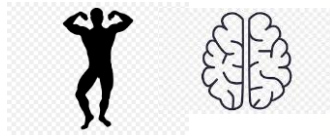


Pipetovací robot Andrew+ pro automatizaci přípravy vzorků

Martina Riesová

VITATOX 2023, 29.5.2023

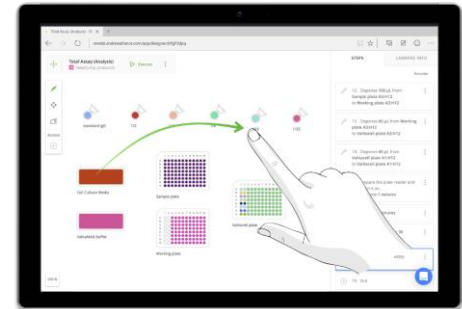


- Pipetovací robot k automatizaci rozličných protokolů přípravy vzorků
 - reprodukovatelnost
 - flexibilita
 - konektivita



■ Software

- jednoduché rozhraní
- snadné propojení laboratoří a uživatelů
- připraveno do regulovaného prostředí

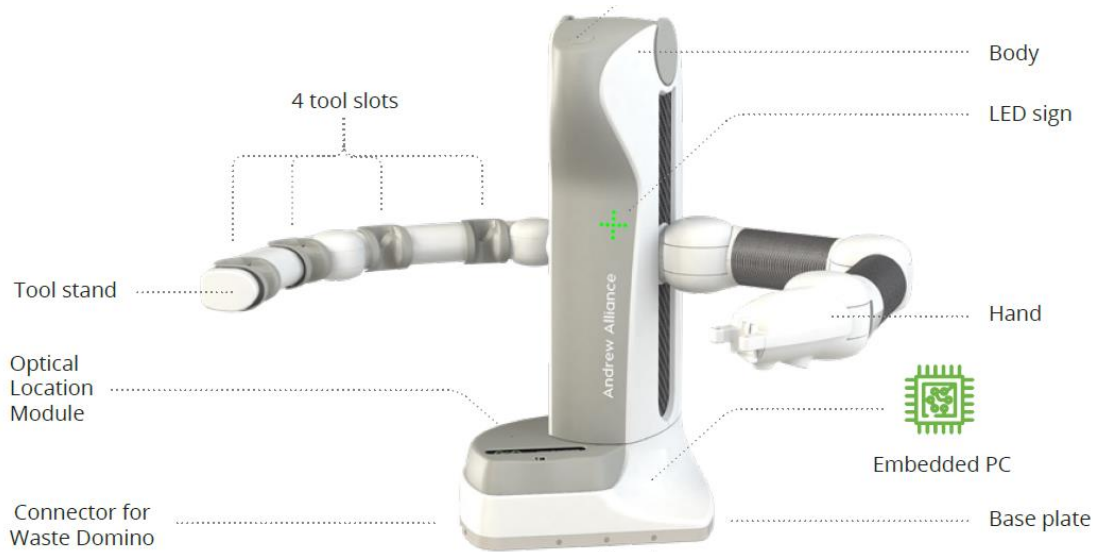


Andrew

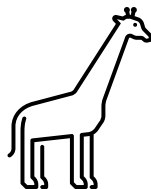
the pipetting robot



Waters™



16 kg



61 cm



Waste domino

■ **V pravé ruce drží:**

- **Jedno** nebo **8 kanálové** pipety
- Jiné nástroje
 - **Gripper** pro přenos platíček/zkumavek

■ **Pracovní prostor:**

- Modulární z “kostek”

Domino

- Domina pro **Váš** spotřební materiál
- Maximální flexibilita

■ **Device +**

- Přidružené nástroje pro komplexnější postupy

Andrew+/Pipette+ Bluetooth Pipettes

Waters™

Single Channel



- 0.2-10 μL
- 5-120 μL
- 10-300 μL
- 50-1,000 μL
- 100-5,000 μL
- 500-10,000 μL

Multi-Channel



- 0.2-10 μL
- 5-120 μL
- 10-300 μL
- 50-1,200 μL

Pipetting Modes

Main Mode-

Available in All Pipette Models

Pipetting	✓
Reverse Pipetting	✓
Manual Pipetting	✓
Multi Dispensing	✓
Diluting	✓
Sequential Dispensing	✓
Multi Aspiration	✓
Titrate	✓

