ITEM OPPORTUNITY SYNOPSIS

Name of the item to be scouted: LC-MS/MS instrument equivalent to SCIEX 6500+ QTRAP

NAICS Code, if known:

Opportunities will be posted for 30 days unless another timeframe is given below.

Number of Days: 14

TECHNICAL INFORMATION

Describe the Item:

Please describe the item application/the end use of item. LC-MS/MS instrument that will support ORD Homeland Security research in Cincinnati. This instrument will be purchased with funds via a Capital Equipment award.

Provide the item number if applicable: (N95 Mask vs Protective Mask).

Supplier Information:

Type of Supplier being sought (select from list below)

Manufacturer

Contract Manufacturer

Distributor

Other (please specify)

Reason for scouting submission (select from list below)

2nd Supplier

Price

Re-Shore

Past supplier no longer available

New Product Startup

Other (please specify)

Summary of Technical Specifications and Performance Requirements:

Describe the manufacturing processes (elaborate to provide as much detail as possible)

Looking for a new off the shelf LC-MS/MS hybrid triple quadrupole linear ion trap mass spectrometer with LC40DXR and IonDrive Turbo V Source equivalents to be delivered and installed at the EPA laboratory.

Provide dimensions / size / tolerances / performance specifications of the item.

The instrument will be 59 cm x 79 cm x 99 cm and 62 kg in weight. The instrument must be capable of full scan MS and selected ion monitoring for both Q1 and Q3, product ion scan, precursor ion scan, neutral loss or gain scan, multiple reaction monitoring (MRM), enhanced MS scan, enhanced product ion scan, enhanced resolution scan, MS3 scan, MRM3 scan, and TripleTrap scanning modes. The triple quad scan speed must be 12,000 Da/sec and the linear ion trap scan speed must be 20,000 Da/sec.

List required materials needed to make the product, including materials of product components, if applicable.

The instrument must contain a single thin aperture from atmosphere into the vacuum chamber, followed immediately by a patented, high-efficiency RF-only ion guide for ion focusing and containment. This must be followed by a patented high-pressure RF quadrupole followed by a quadrupole mass filter. A pre-filter must be located between the RF quadrupole and the first mass filter to help further focus the ions. A patented high-pressure quadrupole collision cell with a 180° Qurved LINAC® Collision Cell technology equivalent following the first mass filter and be used for high efficiency MS/MS fragmentation. The second mass analyzer must also be a quadrupole mass filter/Linear Accelerator trap.

Are there applicable certification requirements?

<mark>Yes</mark>

No

Please Explain: Must include standard parts and labor warranty for one year starting from the completion of instrument commissioning.

Are there any applicable regulations that apply to the production of this item?

Yes

<mark>No</mark>

Please Explain:

Are there any other standards, requirements?

Yes

<mark>No</mark>

Please Explain:

Additional Comments:

Is there other information that would impact the item's performance or usefulness? Please explain.

Business Information

Volume and Pricing:

Estimated Potential Business Volume (i.e. #Units per day, month, year): 1

Estimated Target Price / Unit Cost Information: (flexible and negotiable <u>not accepted)</u> \$403,261.51 for entire instrument, delivery, installation, and warranty

Delivery Requirements:

When is it needed by? (Immediate, 30 days, 6 months, etc) Within 60 days of order placement

Describe packaging requirements (i.e., individually/ group packaging). The instrument should be packaged to ensure safe handling of the sensitive electronic components and shipped as a complete unit in one delivery to the EPA laboratory

Where will this item be shipped? Cincinnati, OH 45220

Additional Comments:

Is there other information you would like to include? Vendor/company must be registered or will register in SAM.gov (https://sam.gov/content/home). This inquiry does not guarantee award of a contract. EPA requires a commercial off the shelf instrument that is immediately available that meets the technical specifications attached. Vendors shall provide documentation that their proposed product meets or exceeds the technical specifications attached.

SCIEX QTRAP 6500+ LC-MS/MS system specifications

Description:

The SCIEX QTRAP 6500+ system is an ultra-high sensitivity, hybrid triple quadrupole-Linear Accelerator trap mass spectrometer designed for LC-MS/MS analyses. Equipped with multicomponent IonDrive technology consisting of advancements in ion production, ion transmission and ion detection, this instrument pushes the limits in sensitivity, robustness and dynamic range for demanding assays. The combination of Linear Accelerator Trap and triple quadrupole functionality, uniquely allows both qualitative and quantitative analyses to be carried out – in a single experiment. The proven eQ electronics and the Qurved LINAC collision cell provide unmatched support for fast chromatography applications. The optional SelexION+ device DMS (differential mobility separation) adds a new dimension of selectivity to LC-MS/MS analyses.

Intended for Research Use Only. Not for Use in Diagnostic Procedures.

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1.1IonDrive Turbo V ion source housing1.1.1The instrument ionization source housing will have a source housing hosting interchangeable atmospheric pressure chemical ionization (APCI) probe and ESI probes. Each probe will be coded for automatic identification by the software/firmware of the host system.1.1.2The source will have three high-temperature, self-cleaning ceramic heaters with embedded temperature sensors.1.1.3The source will have orthogonal spraying for improved robustness.1.1.4The source will have two viewing ports – one large frontal and one lateral - for best performance optimization.1.1.5The source can be removed from the host system without tools and be replaced with a different one in less than 5 minutes.1.1.6The source housing will be fully vented to eliminate contamination of lab air.1.1.7The source housing will be fully interlocked. All gas and power supplies to the source are automatically shut down when the housing is removed from the host system.				
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1.2 Turbo V ion source housing				
The instrument ionization source housing will have a source housing hosting interchangeable				
1.2.1 APCI probe and ESI probes. Each probe will be coded for automatic identification by the				
software/firmware of the host system.				
1.2.2 The source will have three high-temperature, self-cleaning ceramic heaters with embedded				
temperature sensors.				
1.2.3 The source will have orthogonal spraying for improved robustness.				
1.2.4 The source will have two viewing ports – one large frontal and one lateral - for best				
performance optimization.				
1.2.5 The source can be removed from the host system without tools and be replaced with a				
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1.2.6 The source housing will be fully vented to eliminate contamination of lab air.				
1.2.7 The source housing will be fully interlocked. All gas and power supplies to the source are				
automatically shut down when the housing is removed from the host system.				
1.3 TurbolonSpray probe for Turbo V source or lonDrive source				
A unique TurbolonSpray sprayer probe compatible with the Turbo V source housing. When inserted				
in the Turbo V source, the TurbolonSpray probe activates via firmware a pair of high temperature				
ceramic heaters located in the source housing, creating symmetrical turbo gas streams for optimum				
sample desolvation.				
1.3.1 The ionization voltage will be user selectable from -4.5 kV to +5.5 kV.				
1.3.2 The flow rate compatibility will be from 5 μ L/min to 3000 μ L/min, without flow splitting.				
1.3.3 The solvent compatibility will be from 100% aqueous to 100% organic, with full gradient capability.				
1.3.4 The nebulizer gas (GS1) will be user selectable from 0 to 90 PSI (0-0.62 MPa) using zero grade				
air (recommended) or nitrogen.				

