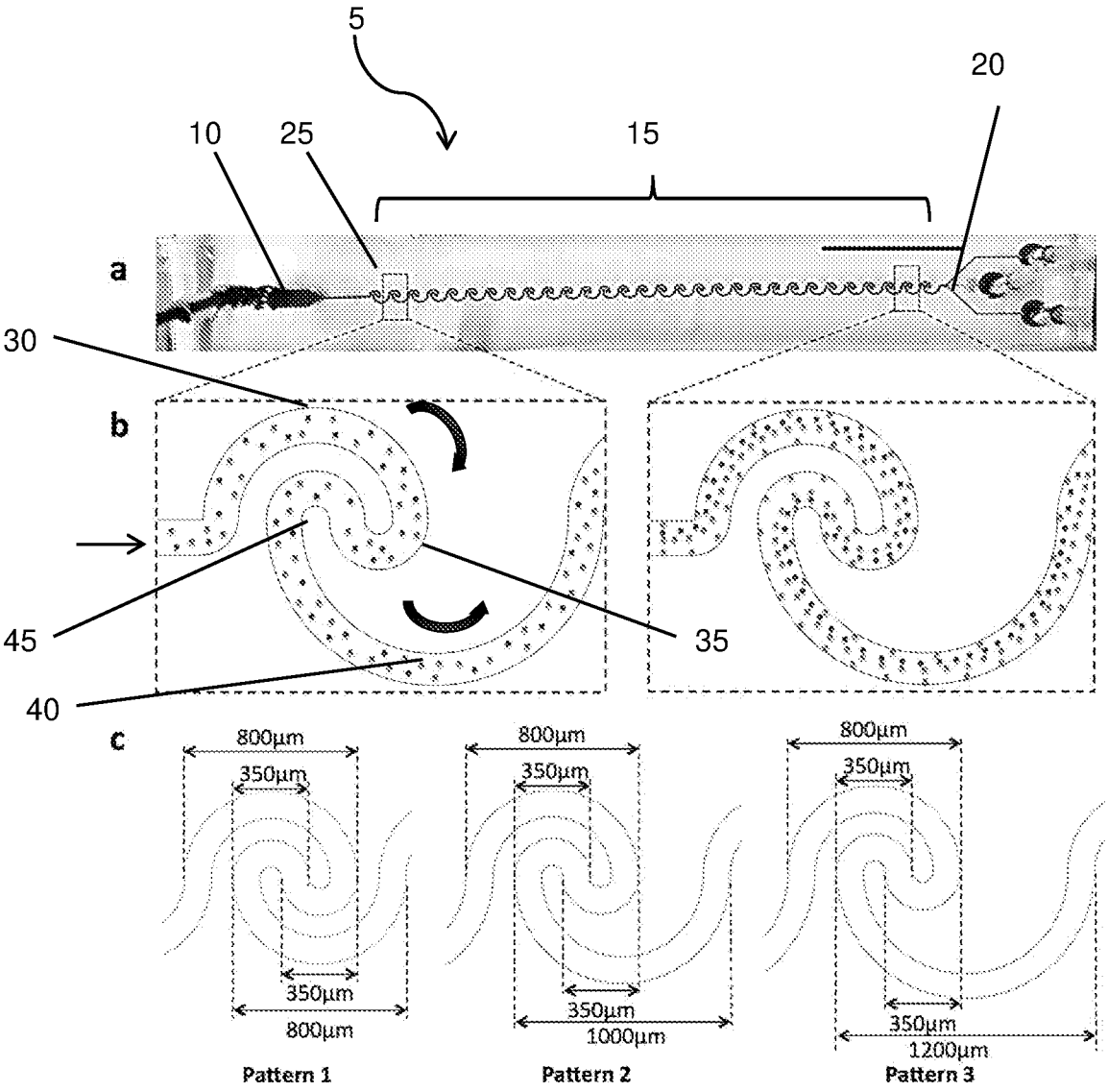

5
20
10
25
15
a
30
b
45
35
40
c
800µm
350µm
350µm
800µm
Pattern 1
800µm
350µm
350µm
1000µm
Pattern 2
800µm
350µm
350µm
1200µm
Pattern 3

