European Bioanalysis Forum

On behalf of TT-32

Challenges for flow cytometry in regulated bioanalysis

Using Flow Cytometry for the support of (pre)clinical studies

Barry van der Strate, Ph.D.
Sr. PM Development Immunoassays
PRA-EDS, The Netherlands

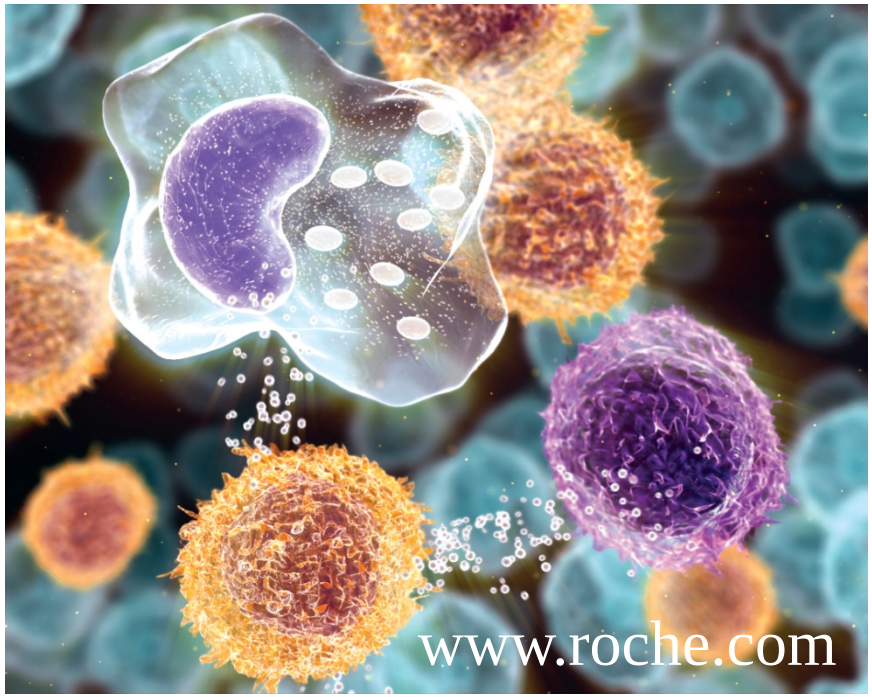
Introduction:

- Flow Cytometry: How?
- Flow Cytometry: Why?
- Pros and Cons
- Flow Cytometry in a regulated environment

