromosome segmentation operations within a single tool without additional key board strokes or mouse clicks to switch to a different tool function, with more than 10 different operations.
12. System can automatically present a single karyotype of multiple patients (like family members) with all chromosomes included side by side for each class.

Applied Spectral Imaging Ltd.

Yokneam High-Tech Park, Alon Building, Entrance B, 2 HaCarmel St., Yokneam 2069204, Israel

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All India Institute of Medical Sciences Jodhpur



13. Ability to perform a Multi-Case Chromosome Compare by allowing user to simultaneous review (side by side) chromosomes from multiple related cases within a single view.
14. Ability to define a karyotype with all chromosomes of multiple family members
15. Case Report summarizing karyotype of all cell's aberrations for immediate view of clones and common aberration
16. User can track and mark the chromosomes overlapping p/q arms and the centromere
17. Ability to view absolute value of signals intensity on FISH slides
18. Digital Manual Counting Utility – to replace mechanical counters in the lab. Integrated with powerful bioinformatics tool to score the observed signals.

No company other than ASI is manufacturing and supplying the same software with identical specifications. Certified further that no substitute make will serve the purpose and also that no other manufacturer can copy or produce these items in part or total.

Your Sincerely,

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Chief Executive Officer

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Technical Specifications

Upgradation of Existing Motorised Olympus BX63 Microscope to Imaging & Analysis for Cytogenetics- Karyotyping and FISH Assays.

System Requirements –

CAMERA:

- Monochrome.
- Resolution: 5 MP.
- Resolution (HxV) – 2448px X 2048px.
- Sensor Type: CMOS.
- Frame Rate: 35fps.
- Pixel bit depth: 12-bit .
- Pixel Size (HxV): 3.45µm X 3.45µm.
- Shutter: Global shutter.
- Interface: USB 3.0.

DATABASE:

- Single database for all applications.
- Modern paperless laboratory design management software.
- View full-case summary status from the database management station.
- Workflow oriented database user interface, includes all the information about the patient demographics, images, results, etc.
- Microsoft SQL server based database for maximum security and scalability.
- All images stored should be of conventional format: jpg or tiff.
- The database should manage all patient / sample demographics as well as images for all sample types analyzed.
- Better control on flow and data protection by temporal lock of data as needed.
- Ability to assign levels of security for user access.
- Ability to assign advanced roles & permissions management.
- User notification of the next “To Do” item according to roles & permissions.
- Case attachments – ability to scan patient info, document, images and incorporate into case view.
- Combined gallery view of all image types capture for a case, giving the user the ability to choose multiple images side by side viewing.
- Search mechanism by any case or slide field or combination of any fields even when archived.
- The ability to meet or exceed the HIPAA compliant security standards for protecting data information.

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- Audit trails and logging is required for case/image status modification.
- Audit data must be viewable through the user interface by an administrator with appropriate security permissions.
- Automated data maintenance.
- Automatic archiving of completed cases and based on user defined rules.
- Single click retrieval of archived cases.
- Single database can support multi-site installations without the need to transfer data between workstations.
- System should have open interface for LIS, implemented worldwide with various LIS systems.
- Ability to import/export patient demographic data from/to hospital LIS system.
- Automatic Import of patient information and test protocol from LIS.
- Automatic export of results, images and reports to LIS.
- Digital Chromosome overlap report.
- Case Report summarizing karyotype of all cells aberrations for immediate view of clones and common aberration.
- Ability to perform special reports to include chromosomes from multiple cases, normal and aberrant ideograms and annotations.
- Ability to create a report hiding the sex chromosomes (for pre-natal tests).
- Obtain statistics across any subset of cases according to desired parameters.
- Ability to create, view and save customizable summary reports for case statistics per sample type, period of interest (day/week/month/quarter) and more, for CAP Guidance compliant reporting.
- Ability to create, view and save customizable turnaround time reports per sample type, period of interest (day/week/month/quarter) and compare performance year on year to make data driven decisions.
- Summarize case results - normal, abnormal, failed - and review per specimen type.
- Ability to create, view and save customizable slides statistics reports.
- Ability to create, view and save customizable staff productivity reports per sample type, period of interest (day/week/month/quarter) and more.

KARYOTYPING:

Metaphase Image Acquisition:

- Capturing by one mouse click and the whole process is performed under the same software platform.
- Adjustable region of Interest in acquisition.
- Graphic user interface of cell location on a slide-like viewer.
- Merge as many regions or chromosomes as required - with automatic detection of chromosome contours to be added.
- Option to auto-merge floater chromosomes in a single click.
- Gallery of recently acquired metaphases available within the capture/ application

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window.

- Ability to customize workspace.
- Automatic image enhancement.

