Fig.1A

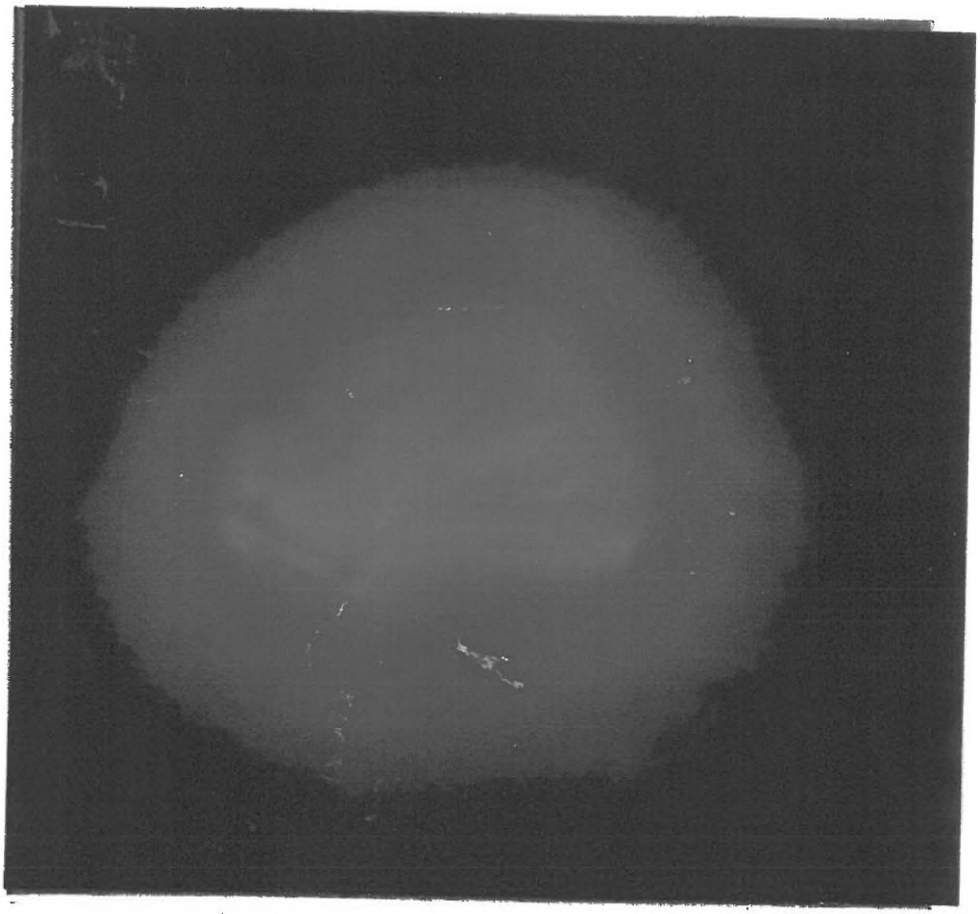


Fig.1B

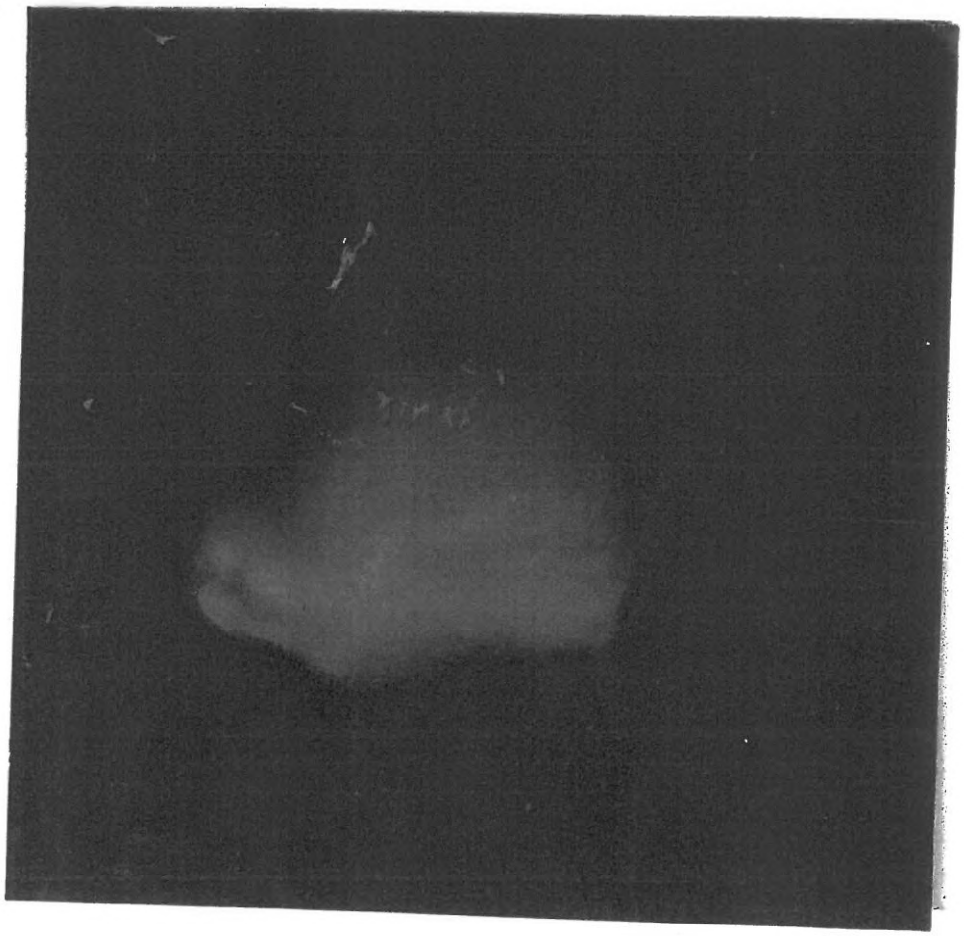


Fig.1C

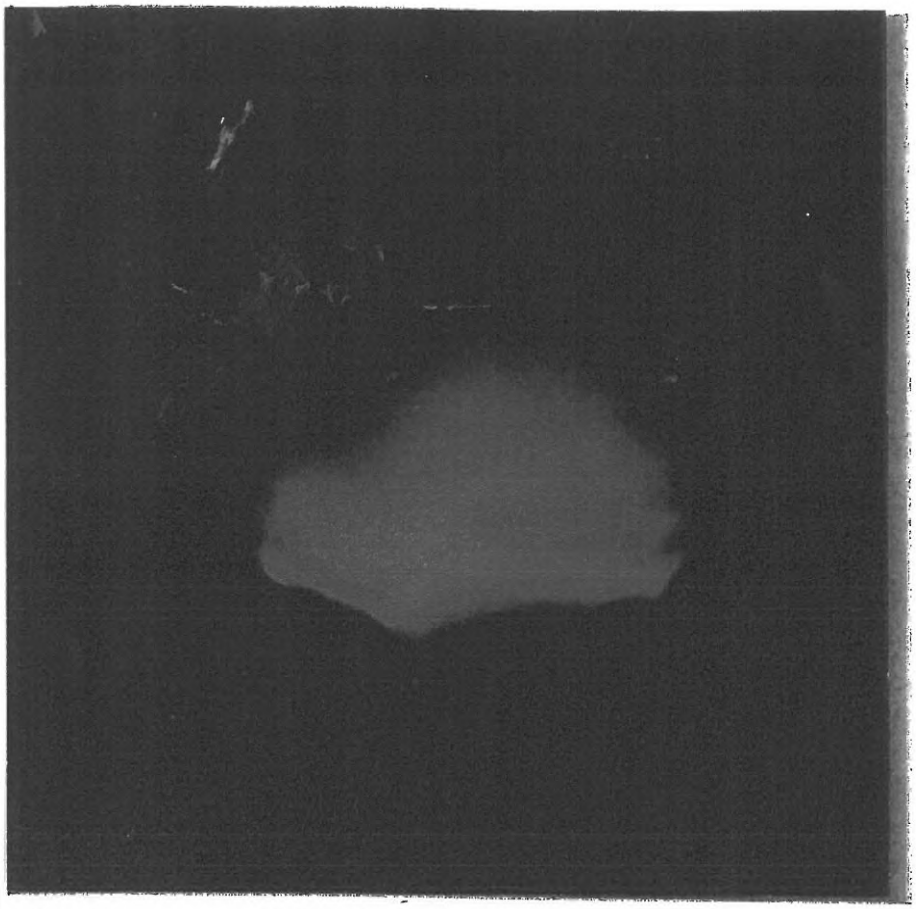


Fig.2A



Fig.2B

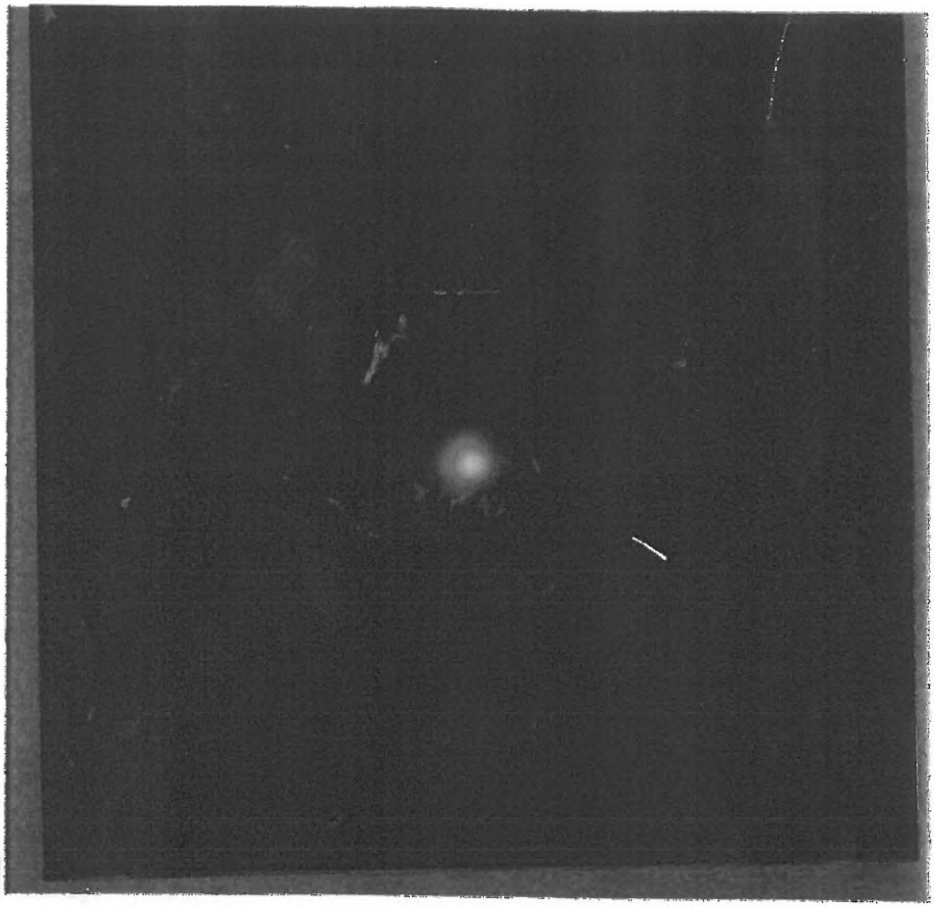


