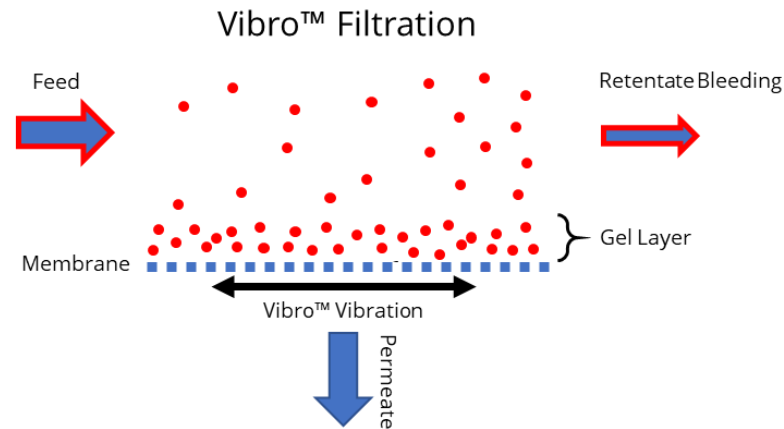


SANI Membranes

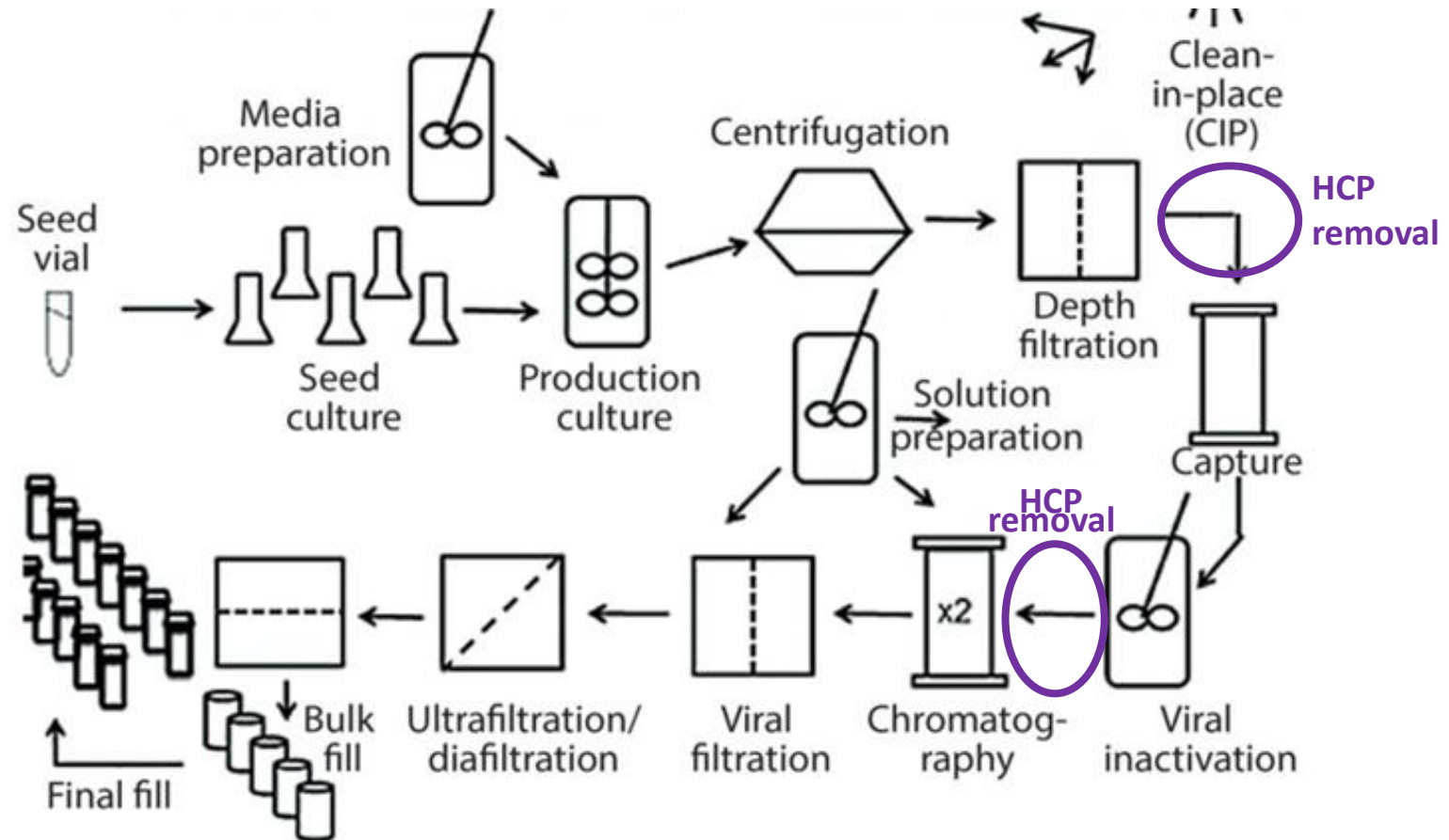
Vibro™ Technology for Micro- and Ultrafiltration
Ideal Separation from Laboratory to Production



