

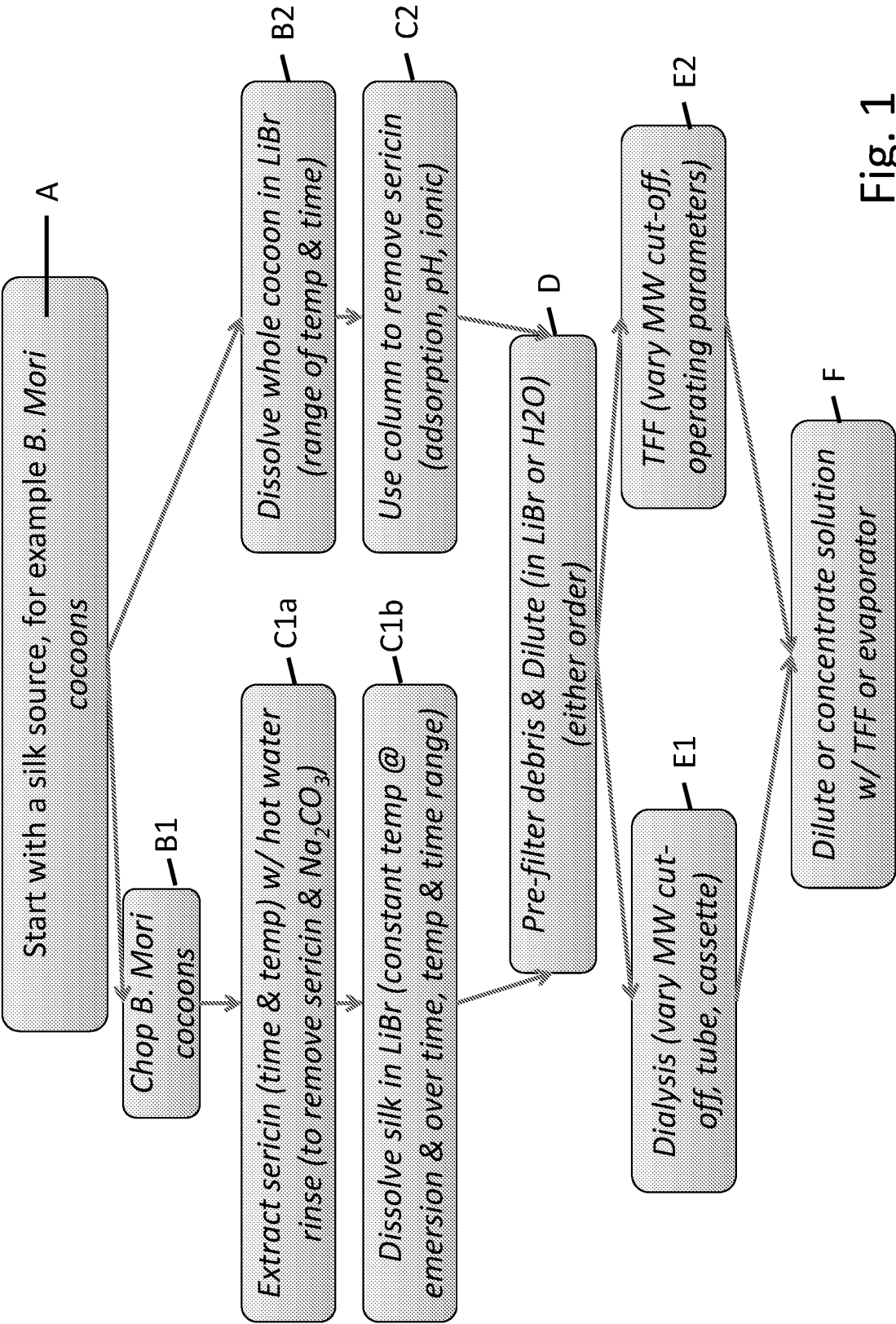


Fig. 1

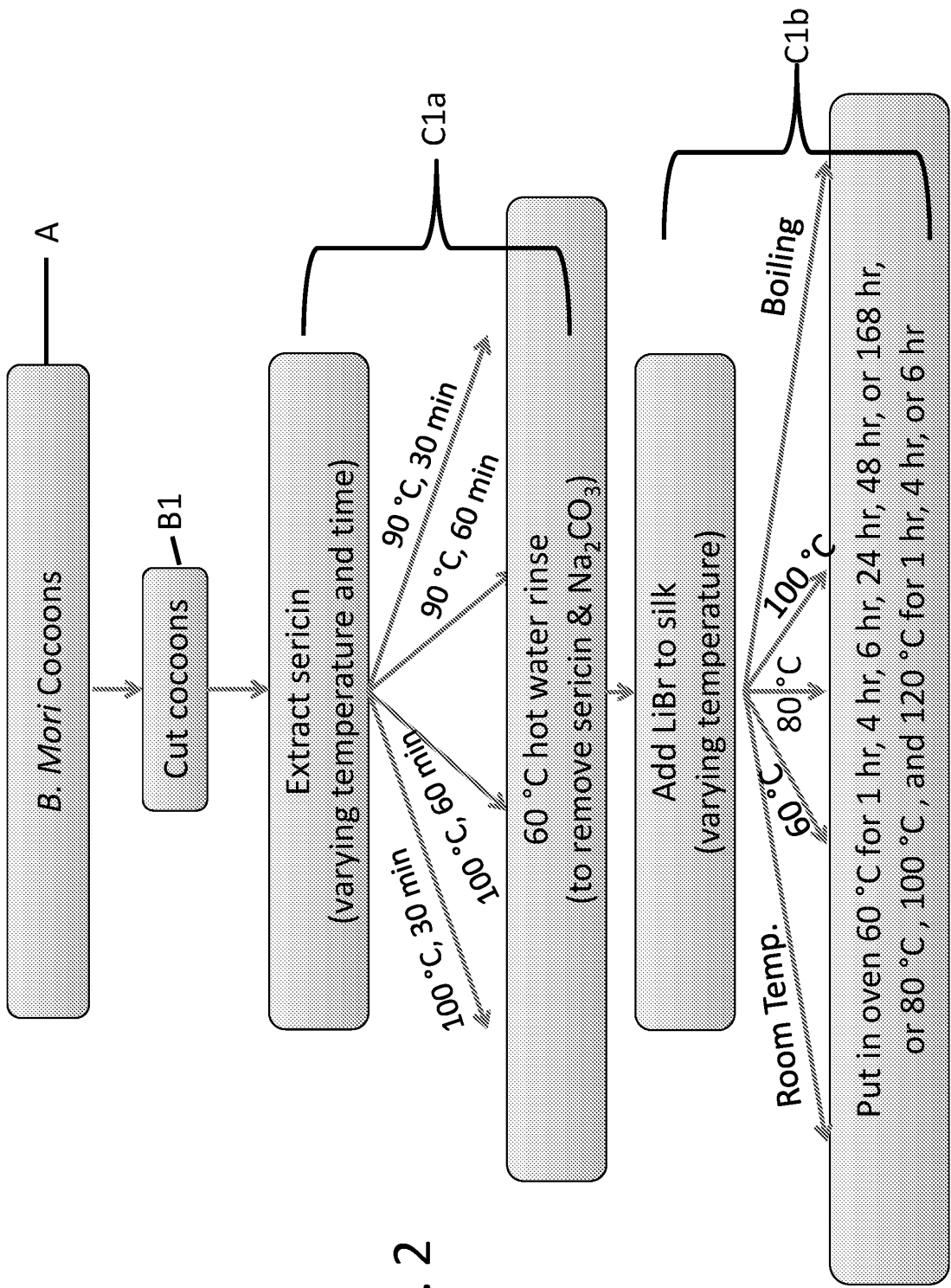


Fig. 2

Lithium Bromide and Sodium Carbonate Concentration in Silk Protein Solution

Sample ID	Sample Description	Average Concentration of Na ₂ CO ₃ (ppm)	Average Concentration of LiBr (ppm)
A	TFF 5kDa	32.13	90.85
B	TFF 10 kDa	42.91	107
C	TFF 10 kDa	49.06	78.55
D	STI 1(TFF-10-0019)	2.17	129.07
E	STI 2(TFF-10-0033)	2.63	196.2
F	STI 3(TFF-10-0034)	4.18	248.93

Method: 100C extraction for 60 min, 60C rinse, 100C LiBr in 100 °C oven for 60 min.

Note that TFF could be run for longer and/or at different flow rates (as varied between A-C and D-F) to alter ppm of Na₂CO₃ and LiBr.

Fig. 3

Lithium Bromide and Sodium Carbonate content
in Silk Protein Solution

Sample ID	Solution Volume Equivalent to (X) Films	Sample Weight (mg)	Concentration	
			Na ₂ CO ₃	LiBr
1	6	0.171	ND	ND
2	8	0.228	ND	ND
3	10	0.285	ND	ND
4	12	0.342	ND	ND
5	Neat	-	ND	ND

*ND=None Detected

Method: 100 °C boil for 60 min, 60C rinse, LiBr in 60 °C oven for 4-6 hours

Fig. 4

Molecular Weights of Silk Protein Solutions

Sample ID	Sample Description	Mn	Mw	Polydispersity (PD) (Mw/Mn)
A	TFF 5kDa	14,497	33,874	2.3366
B	TFF 10 kDa	14,542	33,455	2.3006
C	TFF 10 kDa	14,972	34,026	2.2726
D	Silk protein solution in water	12,055	26,531	2.2008

Method:

TFF: 100 °C extraction for 60 min, 60 °C rinse, 100 °C LiBr in 100 °C oven for 60 min.
Silk Protein: 100 °C extraction for 20 min, RT rinse, LiBr in 60 °C oven for 4-6 hours

Fig. 5

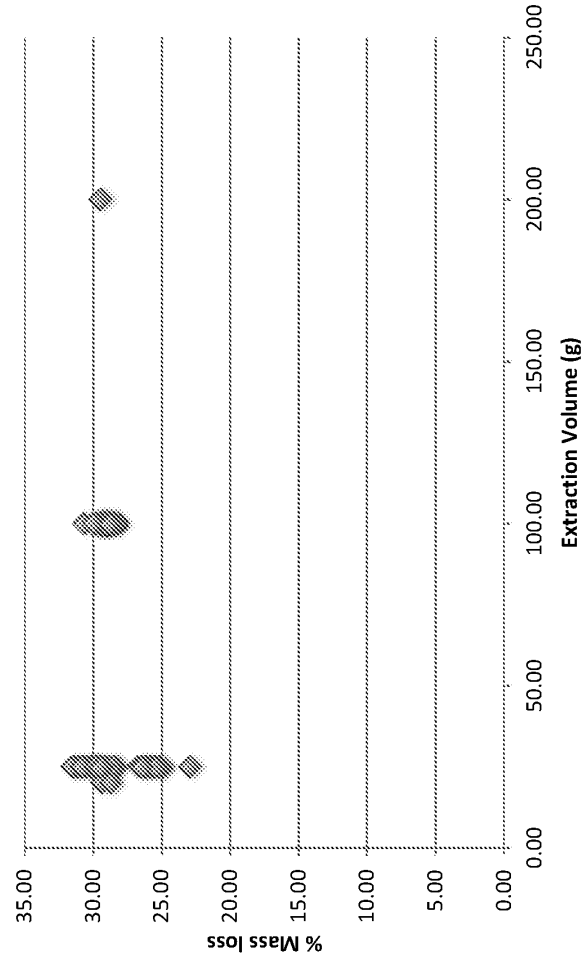


Fig. 6

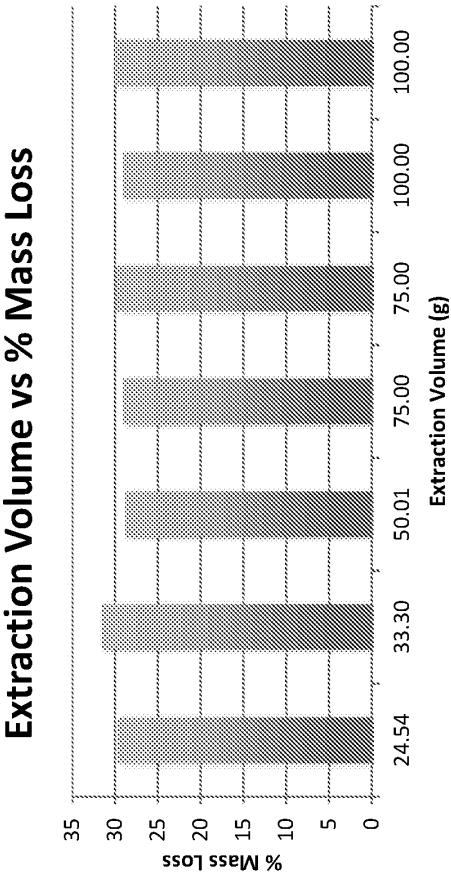


Fig. 7

Sample	LiBr (M)	Avg MW	PD
STI 1(TFF-10-0019)	9.3	15727	2.033
STI 2(TFF-10-0033)	9.3	24587	2.3669
STI 3(TFF-10-0034)	9.3	25273	2.338
STI 9.3 M avg		21862	2.25
STI 1(TFF-10-0031)	~7.5	29645	3.0868
STI 2(TFF-10-0030)	~7.5	26856	2.9748
STI 7.5M avg		28250.5	3.0308

- * TFF-10-0019 from 2 25 g extraction / 35 g dissolution
- * TFF-10-0034 from 100 g extraction/ 17-35 g dissolution
- * TFF-10-0033 from 100 g extraction/ 100 g dissolution