Fig.2C

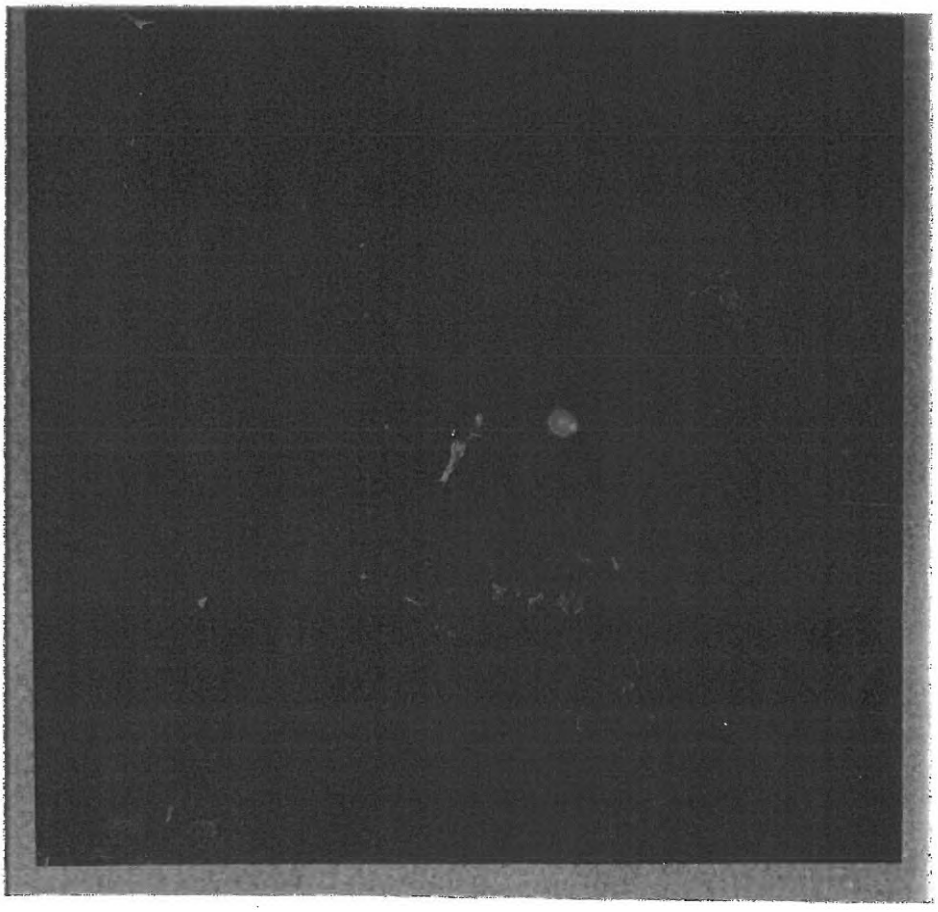


Fig.3

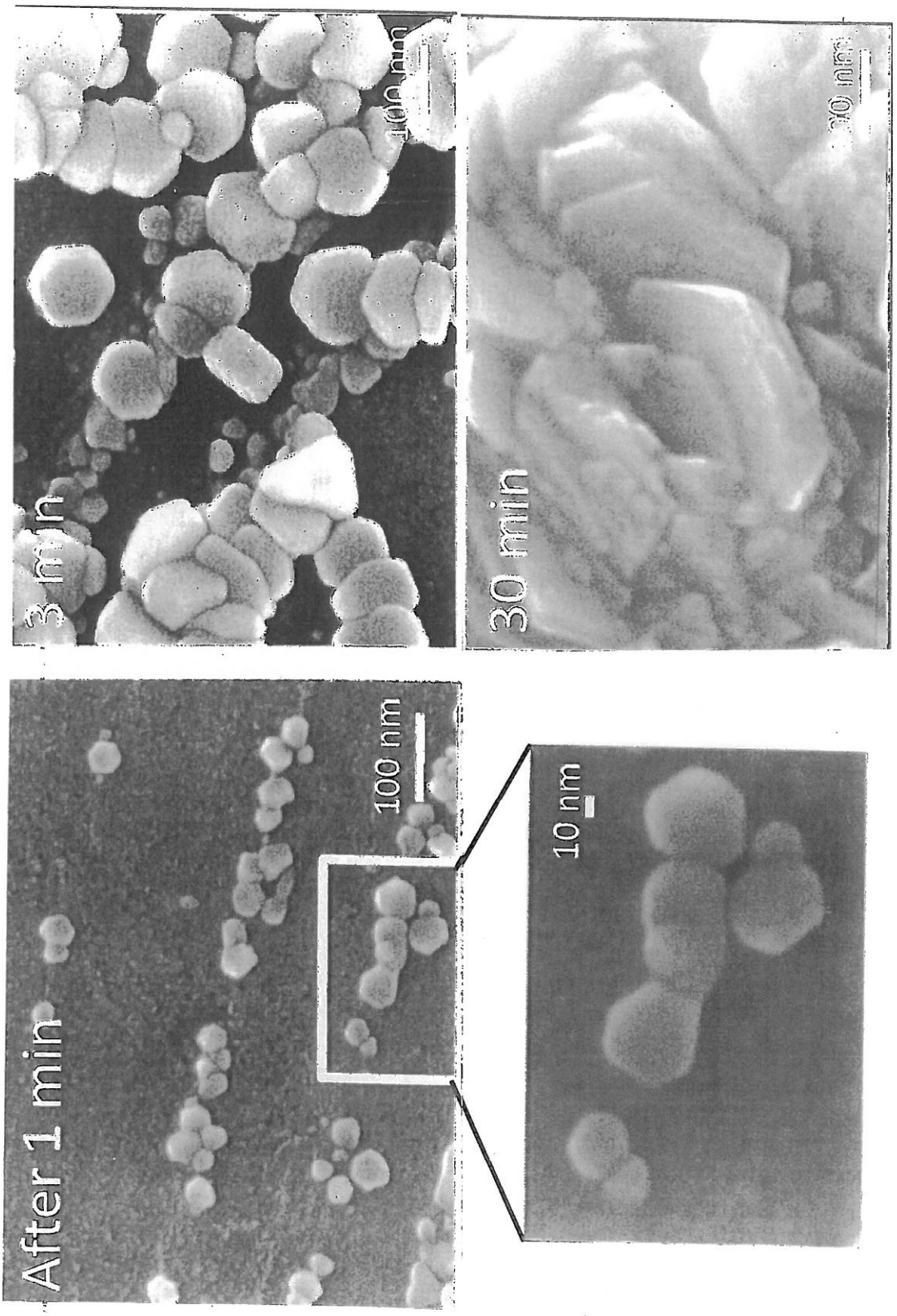


Fig.4

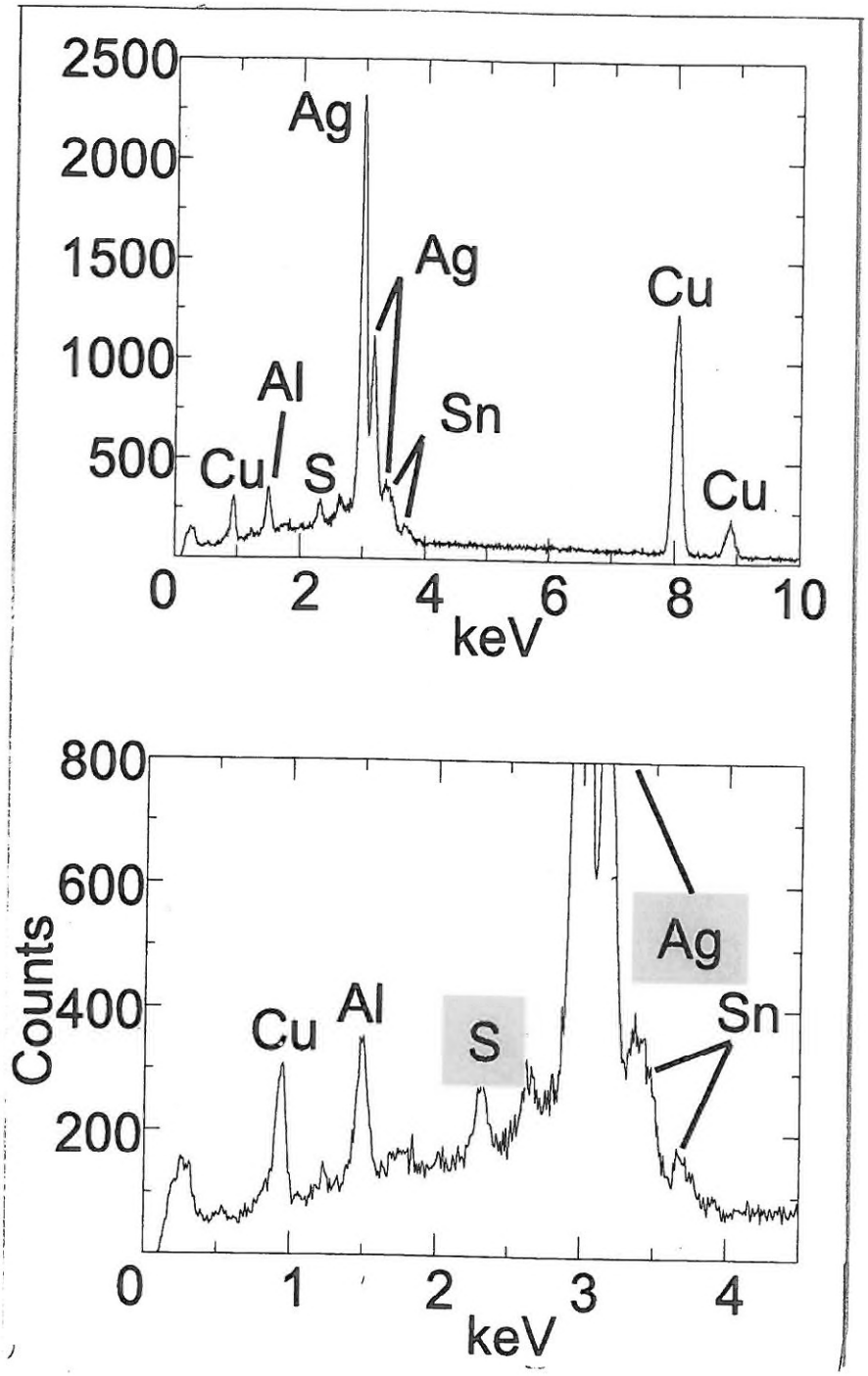
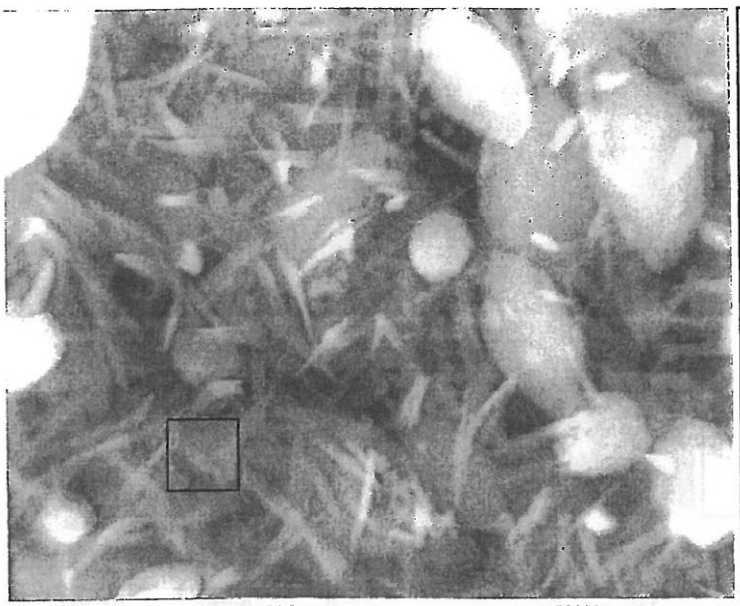