Typical Biotech recovery process

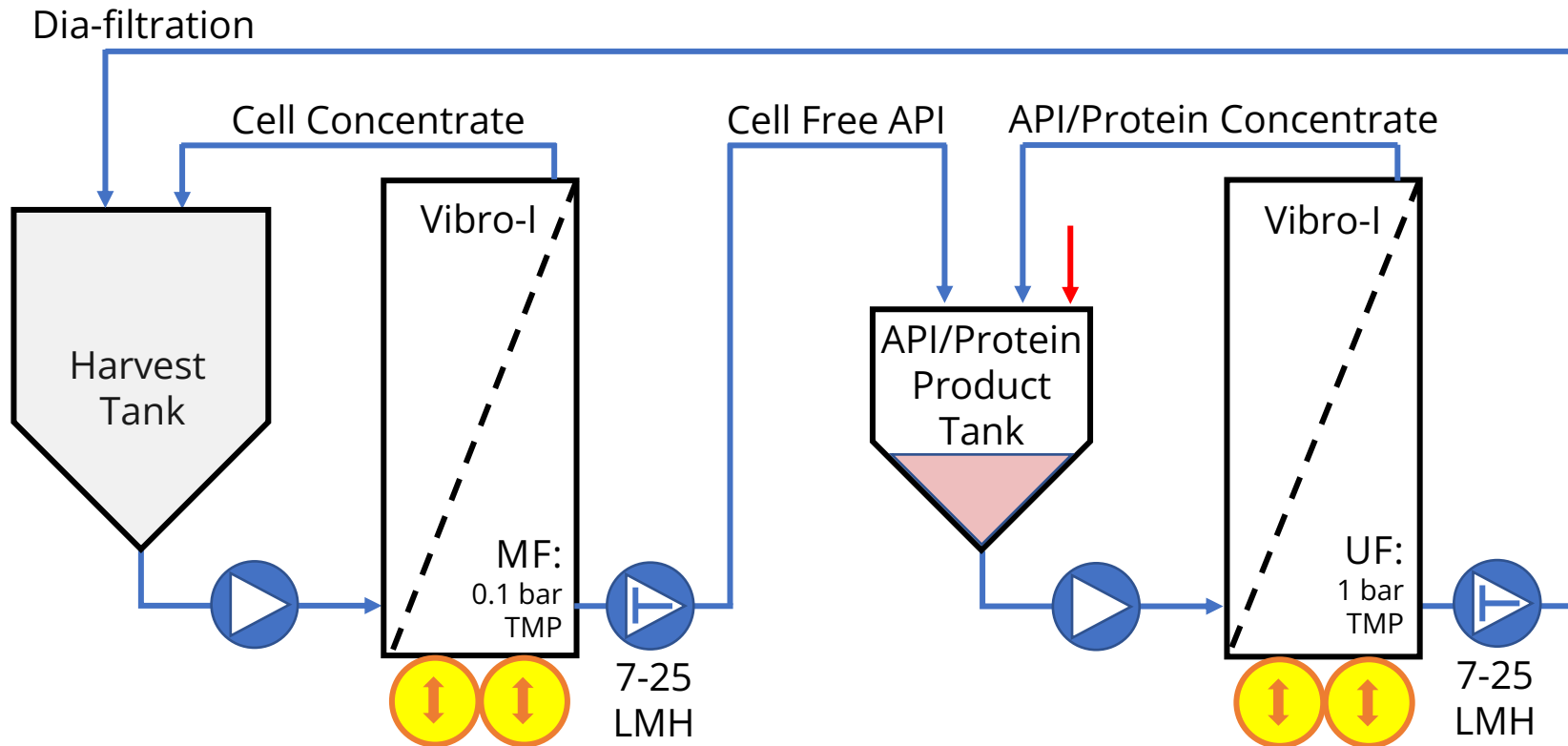
(batch, Fed-batch, continuous)

