# Exploring the IMCSTIPS<sup>™</sup> benefits of

# AUTOMATED SIZE EXCLUSION CHROMATOGRAPHY

### **PRODUCT OVERVIEW**

The principle of size exclusion chromatography is that molecules do not interact with the stationary phase and pass through the column at varying rates based on the size of the molecules, with the larger molecules passing through the column and eluting earlier than the smaller molecules. This chromatography technique is beneficial for exchanging buffers and salts which can interfere with the next step analytical procedures such as enzyme-based assays.

SizeX product series introduced by IMCStips are designed to perform on the Hamilton CO-RE 96 pipette head for automated buffer exchange. The workflow has been coupled to remove imidazole and salts after Ni-IMAC affinity purification. SizeX G product series are designed to work with chaotropic salts such as 6 M guanidine for efficient reduction of guanidine prior to trypsin/LysC digestion, which is typically implemented in bioanalytical procedures such as multi-attribute monitoring (MAM).

 $\begin{array}{l} \textbf{CONSISTENT} - \textit{over 80\% recovery of proteins, including denatured immunoglobulins} \\ \textbf{FLEXIBLE} - \textit{used for 100} \ \mu \textit{L} \ to 200 \ \mu \textit{L} \ of sample volume in automated platform} \\ \textbf{EASY TO USE} - "Ready to go" workstations that require no additional programming} \end{array}$ 

## FULLY AUTOMATED METHODS AND CUSTOM SCRIPTS AVAILABLE

IMCS offers fully automated sample preparation methods using SizeX tips. Methods have been optimized and are ready for use in your process.

- 96 samples in 30 minutes
- We will send a software script package file for Hamilton systems with your tips
- Our R&D team can help develop a customized workflow
- We offer onsite confidential method development



Trypsin digestion workflow for the immunoglobulin after treating with 4 M GnHCl, DTT and IAA followed by SEC to desalt prior to trypsin LysC digestion. Three peptides were monitored by Thermo LC-MS/MS using 0.5 GnHCl treated as control sample and post SEC samples





 $300\,\mu\text{L}$  IMCStips Deck Layout

SizeX IMCStips retaining a blue dye

### **IMPLEMENTATION IS EASY WITH IMCStips**

- Software scripts for Hamilton Workstations
- Fully developed narratives guide you through each step
- Templated processes allow for customized workflows
- On-site technical support



# **HIGH PERFORMANCE AND CONSISTENCY**





Automated workflow for size exclusion chromatography using small molecule dye (~500 Da) through INtip chemistry demonstrates over 18 fold dilution of the dye (A). The left most column contain dye solution prior to SEC and the center column contain the samples post SEC and the right most column are water blank samples. (B). Trypsin digestion workflow for the immunoglobulin after treating with 4 M GnHCl, DTT and IAA followed by SEC to desalt prior to trypsin/LysC digestion. Three peptides were monitored by Thermo LC-MS/MS using 0.5 M GnHCl treated as control sample and post-SEC samples. Eight post-SEC human IgG samples were trypsin/LysC treated and analyzed by UPLC-ESI-qTOF MS. The overlaid chromatograms and monitoring several critical quality attributes indicate that the results are highly consistent for all of the samples (C).

Sample	Starting Protein amount, μg	Total Protein Recovered, μg	Percent Recovery
1	170	138	81%
2	170	132	78%
3	170	147	86%

### Protein Recovery Using Size<sub>x</sub> A<sub>325</sub>



Recovered proteins were quantified using Bradford assay.



7 different proteins were desalted using IMCStips samples 1,2,3. *From left to right* MW: Molecular weight ladder SM: Starting material

### Size Products

Product Description		Catalog Number Rack of 96	
Size <sub>x</sub> G <sub>325</sub> - 1 mL tips	up to 200 μL sample volume	04T-H6R74-0-325-96	
Size <sub>x</sub> A <sub>325</sub> - 1 mL tips	up to 200 μL sample volume	04T-H6R75-0-325-96	

### **ORDER A COMPLIMENTARY SAMPLE TODAY**

Call, email or visit **www.imcstips.com** to order a sample of Size Exclusion Chromotography IMCStips

• Schedule a consultation with an IMCS technical sales representative for more information.



#### 888-560-2073 • inquiries@imcstips.com