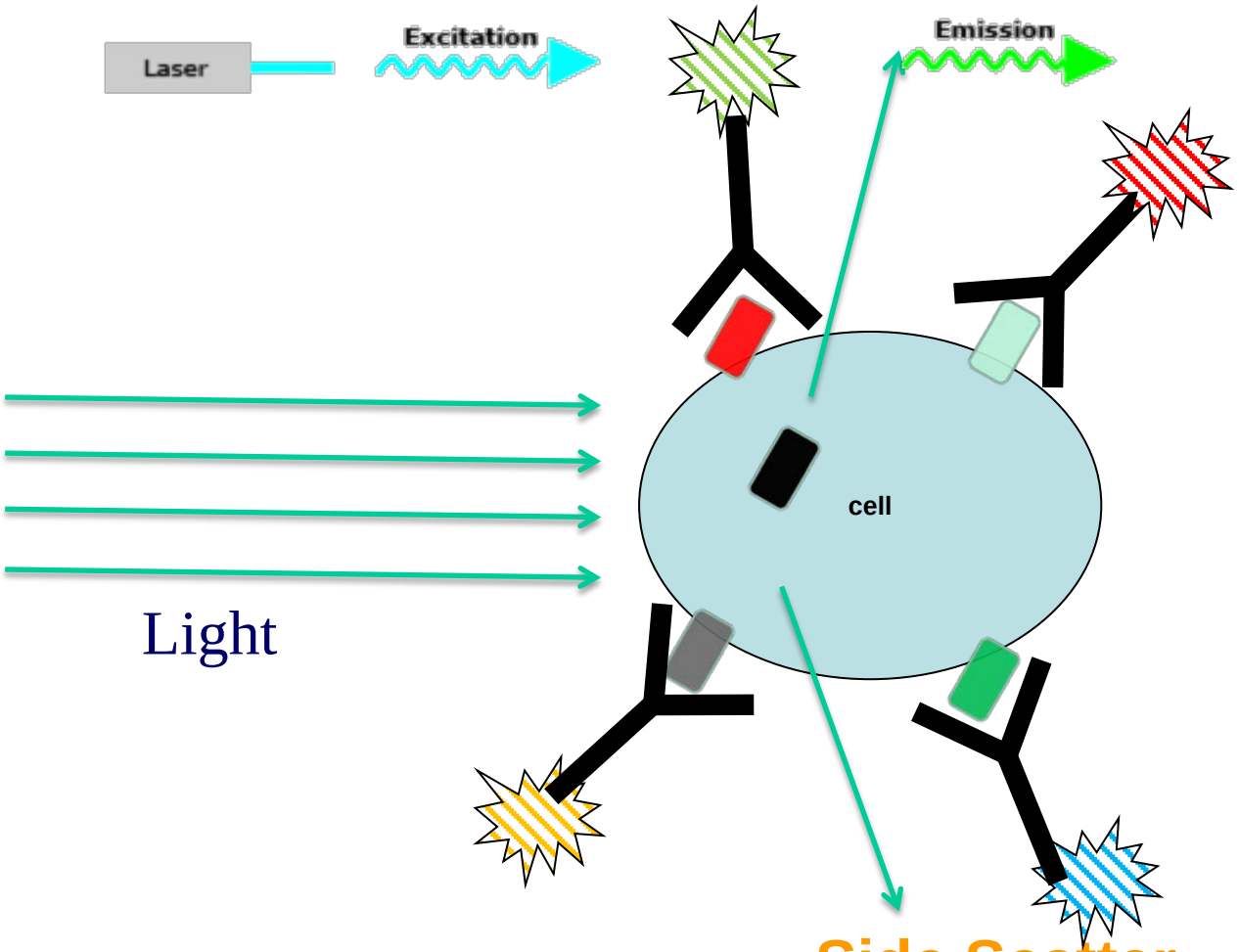
It’s All About Cells…

Flow Cytometry:

- Fresh whole blood
- LIVING cells
- Frozen/ “stabilized” cells, or cell lines



Flow Cytometer: Study Cells



Forward Scatter
(Size of a cell)

Side Scatter
(Complexity of a cell)

EBF

Why Flow Cytometry?

- Combined analysis of multiple characteristics of a single cell, or distinctive cell populations (Tregs, circulating tumor cells)
- Sheer numbers of specific leukocyte subsets
  - Safety/exploratory
- Assessment of cell functions:
  - Activation status of various cell types
    - Activation markers on membrane
    - intracellular cytokine production (vaccination)
    - apoptosis (with effect of compound)
    - ➔PD biomarker / efficacy
- Compound binding to cell receptor: Receptor Occupancy (PK)

Increased demand for Flow Support in trials

- Pro:
  - Fast, quantitative, informative
  - Help decision making in early stage

- Con
  - Stabilities!
  - Need for more guidance on how to perform analysis under regulated regime using flow cytometry.

Topic Team -32

- Goal: create a white paper giving EBF's view on flow cytometry in a regulated environment
  - Information for the paper is derived from surveys
- Harmonize flow cytometry approach
  - Both inside & and outside EBF

- Members:
  - Corinne Schoelch (Boehringer)
  - Nora Bachmayer (Crucell)
  - Robin Longdin (Quotient)
  - Maria Cavallin (Astra Zeneca)
  - Marianne Scheel Fjording (Novo Nordisk)
  - Wilfried Passe-Coutrin (Sanofi Aventis)
  - Marie Geerlings (PRA)
  - TTL: Barry vd Strate (PRA)

Sponsor: Arjen Companjen


PRA
A Clear Difference

- GLP(-like) execution of Flow Cytometry studies is an absolute requirement for support of (pre)clinical studies

What is considered to be raw data for flow cytometry?

- QC samples should always be used for run acceptance