Figure 1

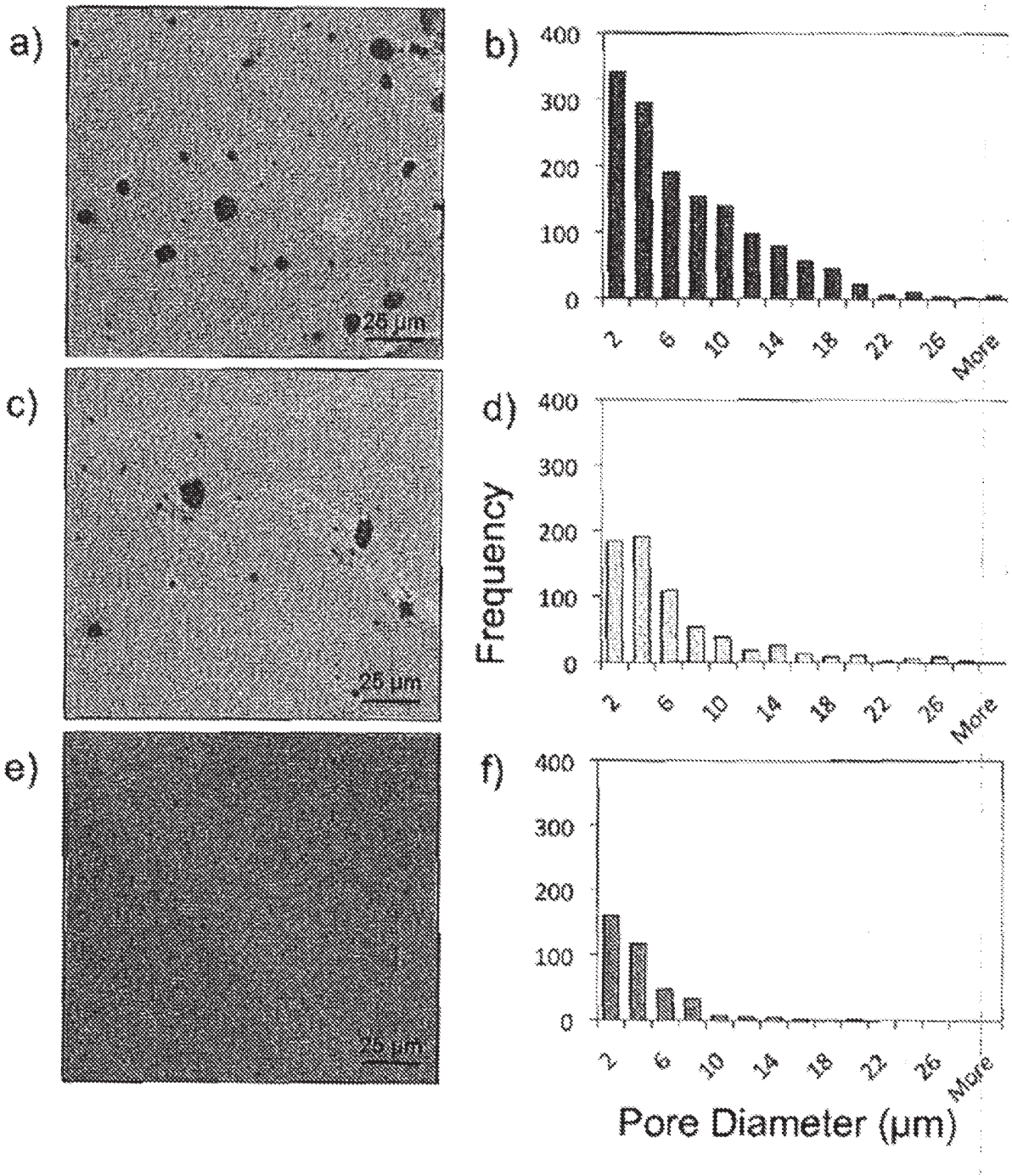

a)
25 µm
b)
400
300
200
100
0
2
6
10
14
18
22
26
More
c)
25 µm
d)
Frequency
e)
25 µm
f)
Pore Diameter (µm)

Figure 2

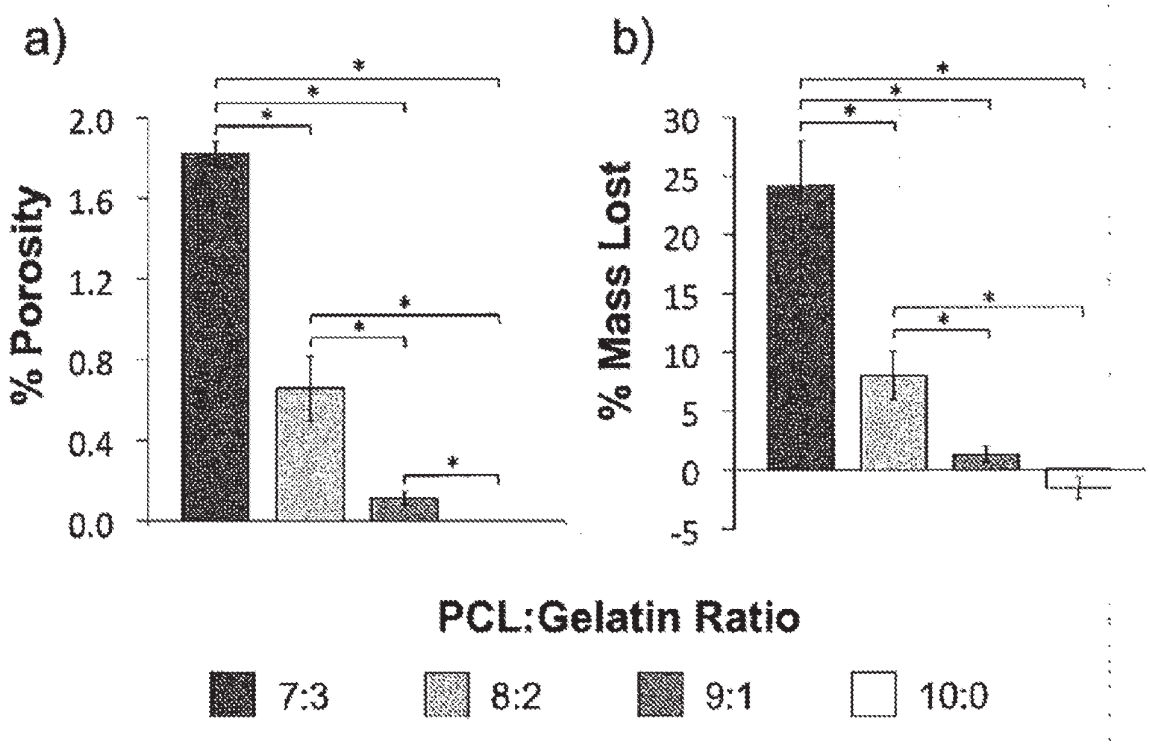

a)
b)
% Porosity
2.0
1.6
1.2
0.8
0.4
0.0
% Mass Lost
30
25
20
15
10
5
0
-5
*
PCL:Gelatin Ratio
7:3
8:2
9:1
10:0