Figure 1

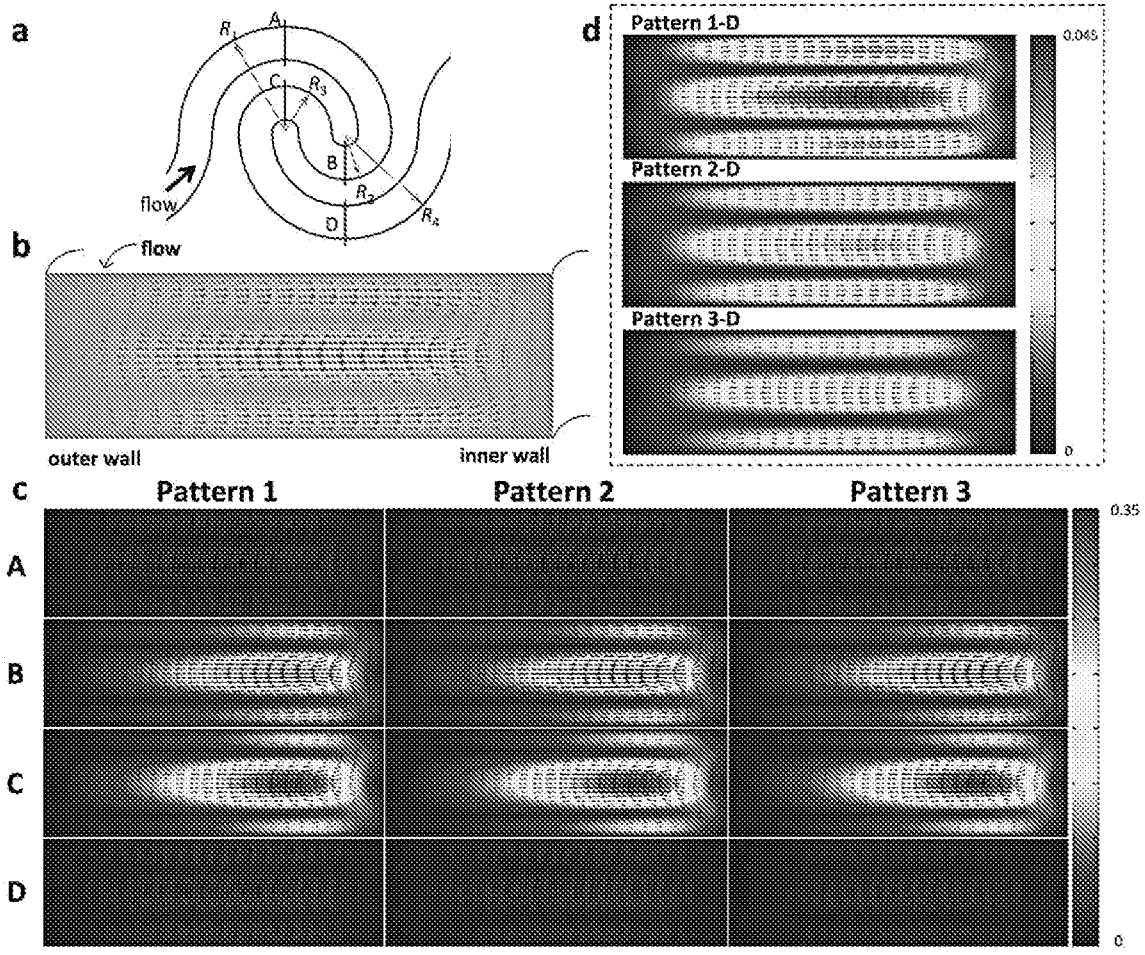
