



S3E CELL SORTER

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THIS PRESENTATION

1. What is flow cytometry? and why cell sorting?
2. The MUE: S3e cell sorter
3. Ongoing projects
4. The MUE available service
5. Final remarks

FZEA-USP



- Four undergraduate courses

- Animal science
- Vet medicine
- Food engineering
- Biosystem engineering

- Five graduate courses

- Seven MUEs:

Tabletop Scanning Electron Microscope (Hitachi)

Atomic Force Microscope (NT-MDT)

Nanoparticle Microscope (NanoSight's LM10)

HPLC (Waters)

LC-MS/MS (Waters)

FACsAria cell sorter (BD)

S3e cell sorter (Biorad)



Star CellBio

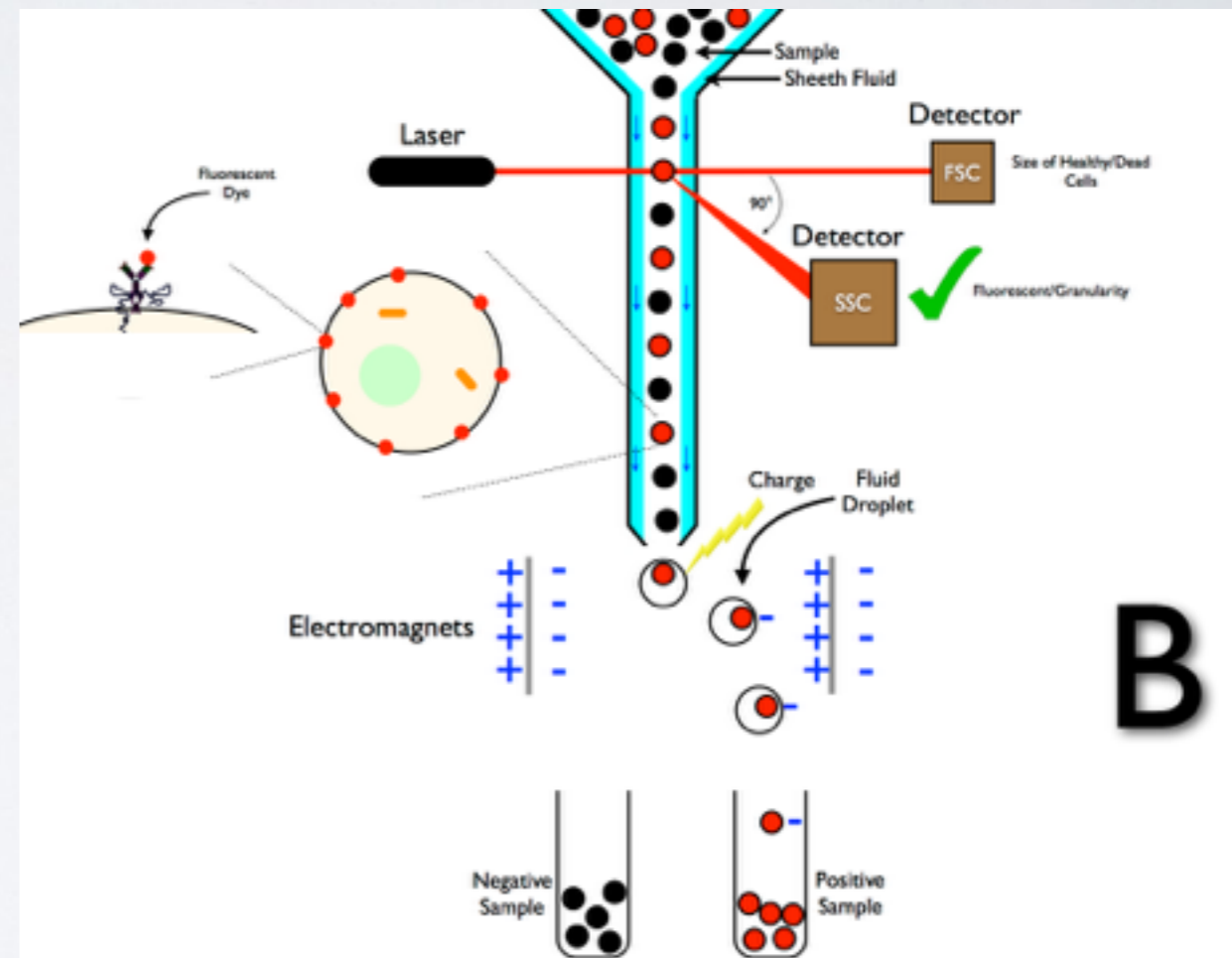
presents

FLOW CYTOMETRY

THE PRINCIPLE OF CELL CYTOMETRY

AND WHAT IS FACCS?

Fluorescence-Activated Cell Sorting allows the analysis and *isolation* of specific cells from a heterogenous population



THIS IS THE S3E CELL SORTER

MAIN ADVANTAGES OF THIS CELL SORTER

- *Very easy to use: fully automated* drop delay calculation, stream alignment, and droplet break-off monitoring enable precise 1–4 color sorting with minimal training
- *2-way cell sorting* — sort two different defined populations at the same time and can even perform single cell isolation!

SOME INFO ON THIS MUE

- Granted by FAPESP on May 2015 (157,390.89 USD)
- Arrived on December 2015
- Instalation and training on February 2016
- Working since (<6mo)



THE MAIN ONGOING PROJECT

- Young Investigator Award: Dez/14 to Nov/2018

Mammary Tumors of Dogs and the Cancer Stem Cell Theory: A Comparative and Translational Approach



THE MAIN OBJECTIVE IS:

- To isolate different cell populations from primary tumors and characterize those cells regarding its malignancy
- Our main focus is to detect specific molecular targets to improve therapy such as the neoantigens of important cell populations for example

THE OTHER ONGOING PROJECTS

- *Bacillus cereus* impact in dairy supply chain: gene expression related to gastroenteric toxins, spoilage enzymes during the shelf-life of pasteurized milk and determination of disinfectants efficacy on biofilms *PI: Ana Maria C. Vidal (FAPESP 15/20874-0)* - **Pirassununga - SP**
