CYTO Lab Hacks: A Platform for the Exchange of Innovations in Cytometry

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Structure of the Workshop

- Introduction
- Present a few innovations
- Break out sessions (round table discussion)
- Summary of the break out sessions
- ~~Show and~~ tell
  - Realise that your “little” project can help others and others can help you to improve it.

Motivation

Problem:

We have common issues.

Disseminate solutions to avoid wasted effort.

Opportunity:

Create centralized directory for innovations.

Incentivize sharing and exchange of innovations.

Strategy

- Group of volunteers (since CYTO 2018).
- Organization, planning, website development.
- We are seeking your help to push us forward.
  - Workshop.
  - Submitting these innovations.

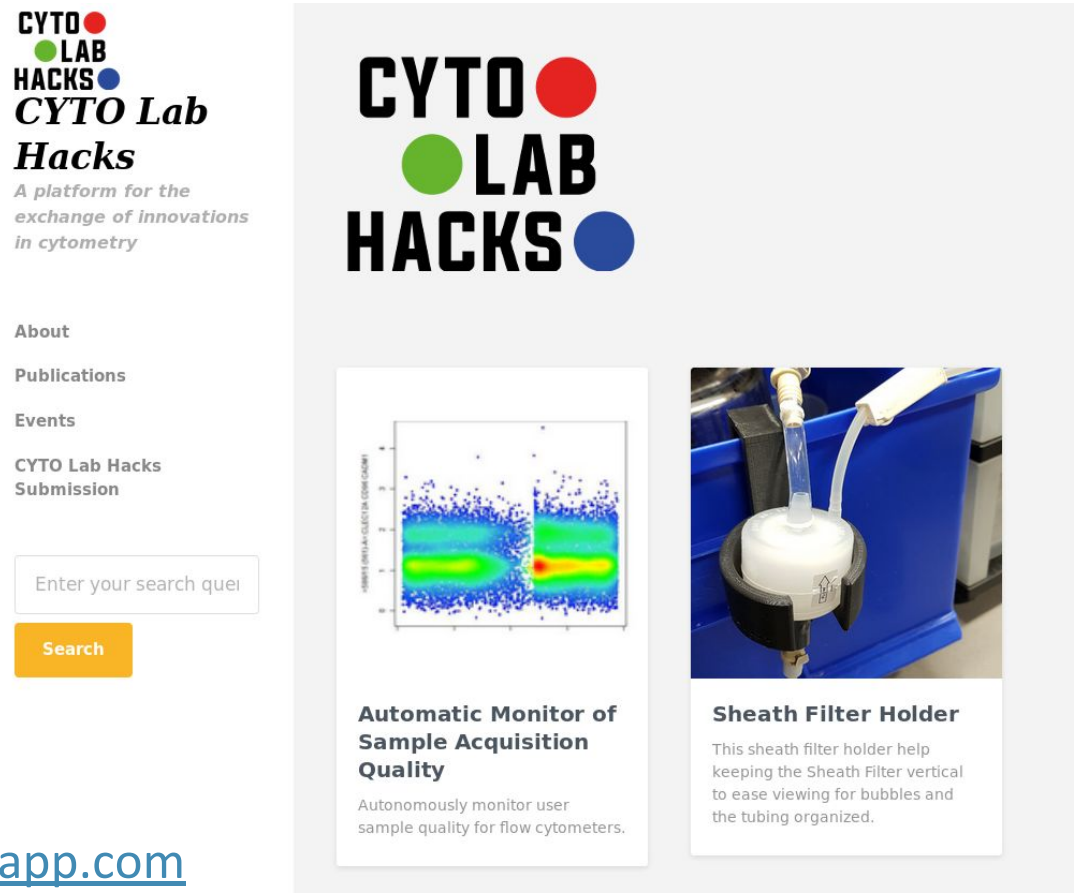
CYTO Lab Hacks

- Budding platform for the exchange of cytometry innovations.
- Community driven activity.
- Overseen by the CYTO Innovations Committee.

Directory for non-commercial innovations related to cytometry

http://bit.ly/CytoLabHacks

CYTO Lab Hacks Prototype Website



https://cytolab.000webhostapp.com

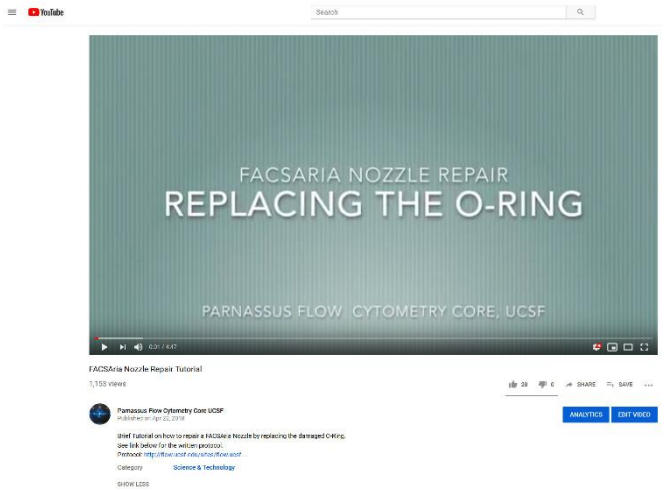
FACSAria Nozzle Repair Video

Why we did this?
Need for replacement nozzles s Core grew from 2 to 8 FACSAria
purchasing new Nozzle was becoming *prohibitively expensive*

Repaired O-ring lasts for 3 -6 months only, although
replacing the O-ring has saved the Core over thousands of $$ / yr