1.3.5 The turbo gas (GS2) will be user selectable from ambient to 750° Celsius and from 0 to 90 using zero grade air (recommended) or nitrogen							
1.3.6	The sprayer position will be adjustable vertically and sideways with micrometer adjustment						
	for repositioning.						
1.3.7	1.3.7 The probe will be resistance-coded for automated identification by firmware/software.						
1.3.8	1.3.8 All ion source parameters except sprayer positioning will be under computer control.						
1.4	APCI probe for Turbo V source or IonDrive Turbo V source						
A uniqu	ue APCI sprayer probe compatible with the Turbo V Source housing. When inserted in the Turbo						
V sourc	ce, the APCI probe activates via firmware a high temperature, self-cleaning ceramic heater for						
optimu	Im sample desolvation and reduced chemical noise. APCI ionization in gas phase is achieved at						
the out	tlet of the heater by a corona discharge needle.						
1.4.1	The corona discharge current will be user selectable from -5 μ A to +5 μ A.						
142	The source will have a flow rate compatibility from 50 μ L/min to 3000 μ L/min, without flow						
1.4.2	splitting.						
1/2	The solvent compatibility will be from 100% aqueous to 100% organic, with full gradient						
1.7.5	capability.						
1 4 4	The nebulizer gas will be user selectable from 0 to 90 PSI (0-0.62 MPa). Zero grade air						
1.7.7	recommended.						
1.4.5	I.5 The desolvation temperature will be user selectable from ambient to 750° Celsius.						
1.4.6	The sprayer position will be adjustable vertically and sideways with micrometer adjustment						
1.4.0	for repositioning.						
1.4.7	1.4.7 The probe will be resistance-coded for automated identification by firmware/software.						
1.4.8 All ion source parameters except sprayer positioning will be under computer control.							
1.5 l	DuoSpray source						
The Du	oSpray source kit is a software-selectable ESI/APCI ionization system that offers the ability to						
select	the best ionization process during a LC run for each individual compound or compound group.						
Re-usir	ng the main elements of the advanced Turbo V Source, the DuoSpray source features the same						
robust	ness and low chemical noise. The DuoSpray source enhances sensitivity over a larger						
compo	ound range, improves sample throughput and accelerates method development.						
1.5.1	The source will have two sprayer probes, one ESI probe and one APCI probe for Turbo V						
	source, with resistance-coding for automated identification by firmware/software.						
1.5.2	The ion source will be selectable between ESI or APCI. Source selection can be performed at a						
	maximum rate of one change per second (1 Hz).						
1.5.3	The source will have an inlet valve with sample flow directed to the ESI or APCI sprayer under						
	software control						
1.5.4	The source will have orthogonal spraying for improved robustness.						
1.5.5	I he source will have two high-temperature, self-cleaning ceramic heaters with embedded						
	temperature sensors.						
1.5.6	The source will have a flow rate compatibility in ESI mode from 5 μ L/min to 3000 μ L/min and						
	APCI mode from 50 μ L/min to 3000 μ L/min; without flow splitting.						
1.5.7	The solvent compatibility will be from 100% aqueous to 100% organic, with full gradient						
-	capability.						

1.5.8	The ESI nebulizer gas will be user selectable from 0 to 90 PSI (0-0.62 MPa). Zero grade air				
150	recommended.				
1.5.9	The desolvation temperature will be user selectable from ambient to 750 Celsius and				
1.5.10	I ne desolvation/Turbo gas (GS2) will be user selectable from ambient to 750° Celsius and				
	The FCL and a site will be used a direct bla weties the and side ways. The ADCL and we will be used a side weties the second side ways and the second side ways and side w				
1.5.11	The ESI sprayer position will be user adjustable vertically and sideways. The APCI sprayer will $\frac{1}{2}$				
be user adjustable laterally (at 45° angle).					
1.5.12	The source will have two viewing ports – one large frontal and one lateral - for best				
1.5.12	performance optimization.				
1.5.13	The source can be removed from the nost system without tools and be replaced with a				
	different one in less than 5 minutes.				
1.5.14	The source housing will be fully vented to eliminate contamination of lab air.				
1.5.15	The source housing will be fully interlocked. All gas and power supplies to the source are				
	automatically shut down when the housing is removed from the host system.				
1.5.16	All ion source parameters except sprayer positioning will be under computer control.				
1.6	OptiFlow Turbo V ion source micro bundle				
Low flo	ow source, probes and electrodes designed for minimal sample consumption and highest				
sensiti	vity at flow rates from 1 μ L/min to 200 μ L/min. The OptiFlow Turbo V source requires no tools				
and no	physical adjustments. The probes/electrodes have pre-optimized location and are changed to				
achieve	e different flow ranges. System comes with two probes, for flow ranges between 1-50 μ l/min				
and 50	-200 μl/min and three electrodes, one for flow ranges between 1-10 ul/min, 10 - 50 ul/min, and				
50-200	ul/min. Column heater for micro columns up to 15 cm in length and heated up to 90 °C. Can				
only be	only be controlled by a SCIEX nano/micro LC with Analyst software 1.7, HotFix 2.				
1.6.1	The OptiFlow source will be resistance-coded for automated identification by				
	firmware/software.				
1.6.2	The OptiFlow source micro will have flow rate compatibility from 1 μ L/min to 200 μ L/min				
1.0.2	without flow splitting.				
1.6.3	6.3 The solvent compatibility will be from 100% aqueous to 100% organic and 1% acid/base.				
	The OptiFlow source will have over temperature protection (OTP) device(s) that cut power				
1.6.4	to any of its heating device(s) which has the capability to cause accessible [•] surfaces of the				
	ion source to exceed 105°C, at an ambient temperature of 40°C in single fault condition.				
1.6.5	The OptiFlow source will have user selectable ionization voltage from -4.5 kV to +5.5 kV. The				
1.0.5	ion source shall operate in positive and negative electrospray mode.				
	The OptiFlow source will allow users to remove the ion source from a mass spectrometer				
1.6.6	without using any tools.				
1.6 7	The OptiFlow source housing will be fully interlocked. All gas and power supplies to the				
1.0.1	source are automatically shut down when the housing is removed from the host system.				
168	The OptiFlow source will have at least 3 viewing windows through which a user can view the				
1.6.8	probe tip.				