Upstream –
Downstream
clarification of
product after
fermentation



#Fermented product, #GMO, #Yeast, #Coli, #CHO, #Cell, # down stream , # up stream

API/Protein Processing from Cell Culture



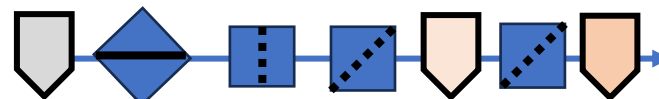
Recovery process to get + 95% API/Protein product

Combining MF & UF reduces diafiltration media and simplify process

Buffer can be changed during the process

- Higher yield
- Re-usable filters
- CIP cleanable
- Simple solution
- Less diafiltration media

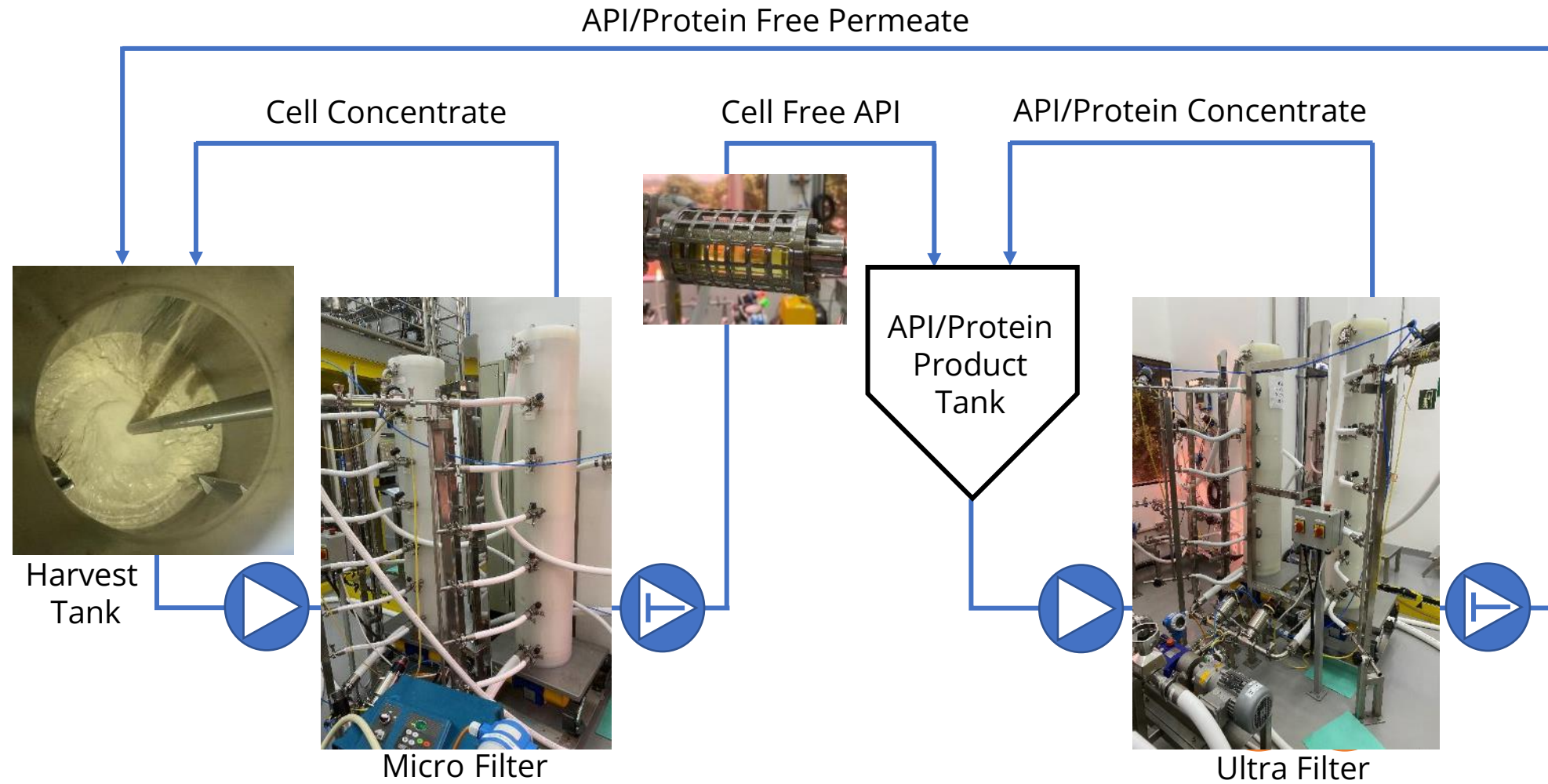
