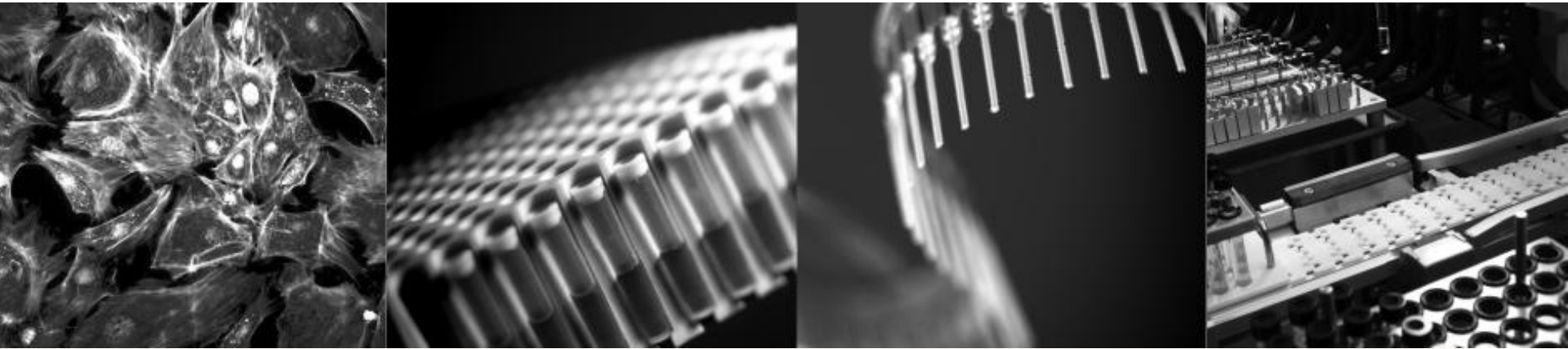




T T P L A B T E C H



mosquito LCP[®]

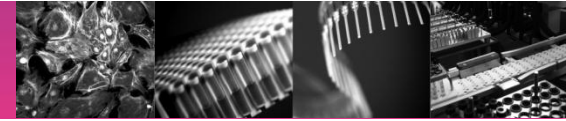
**A fast and fully automated solution
for Lipidic Cubic Phase screening**

Joby Jenkins, Product Manager

innovative laboratory solutions

■ storage ■ pipetting ■ screening ■ automation

mosquito LCP: Key Elements



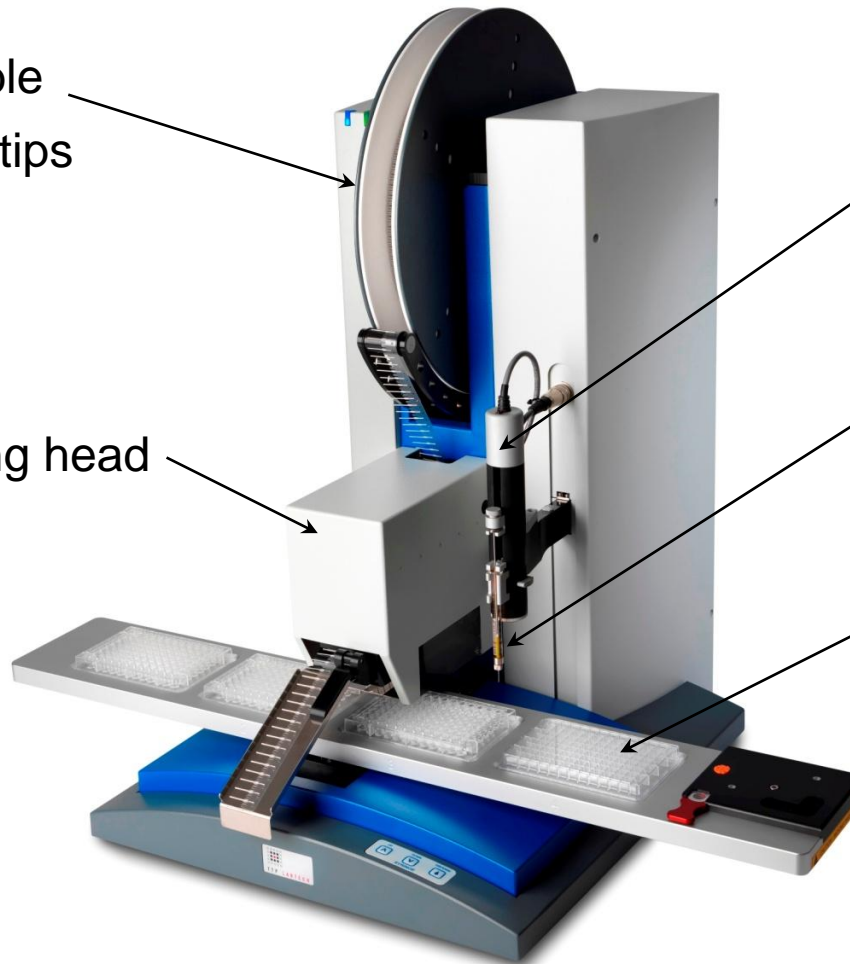
spool of disposable
mosquito pipette tips

