

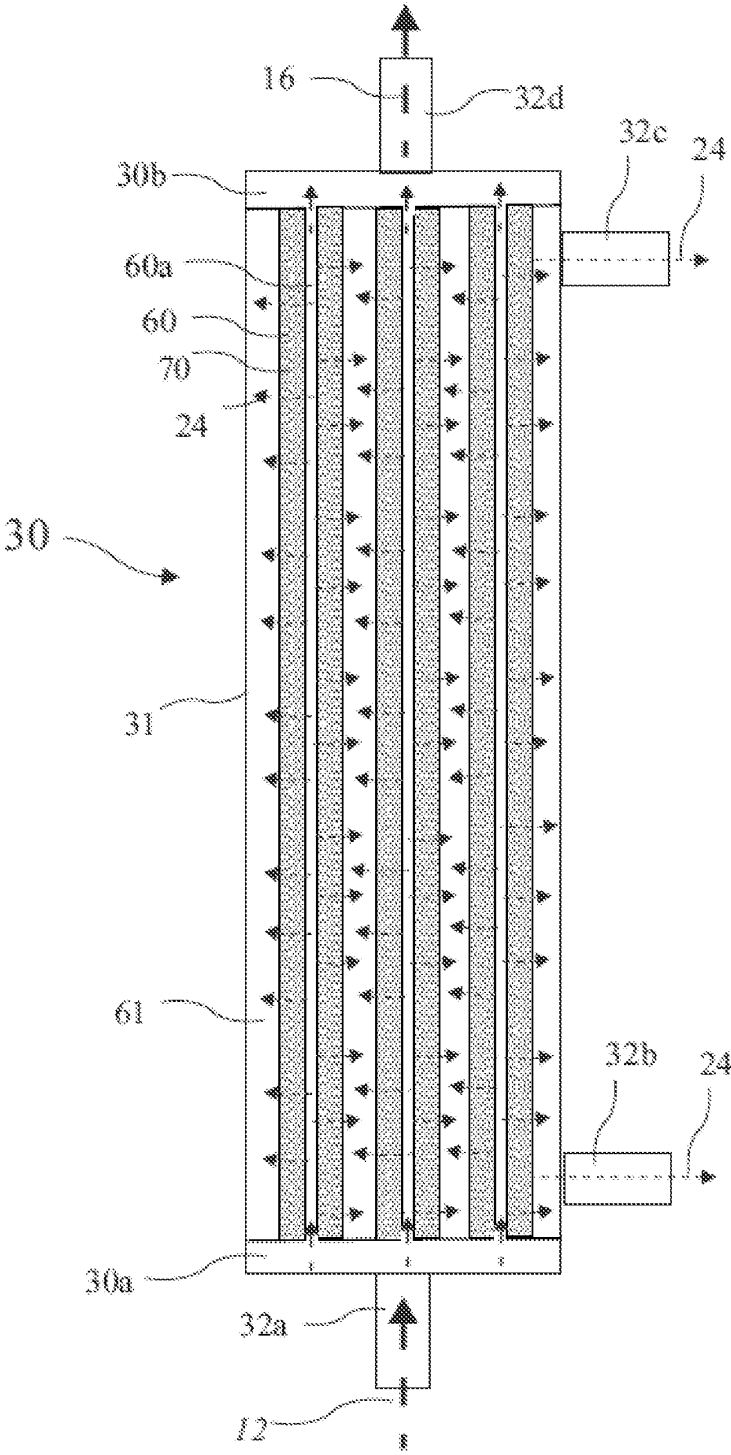
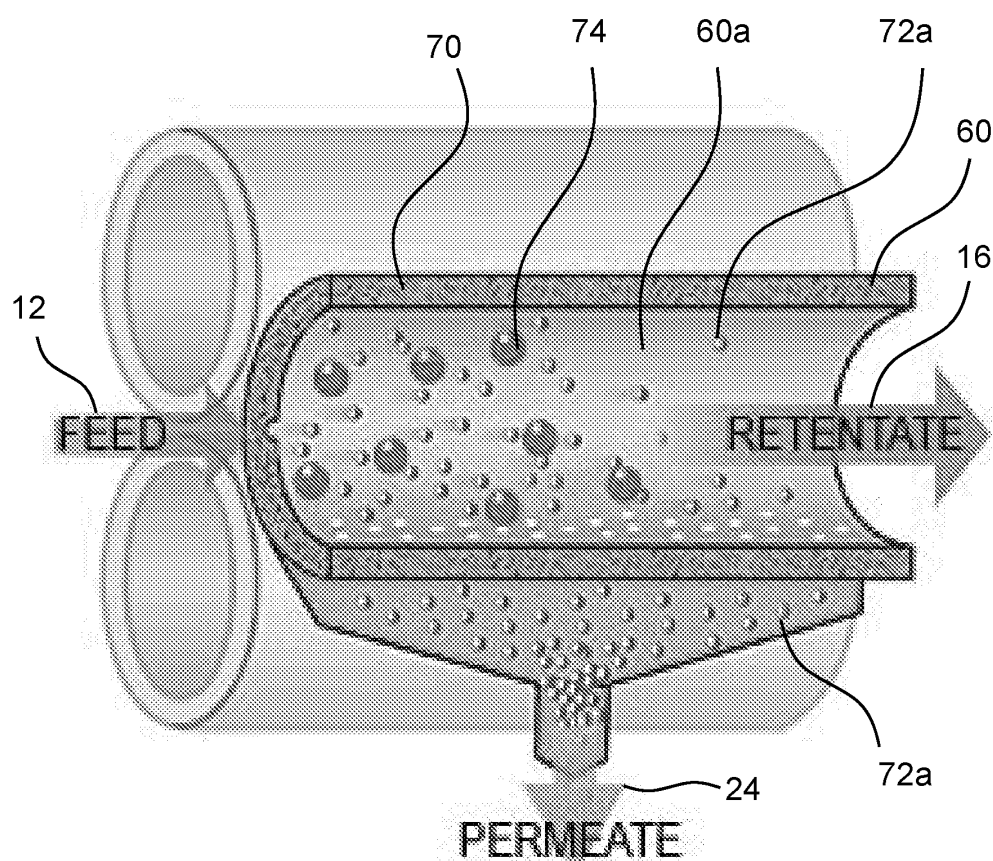