Works with

OneLab 
design & execute

Andrew+/Pipette+ Bluetooth Pipettes

Waters™

Single Channel



- 0.2-10 μL
- 5-120 μL
- 10-300 μL
- 50-1,000 μL
- 100-5,000 μL
- 500-10,000 μL

Multi-Channel



- 0.2-10 μL
- 5-120 μL
- 10-300 μL
- 50-1,200 μL

Gripper



Snadno sestavíte prostředí pro vaše aplikace

Microplates



Reservoirs



Columns, Reaction Blocks



Tubes/Bottles



- > 80 různých domin
- >300 spotřebního materiálu
- Domina na míru zákazníkům (3D tisk)

Peltier+



Rychlé ohřívání/ chlazení

Rychlé zchlazení až na 0°C
vyhřívání do 99°C

Heater-Shaker+



Ohřev a míchání

S nástavcem i pro deepwell
platíčka

Magnet+



Spolehlivá separace

Tuby, deepwell platíčka,
microplatíčka



Shaker+



Míchání

Bez vibrací, rychlost míchání
200-3000 rpm



- **Plná** automatizace SPE
- Kompatibilní s platíčky i mikroplatíčky
- Kompatibilní s 1 cc, 3cc a 6cc kolonkami
- Kontrolovaný tlakový profil
- Použití nástroje gripper

Extraction

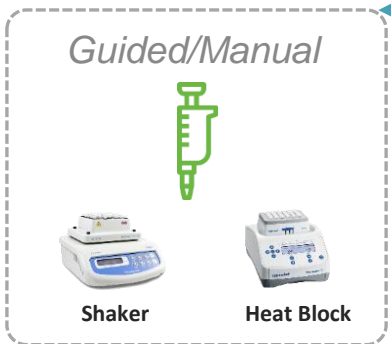
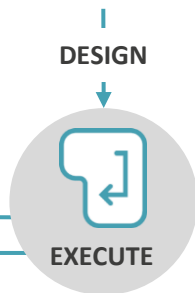
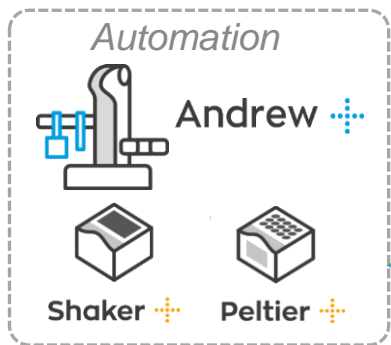
Waters™



- **Plná** automatizace SPE
- Kompatibilní s platíčky i mikroplatíčky
- Kompatibilní s 1cc, 3cc a 6cc kolonkami
- Kontrolovaný tlakový profil
- Použití nástroje gripper



OneLab



OneLab
design & execute



- **OneLab** je na **cloudu**, přístupný prostřednictvím **webového prohlížeče**
 - Přístup odkudkoliv, konektivita mezi uživateli, laboratořemi
- Uživatel **jednoduše** chystá **Protokoly**, které pak vykonává **robot**
 - nebo** uživatel pomocí “robotích” pipet/ uživatel zcela manuálně
- Provedení protokolu uloženo a **zdokumentováno**
 - Reporty, dohledatelnost, **audit trail**

Make a **FREE** account today at:
www.onelab.andrewalliance.com

New protocol #7 v.1 Execute

Start by adding labware to your bench!

1. čistý stůl
2. výběr spotřebáku
3. “naplnění” reagensy, vzorky, pufry...
4. pipetování

100 %

✕ Add labware to the bench

Search by name, reference, ...