2500
2000
1500
1000
500
Ag
Ag
Cu
Al
Sn
Cu
S
Cu
0
2
4
6
8
10
keV
800
600
400
200
Counts
Ag
Cu
Al
S
Sn
0
1
2
3
4
keV

Fig.5



:Made by Masafumi Fukuzumi in Hyogo Industry Technology Center

Fig.6A



EDS Quantitative Results

Element	Wt%	At%
OK	5.21	18.26
AgL	5.50	2.86
CuK	89.30	78.88

黒くなるのは

Ag_2O

AgCl ⟶ Ag

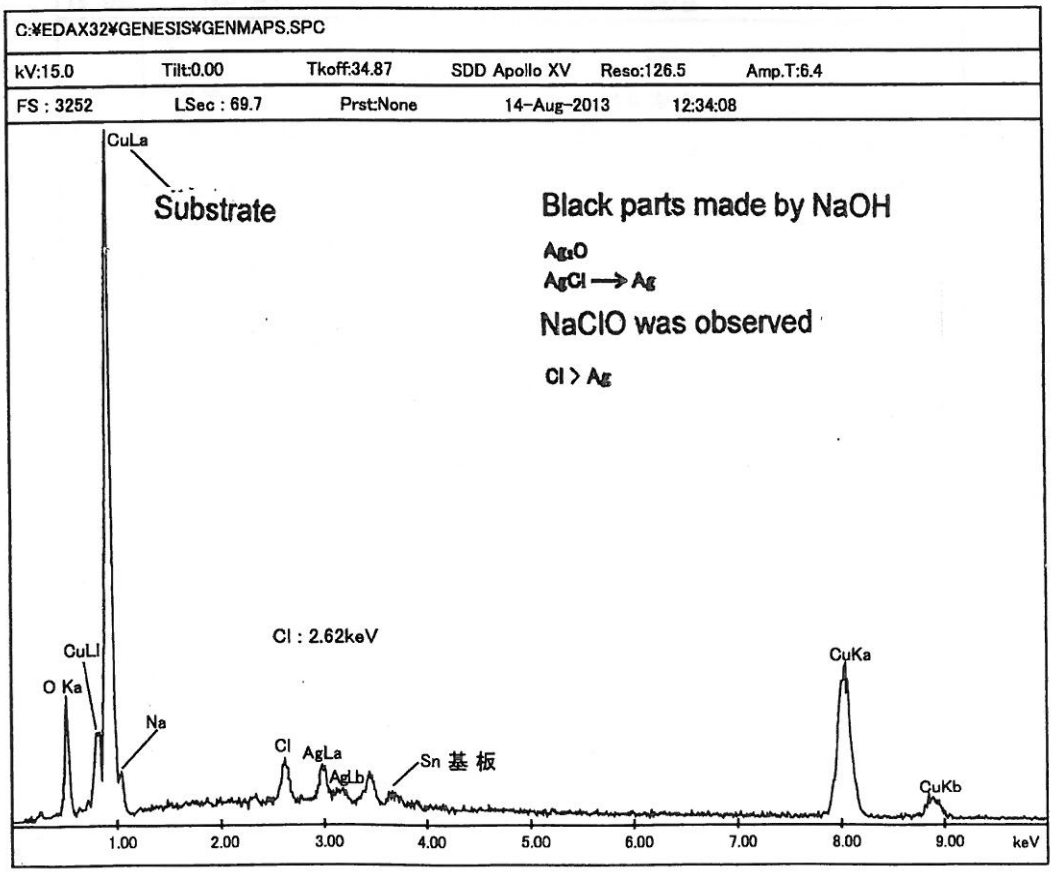


Fig.6B

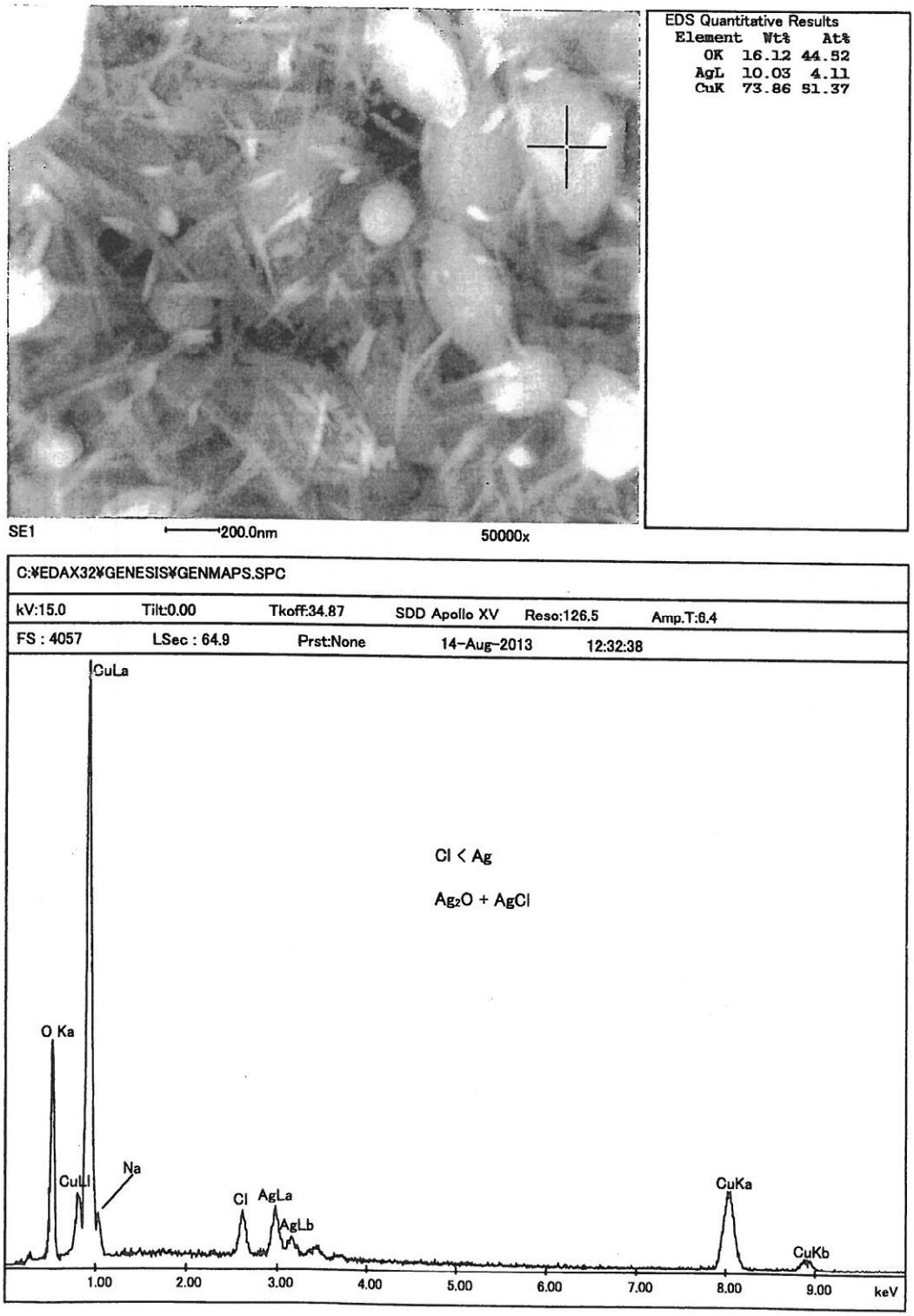

EDS Quantitative Results
Element Wt% At%
OK 16.12 44.52
AgL 10.03 4.11
CuK 73.86 51.37
SE1
200.0nm
50000x
C:¥EDAX32¥GENESIS¥GENMAPS.SPC
kV:15.0 Tilt:0.00 Tkoff:34.87 SDD Apollo XV Reso:126.5 Amp.T:6.4
FS : 4057 LSec : 64.9 Prst:None 14-Aug-2013 12:32:38
CuLa
Cl < Ag
Ag2O + AgCl
O Ka
CuLl
Na
Cl
AgLa
AgLb
CuKa
CuKb
1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
keV

