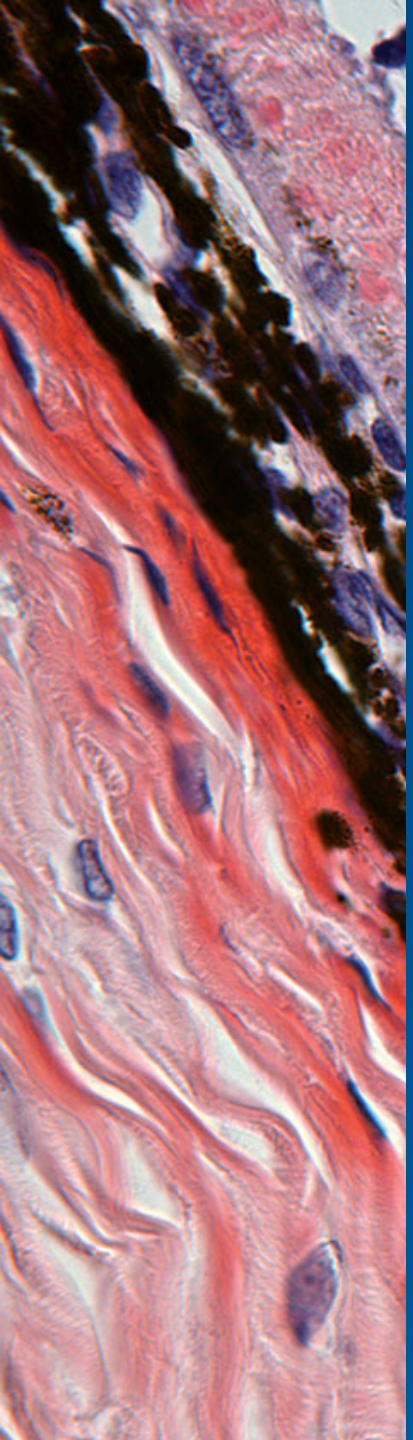


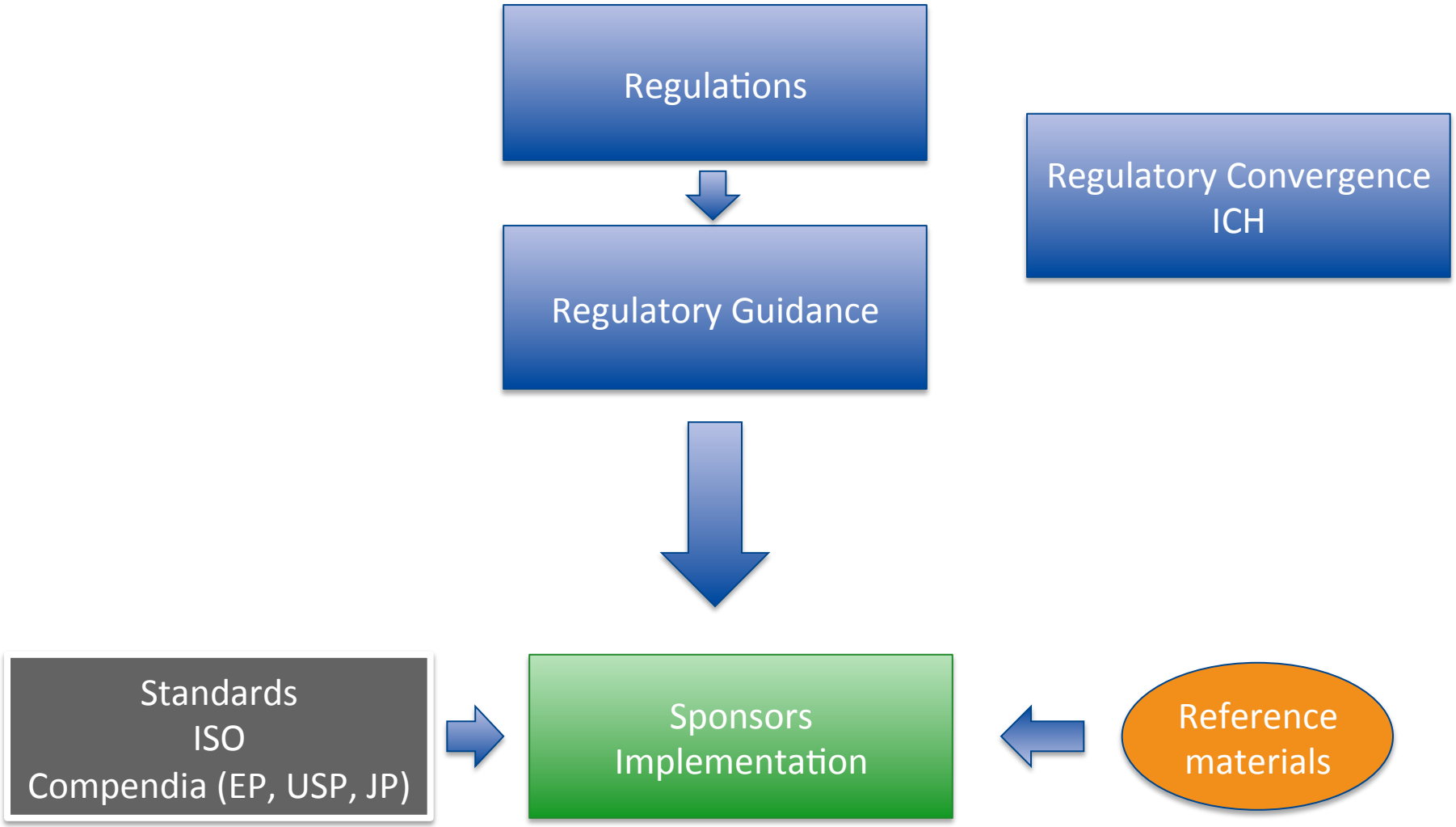
Gaps and Needs for Standards and Cell Therapy

