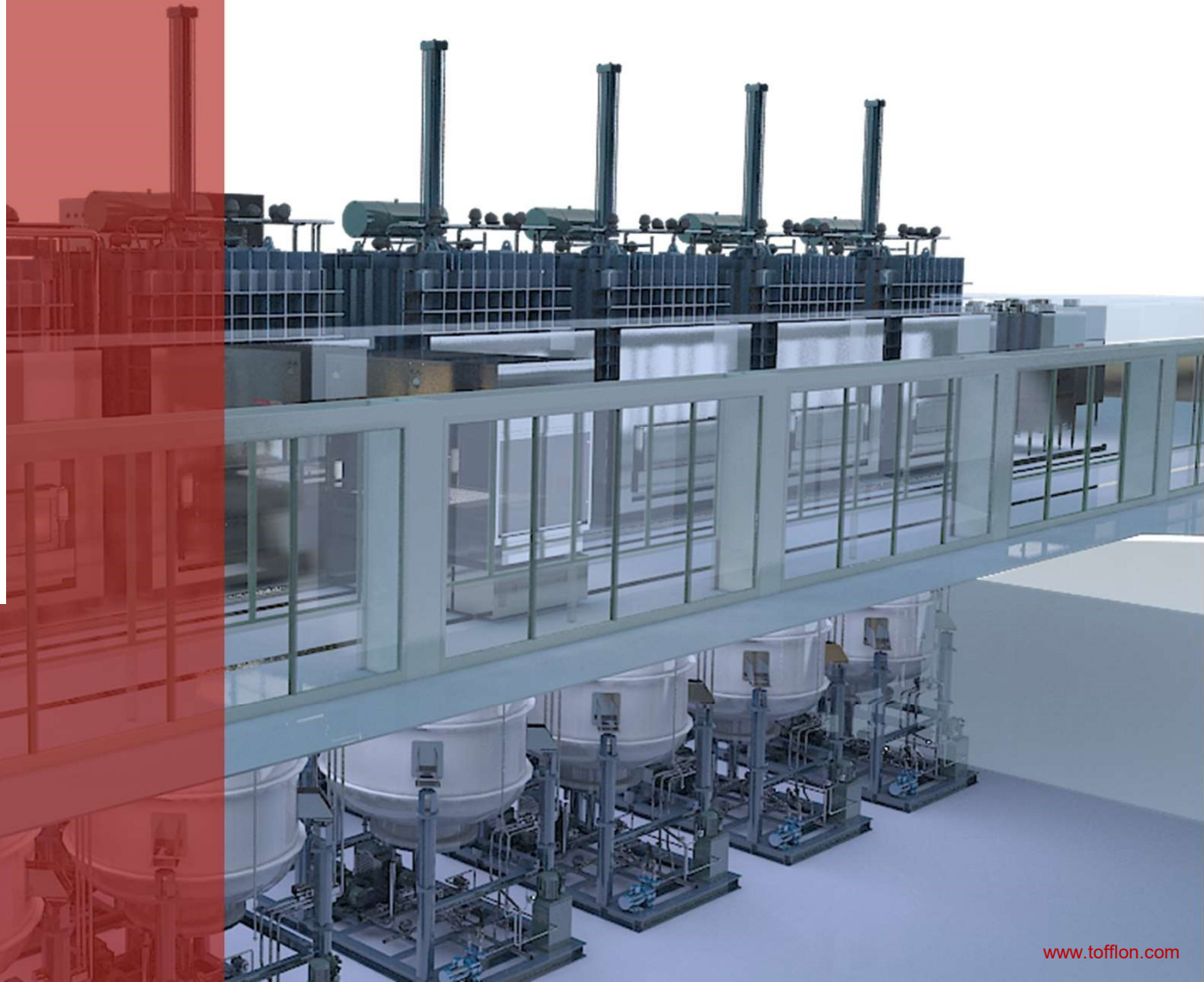


Vaccine Manufacturing Platform With Covid19 Vaccine Case Study

www.tofflon.com



Company Profile



Company Introduction

Tofflon

Founded in 1993

- Headquartered in Shanghai
- Over 100,000 m² of professional production workshop

