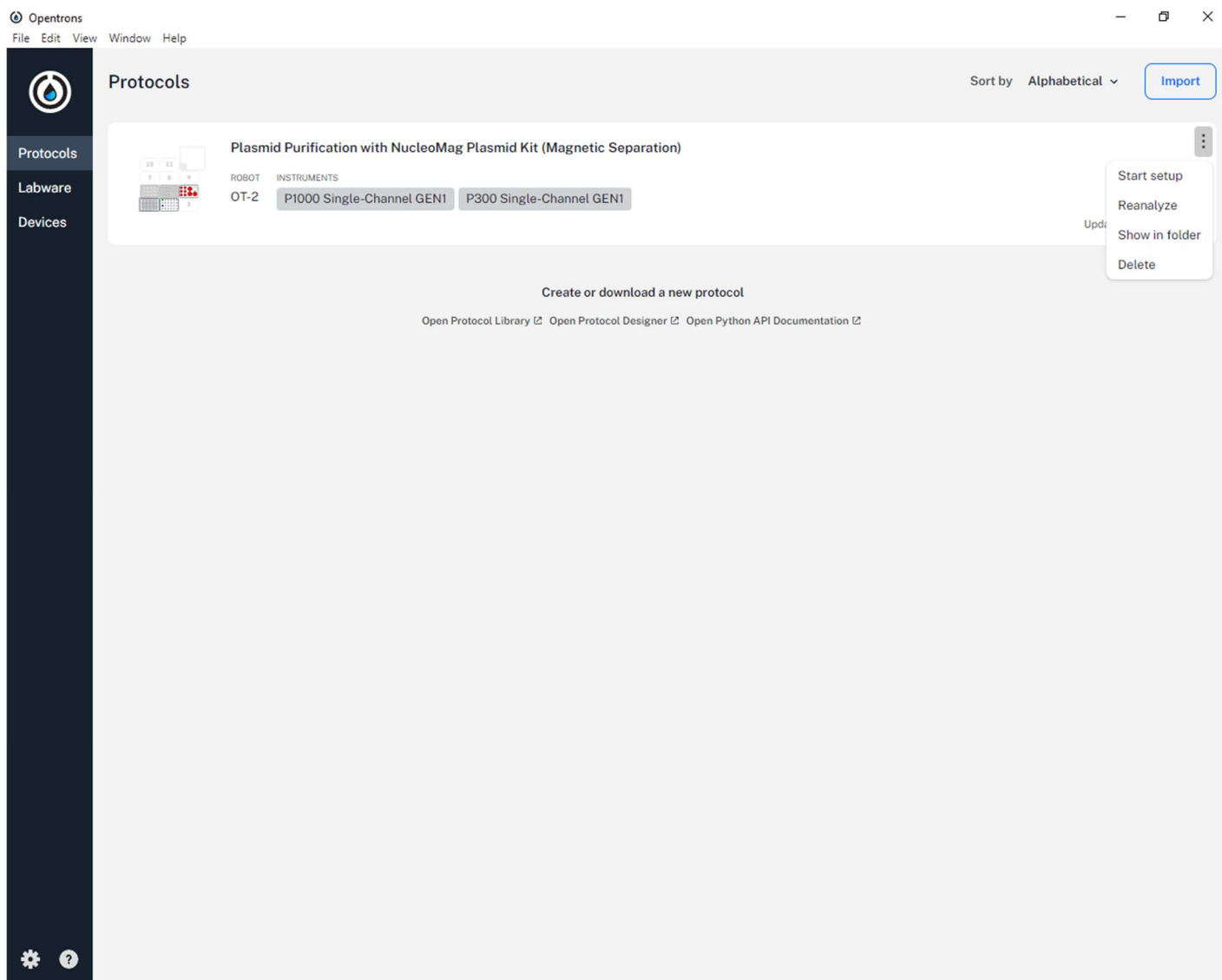


# User Manual

## Plasmid Purification with NucleoMag Plasmid Kit

1. Start the Opentrons OT2-Robot (toggle switch on the left side in the back) .
2. Turn on all necessary modules for the plasmid purification protocol (Magnetic Module).
3. Start the Opentrons App.
4. In the „Protocols“ tab find the “Plasmid Purification with NucleoMag Plasmid Kit (Magnetic Separation)” protocol.
5. For the protocol, press the three vertical dots at the upper right corner and select “Start setup”.