FIG. 1A

*Fig. 1B*

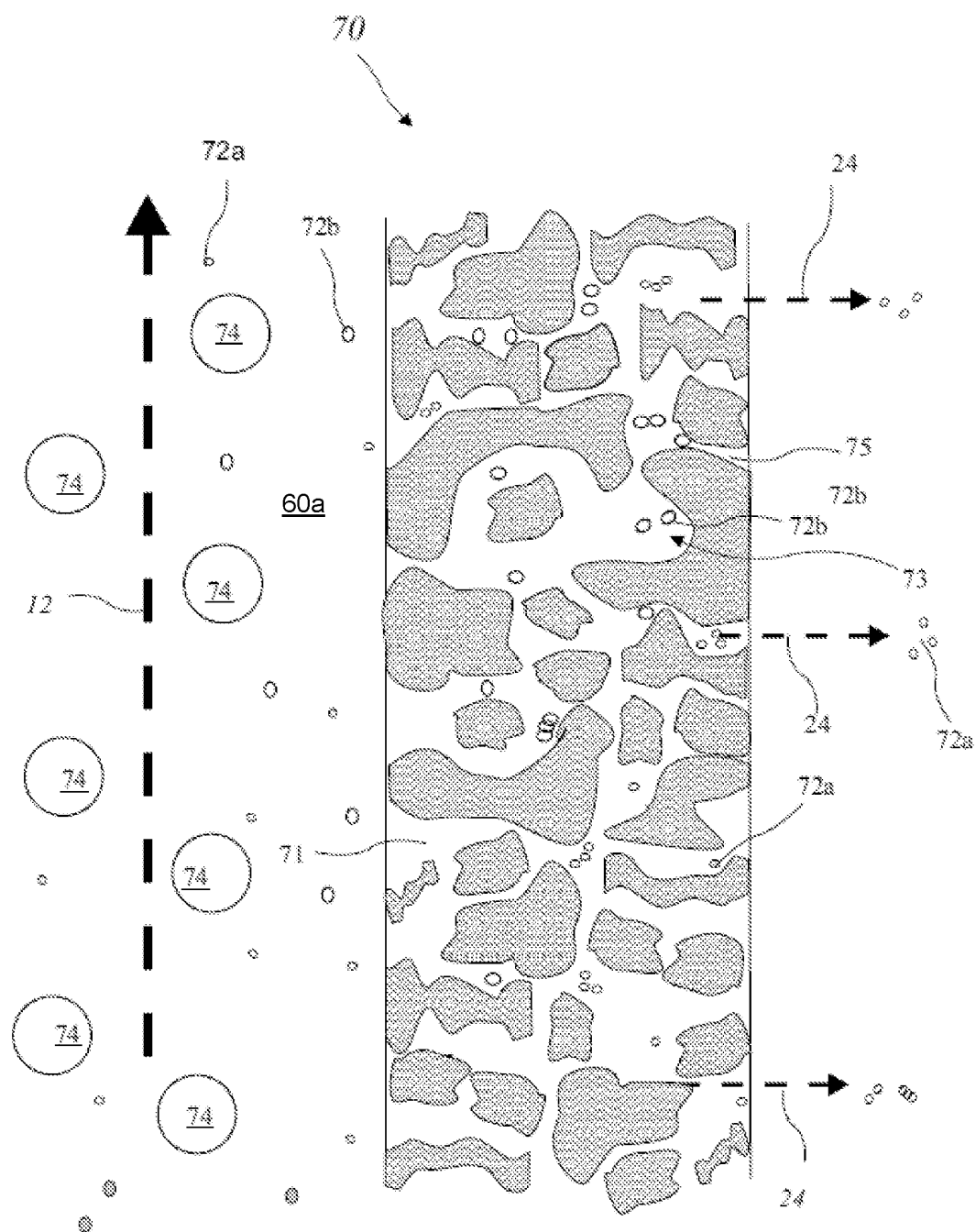
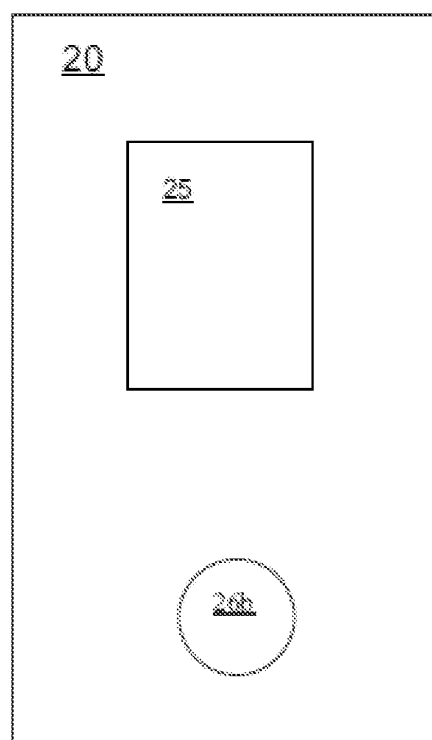