Fig.6C

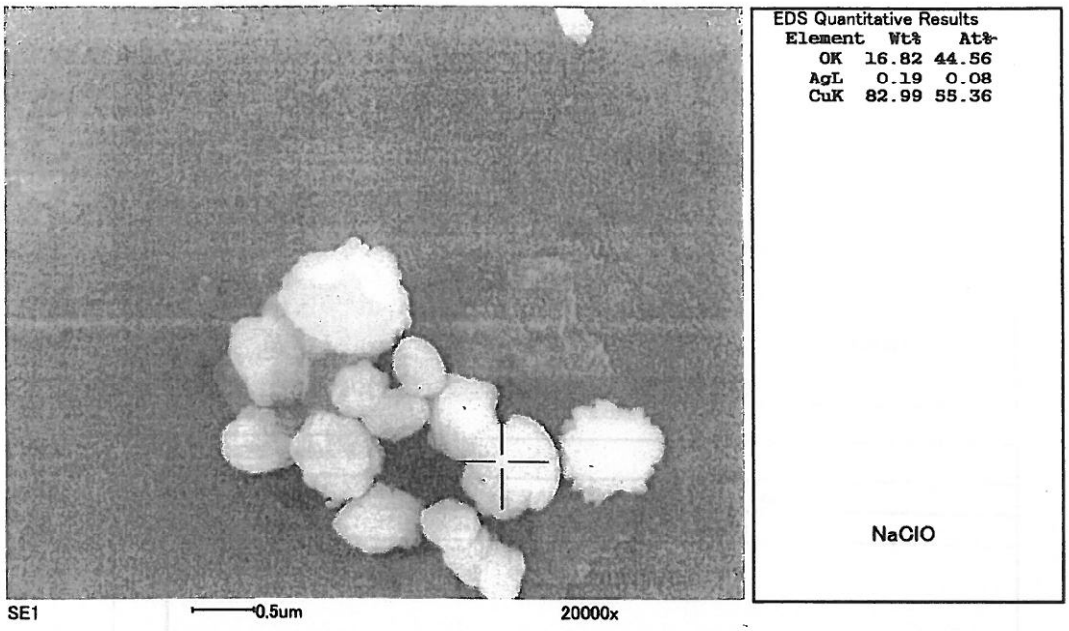

EDS Quantitative Results
Element Wt% At%
OK 16.82 44.56
AgL 0.19 0.08
CuK 82.99 55.36
NaClO
SE1
0.5um
20000x
C:¥EDAX32¥GENESIS¥GENMAPS.SPC
kV:15.0 Tilt:0.00 Tkoff:35.04 SDD Apollo XV Reso:126.5 Amp.T:6.4
FS : 3124 LSec : 36.2 Prst:None 20-Aug-2013 10:35:41
CuLa
O Ka
CuLl
Na
AgLb
AgLg
Cl
AgLa
CuKa
CuKb
2.00
4.00
6.00
8.00
10.00
12.00
keV

Fig.7

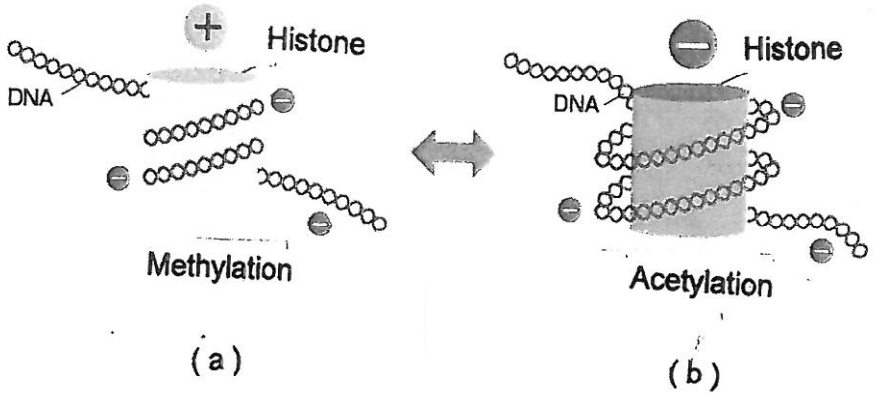


Fig.8

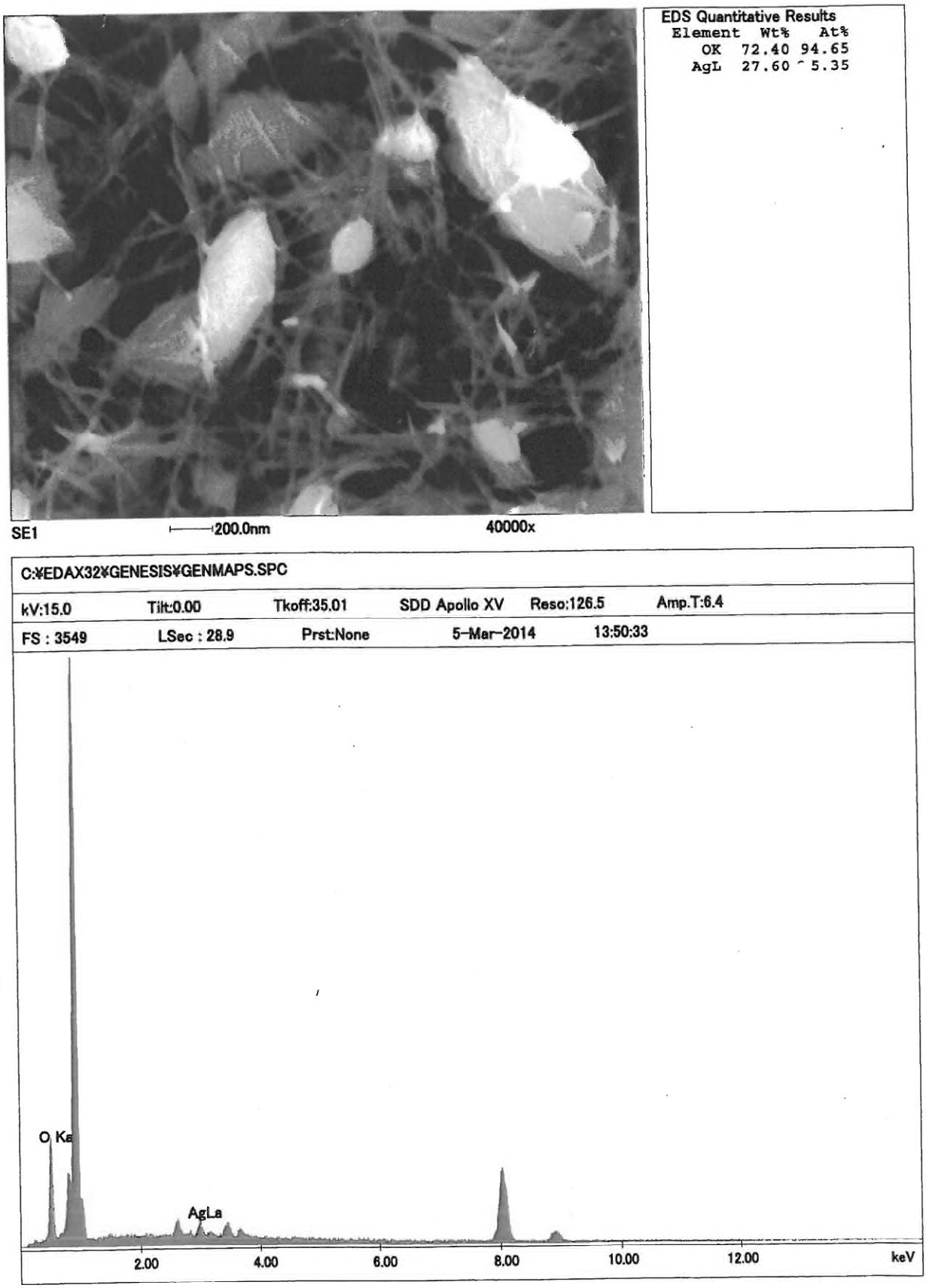

EDS Quantitative Results
Element Wt% At%
OK 72.40 94.65
AgL 27.60 5.35
SE1
200.0nm
40000x
C:¥EDAX32¥GENESIS¥GENMAPS.SPC
kV:15.0 Tilt:0.00 Tkoff:35.01 SDD Apollo XV Reso:126.5 Amp.T:6.4
FS : 3549 LSec : 28.9 Prst:None 5-Mar-2014 13:50:33
O Ka
AgLa
2.00
4.00
6.00
8.00
10.00
12.00
keV

Fig.9

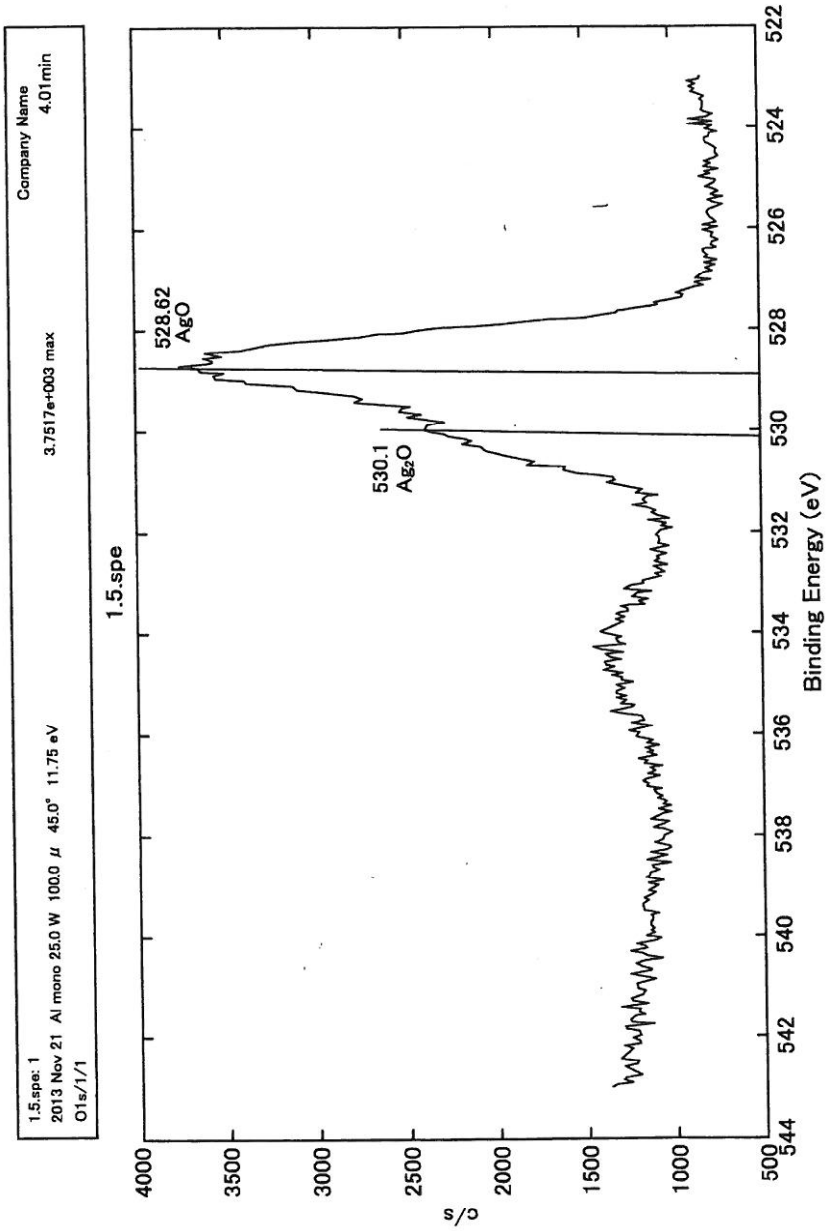

Company Name
4.01min
3.7517e+003 max
1.5.spe: 1
2013 Nov 21 Al mono 25.0 W 100.0 μ 45.0° 11.75 eV
O1s/1/1
1.5.spe
528.62
AgO
530.1
Ag2O
c/s
Binding Energy (eV)
4000
3500
3000
2500
2000
1500
1000
500
522
524
526
528
530
532
534
536
538
540
542
544