	The OptiFlow source interface with the mass spectrometer system will provide protective					
1.6.9	grounding to the systems protective ground terminal in accordance IEC standard 61010-					
	1:2010 3 rd edition.					
	The OptiFlow source will be stable when removed from the instrument and placed on a flat					
1.6.10	surface, without external aid, in the same orientation that it is attached to the mass					
	spectrometer.					
1 6 11	The OptiFlow source will allow the system to recognize the correct probe when inserted into					
1.6.11	the source.					
	The OptiFlow source micro will offer three different electrode options according to the					
1.6.12	following: 1-10 μL/min with a 25 μm ID glass electrode, 10-50 μL/min with a 50 μm ID glass					
	electrode and 50-200 μL/min with a 50 μm ID stainless steel electrode.					
1.6.13	The OptiFlow source will allow the system to recognize uniquely identifiable probes.					
1 6 14	The probe and electrode design will ensure that when installed the electrode protrusion is 1.0					
1.0.14	± 0.1mm from the probe tip for micro and analytical probes.					
1 0 15	The OptiFlow source will have two IonDrive TurboIonSpray (TIS) heaters that operate within a					
1.0.15	temperature setpoint range of 0°C to 750°C.					
1 6 16	The OptiFlow source TIS heaters will operate with a compressed air supply setting within a					
1.0.10	pressure range of 0 to 75 PSI.					
1 6 17	The OptiFlow source micro column heater will heat from (ambient+5°C) to 90°C within 25					
1.0.17	minutes.					
1618	The micro column heater will be controlled by the following liquid chromatographs (LCs):					
1.0.10	NanoLC 400, LC200, M3 MicroLC or M5 MicroLC systems.					
1 6 19	In the micro column heater, the temperature gradient will be less than 14°C along the length					
1.0.15	of a 15cm long column.					
1.6.20	The micro column heater will ramp from 30°C to 60°C and settle to within required stability					
	and accuracy within 15 minutes.					
1.6.21	The OptiFlow source micro will function when installed with SelexION+ installed.					
1.6.22	The OptiFlow source will be compatible with standard DCI and nano DCI on 6500+					
	instruments.					
1.7	OptiFlow Turbo V ion source nano bundle					
Ultralo	w flow source and interface designed for minimal sample consumption and highest					
sensitivity at flow rates from 100 to 1000 nL/min. The OptiFlow Turbo V nano bundle comes with one						
nano electrode and one nano probe with pre-optimized location and requires no tools or physical						
adjustr	adjustments. The nano column heater can only be configured with the NanoLC 415 and NanoLC 425					
systems. The maximum column heater temperature is 90 °C (194 °F). Can only be controlled by a						
SCIEX nano/micro LC with Analyst software 1.7, HotFix 2.						
1.7.1	The source will be resistance-coded for automated identification by firmware/software.					
1.7.2	The OptiFlow Turbo V ion source nano will have flow rate compatibility from 100 to 1000					
	nL/min without flow splitting.					
1.7.3	The solvent compatibility will be from 100% aqueous to 100% organic and 1% acid/base.					
1.7.4	The OptiFlow Turbo V ion source will allow users to remove the Ion Source from a mass					
	spectrometer without using any tools.					

1.7.5	The OptiFlow Turbo V ion source housing will be fully interlocked. All gas and power supplies to the source are automatically shut down when the housing is removed from the host
1	system.
176	The OptiFlow Turbo V ion source nano requires the installation of the nano DCI on 6500+
1.7.0	instruments.
	The OptiFlow Turbo V ion source interface with the mass spectrometer system will provide
1.7.7	protective grounding to the systems protective ground terminal in accordance IEC standard
	61010-1:2010 3rd Edition.
	The OptiFlow Turbo V ion source will be stable when removed from the instrument and
1.7.8	placed on a flat surface, without external aid, in the same orientation that it is attached to the
	mass spectrometer.
179	The OptiFlow Turbo V ion source will allow the system to recognize the correct probe when
1.7.9	inserted into the source.
1 7 10	Only one probe can be installed at a time. If nano functionality is enabled, a probe port plug
1.7.10	must be installed in the top port.
1.7.11	The nano column heater requires a nano column cartridge to host the nano column.

2 Software and operating system

2.1 Data system

2.1	buta system			
2.1.1	The system must include a Windows-based data acquisition and editing software package that incorporates a graphical user interface utilizing multi-pane windows for easy data			
	acquisition and analysis.			
2.1.2 The system must be compatible with a variety of commercially available LC pumps, autosamplers, manual injectors and detectors				
2.1.3	 3 The software must provide automatic, dynamic adjustment of the acquiring MRM transitions such that only compounds that elute within a specified time window are monitored. In addition, the process of creating the acquisition method to utilize this feature must accept a simple list of compound names, MRM transitions, and expected retention times and use this list to dynamically schedule MRM scans during the experiment. (Scheduled MRM algorithm). 			
2.2	2.2 Data processing software			
2.2.1	 The system software must include powerful library generation and search capability (searches based on mass and UV spectra at different fragmentation voltages and different polarities). 			
2.2.2	The system software must be able to generate a contour plot display for mass and UV spectra.			
2.2.3	The system software must have a fragmentation interpretation tool module.			
2.2.4	4 The software must have completely automated quantitative data processing and reporting capabilities.			
2.2.5	The software must have direct and easy data transfer to popular word processing programs such as MS Word, Excel, PowerPoint, etc.			
2.2.6	The software must be fully automated including customized data processing utilizing scripting.			