Fig. 8

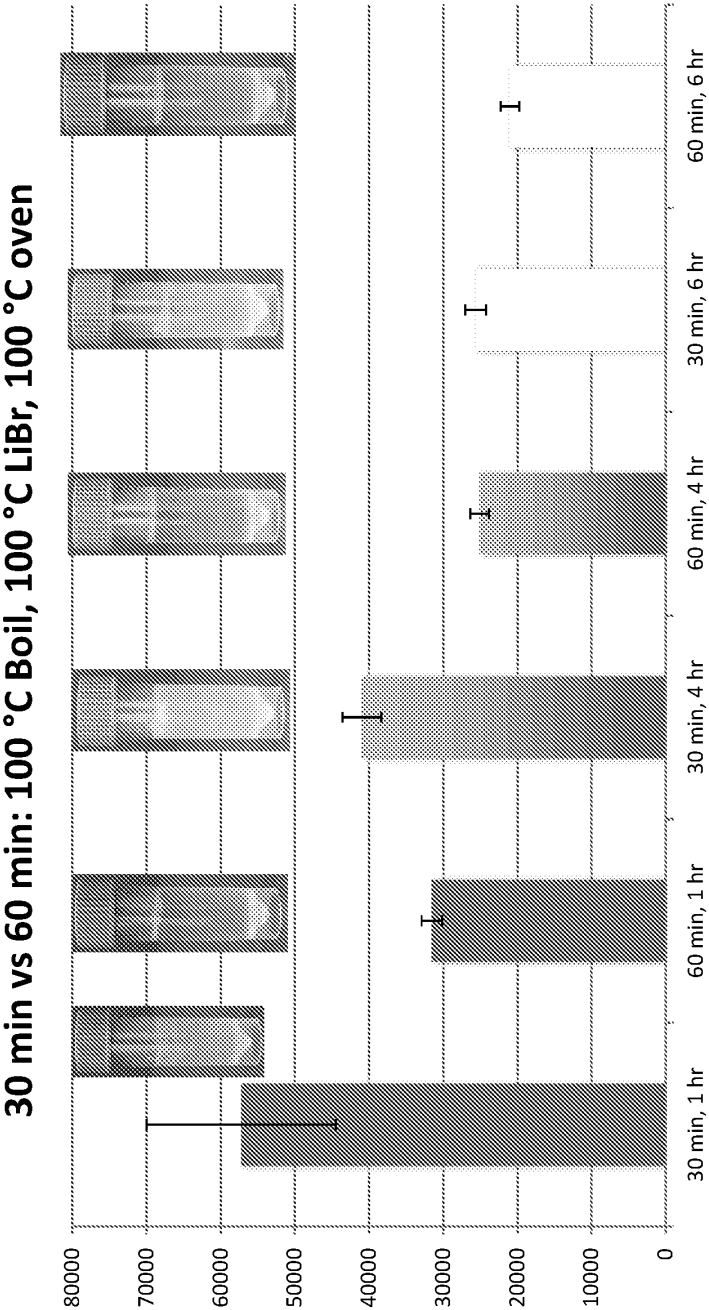


Fig. 9

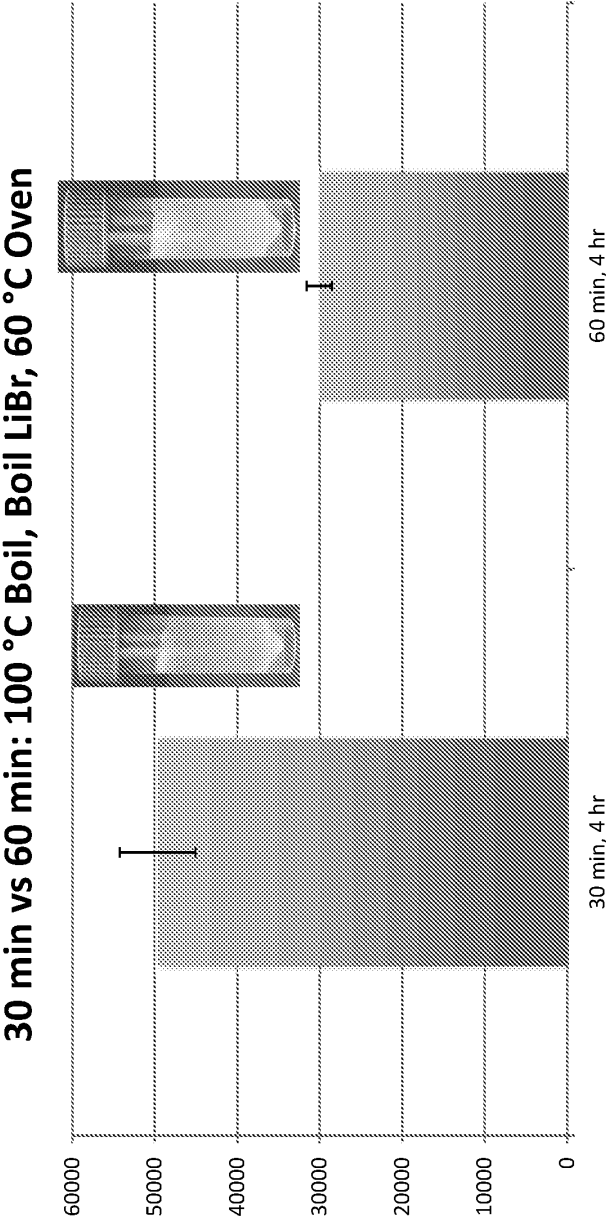


Fig. 10

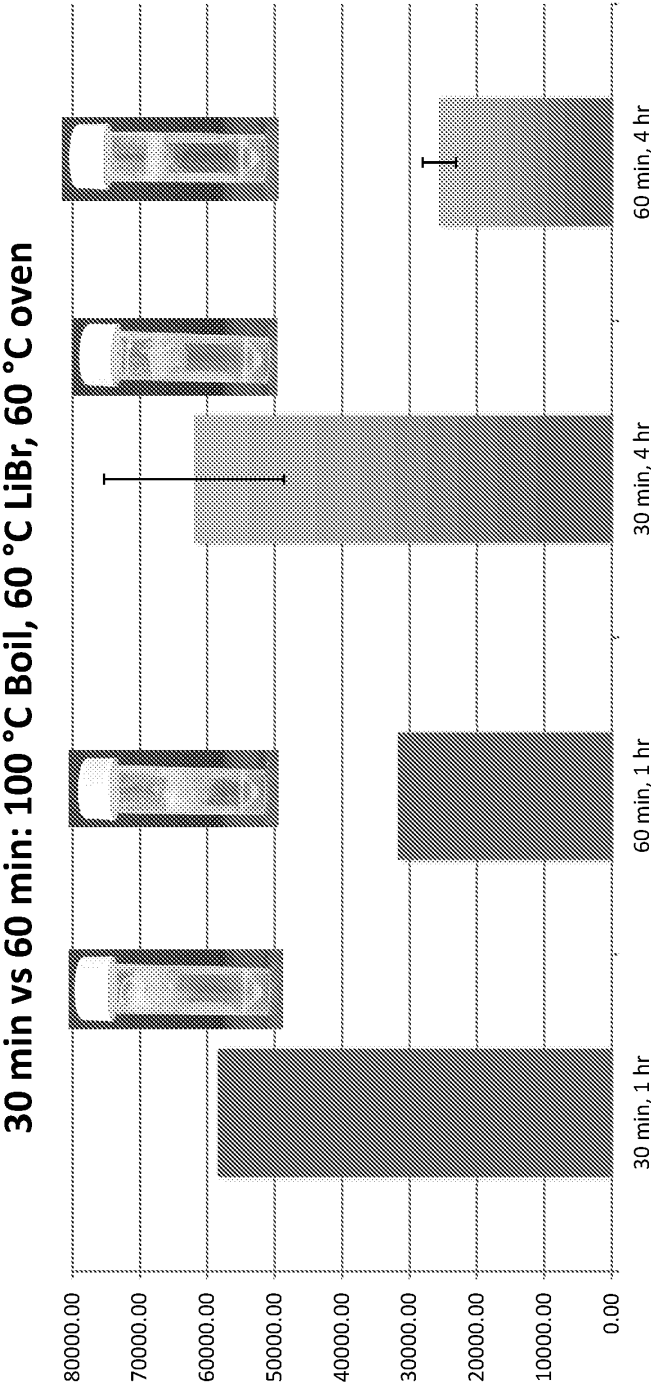


Fig. 11

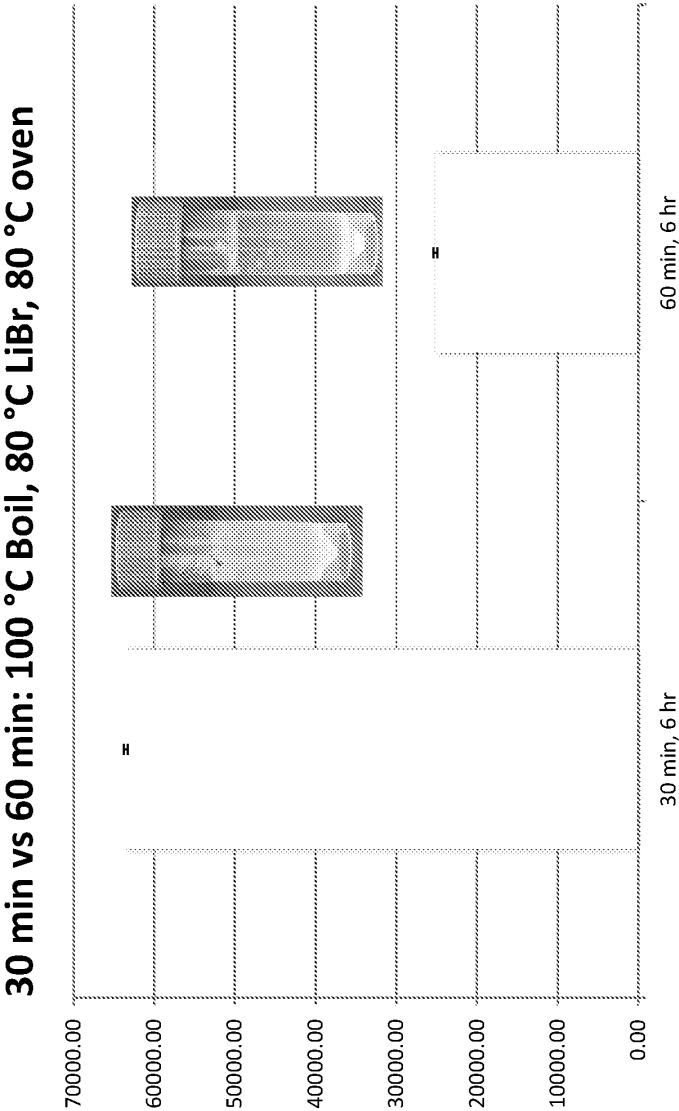


Fig. 12

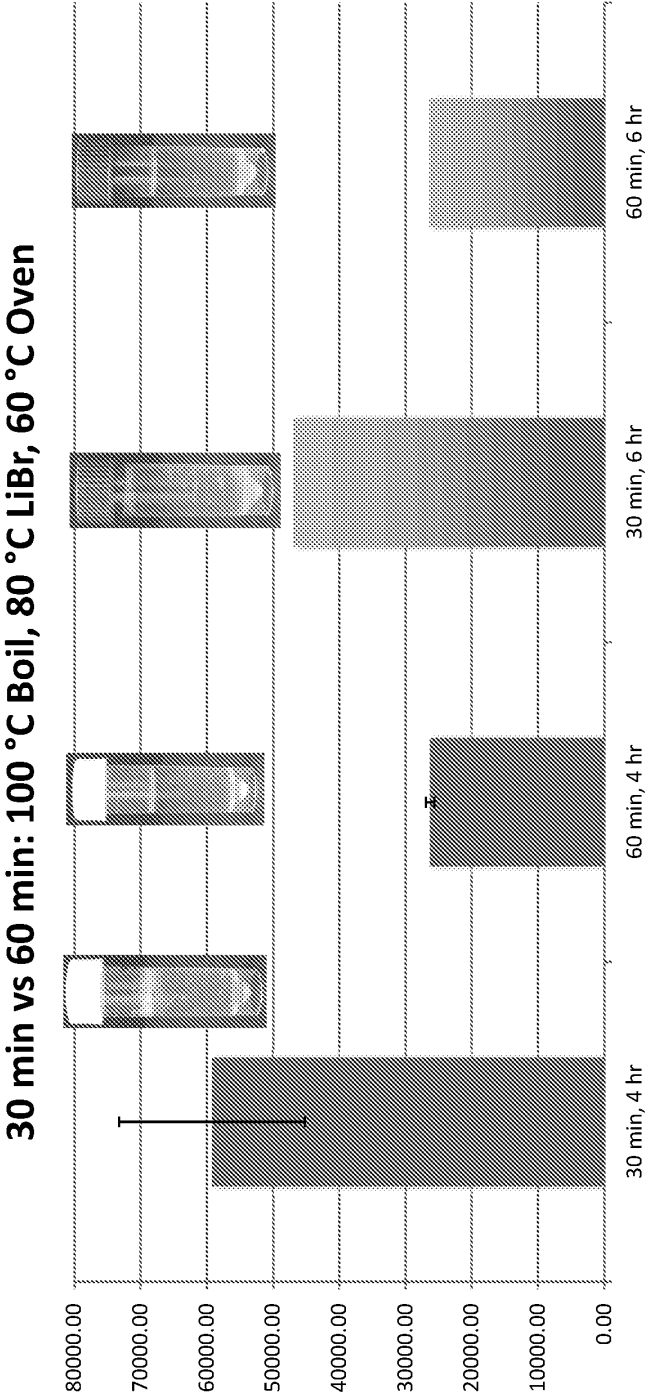


Fig. 13

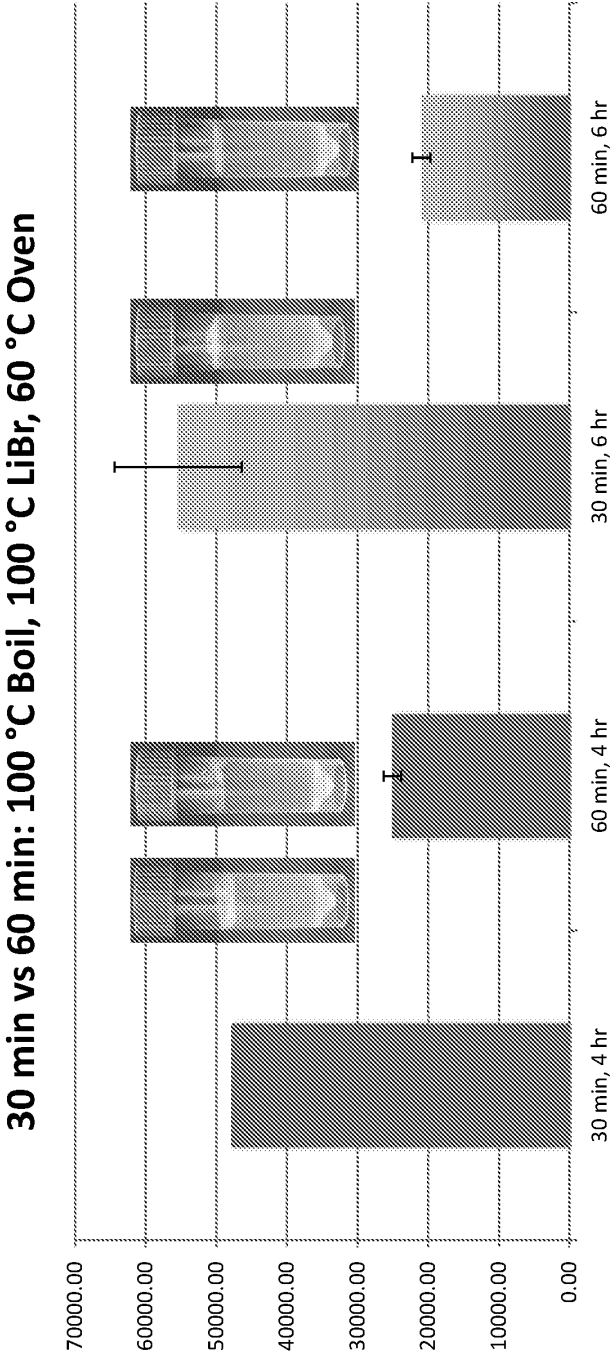


Fig. 14

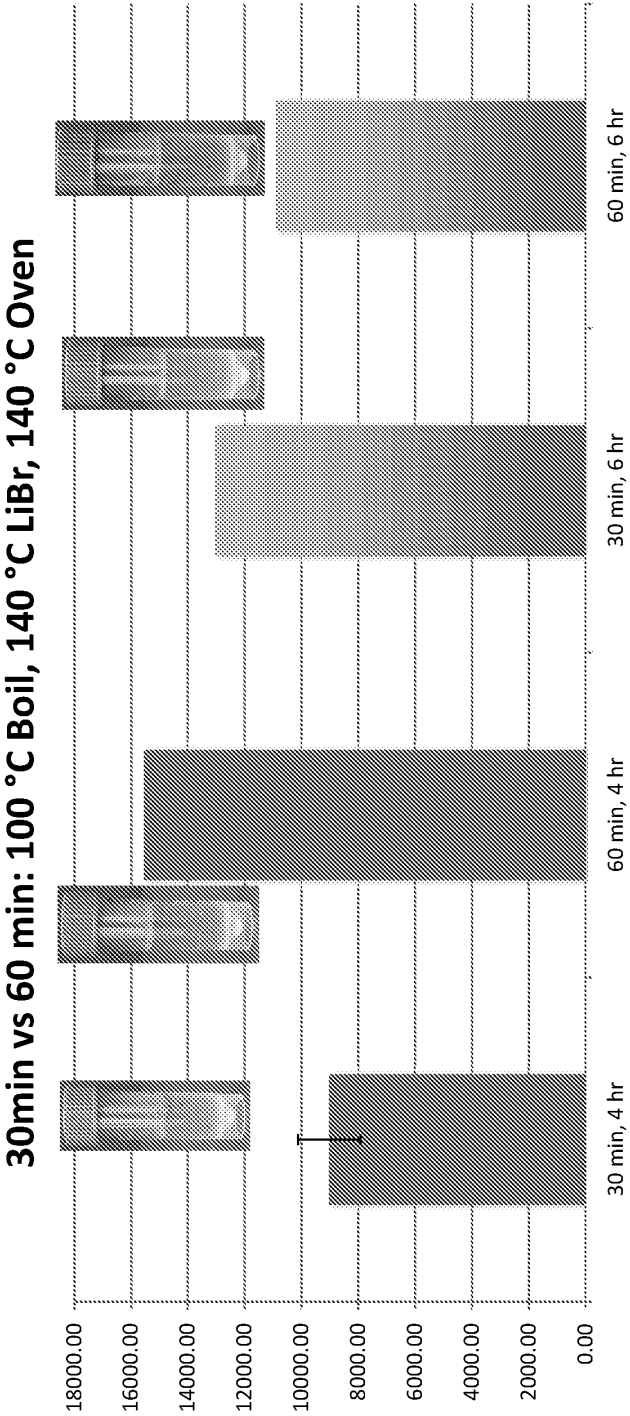


Fig. 15

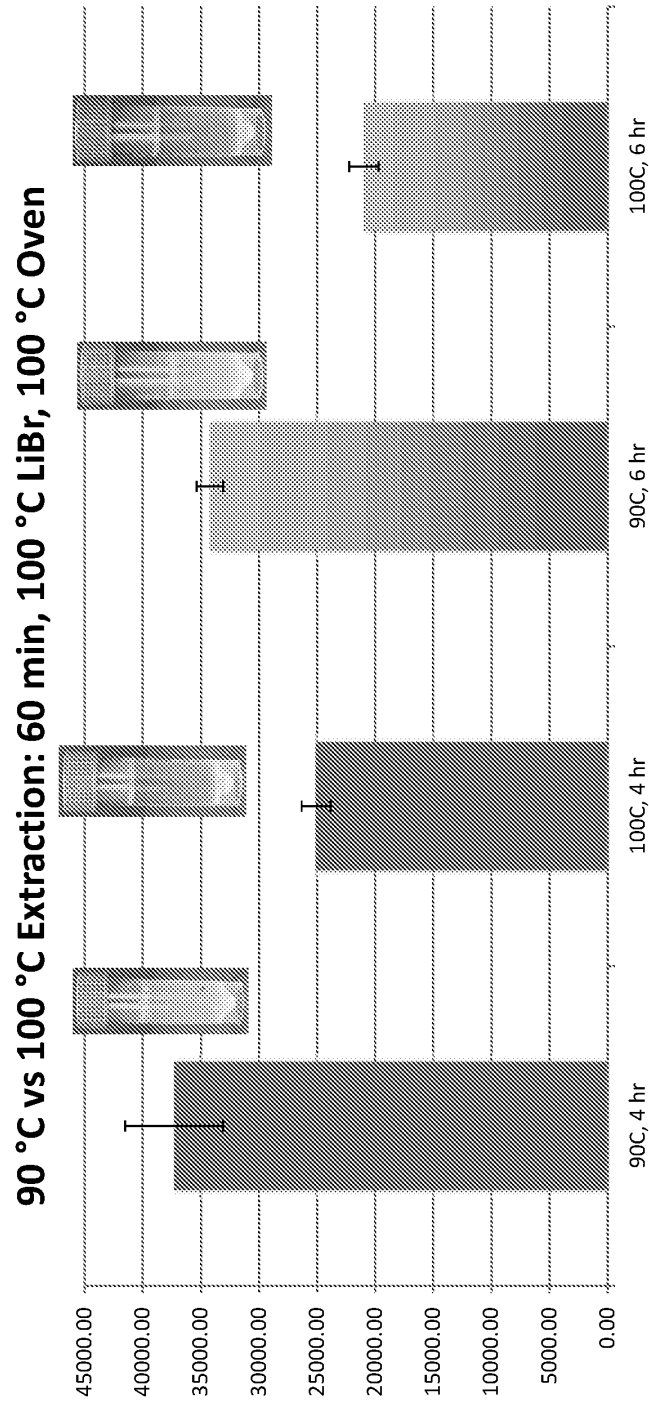


Fig. 16

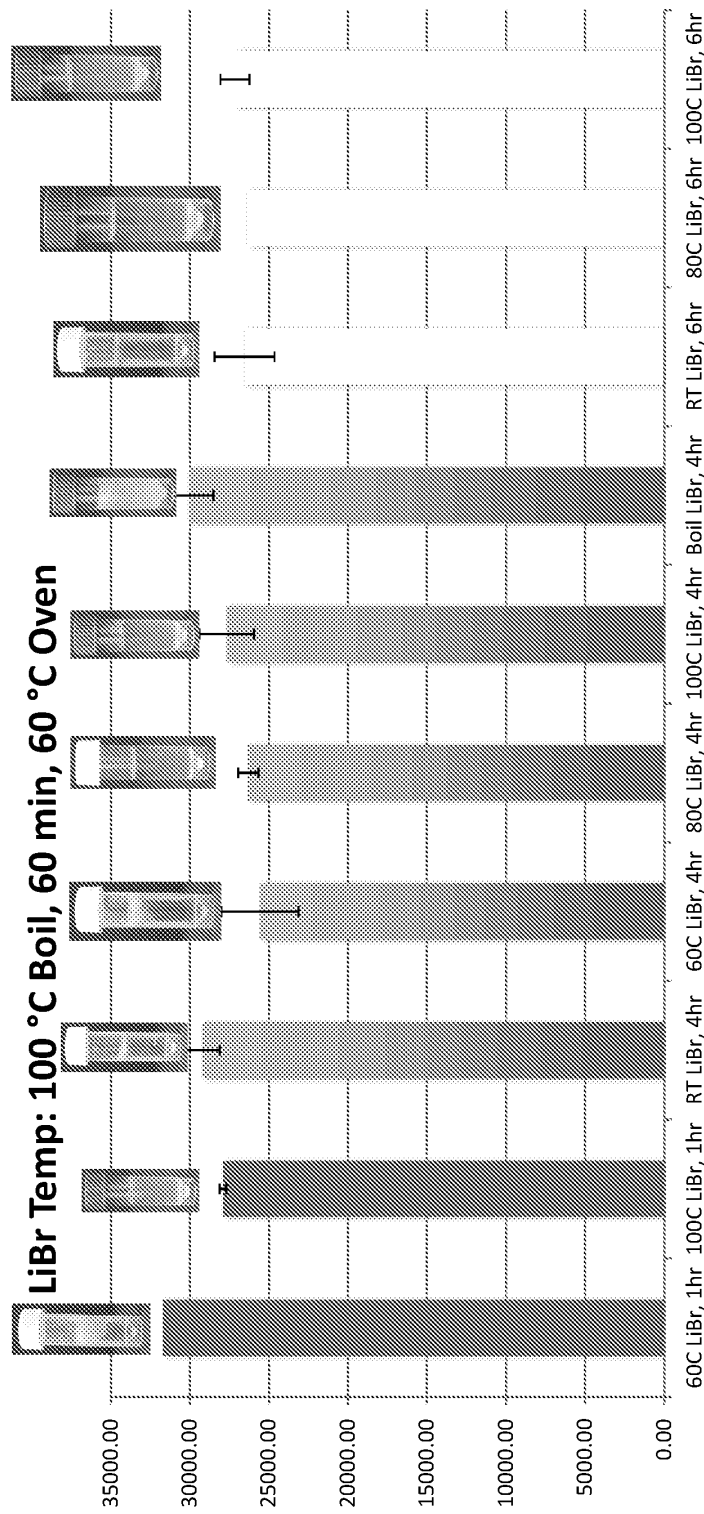


Fig. 17

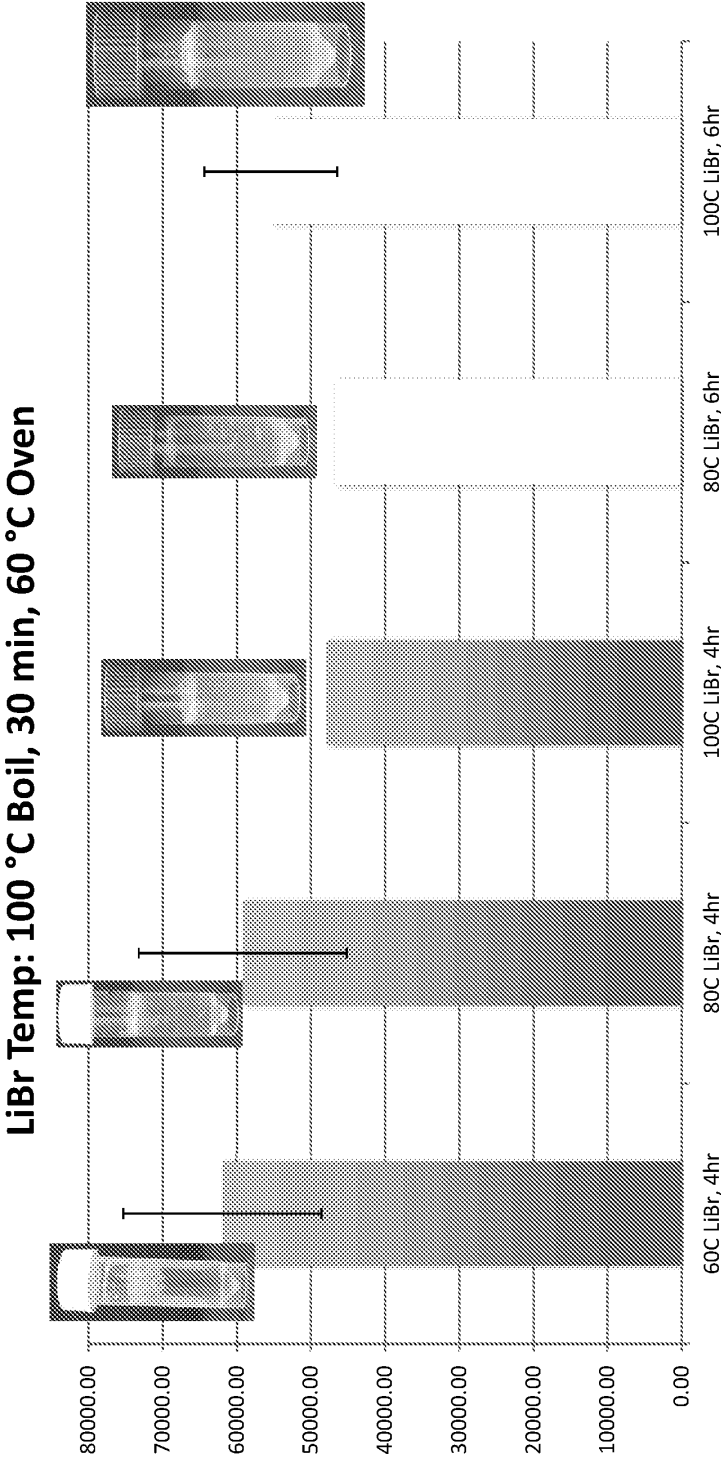