mosquito pipetting head

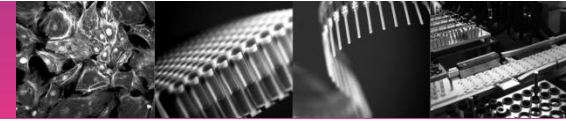
LCP syringe
dispensing pump

LCP syringe

2 or 4 position plate
X/Y stage



mosquito: Pipette Tips



- volume range: 25 – 1,200nL
- disposable: zero cross-contamination
- true positive displacement
- accurate for solvents *and* viscous liquids
- negligible dead volume
- cannot get blocked
- ability to mix
- ability to pierce foil plate seals
- multi-aspirate/multi-dispense capability

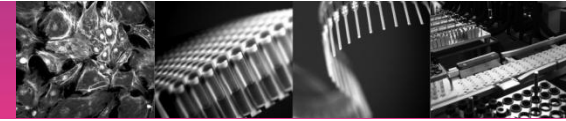
Polyester
backing tape

Stainless
steel piston

High density
polyethylene
barrel



mosquito LCP: Syringe Dispenser



- syringe types: 50 μ L or 100 μ L
- dispense range: 25nL – 2 μ L
- true positive displacement
- accurate for highly viscous LCP material
- low dead volume
- precise drop positioning
- simple syringe changing mechanism
- well proven LCP dispensing technology

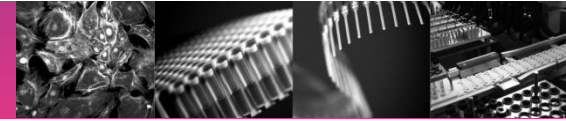
High precision
syringe pump driver

Gas tight positive
displacement syringe

Dispense needle

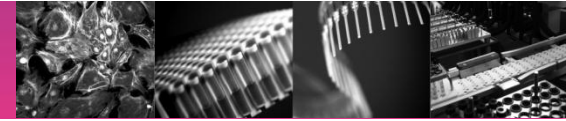


mosquito LCP: Features



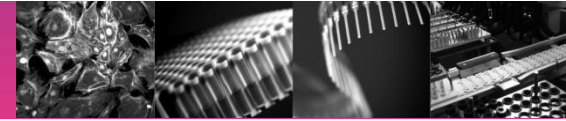
- Developed in collaboration with The MRC, Cambridge, UK
- Enables the automated set-up of *In meso* crystallisation experiments
- Compact bench top instrument
- Positive displacement syringe for accurate, low volume LCP dispense
- Auto calibrating syringe needle for highly accurate LCP drop placement
- Disposable, positive displacement mosquito tips for accurate screen addition
- High throughput, <4 minutes per 96-well plates
- Quick and easy creation of protocols using intuitive, user-friendly software wizards