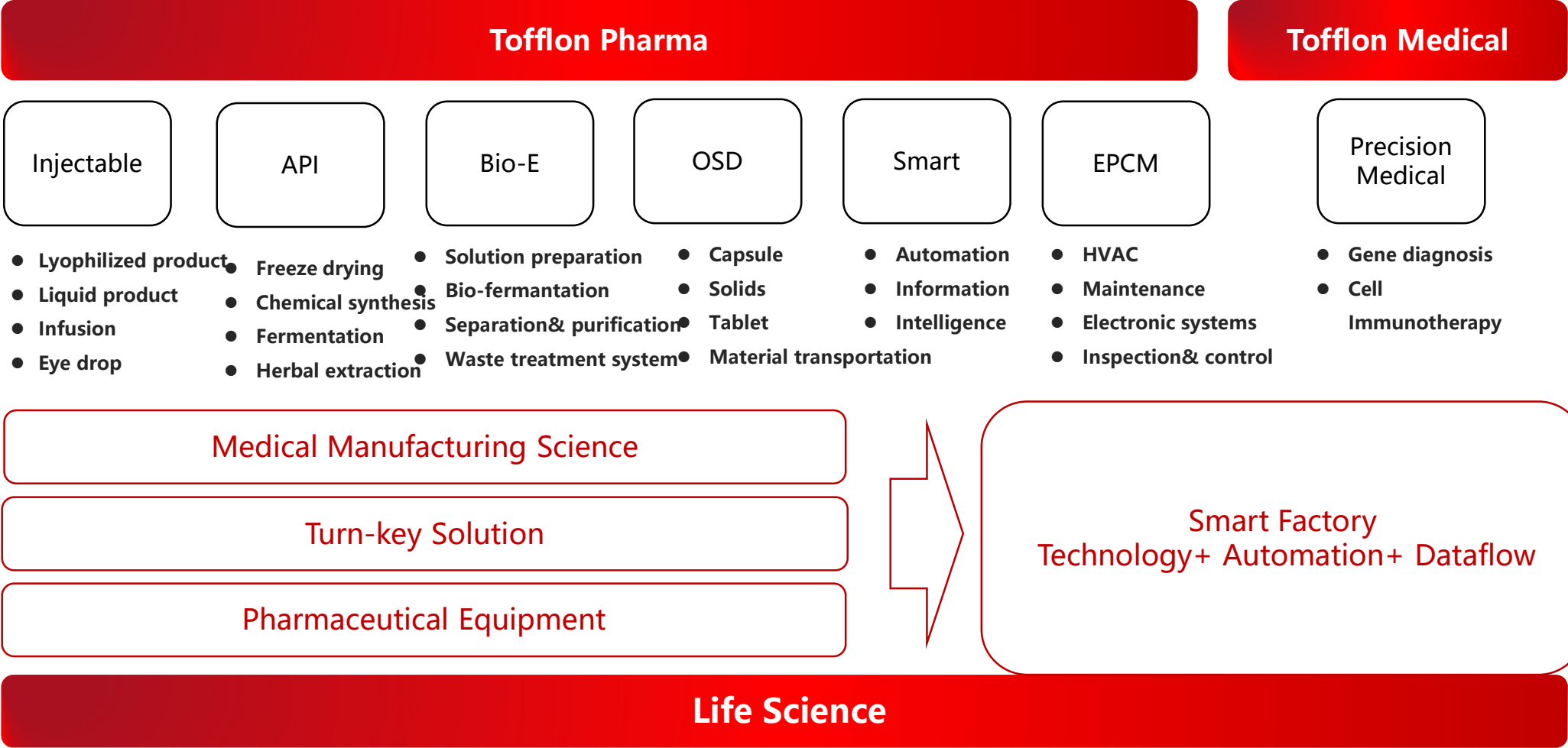
Listed in 2011

- GEM Listing Stock Code: 300171
- Over 2,000 professionals

Globalization

- China's leading pharmaceutical equipment industry
- International market share ranked top