Fig. 18

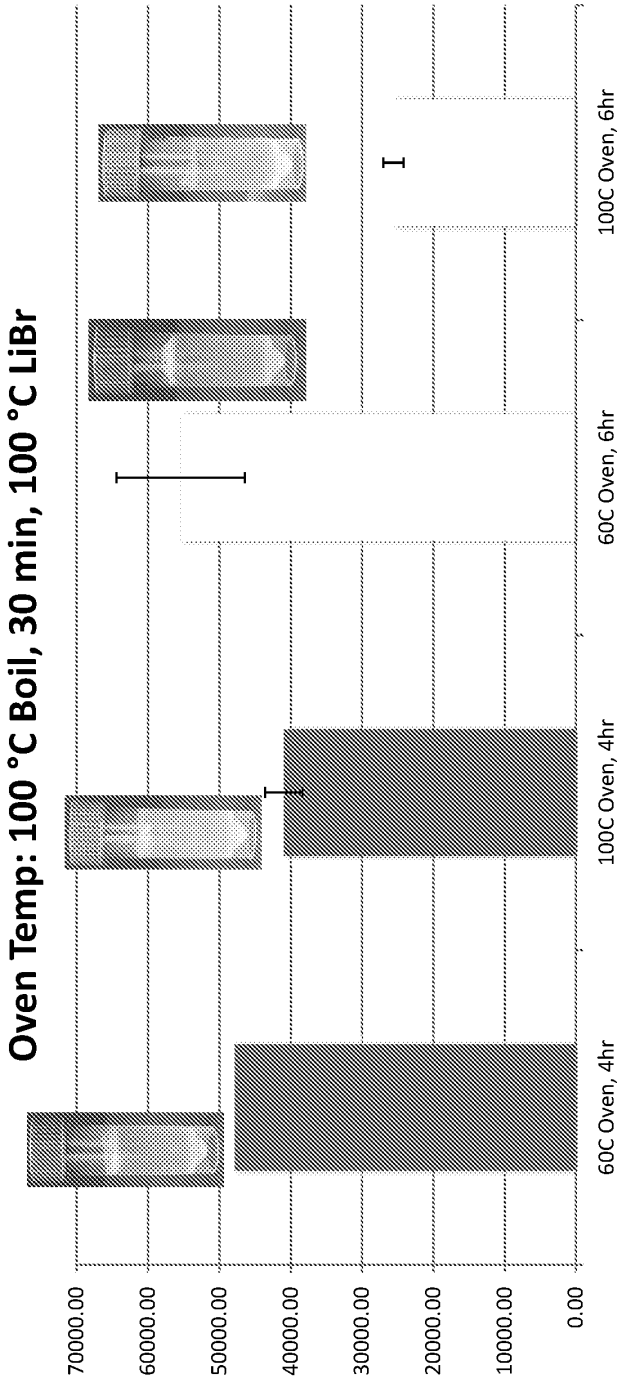


Fig. 19

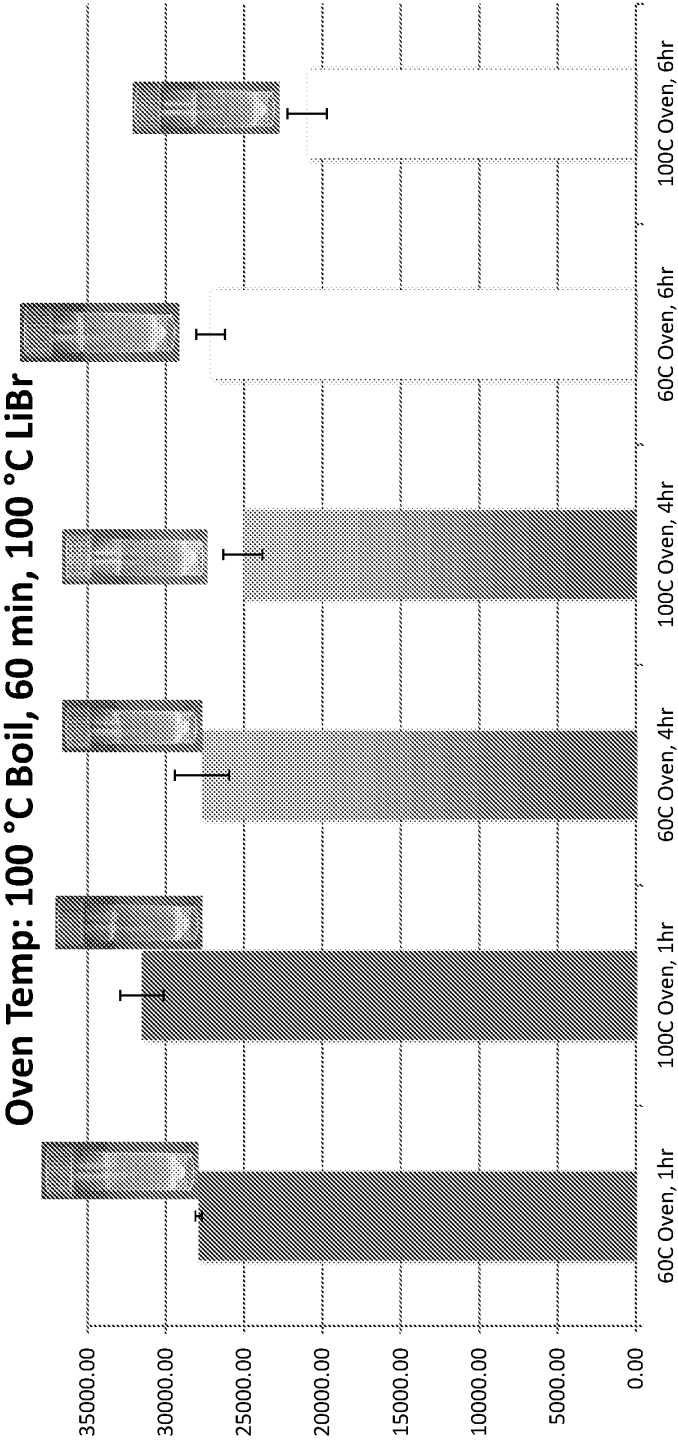


Fig. 20

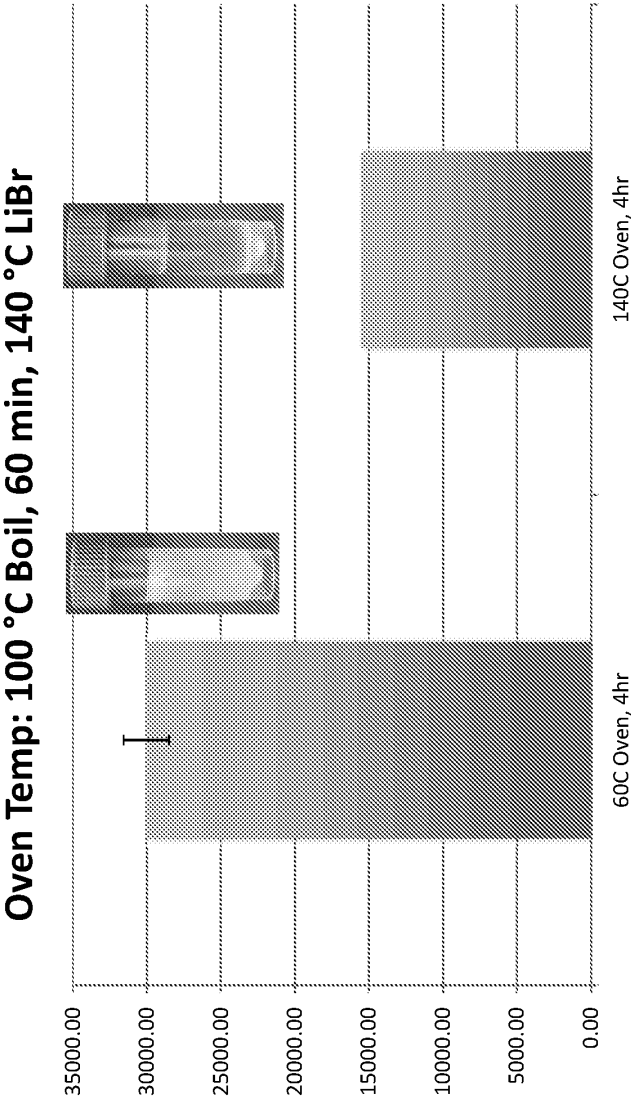


Fig. 21

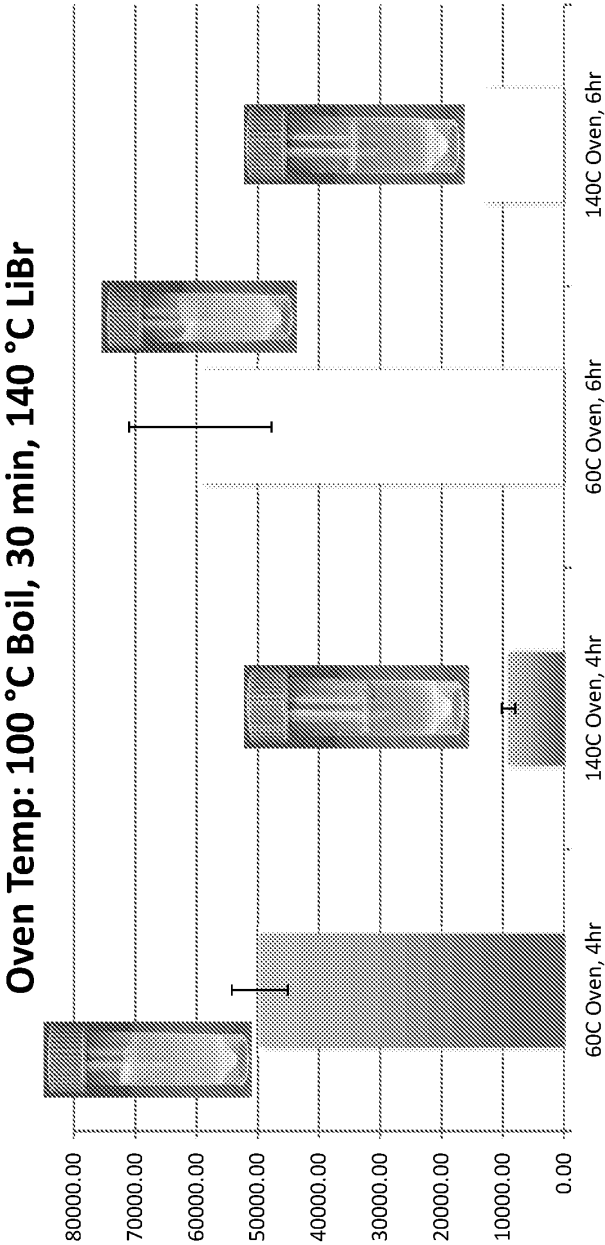


Fig. 22

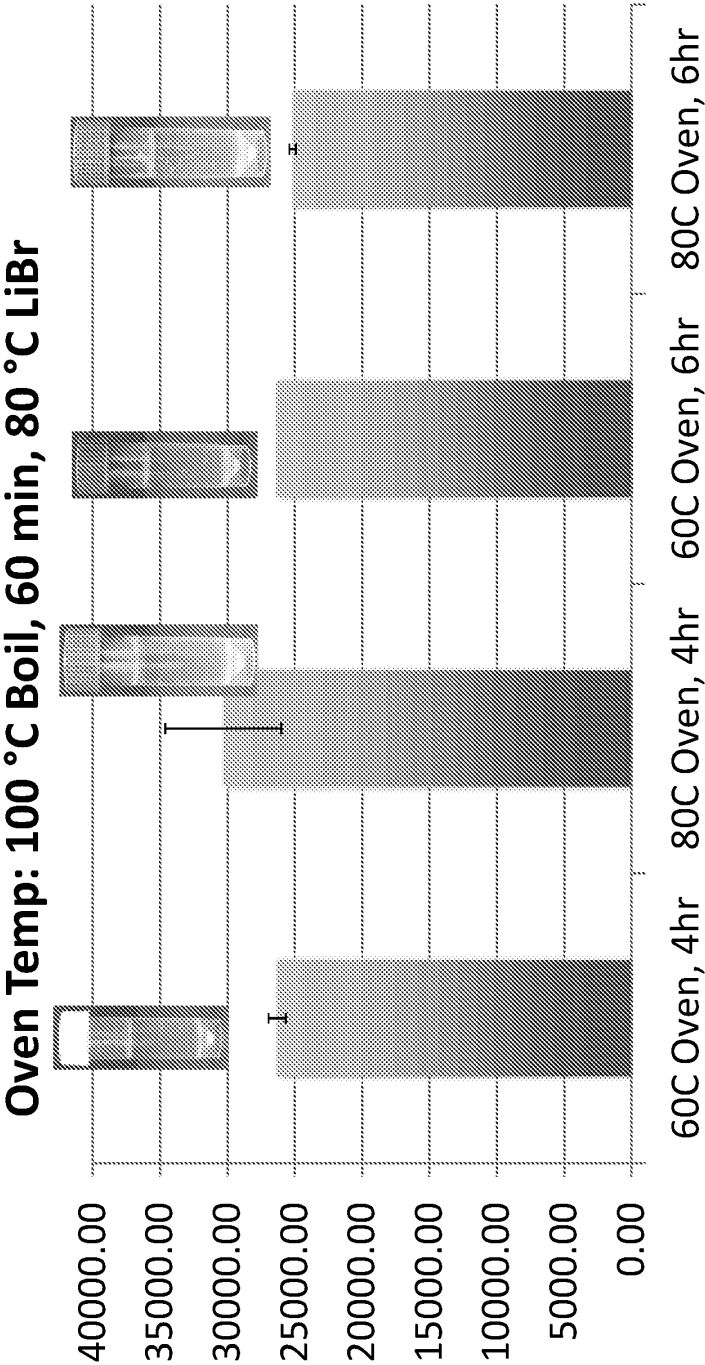


Fig. 23

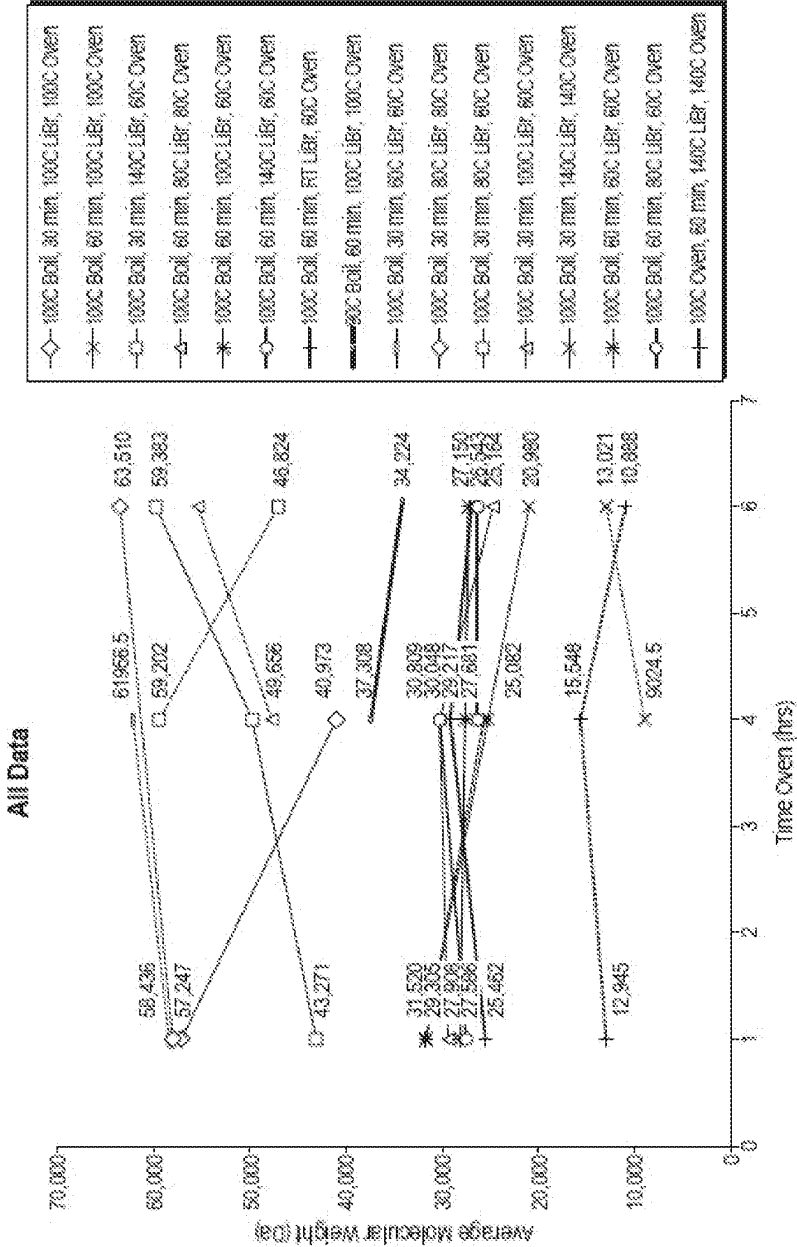


Fig. 24

Oven Temp = LiBr Temp Data: Round 2

Molecular Weight Data: Oven Temp=LiBr Temp

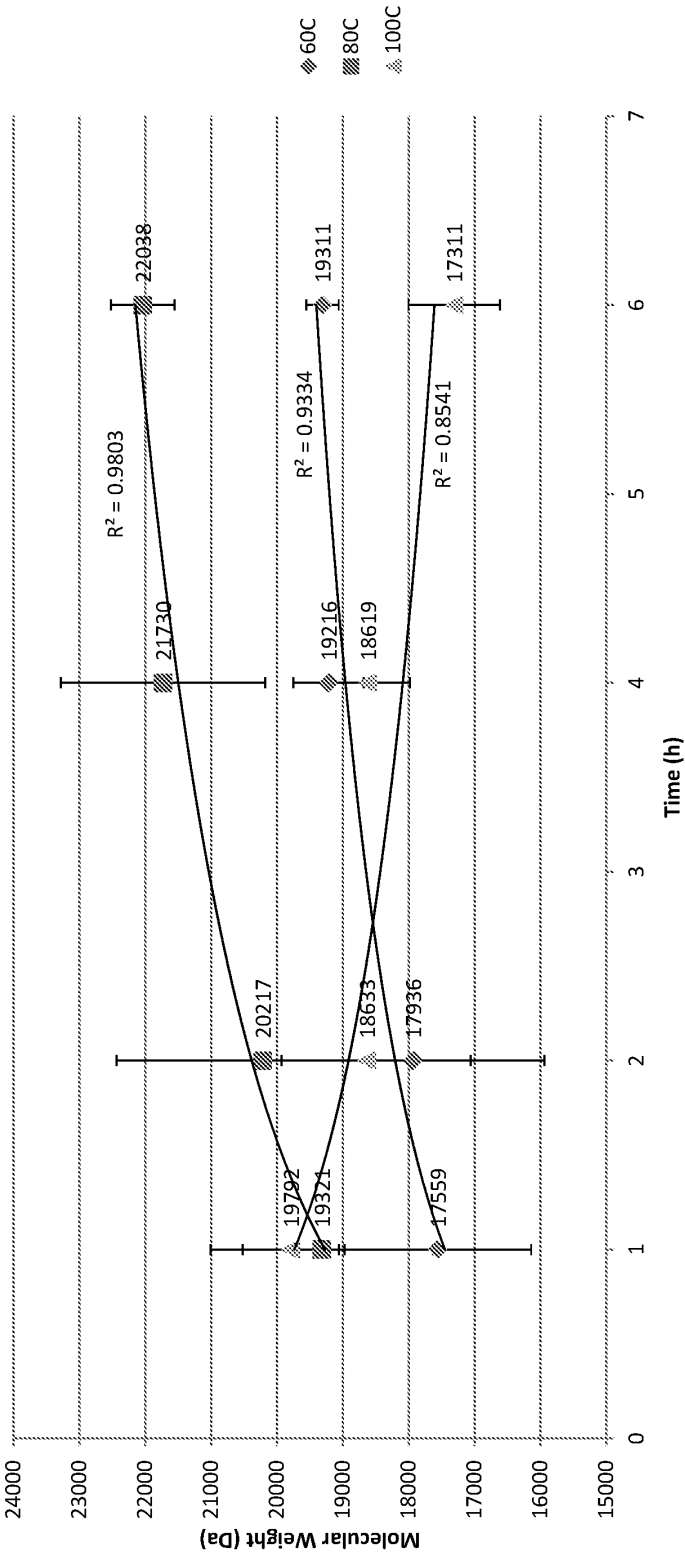


Fig. 25

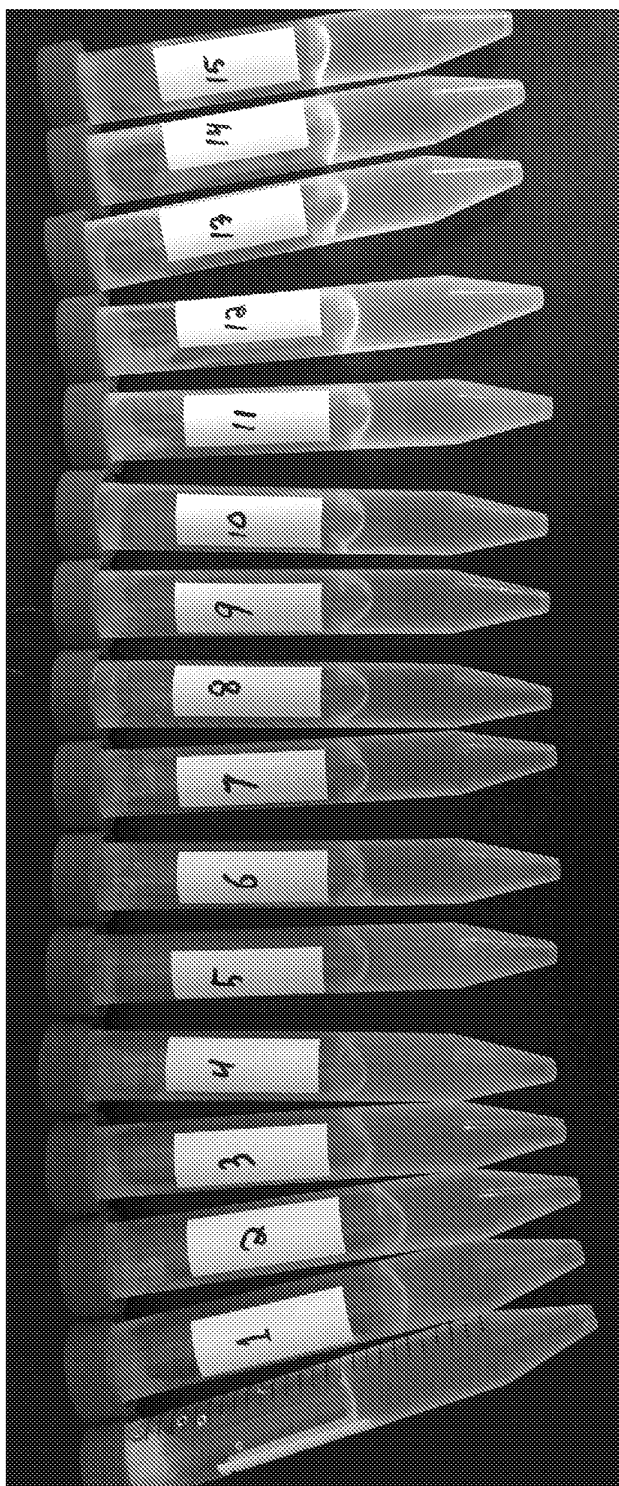


