



## OttoPure

8-Channel Automated Protein  
Purification System

A compact and efficient workhorse for high-throughput protein purification via affinity, ion exchange, and hydrophobic chromatography





**Proudly Canadian and  
supporting the local industry**  
Products designed, built and tested at our  
Richmond and Surrey locations

## ABOUT PROMOCHROM

PromoChrom Technologies focuses on the development of sample preparation solutions for trace analysis. Our highly versatile systems have helped customers automate even the most challenging sample extraction processes.

Since **2005**, PromoChrom has developed the SPE-01 and SPE-03 cleanup stations, SPE-04 online/offline SPE's, LC-04 online SPE, RT-01 sample purifier and SPE-06 mini-SPE. Each of the instruments targeted specific applications.

In **2017**, “**Two-tier online SPE**” was invented by PromoChrom which uses a second SPE column for online SPE. This method significantly increased the detection sensitivity and mitigated column compatibility and clogging issues commonly found in online SPE systems.

In **2023**, upon popular request, the dual-column configuration (MOD-00D) was developed for the SPE-03. This feature allowed the automation of protein purification workflows that utilizes more than one column.

In **2011**, the **flow-path-integration technique** was patented for multi-channel liquid handling. It combines various switching valves into one liquid handling module. This simplified our instruments considerably, making them more cost-effective and reliable

By **2019**, the SPE-03, widely used by government and commercial labs for PFAS and other pollutants, started to take the stage on protein purification. Noticing the same principles as SPE, a renowned pharmaceutical company automated their antigen purification on the SPE-03.

In **2024**, the SPE-03 with protein purification configuration is rebranded as the **OttoPure** and **OttoPure Duo** systems. With the OttoPure product line, PromoChrom is developing new application-specific features to further address the needs of biopharmaceutical workflows.

**Today**, we continue to seek new breakthroughs in automating R&D and production for protein purification.

# APPLICATIONS

- Affinity Purification
- Ion Exchange
- Hydrophobic Interaction Chromatography



## SMALL BUT VERSATILE

Imagine an 8-channel system so compact in size, you can easily fit it inside a fridge, with every step in parallel. Method editing is quick and easy using its 5" touch screen interface. By providing constant flow rate and well-controlled elution procedures, OttoPure helps to improve the quality and efficiency of protein purification. Accelerate your R&D and production today.



- parallel operation • positive pressure system • 0.5 - 1000mL sample loading • column cleaning in place (CIP) and regeneration • column conditioning/washing/elution • column blockage detection • buffer mixing • programmable wait • operates under temperatures as low as 4 °C • system cleaning • 2/4/6 fractions per sample • up to 2 waste channels • self-pour and pre-packed columns • 5" touch interface • up to 100 methods • customizable



# SAMPLE LOADING OPTIONS

Highly flexible

OttoPure comes with default open sample line with inline filter attachment capability that can be used for open-mouth containers such as 15mL/50mL centrifuge tubes and up to 500mL sample bottles. Longer tubing is available for larger sample containers.

## Default Sample Tubing

General applications that do not require automated sample container rinsing.



## MOD-004-S

Simplify handling and maximize sample transfer for 0.5-20mL samples.

For applications with small sample sizes 0.5mL to 20mL, MOD-004-S offers a convenient way to directly dispense samples into empty tubes on either side of the system. Maximizes sample transfer and simplifies sample line cleaning.



Contact us for customization options



# FEATURES

Efficient. Simple. Robust

## 8-CHANNEL SYSTEM

The OttoPure processes 8 samples up to 4L in parallel. All samples start and finish at the same time. Our patented multi-channel valve has separate flow paths for each sample to remove cross-contamination.

## SELF-POUR AND PRE-PACKED COLUMNS

Compatible with a variety of column types - custom adapters can be made for non-standard connections

## POSITIVE PRESSURE

The OttoPure system uses positive pressure to achieve controlled flow rates and prevent resin drying

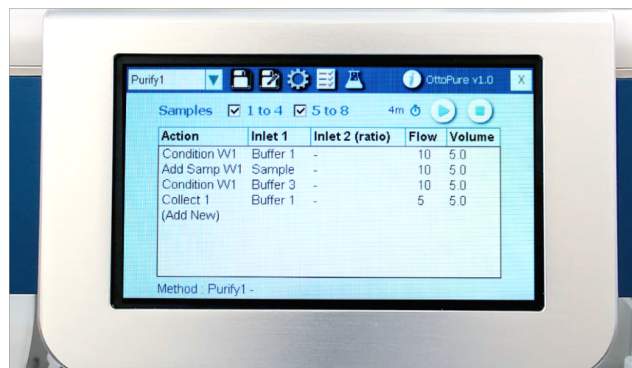
## FRACTION COLLECTION

The default fraction collection tray comes with 1 row for 15mL tubes and 1 row for 50mL tubes. Customizations available for sizes between 2mL vials and 50mL centrifuge and up to 6 rows.