Chromosome Analysis and Karyotyping:

- Ability for multiple users to perform analysis on individual images within the same case simultaneously, for faster analysis of an urgent case.
- Import and analyze metaphase images captured by third party system in standard image formats.
- Artificial Intelligence based algorithms for classification of each chromosome and arrangement in the karyogram per laboratory samples.
- Metaphase must be segmented and karyotyped automatically along the scanning/capture process.
- Auto Karyotyping is performed as part of scanning/100x capture.
- Advanced automatic segmentation of touching and overlapping chromosomes.
- Automatic threshold to separate between background and chromosomes.
- Single click access to customizable set of reference websites from the karyotyping application.
- Ability to handle G-,R-,Q- banding, polyploid cells and markers.
- Drag and Drop Chromosomes in karyotype: The entire chromosome should be seen (with all its gray values) while dragged into Karyotype (not just the contour), in order to enable comparing bands even before released in a new location.
- Expand or shrink specific chromosome boundaries by keyboard short key.
- Ability to perform chromosome segmentation operations within a single tool without additional key board strokes or mouse clicks to switch to a different tool function, with more than 10 different operations.
- Join objects into one chromosome.
- Separation of complex chromosome clusters using brush tool.
- All contour editing and segmentation operations, including addition of missing telomere regions, can be done within the karyotype window.
- Automatic separation of touching chromosomes without user interaction.
- Enhancement tools (sharpening, contrast, staining etc.) are available using sliders in all analysis steps.
- Automatic counting of chromosomes with minimal adjustment to complete full chromosome count.
- Incorporate the sex chromosomes within the count tool for a display of both the model number and sex.
- User can perform indexing on the metaphase image with the ability to associate a "?" or text with a chromosome for visual awareness within the image with automatic display in ISCN format within the results.
- Keyboard short keys for indexing.
- Mark and count the overlapped chromosomes automatically.

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- User can track and mark the chromosomes overlapping p/q arms.
- Free text annotation, and markups, with different colors and shapes can be added to metaphase, karyogram images and ideograms.
- Ability to localise Marker Chromosomes in Karyotype view.
- System can automatically present a single karyotype of multiple patients (like family members) with all chromosomes included side by side for each class.
- Karyotype arrangement is adjusted automatically based on content of chromosomes, even if chromosome size is larger than standard size of the group or 10 or more chromosome are in the same class.
- Drag to re-classify chromosomes from one class to the other.
- Ability to perform a Chromosome Compare by allowing user to simultaneous review (side by side) chromosomes from either all Karyotyped cells of the case and from selected Karyotyped cells of the case. Minimal need to show chromosomes from 20 cells simultaneously.
- Ability to perform a Multi-Case Chromosome Compare by allowing user to simultaneous review (side by side) chromosomes from multiple related cases within a single view. Minimal need to show 2 to 6 cases side by side simultaneously.
- Ability to define a karyotype with all chromosomes of multiple family members.
- Ability to prepare the customised ideograms.
- Support ISCN formats for 300, 400, 550, 700 and 850 -band levels of resolution.
- Automatic ISCN - embedded abnormality text.
- Automatic measurement of band resolution.
- Direct connectivity to Internet sites for immediate reference of relevant aberrations.

FLUORESCENCE IN-SITU HYBRIDIZATION (FISH):

Manual FISH Image Acquisition:

- Adjustable region of Interest in acquisition.
- Ability to Z-Stack on manual microscopes.
- Ability to control contrast locally per each region/cell/chromosome in the image.
- Multiple user-defined auto contrast schemes.
- Immediate true color image display.
- Support process of capture, automated cells detection and auto cells segmentation (based on signal-pattern) on fully manual fluorescent microscope.

Manual FISH Analysis:

- Ability to perform chromosome segmentation operations within a single tool without additional key board strokes to switch to a different tool function (more than 10 different operations).
- Full Karyotyping capabilities within the basic FISH module.
- Distance and area measurement functions.

Dr. Raj Khurana *A-K*



- Ability to view absolute value of signals intensity.
- One click enables writing multi-lines with multiple colors to describe the probe.
- Digital Manual Counting Utility – to replace mechanical counters in the lab.
- Integrated with powerful bioinformatics tool to score the observed signals.
- Ability to instantly review all cells that had a manual scoring change.

COMPUTER:

- OS Windows 10 Professional 64 BitENG.
- Processor Intel Core i5-4570 (Quad Core 3.2GHz, 6MB Cache).
- RAM 8GB 1600MHz DDR3 Non-ECC.
- Hard drive 500 GB 7200 RPM.
- Storage 2TB 7200RPM.

COLOUR MONITOR:

- Widescreen 2560 x 1440 resolution.
- Aspect ratio 16:9.
- 25" Monitor or higher.

QUALITY | STANDARDS:

- CE and FDA Certified for Microscope.
- CE and FDA Certified for Karyotyping Imaging and Analysis.
- CE and FDA Certified for FISH Imaging and Analysis.
- All the modules of s/w should be from same vendor and should be incorporated into the database.
- The Software should have interface to control the Motorized components of the Existing Olympus BX63 Microscope.
- The Supplier has to give the Services & maintain spares of both Olympus BX63 Microscope & the Software Modules during the warranty Period.
- Supplier should train the Technical staff for the complete system (Microscope & Software)

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