



University of California
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Making the most of vendor visits and discussions with colleagues

MSACL US 2018
Palm Springs, CA

Wednesday, January 24th

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Learning Objectives

After this presentation, you should be able to:

- Describe questions that should be asked of vendors and colleagues when choosing a mass spectrometer

Overview

- questions to ask vendors
- questions to ask colleagues
- have vendors test actual samples
- site visit to vendors
- selection of vendor

Questions to ask vendors

- request for proposals (RFP) - your institution may already have one
- cover all aspects of instrument requirements

Audience Question:

What physical requirements can you think of?

Questions to ask vendors (cont)

- request for proposals (RFP) - your institution may already have one
- cover all aspects of instrument requirements
 - dimensions of instrument
 - venting,
 - electrical requirements,
 - software, hardware (mass spectrometer)
 - liquid chromatography system (pumps, autosampler, column oven, degasser)
 - universal power supply (UPS)
 - nitrogen supply (with or without separate air compressor)
 - service availability
 - interface with laboratory information system
 - training

Questions to ask vendors (cont)

- request for proposals (RFP) (cont)
- cover all aspects of instrument specifications
 - mass range
 - ionization options
 - scan rate
 - minimum dwell time
 - speed of positive/negative polarity switching

Questions to ask vendors (cont)

- sensitivity of available instruments for analytes of interest
- specificity of available instruments for analytes of interest
- availability and cost of training
 - is any training included in purchase price of instrument?
- speak with engineer who will install instrument in your laboratory
 - have them come for a site visit if possible
- contact information for clinical laboratories already using their instrumentation

Questions to ask colleagues

- ease of use
 - software particularly
- maintenance schedule
- instrument downtime
- if colleague is in your geographical area
 - service availability - how quickly does an engineer arrive on site once service call has been placed
 - how responsive is the sales representative?

Unbiased evaluation of each instrument

- design an experimental set of samples that can be sent to each vendor under consideration
- unbiased evaluation of instruments for analytes you want to measure
- choose or make clinically relevant samples
 - patient samples, or spiked samples, or multi-analyte samples or samples with different analyte concentrations
- carry out sample preparation in the same way for each set

Unbiased evaluation of each instrument (cont)

- provide solutions for optimization of mass spec
- provide a column and detailed HPLC protocol
 - include mobile phase composition, gradient and injection volume
- provide the transitions to be monitored
 - can be found in the literature
- ask for the specific data so you can compare
 - (e.g. peak areas, signal to noise ratio, chromatograms etc)

(Laha, Henderson and Hoofnagle, Judging a book by its data: Planning experiments to fully evaluate prospective instrument vendors, poster presentation, MSACL 2016)

Site visits to vendors

- have vendor walk through daily, weekly, monthly maintenance
- possible to have different users with different privileges?
- how many samples fit in autosampler - do you need to use vials and/or plates?
- develop a data acquisition method and use it
 - set up a run
- develop data analysis method and use it
 - analyze data from the run

Selection of vendor

- hardest decision you will have to make!
- compare instrument requirements/specifications (from RFP)
- compare results from patient and other samples
- most important features to compare
 - performance for current and future analytes of interest
 - reliability of instrument
 - service availability and responsiveness
 - availability of training in method development skills
 - responsiveness of sales representative

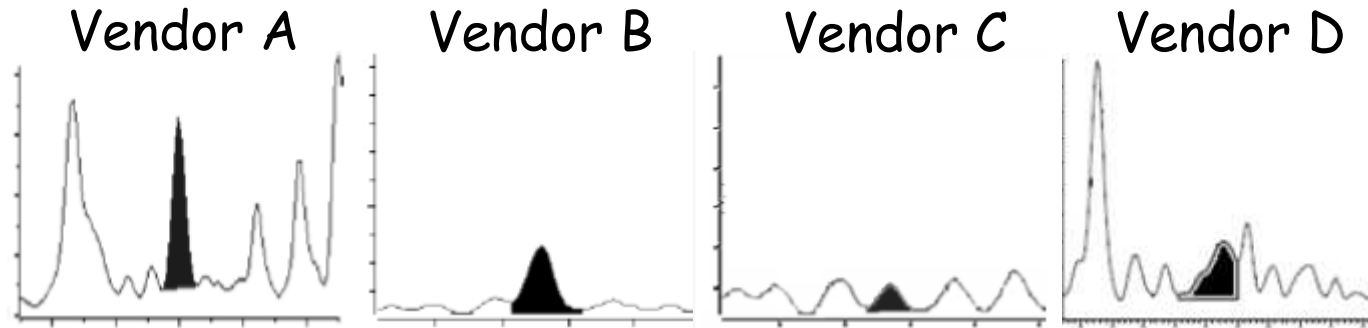
Audience exercise

2 $\mu\text{g/mL}$	Vendor A	Vendor B	Vendor C	Vendor D
Voriconazole	3.2%	3.5%	2.9%	3.6%
Posaconazole	2.6%	3.2%	3.3%	3.5%
Fluconazole	2.5%	3.3%	3.0%	3.4%

- peak area imprecision of 10 independent extractions of serum in the same batch containing three antifungals

Question: Which instrument would you pick?

Audience exercise



- chromatograms of extracted serum samples containing 2 ng/dL testosterone

Question: Which instrument would you pick?

Decision making

- how you feel during decision making process



- how you feel after you make a decision



Conclusions

- make a list of what your laboratory needs ahead of time with regards to sensitivity, robustness, throughput etc
- ask all vendors the same questions concerning instrument requirements and specifications
- give all vendors the same samples to run
- rank each instrument based on what is most important to you
- you will find that each system has pros and cons that are comparable
- hardest decision you will have to make!

References/Resources

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- Laha TJ *et al*. Judging a book by it's data: planning experiments to fully evaluate prospective instrument vendors. MSACL 2016 poster

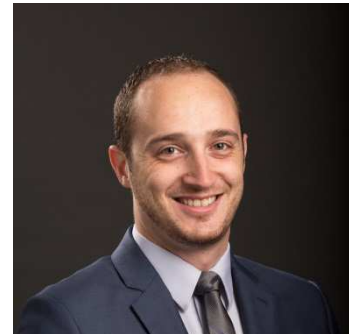
Acknowledgements



Judy Stone



Rob Fitzgerald



Joe El-Khoury

Acknowledgements





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