mosquito LCP: Auto-Calibration

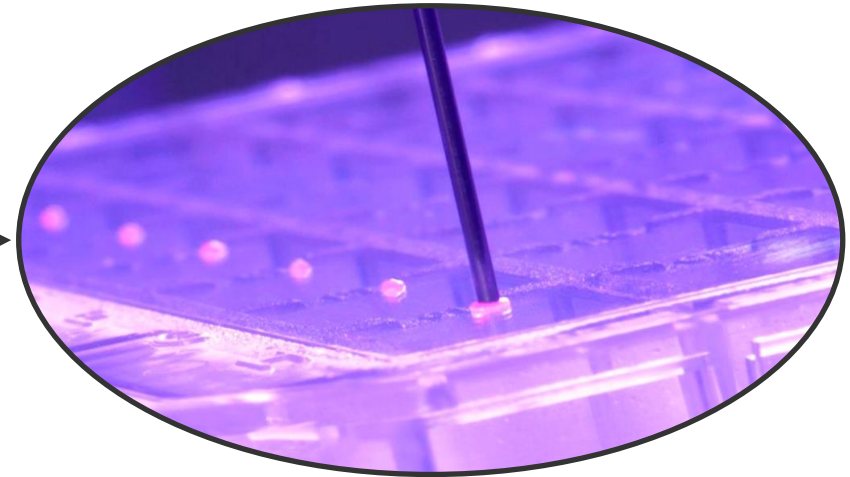
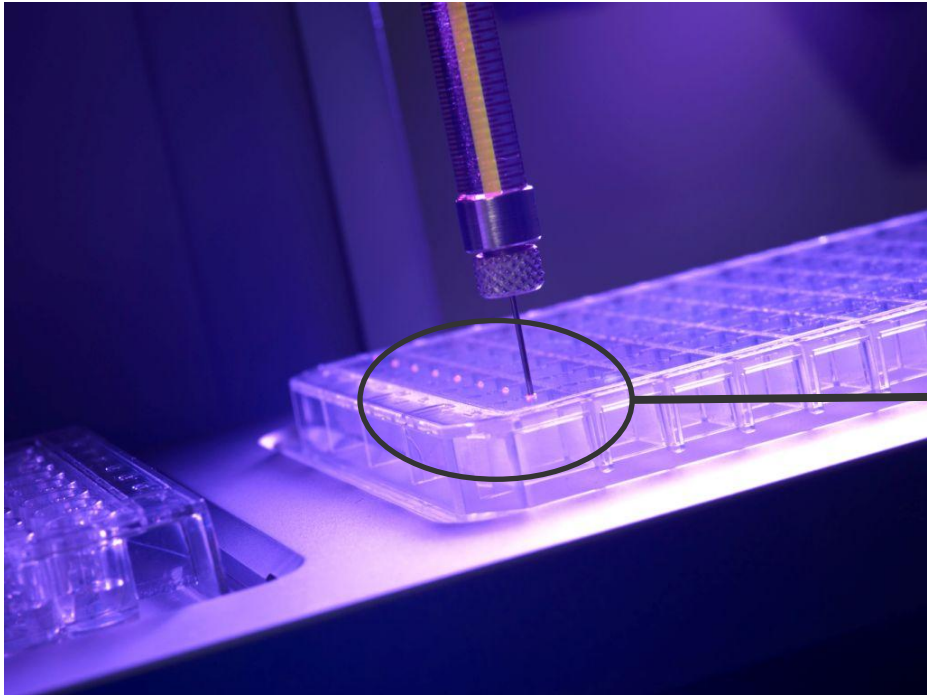


- LCP needle tip position is automatically measured and calibrated
- High precision photoelectric sensors detect position in X, Y and Z axes
- Positioning to within $\pm 5 \mu\text{m}$ is achieved, resulting in:
 - Precise placement of LCP drops
 - Accurate overlay of screen solutions
 - Known drop position for repeatable automated imaging
- Facilitates quick and easy syringe changing with no manual recalibration

mosquito LCP: Drop Set-up

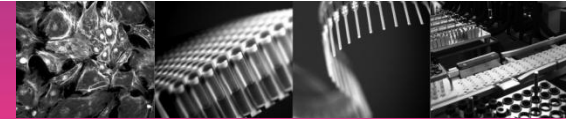


mosquito LCP syringe pipetting 100nL of highly viscous LCP sample on to an LCP Sandwich Plate