ALL TUBES & VIALS PLATES BOTTLES & RESERVOIRS MICROCHIPS & DEVICES COLUMNS

Filters

Number of wells

- 1 4 6
- 8 12 15
- 18 24 36
- 48 54 55
- 60 96 384

Well capacity

- < 100 uL 100 uL - 1 mL
- 1 mL - 50 mL
- 50 mL - 250 mL > 250 mL

Device compatibility

- Absorbance plate reader

Frequently used items

<p>CELLSTAR® 50 mL conical screw-cap tube</p> <p>+ Add</p>	<p>Fisherbrand™ Premium 1.5 mL microtube</p> <p>+ Add</p>	<p>Globe Scientific, 29 mL 18x150mm glass culture tube</p> <p>+ Add</p>	<p>Falcon® 50 mL conical centrifuge tube</p> <p>+ Add</p>		
<p>10 mL crimp-top vial</p> <p>+ Add</p>	<p>10 mL flat-bottom screw cap test tube</p> <p>+ Add</p>	<p>13x84mm collection tube, virus preservation...</p> <p>+ Add</p>	<p>16x100mm collection tube, COPAN UTM®...</p> <p>+ Add</p>	<p>16x100mm collection tube, IMPROVIRAL™...</p> <p>+ Add</p>	<p>16x100mm collection tube, virus preservation...</p> <p>+ Add</p>

Příprava protokolu

Demo short HPLC2023 ⚡ V. 1 🔒 Execute

Waters 2 mL LC/GC screw-top vial in 48x

	1	2	3	4	5	6	7	8
A	○	○	○	○	○	○	○	○
B	○	○	○	○	○	○	○	○
C	○	○	○	○	○	○	○	○
D	○	○	○	○	○	○	○	○
E	○	○	○	○	○	○	○	○
F	○	○	○	○	○	○	○	○

25% MeOH in water #1

25% MeOH in water #2

sample1 sample3

sample2 sample4

	1	2	3	4	5	6	7	8	9	10	11	12
A	○	○	○	○	○	○	○	○	○	○	○	○
B	○	○	○	○	○	○	○	○	○	○	○	○
C	○	○	○	○	○	○	○	○	○	○	○	○
D	○	○	○	○	○	○	○	○	○	○	○	○
E	○	○	○	○	○	○	○	○	○	○	○	○
F	○	○	○	○	○	○	○	○	○	○	○	○
G	○	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○	○

Target
Waters 800 µL 96-round well collection p

Labware 1 solution

- Rename
- Replicate
- Delete
- Replace labware
- View labware info
- Define reagent at start
- Fill in with a sample reference at start
- Import solution at start
- Define as target of the protocol

141 %

Příprava protokolu

Demo short HPLC2023 ⚡ V.1 🔒 ⋮

Actions

-
-
-
-
-

Waters 2 mL LC/GC screw-top vial in 48x

	1	2	3	4	5	6	7	8
A	○	○	○	○	○	○	○	○
B	○	○	○	○	○	○	○	○
C	○	○	○	○	○	○	○	○
D	○	○	○	○	○	○	○	○
E	○	○	○	○	○	○	○	○
F	○	○	○	○	○	○	○	○

25% MeOH in water #1

25% MeOH in water #2

sample1 sample3

sample2 sample4

	1	2	3	4	5	6	7	8	9	10	11	12
A	○	○	○	○	○	○	○	○	○	○	○	○
B	○	○	○	○	○	○	○	○	○	○	○	○
C	○	○	○	○	○	○	○	○	○	○	○	○
D	○	○	○	○	○	○	○	○	○	○	○	○
E	○	○	○	○	○	○	○	○	○	○	○	○
F	○	○	○	○	○	○	○	○	○	○	○	○
G	○	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○	○

Target
Waters 800 µL 96-round well collection p

Pipetting mode

Forward Reverse Repetitive mode ⓘ

Blow-out ⓘ

Handling liquid viscosity

Aspiration speed

Slow Normal Fast

Dispensing speed

Slow Normal Fast

Air top cushion (High viscosity aspiration) ⓘ

Air bottom cushion (Low viscosity aspiration) ⓘ

Mixing ⓘ

Sample (Source)

Sample (Destination)

