

# VOYAGER adjustable tip spacing pipette ensures consistent pipetting between lab staff when setting up the Quidel® Solana® Group A *Streptococcus* assay

## Introduction

The Quidel Solana Group A *Streptococcus* (GAS) test is a low throughput, simplified amplification assay that detects  $\beta$ -hemolytic *Streptococcus* nucleic acids. It is easy to perform outside of core molecular diagnostics/biology laboratories by following simplified procedure on the compact Solana instrument. However, accurate pipetting is still

crucial, and Quidel recommends its customers to use the VOYAGER 300  $\mu$ l 4 channel adjustable tip spacing pipette when performing the Solana GAS assay. The VOYAGER pipette provides a semi-automated solution to ensure consistent pipetting steps, while reducing operator fatigue and the risk of repetitive strain injuries.

### Key benefits:

- Validated pipetting programs provided by Quidel are saved on the pipette, ensuring that all analysts follow the same pipetting procedure each time the assay is performed.
- The adjustable tip spacing feature of the VOYAGER pipette enables multichannel sample transfer between specimen, processing and PCR tubes.
- Light touch control buttons for pipetting and tip ejection reduce the incidence of repetitive strain injuries.
- Use of the VOYAGER 4 channel adjustable tip spacing pipette allows semi-automated set-up of 12 sample batches, speeding up the time-to-results.

## Overview: How to set up the Quidel Solana Group A *Streptococcus* assay

### Experimental set-up

The swab samples used in the Solana GAS test can be dry or submerged in a liquid medium. The master mix reagent is added to each reaction tube in a dehydrated form, then rehydrated when the diluted sample is added. VOYAGER 4 channel, 300  $\mu$ l adjustable tip spacing pipette with 300  $\mu$ l LONG, Sterile, Filter GripTips is used in this protocol. Two GAS programs are provided: GAS P1 is used for transferring samples from liquid medium to the lysis buffer, while GAS P2 transfers lysed sample to dilution tubes, then to the reaction tubes.



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## Overview of the steps:

**Step 1:** Heat lysis

**Step 2:** Dilution and amplification steps

### 1. Heat lysis

**STEP 1a:** Processing swabs submitted in liquid medium

**HOW TO:** Set up the Solana workflow tray with patient samples, lysis buffer tubes, dilution buffer tubes and amplification reaction tubes (**Figure 1**). Uncap sample and lysis buffer tubes, placing caps face up on work area to prevent cross-contamination.



**Figure 1:** Quidel Solana workflow tray, Solana instrument, Solana GAS assay and VOYAGER adjustable tip spacing pipette.

Turn on the pipette and select 'GAS P1' from the 'Custom Programs' in the main menu. Press RUN to start the program. Once started, the program displays step-by-step instructions on screen (**Figure 2**). Load the pipette tips when prompted by the program, and press RUN to execute each step. The pipette will automatically adjust the tip spacing when mixing, aspirating and dispensing 50 µl of the sample into lysis tubes. When the final step has been performed, the pipette screen will display 'WORKFLOW COMPLETE' and will beep twice. When you are done pipetting, heat lysis buffer tubes at 95 °C for 5 minutes.



**Figure 2:** The bright, full colour screen guides the user through the entire protocol.

**STEP 1b:** Processing dry swab samples

**HOW TO:** Set up the Solana workflow tray with patient samples, lysis buffer tubes, dilution buffer tubes and amplification reaction tubes (**Figure 1**). Uncap lysis buffer tubes, leaving caps face up to prevent cross-contamination. Insert each swab into the appropriately labeled lysis buffer tube, and twirl for 10 seconds. Heat lysis buffer tubes at 95 °C for 5 minutes.

**Tips:**

- The pipette makes sure that the user knows which step is being performed by showing messages on the screen.
- The use of LONG, Sterile, Filter GripTips prevents contamination of the pipette when aspirating sample out of tall tubes.
- Once written, programs may be saved on the pipette and re-used by retrieving them from the Custom Programs menu.

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## 2. Dilution and amplification steps

**STEP:** Transfer of lysed samples to dilution tubes, and diluted samples to reaction tubes

**HOW TO:** At the end of the heat step, uncap each lysis buffer tube and place it in the workflow tray (**Figure 1**). Remove caps from dilution buffer tubes and place them face up on the work area to prevent cross-contamination. Uncap the reaction tubes. Turn on the pipette and select program 'GAS P2' from the 'Custom Programs' in the main menu. As in the previous program, 'GAS P2' guides the user through each step of the process. Pressing RUN on the pipette starts the program. Following the prompts on the pipette, lysed samples are mixed and 50 µl is transferred to dilution buffer. Dilution buffer is then mixed by the pipette, and the user is prompted to transfer 50 µl to reaction tubes. A final mixing step is performed to rehydrate the master mix in the tubes. Upon completion of the program, the pipette displays a 'WORKFLOW COMPLETE' prompt and beeps twice. Cap the reaction tubes and load them in the Solana instrument. Results will be ready in 25 minutes.

**Tip:**

- Lightly touch pipette tips to the side of the tube when dispensing small volumes of liquids, to ensure release of liquid from the pipette tip.
- VOYAGER pipette tip spacing can be set to any width between 4.5 and 30.0 mm to accommodate a wide range of tube sizes.
- Custom programs can be written directly on the VOYAGER pipette, or by using INTEGRA's VIALINK pipette management software. Programs stored in VIALINK can be modified and transferred directly to the pipette. VIALINK can be downloaded for free [here](#).

## Conclusion

The Quidel Solana offers simplified, fast and accurate molecular testing, but the consistency and quality of results for tests such as the Group A Streptococcus assay are dependent on the user's ability to perform precise pipetting. This can be difficult to achieve when testing is performed outside the traditional laboratory, especially if staff have limited pipetting experience. A pre-programmed VOYAGER adjustable tip spacing pipette minimizes variation between individuals, while easing the physical strain often experienced by users of single channel manual pipettes.

## Materials

Manufacturer	Part Number	Description	Link
INTEGRA Biosciences	4743	VOYAGER 4 channel 300 µl pipette	<a href="https://www.integra-biosciences.com/global/en/electronic-pipettes/voyager">https://www.integra-biosciences.com/global/en/electronic-pipettes/voyager</a>
INTEGRA Biosciences	3485	300 µl LONG Sterile, Filter GripTips	<a href="https://www.integra-biosciences.com/global/en/pipette-tips/griptip-selector-guide">https://www.integra-biosciences.com/global/en/pipette-tips/griptip-selector-guide</a>
INTEGRA Biosciences	3255	Large PopTop Base	<a href="https://www.integra-biosciences.com/global/en/pipette-tips/eco-rack-griptips-handheld-pipettes">https://www.integra-biosciences.com/global/en/pipette-tips/eco-rack-griptips-handheld-pipettes</a>
Quidel	M305	Solana Group A <i>Streptococcus</i> Kit	<a href="https://www.quidel.com/molecular-diagnostics/solana-gas-assay">https://www.quidel.com/molecular-diagnostics/solana-gas-assay</a>

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