Figure 1.

- **Anti-IL-13 Antibody Heavy Chain Variable Region Sequence**

```
1         10         20         30         40
EVTLRESGPG LVKPTQTLTL TCTLYGFSLS TSDMGVDWIR
                                    CDR1

QPPGKGLEWL AHIWWDDVKR YNPALKSRLT ISKDTSKNQV
                    CDR2

VLKLTSVDPV DTATYYCART VSSGYIYYAM DYWGQGTLVT
                          CDR3

VSS
```

- **Anti-IL-13 Antibody Light Chain Variable Region Sequence**

```
1         10         20         30         40
DIQMTQSPSS LSASVGDRVT ISCRASQDIR NYLNWYQQKP
                               CDR1

GKAPKLLIFY TSKLHSGVPS RFSGSGSGTD YTLTISSLQP
             CDR2

EDIATYYCQQ GNTLPLTFGG GTKVEIK
          CDR3
```

Figure 2. Cell Culture Process Flow Diagram

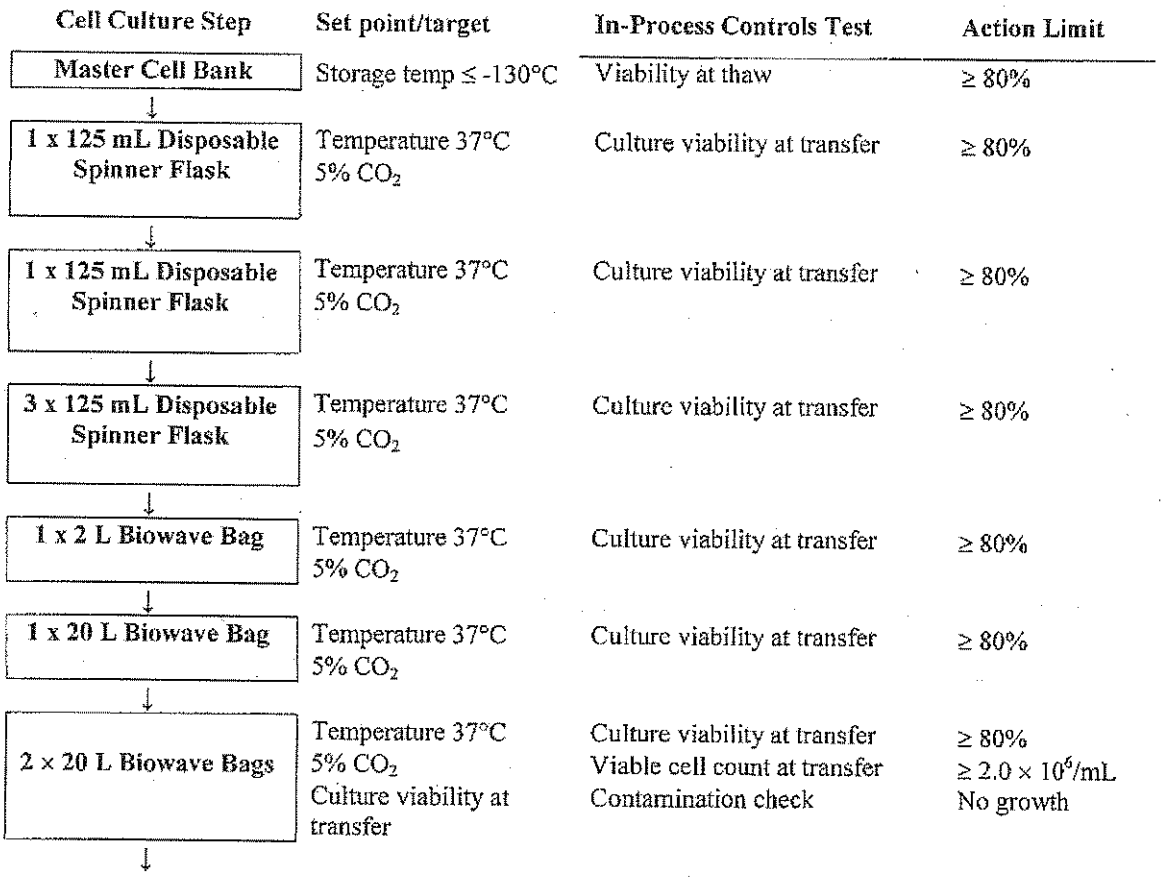
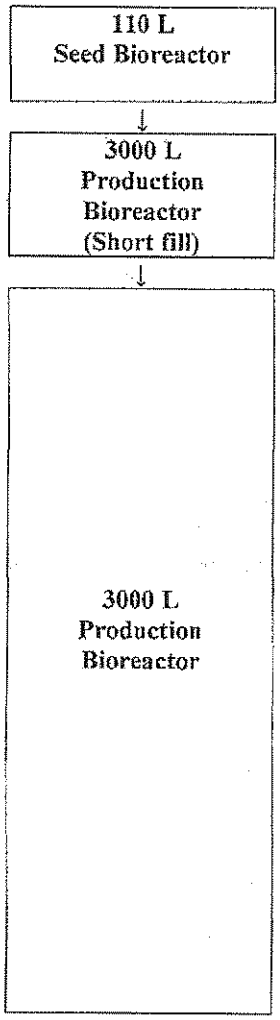