- Determination of CD4/CD8 cell population in blood cells from dogs and horses in response to *Leishmania* spp infection *PI: Tricia M. F. S. Oliveira (FAPESP submmited)* - **Pirassununga - SP**
- Effect of melatonin in epithelial mesenchymal transition markers and invasive properties of breast cancer stem cells of canine and human cell lines. *PI: Debora A.S. Zuccari (FAPESP 16/02760-0)* - **São José do Rio Preto - SP**
- Ploidy analysis of animal stem cells isolated from adipose tissue. *MedMep* - **São Paulo - SP**
- In vitro cytotoxicity of natural compounds from plant extracts. *PI: Paulo. J A. Sobral (CNPq subbmited)*- **Pirassununga - SP**

HOW THE SERVICE WORKS

- Mostly as a third party service but open for collaborations
 1. Email to fukumasu@usp.br
 2. Discussion on the use of the equipment (experimental design, reagents, time and costs)
 3. Preparation of a quote
 4. Establishment of an agreement with FUNPEC-RP (for payment)
 5. Perform the experiments by the technician, supervised by me

THE POLICY PRICE*

- The prices are:
- 100 reais for the first hour
- 70 reais for the subsequent hours
- 20% discount for non-commercial use (FAPESP and other funders)

* *we will have to increase this prices soon*

FINAL REMARKS

- This is the first S3e cell sorter installed in Brazil.
- The MUE is working for <6 months so far.
- Two small problems so far and took 2 weeks for each repair (but it was free for now).
- The specific Additional Benefits Funds for the MUE were essential for the installation of the MUE: no-break, adaptations in the lab, reagents, etc).
- I have difficulty on how to provide the 3rd party service easily - specially how to collect the money for the lab, which way is the legal way, proper way, etc...
- At last, I need to do a special acknowledgment for FAPESP and USP for all the support.



THANK YOU!

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