	3 Mass spectrometer					
3.1	The instrument must contain a single thin aperture from atmosphere into the vacuum chamber, followed immediately by a patented, high-efficiency RF-only ion guide for ion focusing and containment. This must be followed by a patented high-pressure RF quadrupole followed by a quadrupole mass filter. A pre-filter must be located between the RF quadrupole and the first mass filter to help further focus the ions. A patented high-pressure quadrupole collision cell with 180° Qurved LINAC [®] Collision Cell technology must follow the first mass filter and be used for high efficiency MS/MS fragmentation. The second mass analyzer must also be a quadrupole mass filter/Linear Accelerator trap.					
3.2 Scan types		Full scan MS and selected ion monitoring for both Q1 and Q3, product ion scan, precursor ion scan, neutral loss or gain scan, multiple reaction monitoring (MRM), enhanced MS scan, enhanced product ion scan, enhanced resolution scan, MS ³ scan, MRM ³ scan, and TripleTrap scanning modes				
3.3	Interface	The instrument must have a direct atmosphere-to-vacuum interface module with a curtain gas barrier for maintaining analyzer cleanliness and optimizing ion declustering. It must be capable of analyzing large batches of complex urine, plasma, and plant extracts over long periods of time without maintenance or performance degradation.				
3.4	Vacuum system	The instrument must have a differentially pumped vacuum system featuring air-cooled turbo molecular pumps with fail-safe vacuum system protection. It must automatically shut-down and restart after power failures.				
3.5 Detector The instrument must have an IonDrive high energy detector+ system that capable of rapidly switching between positive and negative ion detection detector system combines a HED (high energy dynode) with a CEM detector improved performance.		The instrument must have an IonDrive high energy detector+ system that is capable of rapidly switching between positive and negative ion detection. The detector system combines a HED (high energy dynode) with a CEM detector for improved performance.				
3.6	Source exhaust	The instrument must have an active source exhaust for the removal of gasses within the ionization source.				

	4 System performance				
4.1	Triple quad mass range	The instrument must have a mass range (m/z) of 5-2000 Da			
4.2	Linear ion trap	The instrument must have a mass range (m/z) of 50-2000 Da in linear ion			
	mass range	trap mode.			
4.3	Triple quad scan	The instrument must have a maximum scan speed of 12,000 Da/sec in			
	triple quadrupole mode.				
4.4 Linear ion trap The instrument must have a maximum scan speed of 20,000 Da					
	scan speed	linear ion trap mode.			
4.5	4.5 Polarity switching The instrument must be able to switch ionization mode polarity w msec settling time between polarities. The instrument is able to do continuously.				
4.6 Dynamic range The instrument must have a dynamic range of 6 orders of magin from the limit of detection (LOD). The dynamic range is dependent of analyte and experimental conditions.					
4.7	Mass stability	The instrument must have a mass stability of 0.1 amu over 24 hrs at m/z 906.7 with normal operating temperature and after it has reached vacuum and electronics equilibrium.			
4.8	Crosstalk	The instrument must have no significant crosstalk detectable for Reserpine (0.17 pmol/uL infused) while monitoring the MRM transitions of 609/195 and 100/195 with a 1 msec dwell time and 3 msec inter-MRM pause time.			
4.9	4.9 MRM dwell time The minimum MRM dwell time must be 1 msec.				
4.10	I.10 MRM acquisition rate The minimum MRM acquisition rate must be 500 MRM/sec.				
4.11 Fast MRM scanning		The difference in response for Reserpine with 2 msec dwell and 3 msec inter-MRM pause time vs. 100 msec dwell with 10 msec inter-MRM pause must be < 10%.			
4.12	Positive mode TIS sensitivity	Using the TurbolonSpray probe in MRM mode on the transition m/z 609 to 195 for a 1 pg Reserpine injection on column, at unit mass resolution (0.7± 0.1 amu at half height), the instrument must have a S/N > 1,500,000:1. S/N measurements are calculated based on 1 standard deviation of at least 3 points of noise which produce the smallest standard deviation, after applying up to 3 Gaussian smooths. S/N ratio does not imply the limit of detection (LOD) or limit of quantitation (LOQ) of the MS system or any assay; the S/N ratio presented only applies to the conditions and concentrations specified and cannot be extrapolated to any other conditions and concentrations.			

		Using the TurbolonSpray probe in MRM mode on the transition m/z 321				
		to 152 for a 1 pg chloramphenicol injection on column, at unit mass				
		resolution (0.7+0.1 amu at half height) the instrument must have a				
		S/N > 1.500,000.1 S/N measurements are calculated based on 1				
4 13	Negative mode	standard deviation of at least 3 points of poise which produce the				
	TIS concitivity	standard deviation of at least 5 points of hoise which produce the				
	115 Sensitivity	Sinallest standard deviation, after applying up to 5 Gaussian sinootiis.				
		quantitation (LOQ) of the MS system or any assay; the S/N ratio				
		presented only applies to the conditions and concentrations specified				
		and cannot be extrapolated to any other conditions and concentrations.				
		Using the TurbolonSpray probe in MRM mode on the transition m/z 6				
4.14	L4 Positive mode to 195, for 10 replicate injections of 1 fg of Reserpine on colu					
	reproducibility	standard deviation of the peak area must be less than 10%. The				
		Instrument Detection Limit (IDL) must be less than 0.28 fg.				
		Using the TurbolonSpray probe in MRM mode on the transition m/z 32				
4.15	Negative mode	to 152, for 10 replicate injections of 1 fg of chloramphenicol on column,				
	reproducibility	the standard deviation of the peak area must be less than 10%. The				
	. ,	Instrument Detection Limit (IDL)) must be less than 0.28 fg.				
		Using the APCI source in positive ionization mode, for Reserpine (10				
		pg/uL, 5 uL fixed loop injection, 1.0 mL/min), monitoring 609/195 MRM				
		transition, the instrument must have a $S/N > 200.000:1$, where the noise				
4.16	Positive mode	is defined as the standard deviation of the baseline. S/N ratio does not				
	APCI sensitivity imply the limit of detection (LOD) or limit of quantitation (L					
		MS system or any assay: the S/N ratio presented only applies to the				
		conditions and concentrations specified and cannot be extrapolated to				
		any other conditions and concentrations				
		Using the Turbolon Spray probain enhanced production mode (product				
		of 600.2) a 50 fg Deserving injection at a flow rate of 1.0 ml /min on				
		of 609.5), a 50 lg Reservine injection at a now rate of 1.0 mL/min of				
		column, the instrument must have a S/N > 200:1, where the hoise is				
		defined as the standard deviation of the baseline. For 10 replicate				
4.17 Positive mode injections under these conditions, the standard de		injections under these conditions, the standard deviation of the peak				
	EPI sensitivity	area must be less than 5%. S/N ratio does not imply the limit of				
		detection (LOD) or limit of quantitation (LOQ) of the MS system or any				
	assay; the S/N ratio presented only applies to the condition					
	concentrations specified and cannot be extrapolated to any o					
		conditions and concentrations.				