The traditional process



HSS > DF > CF-MF > CF-UF

Be ware of temperature and anti foam agents

API/Protein Processing from Cell Culture



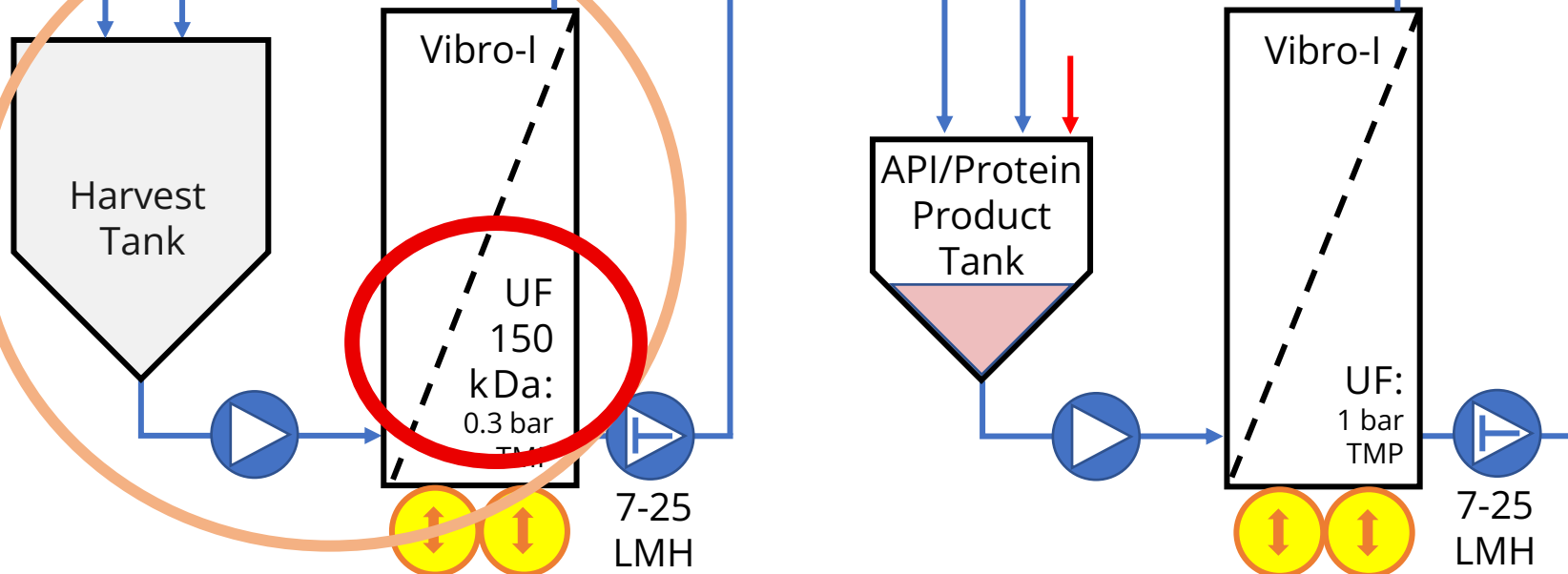
Deep-Deep Clarification of Cell Culture

Dia-filtration

Cell Concentrate

Cell Free API

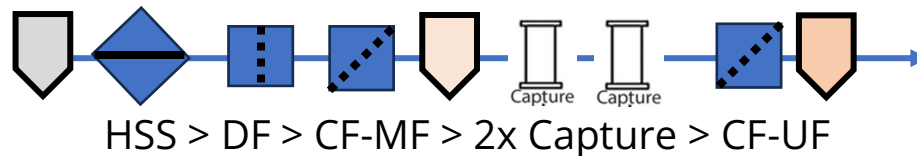
API/Protein Concentrate



Option to separate on UF level directly from Fermenter reduces unit operations and cost

- Higher yield
- Re-usable filters
- CIP cleanable
- Simple solution
- Less diafiltration media

