

Your process intensification journey starts here

Explore the Process Intensifier app

How do you know if an intensification approach will give you advantages over your current biomanufacturing process — and how do you choose the right one? Simply enter your process parameters and see the impact. Choose to optimize:

- **Upstream bioreactor operations**
Will steady-state perfusion, concentrated fed-batch, or another option meet your needs?
- **Downstream capture (protein A step) operations**
Explore the possibilities of high-capacity resins, Fibro rapid cycling, and continuous multicolumn chromatography.
- **Both as a connected operation**
What happens when you combine upstream and downstream approaches?

Visit cytiva.com/processintensifier

Process Intensifier



Upstream selector

1 Select inputs

Campaign target: 25 kg
Reactor size: 2000 L
Titer: 4 g/L
Peak VCD: 30 MvC/mL
Culture duration: 12 days

2 Overview and select

Process	Volumetric productivity (g/L/h)	Number of batches per campaign	Volume in bioreactor (L)
Fed-batch	0.3	4	1563
Steady-state perfusion	2.1 (7.0x)	1 (4.0x)	434 (3.6x)
High-seed fed-batch	0.5 (1.7x)	4	1563
Hybrid perfusion fed-batch	1.2 (4.0x)	1 (4.0x)	1551
Concentrated fed-batch	1.4 (4.7x)	1 (4.0x)	1244 (1.3x)

3 Summary

Process	Volumetric productivity (g/L/h)	Number of batches per campaign	Volume in bioreactor (L)
Fed-batch	0.3	4	1563
Steady-state perfusion	7.0x 2.1	1.4x 1	1.3x 434

Export to Downstream

Downstream selector

1 Select inputs

Production mode: Clinical, Low demand, High demand
Harvest mode: Batch, Continuous
Base case: MabSelect SuRe™, MabSelect SuRe™ LX

Batches per campaign: 3
Volume in bioreactor: 1000 L
Titer: 5 g/L
Max time for capture step: 20 hours

2 Overview and select

Process	Relative adsorber cost (%)	Volumetric productivity (g/L/h)	Buffer volume (L/mAb)	Single use compatibility
MabSelect SuRe™	100	15.4	0.57	Standard
Fibro Prisma™ - single use system	34 (65%)	220.6 (14.3x)	0.88 (4.54%)	Excellent
MabSelect Prisma™	88 (72%)	18.6 (1.2x)	0.33 (4.5%)	Standard

3 Summary

Process	Relative adsorber cost (%)	Volumetric productivity (g/L/h)	Buffer volume (L/mAb)
MabSelect SuRe™	100	15.4	0.57
Fibro Prisma™ - single use system	65% 34	14.3x 220.6	4.54% 0.88

Single use compatibility: MabSelect SuRe™ Standard, Fibro Prisma™ - single use system Excellent

Find the sweet spot for your facility*

Flexible multiproduct manufacturing

<p>Upstream Intensify with hybrid perfusion fed-batch</p> <ul style="list-style-type: none"> 4x higher productivity¹ 75% fewer batches required¹ 	<p>Downstream Intensify with Fibro Prisma</p> <ul style="list-style-type: none"> 14x higher productivity² 66% lower adsorber cost³
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High frequency, large volume batch manufacturing

<p>Upstream Intensify with high-seed fed-batch</p> <ul style="list-style-type: none"> 70% higher productivity¹ 20% reduction in facility utilization¹ 	<p>Downstream Intensify with MabSelect Prisma™</p> <ul style="list-style-type: none"> 20% higher productivity² 53% lower adsorber cost³
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High productivity, continuous manufacturing

<p>Upstream Intensify with steady-state perfusion</p> <ul style="list-style-type: none"> 7x higher productivity¹ 80% reduction in bioreactor size¹ 	<p>Downstream Intensify with MabSelect Prisma™ pcc</p> <ul style="list-style-type: none"> 2.7x higher lifetime productivity^{4,5} 50% lower buffer consumption⁴
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*Outputs based on specific process conditions commonly used in biomanufacturing. ¹Compared to a fed batch process. ²Compared to base case using MabSelect SuRe™. ³Calculated over the estimated resin lifetime.

Visit cytiva.com/processintensifier to explore alternatives to intensify your processes