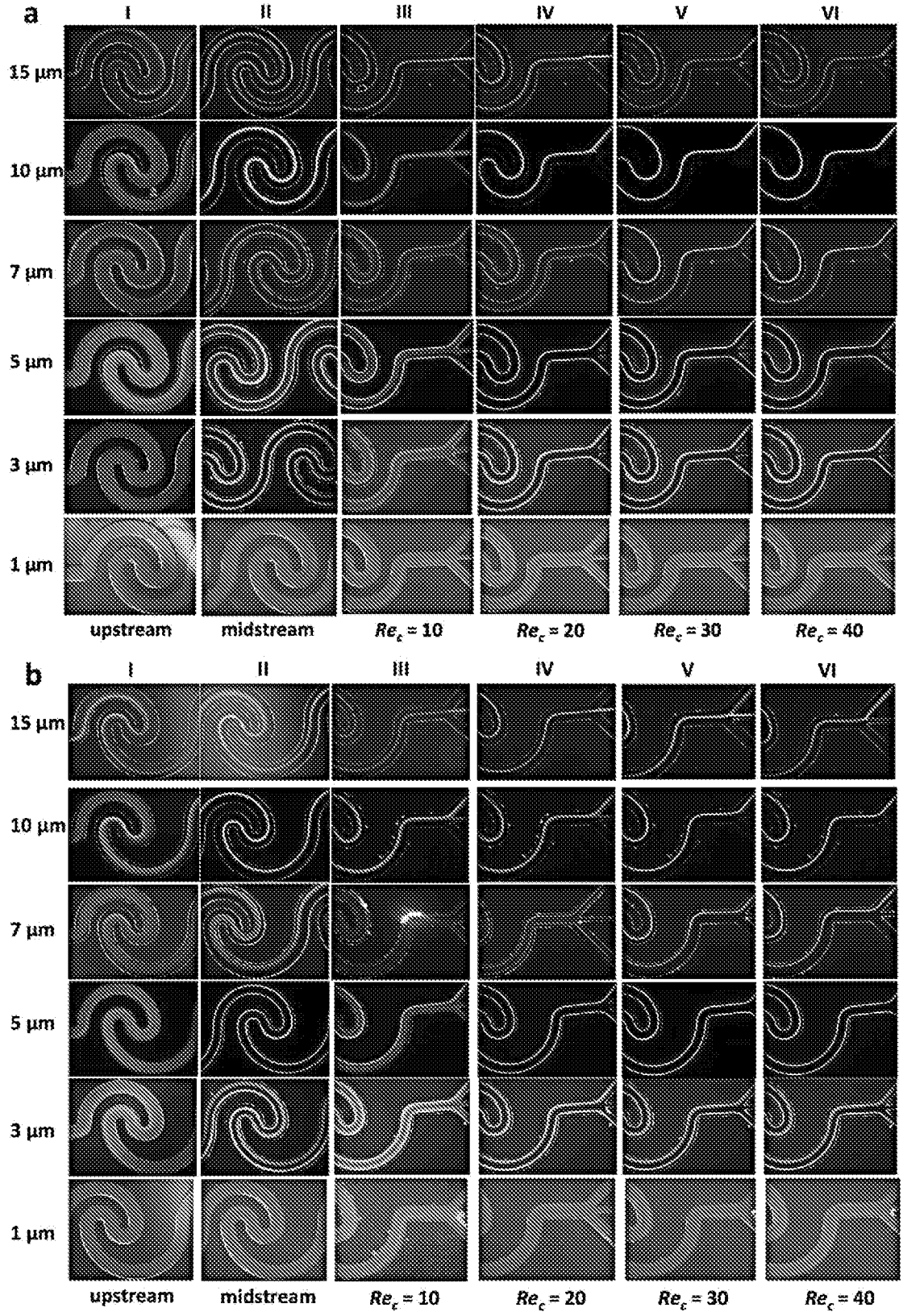
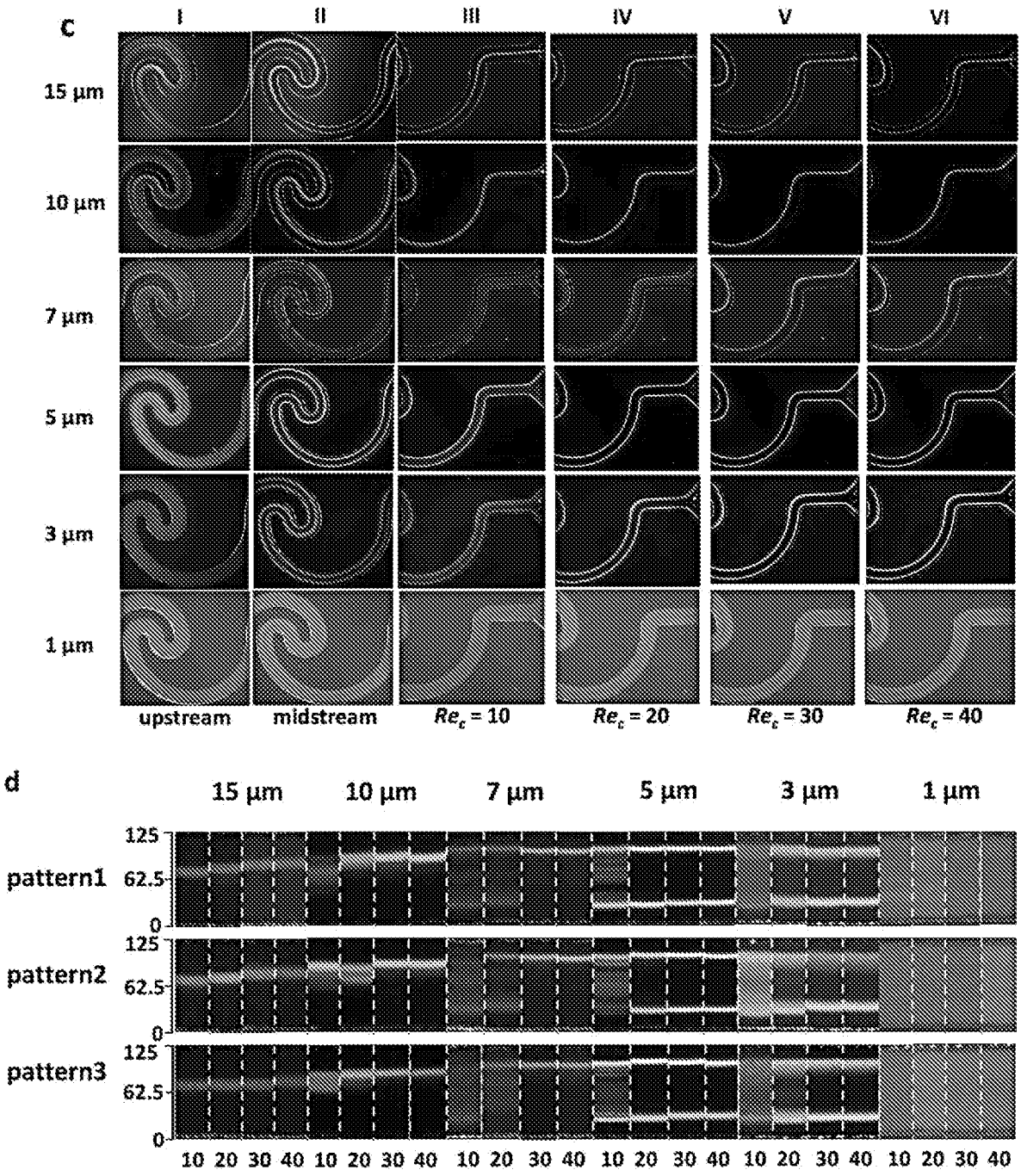