Fig.10

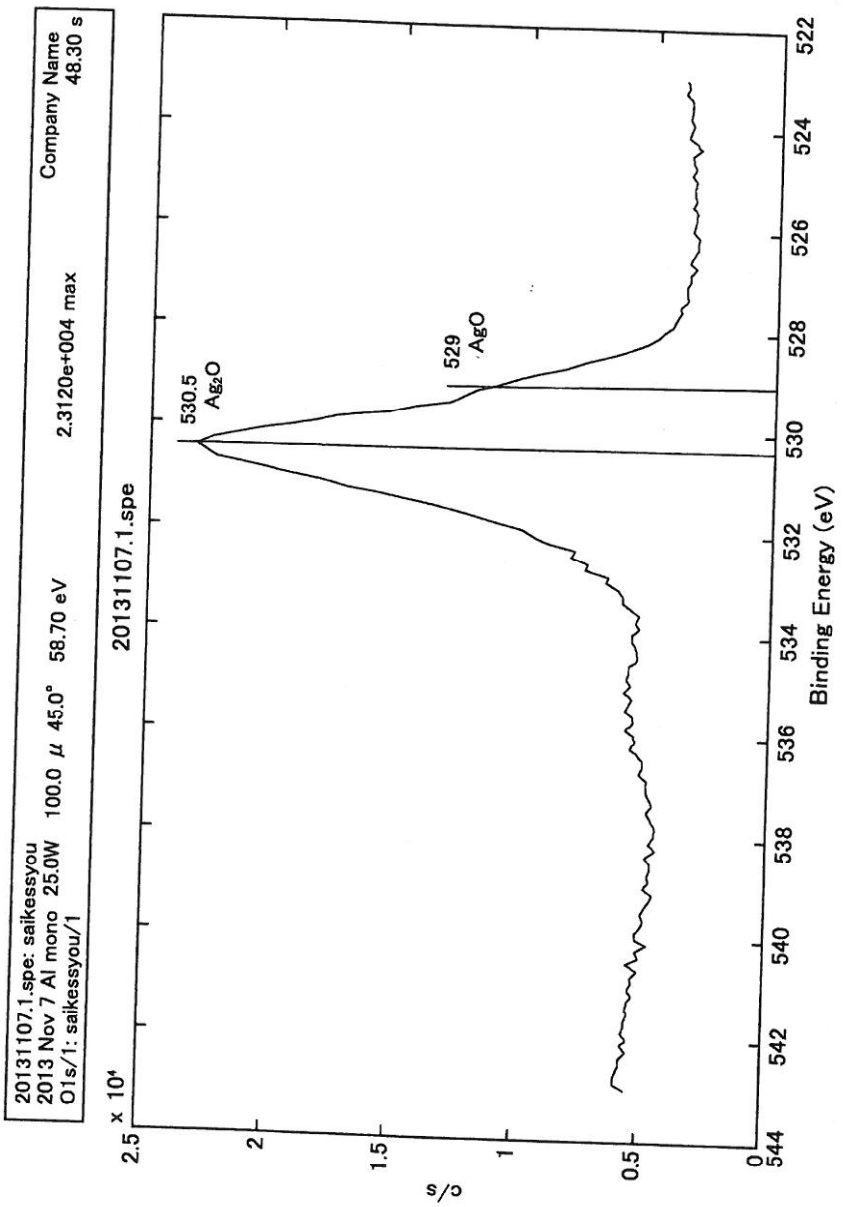
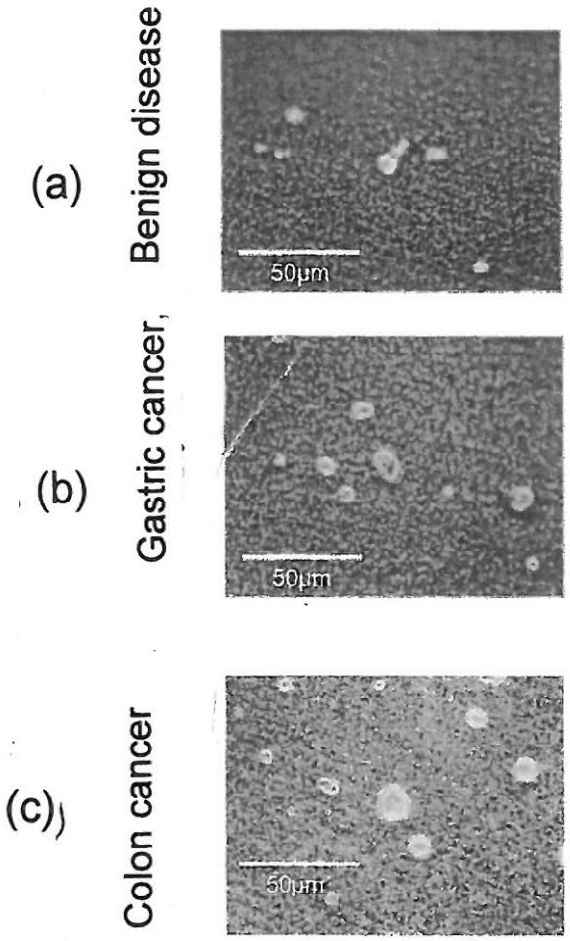

20131107.1.spe: saikessyou
2013 Nov 7 Al mono 25.0W 100.0 μ 45.0° 58.70 eV 2.3120e+004 max
O1s/1: saikessyou/1
Company Name
48.30 s
20131107.1.spe
x 10⁴
c/s
2.5
2
1.5
1
0.5
0
544
542
540
538
536
534
532
530
528
526
524
522
Binding Energy (eV)
530.5
Ag2O
529
AgO

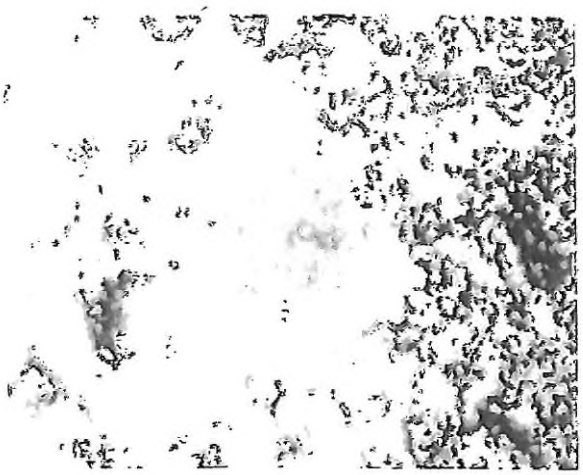
Fig.11

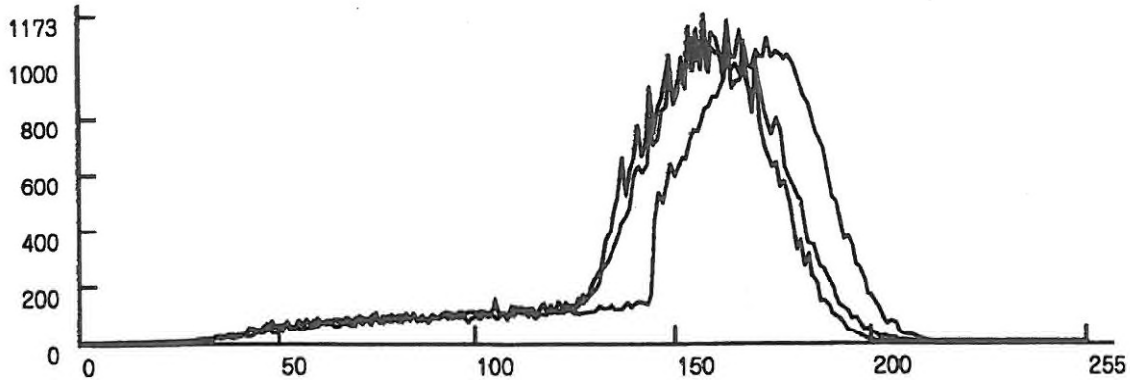


Fluorescence image of the cancer-related substance

Magnification:500-fold

Fig.12A



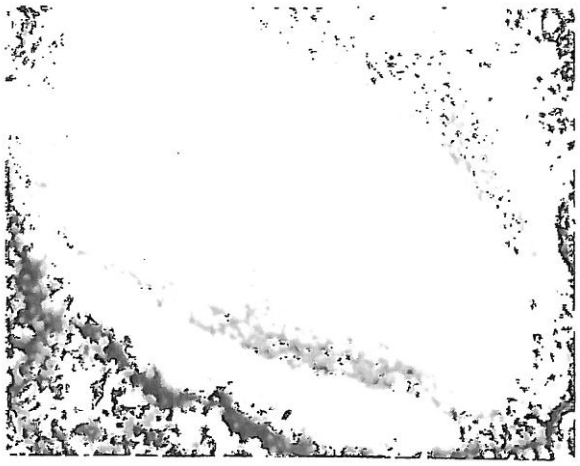


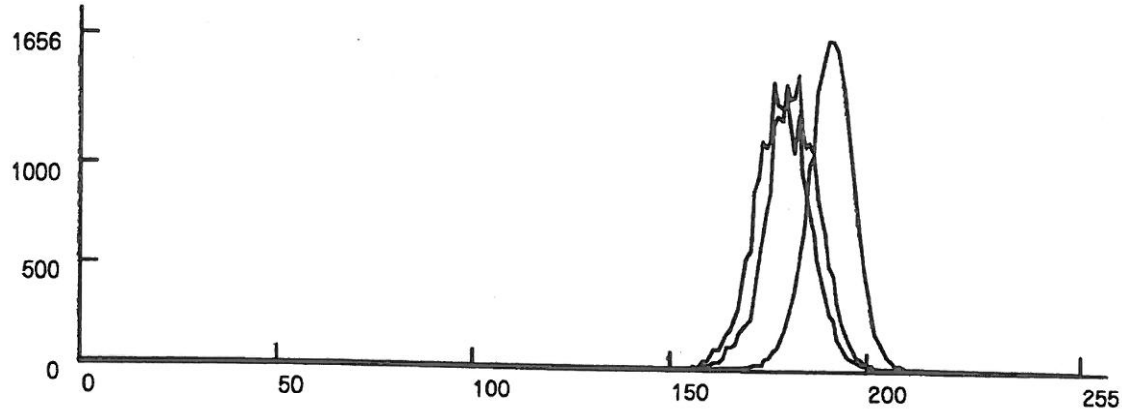
	Area	Rate of Area	Average	Max.	Min.	SUM	SD	3σ	Comment
Total	153888	100.00%	151.86	214	24	23369644	31.16	93.48	
Section 1									
Section 2									
Section 3									
Section 4									
Sectoion 5									
Section 6									
Section 7									
Section 8									
Section 9									
Section 10									

Image to be measured: Laser + colour

Hhistogram (RGB).