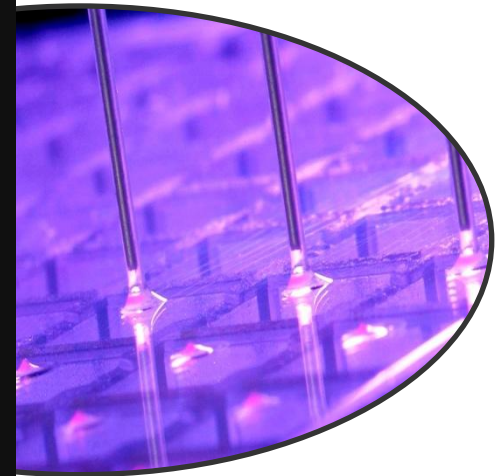
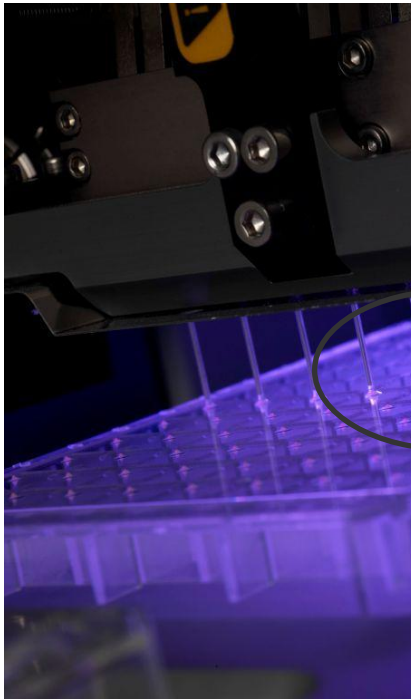


- High precision Z axis control for accurate contact dispensing and sample ‘touch of’
- Automatic Z height dispense offsets throughout LCP dispense volume range

mosquito LCP: Drop Set-up

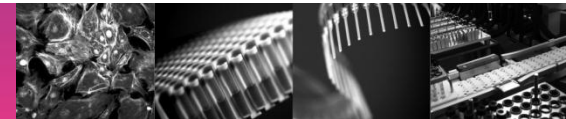


mosquito tips pipetting 800nL of screen buffers directly on to LCP drops on an LCP Sandwich Plate



- Screen solutions are quickly pipetted on to LCP drops, minimising exposure time