		Using the TurbolonSpray probe on the MRM ³ transition of 609.3/397/365				
		for a 50 fg Reserpine injection at a flow rate of 1.0 mL/min on column				
		with a scanning cycle time of 200 msec, the instrument must have a S/N				
		> 150:1 where the noise is defined as the standard deviation of the				
4.18	Positive mode	baseline. For 10 replicate injections under these conditions, the				
	MRM ³ sensitivity	standard deviation of the peak area must be less than 5%. S/N ratio				
		does not imply the limit of detection (LOD) or limit of quantitation (LOQ)				
		of the MS system or any assay; the S/N ratio presented only applies to				
		the conditions and concentrations specified and cannot be extrapolated				
		to any other conditions and concentrations.				
		Scan speed (Da/sec) Resolution (m/z 322) Resolution (m/z 922)				
		50	3200	9200		
4.19	Resolution in	250	1600	4600		
	LIT mode	1000	1080	3100		
		10000	540	1540		
		20000	460	1320		
4.20	TripleTrap	The instrument must be able to scan 100 MRM transitions followed by a				
	scanning cycle	precursor scan (500 Da) and a neutral loss scan (500 Da) followed by two				
	time	enhanced product ion scans (500 Da) in less than 1.5 seconds				

5 Optional SelexION+ device for 6500+ systems

The SelexION+ device with jet injector technology device for 6500+ systems is a front end differential ion mobility spectrometry device used for applications requiring the separation of isobaric species, isolation of challenging co-eluting contaminants and reduction of high background noise. The addition of the jet injector lens to the differential mobility cell increases ion transmission for improved sensitivity while maintaining the same resolution as first generation SelexION systems.

5.1	Device	The device must consist of an atmospheric pressure mobility cell
	201100	located prior to the single thin aperture from atmosphere into the
		vacuum chamber.
5.2	Scan speed	The device must be able to acquire data for a single MRM transition in
5.2	Scan Speed	25 msec including the inter-scan pause time of 20 msec.
		The optimum compensation voltage (COV) for the analyte clenbuterol
		will not shift by more than 10% of the DMS peak width (full width at
5.3	Tuning stability	half height, typically 2.5V) at a fixed separation voltage (SV) over 24
		hours on an equilibrated system operating under standard DMS
		resolution gas setting.
БЛ	Chamical modifiers	The device must have an integrated liquid pump for the purpose of
5.4	Chemical mounters	introducing chemical modifiers into the mobility cell.
		The device must be user mountable and dis-mountable without the
5.5	Mounting and	use of tools or breaking vacuum. The device must be mountable in
	dismounting	less than 5 minutes and dismountable in less than 5 minutes when at
		room temperature.
		The device must be useable with software that provides automatic,
		dynamic adjustment of the acquiring MRM transitions such that only
		compounds that elute within a specified time window are monitored.
5.6	Scheduled MRM	In addition, the process of creating the acquisition method to utilize
	algorithm support	this feature must accept a simple list of compound names, MRM
		transitions, and expected retention times and use this list to
		dynamically schedule MRM scans during the experiment. (Scheduled
		MRM algorithm).
		The mobility device must be able to separate the analyte triazole from
5.7	Separation	the analyte angiotensin II (2+ charge state) in a single analysis with an
	capability	MRM cycle time of less than 100 msec with a separation of greater than
	-	30 V.

6 Physical specifications							
6.1 Size and weight (ex	6.1 Size and weight (excluding roughing pumps)						
Equipment	Height	Width	Length	Weight			
Crate	90.2 cm; 35.5 in.	94 cm; 37 in.	99 cm 39 in.	62 kg; 137 lbs.			
Mass spectrometer	59 cm; 24 in.	79 cm; 32 in.	79 cm; 32 in.	130 kg; 285 lbs.			
Roughing pump	22 cm; 9 in.	30 cm; 12 in.	42 cm; 17 in.	34 kg; 75 lbs.			
Optional instrument	78 cm; 31 in.	100 cm; 40 in.	84 cm; 34 in.	137 kg; 302 lbs.			
bench							
Accessories crate	129.5 cm; 51 in.	104 cm; 41 in.	132 cm; 52 in.	178 kg; 391 lbs.			

7 Electrical specifications–Oil-sealed roughing pumps option

MS component	Nominal voltage	Rated current	Power consumption
SCIEX QTRAP 6500+ system	200 VAC to 240 VAC (typical 208), 50 Hz or 60 Hz	15 A	Standby – 455 W Typical ¹ – 630 W
Two MS-40 roughing pumps	200 VAC to 240 VAC (typical 208), 50 Hz or 60 Hz each	15 A each	Standby – 1455 W combined Typical ¹ – 1455 W combined
Data system (PC and monitor)	100 VAC to 240 VAC	15 A	135 W

1. Typical Conditions: Source 400 °C, IonSpray voltage 5500 V, Gas1 40, Gas2 70, Curtain Gas 30

8 Electrical Specifications-Dry pump option					
MS component	Nominal voltage	Rated current	Power consumption		
SCIEX QTRAP 6500+ system	200 VAC to 240 VAC (typical 208), 50 Hz or	15 A	Standby – 455 W Typical ¹ – 630 W		
One MR-90	60 Hz 200 VAC to 240 VAC	15 A	Standby – 515 W		
roughing pump	(typical 208), 50 Hz or 60 Hz		Typical ¹ – 515 W		
Data system (PC and monitor)	100 VAC to 240 VAC	15 A	135 W		