Fig.12B





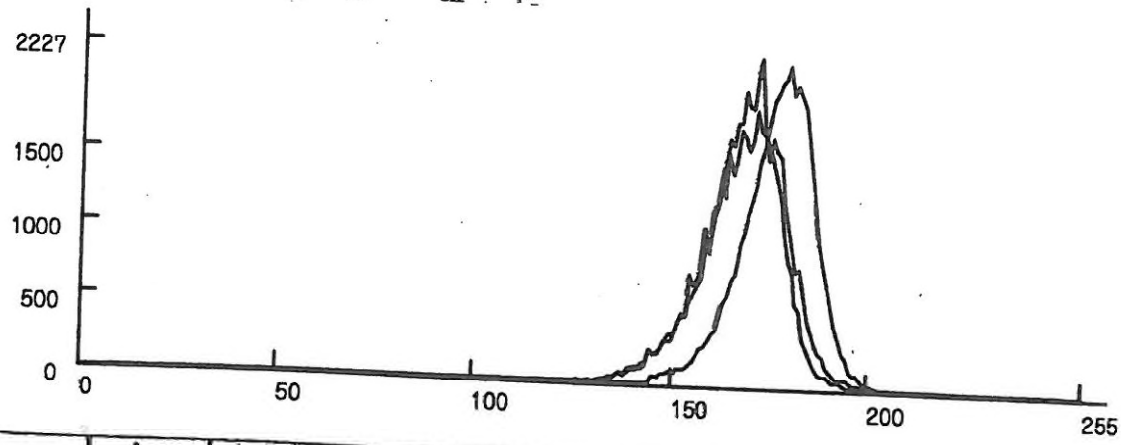
	Area	Rate of Area	Average	Max.	Min.	SUM	SD	3σ	Comment
Total	68856	100.00%	183.07	207	167	12605279	6.43	19.30	
Section 1									
Section 2									
Section 3									
Section 4									
Sectoion 5									
Section 6									
Section 7									
Section 8									
Section 9									
Section 10									

Image to be measured: Laser + colour

Hhistogram (RGB).

Fig.12C





	Area	Rate of Area	Average	Max.	Min.	SUM	SD	3σ	Comment
Total	132888	100.00%	170.13	203	103	22608585	10.50	31.49	
Section 1									
Section 2									
Section 3									
Section 4									
Sectoion 5									
Section 6									
Section 7									
Section 8									
Section 9									
Section 10									

Image to be measured: Laser + colour

Hhistogram (RGB).

Fig.13

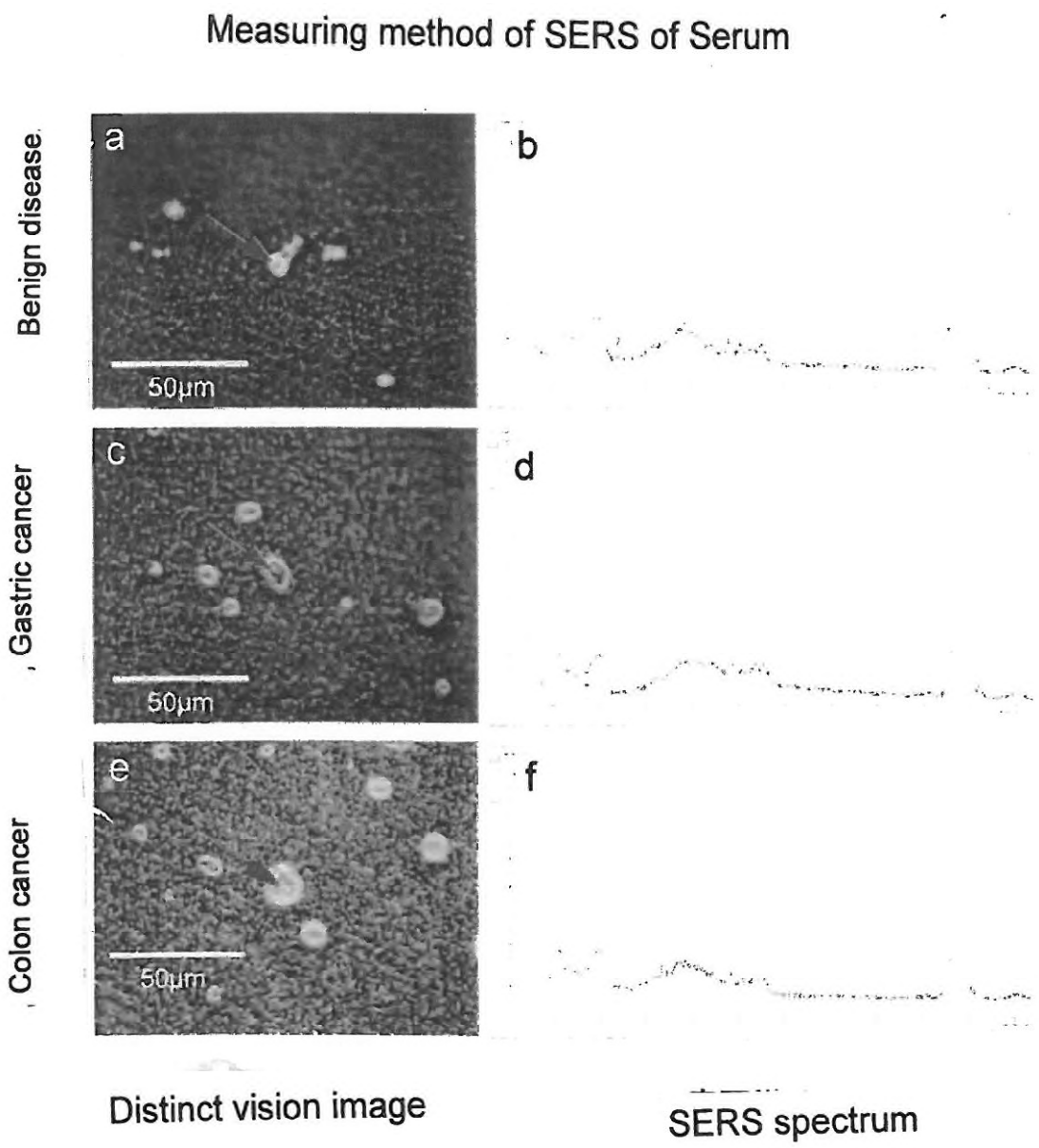

Measuring method of SERS of Serum
Benign disease
Gastric cancer
Colon cancer
a
b
c
d
e
f
50μm
50μm
50μm
Distinct vision image
SERS spectrum