Equipment Supplier to Solution provider

Tofflon For Vaccine Platform

Vaccine Manufacturing Platform

Viral Vaccine Process

Cell Expansion

- Flask
- Cell factories
- Expansion system
- Cell

Virus Proliferation

- BSE
- Isolator
- SUB

Downstream

- Chromatography
- TFF
- Filtration

Inactivation

- Incubators

Storage

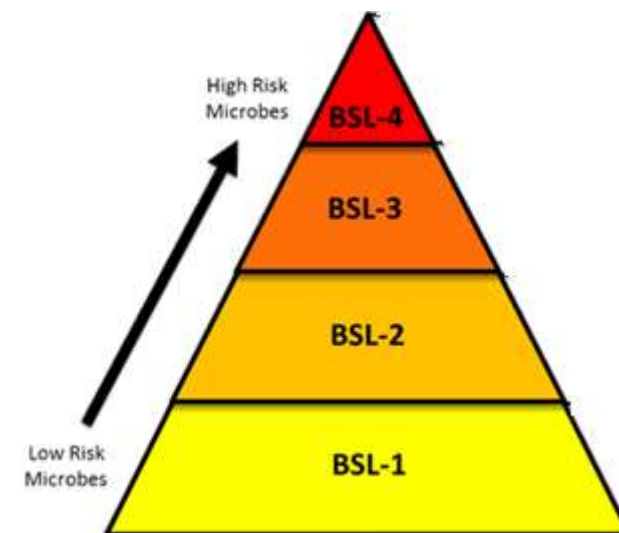
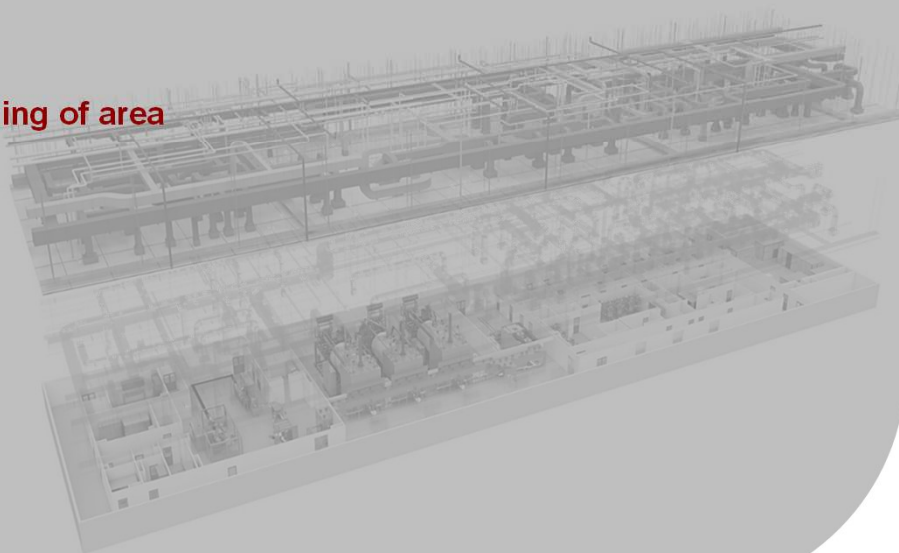
- Freeze & Thaw systems
- Blast freezers

Fill and finish

- Solution preparation
- system
- RAB system
- Filling line
- Cartoning

Manufacturing Area

- AHU Designing
- Airlocks and partitioning of area
- Pressure zoning
- Area Classification
- Containment
- Process flow
- Waste management



