

# Expert Q&A: The new mosquito HV genomics

## New design, new features, same unrivalled low-volume performance and versatility - the mosquito HV genomics

We spent time with Klaus Hentrich, our in-house genomics expert, who takes us through where the concept for this enhanced instrument came from, and how it can positively impact our customers' workflows and outputs.



Klaus Hentrich

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### 01 Where did the original ideas for the mosquito genomics come from and what was the process for bringing it to life?

The original mosquito design has been very successful in drug discovery and protein crystallography for over a decade, so it's a very robust and proven technology. In recent years, there has been a strong demand for automation and volume miniaturisation in genomics. As sequencing costs have come down, NGS sample numbers have been scaled up, and NGS sample preparation has become a major bottleneck for many applications. Through many conversations and feedback from our genomics customers, we identified key areas where we could add useful functionality for these applications and make the instrument even easier to use. Developing these upgrades has been the focus of our product development team this year, from the first design concepts to prototypes for our beta testers to launch.

### 02 Who did you have in mind / think would have the most positive impact on when planning this model?

Broadly speaking, the upgrades address common applications in molecular biology and genomics, so they are relevant across our customer spectrum from academic research to industry. In terms of software development, we wanted to make it very easy to set up miniaturised protocols with a few clicks, in a standardised way. We think that this will be especially useful for NGS core facilities and for shared facilities with multiple users.

### 03 What makes this version different to previous model types?

We have added accessories such as a cooling block, and a new magnetic plate and new protocol for bead clean-ups with mosquito HV genomics. And it will come with a touchscreen and a new software with which customers can choose between the traditional interface and the set-up "wizards" that simplify and standardise popular protocols. In terms of pipetting specifications there is no difference, but experienced users may notice that the new instrument is quieter and slightly faster. There is also an improved status lighting on the instrument and a few changes to the design.

### 04 What evidence is there that highlights that this new model is a: fit for purpose and B: better than the original design, existing industry options?

The mosquito is unique in its ability to pipette nanolitre to microlitre volumes irrespective of viscosity and without any liquid classes. That is because of the unique positive displacement pipetting technology. The accuracy and precision that the mosquito is known for remains unchanged in the new genomics version.

Our beta partners and our Genomics Applications team have found that the cooling block meets the target specifications, and that it really adds flexibility to the set-up process and gives peace of mind when working with sensitive samples or reagents. Results with the magnetic plate prototypes indicate good yields and successful clean-ups even with highly miniaturised protocols. Feedback about the protocol wizards has been very positive and our software engineers have incorporated many valuable suggestions from test customers.



**05 Can the key upgrade elements of the new model be applied to existing instruments and how does that include the application/software?**

The cooling blocks fits all mosquito decks and the magnetic bead clean-up process will be compatible with the existing mosquito HVs. There will be an upgrade path for the software on the HV, which will require a PC and monitor upgrade.

**06 What are the biggest positive impacts that you see for existing users that upgrade or new customers using this for the first time in their labs?**

I believe that anyone who works with either single cell or bulk RNA, or with sensitive enzymatic reagents will welcome the cooling option. Keeping the plates cool during set-up adds peace of mind and more confidence in the results. The new bead clean-up process will be helpful in single cell RNA-seq and bulk library preparation workflows. We are also validating it with the Nextera Flex, Illumina's latest on-bead library prep kit. The improved handling means that users can get up to speed even quicker. They can run protocols with little or no training. Overall we are making automation and miniaturisation more accessible to scientists in genomics.

**07 When is it launching and when can I place an order?**

The new instrument is now available to be pre-ordered and of course we would be happy to take you through a more detailed demo or consultation to explore your needs further!

**08 As the product manager for this product what are you excited about in relation to the new version?**

As a molecular biologist, I used to carry ice buckets with my samples and reagents around the lab every day. So I'm pleased about the cooling block, which actually involves a bit of clever engineering to obtain high cooling capacity while keeping the profile low.

The protocol wizards are really the product of many years of experience with automating and miniaturising genomics methods. Our excellent Application Specialists and our fantastic customers around the world have built a wealth of knowledge, and the wizards are a way to distribute some of that knowledge and make workflow miniaturisation more readily accessible. A lot of expensive reagents are still being consumed in unnecessarily high volumes. By increasing the efficiency of genomics workflows, we want to help scientists maximise their results output and accelerate discovery.



**Want to learn more about genomics workflow miniaturisation?**

**You can access our NGS focused webinar using this link:**

**[sptlabtech.com/NGS-workflow-webinar](https://sptlabtech.com/NGS-workflow-webinar)**