Figure 3

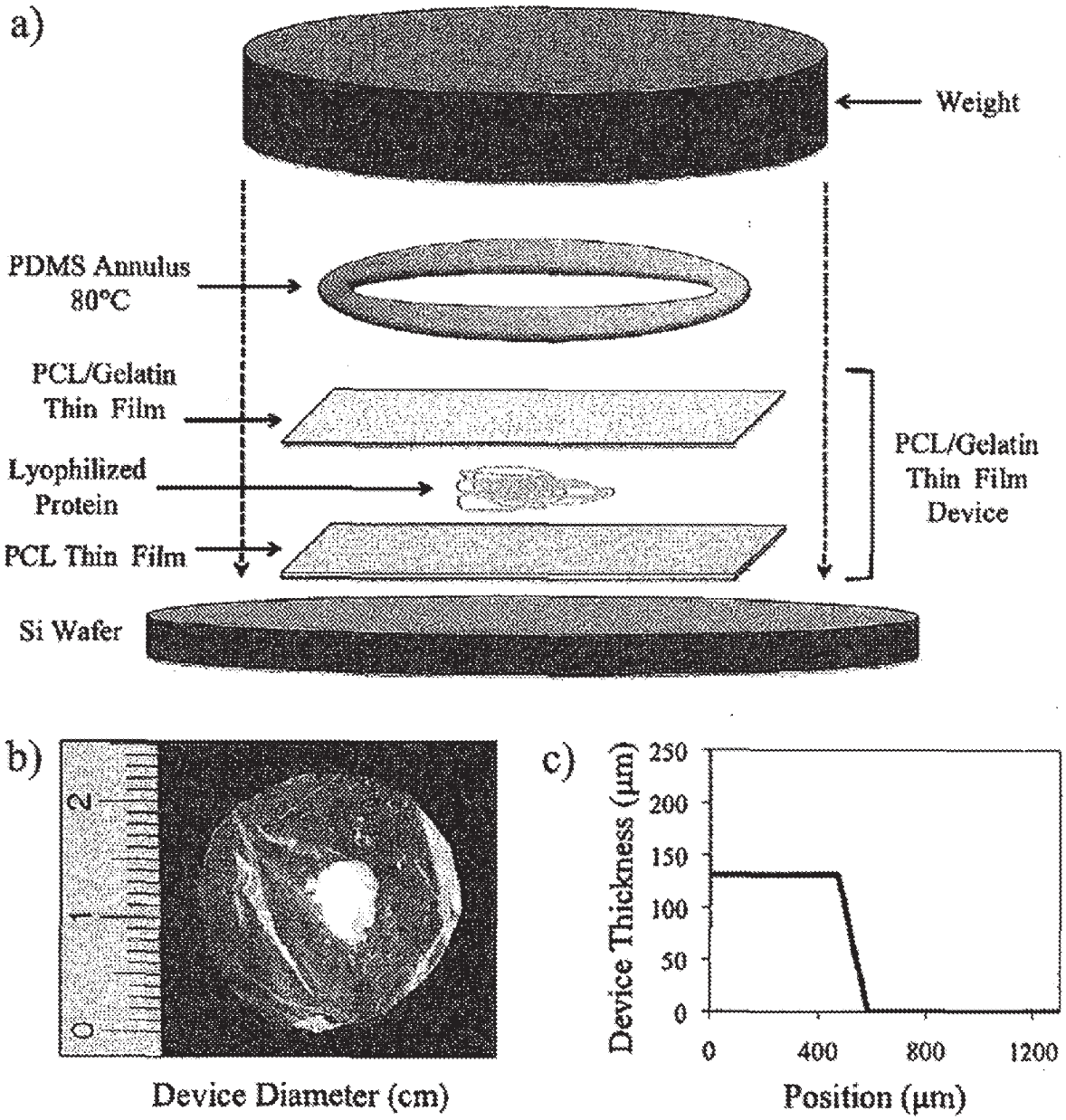

a)
Weight
PDMS Annulus
80°C
PCL/Gelatin
Thin Film
Lyophilized
Protein
PCL Thin Film
PCL/Gelatin
Thin Film
Device
Si Wafer
b)
2
1
0
Device Diameter (cm)
c)
Device Thickness (μm)
250
200
150
100
50
0
0
400
800
1200
Position (μm)

