Application Note

INTEGRA

Increase your sample screening and genotyping assay throughput with the VOYAGER adjustable tip spacing pipette

Introduction

Laboratories are continually facing the challenge of increasing throughput in the most efficient and economical way, to meet the need to process more and more samples per day. Traditionally, handling and manipulating samples between different labware formats involves the use of single channel pipettes, especially in screening applications and genotyping assays, which is slow, inefficient and error prone.

INTEGRA's VOYAGER adjustable tip spacing pipette has enabled scientists from the Technical University of Munich (TUM) to benefit from the enhanced productivity of a multichannel pipette, reducing tedious liquid handling tasks. Compared to fully automated solutions, it provides seamless liquid transfers between different standardized and non-standardized microplate, tube and gel chamber formats, and can be used without any special training. Tip spacing can be simply changed one-handedly with the push of a button, eliminating the need for any manual adjustments.

The various operating modes of the VOYAGER adjustable tip spacing pipette help to speed up monotonous pipetting steps, eliminate sample transfer errors between different labware formats, and reduce the risk of developing repetitive strain injuries.

Key benefits:

- The VOYAGER's motorized adjustable tip spacing enables the user to benefit from the enhanced productivity of an electronic multichannel pipette throughout the entire genotyping assay, processing samples faster than with traditional single channel pipettes and helping to eliminate sample transfer errors between different labware formats.
- Tip spacing can be adjusted on the fly with the push of a button to match different types of labware, allowing the easy transfer of multiple reaction mix samples from microcentrifuge tubes directly to 96 or 384 well plates, and gel pockets.
- The availability of a range of pipetting modes makes the VOYAGER a very versatile and affordable tool to speed up and standardize pipetting protocols.
- New users quickly get accustomed to the electronic pipette thanks to its intuitive design and easy-to-use pipetting modes.

Step-by-step procedure:

Experimental set-up

In this protocol, two VOYAGER 8 channel adjustable tip spacing pipettes are used for a genotyping set-up. The genotyping assay is based on a PCR method with a subsequent gel electrophoresis.

The following protocol consists of sample transfers from 1.5 ml microcentrifuge tubes into a 96 well plate, and from a 96 well PCR plate into an agarose gel for electrophoresis.

VOYAGER 8 channel pipette

Overview of the steps:

1. Template transfer
2. Sample transfer into the agarose gel

1. Template transfer

STEP: Transfer the templates into a 96 well plate.

HOW TO: Use a VOYAGER 8 channel 300 µl electronic pipette with 300 µl Sterile, Filter GripTips. Select ‘Tip spacing’ in the main menu of the pipette to set the required spacing. Choose ‘Positions: 2’ in the tip spacing menu and set the tip spacing according to the 96 well plate and the microcentrifuge tubes in the rack (**Figure 1**). Once saved, the tip spacing is available at any time, for any other pipetting modes.

After saving the tip spacing, select ‘Pipet’ mode in the main menu. Set your required sample transfer volume and pipette the templates from the 1.5 ml microcentrifuge tubes into the 96 well plate (**Figure 2**). By pressing left and right on the Touch Wheel interface, the tip spacing can be adjusted on the fly to fit each labware format.

Figure 1: Adjust the tip spacing by aligning it against the empty 96 well plate and tube rack.

Tips:

- Use the Repeat Dispense mode to dispense several samples successively if duplicate or triplicate samples are required.
- Use the Pipet/Mix mode if samples require mixing in the target wells. Settings like mixing cycles, pipetting speeds and volumes can quickly be adjusted.

Figure 2: Sample transfer from a microcentrifuge tube rack to a 96 well plate.

Figure 3: PCR product transfer into the agarose gel.

2. Sample transfer into the agarose gel

STEP: Transfer the PCR product into the agarose gel.

HOW TO: After PCR, use the VOYAGER 8 channel 125 µl electronic pipette with 125 µl Sterile, Filter GripTips to transfer the samples from the 96 well PCR plate into the agarose gel for subsequent gel electrophoresis (**Figure 3**). As in step 1, choose 'Positions: 2' in the tip spacing menu and set the tip spacing according to the 96 well PCR plate and the agarose gel.

Set the required sample volume as described in step 1 and transfer the samples from the PCR plate into the agarose gel.

Tip:

- A low dispensing speed (e.g. 4) helps uniform filling of the wells in the agarose gel.
- If you want a controlled blowin – rather than automatic – keep the run button pressed while dispensing. Blowin will occur when the run button is released.

Conclusion

- The VOYAGER adjustable tip spacing pipette has enabled TUM researchers using different labware formats to benefit greatly from the enhanced productivity of a multichannel pipette, processing assays much faster than using a single channel pipette. The tip spacing can be changed one-handedly at the touch of a button to fit different labware formats, such as PCR plates, tubes and gel pockets.
- Thanks to the intuitive interface, users quickly become accustomed to the electronic pipette. The different pipetting modes make the VOYAGER adjustable tip spacing pipette a versatile yet affordable tool for working with labware of varying sizes and formats.
- The VOYAGER adjustable tip spacing pipette increases the speed of sample testing set-ups, and helps eliminate sample transfer errors between different labware formats and reduce the risk of developing repetitive strain injuries.

Materials

Manufacturer	Part Number	Description	Link
INTEGRA Biosciences	4721	VOYAGER 8 channel pipette 125 µl	https://www.integra-biosciences.com/global/en/electronic-pipettes/voyager#parts-and-numbers
INTEGRA Biosciences	4723	VOYAGER 8 channel pipette 300 µl	https://www.integra-biosciences.com/global/en/electronic-pipettes/voyager#parts-and-numbers
INTEGRA Biosciences	4415	GripTips Sterile, Filter 125 µl	https://www.integra-biosciences.com/global/en/griptip-selector-guide
INTEGRA Biosciences	4435	GripTips Sterile, Filter 300 µl	https://www.integra-biosciences.com/global/en/griptip-selector-guide

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