- A sidebar appears with the selected OT2-Robot and a ticked checkbox “Apply labware offset data”. **Keep the checkbox selected** and press “Continue to parameters”.

OpenTrons

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Protocols

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Plasmid Purification with NucleoMag Plasmid Kit (Magnetic Separation)

ROBOT INSTRUMENTS

OT-2 P1000 Single-Channel GEN1 P300 Single-Channel GEN1

Create or download a new protocol

[Open Protocol Library](#) [Open Protocol Designer](#) [Open Python API Documentation](#)

Step 1 / 2

Choose Robot to Run Plasmid Purification with NucleoMag Plasmid Kit (Magnetic Separation)

Refresh

OT-2 SD20181229A26 <>

☒ ☐ Apply labware offset data [View data](#)

Continue to parameters

- The parameter selection sidebar appears. Here you can customize the protocol parameters. **Most important is setting the correct number of samples here.** Number of mixing steps, incubation times and other delays can also be changed, however, the default values should normally be suitable. After changing and confirming parameters press “Confirm values”.

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Protocols

Plasmid Purification with NucleoMag Plasmid Kit (Magnetic Separation)

ROBOT INSTRUMENTS

OT-2 P1000 Single-Channel GEN1 P300 Single-Channel GEN1

Create or download a new protocol

[Open Protocol Library](#) [Open Protocol Designer](#) [Open Python API Documentation](#)

Step 2 / 2  
Select parameters for  
SD20181229A26

Restore default values

Debugging mode  
☐ Off  
Enable/Disable debugging mode

Number of samples 1  
1  
1-24

Magnetic module engage height 1  
3 mm  
-2.4

Mix samples default times 1  
5 cycles  
1-50

Mix sample thorough times 1  
10 cycles  
1-50

Delay lysis 1  
3 min  
1-5

Delay C-Beads incubate 1  
1 min  
1-10

Delay M-Beads separate 1  
5 min  
1-10

Delay M-Beads resuspend 1  
5 min  
1-10

Delay M-Beads dry 1


Change robot Confirm values

8. Now the protocol is analyzed by the Opentrons App. This means it simulates the protocol and checks for programming errors and logical mistakes. This analyzation takes different amounts of time depending on the number of samples, so be patient. Only proceed after the blue button in the upper right corner says “Start run”. **DON’T START THE PROTOCOL YET!**

Opentrons

File Edit View Window Help

Devices > SD20181229A26 > 10/22/2024 14:58:44



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### Plasmid Purification with NucleoMag Plasmid Kit (Magnetic Separation)

RUN	STATUS	RUN TIME
10/22/2024 14:58:44	Not started	--:--:--

PROTOCOL START

PROTOCOL END

Start run

Cancel run

Current Step: Not started yet

Download Run Log

Setup

Parameters

Module Controls

Run Preview

Instruments

Review required pipettes and tip length calibrations for this protocol.

Calibration ready

+

Deck hardware

Install the required module.

Deck hardware ready

+

Labware Position Check

Recommended workflow that helps you verify the position of each labware on the deck.

Offsets ready

+

Labware

Gather the following labware and full tip racks. To run your protocol without Labware Position Check, place and secure labware in their initial locations.

+

Liquids

View liquid starting locations and volumes

+

Back to top

9. Expand “Labware Position Check” by selecting the “+” symbol, and press “Confirm offsets” (if this button is disabled, the “Apply labware offset data” checkbox from manual step 6 was not ticked; in this case press “Cancel run” and reload the protocol with the checkbox ticked). **DON’T press “Run Labware Position Check”.** If you did so call the Device Manager to recalibrate the labware for use of the protocol.