Figure 4

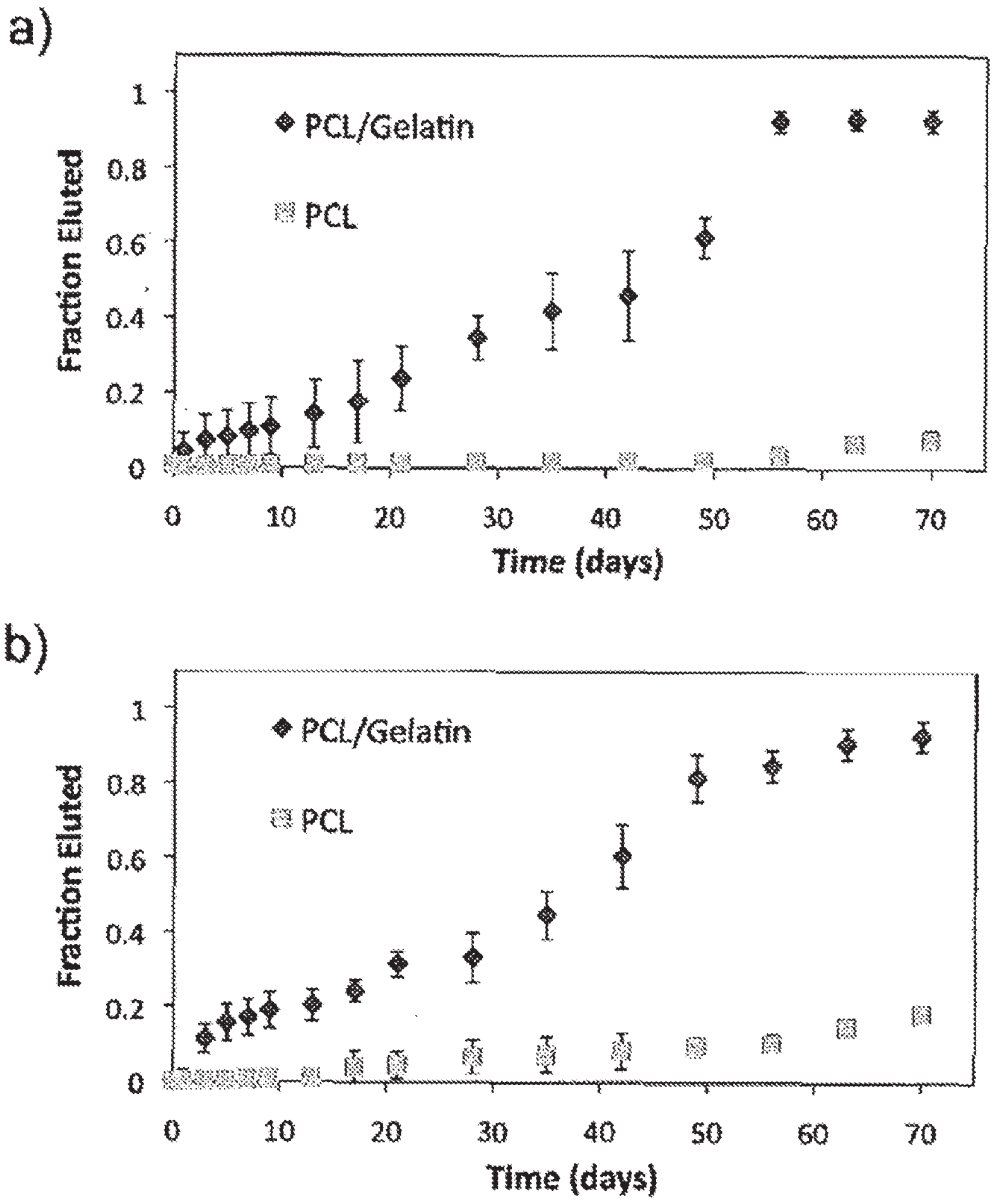

a)
PCL/Gelatin
PCL
Fraction Eluted
Time (days)
b)
PCL/Gelatin
PCL
Fraction Eluted
Time (days)

Figure 5

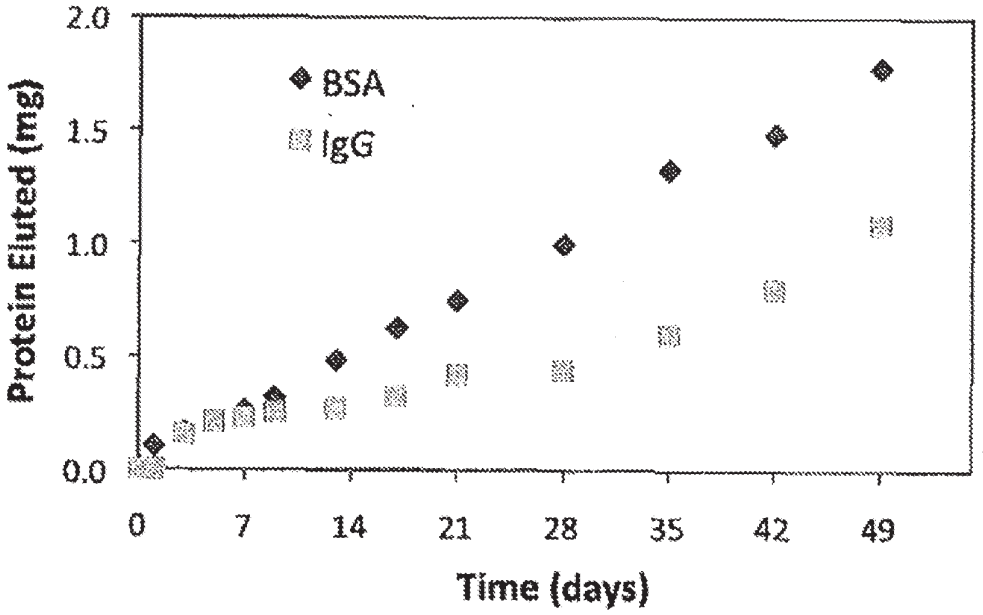

2.0
1.5
1.0
0.5
0.0
Protein Eluted (mg)
BSA
IgG
0
7
14
21
28
35
42
49
Time (days)