Fig. 26

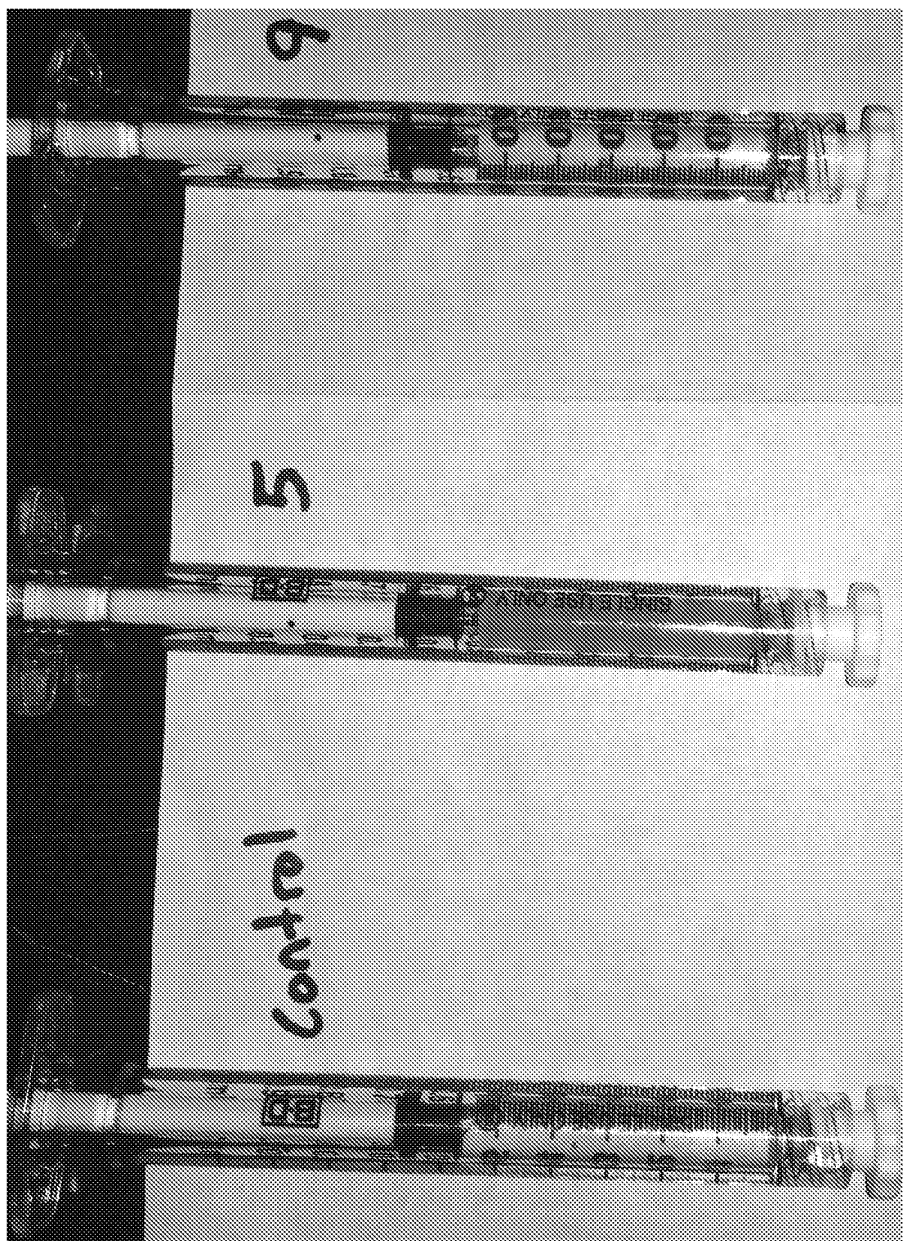


Fig. 27

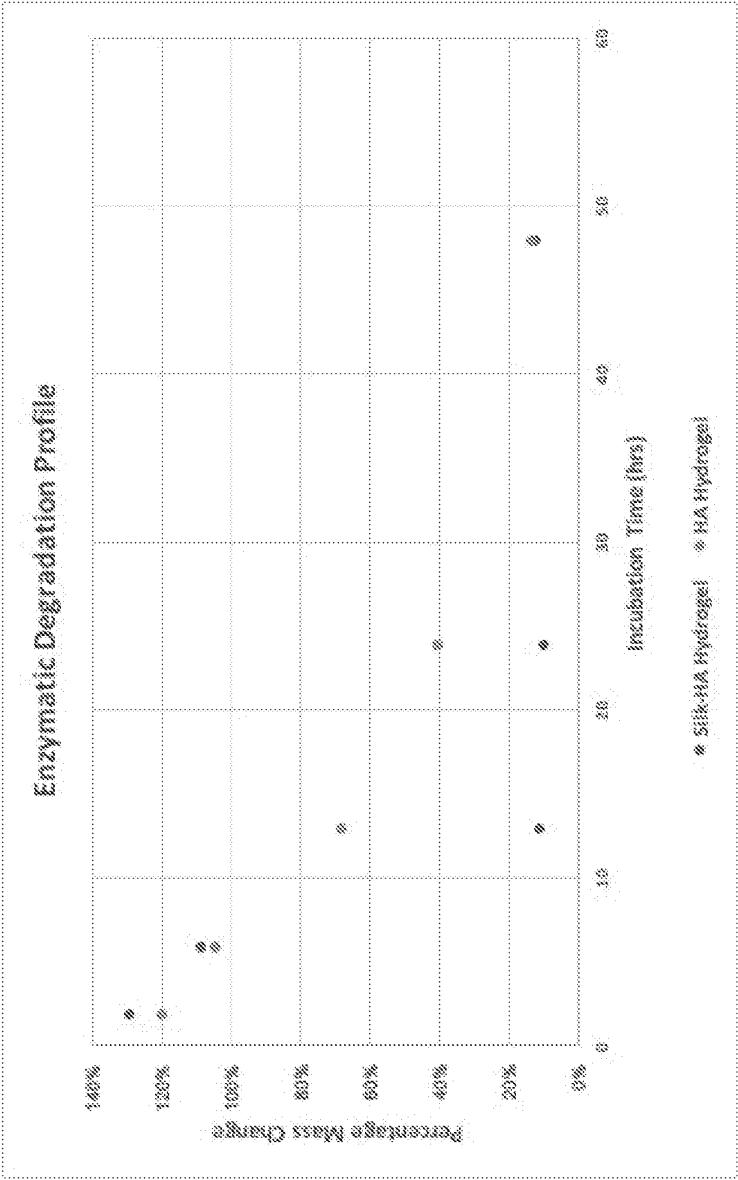


Fig. 28

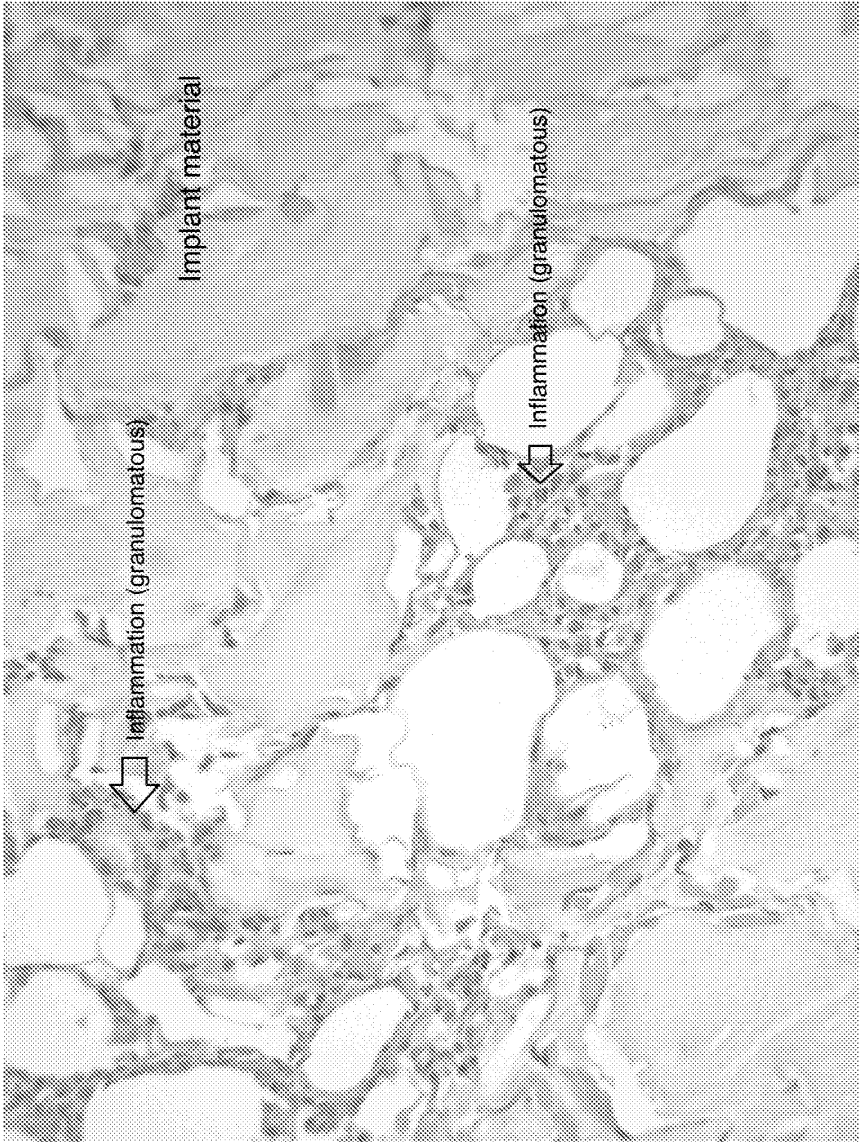


Fig. 29

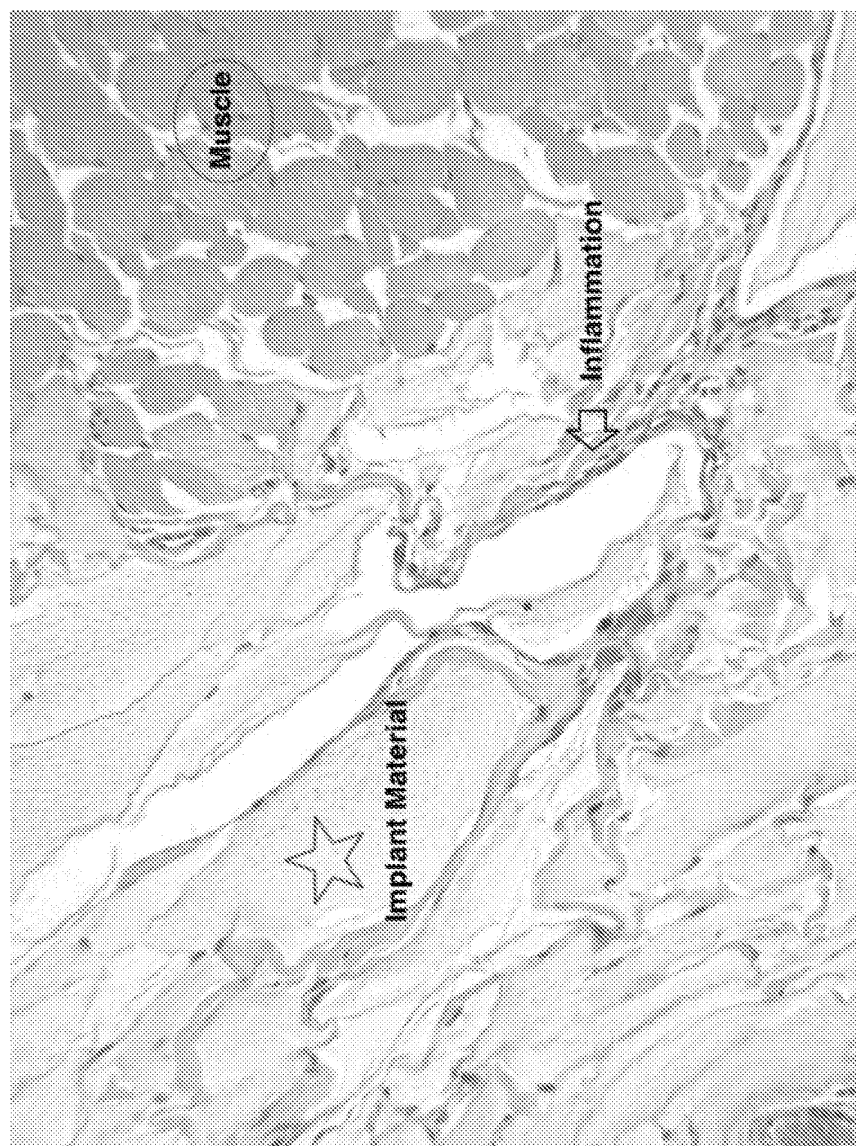


Fig. 30

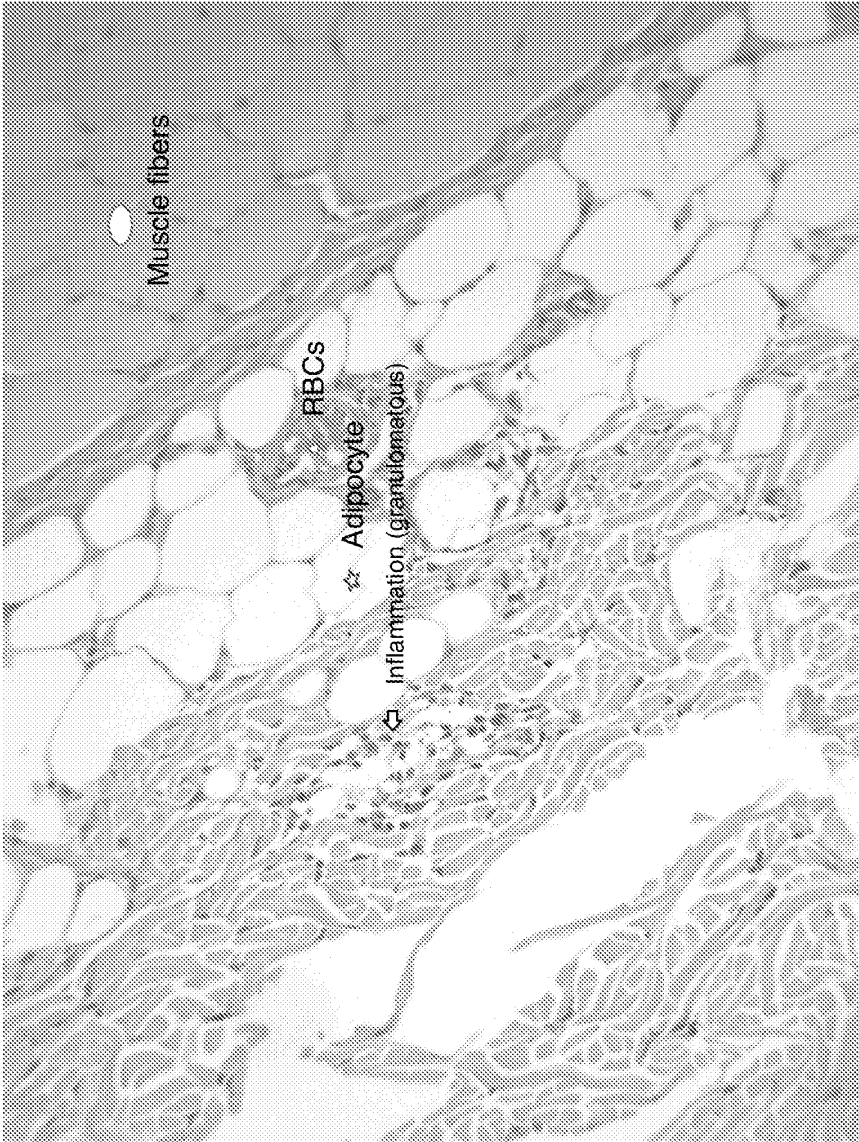


Fig. 31

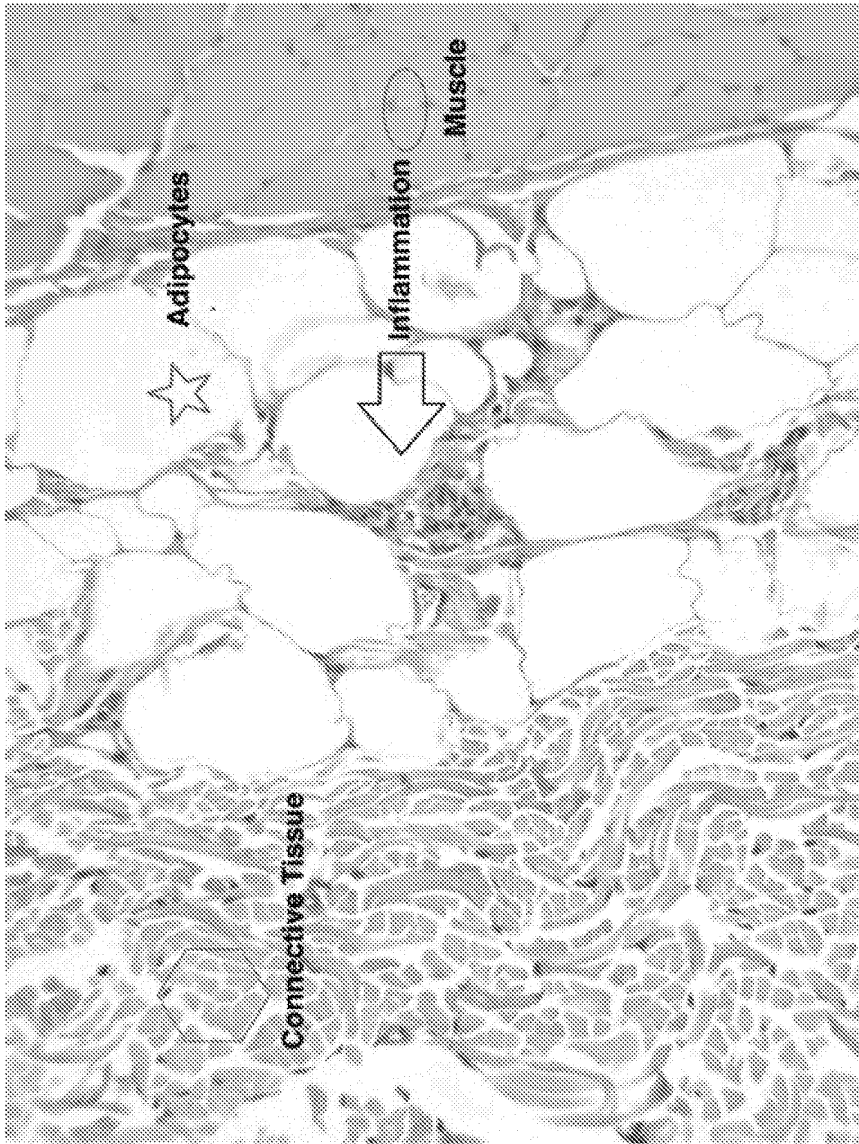


Fig. 32

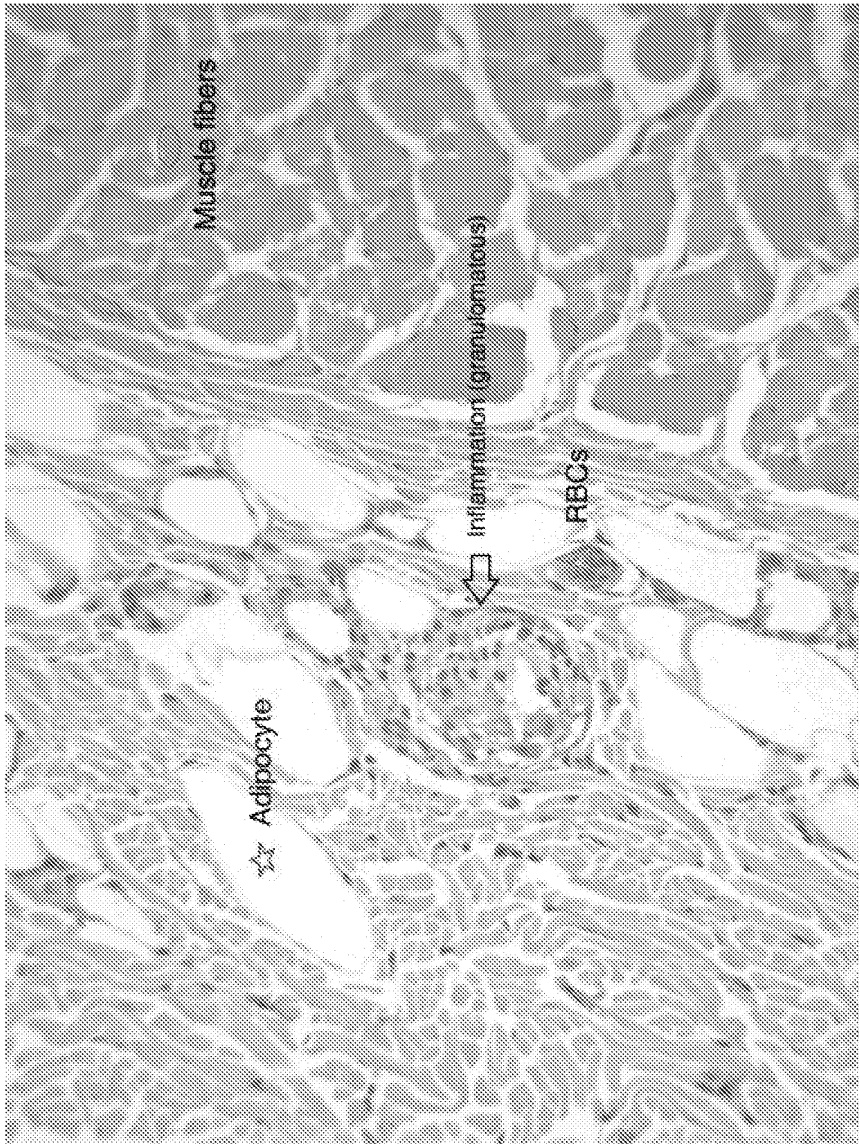


Fig. 33

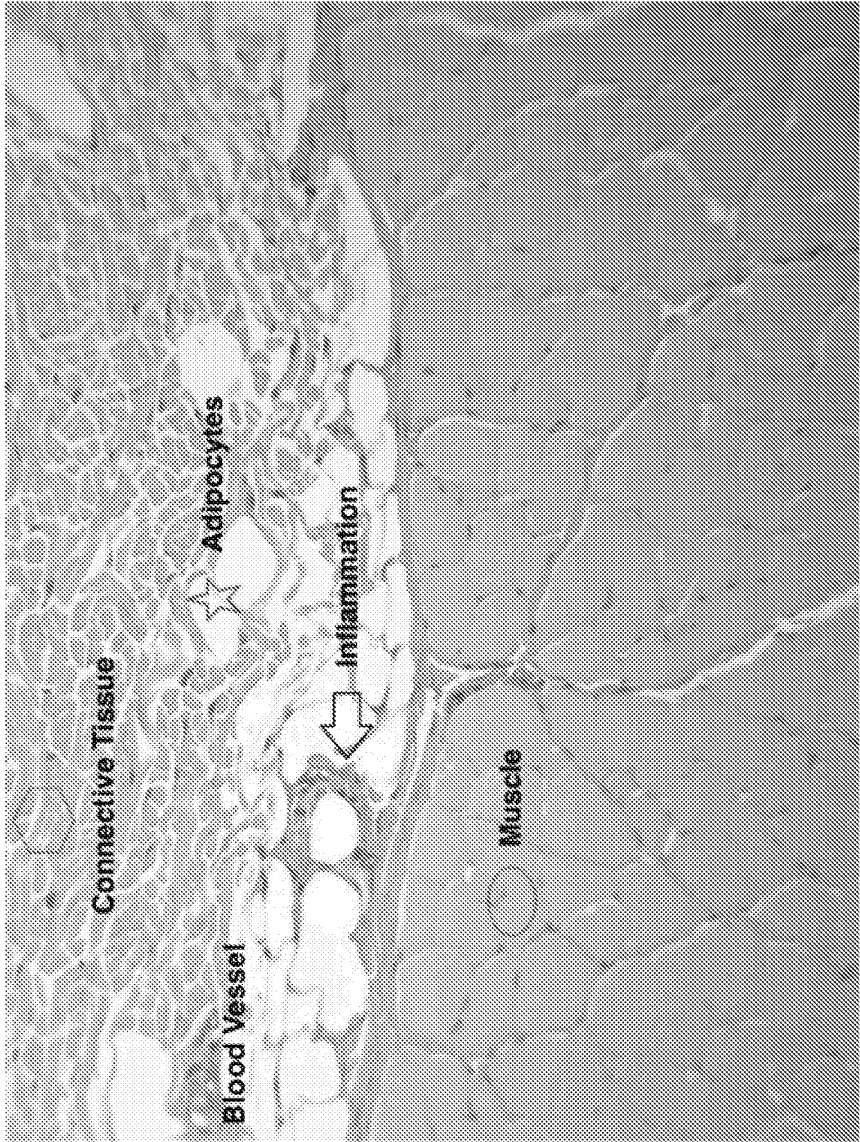


Fig. 34

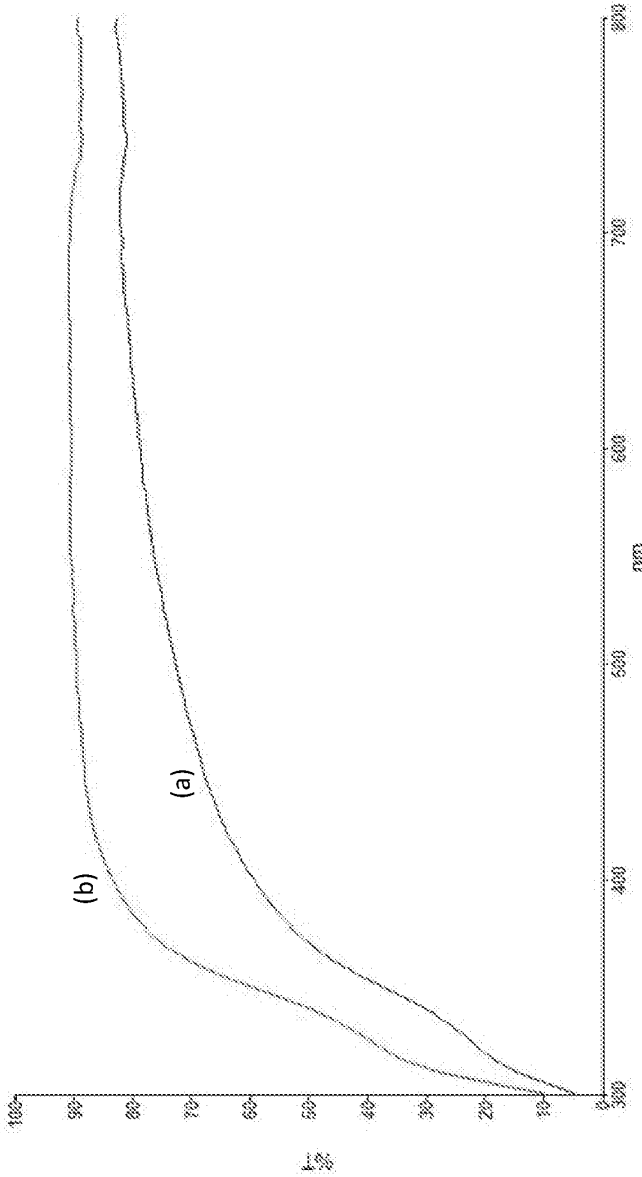


Fig. 35