Mixing

5 times

Mixing

5 times

Speed

Slow Normal Fast

Speed

Slow Normal Fast

Volume

µL

Volume

µL

Demo short HPLC2023 ⚡ V. 1 🔒 ⋮ ▶ Execute

Actions

- 🔍
- 🔄
- 📄
- ⬇️
- +

	1	2	3	4	5	6	7	8
A	●	●	●					
B	●	●	●					
C								
D								
E								
F								

Waters 2 mL LC/GC screw-top vial / 48x

25% MeOH in water #2

25% MeOH in water #1

sample1

sample3

sample2

sample4

	1	2	3	4	5	6	7	8	9	10	11	12
A	○	○	○	○	○	○	○	○	○	○	○	○
B	○	○	○	○	○	○	○	○	○	○	○	○
C	○	○	○	○	○	○	○	○	○	○	○	○
D	○	○	○	○	○	○	○	○	○	○	○	○
E	○	○	○	○	○	○	○	○	○	○	○	○
F	○	○	○	○	○	○	○	○	○	○	○	○
G	○	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○	○

Target

STEPS LABWARE INFO

Reorder

▶ 0. Start

1. Dispense multiple volumes from sample1 to Waters 2 mL LC/GC screw-top vial in 48x A1, B1

2. Dispense multiple volumes from sample2 to Waters 2 mL LC/GC screw-top vial in 48x A2, B2

3. Dispense multiple volumes from sample3 to Waters 2 mL LC/GC screw-top vial in 48x A3, B3

4. Dispense multiple volumes from sample4 to Waters 2 mL LC/GC screw-top vial in 48x A4, B4

5. Dispense multiple volumes from 25% MeOH in water #2 to Waters 2 mL LC/GC screw-

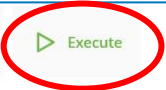
161 %

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16

Příprava protokolu

Waters™

Demo short HPLC2023 V. 1 

	1	2	3	4	5	6	7	8											
A	●	●	●	●															
B	●	●	●	●															
C																			
D																			
E																			
F																			

Waters 2 mL LC/GC screw-top vial in 48x

25% MeOH in water #2

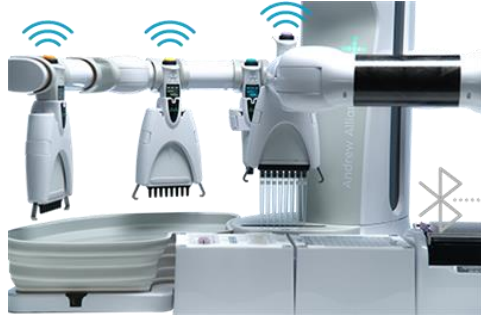
25% MeOH in water #1

sample1 sample3

sample2 sample4

	1	2	3	4	5	6	7	8	9	10	11	12							
A	●	●	●	●	●	●	●	●	●	●	●	●							
B	●	●	●	●	●	●	●	●	●	●	●	●							
C	●	●	●	●	●	●	●	●	●	●	●	●							
D	●	●	●	●	●	●	●	●	●	●	●	●							
E	●	●	●	●	●	●	●	●	●	●	●	●							
F	●	●	●	●	●	●	●	●	●	●	●	●							
G	●	●	●	●	●	●	●	●	●	●	●	●							
H	●	●	●	●	●	●	●	●	●	●	●	●							

Target





Category

All

Bioanalysis

Biomedical research

Biopharma

Bioprocessing

Cell biology

Clinical research

Diagnostics

Drug discovery

Food testing

General liquid handling

Genomics

Glycomics

LC/MS sample prep

Lipidomics

Metabolomics

Proteomics

OneLab library

Search protocols

Name

Published by



AccQ•Tag™ Amino Acid Sample Prep

Waters Corporation

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[Click & Execute Method](#) Version 6, 2 Oct 2022 at 10:16 AM

The task of accurately separating, identifying, and quantitating amino acids in the research, development, and commercialization of food, feed, and biotherapeutic products is challenging.

To analyze released amino acids by HPLC or UPLC, Waters provides many solutions that use pre-column derivatization so that amino acids can be analyzed by optical detection.