Figure 6A

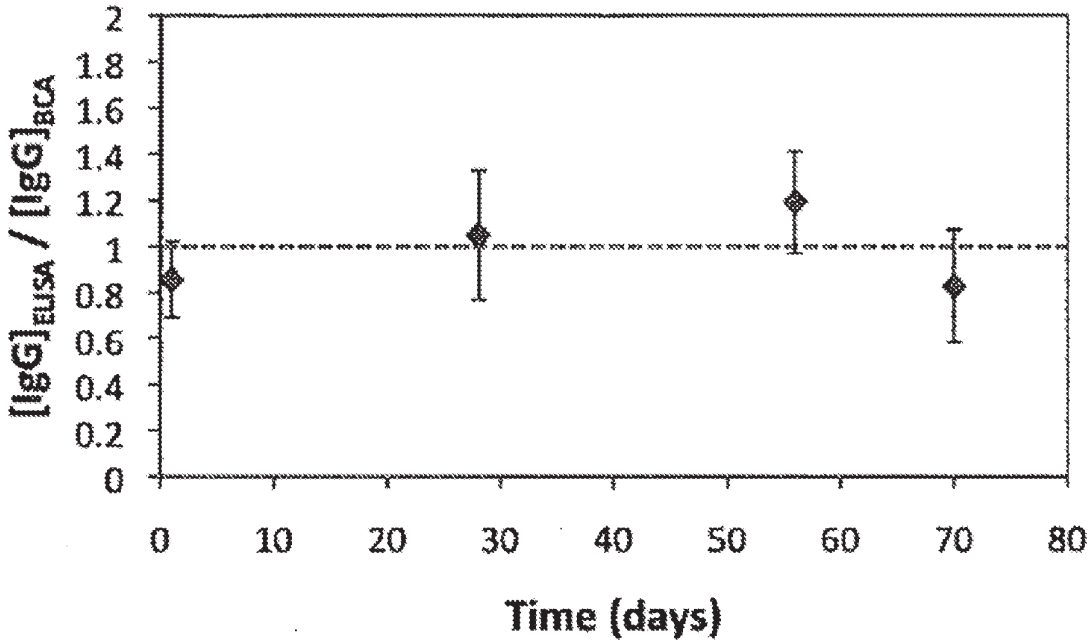


Figure 6B

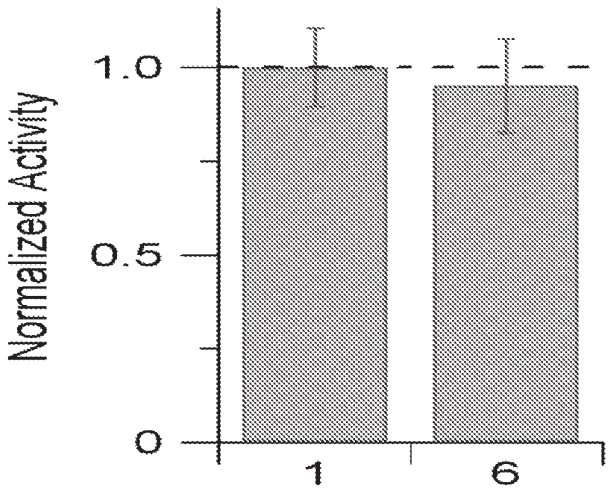


Figure 7

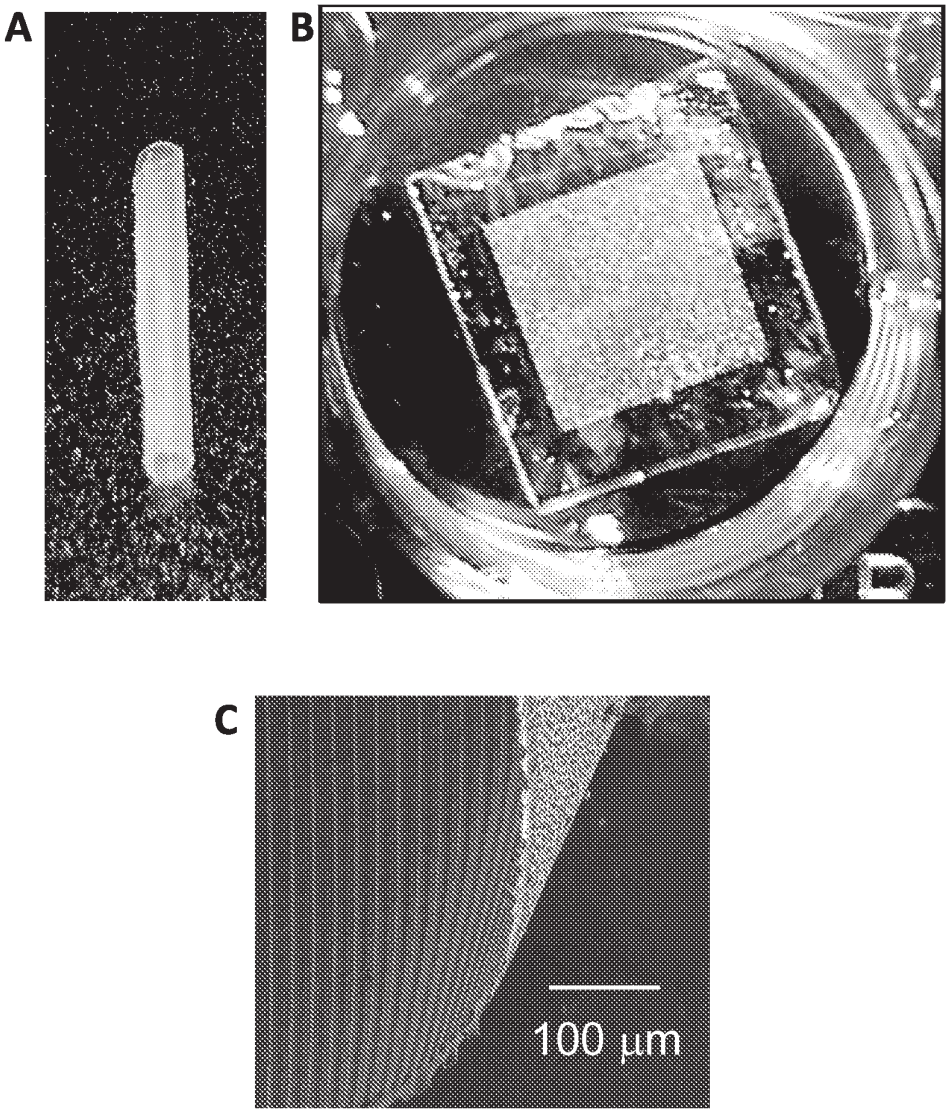