Opentrons

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### Plasmid Purification with NucleoMag Plasmid Kit (Magnetic Separation)

RUN	STATUS	RUN TIME
10/23/2024 13:52:04	Not started	--:--:--

PROTOCOL START --:--:-- PROTOCOL END --:--:--

Start run Cancel run

Download Run Log

Current Step: Not started yet

Setup Parameters Module Controls Run Preview

#### Instruments

Review required pipettes and tip length calibrations for this protocol. Calibration ready +

#### Deck hardware

Install the required module. Deck hardware ready +

#### Labware Position Check

Recommended workflow that helps you verify the position of each labware on the deck. Learn how it works -

APPLIED LABWARE OFFSET DATA

Location	Labware	Labware Offset Data
Slot 5	Opentrons OT-2 96 Tip Rack 300 µL	X: -0.30 Y: 0.00 Z: -0.70
Slot 4	Opentrons OT-2 96 Tip Rack 1000 µL	X: 1.10 Y: 1.20 Z: 0.00
Slot 6	Opentrons 10 Tube Rack with Falcon 4x50 mL, 6x15 mL Conical	X: 0.70 Y: 0.10 Z: 0.00
Slot 2	Opentrons 24 Tube Rack with Eppendorf 1.5 mL Safe-Lock Snapcap	X: -0.20 Y: 1.10 Z: 0.00
Magnetic Module GEN1 in Slot 1	NEST 96 Deep Well Plate 2mL	X: 0.50 Y: 1.80 Z: 3.00

Confirm offsets Run Labware Position Check

#### Labware

Gather the following labware and full tip racks. To run your protocol without Labware Position Check, place and secure labware in their initial locations. +

#### Liquids

View liquid starting locations and volumes +

10. Expand “Labware” by selecting the “+” symbol, check if the correct labware is at the correct location on the OT2 deck. **Be sure that the labware is correctly fitted into the corresponding location (check if the labware lies flat).** Press “Confirm placement”. You can have a look at the printed OT2 deck layout at the OT2 side wall, showing the location positions on the deck (see also image on last page of manual).

The screenshot shows the Opentrons software interface. On the left is a dark sidebar with a logo and menu items: Protocols, Labware (selected), and Devices. At the bottom of the sidebar are a gear icon and a question mark icon. The main area has a top bar with 'Opentrons' and window controls. Below this is a breadcrumb trail: 'Devices > SD20181229A26 > 10/22/2024 14:58:44'. The main content area is titled 'Deck hardware' with a status 'Deck hardware ready' and a '+' icon. Below this is 'Labware Position Check' with a status 'Offsets ready' and a '+' icon. The 'Labware' section is expanded, showing a list of labware items with columns for 'Location' and 'Labware name'. At the bottom of the list is a 'Confirm placements' button. A 'Liquids' section is partially visible at the very bottom.

Opentrons

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Deck hardware

Install the required module.

Deck hardware ready +

Labware Position Check

Recommended workflow that helps you verify the position of each labware on the deck.

Offsets ready +

Labware

Gather the following labware and full tip racks. To run your protocol without Labware Position Check, place and secure labware in their initial locations.

List View Map View

Location	Labware name
5	Opentrons OT-2 96 Tip Rack 300 µL
8	Opentrons OT-2 96 Tip Rack 300 µL
4	Opentrons OT-2 96 Tip Rack 1000 µL
7	Opentrons OT-2 96 Tip Rack 1000 µL
10	Opentrons OT-2 96 Tip Rack 1000 µL
6	Opentrons 10 Tube Rack with Falcon 4x50 mL, 6x15 mL Conical
2	Opentrons 24 Tube Rack with Eppendorf 1.5 mL Safe-Lock Snapcap
3	Opentrons 24 Tube Rack with Eppendorf 1.5 mL Safe-Lock Snapcap
1	NEST 96 Deep Well Plate 2mL
	Magnetic Module GEN1