Figure 2. Cell Culture Process Flow Diagram (Continued)



Cell Culture Step	Set point/target	In-Process Controls Test	Action Limit
110 L Seed Bioreactor	Temperature 37°C pH 7.1 40% DO	Viable cell count at transfer Contamination check	$\geq 2.6 \times 10^6$/mL No growth
3000 L Production Bioreactor (Short fill)	Temperature 37°C pH 7.1 40% DO	Viable cell count at end of short fill	$\geq 1.6 \times 10^6$/mL
3000 L Production Bioreactor	Temperature 35 → 33°C pH 6.9 40% DO	Viable cell count at temperature shift	$\geq 3.0 \times 10^6$/mL
		Daily Samples:	
		Daily cell count	Report value
		Glucose concentration	Report value
		Poros A HPLC (ABT-308 titer)	Report value
		Harvest sample (unprocessed bulk):	
		Harvest viability	≤ 50%
		Poros A HPLC (ABT-308 titer)	Report value
		Endotoxin	≤ 5 EU/mL
		TEM	≤ 10^8 virus-like particles/mL
		Mycoplasma	Negative[a]
		Adventitious viruses	No evidence of viral contamination[a]
		Q-PCR for MVM	Negative[a]
		Contamination check	No growth[a]

Figure 3. Comparision of Alternative Cell Culture Process Flow Strategies

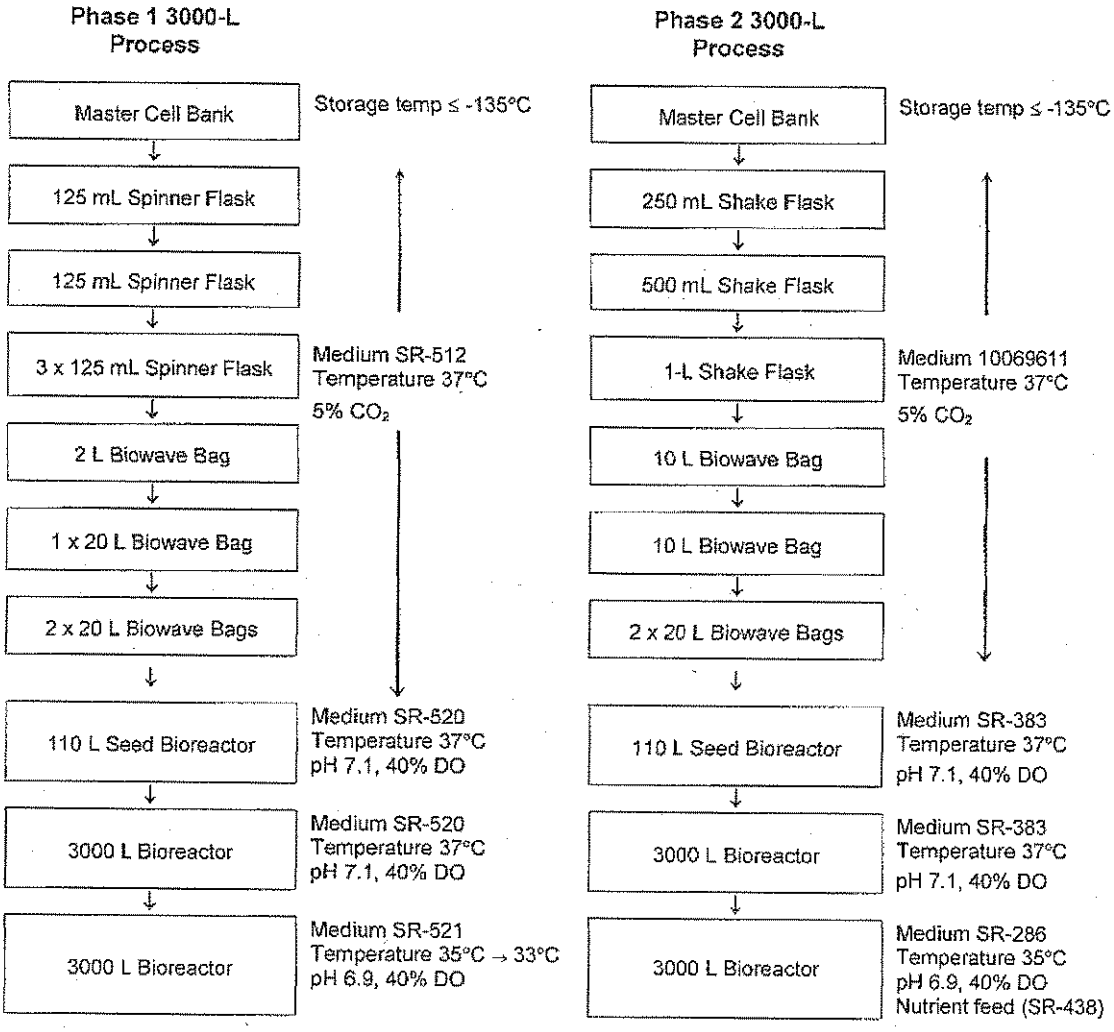
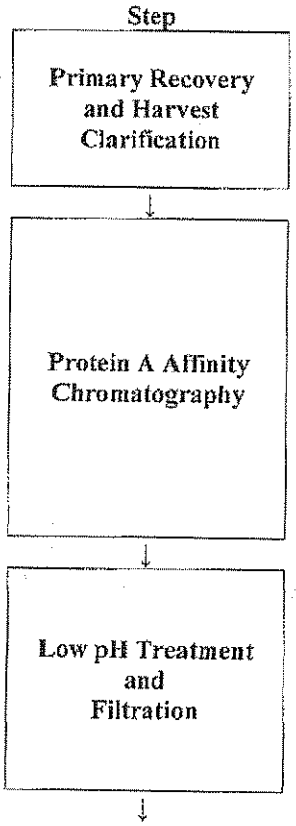


Figure 4. **Primary Recovery and Capture Chromatography Process Flow Diagram**



Step	Set point/target	In-Process Controls Test	Action Limit
Primary Recovery and Harvest Clarification	Ambient temperature	Poros A HPLC	Recorded to calculate mass
	10-25 L/min	Bioburden[a]	≤ 15.0 CFU/mL
	Depth and membrane filters	Endotoxin[a]	≤ 5 EU/mL
Protein A Affinity Chromatography	Ambient temperature	A_{280}	Recorded to calculate mass
	45 × 22 cm column (35 L)	SE-HPLC	≥ 90.0% Monomer
	Flow rate 150 – 300 cm/hr	Bioburden[a]	≤ 15.0 CFU/mL
	Elution buffer pH 3.5	Endotoxin[a]	≤ 5 EU/mL
	Load ≤ 32 g protein/L resin		
	Hold eluate at ambient		
Low pH Treatment and Filtration	Ambient temperature	A_{280}	Recorded to calculate mass
	pH 3.5, 60 - 70 min	SE-HPLC	≥ 90.0% Monomer
	Adjust to pH 5	Bioburden[a]	≤ 15.0 CFU/mL
	Depth and membrane filters	Endotoxin[a]	≤ 5 EU/mL