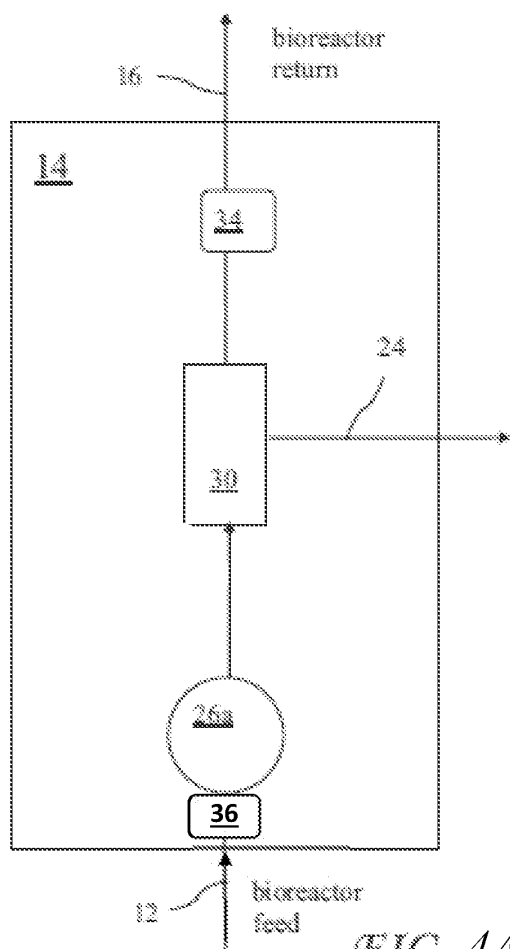
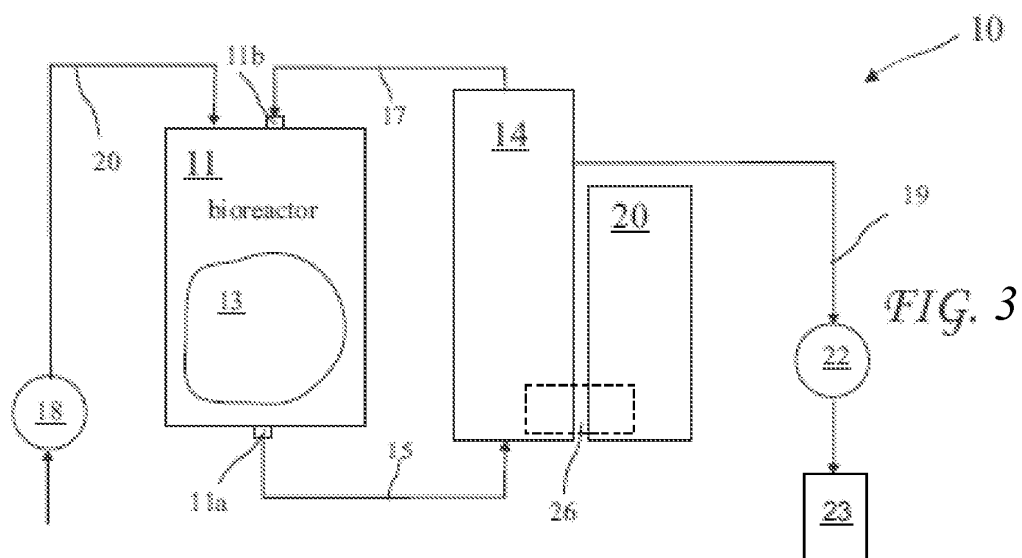


