

2019 LC MS/MS and Related Topics Interest Group Workshop

Title: LC-MS Jeopardy - I'll Take Increasing Throughput for \$200 (LCMS & Related Topics Interest Group), A315

Organizers: Erik Soderblom (Duke University) and Will Thompson (Duke University)

Date and Time: Monday June 3th, 2019 545-700

This workshop was an interactive, trivia-style event in which the audience (88 total “players”) signed into a 25 question “Quiz” using their smart phone through an app called “Kahoot!”. The 25 questions focused on various areas of LC/MS related topics including ASMS history, LCMS troubleshooting, LC and MS theory, LC and MS component identifications, etc. Players typically had 30 sec to answer the question on their personal smartphone and then scores were assigned for each player based on A) if the correct answer was chosen and B) how fast the correct answer was chosen. After each of the 25 questions, the correct answer was shown on the screen and each question was discussed as a group. To keep the audience engaged, scores were tallied in-real time after each question and each attendee in the room could see their rank compared to the other 87 competitors.

Overall, the workshop was a tremendous success. It was not only entertaining and engaging for the audience, but provided an excellent platform for engaging discussion of the various LC-MS related topics.

The questions and answers to the Kahoots quiz can be found below.




LCMS and Related Topics Interest Group

[Play](#) [Challenge](#) ☆ ⋮

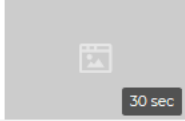
A public kahoot
LCMS Interest Group, ASMS 2019, Atlanta.
0 favorites 7 plays 89 players
quiltedbobcat
Created 1 month ago
Copy and share this playable link
<https://create.kahoot.it/share/lcms-and-related-topics-interest-group/92043a04-72cc-4a4b-9821-2844471ae811>

Questions (26)

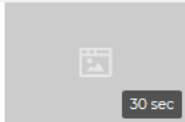
[Hide answers](#)

1 What is the name of this MS component?
Quiz  30 sec

- Quadruple ✓
- Orbitrap ✗
- Ion Trap ✗
- Time of Flight Tube ✗

2 What is the Biemann Medal awarded for?
Quiz  30 sec

- Recognizes a singular achievement ✗
- Recognizes significant achievement in early career ✓
- Recognizes contribution over entire career ✗
- Recognizes highest number of publications ✗

3 What is the most commonly used chromatographic strategy for peptide separation?
Quiz  30 sec

- HILIC ✗
- Reversed Phase ✓
- Normal Phase ✗
- Thin layer chromatography ✗

4 Internal standards are used in LC-MS to correct for:

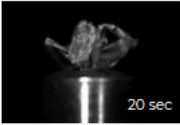
Pro tip: save 50% on Kahoot! Pro for your school until September 3! Learn more

4 Internal standards are used in LC-MS to correct for:
Quiz

30 sec

- RT drift and recovery
- Matrix effect and RT drift
- Recovery and Matrix effect
- Low signal and RT drift

5 What is this?
Quiz



20 sec

- A household duster
- A spider stuck on the end of a heated capillary
- A quadrupole cleaning device
- Someone sneezing

6 Why is regression weighting (such as 1/x) used in calibrated quantitation?
Quiz

60 sec

- To improve my R^2
- To improve fit for lower concentration calibrators
- To decrease bias for high concentration calibrators
- Because my boss said so

7 Who won the first Biemann Medal
Quiz

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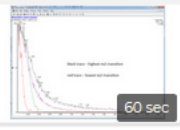
Because my boss said so

7 Who won the first Biemann Medal Quiz

20 sec

- Scott McLuckey ✓
- Robert Squires ✗
- Matthias Mann ✗
- Ruedi Aebersold ✗

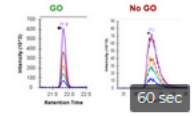
8 When beginning an infusion, you observe the following. Why? Quiz