- High precision Z axis control ensures LCP drops are not touched by the pipette tips
- Precise X/Y positioning ensures screen buffer drops surround the LCP drops

mosquito LCP: Crystals



LCP drop imaged in Sandwich Plate



High magnification LCP drop with crystals

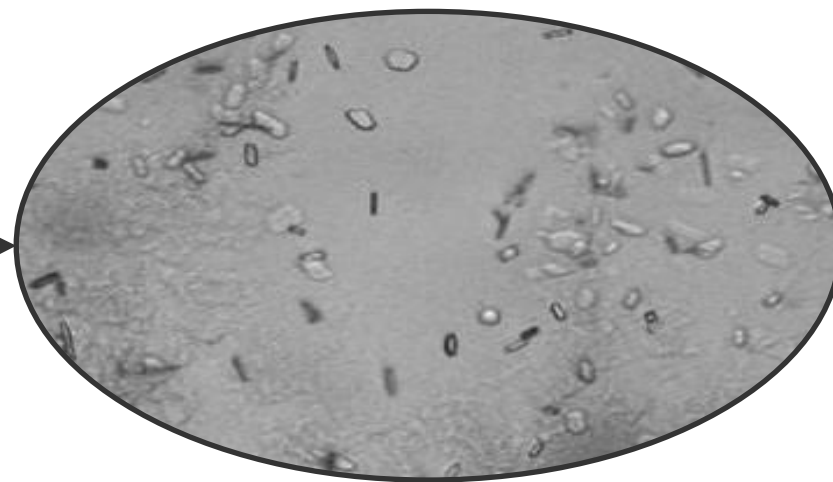
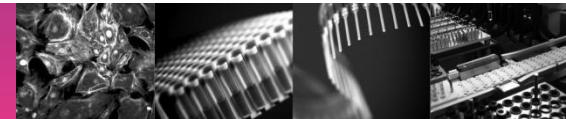
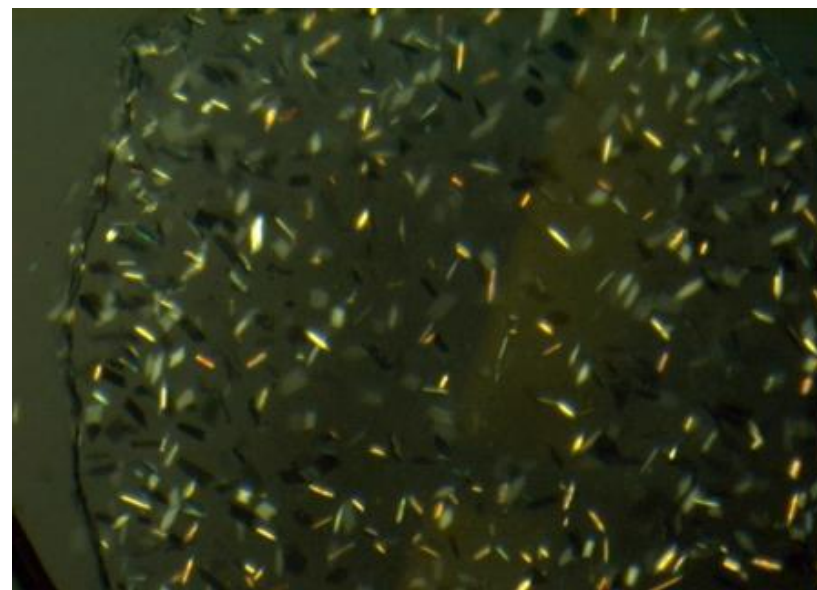
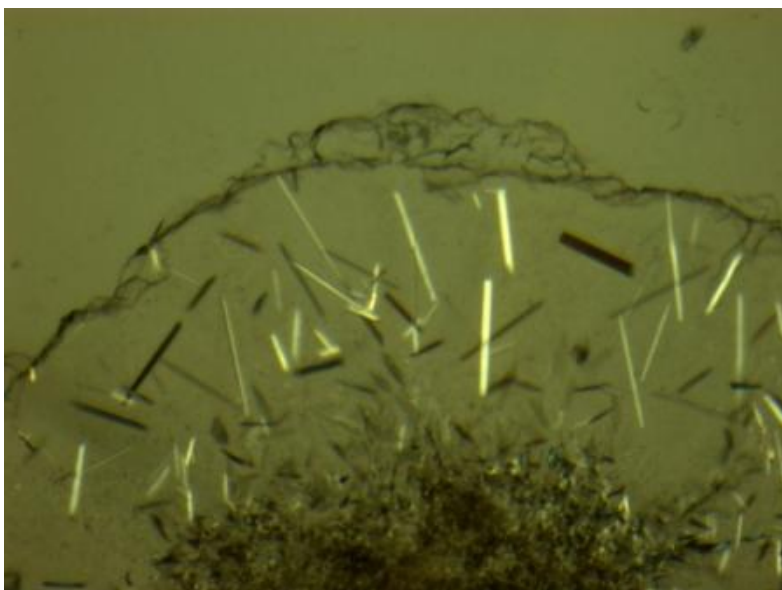