FIG. 2



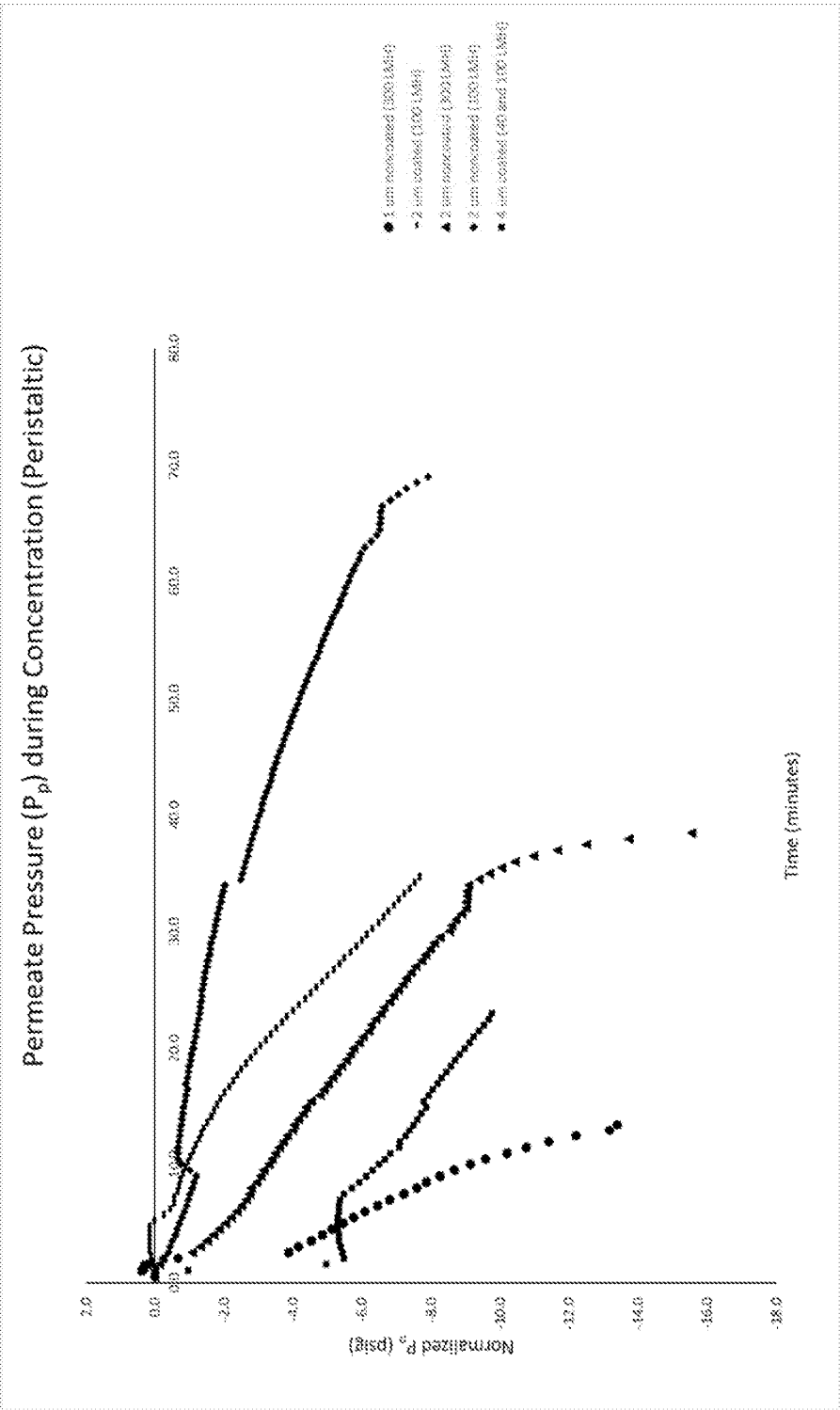


Fig. 5A

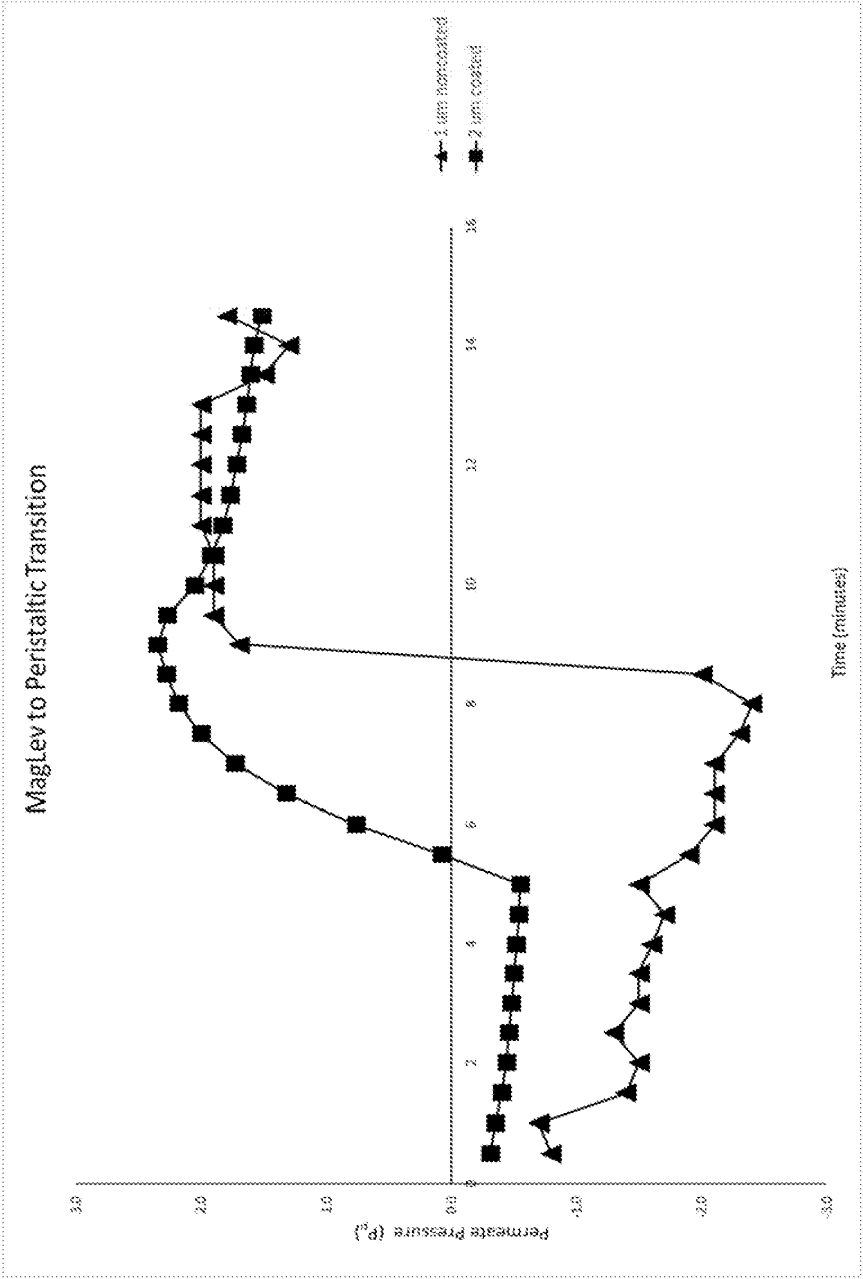


Fig. 5B

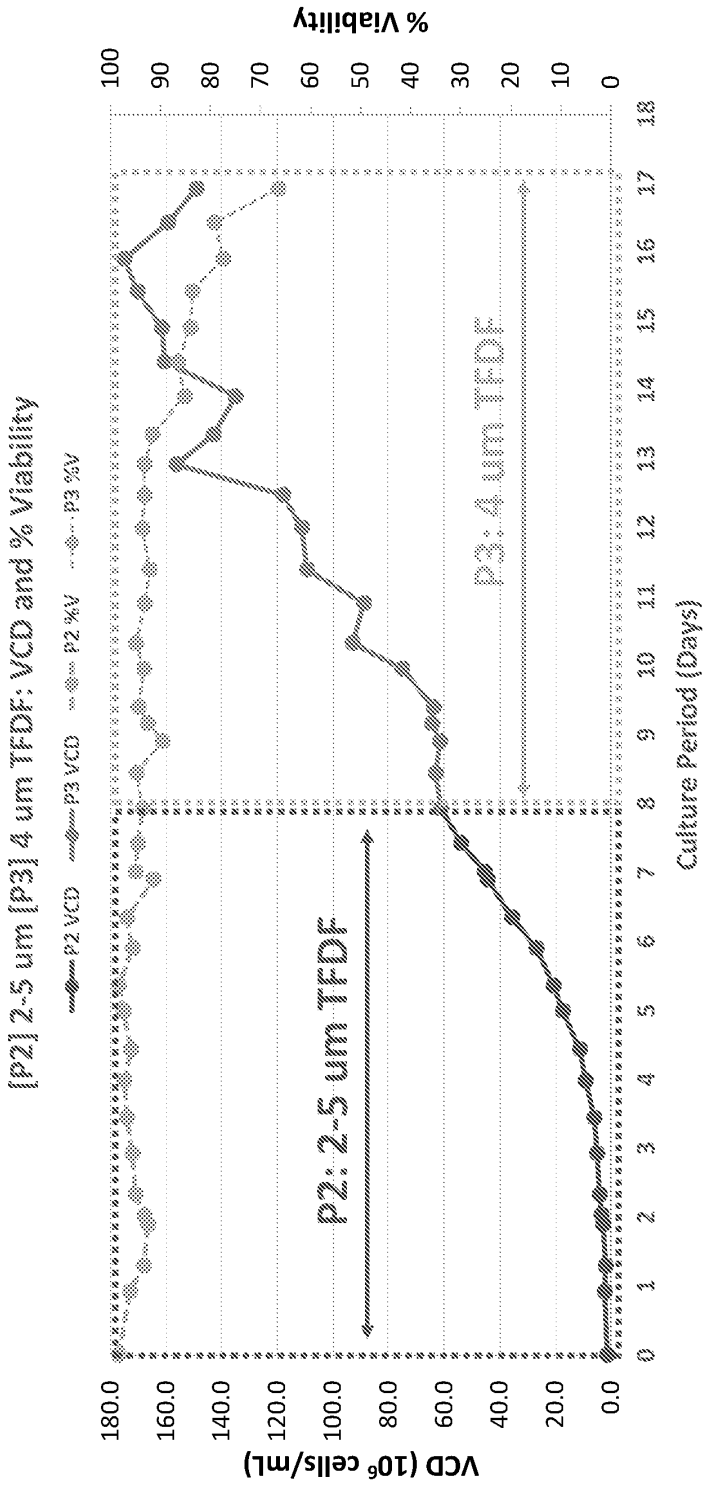


Fig. 6

Conditions Summary	
Conditions	[P3]
Recirculation Rate; Shear Rate	Manual Mode (1900-2000 rpm)
Media Feed Rate	Manual media feed (timer controlled cycles)
Permeate Rate	Continuous manual permeation (constant permeate rpm to match VVD)
Perfusion Culture Period (Days)	9 (Day 8 – 17)
Fouling event	None experienced
Run End	Permeate line leak

Data Summary						
	Perfusion Culture Period (Days)	Peak VCD (10 ⁶ cells/mL)	Peak %Cells Passing	Turbidity Range		Flux Range (LMH)
				Retentate	Permeate	
P3	9	175.0	4.79%	1720-6250	354-1139	24-39
						Avg TMP
						99.24 ± 14.85
						--