60 sec

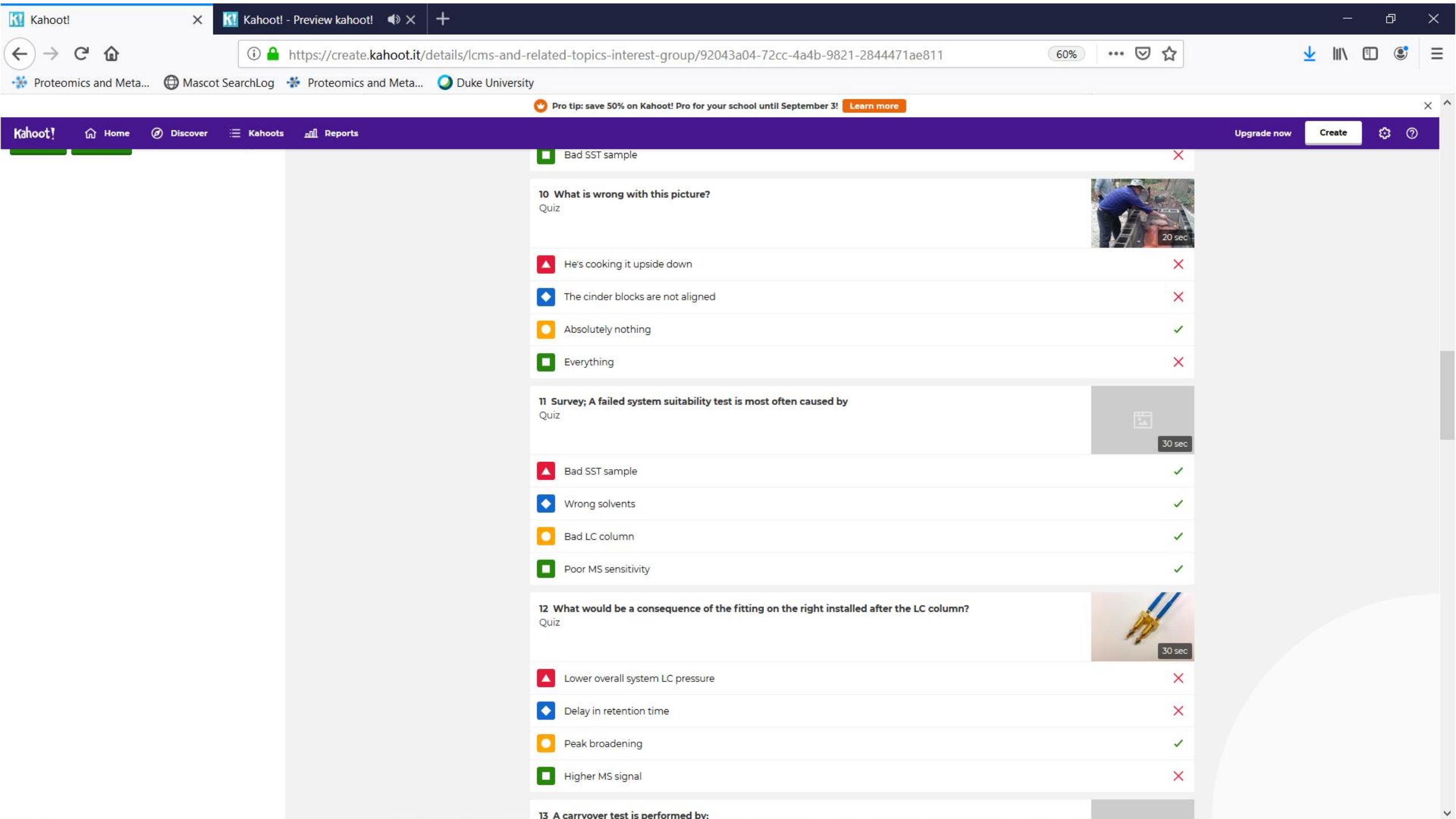
- Syringe out of sample ✗
- Insufficient gas supply ✗
- Charging ✓
- Sample precipitation ✗

9 What is the most likely cause of this failed system suitability test? Quiz



60 sec

- Post column band broadening ✓
- Incorrect mass calibration ✗
- Incorrect LC gradient ✗
- Bad SST sample ✗



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Bad SST sample ✖

10 What is wrong with this picture?
Quiz  20 sec

- ▲ He's cooking it upside down ✖
- ◆ The cinder blocks are not aligned ✖
- Absolutely nothing ✔
- Everything ✖

11 Survey: A failed system suitability test is most often caused by
Quiz  30 sec

- ▲ Bad SST sample ✔
- ◆ Wrong solvents ✔
- Bad LC column ✔
- Poor MS sensitivity ✔

12 What would be a consequence of the fitting on the right installed after the LC column?
Quiz  30 sec

- ▲ Lower overall system LC pressure ✖
- ◆ Delay in retention time ✖
- Peak broadening ✔
- Higher MS signal ✖