1. Typical conditions: Source 400 °C, IonSpray voltage 5500 V, Gas1 40, Gas2 70, Curtain Gas 30

9	Gas and envir	onmental specifications
9.1	Gas supplies	 High purity nitrogen at 60 PSI (maximum consumption of 10 L/min at 60 PSI) must be used for the gas flow for the Curtain Gas interface. Zero grade air or high purity nitrogen should be used for the ion source. Maximum combined consumption must be 22 L/min at 100 PSI. Filtered, dry air (free from oil) at 55 PSI must be used for the ion source exhaust pump (with a typical consumption of 8 L/min).
9.2	Exhausts	The instrument must use a vent to remove ion source and rotary vane pump exhaust from the instrument.
9.3	Lab environment	To ensure the proper operating conditions for the instrument, the environmental conditions must be maintained between 15°C and 30°C (59–86°F) stable within ±2°C (4°F) with a relative humidity between 20– 80% non-condensing. The air conditioning requirement is approximately 2550W (8700 Btu/h) for the main console, backing pumps and heat load from the heated ion sources.

Disclaimer: These specifications are not standard installation specifications for the SCIEX QTRAP 6500+ system. The QTRAP 6500+ system is tested and installed in accordance with standard performance tests as described in the SCIEX QTRAP 6500+ system installation checklist and data log (RUO-IDV-08-2106 | D5099608).

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It's a Triple Quad, and so much more.

See how QTRAP[®] addresses your biggest analytical challenges



QTRAP technology delivers equivalent or better data, and more of it, than you can capture on an ordinary triple quad system. Learn how you can overcome these 5 common challenges by taking the leap to QTRAP.

1

Quantitation challenges due to complex matrices?

QTRAP technology can decrease the worry for accurate quantitation free from matrix interferences.

Increase data selectivity beyond triple quad technology. The integrated Linear Ion Trap's (LIT) unique MRM³ scan functionality enables quantitation from second generation fragment ions, decreasing matrix interferences without added sample prep.

Not sure about the accuracy of your compound ID?

QTRAP technology can reduce the doubt for definitive compound identification.

Increase specificity beyond triple quad technology. QTRAP's enhanced product ion (EPI) functionality gives you complete MS/MS spectra to cross reference with an integrated library for ultimate confirmation when reporting your results.

Looking to increase throughput by decreasing sample rechecks?

QTRAP technology produces more high quality results in every run.

Increase throughput beyond triple quad technology. By capturing MRM and enhanced product ion (EPI) MS/MS confirmation scans in one injection, you get high quality MRM quantitation with MS/MS confirmation at once for ultimate throughput and fewer rechecks.



QTRAP technology has the tools for your search.

Screen for unknowns better than you can with triple quad technology. With the enhanced mass spec (EMS), enhanced resolution (ER) and enhanced product ion (EPI) scanning capabilities, QTRAP can help you find and characterize components in your sample.



SCIEX) QTRAP 6500

Being asked to do more than just quantitation?

QTRAP technology gives you diversity.

Enable your lab with functionality beyond triple quad technology. Sensitive and robust MRM quantitation combines with multiple other unique enhanced scan functions, giving you the quantitative performance of a triple quad system with added power to develop new methods or improve your existing workflows. Experience the power to do so much more on one mass spec system.

QTRAP meets the challenge.

Better selectivity. Complete confidence. Unrivalled efficiency. Ultimate performance.

Conquering the challenges of common workflows Discover the benefits of QTRAP technology for these selected application areas



Residue analysis

The biggest benefits:

The ability to capture full MS/MS spectra for library search comparisons when an MRM peak is detected means you not only get more confidence in your compound identification to complement your MRM ion ratios, but you reduce the potential for sample rechecks to help increase your lab's throughput.



Metabolite ID & structural characterization

The biggest benefits:

The high sensitivity MS/MS scans captured on a QTRAP system allows high quality structural interpretation so you get reliable insights into the composition of your samples.



Quantitation in complex matrices

The biggest benefits:

Sometimes MRM does not offer enough selectivity to eliminate background interferences from complex matrices, making quantitation impossible. MRM³ offers the added selectivity needed to remove those interferences for clear peaks that allow reliable quantitation in complex matrices.



General chemical screening & confirmation

The biggest benefits:

QTRAP delivers true combined qualitative and quantitative (qual/quant) analysis: Qualitative screening is powered by the enhanced product ion MS/MS scans with library searching, with quantitation using the MRM peak – both from the same sample injection.

The enhanced mass spec scanning function is also powerful for the sensitive qualitative screening for unknowns across these application areas.



Peptide quant

The biggest benefits:

Capturing full MS/MS spectra triggered from MRM enables you to get sequencing information for unique and confident peptide identification beyond MRM alone.



QTRAP meets the challenge. Better selectivity. Complete confidence. Unrivalled efficiency. Ultimate performance.

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PROPOSAL FOR PURCHASE



Quote Title: SCIEX 6500+ QTRAP System for the EPA

Quote #: Q-156915

Quote Date: 7.11.2023

Valid To: 9.25.2023

Customer Name: Logan Rand

Sales Representative: Chris Leitner



CONFIDENTIAL

E-mail of Representative: chris.leitner@sciex.com

Ship To:
Contact Name: Logan Rand
Company: US EPA
Department:
Payment Terms:
Notes on Payment Terms:
Shipping/Delivery Terms:
Revenue Terms:
Address: 26 W Martin Luther King Dr
City, State, Zip: Cincinnati, Ohio, 45268-0001
Ship To Phone: 513-569-7411