Figure 8

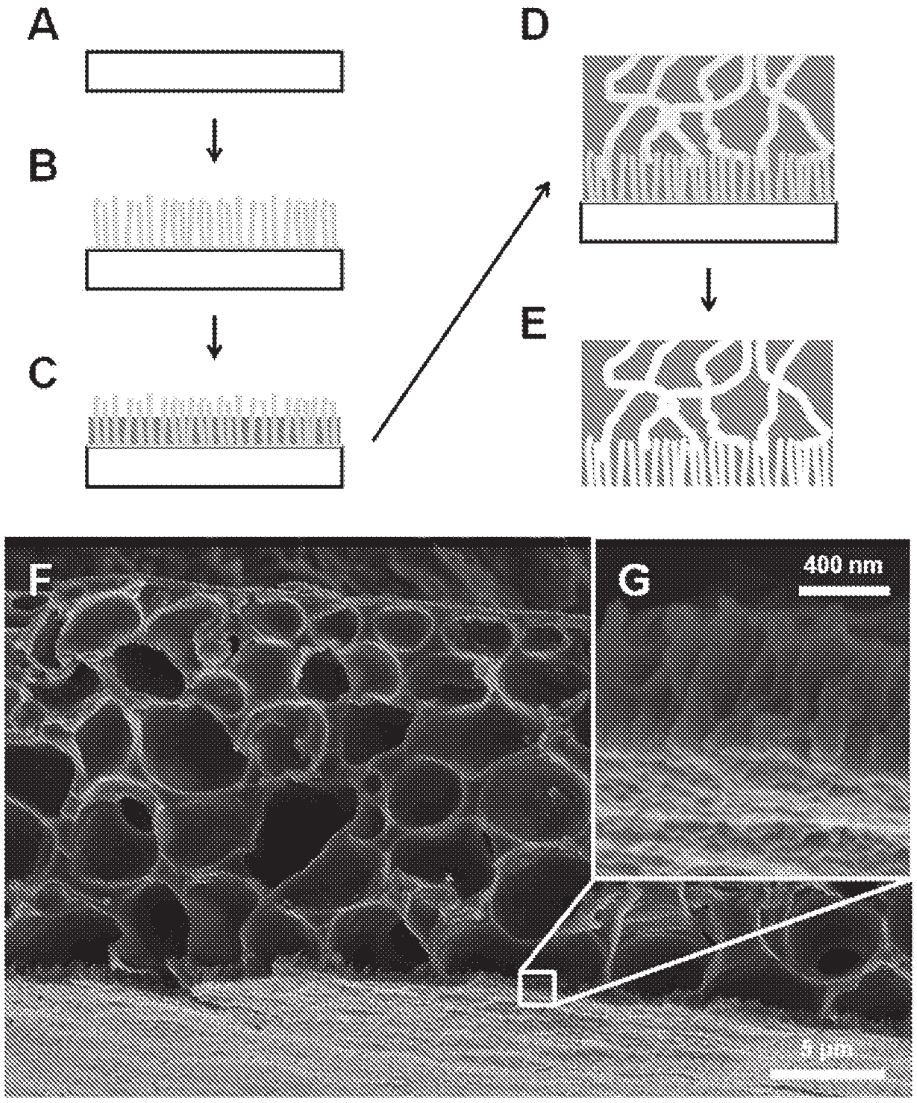


Figure 9

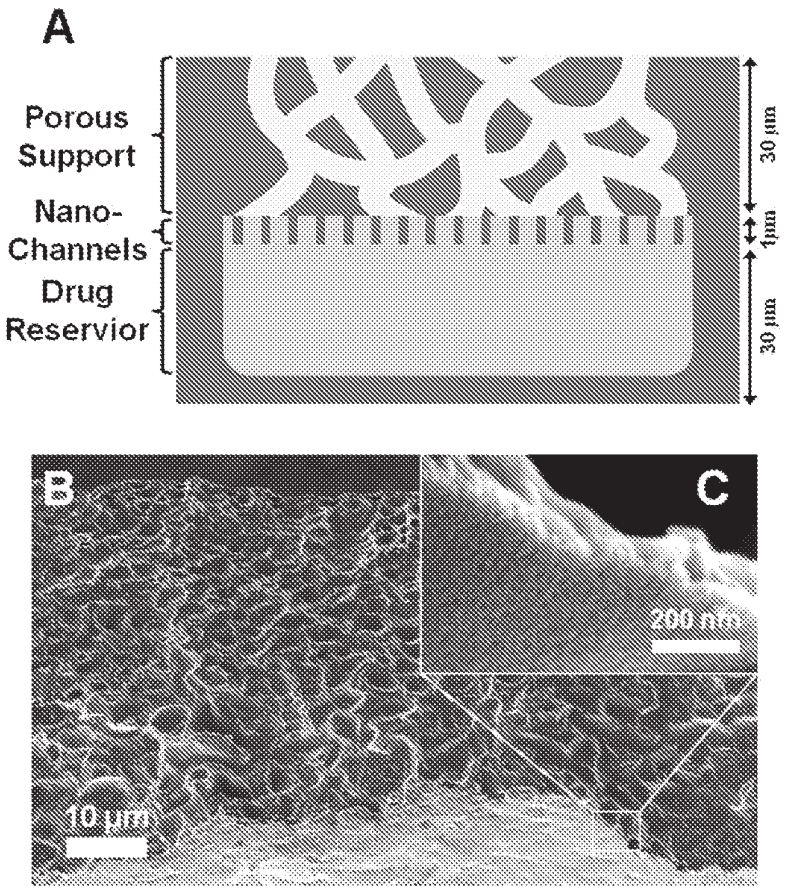
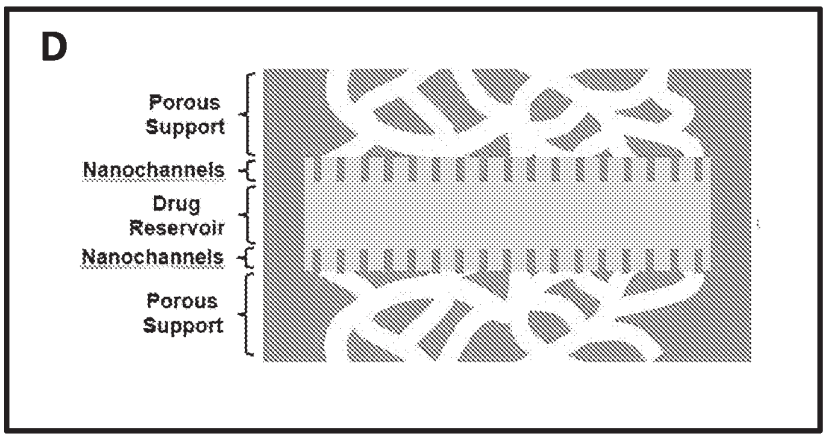