Posted on: YouTube

Multimedia files available: Detailed protocol with instructions

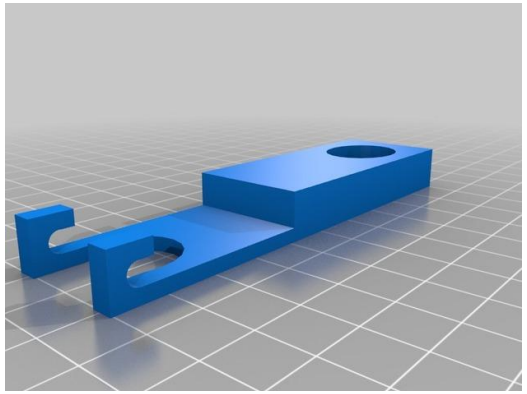


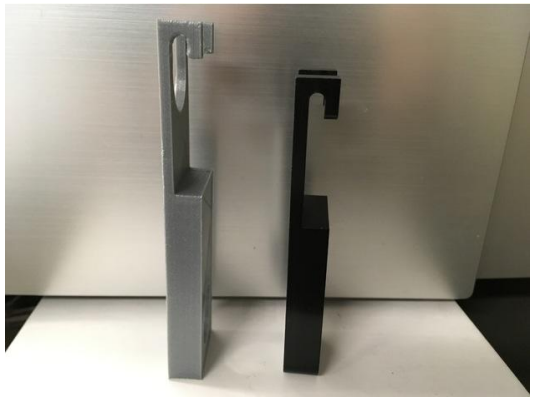
FACSAria Plate Remover Tool

Why we did this?
Tool kept being misplaced, and users were starting to damage the plates
We now have 1 tool per instrument
Printed and color coded with instrument's "color", easy ID'ed

Posted on: Thingiverse

Multimedia files available: STL file with instructions





Sheath Filter Holder

Why we did this?
Sheath filter was loose and most times horizontally placed in custom fluidics cart
Vertical placement maintains fluidics more stable, keeps tubing organized and more intuitive for user's inspection for bubbles

Posted on: Thingiverse & https://*flow.ucsf.com*

Multimedia files available: STL file with instructions

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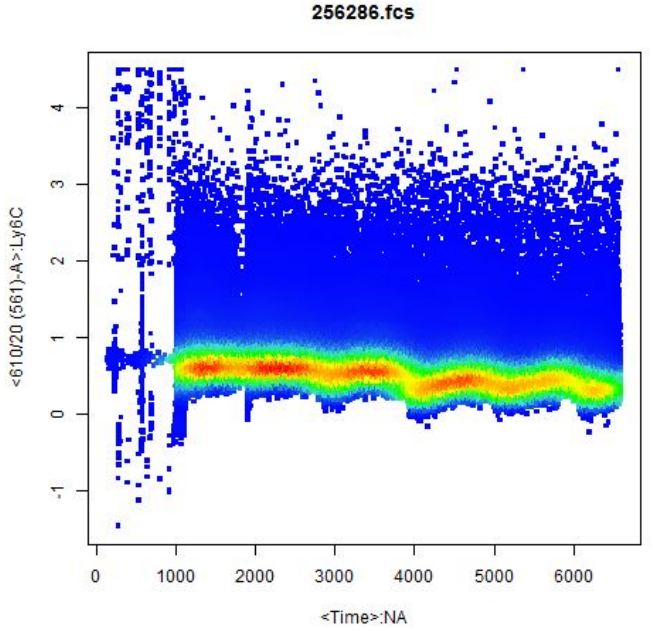
User “Acquisition Quality” Program

What is it?
Autonomously monitor user sample quality for flow cytometers.

Why we did this?
We wanted to find identify problematic users to prevent their poor sample preparation affecting other later users.

Posted on: https://**github.com**/SangerCytometry/SampleQualityMonitor

Multimedia files available: YouTube (soon), Poster B106



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Latin Square Sort Patterns

What is it?
Use sorted cell position to control batch effect.

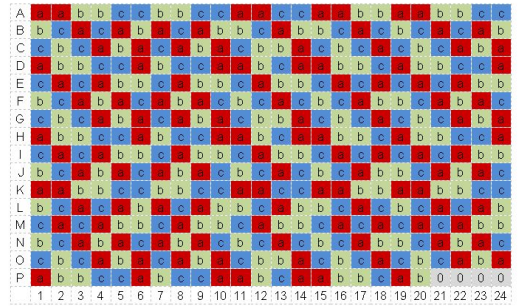
Why we did this?
To mitigate the effect of plate position in downstream processes, such as uneven plate heating on thermocyclers and robotic pipetting accuracy

Posted on: https://**github.com**/SangerCytometry/Influx_auto_sort_template

Multimedia files available: YouTube

1c

1d



Question 1

What makes an innovation generate interest and enthusiasm in the cytometry community?

Practical Innovations

Biological Innovations

Personal Innovation

Help us define the criteria for worthy innovations, both major or incremental.

Question 2

How to organize the CYTO Lab Hacks group to work efficiently towards its goals?

Different roles required.

How to organize and keep a globally dispersed group of volunteers engaged.

How to ensure consistent regular progress.

Help us come up with a committee structure and roles for volunteers.

Question 3

How should CYTO Lab Hacks website look like? What should each submission include?

Minimum requirements for a submission.

Easy of navigation.

Sweet spot between its usefulness to the community and effort required from the innovator.

Help us define the criteria that will guide the development of the website.

Break out session

Introduce each other.

Take notes - designate a person.

Discuss the questions amongst yourself.

Record notable comments.

Aim towards conclusive outputs.

We need your hacks

http://bit.ly/CytoLabHacks