Fig.14

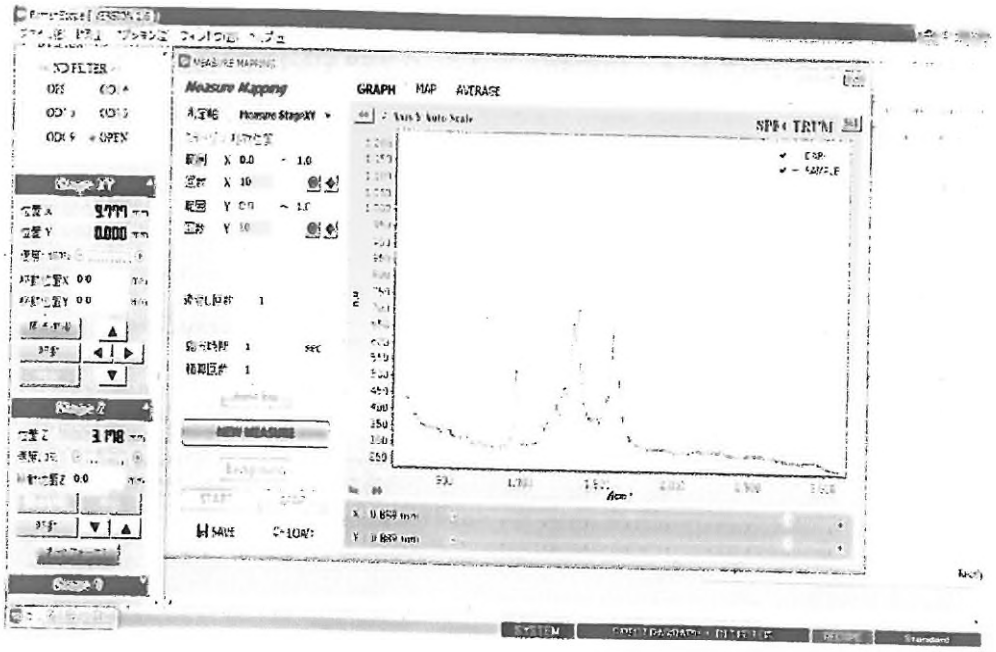


Fig.15

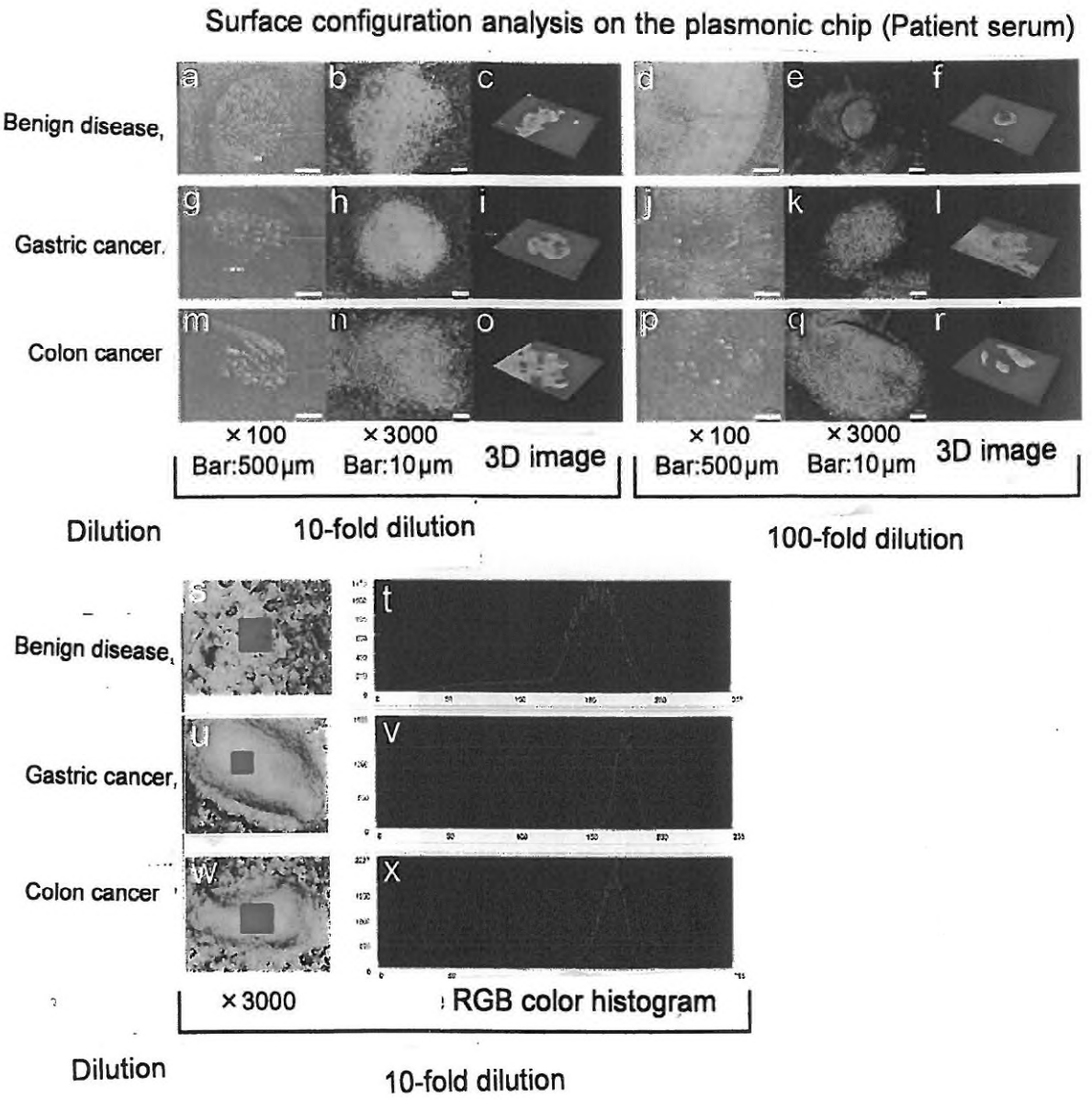

Surface configuration analysis on the plasmonic chip (Patient serum)
Benign disease,
Gastric cancer,
Colon cancer
a
b
c
d
e
f
g
h
i
j
k
l
m
n
o
p
q
r
×100
Bar:500μm
×3000
Bar:10μm
3D image
×100
Bar:500μm
×3000
Bar:10μm
3D image
Dilution
10-fold dilution
100-fold dilution
Benign disease,
Gastric cancer,
Colon cancer
s
t
u
v
w
x
×3000
RGB color histogram
Dilution
10-fold dilution

Fig.16

Surface configulation analysis of cultured cancer cell on the plasmonic chip

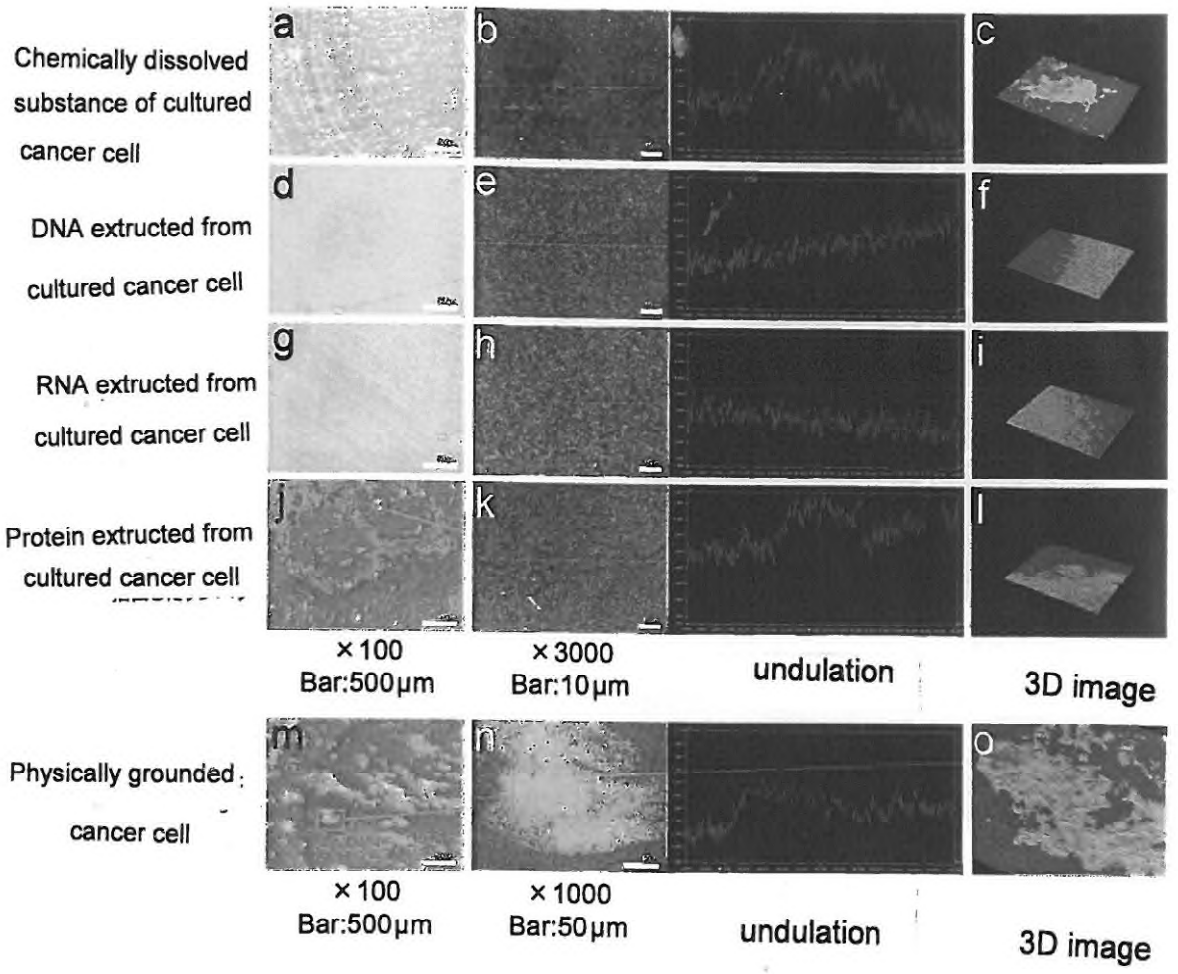


Fig.17

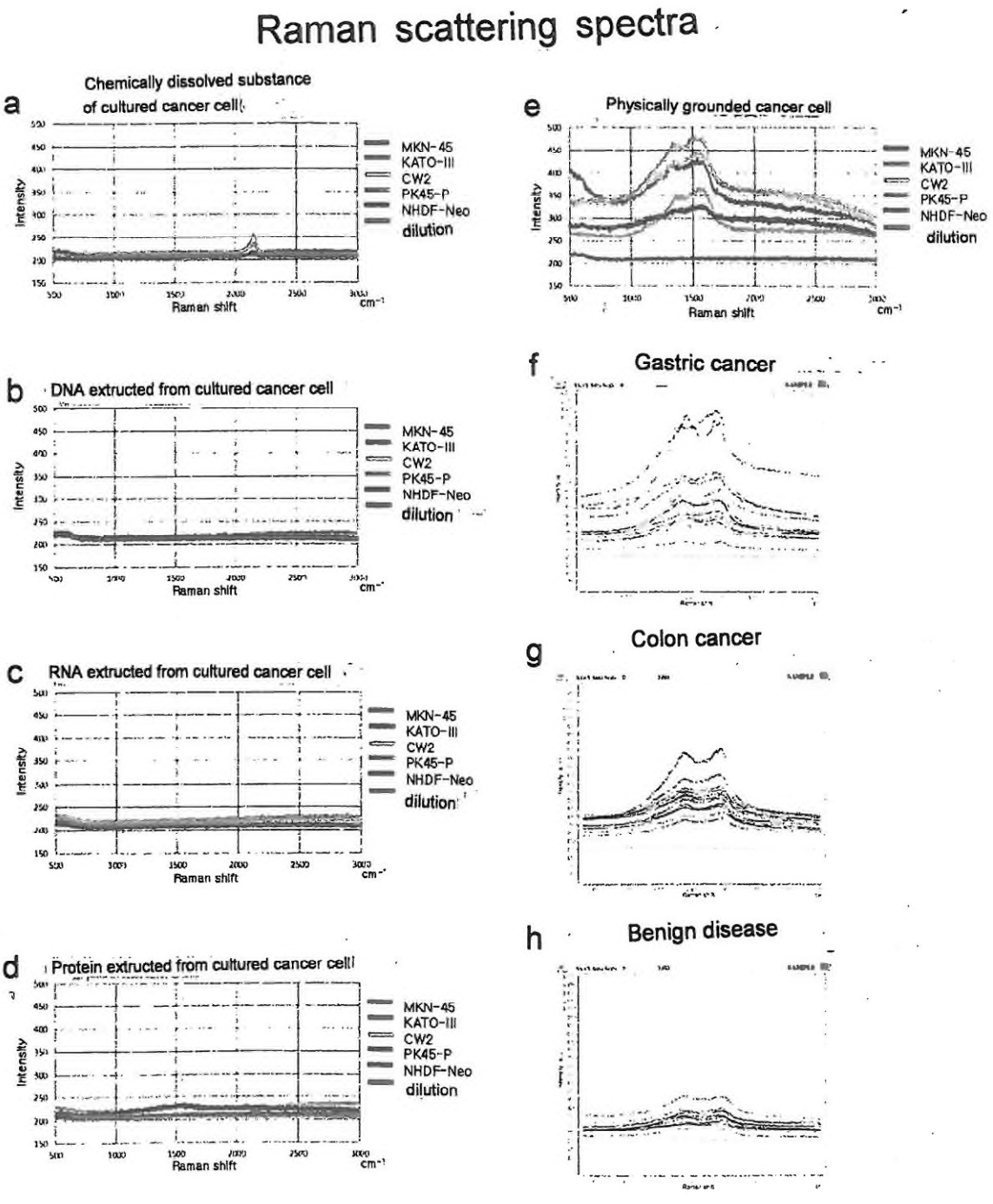

Raman scattering spectra
a
Chemically dissolved substance of cultured cancer cell
b
DNA extructed from cultured cancer cell
c
RNA extructed from cultured cancer cell
d
Protein extructed from cultured cancer cell
e
Physically grounded cancer cell
f
Gastric cancer
g
Colon cancer
h
Benign disease
MKN-45
KATO-III
CW2
PK45-P
NHDF-Neo
dilution
Intensity
Raman shift
cm⁻¹