## INTUITIVE TOUCH INTERFACE

The OttoPure comes with a resistive touch screen interface that works even under wet conditions. There is no need for an external computer. Sample selection and method editing can be intuitively performed in just a few steps. When running, the screen highlights the current step being run and displays its processed volume and remaining time.



## INLINE SAMPLE FILTERING

Inline filters can be connected to sample lines to prevent sample particulates from entering the system.



## ■ UP TO 2 WASTE OUTLETS

2 waste outlets enable the separation of different buffer and sample waste. 4 or 6 fraction rack systems only have one waste channel.



## ■ AIR INTAKE MITIGATION

The OttoPure System utilizes pre-column reservoirs that mitigate air introduction into columns, preventing column cracking and ensuring resin uniformity during a purification.

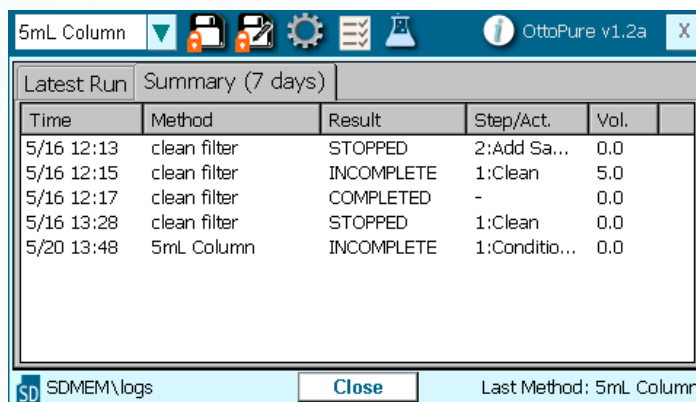


## ■ COLUMN BLOCKAGE DETECTION AND SMART HANDLING

The system can detect the blockage of columns and reduce the flow rate accordingly. If blockage continues, the instrument will pause for the user to step in.

## ■ AUTO-RECOVERY AND LOGGING

The powerful software keeps track of extraction step performed and can allow users to resume during disruptions such as power failure. Up to 7 days of logs can also be viewed or retrieved.



Latest Run Summary (7 days)					
Time	Method	Result	Step/Act.	Vol.	
5/16 12:13	clean filter	STOPPED	2:Add Sa...	0.0	
5/16 12:15	clean filter	INCOMPLETE	1:Clean	5.0	
5/16 12:17	clean filter	COMPLETED	-	0.0	
5/16 13:28	clean filter	STOPPED	1:Clean	0.0	
5/20 13:48	5mL Column	INCOMPLETE	1:Conditio...	0.0	

## Automated High Throughput Purification System

For Proteins and other Biomolecules

- Antibody Purification
- Antigen and Enzyme Extraction
- Metabolite Profiling
- Oligonucleotide Purification

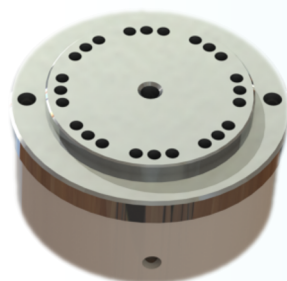


# WORKING PRINCIPLE

## Patented Valve Design to Achieve Complex Liquid Handling

PromoChrom's multi-functional valve shown below is based on our flow-path-integration technique. The function of one such valve is equivalent to several normal stream selection valves and isolation valves.

With 1 stream selection valve and an 8-channel distribution valve, the OttoPure can provide isolated flow paths for 8 samples, choose from 7 buffers, and perform buffer mixing.