Image supplied by Pat Edwards/Tony Warne, MRC Cambridge, UK

mosquito LCP: Crystals

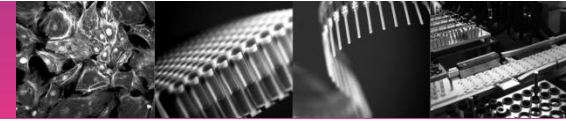


LCP drops with crystals imaged in Sandwich Plate

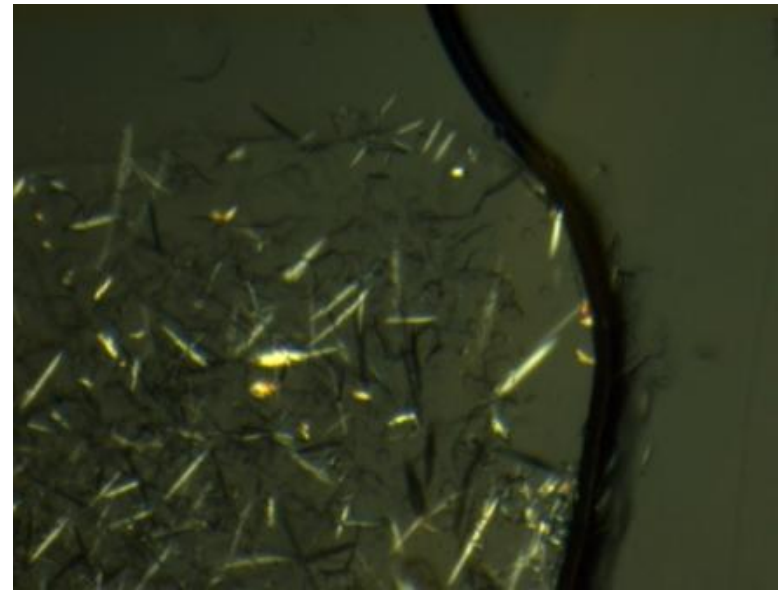
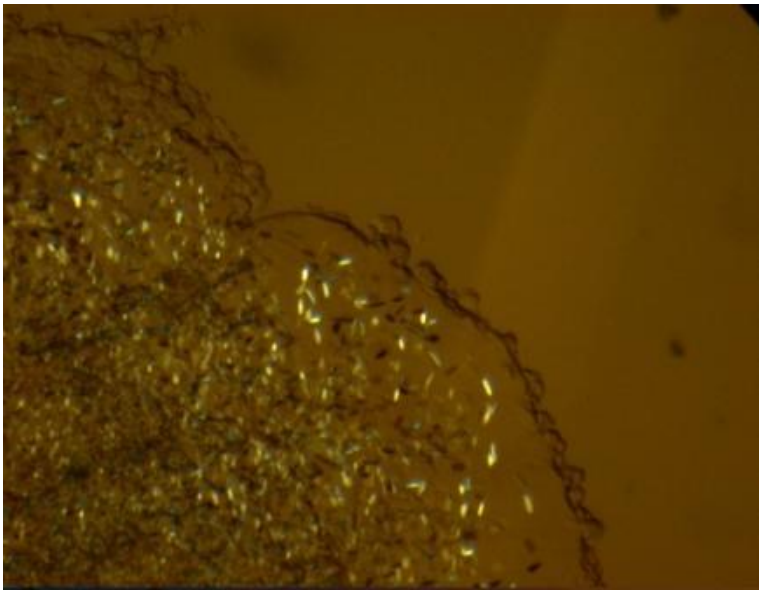