Upstream Capabilities

Tofflon



Cell Bank & Isolators



Wave Bioreactor



Incubator System



SUB



Bioreactors



Vessel System

Downstream Capabilities



Chromatography column & Systems



ILC, ILD, Integrated Systems



TFF Systems



Freeze & Thaw systems



Hollow Fiber systems



Vessel systems



VHP Pass Box



VHP

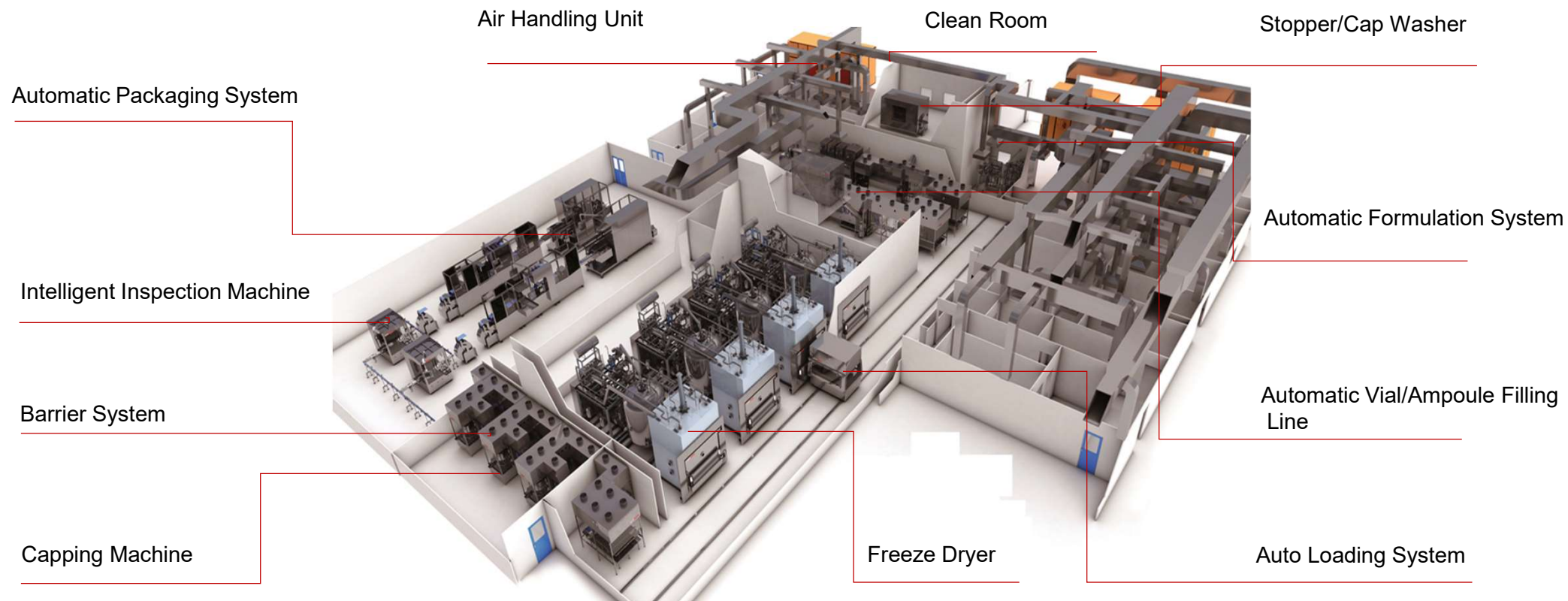
- BSL3/BSL4 manufacturing area
- Sterile time: 2 Hr for the passbox 6 logarithmic reduction killing effects of microorganism
- Efficient decomposition system to shorten the ventilation time to reduce H₂O₂ content to less than 1 ppm
- Robotic VHP



Continuous Bioinactivation system

- Efficient heat energy utilization
- The inactivation effect is the same as that of steam sterilization at 121.1 °C for 30 minutes
- Continuous operation
- Scada platform controlling and data acquisition
- Economic compared to batch