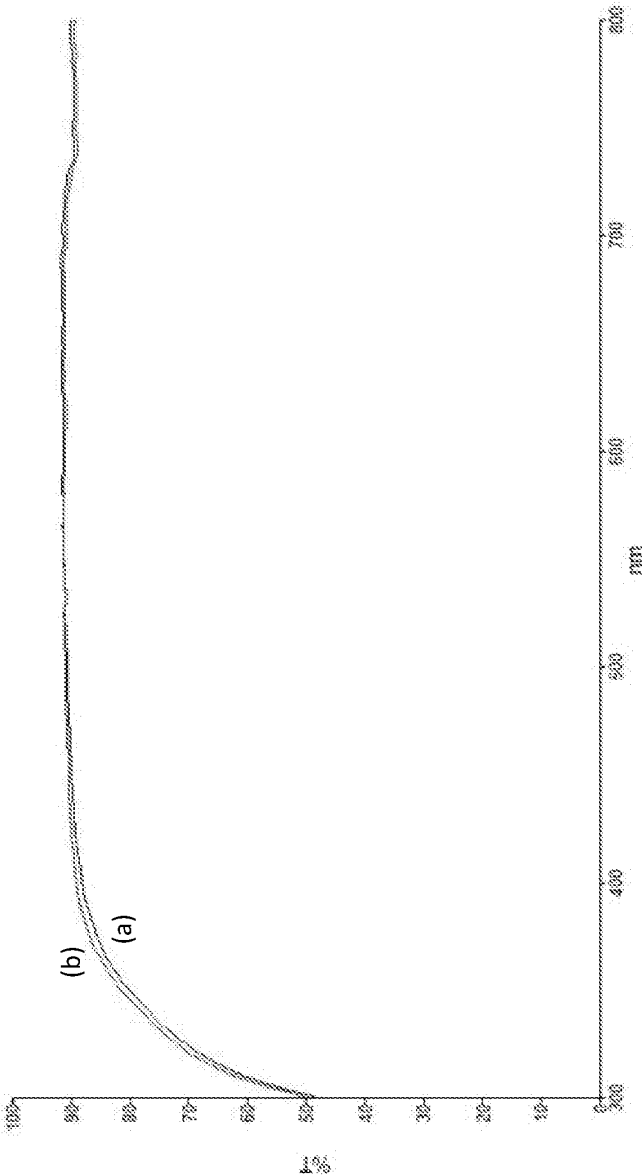


Fig. 36

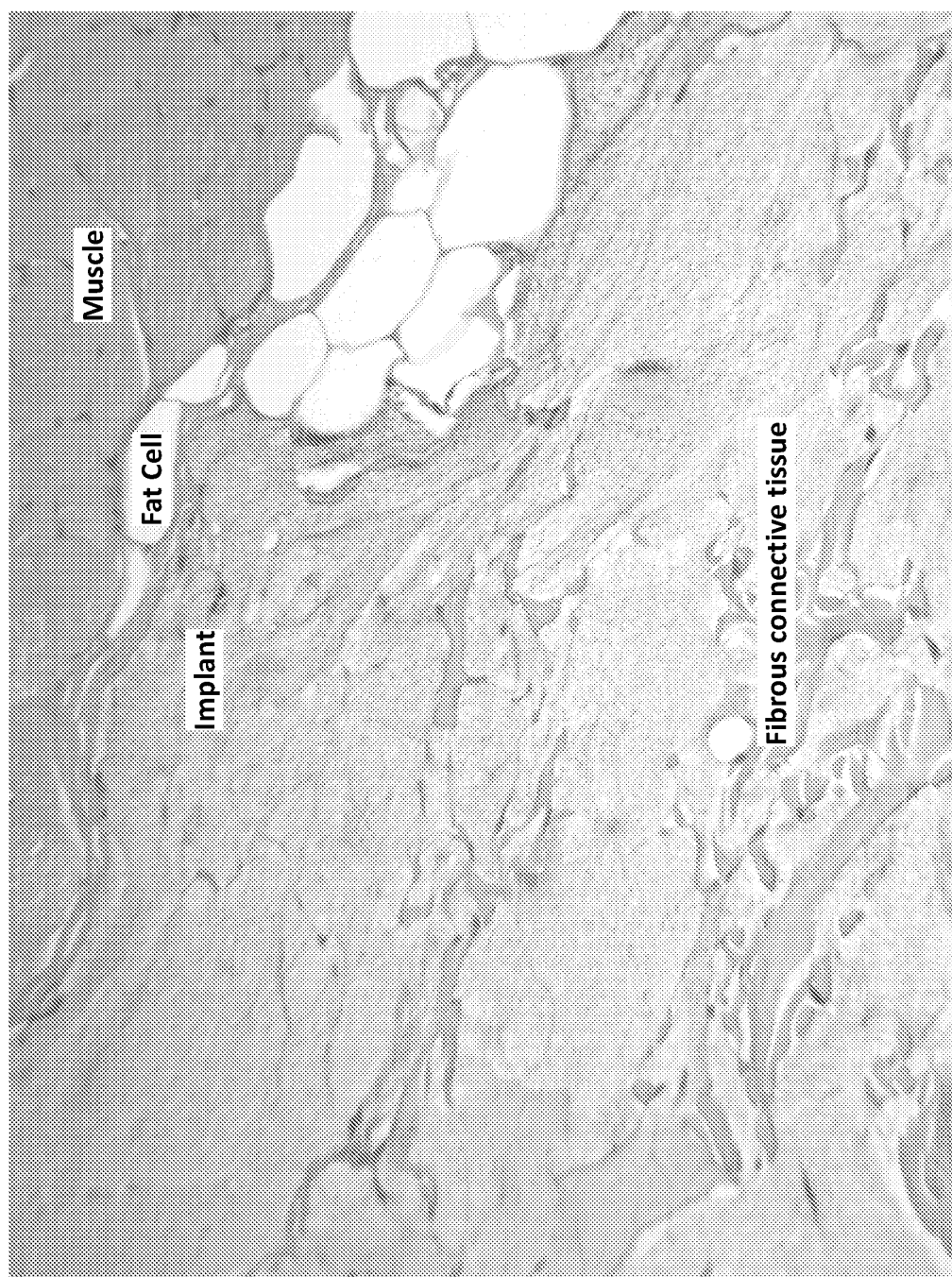


Fig. 37

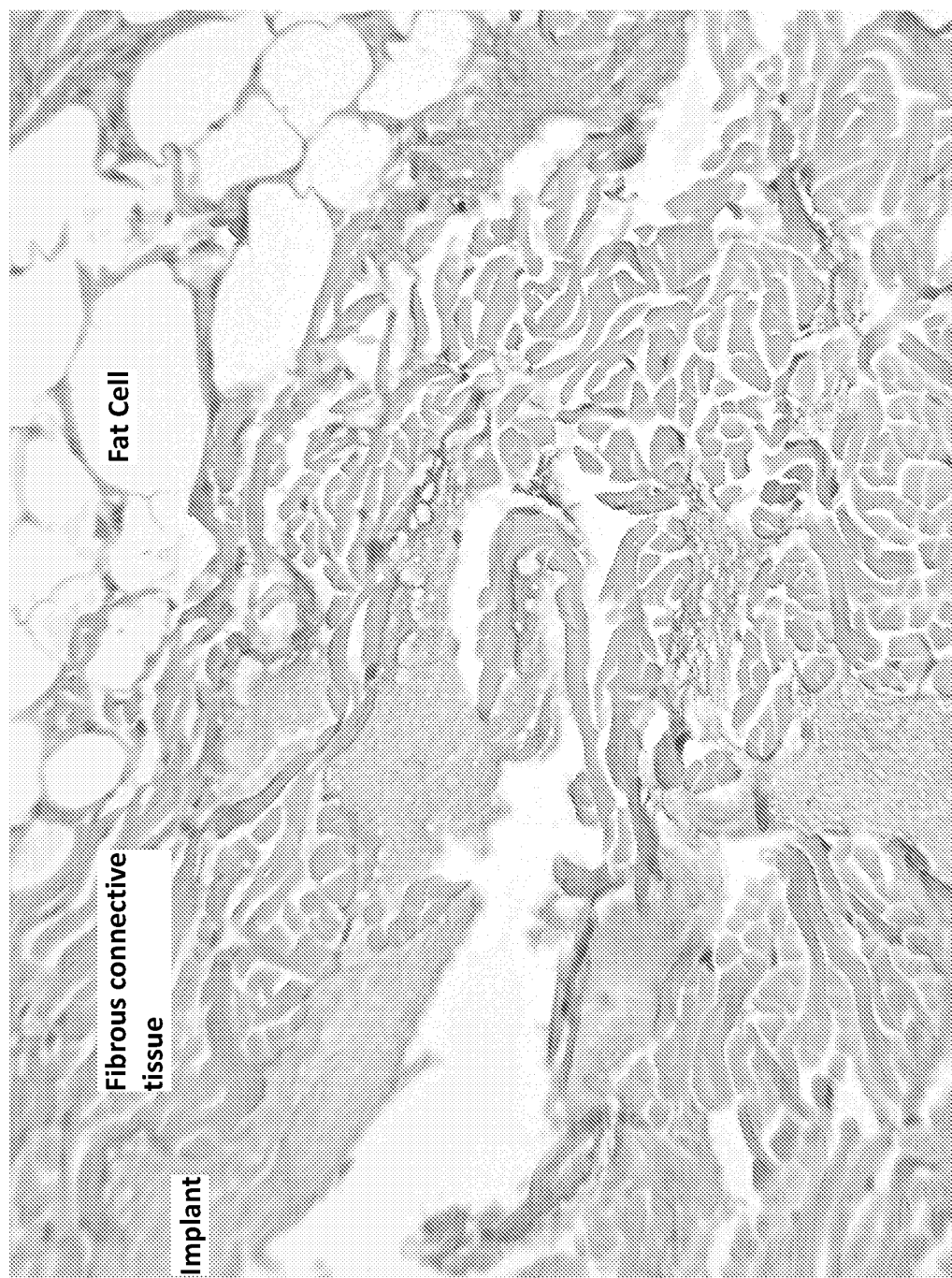


Fig. 38

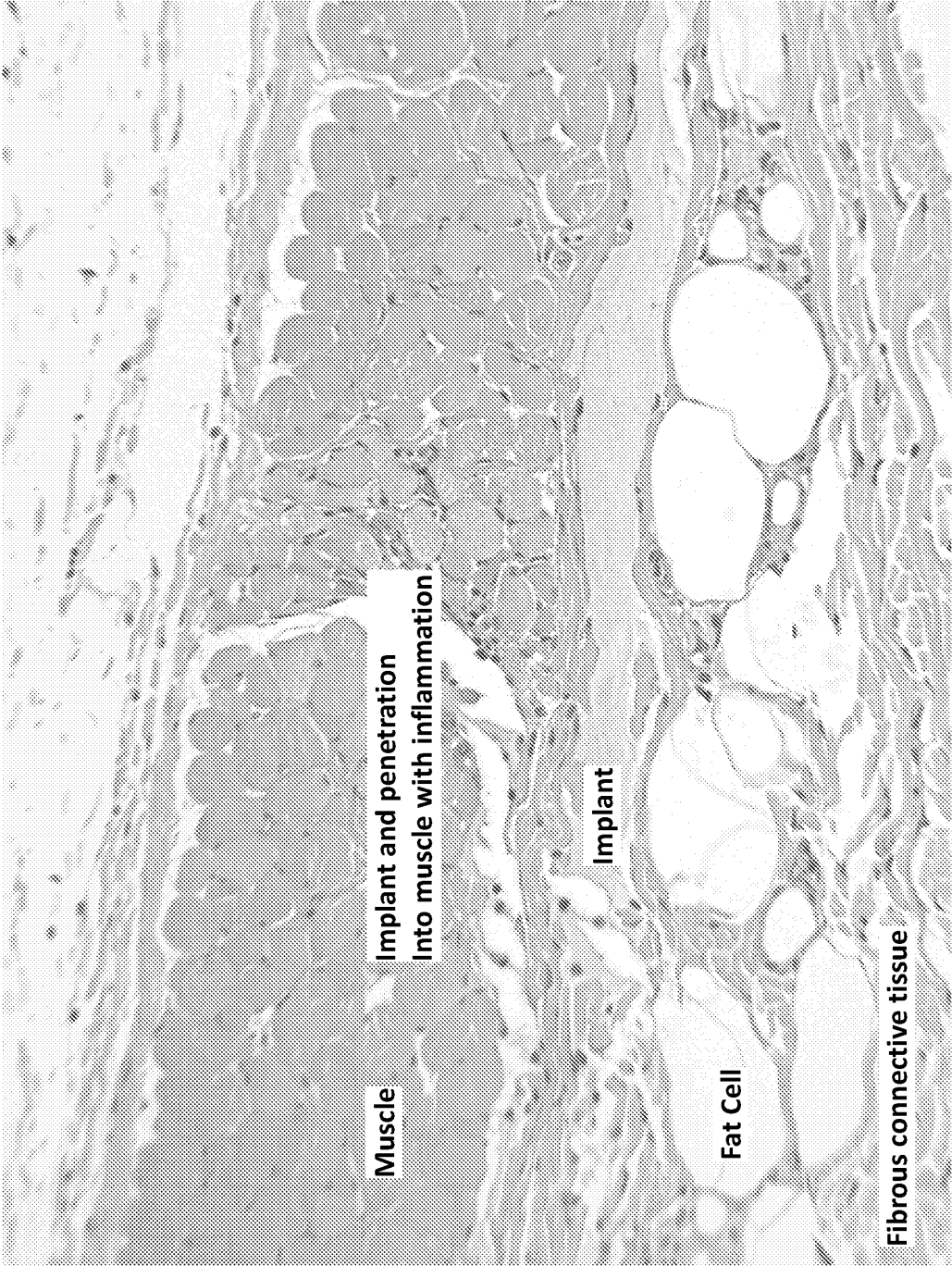


Fig. 39

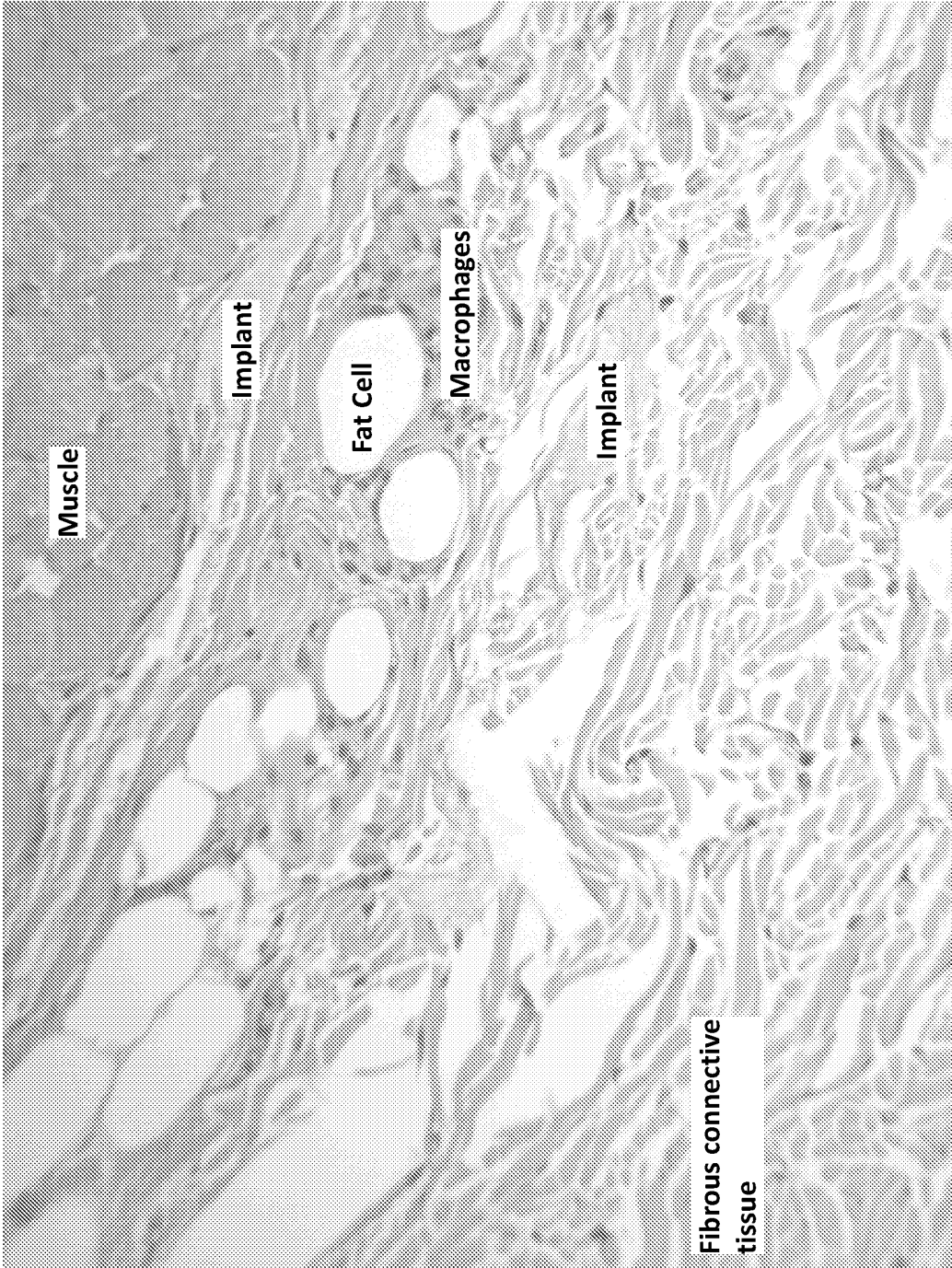


Fig. 40

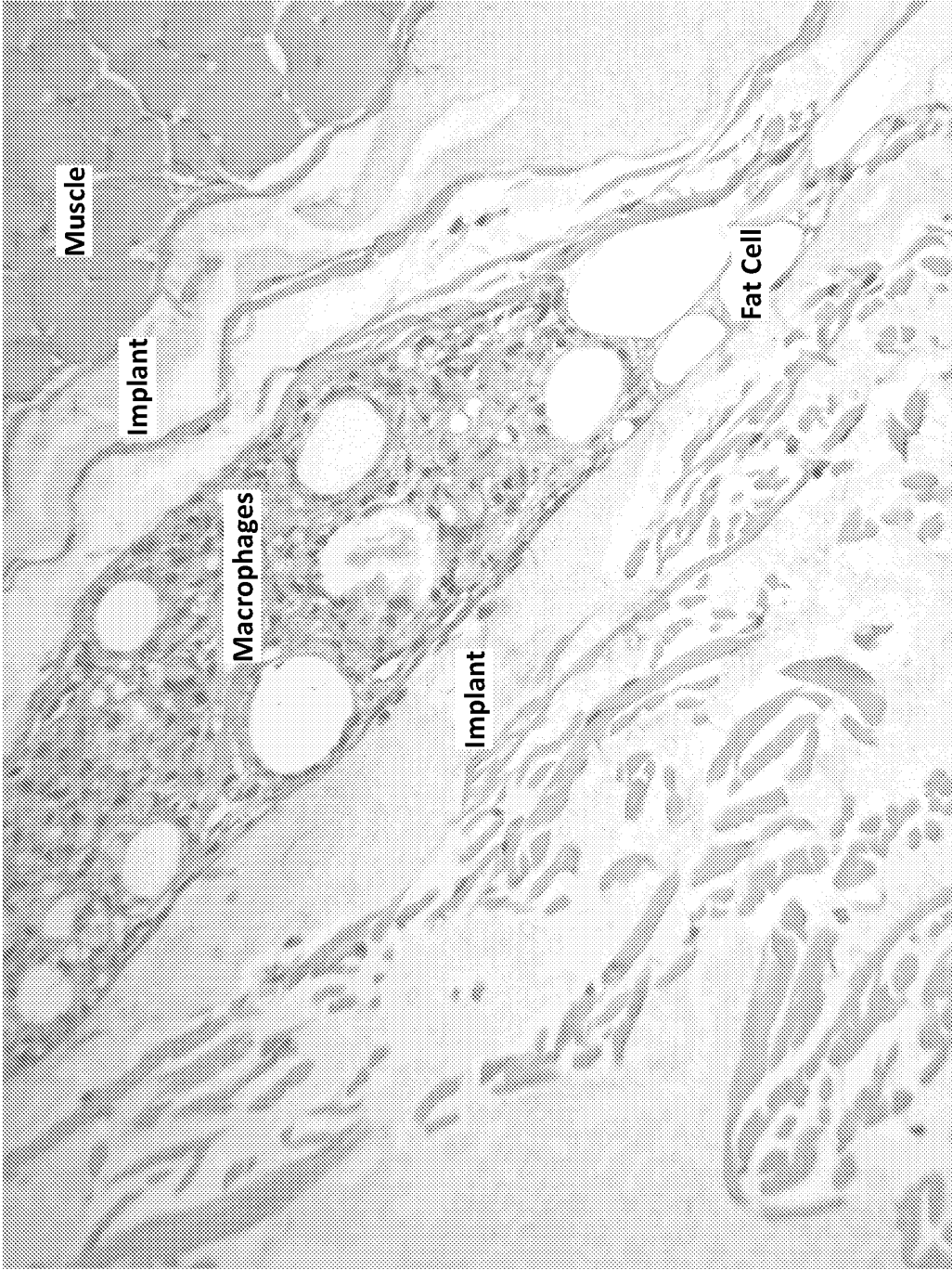


Fig. 41

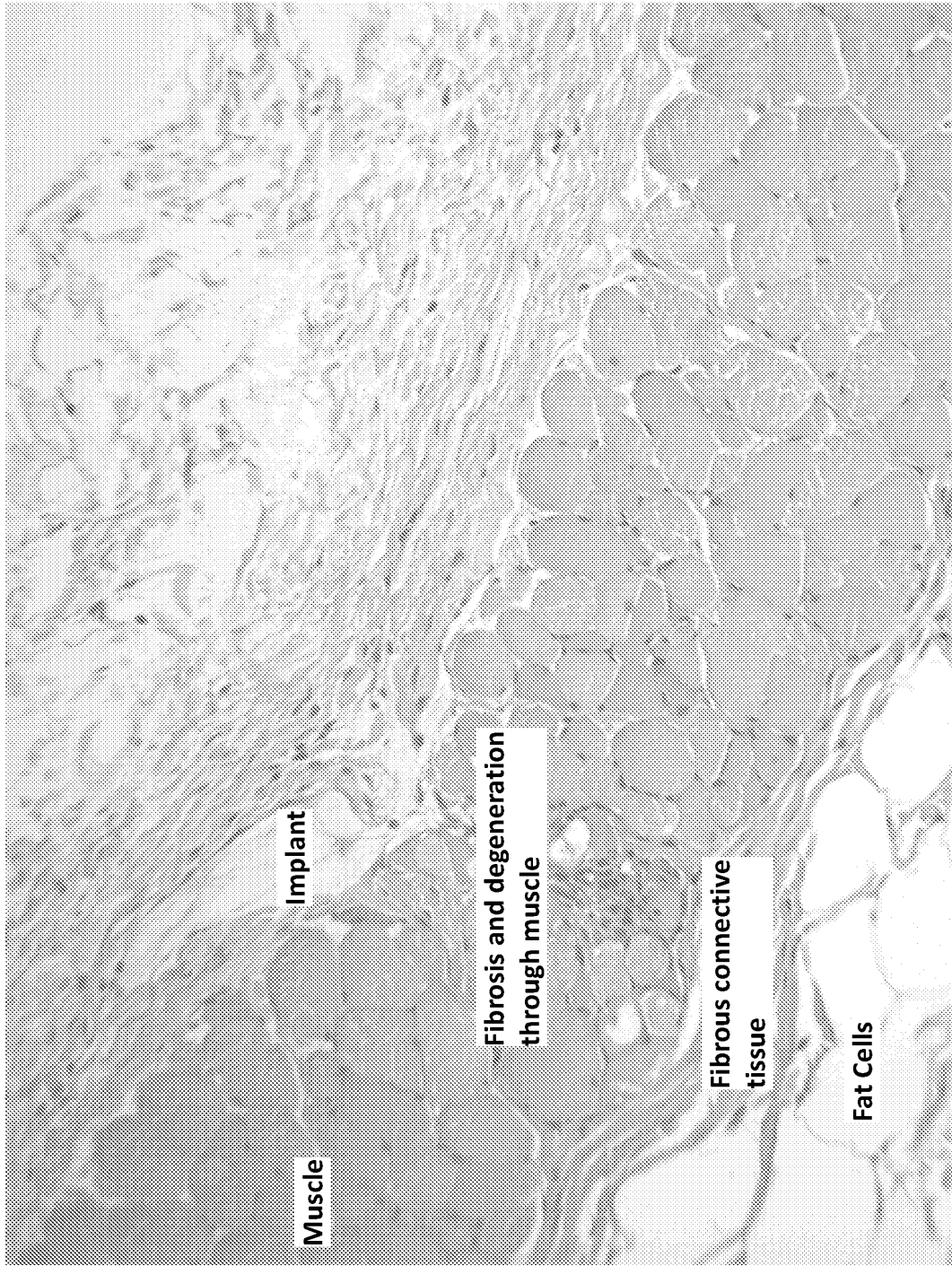


Fig. 42

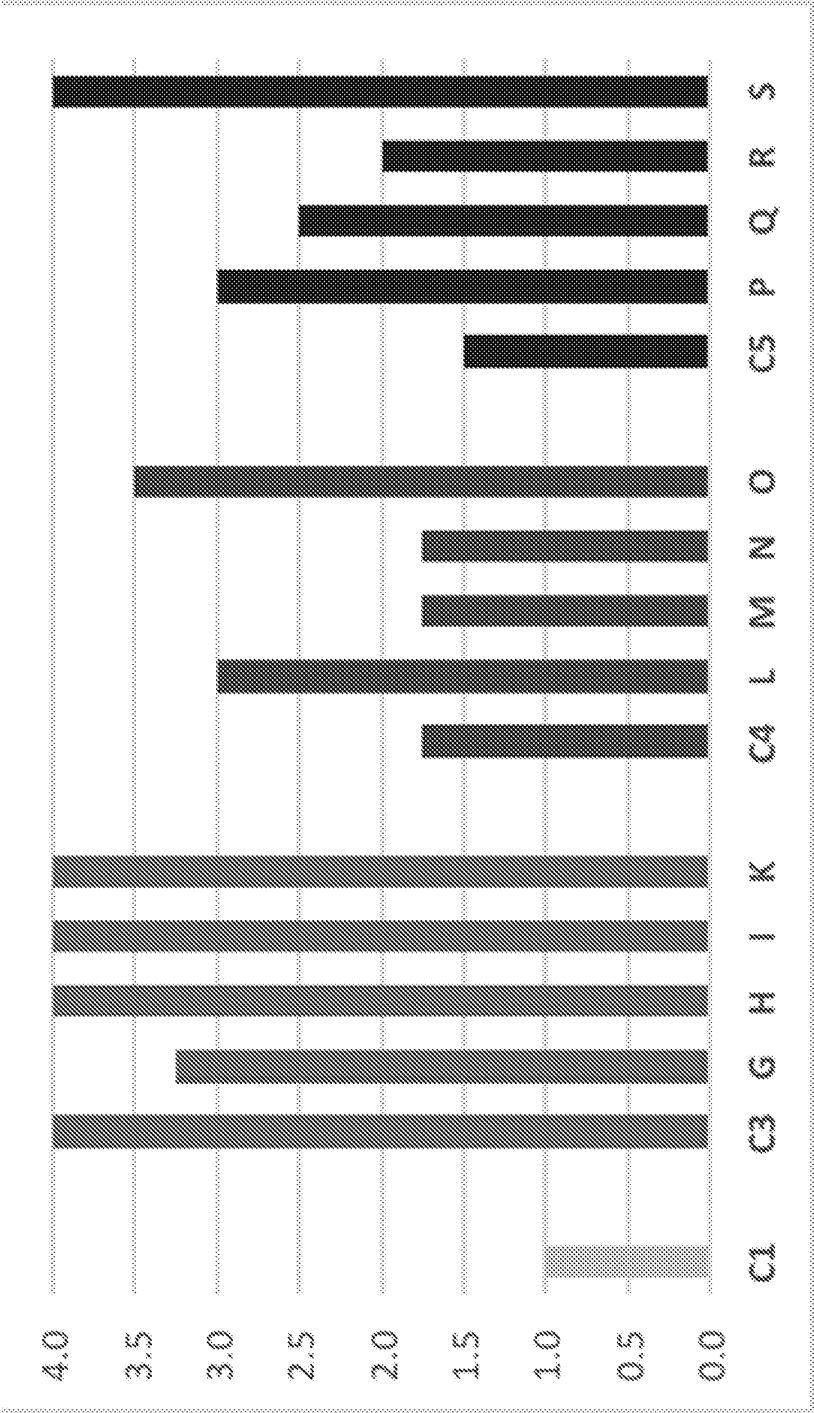


Fig. 43

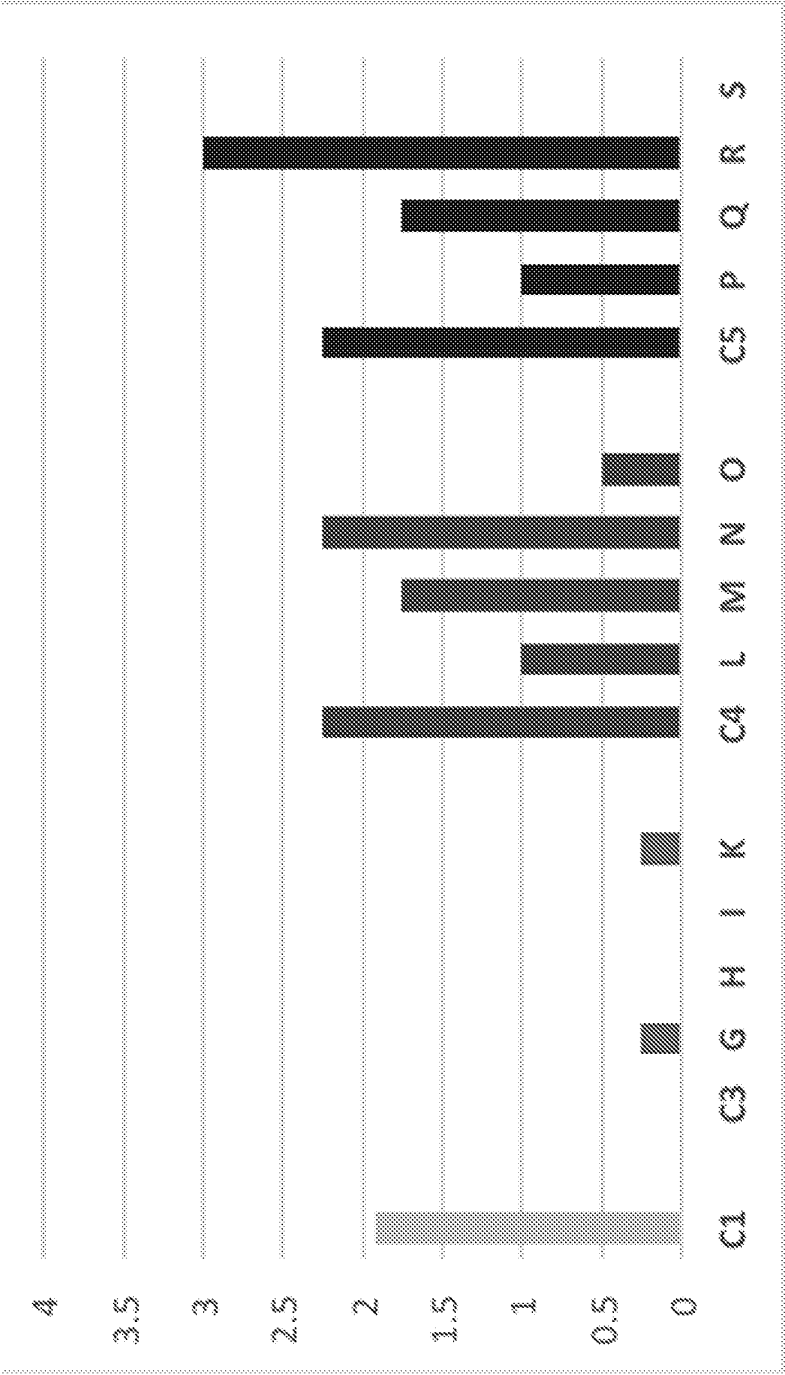
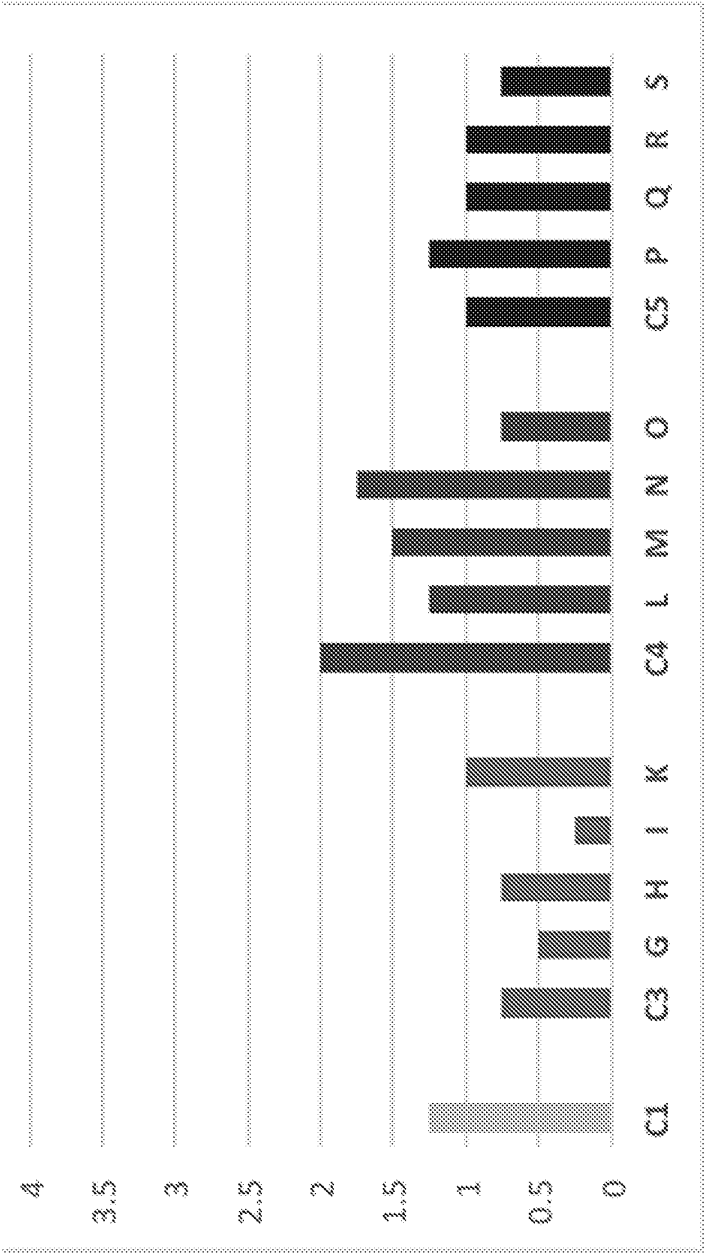