The traditional process

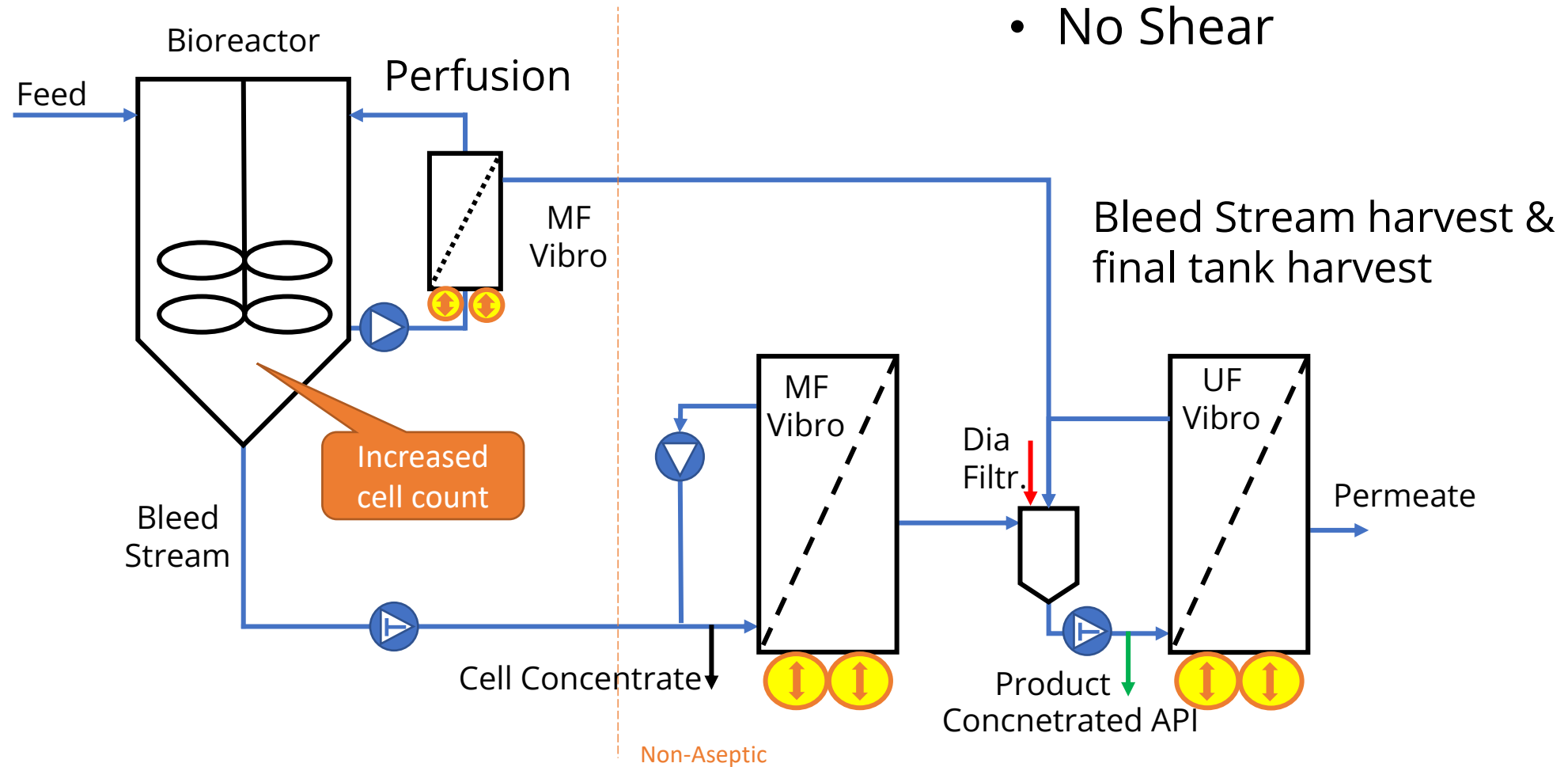


Be ware of temperature and anti foam agents

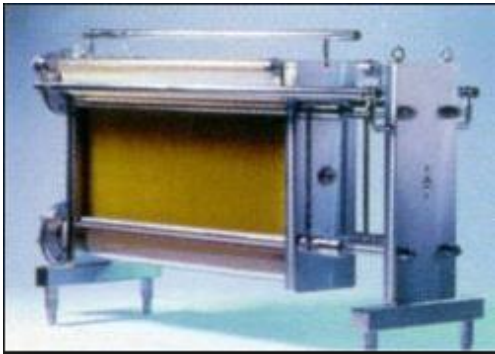
Cell Culture Process Intensification

Continuous Fermentation & Filtration

- Higher yield
- No Shear



Yesterdays Separation Technology!



Vibro™ technology is vastly
improving performance
while being cost competitive



Free Flow Plate™ and Vibro™ technology

The Future of MF and UF

Best separation
Least energy
Simplest process

Thank You!

Q&A



SANI 
Membranes
MORE FILTRATION, LESS ENERGY