a
A
B
C
D
flow
b
flow
outer wall
inner wall
d
Pattern 1-D
Pattern 2-D
Pattern 3-D
0.045
0
c
Pattern 1
Pattern 2
Pattern 3
A
B
C
D
0.35
0

Figure 2



Figures 3a and b



Figures 3c and d

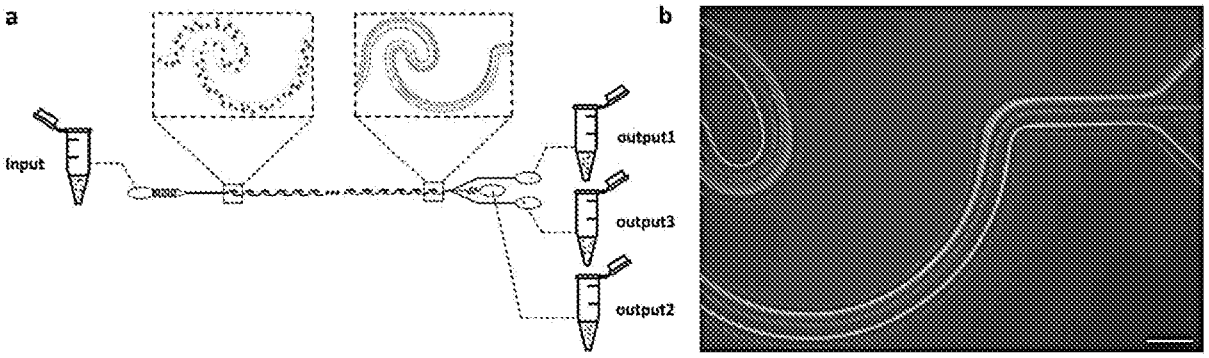


Figure 4

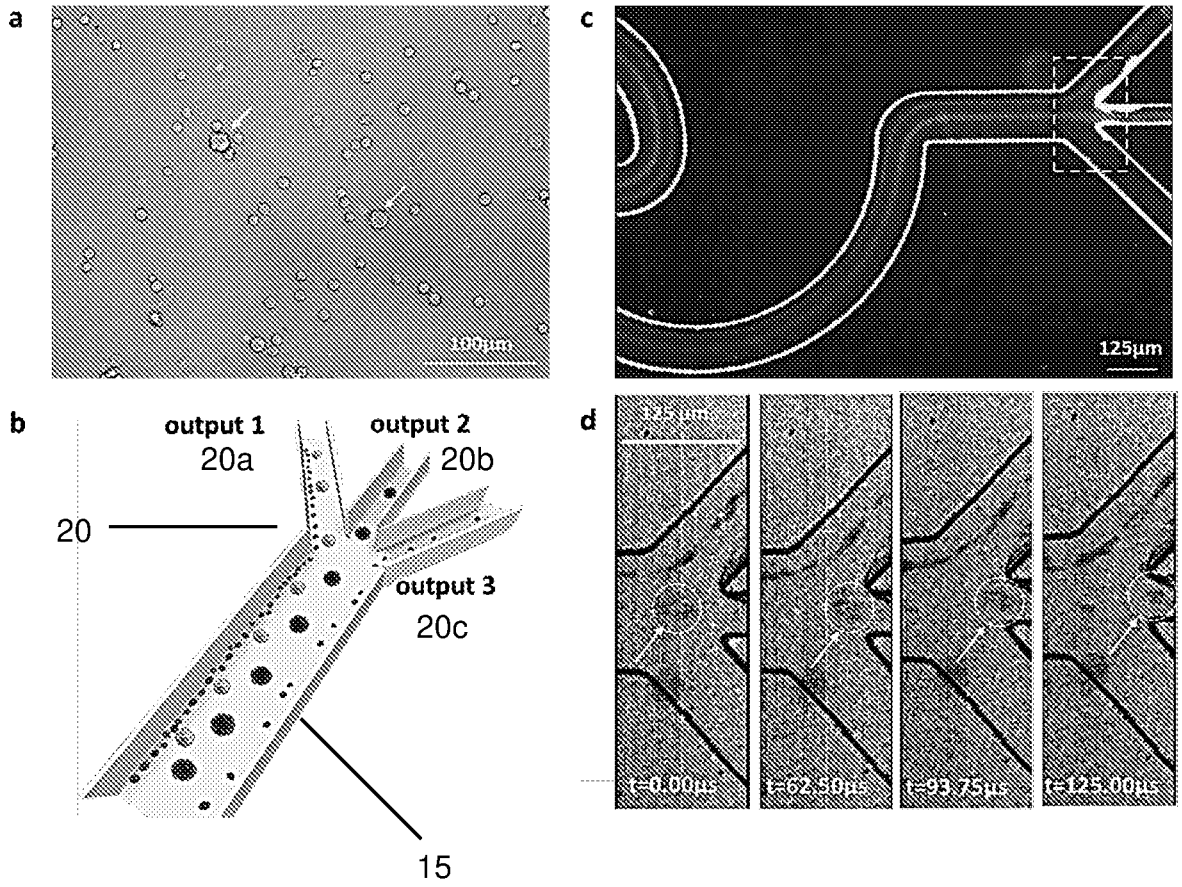

a
100μm
c
125μm
b
output 1
20a
output 2
20b
20
output 3
20c
15
d
t=0.00μs
t=62.50μs
t=93.75μs
t=125.00μs