ACE Inhibition Assay

Andrew Alliance

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[Get Started Method](#) Version 1, 2 Oct 2022 at 10:16 AM

Investigating the ACE inhibitory activity of active biomolecules is a valuable source of drugs for the treatment of cardiovascular diseases.

OneLab helps mitigate the effects of pipetting errors and variability during the assessment of ACE inhibition and IC50 determination. This allows for the delivery of more reliable and accurate data, while eventually accelerating biological discovery.



Analysis of mAbs in Crude Samples

Genovis

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[Click & Execute Method](#) Version 2, 2 Oct 2022 at 10:16 AM

Developing a robust process for manufacturing therapeutic mAbs poses many analytical challenges. This requires high-throughput methods with fast sample preparation, robust analytics, and easy data interpretation.

Here we present a fully automated workflow for sample preparation for middle-level analysis by LC-MS of mAbs directly from crude protein samples such as harvested cell culture fluid.



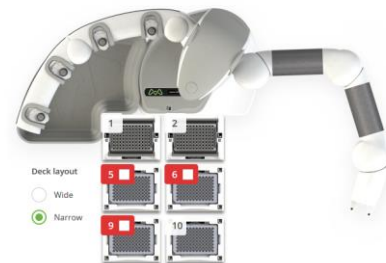
Automated Antibody Purification

Waters Corporation

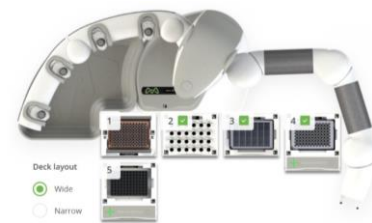
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[Tutorial Method](#) Version 3, 2 Oct 2022 at 10:16 AM

Antibody purification is routinely performed in biopharmaceutical research. Here, we present a rapid automated Protein A-based antibody purification method using magnetic beads. The robust protocol ensures high antibody recovery.



96-Well PCR Master Mix Setup



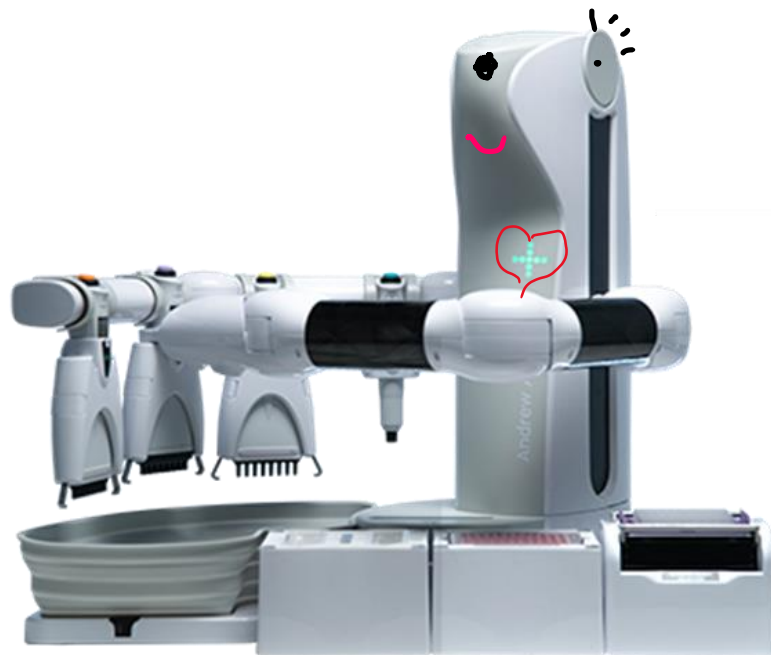
AccQ-Tag Ultra LC Amino Acid Analysis

Position	Dominoes and connected devices
1, 2	Tip Insertion System Domino
3	Microtube Domino
4	Deepwell Microplate Domino
5	Microplate Shaker+
6	96-PCR Plate Magnet+



Rapid Automated Antibody Purification (Protein A)

Děkuji Vám za
pozornost



martina_riesova@waters.com