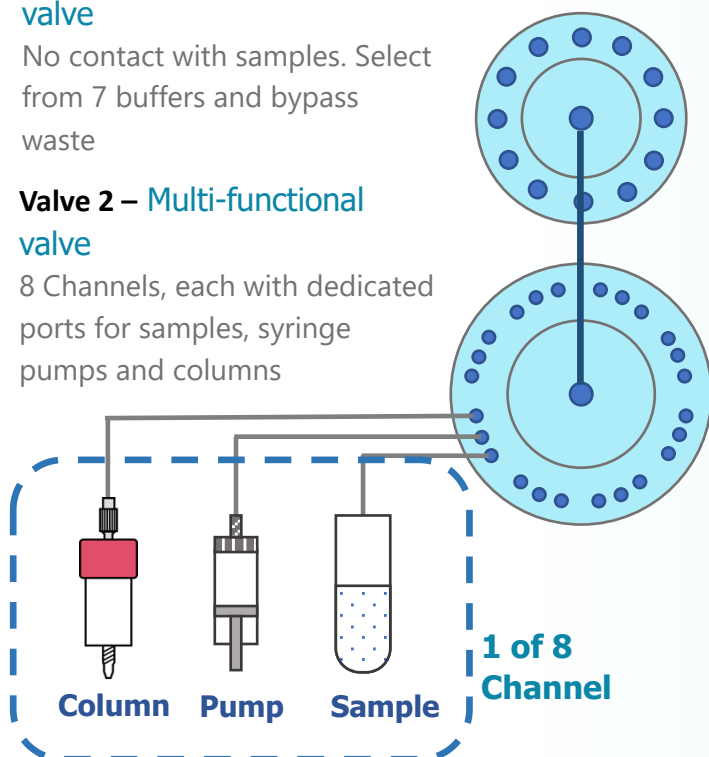
**8-Channel Valve**

### Valve 1 - Stream-selection valve

No contact with samples. Select from 7 buffers and bypass waste

### Valve 2 – Multi-functional valve

8 Channels, each with dedicated ports for samples, syringe pumps and columns



## Reduced Number of Valves

This design has replaced the conventional method of using one stream selection valve and one isolation valve per channel. Not only does it save space and reduce complexity, but there is also more room for other functionalities.



**Valves in Conventional Systems**

## Design Benefits

### ■ Buffer Mixing

The OttoPure utilizes a stream selection valve and 8 channel distribution valves to allow for buffer mixing – perfect for reducing the number of prepared binding, wash, and elution buffers.

### ■ Low Maintenance Requirement

With significantly fewer parts in operation, little maintenance and part replacement is required.

### ■ Small Footprint

The OttoPure is only 35cm x 35cm x 45cm in size and can easily fit on lab benches or inside fridges

### ■ Ceramic Stators

Able to handle wide pH range and buffers of variable ionic strength.

### ■ Anti – Bubbling

The OttoPure System utilizes pre-column reservoirs that mitigate air introduction into columns, preventing column cracking and ensuring resin uniformity.

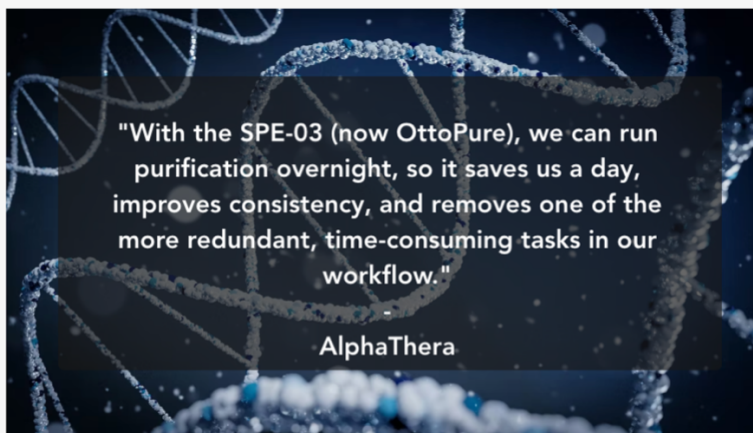
# CUSTOMER FEEDBACK

## What does our customer say about OttoPure System for automating protein purification?

The AlphaThera team shared data on their use of OttoPure system for protein purification



**Protein Purification system at AlphaThera**



**Overall feedback from AlphaThera team**

- High production level with low batch-to-batch variability (See Figure 1)
- Significant time savings, with total purification time being reduced from 2 workdays to just overnight (See Figure 2)
- Easy scale up, allowing a 5x scale up in production to be easily accommodated (See Figure 3)
- Easy to maintain the instrument

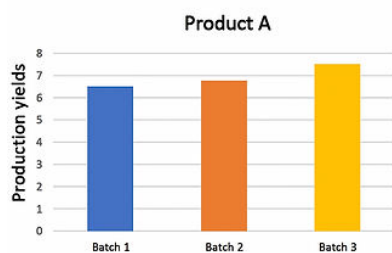


Figure 1 - the batch-to-batch consistency on production.