Fig. 7

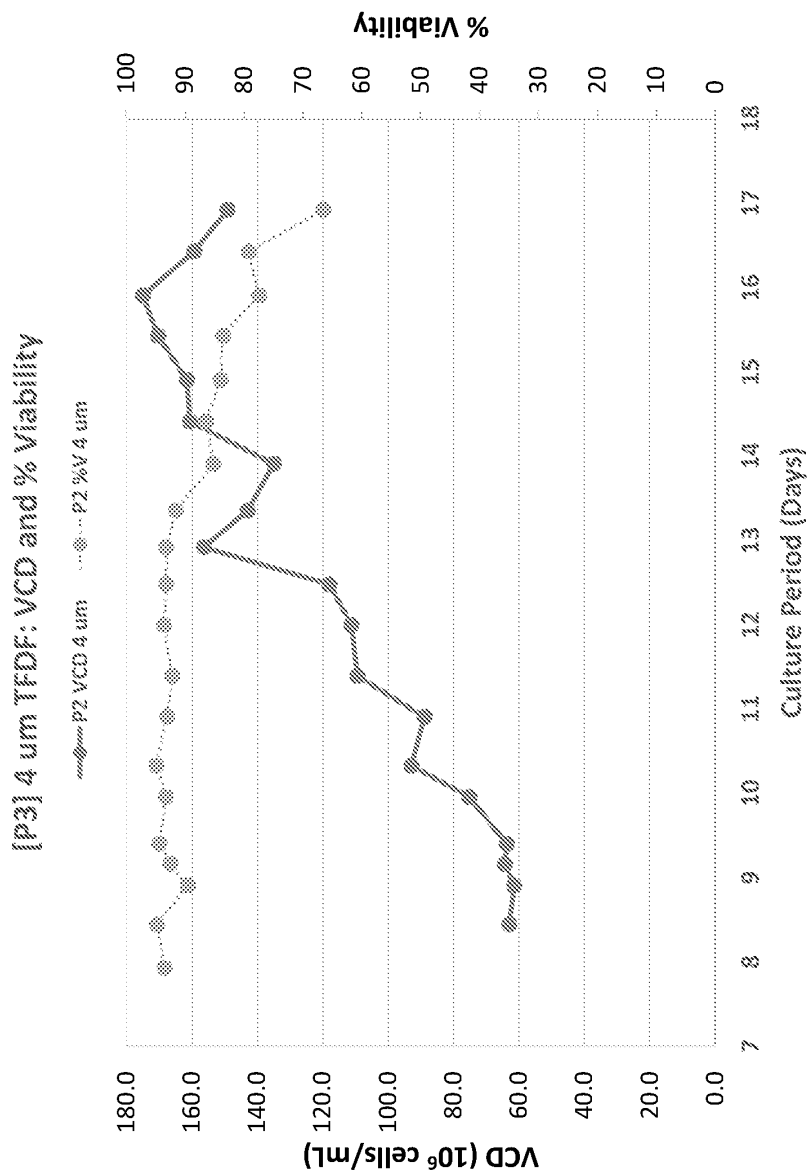


Fig. 8

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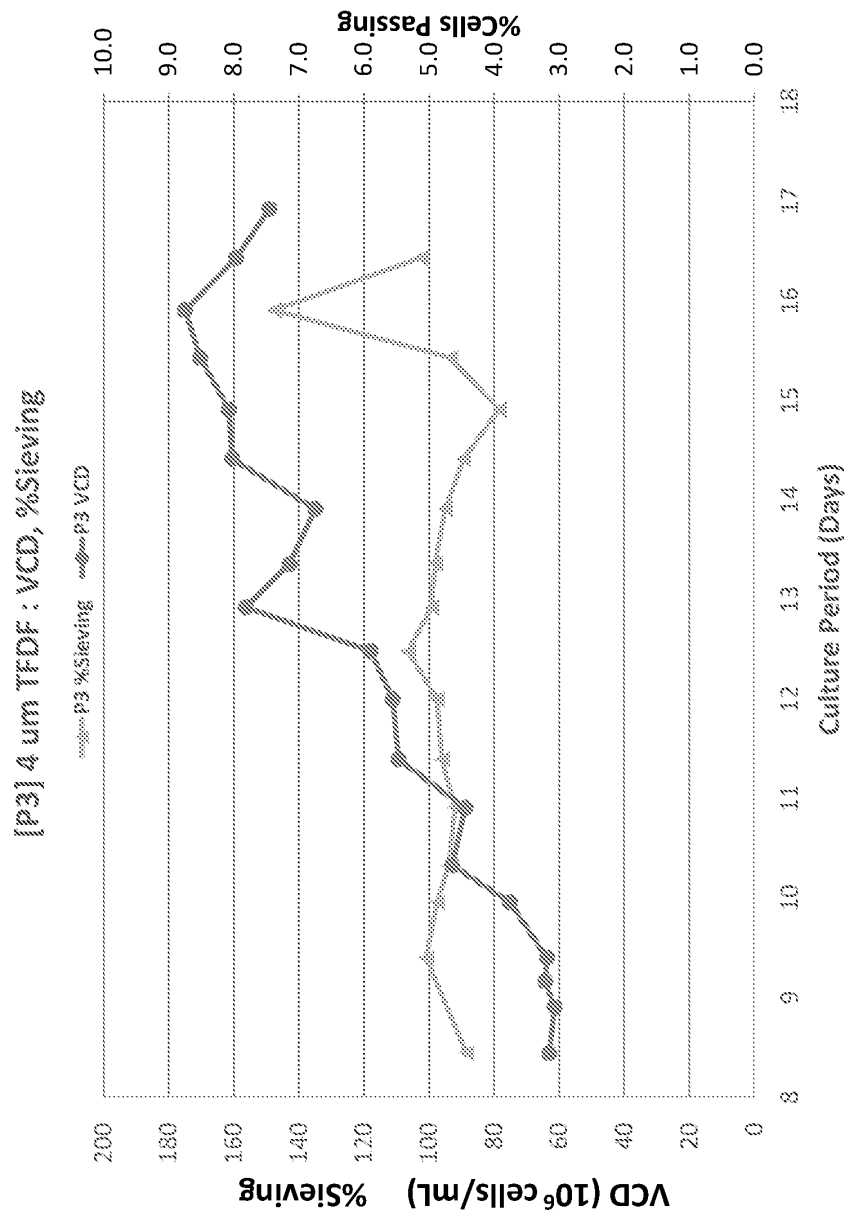


