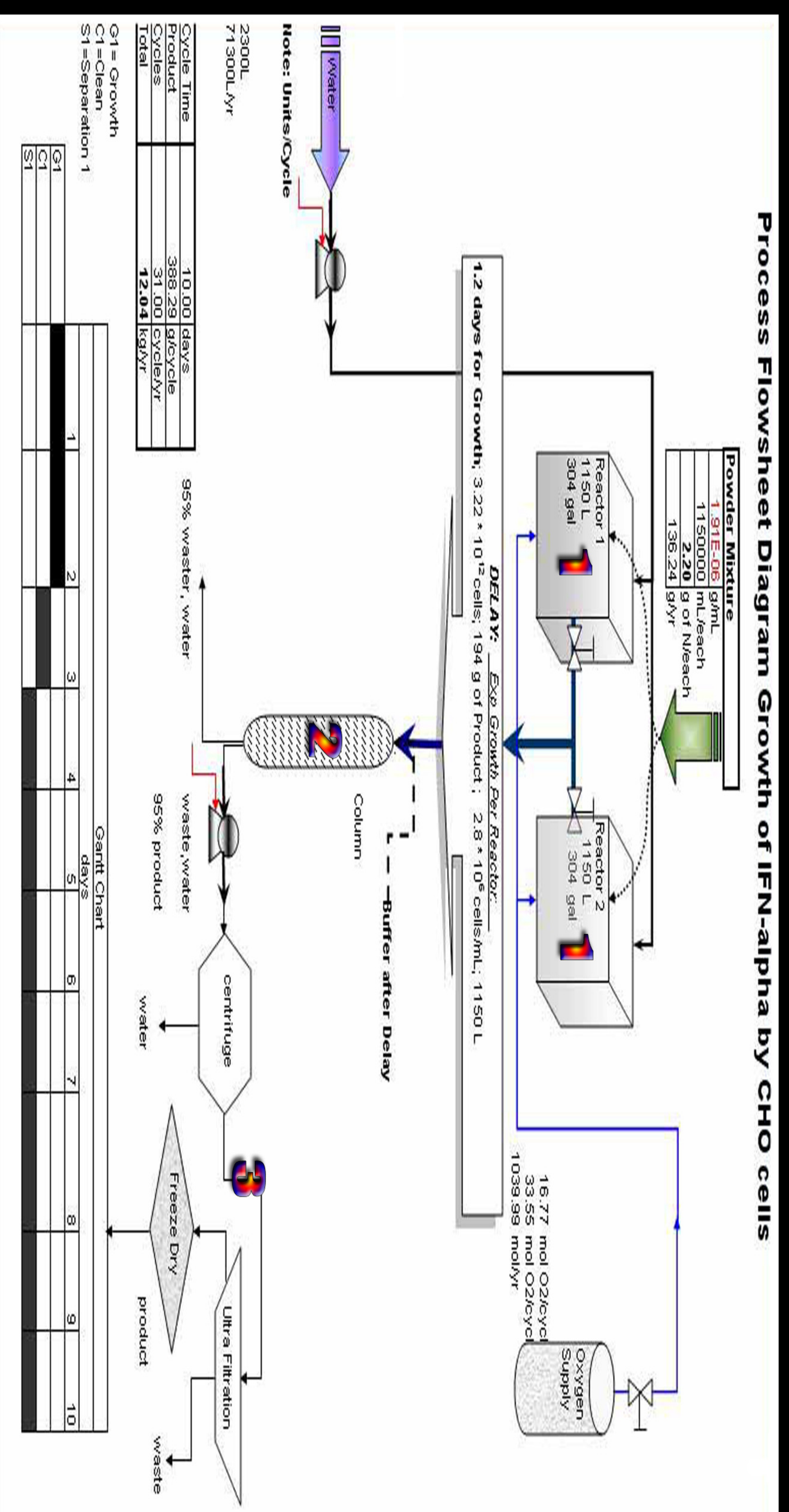


INTRODUCTION

- Large Scale production of interferon-Alpha.
- Process Capacity of 10kg of IFN- α a year.
- Isolation of IFN- α from batch reactor cell broth.
- Performed Economic Analysis on Designed Process.

BACKGROUND

- Interferon (IFN) is a protein produced by the animal cell when they are invaded by viruses.
- Limited amount of IFN- α in the human body.
- Greater quantities of IFN- α can be produced by genetic engineering.
- Isolated from Chinese Hamster Ovary Cells (CHO Cells)
- IFN-Alpha has been approved for use as therapeutic against hairy-cell Leukemia, Hepatitis C, chronic Hepatitis B, Hepatitis C affects 150,000 Americans/year.



PRODUCTION PROCESS

Cell Preparation

- Through the method of PCR amplification and HisTag. The DNA will be incorporated into an expression vector.
- Vector is transfected into CHO cells.
- IFN- α will be secreted along with the polyhistiding tag.

1-Batch Reactors

- CHO Cells grow on nutrients (HYQ-PF-CHO).

- Product produced as the cells grow.

2-Nickel Affinity Column

- IFN- α separated from mixture by attaching to resin.
- Buffer detaches IFN- α from Resin.

3-Centrifuge, Ultra filtration and Freeze Drying

- Separates Buffer and other Waste from IFN- α based on density difference.
- Product is purified further by an ultra filtration unit based on particle size.
- Product is freeze dried for storage.

ECONOMIC ANALYSIS

- Total Depreciable Capital: \$561,135.
- Total Permanent Investment: \$639,694.
- Price of IFN- α : 1mg = \$50.
- Net Earning: \$282.94 million.
- High Return on Investment.
- Very Profitable.

HUMANITARIAN CONSIDERATION

- High cost of drug is a deterrent to most patients.
- Sell at a subsidized price.
- Suggested Selling price: 1mg = 44cents.
- 50 % Return on Investment.
- Payback Period: 1 year.
- Still very profitable.

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- | | |
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