Ship To Email: rand.logan@epa.gov

Product Code	Description	Qty	Unit List Price
5062192	SCIEX QTRAP 6500+ SYSTEM "Enhanced high performance hybrid triple quadrupole/ linear ion trap LC-MS/MS mass spectrometer. Includes: IonDrive Turbo V Source that accepts either the TurbolonSpray Probe or APCI Probe. TurbolonSpray Probe: Heated IonSpray probe for use in the IonDrive Turbo V Source. Accepts flow rates from 5 to 3000 ul/min without splitting. APCI Probe: Atmospheric Pressure Chemical Ionization probe for use in the Ion Drive Turbo V Source. Accepts flow rates from 200 to 3000 ul/min. Integrated syringe pump and 6 port, 2 position switching valve. One standard wet pump kit (2 roughing pumps) included. System ships with Data Acquisition Computer running Windows 10 64 bit. Standard Monitor. Software Starter Kit is required for operation and must be purchased separately. Instrument will not operate without the purchase of Software Starter kit. Limited Warranty: Standard parts and labor warranty for one year starting from the completion of instrument commissioning {as provided in SCIEX's written limited warranty statement and accompanying terms in the user manual or other product documentation}. Includes our StatusScope Remote Monitoring Service and one no-charge Preventative Maintenance (PM) during the one-year warranty period."	1	USD 527,239.55
5059703	IONDRIVE TURBO V SOURCE IONDRIVE TURBO V SOURCE	1	Included
5060806	ESI Probe ESI Probe	1	Included
5060807	APCI Probe APCI Probe	1	Included
5050570	Standard Monitor Dell Standard Monitor 21.5 inch	1	Included
1034553	Pump Single Stage MS40+ Pump Single Stage MS40+ compatible with QTRAP5500, CITRINE QTRAP, 5500+, Triple6500+, QTRAP6500, CITRINE QQQ, LIPIDYZER, TRIPLE6500, QTRAP6500+, TRIPLE5500 instruments	2	Included
5304964	SCIEX OS Acq TQ Starter Kit - OS-MQ 3.1 This bundle contains; 1) SCIEX OS for Acquisition & Quant Proc License on single workstation 2) Sciex OS-MQ license for quantitation of small molecule compounds, large molecule biomarkers and biopharmaceuticals on SCIEX QQQ LC-MS systems	1	USD 37,709.48
TRNLP003	Success Master • Overview: Your success means everything. This SCIEX Now Learning Hub course is our most powerful and effective learning program designed to meet your exact needs. It is personalized to your instrument, workflow and experience level. The training process provides a unique blend of self-paced eLearning, instructor led and hands-on training provided at the customer site. This unique approach will help you stay more engaged and retain more learning, so you can see better results in your work right away. Upon completion of the course, you will be comfortable with setting up the instrument, optimizing compound and source parameters to create basic and advanced LC-MS/MS methods, acquiring data for a set of samples, performing quantitation, and carrying out instrument maintenance. Please refer to the workflow syllabus for focused topics and consult with your sales representative and Applications Manager to assess your specific training needs. • Who should attend: Learners who need most effective training personalized to their instruments, workflows and experience levels. • Pre-requisites: None. This course is intended for those with no experience in mass spectrometry. • What's included: 0 .5 Day (5 Hours) of instructor led training at the customer site by an experienced SCIEX Service Professional. o 3 Days of instructor led training at the customer site by an experienced SCIEX Applications Support Scientist. o 7-11 hours of guided eLearning covering topics such as theory, system operation, software, workflow and maintenance. o Consumables required to complete the training. • Hands-on training focused on 1 Primary Learner. 2 additional learners can join for observation and content. o Online workflow: Basic Operator and Method Developer). o P.A.C.E.@ Continuing Education Credits: 18 credits upon completion of entire training session and a brief evaluation survey. o Enrollment in related self-paced eLearning, lectures, reference material and lab exercises on the Learning / bub of Fpaced eLearning cou		USD 15,103.15

Product Code	Description	Qty	Unit List Price
5090274	SCIEX OS-Q UPG - QUAL/QUANT PROC PERP E-LICENSE SCIEX OS-Q perpetual upgrade e- License for processing data on an additional PC. This license can be used to upgrade MasterView Software as well as SCIEX OS Processing. SCIEX OS is a leap forward in data processing analytics. The all new interface is much easier to use and learn while incorporating the power of a quantitative and qualitative evaluation of data in one step. This license is for processing only, data acquisition requires an acquisition license. Software can be downloaded or DVD can be purchased separately.	2	USD 10,276.50
5090682	SCIEX LC PFAS KIT W/COLUMNS The SCIEX LC PFAS Kit includes LC system components that are key to low level analysis of per- and polyfluorinated alkyl substances by LC-MS. Kit includes PEEK tubing, PEEK delay column transfer line, solvent inlet filters, and columns. Installation required/ordered separately (quantity 2 of part number SV000009).	1	USD 3,476.11
5084470	SCIEX All-in-one 2.1 with NIST 2017-Permanent license Contains a permanent license for the SCIEX all-in-one HR-MS/MS library 2.0, a permanent license of extractable & leachable subset from NIST 2017 and NIST 2017 MS/MS library (SCIEX format). The SCIEX all-in-one HR-MS/MS library 2.0 contains the high resolution MS/MS spectra in positive and negative ion mode (where appropriate) comprising more than 3,870 compounds including pesticides, forensics, pesticides, mycotoxins, antibiotics, fluorochemicals, metabolites (greater than 500 exogenous, endogenous and xenobiotics compounds for metabolomics analysis), and natural products. The high resolution library is designed for library searching against high resolution product ion data generated on the TripleTOF series of instruments, but is also compatible with QTRAP instruments. The NIST 2017 MS/MS library is converted to SCIEX format and includes over 13,800 compounds. The license activation key is shipped to the user. Due to the large size of the NIST 2017 MS/MS library, certain restrictions apply for the computer system on which the library is run - please confirm with your sales rep that your computer system meets the requirement	1	USD 23,797.08
SV000025	OEM LC installation OEM LC installation. Includes on-site travel for a Sciex certified field service engineer and labor to perform the installation of one LC for use as part of an LC-MS system at the customer site.	1	USD 1,829.00
5079243	LC-40DXR PUMP UHPLC pump with an extended pressure range (up to 70 MPa/10,000 PSI). A dual piston design minimizes pulsation for stable chromatography in isocratic, binary or LPGE modes. An automatic rinse kit is included as standard. Capable of flow rates between 0.1 uL/min to 10 mL/min.	2	USD 13,751.16
5079262	PIPING KIT A FOR HIGH PRESSURE GE/ID0.3 Tubing kit for high-pressure gradient system. Column inlet tubing ID 0.3 mm	1	USD 1,629.86
5079250	SIL-40CXR AUTOSAMPLER The SIL-40C XR utilizes a needle in the flow path design for 0.1 to 50 µL injection volumes. Capable of handling pressures up to 80 MPa/11,600 PSI. Sample compartment can hold 3 plates (1.5/2 mL vials 54 vials x 3 plates) and is capable of temperature control from 4-45 C. Includes 50 uL sample loop. Does not include Auxillary I O Term cable (5056591). Includes one rack for 1.5/2 mL vials, additional 1.5/2 mL racks and racks for other vial sizes sold separately. Add SIL Installation Kit (4465708).	1	USD 34,868.00
5056591	Cable Assembly Auxiliary I O Term Auxilliary I/O cable. Provides synchronization control between ExionLC autosampler units and SCIEX mass spectrometers.	1	USD 304.00
4465708	SIL INSTALLATION KIT 1.5 mL autosampler vials for the LC - 20 or LC - 30 series instruments, package of 100. Vials are clear borosilicate glass with 9 mm screw cap and non-bonded PTFE/ Silicone septum with no slit.	1	USD 85.25
5079247	DGU-405 DEGASSER 5-channel inline membrane degasser utilizing Teflon AF for rapid degassing of HPLC mobile phases.	1	USD 5,321.14
5079240	CBM-40 Standalone central communication and control module. Modules connect via fiber optic cables for easy "plug and play" system configuration (8 fiber optic ports available). Internal web server offers convenient control and monitoring of the HPLC system through a web browser.	1	USD 4,447.52
4465786	10/100 ETHERNET SWITCH, SHIMADZU 10/100 Ethernet Network Switch used for the CBM- 20A, CBM-20A Lites and the SPD-M20A UV detector.	1	USD 101.46
5074348	CABLE* NETWORK CAT6A SHIELDED 7.0 FT BLUE CABLE* NETWORK CAT6A SHIELDED 7.0 FT BLUE	1	USD 54.40
228-70247-43	40 SERIES CABLE KIT C 40 SERIES CABLE KIT C	2	USD 287.04
5079254	CTO-40C Full-sized oven with forced air temperature control. Capable of temperatures from 10 C below ambient temperature to 100 C. Capacity of up to 6 x 250 mm columns. Can accommodate a manual injector, mixer and 2 switching valves. Up to 3 units can be daisy-chained.	1	USD 7,185.42
5054489	MICRO MIXER 20 uL High efficiency UHPLC mixer (up to 18,000 PSI) with micro reactor technology to thoroughly blend solvents in a small volume. Compatible with mobile phase pH range 1-14.	1	USD 1,641.49