Secure labware instructions

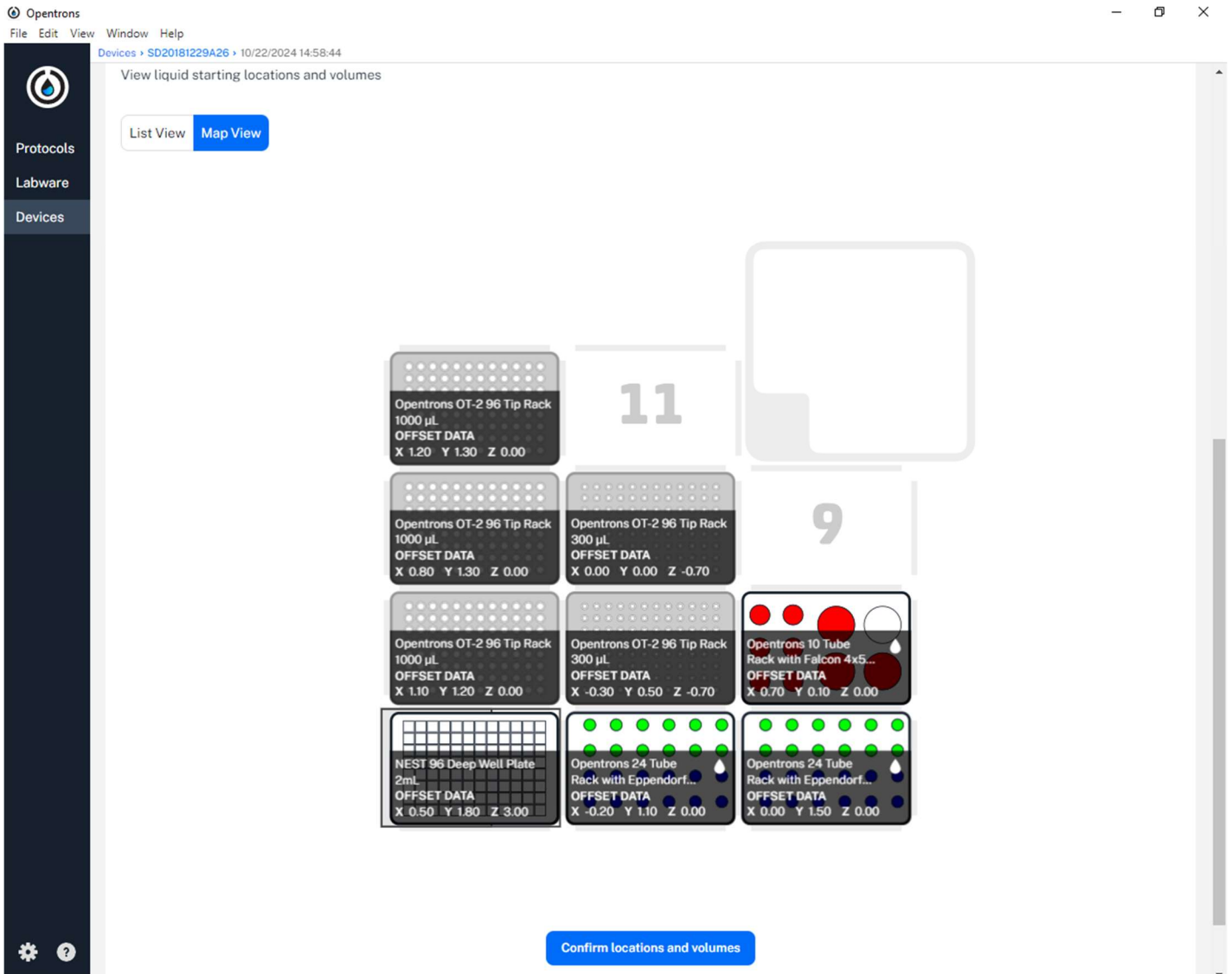
Confirm placements

Liquids

11. Expand “Liquids” by selecting the “+” symbol, press “Map View” and check again if the correct labware is at the correct slots on the OT2 deck. Next you can click on each labware and check if the correct eppi/tube with the correct chemical (liquid) is placed at the correct well in the labware with the correct volume. The color coding is:

- a. Red: Chemicals
- b. Green: Bacterial Culture Pellets
- c. Blue: Empty eppis for purified plasmid storage

After checking that everything matches between the OT2 deck and the protocol **close the front lid** and press “Confirm locations and volumes”.



12. There should now be a green tick at “Instruments”, “Deck hardware”, “Labware Position Check”, “Labware” and “Liquids”. If this is the case you are ready to run the protocol. Either press “Start run” or check optional steps 13-15 of this manual for extra checks. If not all categories are with a green tick, expand the category that doesn’t have a green tick and proceed with the preparations at the corresponding step of this manual. **If “Instruments” or “Deck hardware” is not ticked green call the Device Manager!**

Opentrons

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### Plasmid Purification with NucleoMag Plasmid Kit (Magnetic Separation)

RUN	STATUS	RUN TIME
10/22/2024 14:58:44	Not started	--:--:--

PROTOCOL START: --:--:-- PROTOCOL END: --:--:--

Start run Cancel run

Current Step: Not started yet Download Run Log

Setup Parameters Module Controls Run Preview

#### Instruments

Review required pipettes and tip length calibrations for this protocol.