A
Porous Support
Nano-Channels
Drug Reservior
30 μm
1μm
30 μm
B
C
200 nm
10 μm

Figure 9


D
Porous Support
Nanochannels
Drug Reservoir
Nanochannels
Porous Support

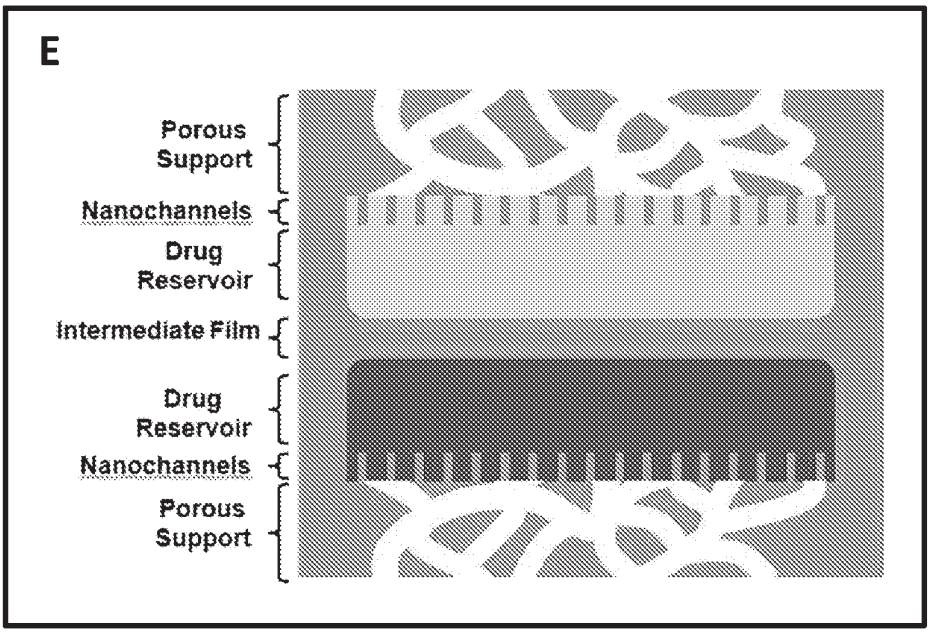
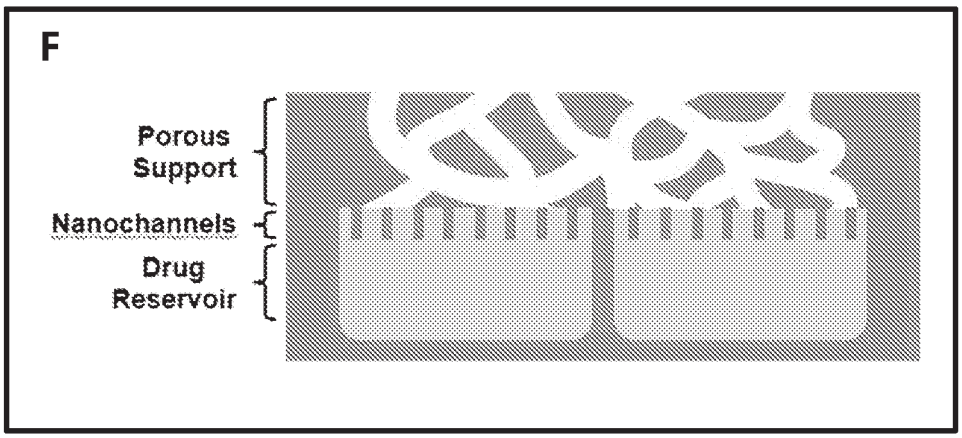

E
Porous Support
Nanochannels
Drug Reservoir
Intermediate Film
Drug Reservoir
Nanochannels
Porous Support

Figure 9


F
Porous Support
Nanochannels
Drug Reservoir

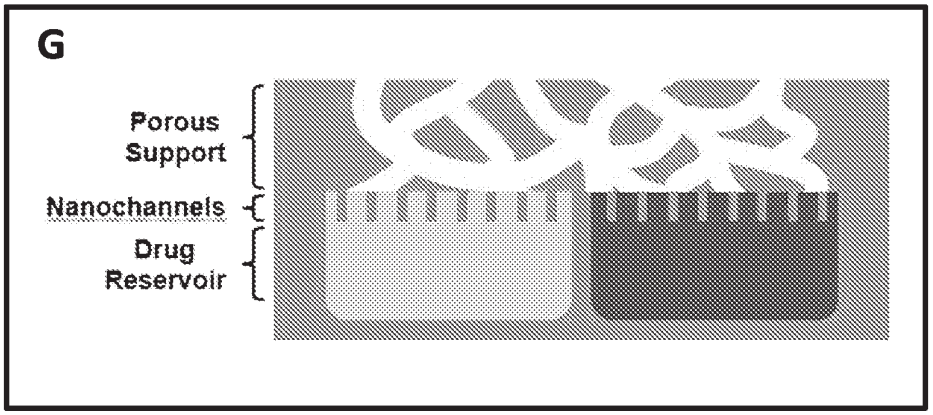

G
Porous Support
Nanochannels
Drug Reservoir

Figure 10

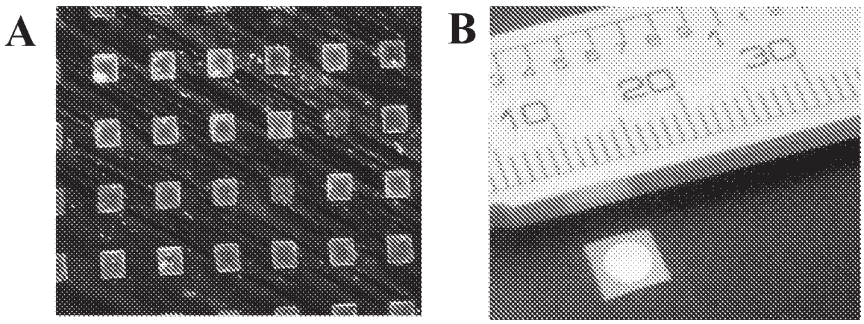


Figure 11A

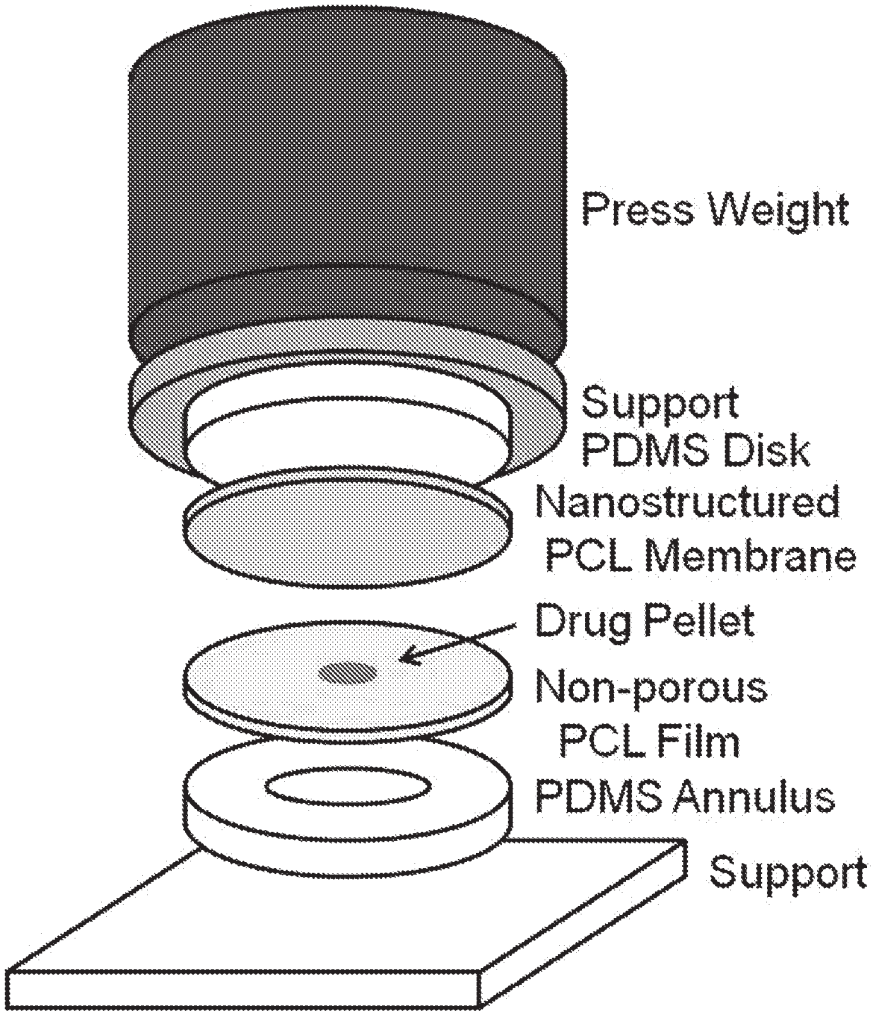

Press Weight
Support
PDMS Disk
Nanostructured
PCL Membrane
Drug Pellet
Non-porous
PCL Film
PDMS Annulus
Support