Images supplied by Jim Fairman/Susan Buchanan, NIDDK, NIH, USA

mosquito LCP: Crystals

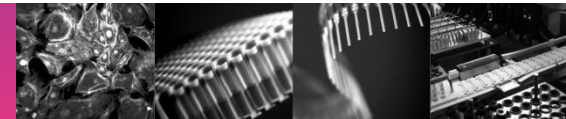


LCP drops with crystals imaged in Sandwich Plate

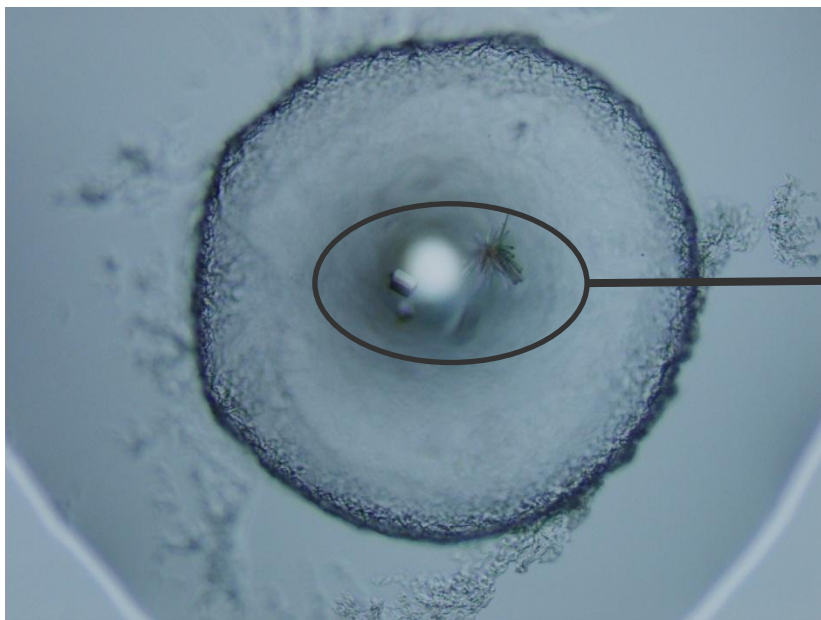


Images supplied by Jim Fairman/Susan Buchanan, NIDDK, NIH, USA

mosquito LCP: Crystals



LCP Hanging Drop



High magnification LCP drop with crystals

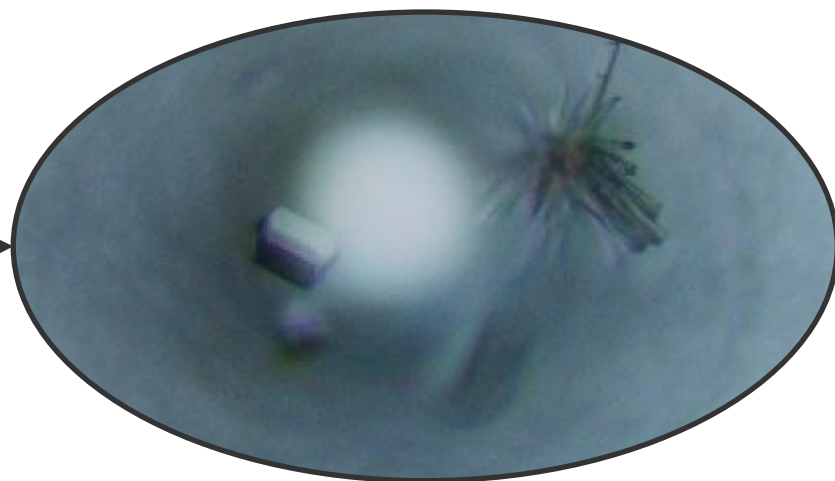
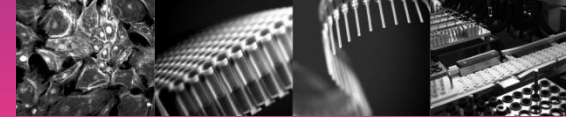
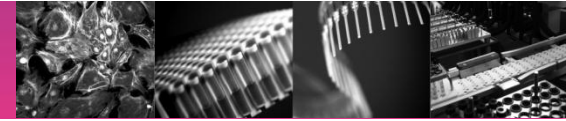


Image supplied by Reinhard Grisshammer, NINDS, NIH, USA

mosquito LCP: Accessories



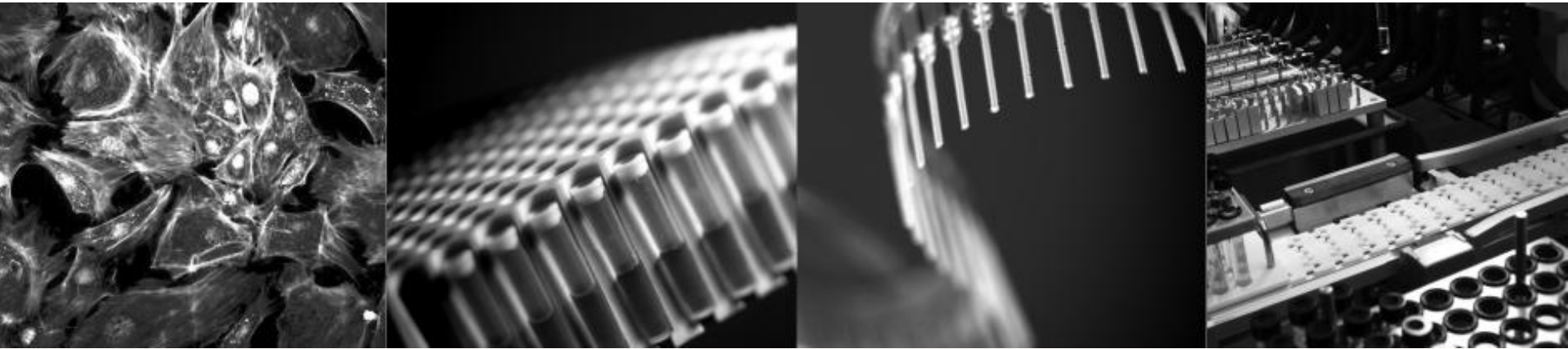
mosquito LCP: Key Benefits



- specifically designed for automated, low volume, LCP screening
- based on mosquito – extremely reliable and very low maintenance
 - proven in many, many, crystallography labs around the world
- simple and robust technology
- positive displacement, disposable tips for screen buffer dispensing
- volumetrically precise and accurate throughout volume and viscosity ranges
- highly accurate drop placement
- self calibrating LCP syringe
- compact bench-top instrument
- versatile; Hanging Drop, Sitting Drop & Microbatch and LCP set ups
- multi-aspirate and mixing options give added flexibility (seeding, additives etc)
- very easy to use, user friendly software and hardware



T T P L A B T E C H



mosquito LCP[®]

**A fast and fully automated solution
for Lipidic Cubic Phase screening**

Joby Jenkins, Product Manager

innovative laboratory solutions

■ storage ■ pipetting ■ screening ■ automation