Calibration ready +

#### Deck hardware

Install the required module.

Deck hardware ready +

#### Labware Position Check

Recommended workflow that helps you verify the position of each labware on the deck.

Offsets ready +

#### Labware

Gather the following labware and full tip racks. To run your protocol without Labware Position Check, place and secure labware in their initial locations.

Placements ready +

#### Liquids

View liquid starting locations and volumes

Liquids ready +

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13. Optional: If you want to be sure that the protocol parameters are correct (especially the number of samples) press the “Parameters” button and recheck them. The parameters that deviate from the default values are marked with the green “Updated” tag.

Opentrons

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Protocols  
Labware  
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### Plasmid Purification with NucleoMag Plasmid Kit (Magnetic Separation)

RUN 10/22/2024 14:58:44	STATUS Not started	RUN TIME --:--:--	<a href="#">▶ Start run</a>
PROTOCOL START --:--:--	PROTOCOL END --:--:--	<a href="#">Cancel run</a>	

Current Step: Not started yet [Download Run Log](#)

[Setup](#) [Parameters](#) [Module Controls](#) [Run Preview](#)

**Parameters** Custom values

**Values are view-only**  
Cancel the run and restart setup to edit

Name	Value
Debugging mode ⓘ	Off
Number of samples ⓘ	24 <span>Updated</span>
Magnetic module engage height ⓘ	3 mm
Mix samples default times ⓘ	5 cycles
Mix sample thorough times ⓘ	10 cycles
Delay lysis ⓘ	3 min
Delay C-Beads incubate ⓘ	1 min
Delay M-Beads separate ⓘ	5 min
Delay M-Beads resuspend ⓘ	5 min
Delay M-Beads dry ⓘ	15 min

⚙️ ?

14. Optional: If you are unsure of the status of the connected modules (here only the Magnetic Module) press the “Module Controls” button and check the status of the modules (the default status is “Disengaged”). If it shows that the module is unavailable, check if the module is turned on.

Opentrons

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### Plasmid Purification with NucleoMag Plasmid Kit (Magnetic Separation)

RUN	STATUS	RUN TIME
10/22/2024 14:58:44	Not started	--:--:--

PROTOCOL START: --:--:-- PROTOCOL END: --:--:--

Start run

Cancel run

Current Step: Not started yet

Download Run Log

Setup Parameters **Module Controls** Run Preview

DECK SLOT 1 - USB-1

Magnetic Module GEN1

Disengaged

Height: -2.5

15. Optional: If you want to see exactly what the protocol will do (all steps in detail) press “Run Preview” and check the steps manually.

Opentrons

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Plasmid Purification with NucleoMag Plasmid Kit (Magnetic Separation)

RUN	STATUS	RUN TIME
10/22/2024 14:58:44	Not started	--:--:--

PROTOCOL START

PROTOCOL END

Start run

Cancel run

Current Step: Not started yet

Download Run Log

Setup

Parameters

Module Controls

Run Preview

Run Preview 7158 steps total

This is a preview of your protocol's steps

1 Homing all gantry, pipette, and plunger axes

2 Load Opentrons OT-2 96 Tip Rack 300 µL in Slot 5

3 Load Opentrons OT-2 96 Tip Rack 300 µL in Slot 8

4 Load Opentrons OT-2 96 Tip Rack 1000 µL in Slot 4

5 Load Opentrons OT-2 96 Tip Rack 1000 µL in Slot 7

6 Load Opentrons OT-2 96 Tip Rack 1000 µL in Slot 10

7 Load P300 Single-Channel GEN1 in Right Mount

8 Load P1000 Single-Channel GEN1 in Left Mount

9 Load Opentrons 10 Tube Rack with Falcon 4x50 mL, 6x15 mL Conical in Slot 6

10 Load A1 into Opentrons 10 Tube Rack with Falcon 4x50 mL, 6x15 mL Conical

11 Load A2 into Opentrons 10 Tube Rack with Falcon 4x50 mL, 6x15 mL Conical

12 Load S3 into Opentrons 10 Tube Rack with Falcon 4x50 mL, 6x15 mL Conical