Ian Harris, Ph.D., Cell Therapy, Janssen R&D

Janssen Cell Therapy
Janssen Research & Development, LLC

janssen | PHARMACEUTICAL COMPANIES OF Johnson & Johnson

Integration of Regulations and Standards



Standards

- Meaningful to Health Authorities and Sponsors to address safety and Quality
- Standardizes common/routine practices (e.g. sterility test)
  - Codify best practices
  - Robust and transferable methods
  - Science driven, statistical approaches
- Define identity, potency and purity of [generic] materials and products

What Standards are Not

- Only what we can find consensus on
- Platforms for manufacturing processes
- A guidebook to replace knowledge of regulations
- Reduces responsibility of Sponsor:
  - To understand the risks or critical quality attributes of their product
  - To demonstrate the assays are suitable for their product

Where do we need standards?

Validation of rapid safety tests (mycoplasma, bacteria, fungi, viruses) against compendia tests

- Determine common matrix effects and cell types

Cell counting

- Assay characteristics (sensitivity, linearity, reproducibility) for different cell types (examples T cells, fibroblast)
- Matrix effects (cryopreservation solution, media, buffers)
- Image analysis – algorithm optimization (define factors that affect algorithm- osmolality etc.)
- How to align measurements from different equipment
- Strategies to set specification for dose

Tests specifically for cells and Manufacturing Impurities

Identity, purity, (cellular)impurity testing

Flow cytometry

- Reference cell types for markers
- Markers for common types of cells (endothelial cell, T cell subtypes, fibroblasts, epithelial cells, undifferentiated ESC/iPS)
- Qualification of antibodies for common markers
- Sensitive test for undifferentiated pluripotent cells
-

Process related impurity tests for common reagents

Antibiotics - Measurement of residual gentamicin

FBS - Measurement of residual albumin

Vector - Measurement of plasmid or viral envelope

Trypsin and TrypLE - Measurement of residual Trypsin and TrypLE

Additional Potential CoE Activities

- Provide regulatory science support
  - Qualify tests to determine potential to initiate thrombus (IV route of delivery)
  - Develop strategy for non-destructive test for foreign particulates (visual inspection or alternative)
  - Develop test for container closure integrity test for vials and bags in cryopreserved state