a. Sample taken at the start of the next unit operation.

Figure 5. Comparision of Alternative Primary Recovery and Capture Flow Strategies

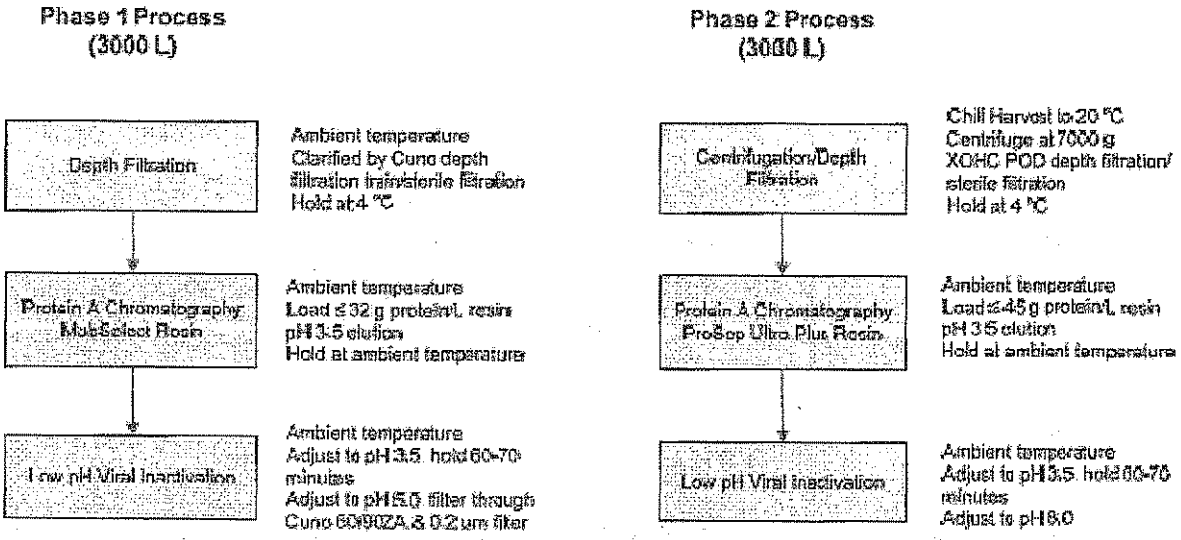
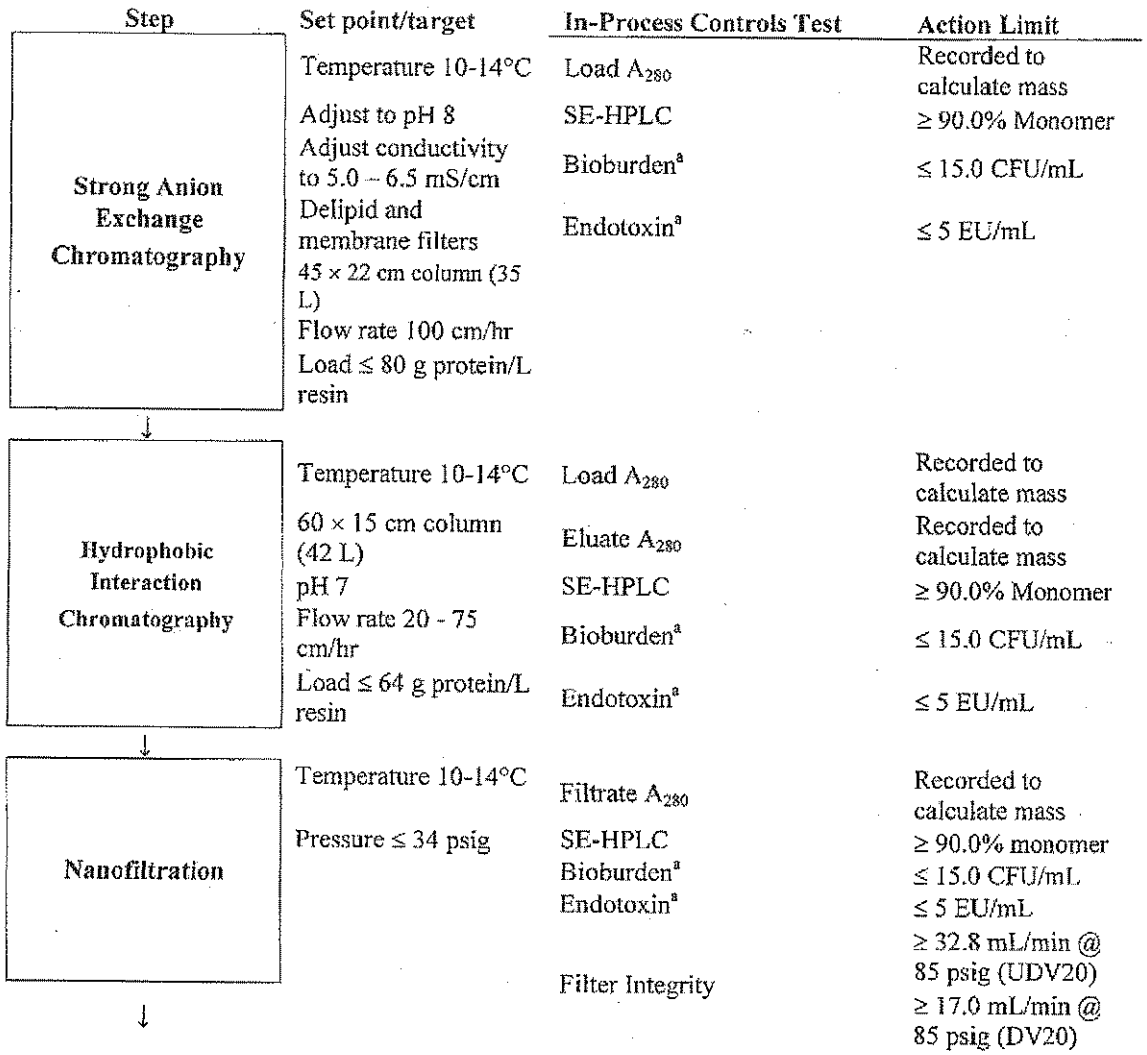


Figure 6. Fine Purification Process Flow Diagram



a. Sample taken at the start of the next unit operation.

Figure 6. Fine Purification Process Flow Diagram (Continued)

Step	Set point/target	In-Process Controls Test	Action Limit
UF/DF	Temperature 10-14°C	A_{280}	Recorded to calculate mass
	Diafilter into 15 mM Histidine, pH 5.6	SE-HPLC	≥ 90.0% monomer
	Target concentration 120 - 160 g/L	Bioburden[a]	≤ 15.0 CFU/mL
		Endotoxin[a]	≤ 5 EU/mL
↓			
Filter, Bottle And Freeze Drug Substance	Temperature 2-8°C	A_{280}	Recorded to calculate mass
	Freeze -80°C (nominal)	Bioburden	≤ 1 CFU/mL[c]
	Concentration 120-160 g/L	Endotoxin[b]	≤ 0.2 EU/mg[c]
		Filter Integrity[b]	Bubble point ≥ 50 psid

a. Sample taken at the start of the next unit operation.
b. Drug substance test results.
c. Drug substance specifications

Figure 7. Comparision of Alternative Fine Purification Flow Strategies