Figure 11B

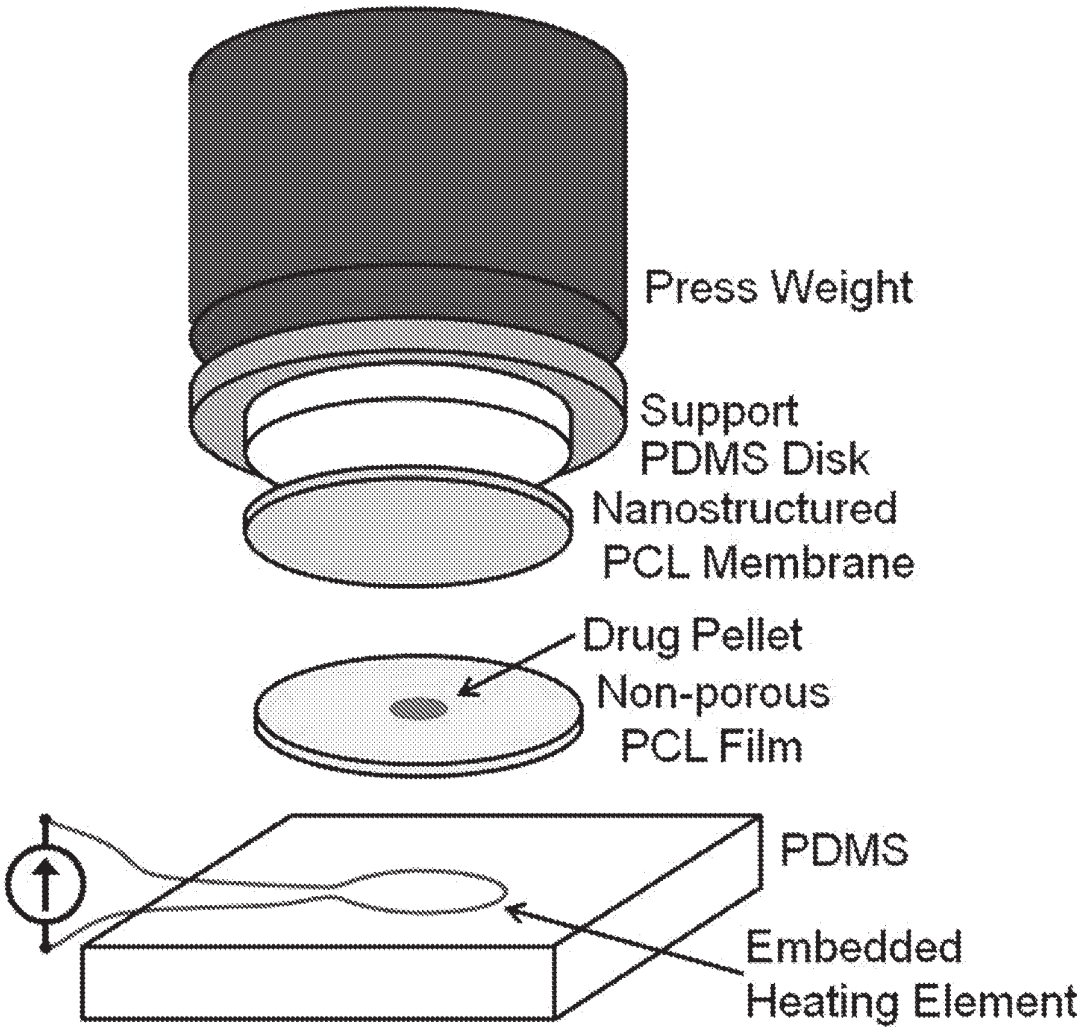

Press Weight
Support
PDMS Disk
Nanostructured
PCL Membrane
Drug Pellet
Non-porous
PCL Film
PDMS
Embedded
Heating Element