Injectable Capabilities



Washing & Drying



Rubber Cleaning



Filling



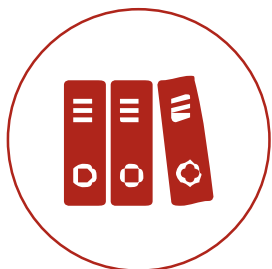
Capping



Inspection



Packaging



success case



Case study 1 : Beijing National Institute of Biological Sciences *Tofflon*

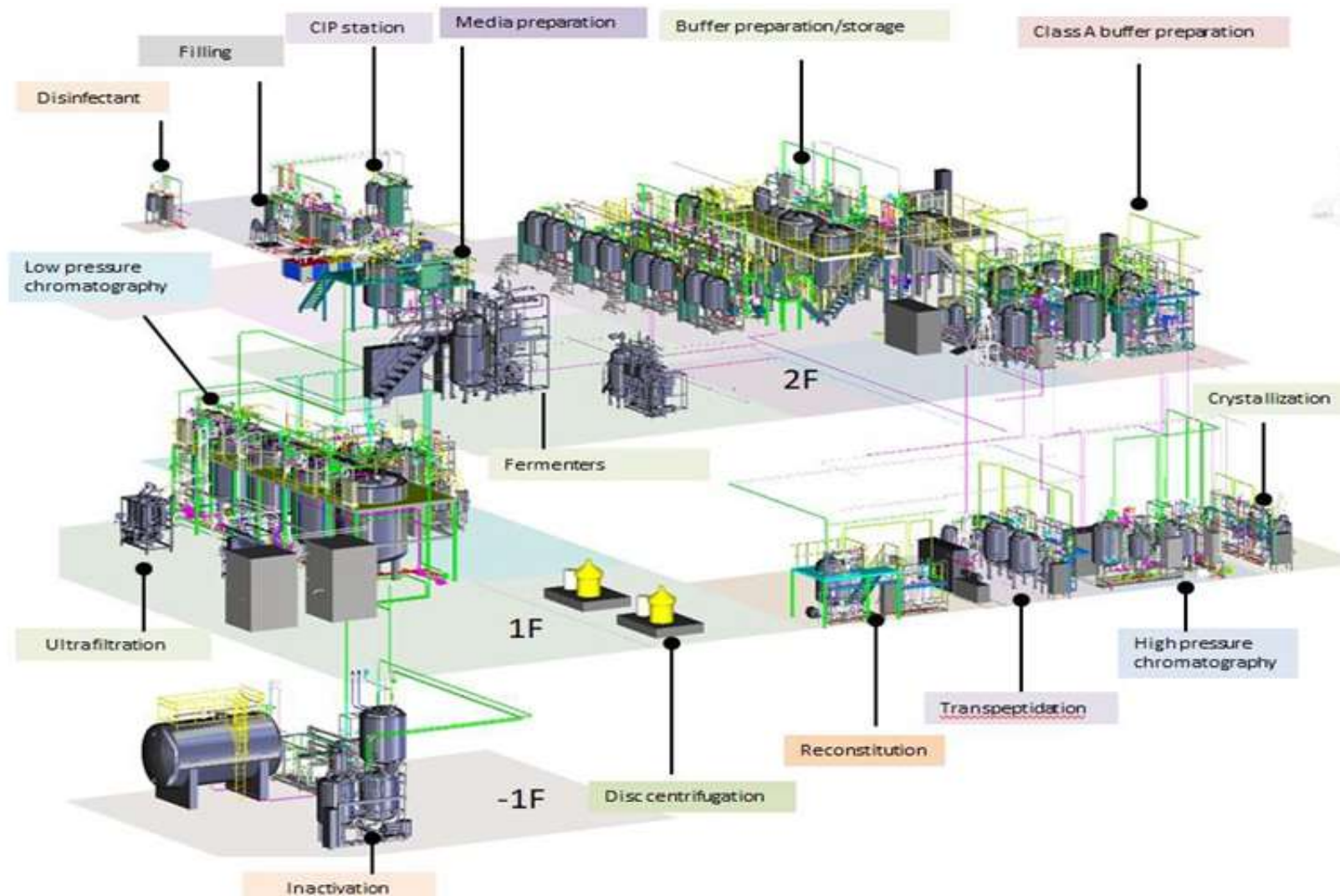
Product : Inactivated Vius vaccine

Problem statement :

Closed and contained operation for handling of virus



- In production for virus inoculation, virus distribution, harvesting fluid handling, in QC for QC purpose viz virus sterility inspection, mycoplasma inspection, titer and other experiments
- Isolator designed with incubator cart to transfer material from isolator to incubator through RPT port.
- Considered sterility requirements and toxicity protection requirements for isolator.
- The internal dimensions of the isolator chamber are reasonably customized according to the different equipment, which are involved in different process.
- Separate air supply and separate air exhaust for isolator to ensure that isolator has no effect on the control of the differential pressure in the laboratory.



EPC

- Construction
- Blast proof area
- Partitioning
- HVAC
- EMS, BMS

Process

- Upstream Equipment
- Downstream equipment
- Tank systems
- CIPSIP system
- Piping & Integration
- Automation

Thank You

Q& A