Product Code	Description	Qty	Unit List Price
5079260	NEXERA RESERVOIR TRAY NEXERA RESERVOIR TRAY	1	USD 791.19
4465784	SOLVENT BOTTLES, SHIMADZU (SET OF 5) Solvent bottles with solid caps for ExionLC and Shimadzu LC systems.	1	USD 437.37
4465785	SOLVENT BOTTLE CAP, SHIMADZU (INDIVIDUAL) 3 hole vented solvent bottle cap with plug and filter, 1/pk.	5	USD 55.63
4425944	CORD SET,SHMDZ UC-975-N01 CORD SET,SHMDZ UC-975-N01	6	USD 27.17
SHIPPING FEE	SHIPPING FEE SHIPPING FEE	1	USD 8,230.28
	Total List F	Price:	USD 723,322.32
	Total Disc	ount:	USD 205,060.81
	Quotation 1	Fotal:	USD 518,261.51
	Shipping and Hand	dling:	TBD
	Sales	Tax:	IBD

Additional Discounts

Product Code	Description	Qty	Discount Amount
00003	Special Incentive Discount	1	USD -115,000.00

Total List Price:	USD 723,322.32
Total Applied Discount:	USD 320,060.81
Grand Quotation Total:	USD 403,261.51

Optional Parts

Product Code	Description	Qty	Total Extended Price
5076230	UPS POWERVAR SECURITY PLUS II 5200VA - NA UPS POWERVAR SECURITY PLUS II 5.2 kVA (NEMA), for use in Americas	1	USD 7,727.36
5074539	7FLEX LCD ARM W/ FLEXMOUNT The 7Flex LCD Arm suspends your flat panel monitor above the work surface. Move the monitor precisely where you need it, and move it out of the way when not in use	1	USD 257.45
5073677	Data Entry Bench 36WX31DX30H PC data entry bench. Features an extendable keyboard tray, holes for cable management, and an optional monitor arm.	1	USD 1,668.34
5073676	LC Bench 36WX31DX30H LC bench. Features holes for hose and cable management and a removable tray for solvent storage.	1	USD 1,894.32
5073096	MS Bench SCI 1 MS instrument bench with room for vacuum pumps within enclosure. Includes soundproof panels. Reduces noise & vibration of roughing pumps while providing fan assisted cooling. Dimensions (WxDxH) 91.4 x 78.7 x 76.2 cm (36 x 31 x 30 in), weight 85 kg (187 lbs). Electrical requirements 100-240v, 50/60 Hz, 2.0A. Bench supports most SCIEX RUO benchtop instruments (exception SCIEX 7500 System).	1	USD 7,115.05
5301788	SCIEX OS stMRM E-License SCIEX OS stMRM e-license - Scout triggered multiple reaction monitoring (stMRM) is a new and unique capability within SCIEX OS software. The stMRM workflow enables a SCIEX Triple Quad system to use any compound as a "scout" to trigger complex transition lists with retention time independency. Intended for 45/55/65/75 Triple Quad and QTRAP systems. This e-License is compatible with SCIEX OS versions 3.0 and above.	1	USD 2,450.00
5053490	MS OFFICE 2016 PROFESSIONAL PLUS ISV GLOBAL KIT "Microsoft Office Professional Plus 2016. This is an English version of Microsoft Office that can be shipped and activated in all global regions. This kit contains a disc and license key that can only be activated by SCIEX Personnel. "Purchase of the above listed product shall be governed by the terms and conditions found at https://www.microsoft.com/en-us/licensing/product-licensing/products.aspx" "	1	USD 976.06

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