Fig. 9

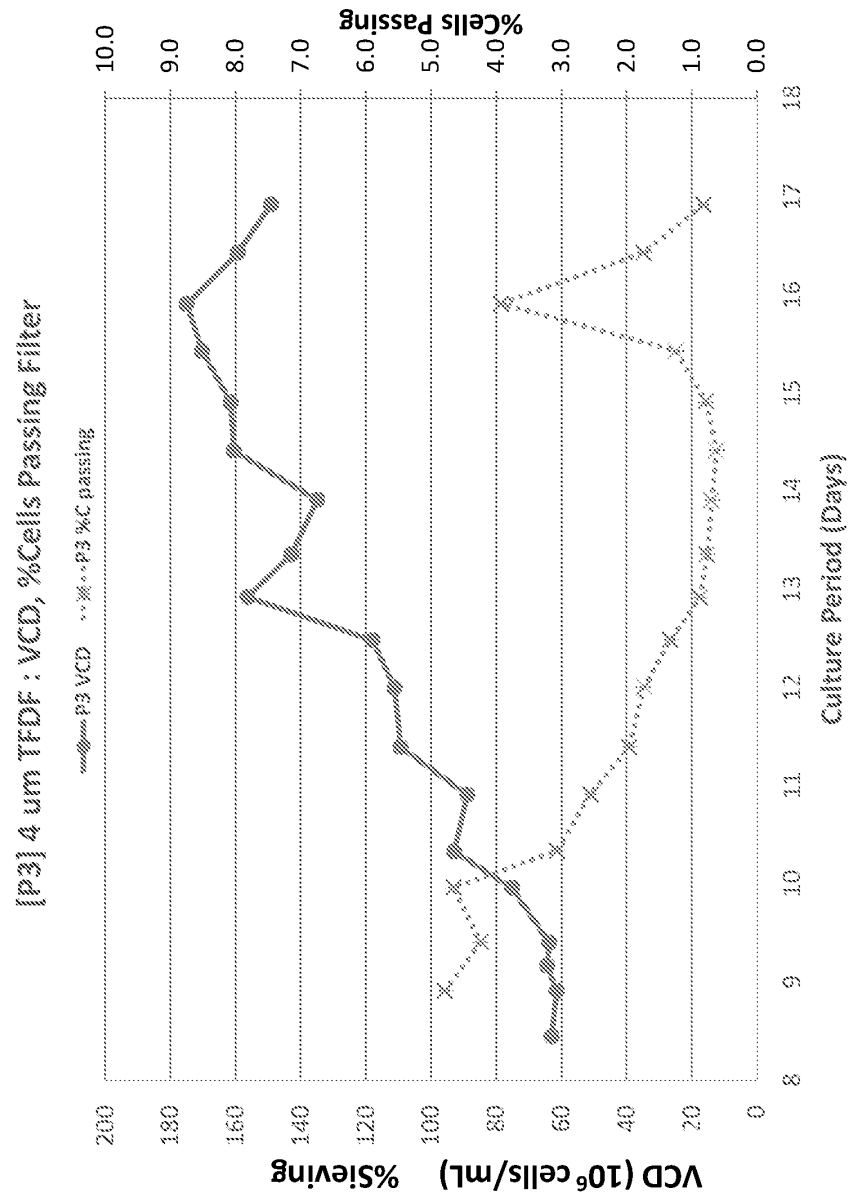


Fig. 10

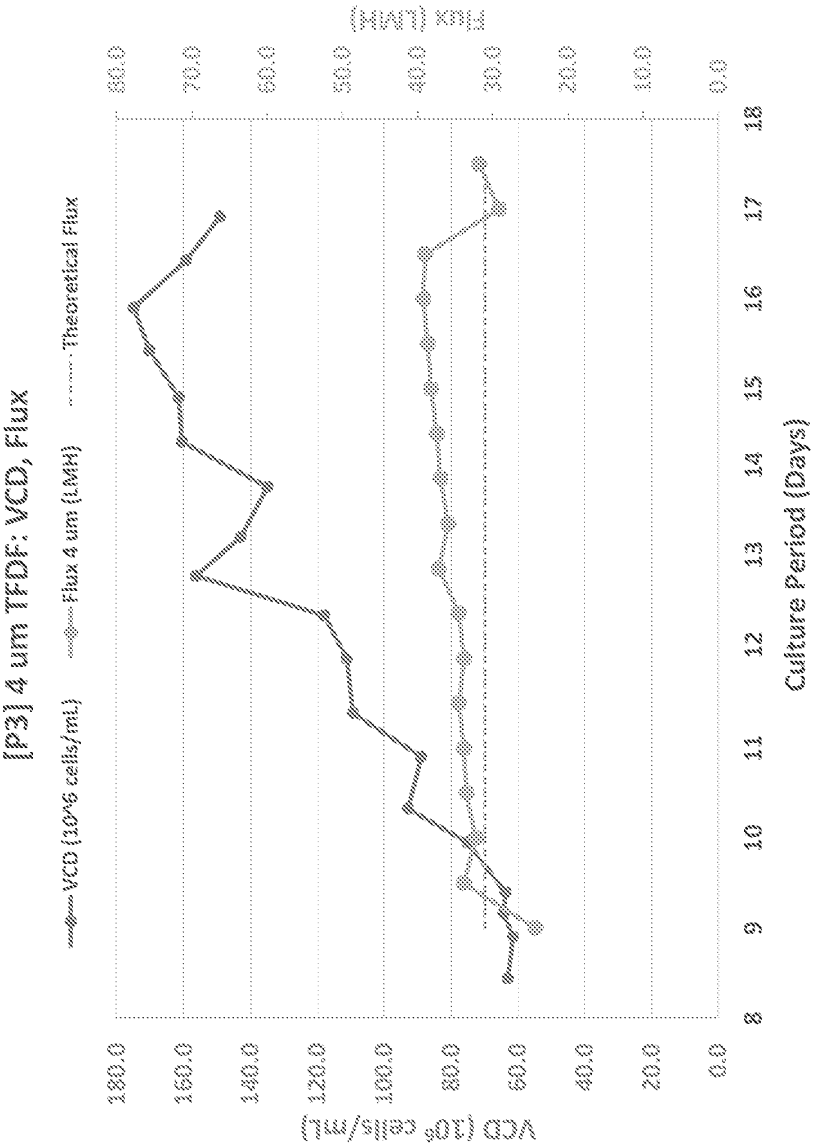


