

Specification for Automatic Plate replicator	Criteria Matching(Yes/No)	Remarks
Make and Model		
Detection and Imaging		
Must result in the automatic detection of colonies of a variety of algal, yeast, filamentous fungi and bacterial organisms		
Must include built-in colour imaging with a camera resolution greater than or equal to 5MP and (2448 x 2048) Resolution		
Must include a minimum of 6 lighting channels which allows for fluorescence Imaging across visible and UV spectrum to detect fluorophores including GFP, mCherry and BFP		
Must allow for manual selection/deselection of colonies after detection		
Picking/Pinning		
Must be able to pick from and to liquid and solid agar plates		
Must use non-metallic disposable picking surface to prevent cross-contamination of colonies and requirements for washing steps		
Must be able to automatically pick algae, yeast, filamentous fungi and bacteria colonies single-use without having to change the picking head. Must not require organism specific pin heads to achieve over 95% transfer rates when working with diverse environmental samples/isolates for microbiome studies.		
Must not require sterilisation setup procedures during picking & pinning steps		
Automatic contact pressure regulation for every pin to pin from and pin to uneven agar surfaces		
Auto Off-Set Function: When a single colony is going to be picked multiple times, this functionality must allow the picking head to automatically pick at different locations of the colony. This ensures even and consistent transfer of cells multiple times from the same source colony.		
Streaking Function: functionality that allows to streak samples onto an agar plate from liquid or agar sources, allowing the isolation of single colonies and CFUs. The length and shape of the streak should be customised to fit specific demands.		
Peak pinning capacity >800,000 picks per hour for high-throughput library screening/generation/replication		

High Precision Plate Grabbing Technology; The instrument must use 3-legged plate grabbing technology for plate positioning against 3 location pins, ensuring the position error rate is less than 2 µm. This instrument should be able to do the pinning of as many as 24,500 colonies on a single SBS plate.		
Wet Mix Functions: Re-suspension of cells in the liquid culture of the source plate ensuring homogeneous distribution of the cells, and Efficient deposition of the cells in the target plate. Both purposes should ensure that the cells are evenly and consistently transferred from and to any liquid culture.		
Compatible with standard multiwell, SBS and deep well plates in the following configurations:		
1. Automatic replica pinning of yeast and/or bacterial cells from agar to agar in a 96, 384, 1536 and 6144 density format.		
2. Automatic replica pinning of yeast and/or bacterial cells from agar in a 96, 384, 1536 and 6144 density format to liquid in a 96 well and 384 well format.		
3. Automatic replica pinning of yeast and/or bacterial cells from liquid in a 96 and 384 well format to agar in 96, 384, 1536 and 6144 density format.		
4. Automatic replica pinning of yeast and/or bacterial cells from liquid to liquid in a 96 well and 384 well format.		
5. Automatic dilution of microbial cell cultures into single colonies on agar in a 96 well format		
6. Automatic rearrangement of cells from one density format into another on agar.		
7. Automatic mating by replica pinning from multiple source plates. Agar to agar in a 96, 384, 1536 and 6144 density format.		
8. Robotic pin head that allows multiple replications from a single source plate.		
9. Robotic pin head allowing user defined pinning pressures to be applied.		
10. Must be compatible with SBS-format plates including Nunc Omnitray, 6, 12, 24, 48, and 96 multiwell plates, 9 cm petri dish, 15 cm petri dish, 6, 12, 24, 48, 96 deep multiwell plates, PCR plates ; must have the capability to pin samples to MALDI TOF plates		
Pinning Speed, Accuracy & Capacity		
Instrument should be able to accomplish > 800,000 picks per hour		
Instrument should be able to replicate a 6144 density plate under 30 seconds		

Instrument should be able to perform over 30,000 picks and pins without having to undergo sterilisation steps or change pin heads or pin filament		
This instrument should be able to do the pin upto 24,500 colonies on a single SBS plate.		
Instrument should apply less than 7 g/mm ² (avgd.) contact pressure while picking from agar surface to not cause cell splashing		
Instrument should have ultrasonic agar surface detection and picking should be accurate to 50 microns		
Transfer Rates		
Must have proven higher than >99.5% picking transfer efficiency across E. coli & Yeast		
Must have proven higher than 95% picking transfer efficiency across filamentous fungi and algae		
Sterility & Contamination		
Must have a proven negligible risk of cell splashing and cross-contamination (< 0.05%)		
Must not require ethanol based washing system/steps (ethanol is poisonous to some algae and E. coli) and thermal drying/sterilisation steps		
Must include end to end UV sterilisation both when working standalone and when working as a part of a robotic arm assisted workcell		
Software, Usability & Integration		
Software with pre-programmed plating schemes included.		
Intuitive and easy to use user interface where 90% all functionality can be learned in < 10 minutes therefore no need for specialised technicians to run protocols		
Wi-fi and ethernet compatible		
2x USB ports		
Must have a special mode for creation and execution of custom protocols, preferably through a CSV format (via Microsoft Excel or similar software)		
Should be compatible with robotic arms through API		
Output report should be also available .CSV file export containing phenotypic data for each colony with original and annotated plate images for complete data traceability.		
Service & Support		
Technical support to be provided via in-person visits, phone and email		
Should provide customer testimonials on customer experience and support		
Should have a Net Promoter Score world class rating of >70		
Technical support by engineers aim to reply to all queries within 24 hours.		
Citations		

Demonstrated use shown in multiple publications for bacterial and yeast work.		
Computer and UPS		
High End Computer with 2 TB Hard Disc, 8GB Ram ore More		
5Kva UPS for uninterrupted operation		
Company must provide a compliance statement supported by technical literature and website.		
Authorisation certificate from the OEM must be included in the technical bid		
Unpacking and shifting of the instrument to BSL3 first floor including manpower , crane/fork lift during installation must be in the vendor scope. Site visit is mandatory before submitting quote.		
Site visit certificate to be enclosed in the technical bid duly signed and stamped by the supplier.		
User list must be enclosed for the quoted model supplied to any other institute/Organization in Delhi and NCR.		
Min.3 Customer satisfactory / performance certificate for specific quoted model from the end user should be included in the quote.		
Warranty 5 years including all spares , PM kit and calibrations of instrument on regular basis as and when required.		
Certificate for spare availability upto 10 years for quoted model to be provided from OEM alongwith the technical bid.		
Consumables required during installation to setup the new instrument must be quoted along with the instrument.		
AMC & CMC Charges for the next 5 years after standard warranty must be quoted in optional item		