Fig. 44



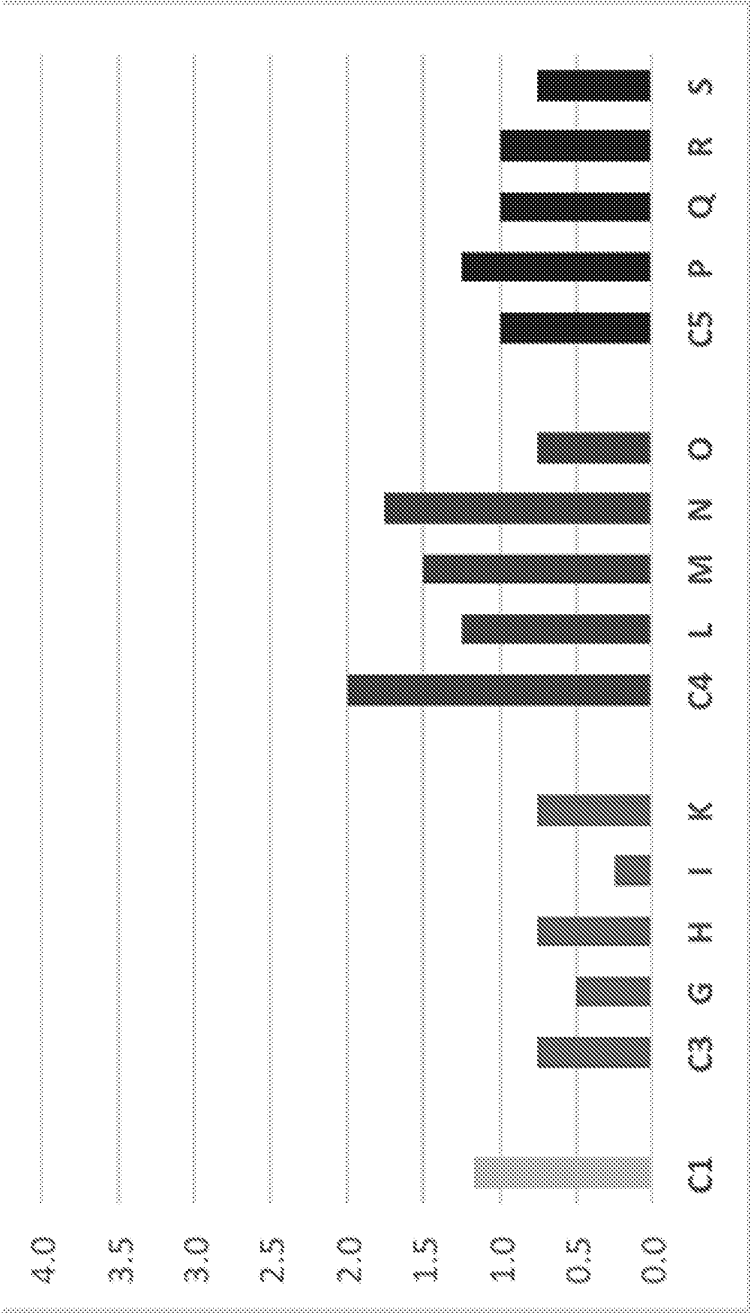


Fig. 46

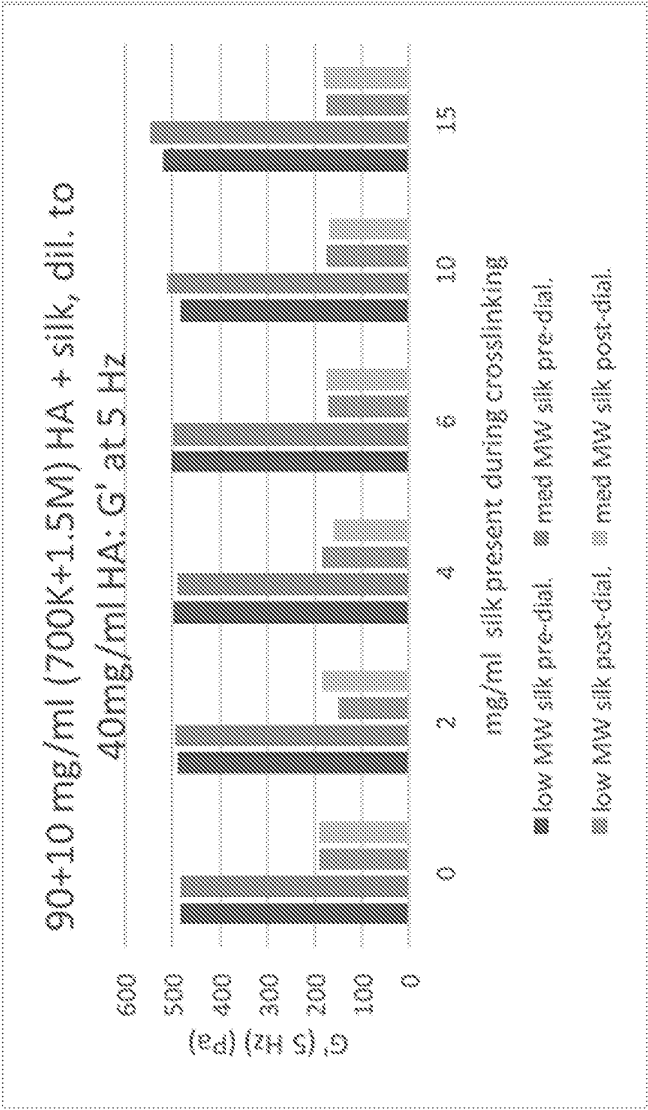


Fig. 47A

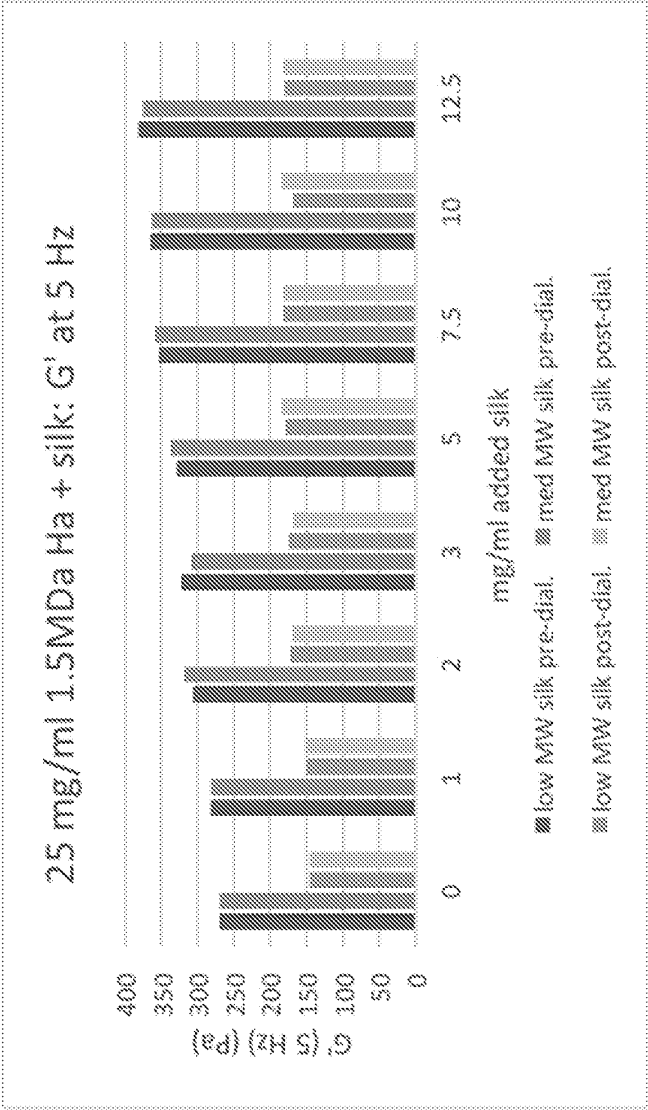


Fig. 47B

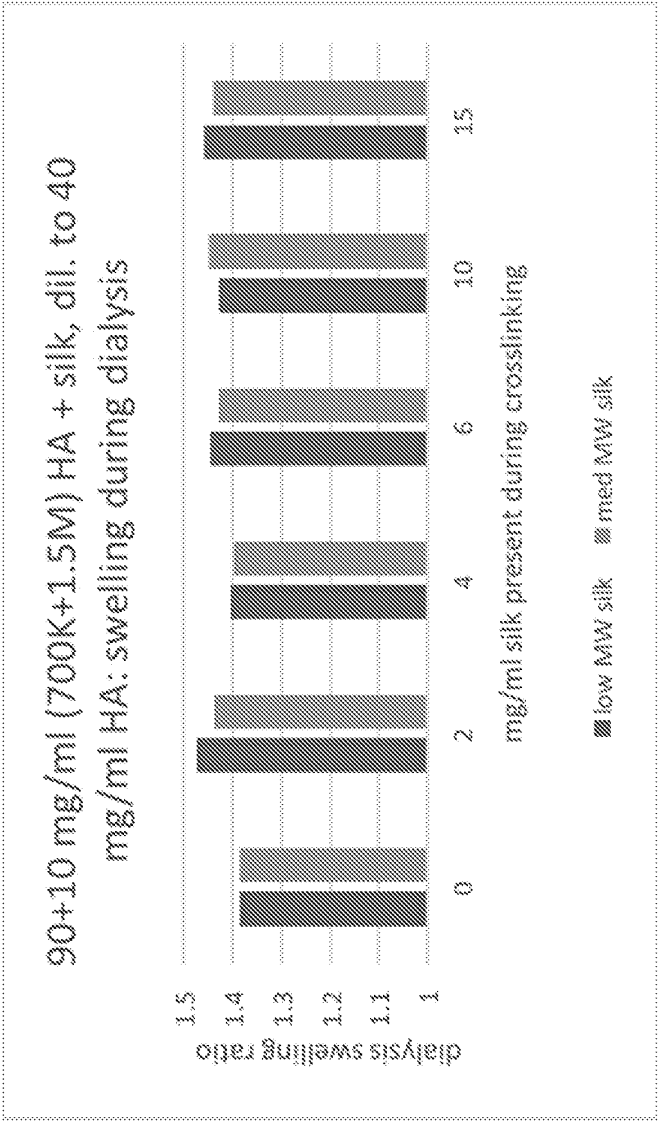


Fig. 48A

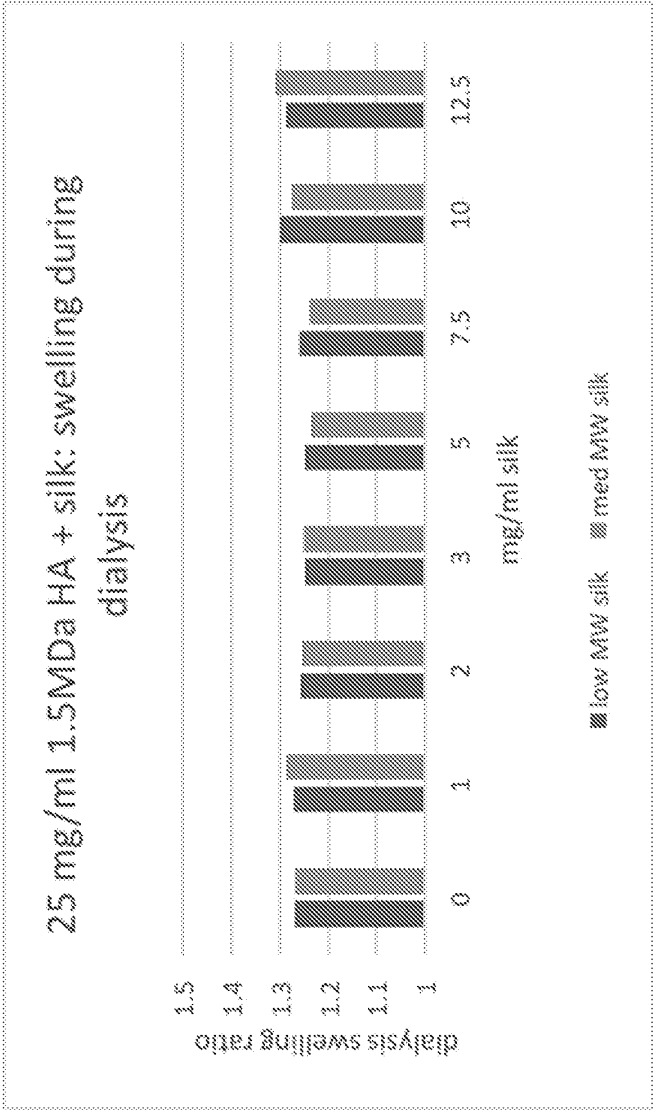


Fig. 48B

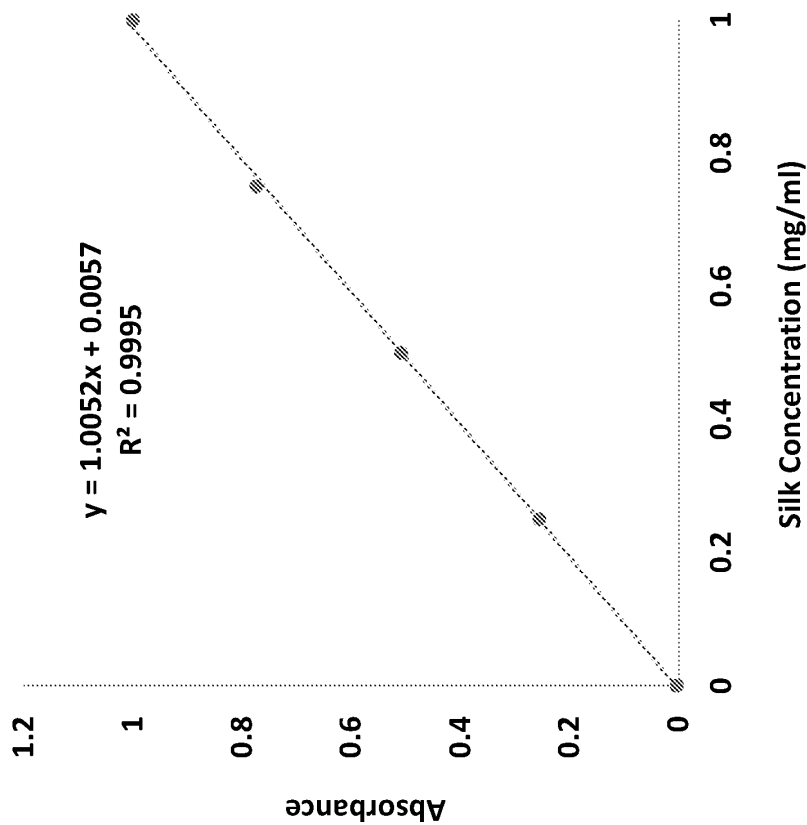


Fig. 49A

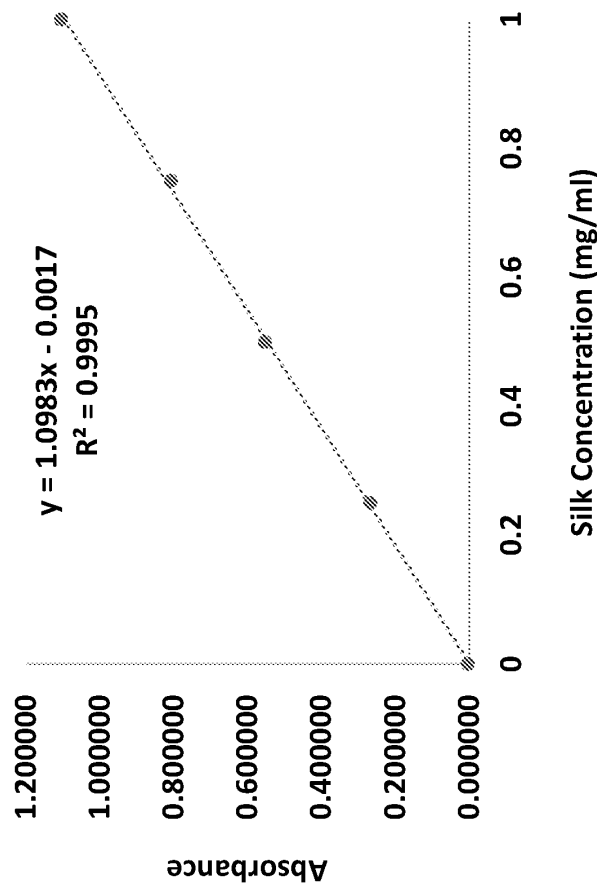


Fig. 49B

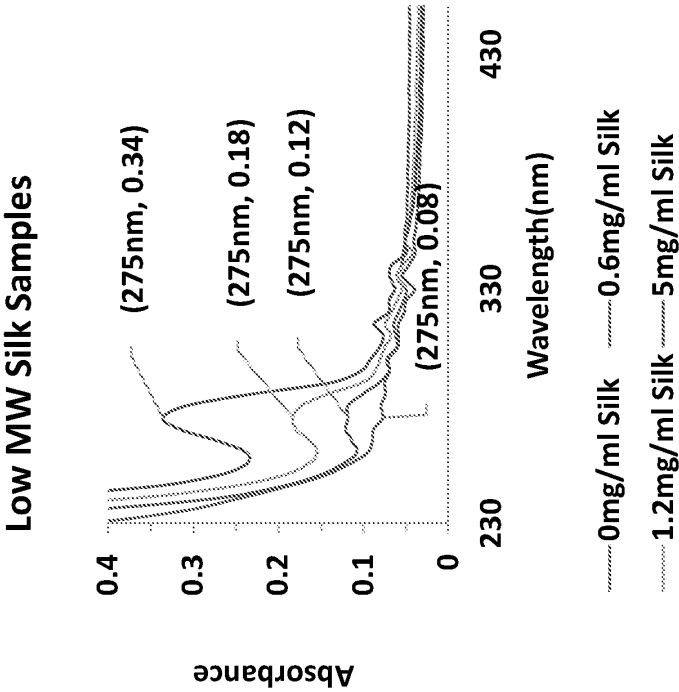


Fig. 50A

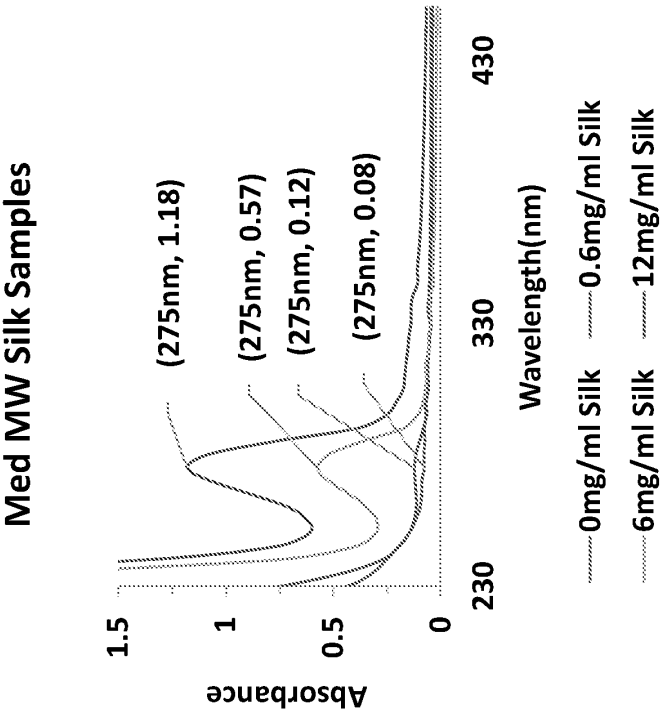


Fig. 50B

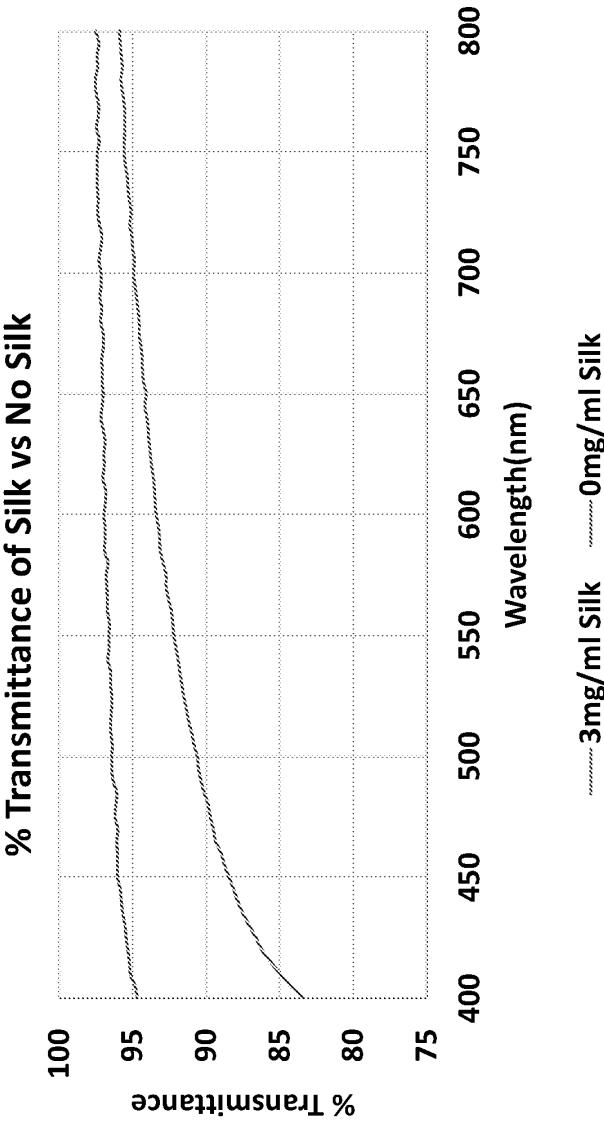


Fig. 51

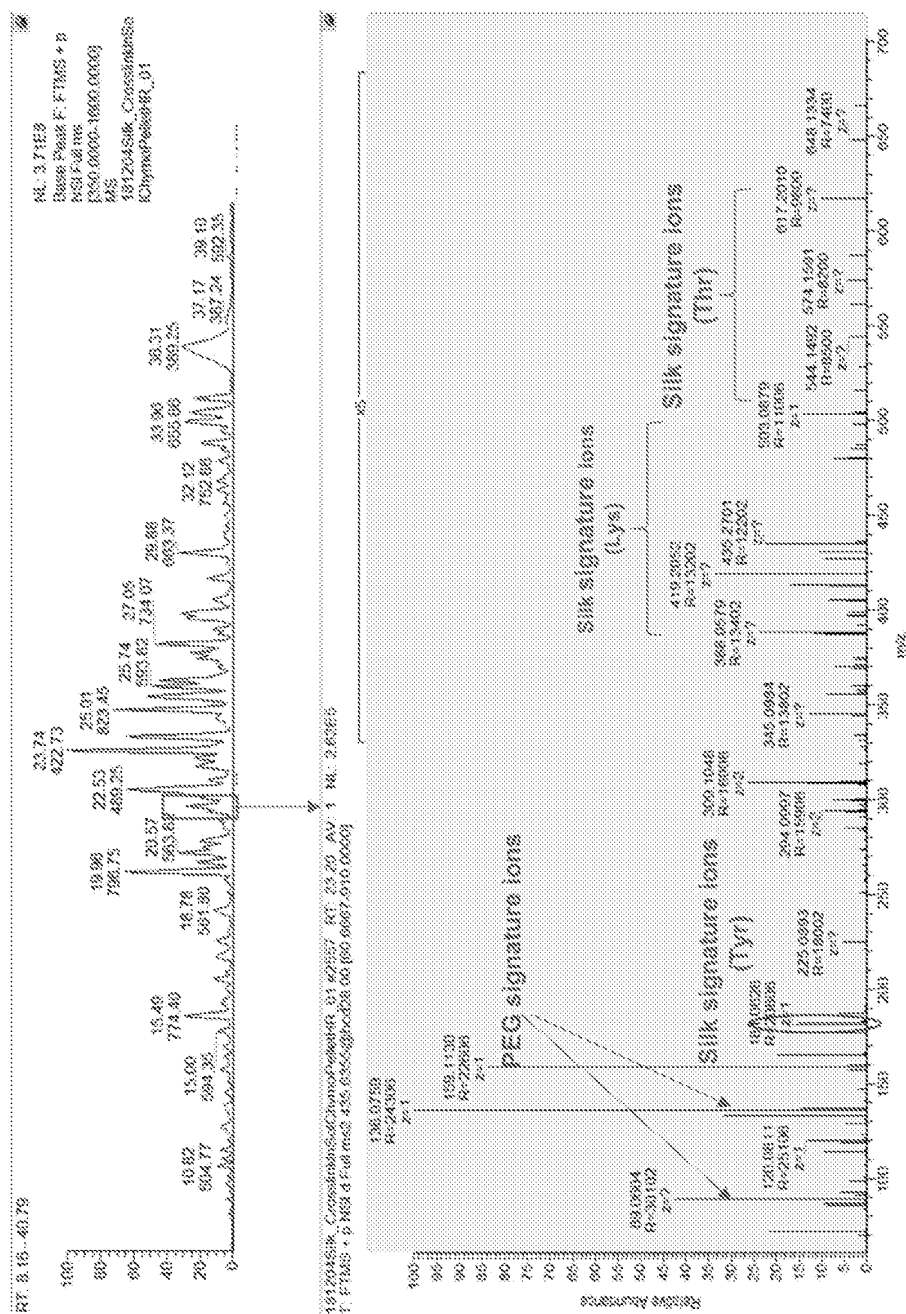


Fig. 52

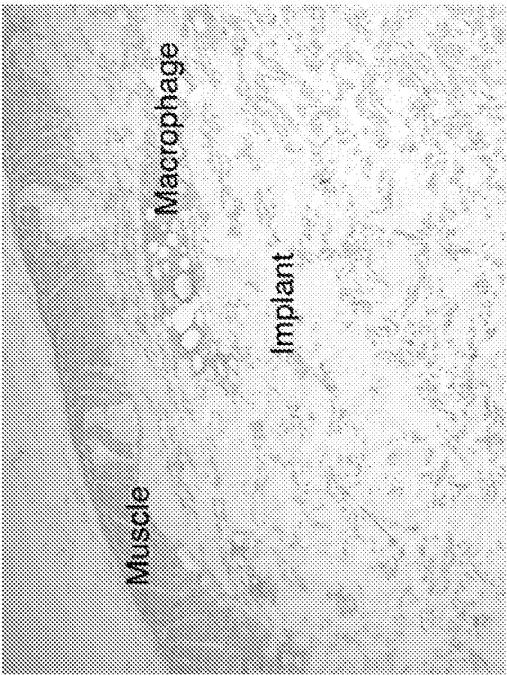


Fig. 53B

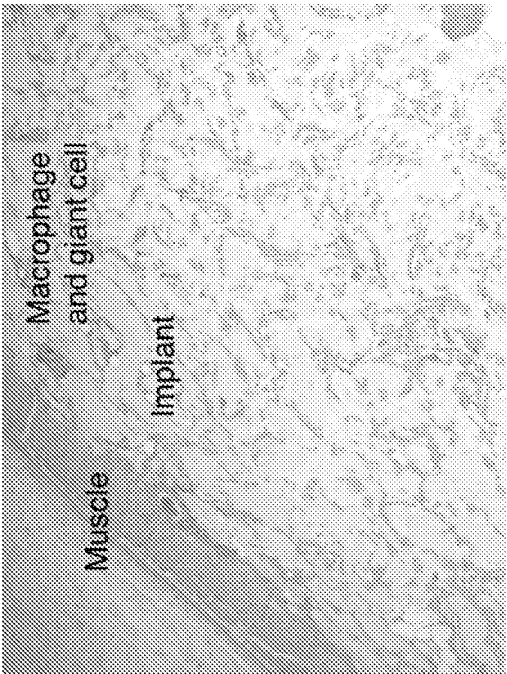


Fig. 53A

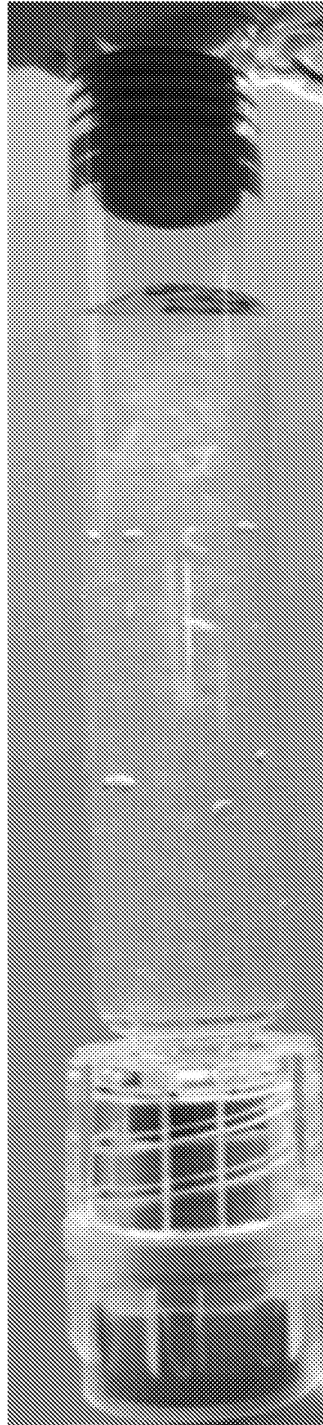


Fig. 54

