Cell Processing and Chain of Identity

Processing Apheresis Cell Product from Collection to Send Off
+ From Cell Return to Infusion

May 10, 2019
Director, Cell and Gene Therapy Lab
Yongping Wang, MD/PhD
wangy2@email.chop.edu
CHOP Cell and Gene Therapy Lab

- No pertinent Conflict of Interest to declare

- A cGMP cell processing facility

- Performs a variety of 361 and 351 Human Cell and Tissue / Product (HCT/P) processing
  
  Oversimplication: simpler/safer and more complex/riskier products (PHS Act Sec. 351, 361)

- Currently 6 FTE, 1 QA, 2 processing clean rooms (need more space!!)
T-Cell Processing

- Pick up from apheresis
- One product, one clean room
- Pre-Processing: Samples taken for cell count, sterility, Flow Cytometry (CD3, viability), manual diff
- Product Centrifuged to Remove Platelets and Plasma
- Product Concentrated/Diluted to Appropriate Concentration for Cryopreservation
  - 5% Human serum albumin, 10% DMSO
- Divided into Minimum of 2 Bags + QC Vials
- ISBT labeling
T-Cell Processing

- Samples from other institutions
  - different processing
  - different cryoprotectant
  - fresh product, not ISBT
  - Case by case discussion
  - Assign own DIN

- Multi-day collections
  - Low dose, can’t freeze in 2 Bags
  - Case by case discussion

- ISBT label
  - Sponsor needs Birthday (not req. ISBT)
  - Add D.O.B
Cryopreservation

- Product Bags & Vials Placed in Controlled Rate Freezer (one product one freeze)
- Freeze to -90°C via Software-Based Freezing Program
- Transfer to Liquid Nitrogen Storage Tanks in vapor phase < -150°C
- ISBT labeling
Cryopreservation

- Samples from other institutions
  - no expiration
  - different cassette size
  - already cold
  - not ISBT

- QC vials
  - low cell number (#, conc)

Assign CHOP exp date
Hopefully bag still fits in our/NVS cassette
Label verification under frost
Make CHOP label, tie on (not affixable)
Discussion with sponsor
Pre-Shipping

- Notified of Enrollment by Coordinator
- Product Information Provided to Novartis in Cell Chain (Coordinator)
- CGTL is Notified Which Bags to Send
- Cell Pickup Scheduled with World Courier
Shipping

CHOP → Novartis

- Courier Arrives with Cryoshipper the Morning of the Scheduled Delivery Date
- Complete Required Data and Release Forms for BOTH Novartis and CHOP, WayBill Order# match
- Pack per Novartis Instructions
- Serialized zip tie to prevent tampering
- Send via World Courier off to Morris Plains

Novartis → CHOP

- ~4 Weeks (manufacturing, QA testing for release)
- Unpack Cryoshipper, Return to LN2 Storage
- Complete Receipt Paperwork for CHOP
Shipping

- Two sets of paperwork
  - similar info documented both internally and on sponsor paperwork
  - what about SOP (not just shipping)
- Multi-day collections
  - combined during manufacturing
- Watch out for weather

We do both

New SOP, to only show difference from
-- our institutional SOP
-- while referring to sponsor manuals

New DIN upon return (CMO not ISBT)
Thawing / Infusion

- 37°C Water Bath with secondary bag
- Transfer to Syringe(s)
- Deliver to Clinical Team at Bedside
- Confirm Patient and Product Identifiers
  lab staff, MD, RN
- Expires **30 minutes** from End of Thaw

Coordination on infusion day is key
Multiple messages back/forth to ensure
  -- pt is ready
  -- MD is ready
  -- lab is ready
THANK YOU!