Figure 5

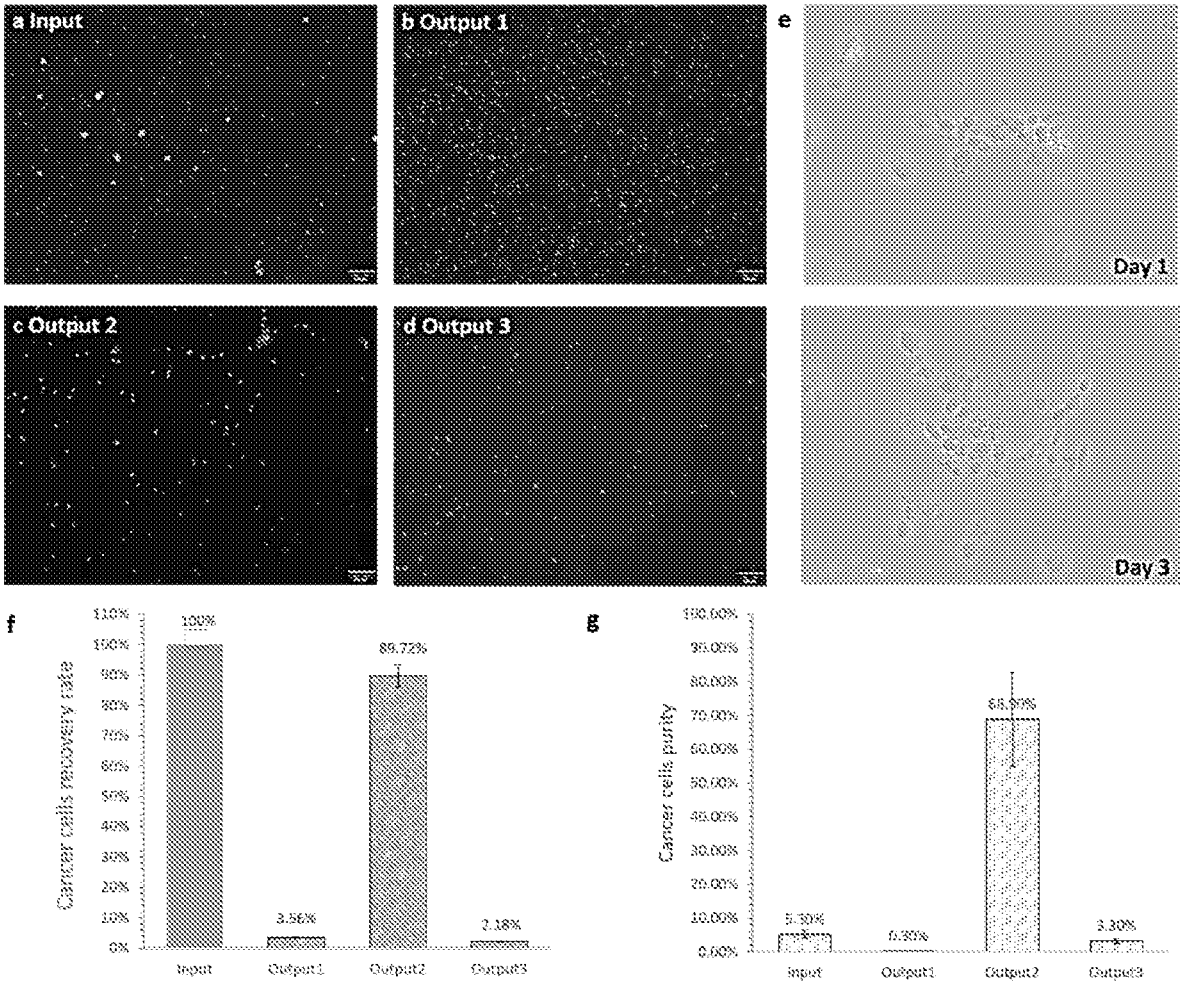

a Input
b Output 1
e
Day 1
c Output 2
d Output 3
Day 3
f
Cancer cells recovery rate
100%
3.56%
89.72%
2.18%
Input
Output1
Output2
Output3
g
Cancer cells purity
5.30%
6.30%
65.90%
3.30%