Fig.18

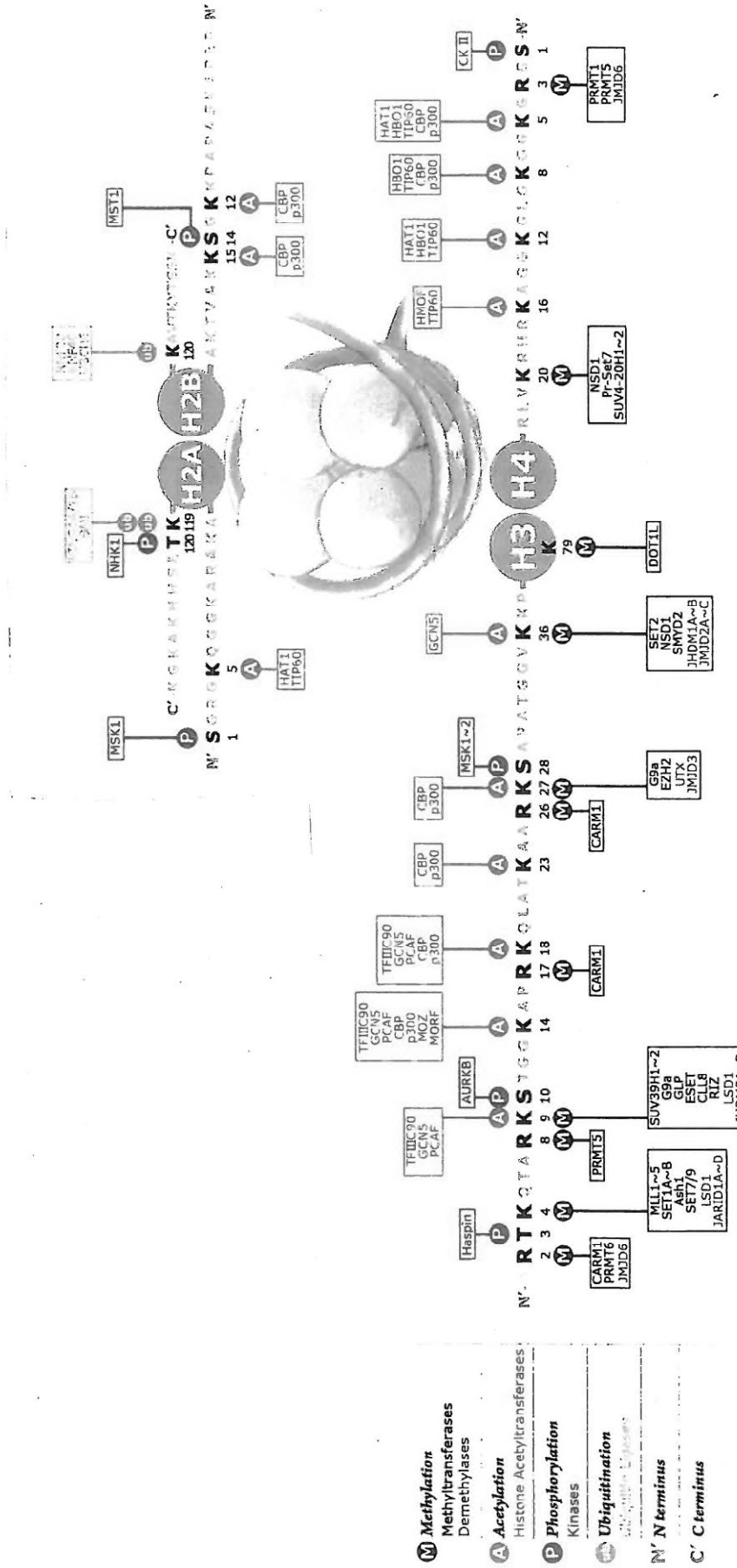
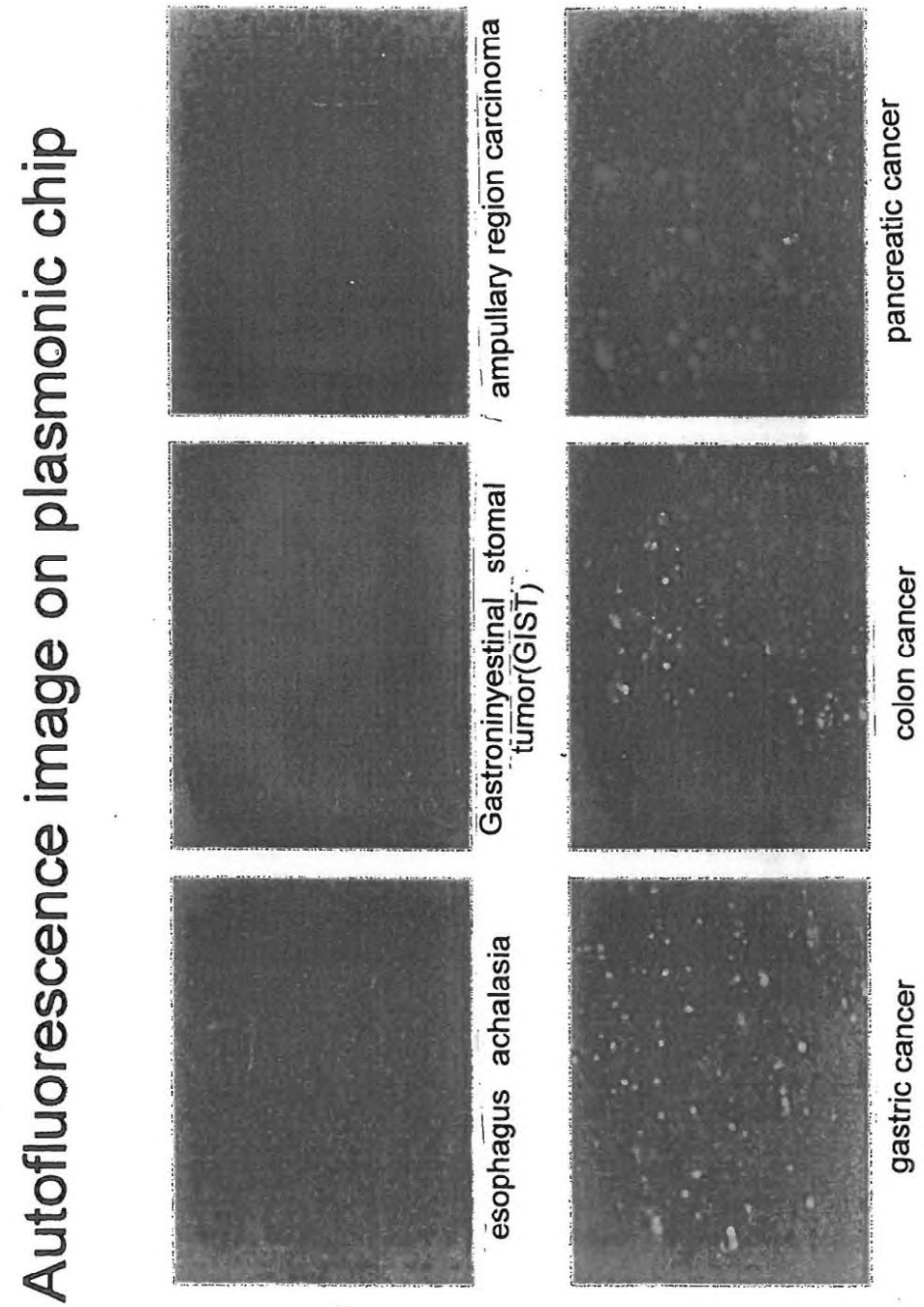

Methylation
Methyltransferases
Demethylases
Acetylation
Histone Acetyltransferases
Phosphorylation
Kinases
Ubiquitination
N terminus
C terminus
H2A
H2B
H3
H4
MSK1
NHK1
MST1
Haspin
AURKB
CBP p300
MSK1~2
CARM1
PRMT5
GCN5
NSD1 Pr-Set7 SUV4-20H1~2
SET2 NSD1 SMYD2 JHDM1A~B JMJD2A~C
DOT1L
PRMT1 PRMT5 JMJD6
CK II
HAT1 HBO1 TIP60 CBP p300
HBO1 TIP60 CBP p300
HAT1 HBO1 TIP60
HMOF TIP60
CBP p300
HAT1 TIP60
TFIIIC90 GCN5 PCAF CBP p300 MOZ MORF
TFIIIC90 GCN5 PCAF CBP p300
TFIIIC90 GCN5 PCAF
G9a E2H2 UTX JMJD3
SUV39H1~2 G9a GLP ESET CLL8 RIZ LSD1 JHDM2A~B JMJD2A~D
MLL1~5 SET1A~B Ash1 SET7/9 LSD1 JARID1A~D
CARM1 PRMT6 JMJD6

Fig.19


Autofluorescence image on plasmonic chip
Benign disease
Cancer
esophagus achalasia
Gastroninyestinal stomal tumor(GIST)
ampullary region carcinoma
gastric cancer
colon cancer
pancreatic cancer