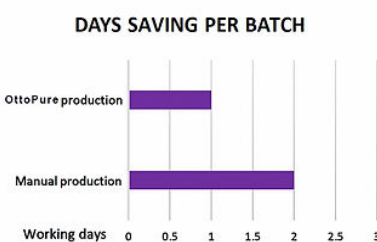


Figure 2 - the time savings per batch.

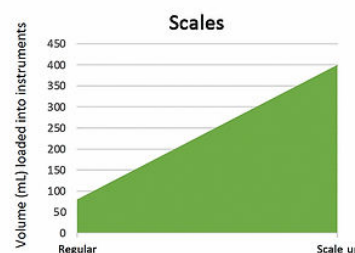


Figure 3 - the scaleups.

[AlphaThera](#) is a biotechnology company focused on simplifying and standardizing antibody labeling to enable confident bioconjugation reactions. To optimize their protein purification process and enhance efficiency, the company deployed PromoChrom's [OttoPure automated protein purification system](#).

AlphaThera has seen tremendous improvements in their production levels, batch-to-batch consistency, and purification time with the use of OttoPure. They were also able to scale up production by five times while keeping instrument maintenance simple.



# SPECIFICATIONS

## OttoPure

<b>No. of Samples</b>	Up to 8 in parallel
<b>No. of fractions</b>	2 up to 6
<b>No. of waste channels</b>	2 up to 2
<b>No. of buffers</b>	7 up to 9
<b>Sample volume</b>	5 – 1000 mL
<b>Fraction volume</b>	2mL to 50mL
<b>Column Size</b>	Up to 30mL
<b>Flow rate</b>	0.5 – 50 mL/min
<b>Fluid delivery</b>	Positive pressure
<b>Display</b>	5" resistive touch
<b>No. of methods</b>	100
<b>Method actions</b>	Column pre-condition/soak/wash, add sample, elution, sample line cleaning, buffer mixing, pause
<b>Dimensions</b>	35 cm x 35 cm x 45 cm
<b>Weight</b>	13 kg
<b>Power</b>	1.5 A @ 24 VDC

## Customizations

### Sample Container Rack

Custom sample racks for sample tubes or bottles, specify when ordering

### Fraction Rack

Default rack holds 1 row of 15mL and 1 row of 50mL centrifuge tubes. Customizable for 2mL vials up to 50mL centrifuge tubes and up to 6 rows

### Customize Column Adapters

With non-standard connections

# ACCESSORIES

## MOD-004-S (0.5mL to 20mL samples)

Sample tubes with fluid lines on the bottom to allow direct dispensing of samples and maximum transfer of small volume samples. Easy to clean since sample lines are not submerged. Inline filter compatible.



## MOD-00E Plate (larger columns >10mL)

Plate extension to accommodate larger columns (>10mL). Easy to install and adaptable to columns of varying lengths and diameters.



## Inline Filters (for samples with particulates)

Prevents sample particulates from entering the system. Analytes trapped in filters can be automatically recovered after loading.





# Ordering Info

Part No.	Description
<b>OttoPure</b>	8 channel OttoPure Protein Purification System, 24V power supply, touch screen stylus pen, solvent bottle adapters, sample bottle adapter tubing and user manual.
<b>OttoPure DUO</b>	Duo column configuration - 8 channel OttoPure Protein Purification System, 24V power supply, touch screen stylus pen, solvent bottle adapters, sample bottle adapter tubing and user manual.
<b>MOD-00E</b>	Extended platform with set of column line extension (for any columns longer than 5mL HisTrap column)
<b>MOD-00N</b>	Nitrogen intake valve and solenoid add-on for nitrogen purging of columns
<b>OTP-R</b>	Reservoirs for de-bubbling, set of 8
<b>Anti-clogging solutions</b>	Refer to <a href="http://www.promochrom.com/consumables">www.promochrom.com/consumables</a>



**PROMOCHROM**  
TECHNOLOGIES

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