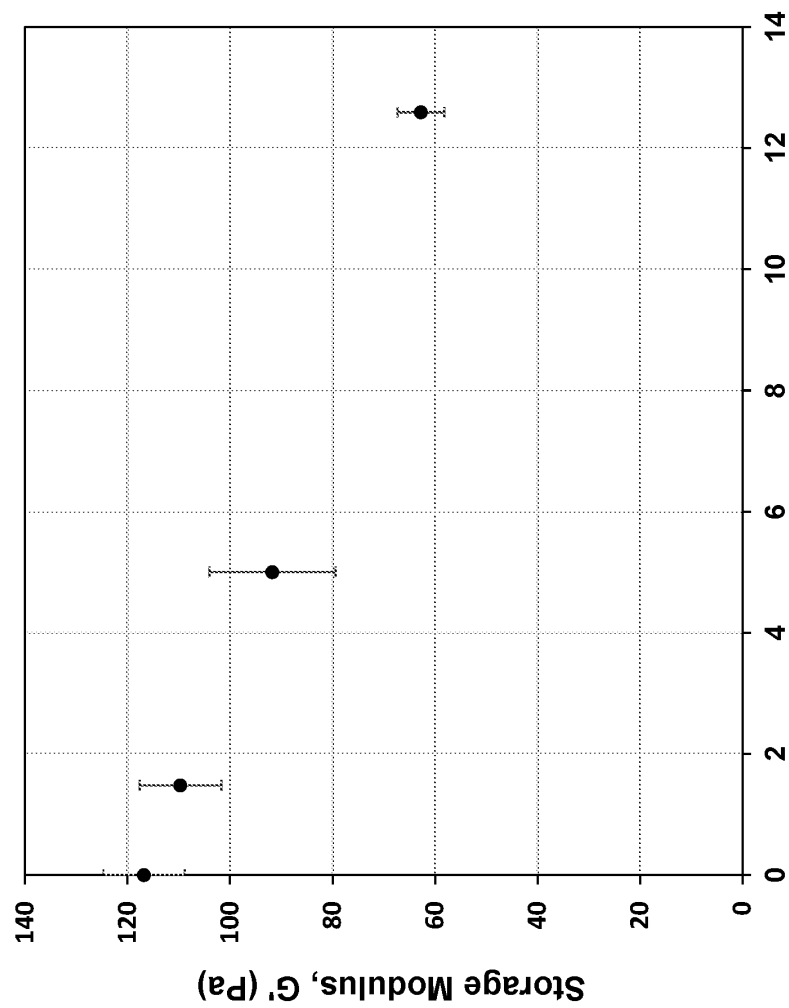


Fig. 55A

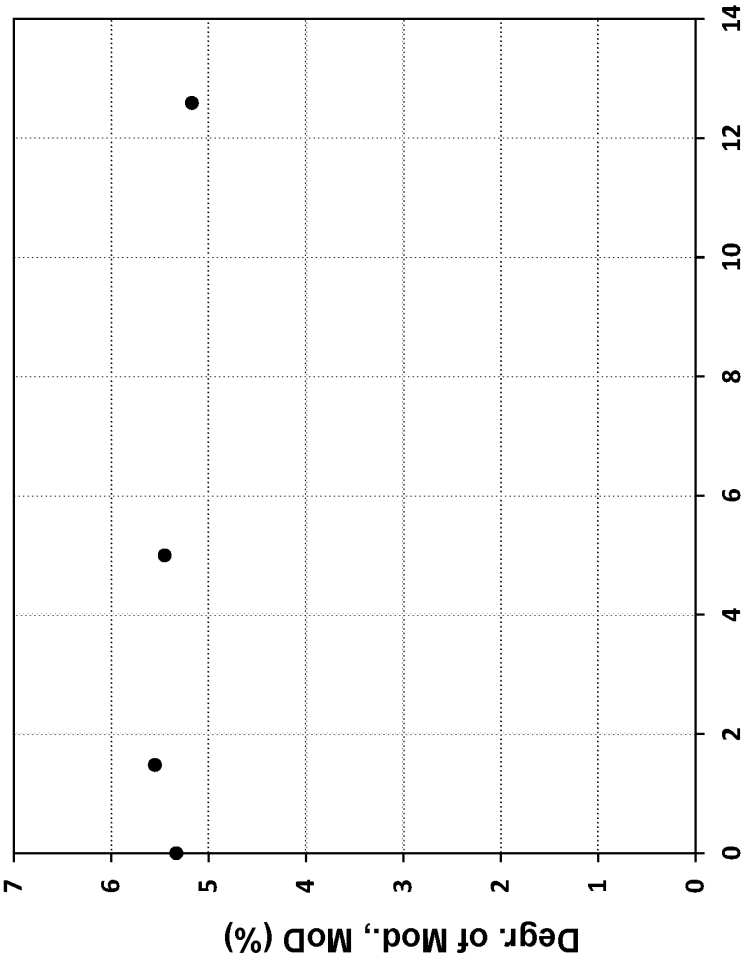


Fig. 55B

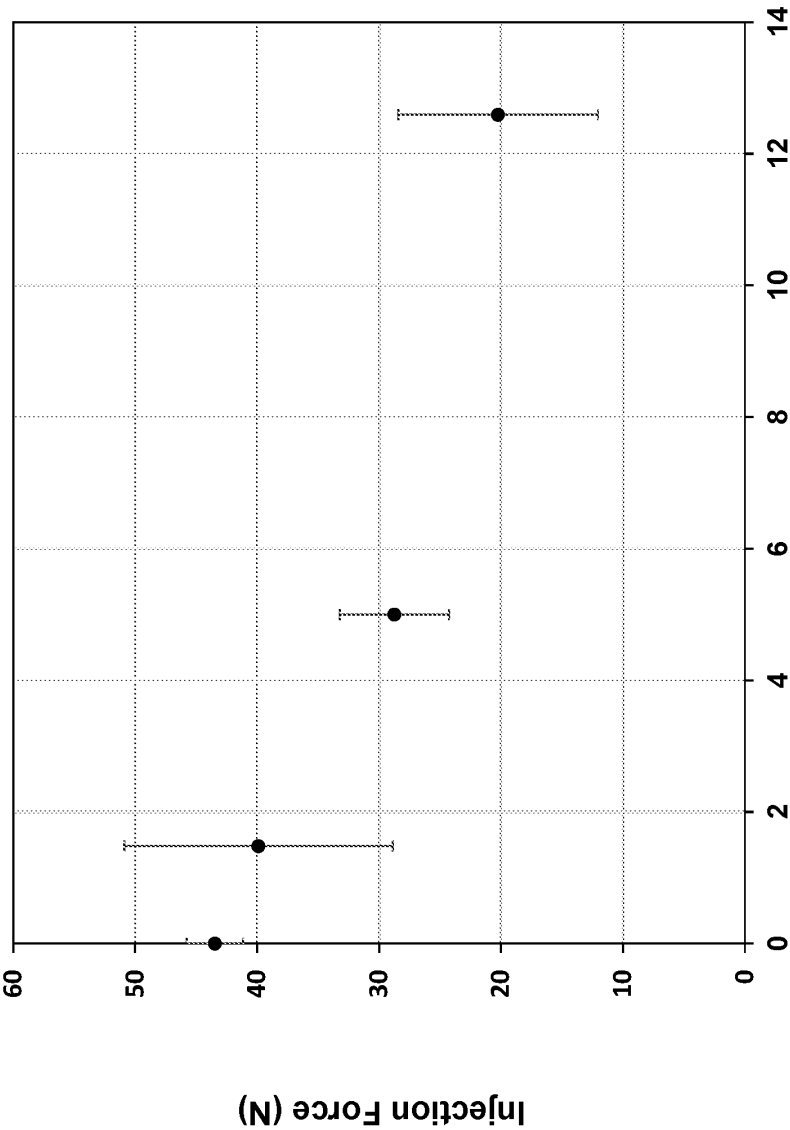


Fig. 55C

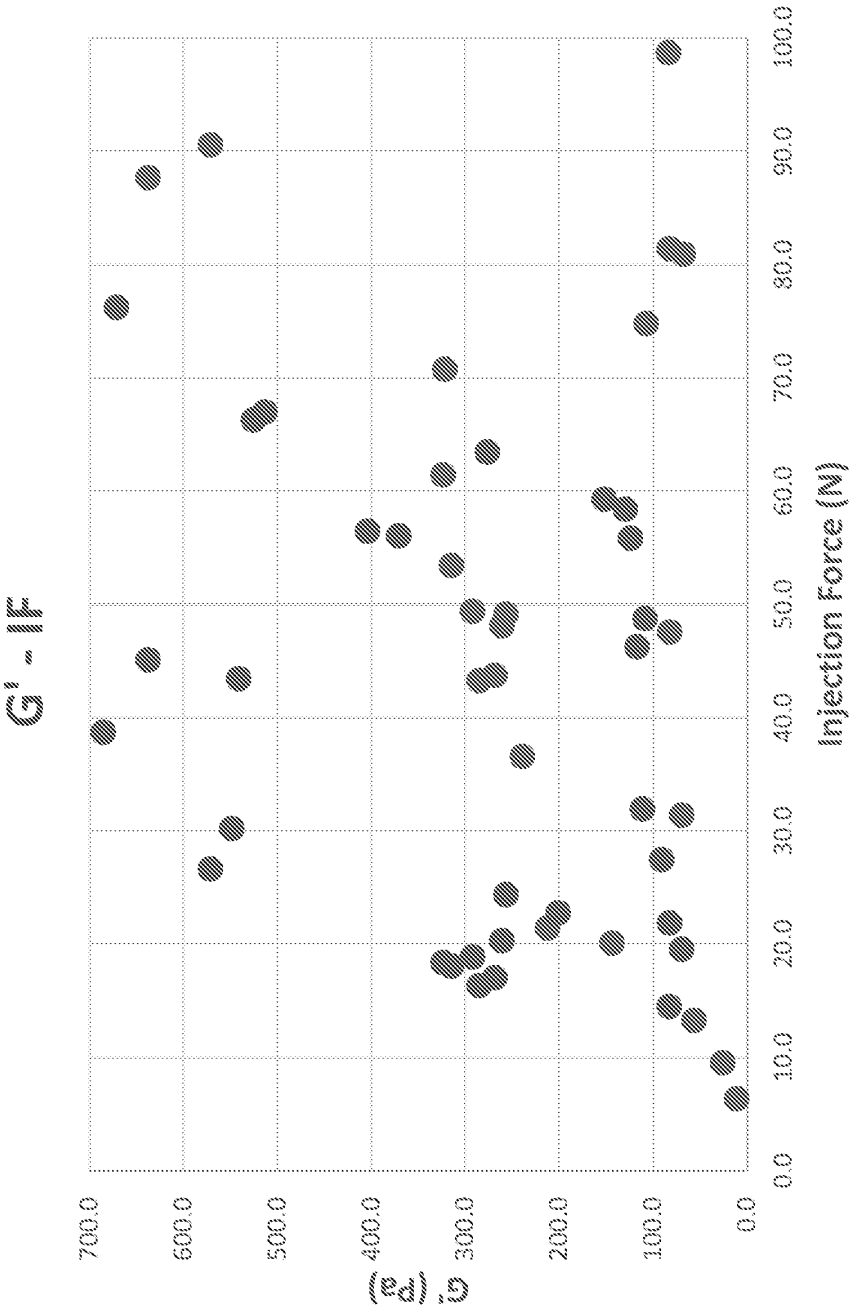


Fig. 56

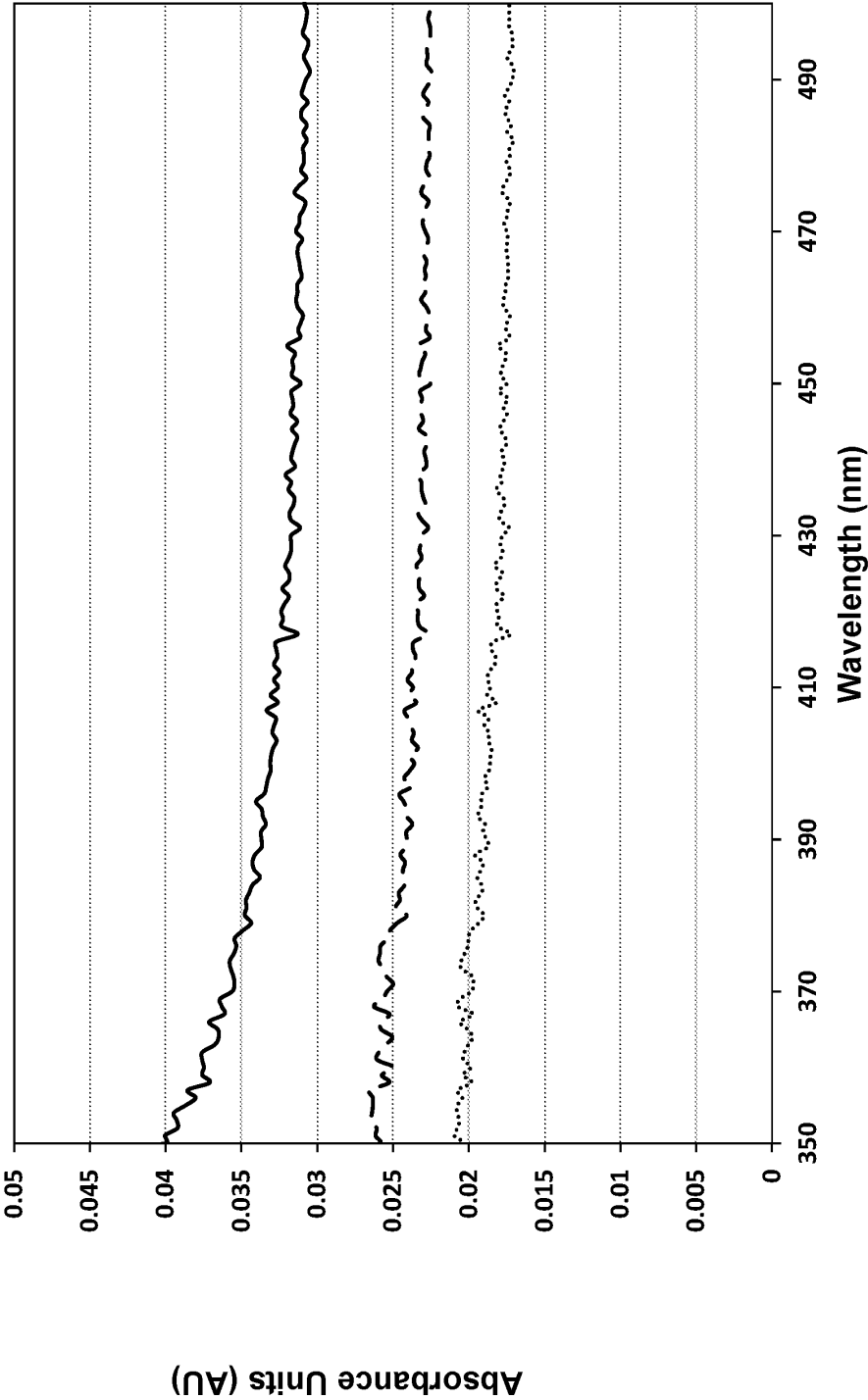


Fig. 57

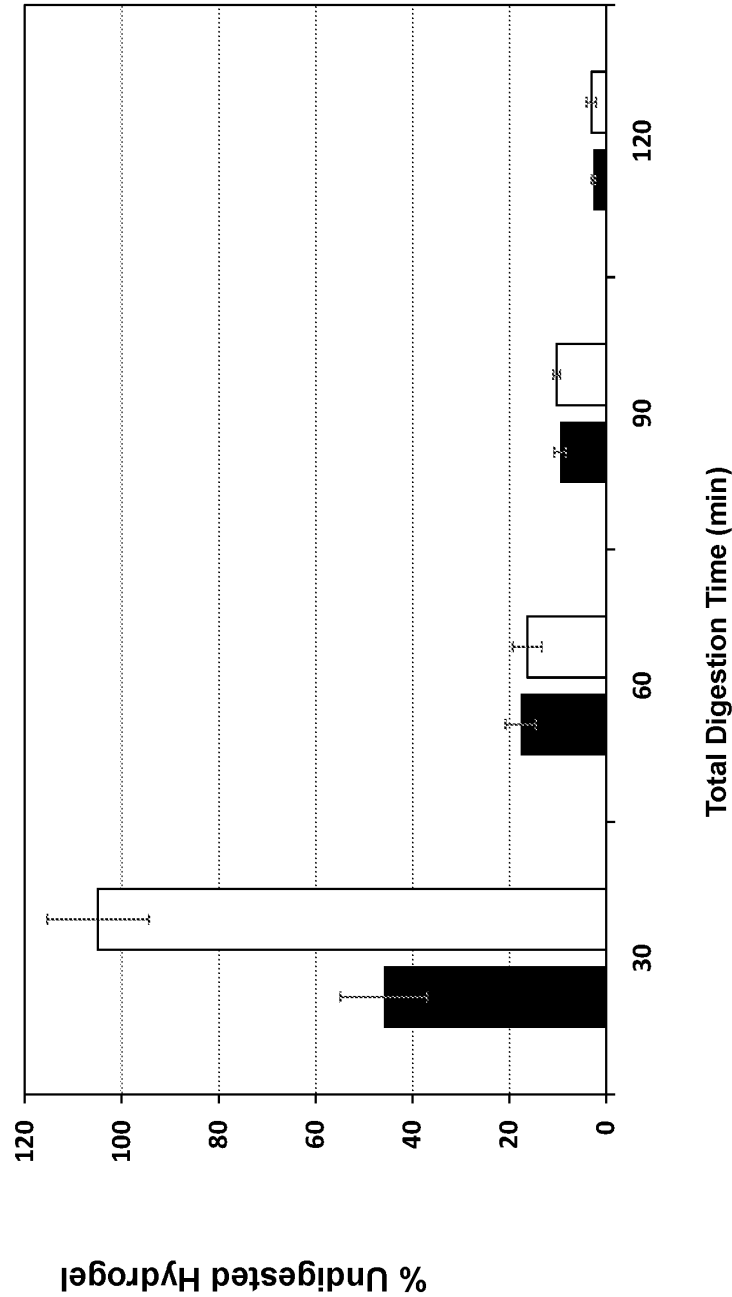


Fig. 58A

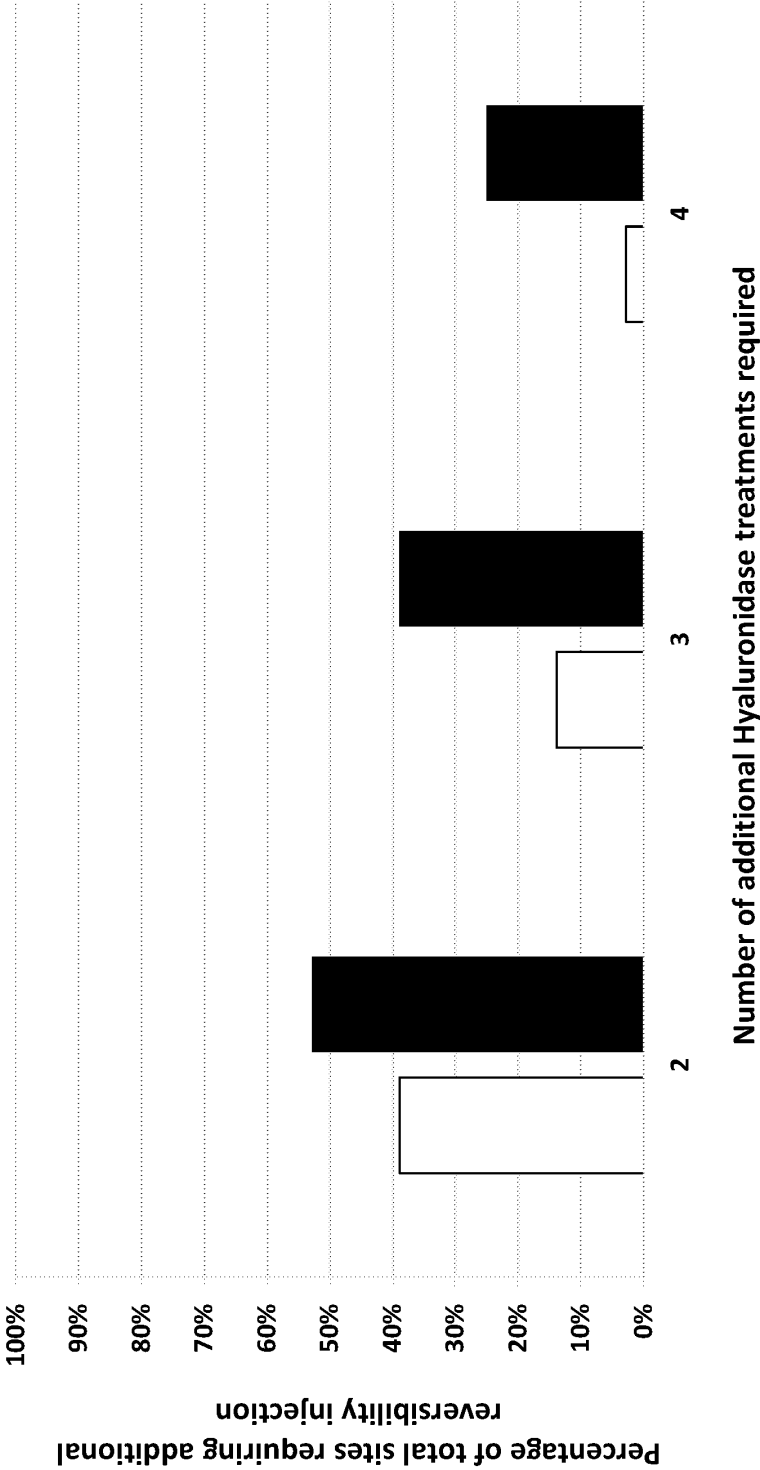


Fig. 58B

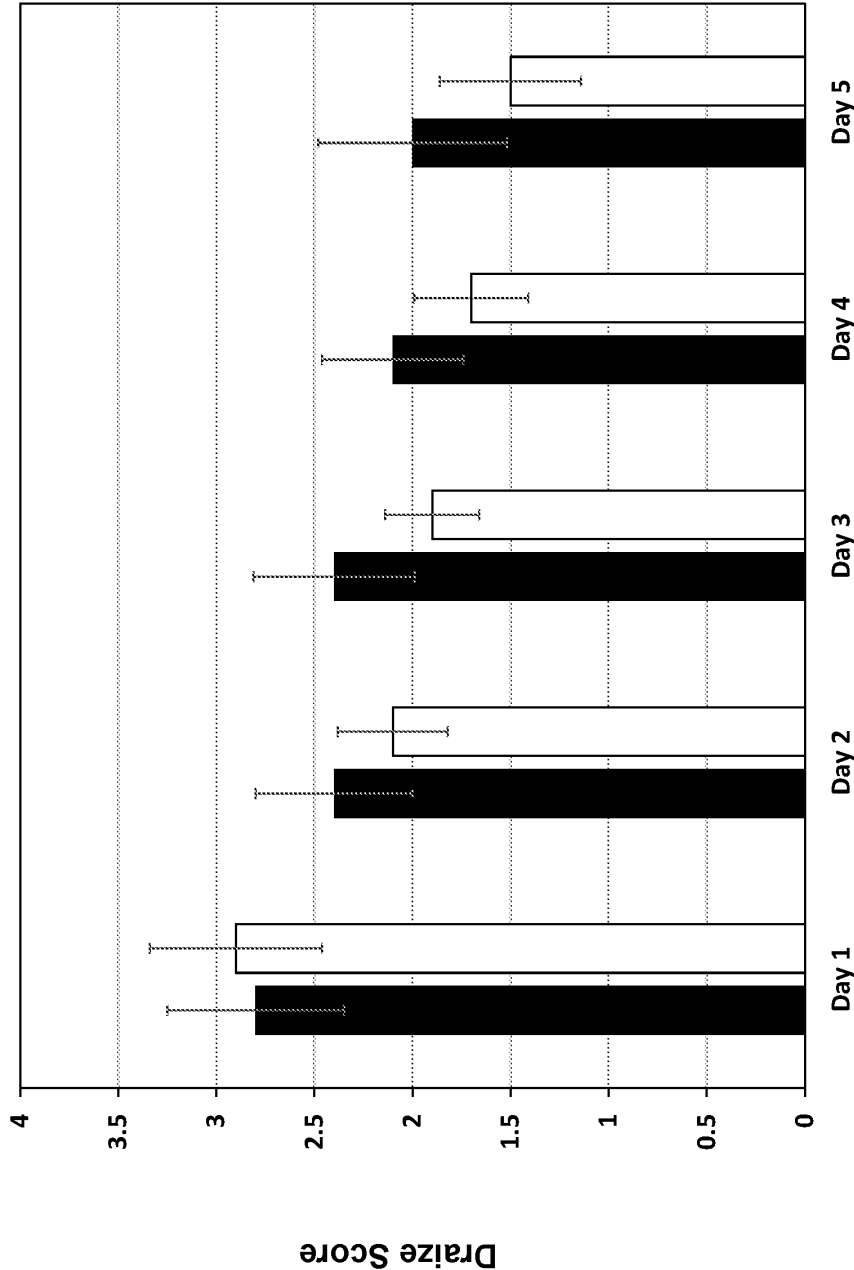


Fig. 59

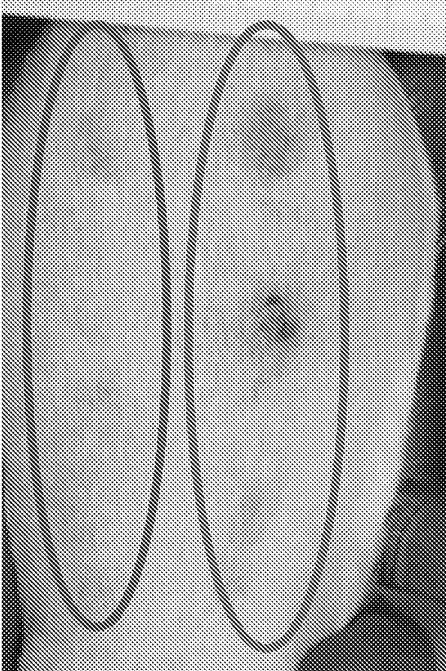


Fig. 60B

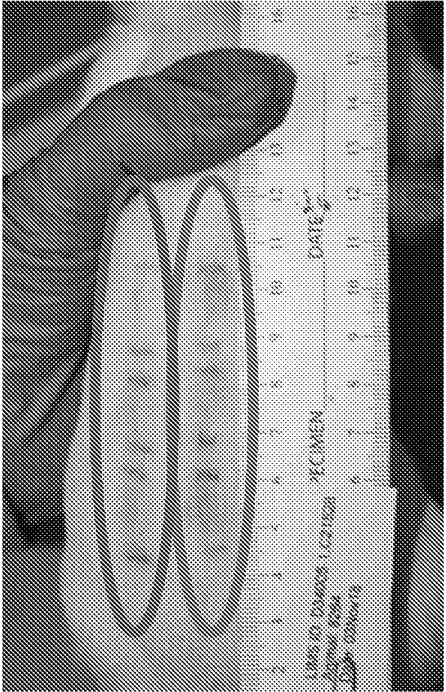


Fig. 60A

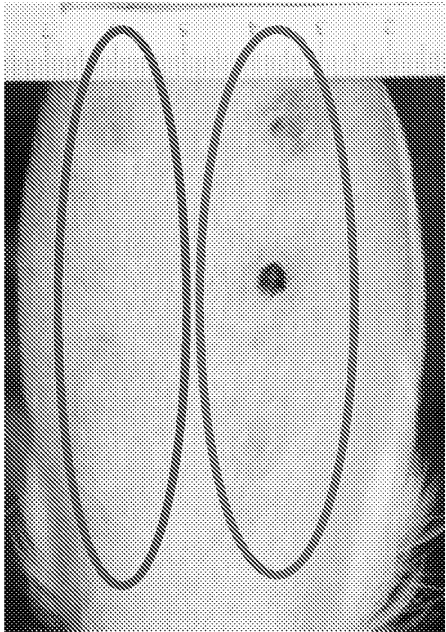


Fig. 60D

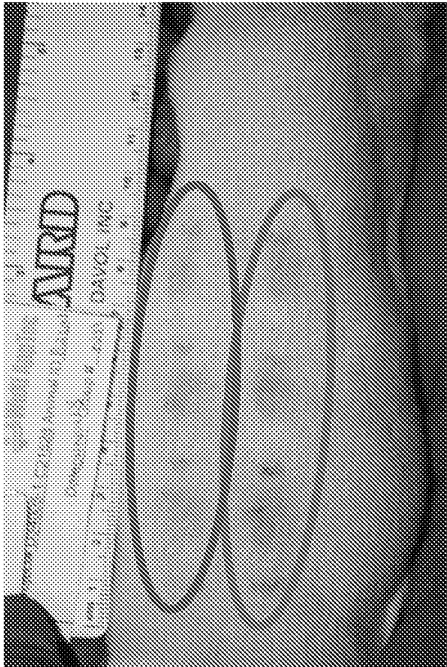


Fig. 60C

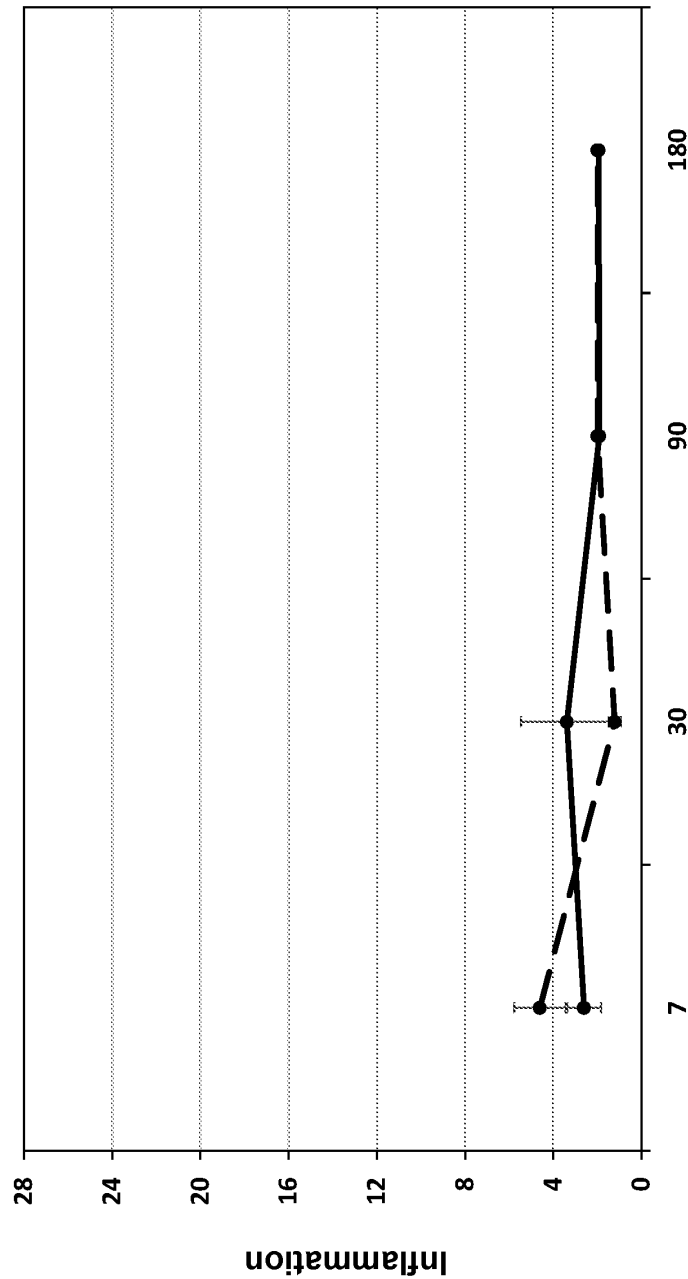


Fig. 61A

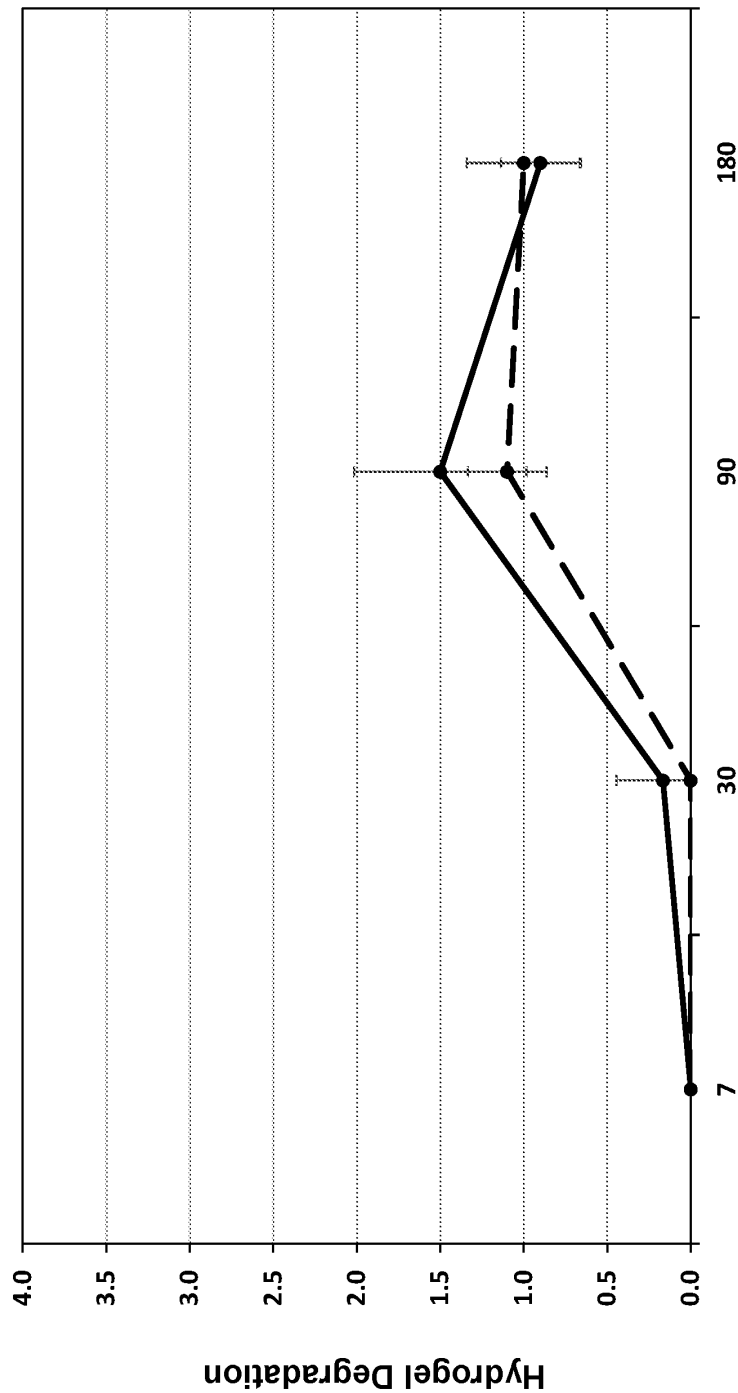


Fig. 61B

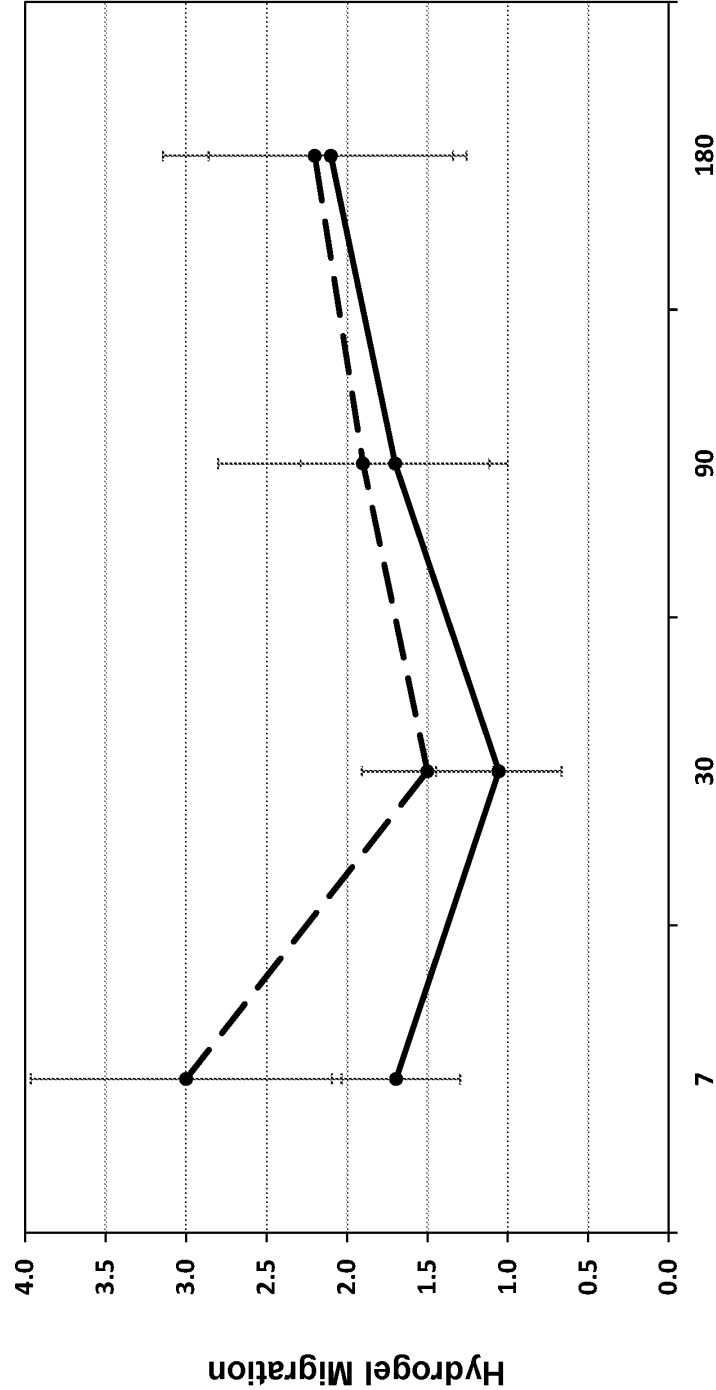