13 A carrvoer test is performed by:

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Higher MS signal

13 A carryover test is performed by:
Quiz

30 sec

- Injecting a series of high calibrators followed by blanks ✓
- Injecting a calibration curve from low to high ✗
- Carrying the vial to another instrument ✗
- Removing the sample loop ✗

14 In what year was the Nobel Prize awarded to John Fenn and Koichi Tanaka?
Quiz

10 sec

- 2002 ✓
- 1998 ✗
- 2006 ✗
- 1994 ✗

15 Unlike chromatography, in capillary electrophoresis (CE);
Quiz

30 sec

- Going faster always improves separation efficiency ✓
- Salts are quite easily tolerated ✗
- There is no "B" term in the van Deemter equation for CE ✗
- Loading capacity is very high because there are no particles ✗

16 CID fragmentation of peptides primarily generates which type of product ions?

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Loading capacity is very high because there are no particles

16 CID fragmentation of peptides primarily generates which type of product ions?
Quiz

30 sec

- b/y
- c/z
- a/x
- f/g

17 ETD fragmentation of peptides primarily generates which type of product ions?
Quiz

30 sec

- b/y
- a/x
- c/z
- f/g

18 Which of the following is true when switching from a 2.1 mm ID to a 1.0 mm ID HPLC column?
Quiz



30 sec

- Signal intensity increases by 4.4X
- Signal intensity decreases by 4.4X
- Signal intensity increases by 2.2X
- Signal intensity decreases by 2.2X

19 What is the primary reason to use a solvent divert valve between your LC column and MS?

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- Signal intensity increases by 2.2X
- Signal intensity decreases by 2.2X

19 What is the primary reason to use a solvent divert valve between your LC column and MS?
Quiz 30 sec

- Prevent contamination of the ion source
- Decrease ion suppression
- Save solvent
- Increase Throughput

20 Which one of these people is a vegetarian?
Quiz 30 sec



- A
- B
- C

21 Name describing an internal standard used when an isotope labeled standard is not available?
Quiz 30 sec

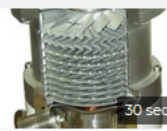
- Surrogate standard
- Proxy standard
- External standard
- Makeshift standard

22 What relationship does the Van Deemter equation describe?

22 What relationship does the Van Deemter equation describe?
Quiz 30 sec

- Height equiv to Theoretical Plate vs mobile phase velocity ✓
- Chromatographic peak width ($w_{1/2}$) vs mobile phase velocity ✓
- Chromatographic resolution (R_s) versus retention time ✗
- Analyzer sensitivity versus analysis time ✗

23 What is the purpose of this device?
Quiz 30 sec



- Create a high vacuum in a mass spectrometer ✓
- Move an airplane ✗
- To make a frozen margarita ✗
- Provide low vacuum in a mass spectrometer ✗

24 Which is the proper relationship describing an LC operating at fixed flow?
Quiz 30 sec

- Pressure is inversely proportional to (particle size)² ✓
- Pressure is proportional to column temperature ✗
- Pressure is inversely proportional to solvent viscosity ✗
- Pressure is inversely proportional to column inner diameter ✗

25 When troubleshooting an LC-MS system, "breaking the system down" typically means:
Quiz

Kahoot! - Preview kahoot! | <https://create.kahoot.it/details/lcms-and-related-topics-interest-group/92043a04-72cc-4a4b-9821-2844471ae811> | 60%

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Provide low vacuum in a mass spectrometer

24 Which is the proper relationship describing an LC operating at fixed flow?
Quiz | 30 sec

- Pressure is inversely proportional to (particle size)² ✓
- Pressure is proportional to column temperature ✗
- Pressure is inversely proportional to solvent viscosity ✗
- Pressure is inversely proportional to column inner diameter ✗

25 When troubleshooting an LC-MS system, "breaking the system down" typically means:
Quiz | 30 sec

- The process of isolating the LC from the Mass Spec ✓
- Changing the Oil in the Mass Spec ✗
- Breaking open the column compartment ✗
- Cleaning the source of your Mass Spec ✗

26 The attribute that describes the ability to quantify a compound in matrix interference is;
Quiz | 30 sec

- Specificity ✓
- Sensitivity ✗
- Speed ✗
- Resolution ✗