

TENDER SPECIFICATIONS FOR MICROMANIPULATORS AND PULLER FOR ELECTROPHYSIOLOGY SYSTEM				
S.No.	Description	Complied/ Not Complied	Catalogue .PG.No	Remarks if any
A) Eligibility criteria				
1.1	Vendor should have a good track record of selling equipment for single cell patch clamp electrophysiology.			
1.2	Vendor should have a local presence with good track record of after-sales support in Chennai.			
B) Technical Specification				
1 General requirements				
1.1	Vendor should provide the latest model of the instruments and latest software version as applicable.			
1.2	System should be suitable for multipipette electrophysiology and two photon microscopy.			
2 Stage translator				
2.1	Stage should have the option of being adaptable with standard microscopes used for electrophysiology			
2.2	Stage should be sufficiently large to accommodate two or more manipulators.			
2.3	A focus drive for the z-axis of the microscope.			
2.4	The top plate of the stage should be made from cast aluminium with an extensive 1/4-20 threaded hole pattern on 1-inch center.			
2.5	The center of the top plate should have a 4 X 6 inch milled pocket that will accommodate a variety of aluminium stage inserts.			
2.6	The stage stands should provide height adjustment			
2.7	The stage should provide sturdy attachment to the anti-vibration table.			
2.8	Motorized travel in X and Y (25mm)			
2.9	Minimum of 100 nm resolution			
3 Headstage translator				
3.1	Translator with motorized travel in X, Y and Z (over 1 inch of travel on all 3 axes) (2 nos)			
3.2	Ultra low drift with less than 1 micron in 4 hours			
3.3	Coarse range resolution upto 0.2 microns/step			
3.4	Fine range resolution down to 40 nanometers/step.			
3.5	A 4th axis which can comprise any two axes- x-z, y-z or x-y			
3.6	Quiet linear power supply optimized for single channel recording			
3.7	Maximum speed of translator should be atleast 2.5mm/sec			
3.8	Manipulator should be capable of carrying 1kg load			
3.9	A mounting system adaptable to standard headstages			
4 Translator control				
4.1	A single controller that is capable of controlling the stage and 2 headstage translators.			
4.2	Control system should have simple buttons to switch between the different translators, and indicators to highlight the translator in use			
4.3	The translation of each axis should be controlled by a knob placed intuitively in three dimensions			
4.4	The virtual 4th axis should have user-selected angle for axial drive			
4.5	Should have adjustable speed and resolution to allow optimization for experimental setup			
4.6	Easy toggle selection of Mode (speed/resolution, pulsed diagonal, Accelerated Mode)			
4.7	Ability to set convenient Home and work coordinates that allow pipettes to be quickly repositioned			
4.8	A screen showing the X,Y, Z coordinates in absolute/relative space, and the mode.			
4.9	USB interface that allow controlling the translators externally, using a computer.			
5 Glass Pipette Puller				

5.1	A filament based micropipette puller which pulls two symmetrical pipettes from each glass capillary.			
5.2	Colour touch screen display with in-built pipette program techniques.			
5.3	Safe heat mode to protect and extend filament life.			
5.4	Jaw temperature sensor to define pulling conditions.			
5.5	Consistent and reliable pulled micropipettes with tip diameter of 0.1µm.			
5.6	Capable of pulling aluminosilicate and borosilicate glass capillaries.			
5.7	Environmental chamber for humidity control and programmable air pressure.			
5.8	Programs should be able to modulate the temperature of the filament, duration for which the filament is heated, and the force supplied when pulling the glass pipette.			
5.9	Ramp tests to standardize the programs when new filament or glass introduced.			
5.10	Self contained air supply with filtration system and controlled delivery pressure.			
5.11	Memory storage for storing 100 programs and program results.			
6 Accessories				
6.1	Box filaments for pulling patch pipettes and intracellular sharp electrodes. (5 nos.)			
6.2	10 boxes of thick walled borosilicate glass capillaries of OD = 1.5mm and ID = 0.86mm and length of 10cm. (250 pieces each)			
6.3	Extra Drierite for the humidity control chamber - 1 pound refill bottle (2 nos.)			
6.4	Program library for different types of pipettes.			
C) Other requirements				
1	Warranty of at least 1 year from the date of installation.			