Figure 11C

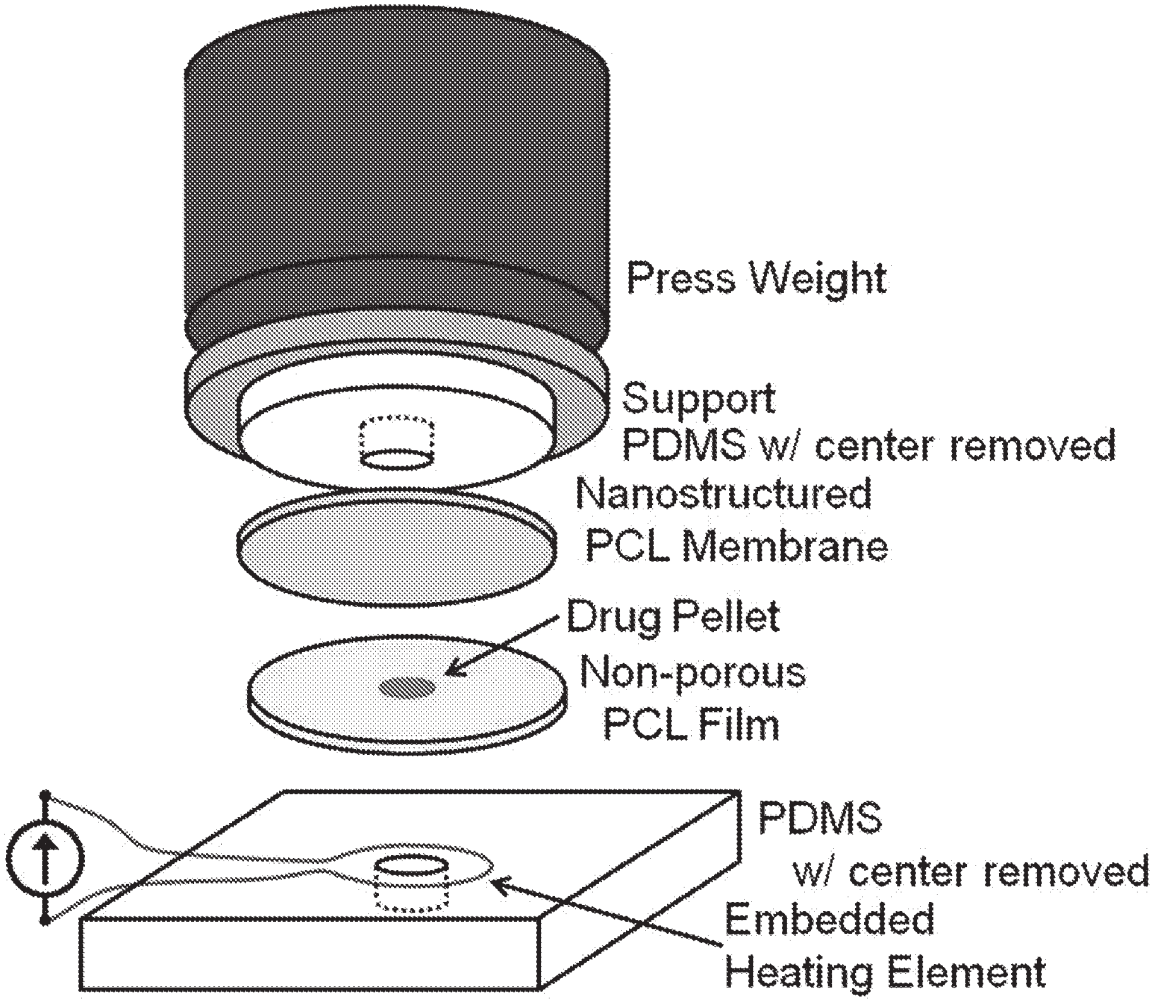

Press Weight
Support
PDMS w/ center removed
Nanostructured
PCL Membrane
Drug Pellet
Non-porous
PCL Film
PDMS
w/ center removed
Embedded
Heating Element

Figure 12

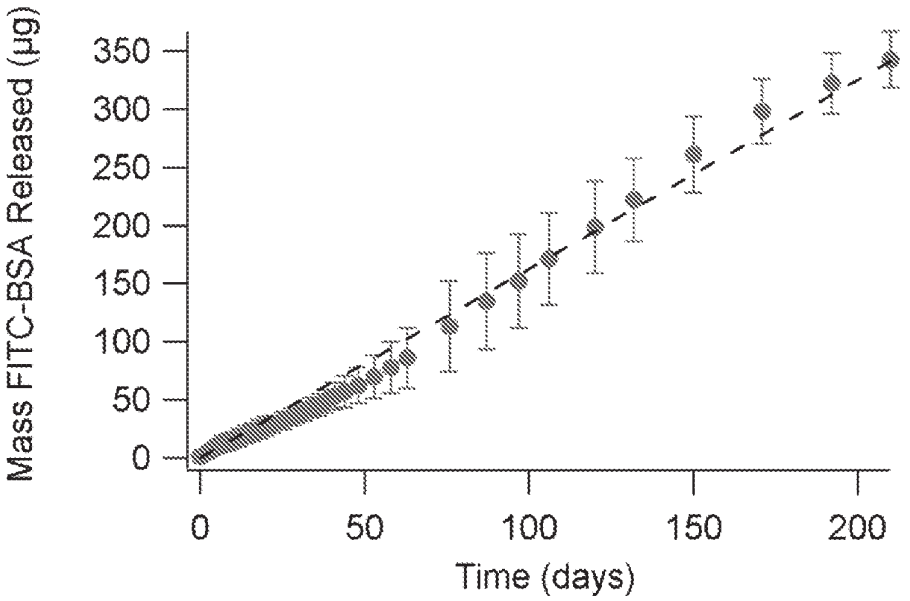
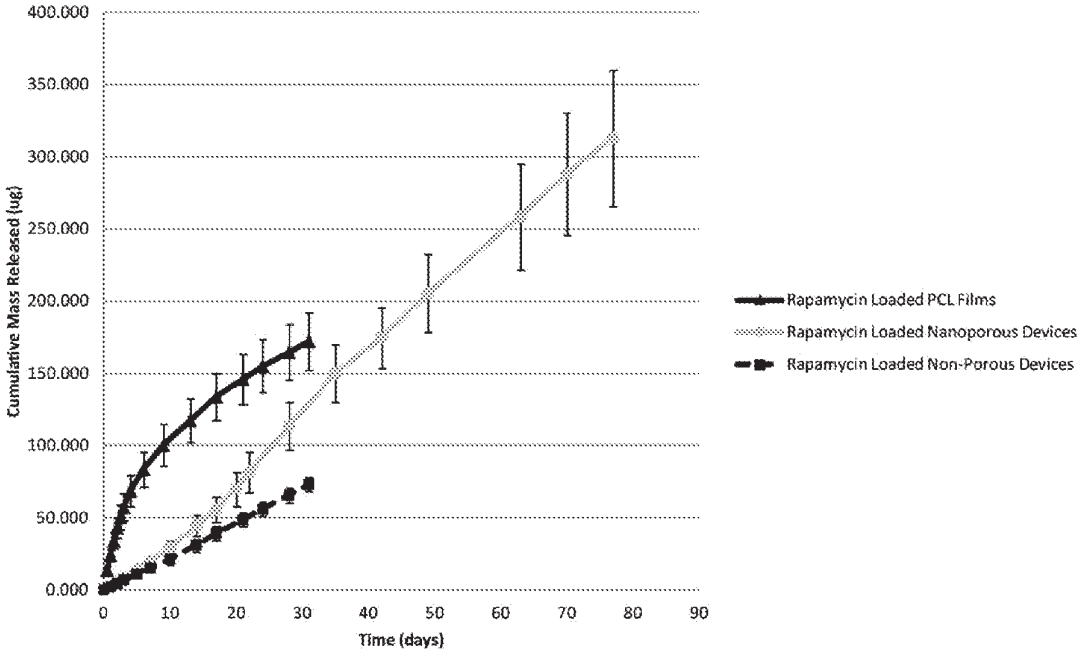

Mass FITC-BSA Released (µg)
350
300
250
200
150
100
50
0
0
50
100
150
200
Time (days)

Figure 13


400.000
350.000
300.000
250.000
200.000
150.000
100.000
50.000
0.000
Cumulative Mass Released (ug)
0
10
20
30
40
50
60
70
80
90
Time (days)
Rapamycin Loaded PCL Films
Rapamycin Loaded Nanoporous Devices
Rapamycin Loaded Non-Porous Devices