Input
Output1
Output2
Output3

Figure 6

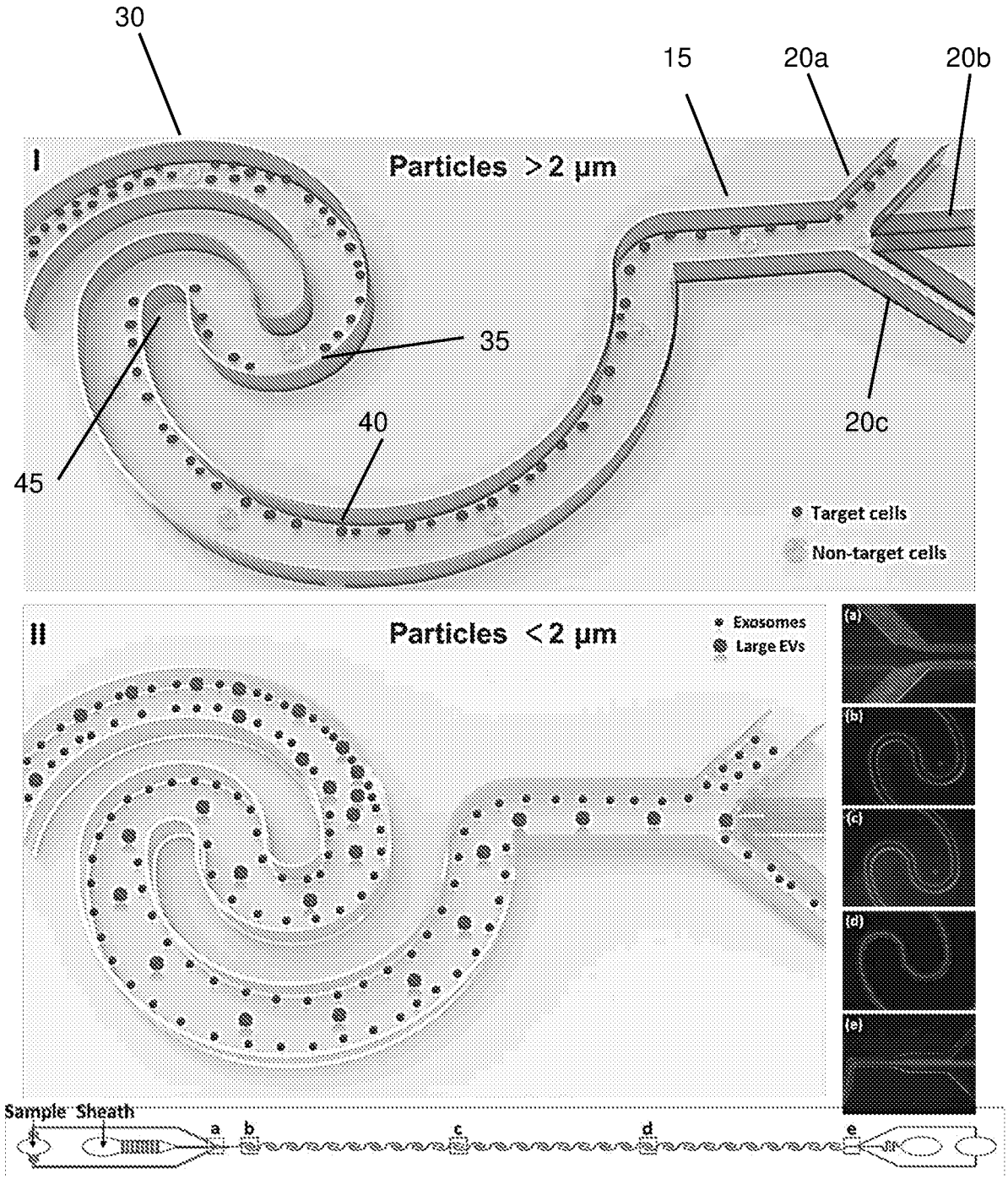

30
15
20a
20b
I
Particles >2 µm
35
40
45
20c
Target cells
Non-target cells
II
Particles <2 µm
Exosomes
Large EVs
(a)
(b)
(c)
(d)
(e)
Sample
Sheath
a
b
c
d
e