Fig. 11

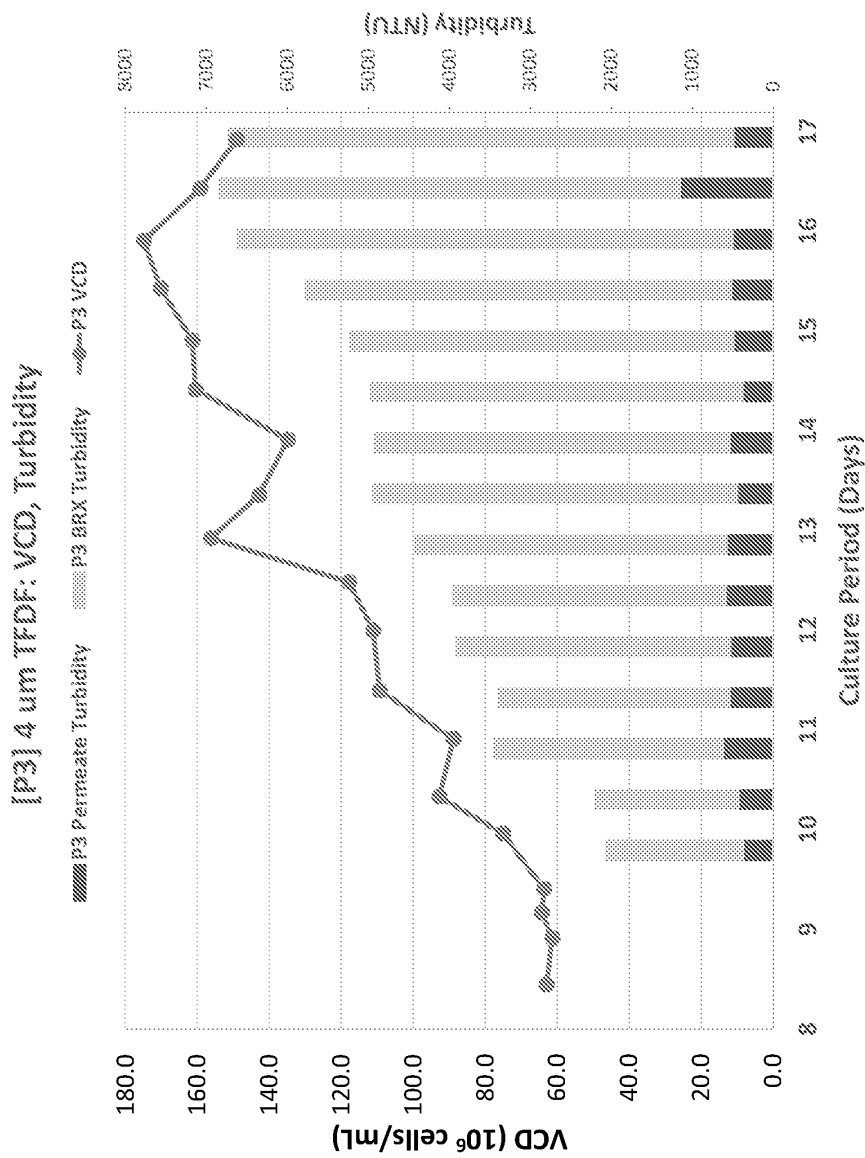


Fig. 12

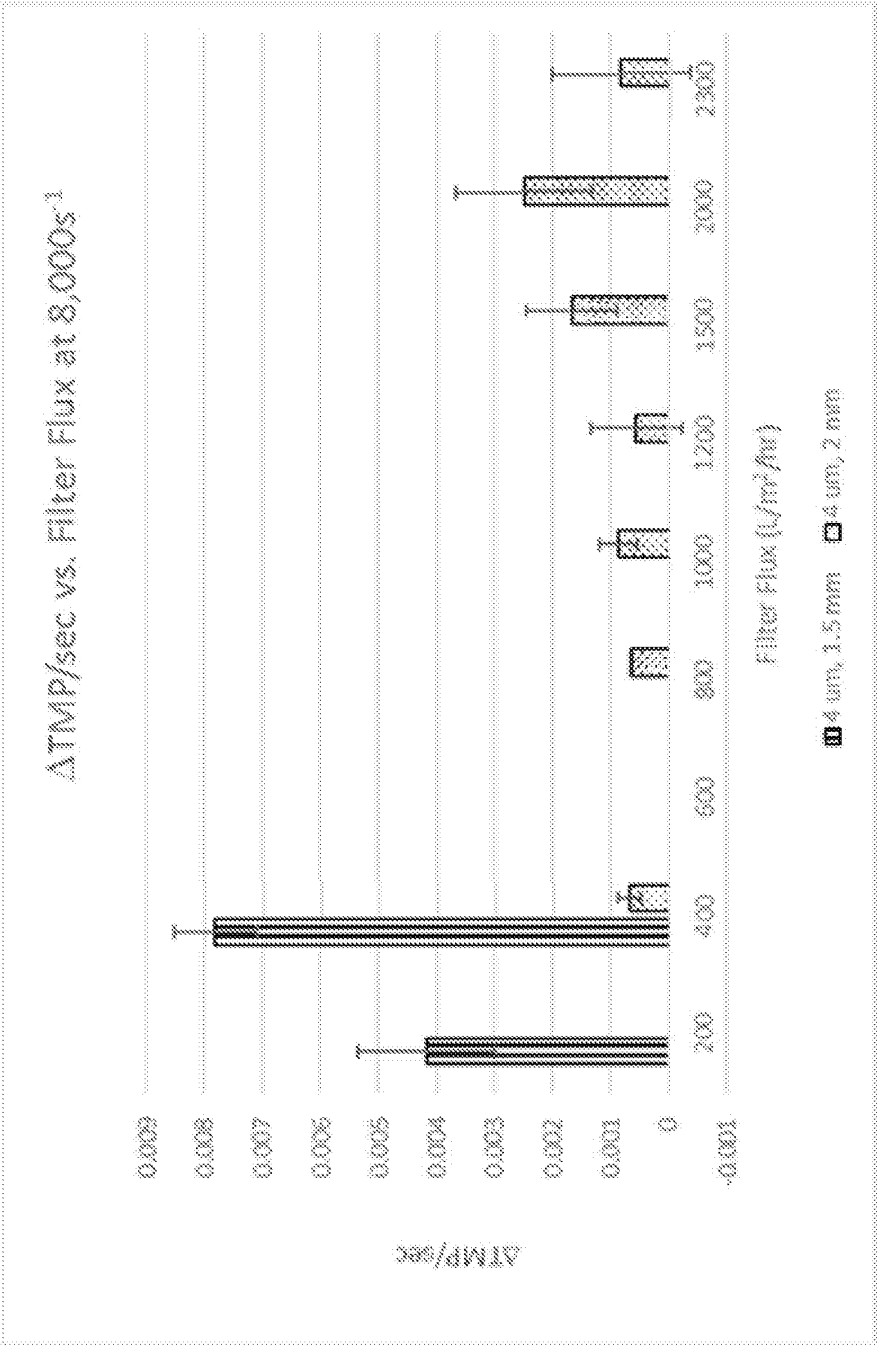


Fig. 13