Fig. 61C

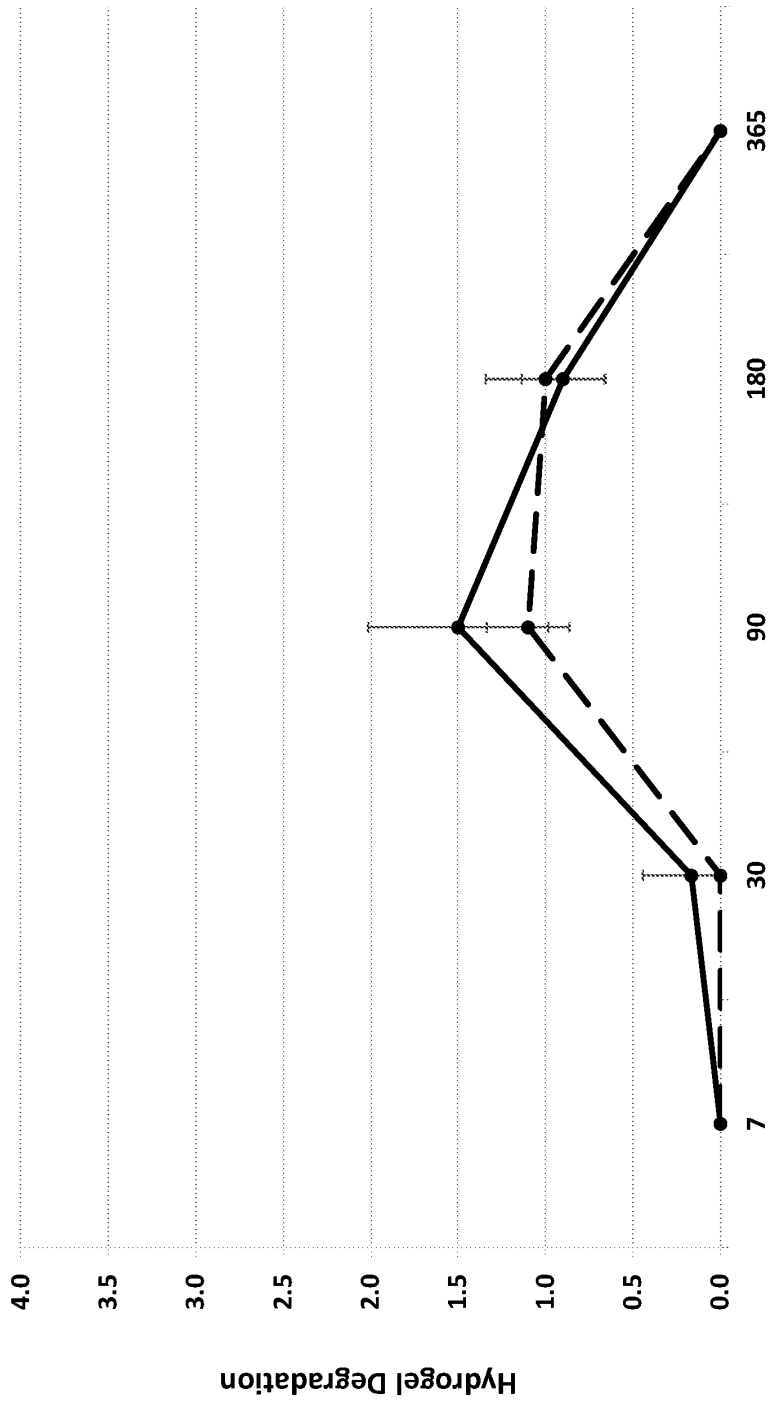


Fig. 61D

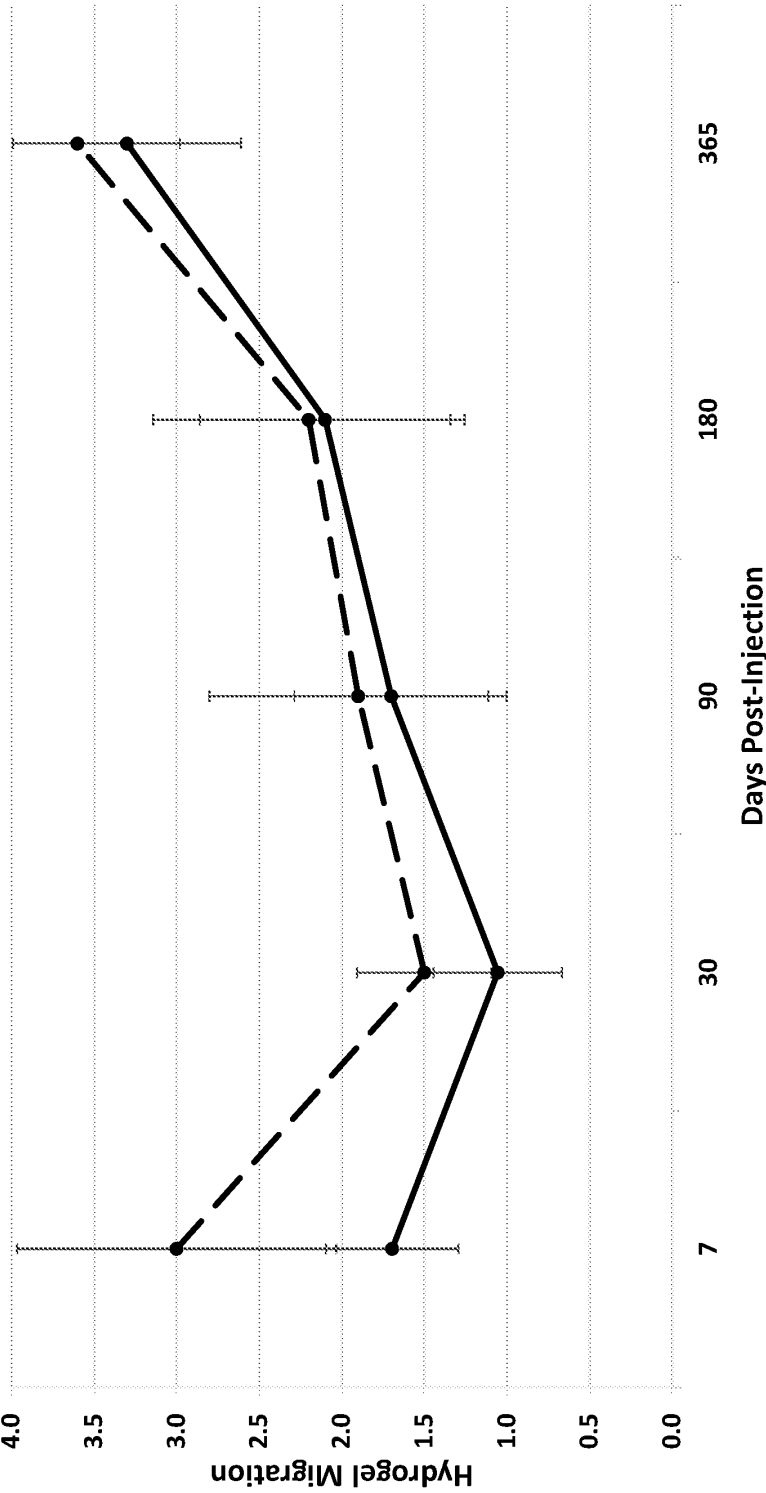


Fig. 61E

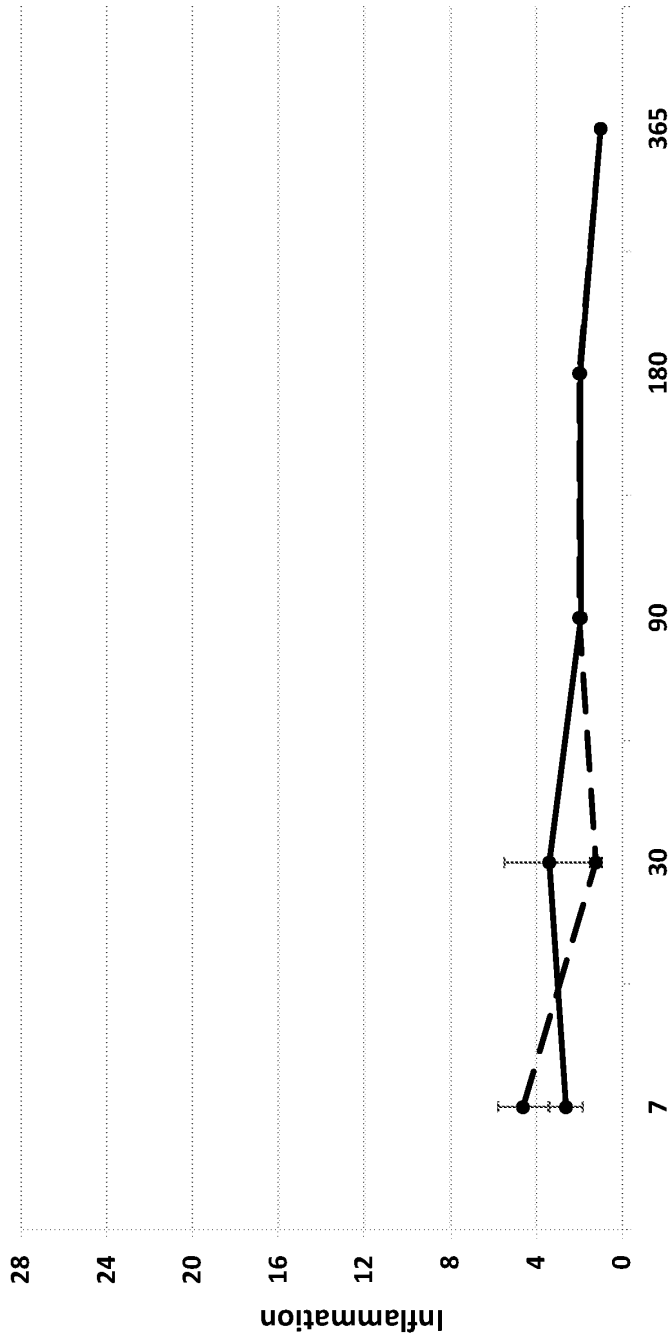
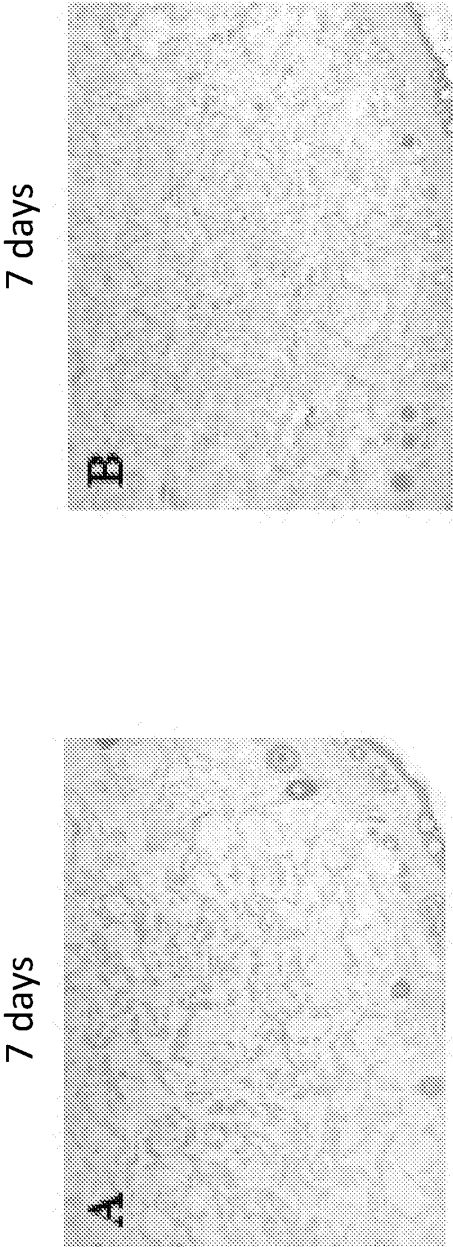
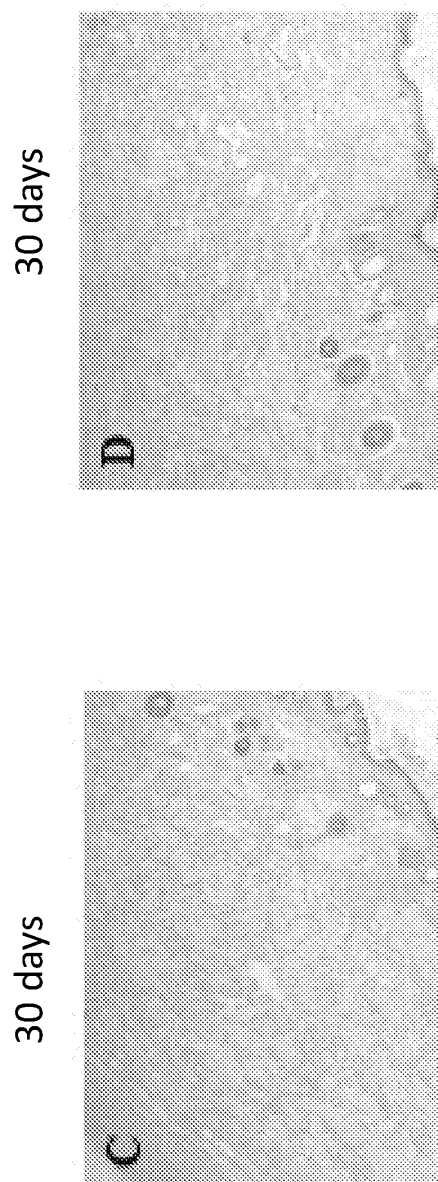


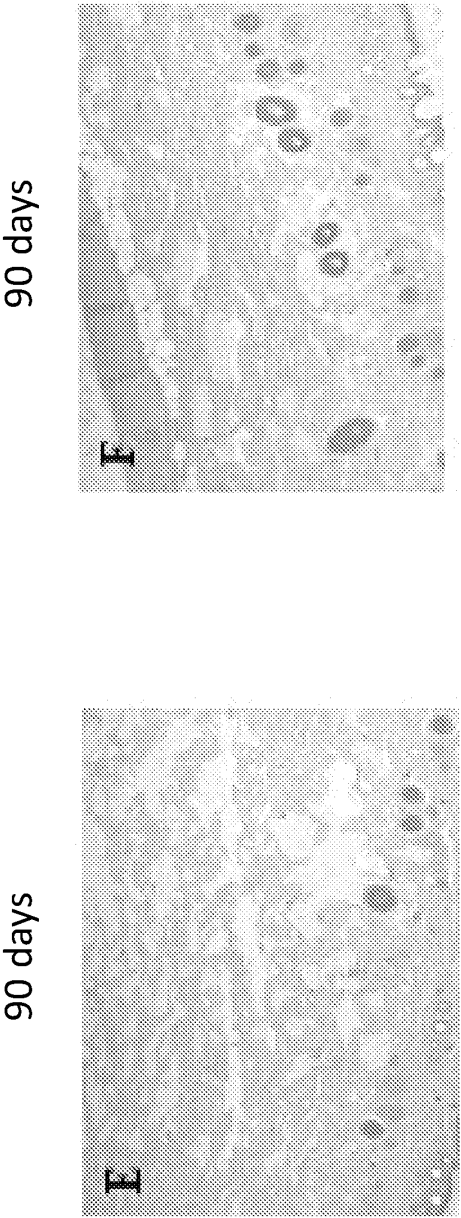
Fig. 61F



Figs. 62A-B



Figs. 62C-D

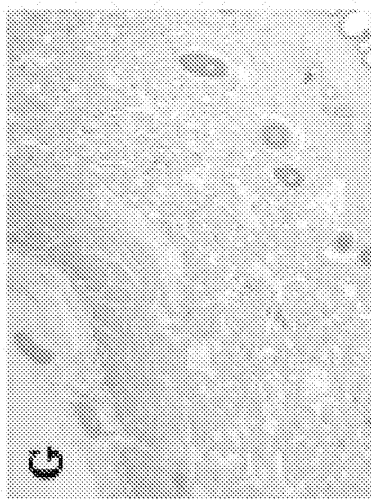


Figs. 62E-F

180 days



180 days



Figs. 62G-H

365 days



365 days



Figs. 62I-J

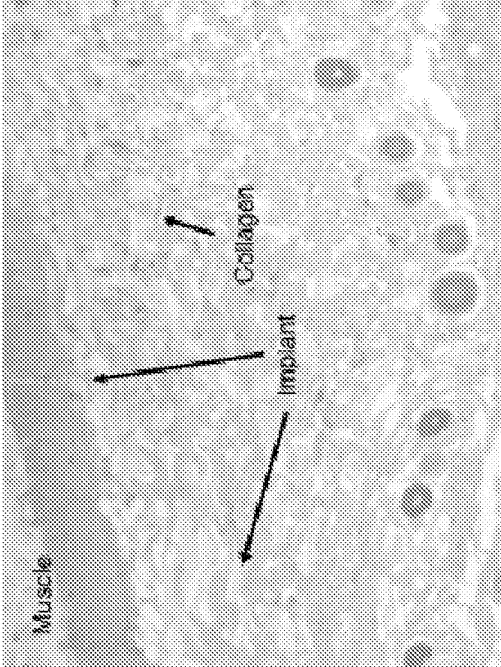


Fig. 63B

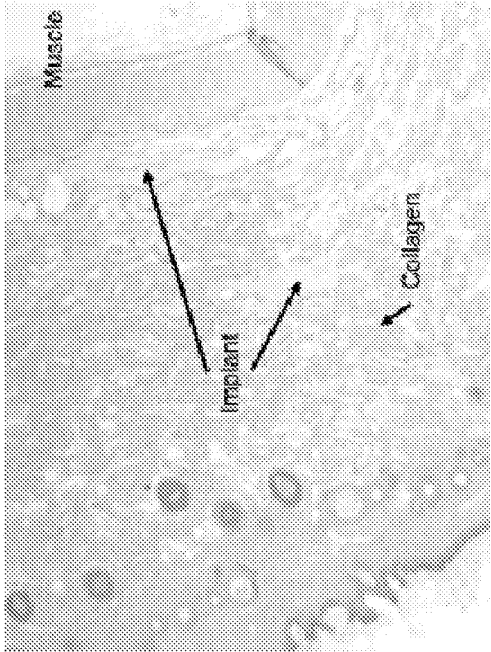


Fig. 63A

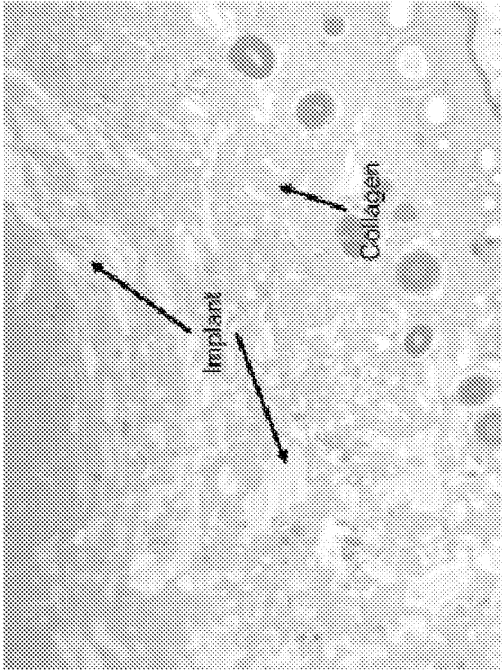


Fig. 63D

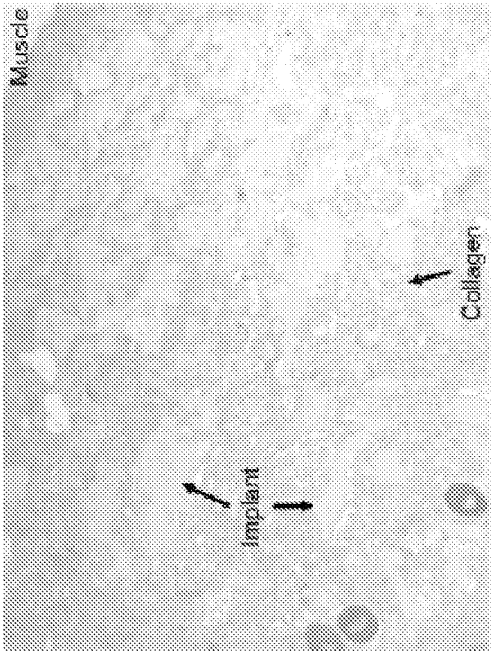


Fig. 63C

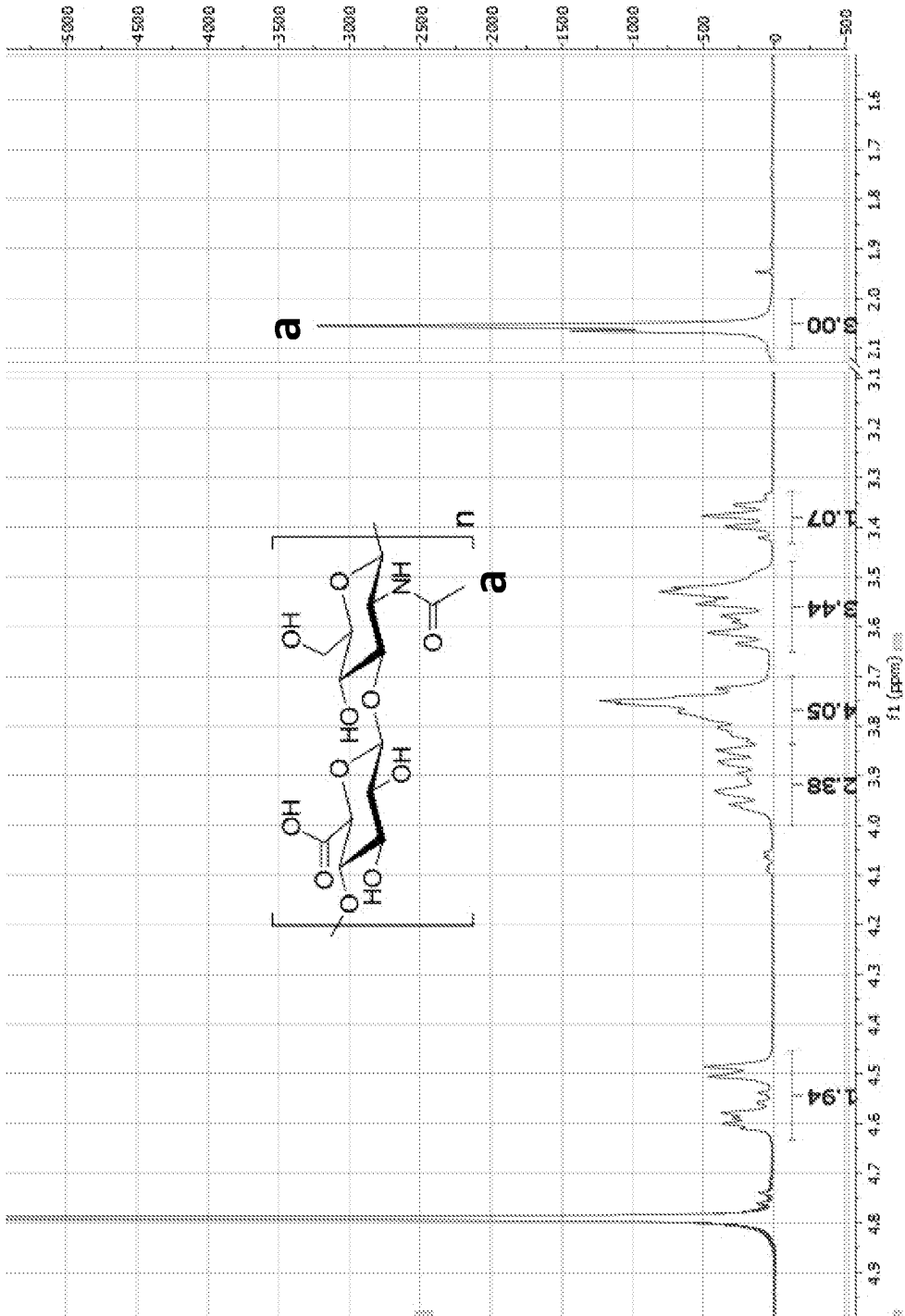


Fig. 64

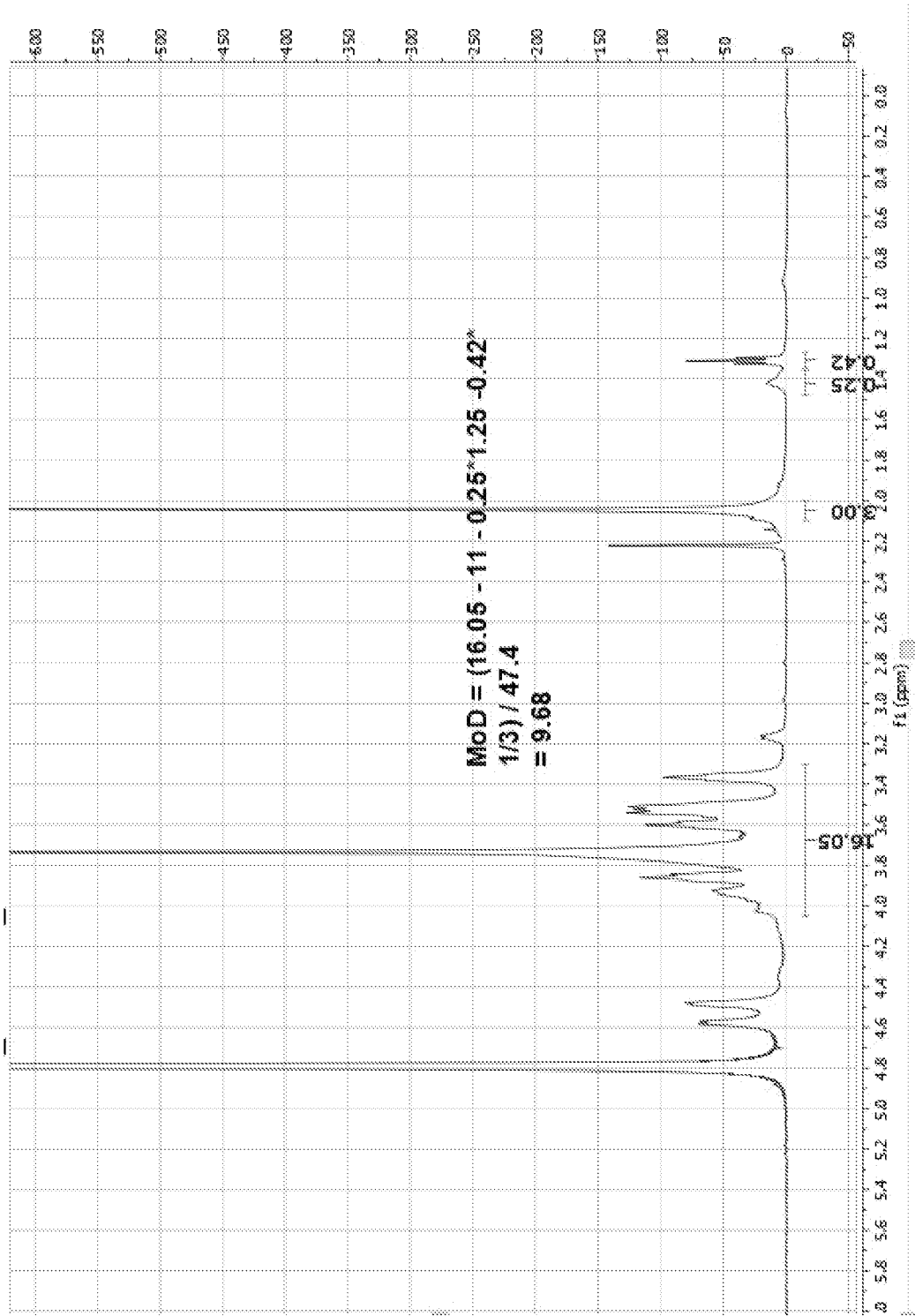


Fig. 65