Figure 7

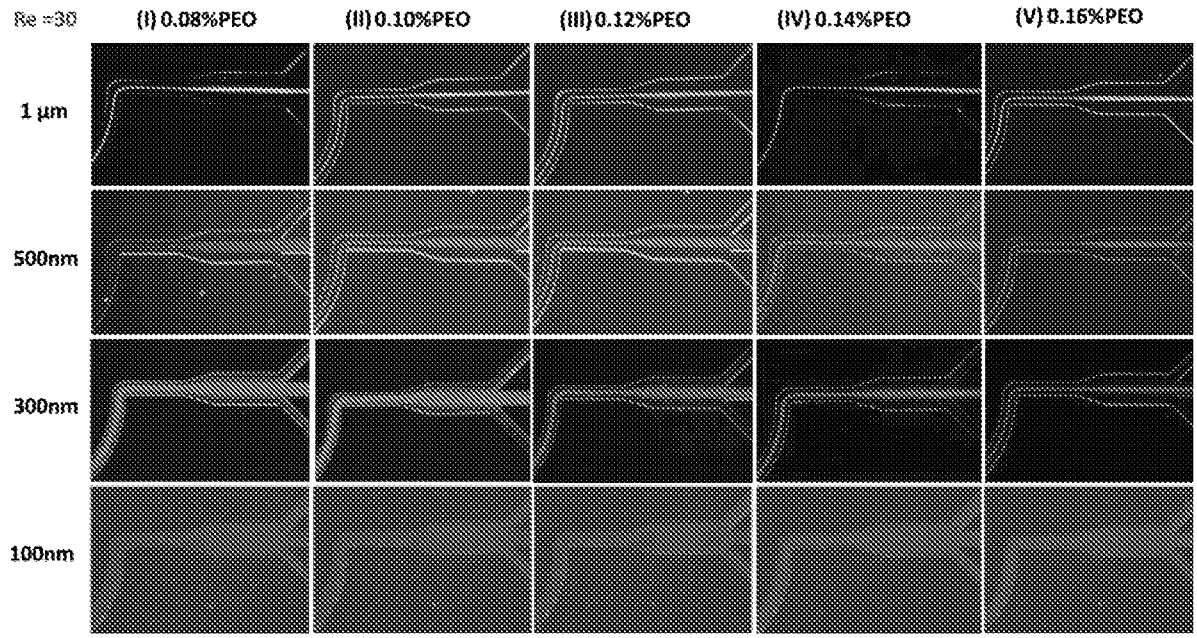

Re =30
(I) 0.08%PEO
(II) 0.10%PEO
(III) 0.12%PEO
(IV) 0.14%PEO
(V) 0.16%PEO
1 μm
500nm
300nm
100nm

Figure 8

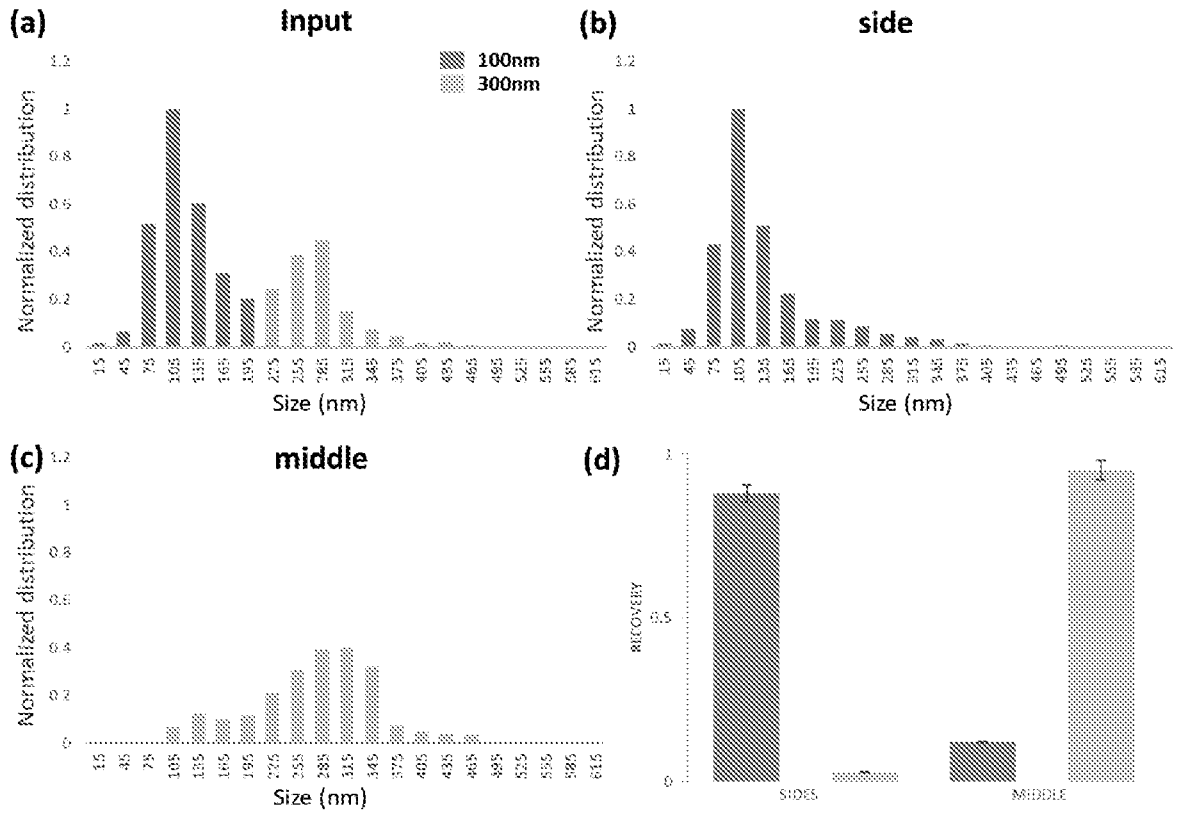

(a)
Input
100nm
300nm
Normalized distribution
Size (nm)
(b)
side
Normalized distribution
Size (nm)
(c)
middle
Normalized distribution
Size (nm)
(d)
RECOVERY
SIDES
MIDDLE

Figure 9

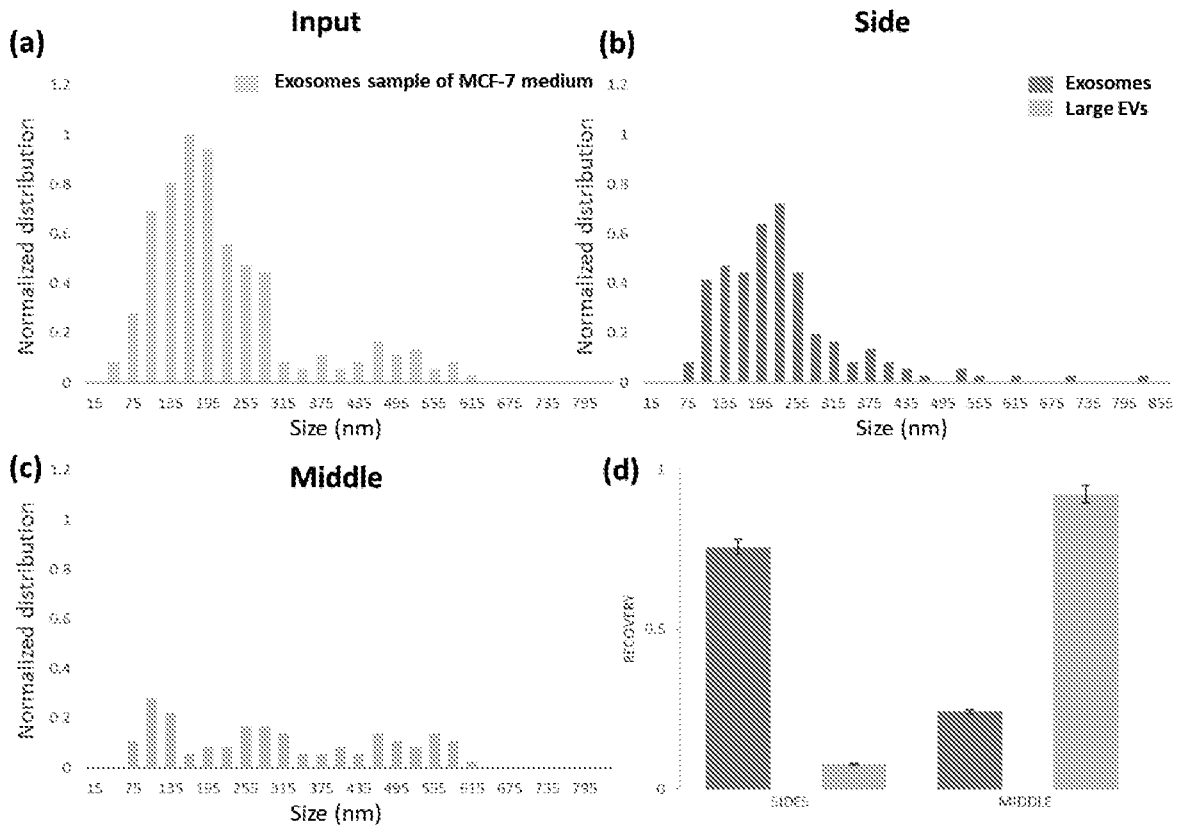

(a)
Input
Exosomes sample of MCF-7 medium
Normalized distribution
Size (nm)
(b)
Side
Exosomes
Large EVs
Normalized distribution
Size (nm)
(c)
Middle
Normalized distribution
Size (nm)
(d)
RECOVERY
SIDE
MIDDLE

Figure 10