Supporting Information for Macromol. Rapid Commun., 2010, 31, 228.

Multifunctional Magnetoplasmonic Nanoparticle Assemblies for Cancer Therapy and Diagnostics

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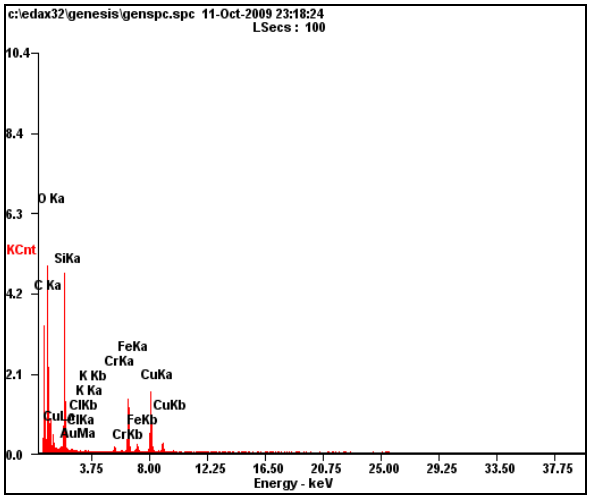
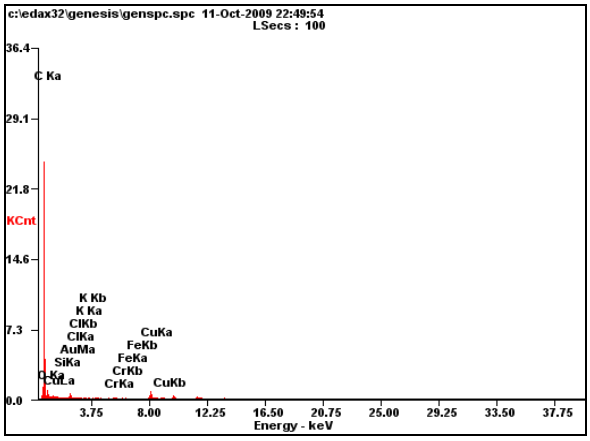
The sample spot on the silica surface before the drug loading:



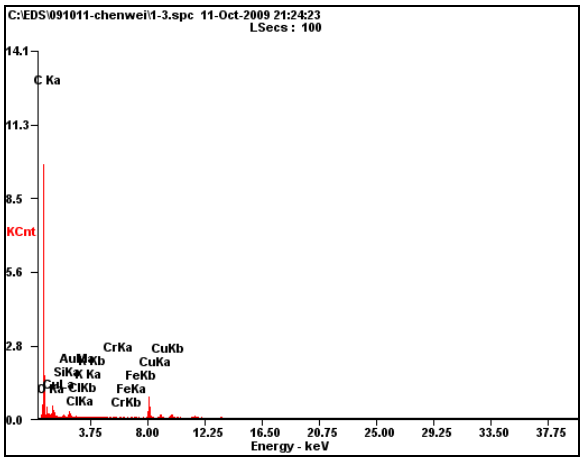
em	*Weight %*	*Atomic %*
C K	**31.00**	**48.40**
O K	29.20	34.20
SiK	14.00	09.40
AuM	00.20	00.00
ClK	00.00	00.00
K K	00.10	00.00
CrK	00.90	00.30
FeK	10.70	03.60
CuK	14.00	04.10

The sample spot on the silica surface after the drug loading:



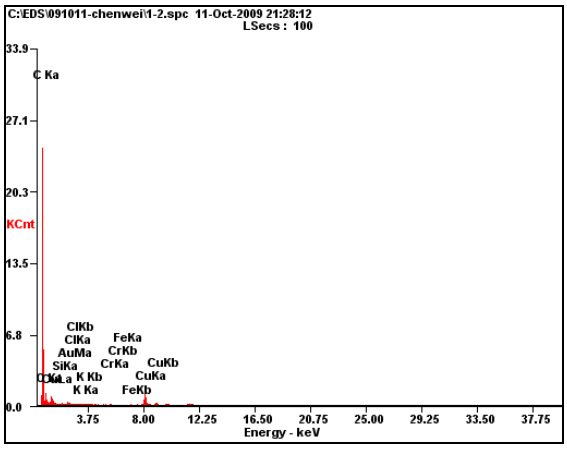
Elem	*Weight %*	*Atomic %*
C K	**92.00**	**98.20**
O K	01.30	01.00
SiK	00.10	00.00
AuM	04.10	00.30
ClK	00.00	00.00
K K	00.00	00.00
CrK	00.00	00.00
FeK	00.00	00.00
CuK	02.50	00.50

The sample spot on the Au surface before the drug loading:



Elem	*Weight %*	*Atomic %*
C K	**87.40**	**97.00**
O K	01.50	01.20
SiK	00.20	00.10
AuM	04.40	00.30
ClK	00.10	00.00
K K	00.00	00.00
CrK	00.10	00.00
FeK	00.00	00.00
CuK	06.30	01.30

The sample spot on the Au surface after the drug loading:



Elem	*Weight %*	*Atomic %*
C K	**91.30**	**97.50**
O K	01.70	01.40
SiK	00.10	00.10
AuM	02.20	00.10
ClK	00.10	00.00
K K	00.00	00.00
CrK	00.10	00.00
FeK	00.00	00.00
CuK	04.50	00.90

According the molecular structure of curcumin $C_{21}H_{20}O_6$, the percentage of the carbon is comparative high. So, before and after the drug loading, the element component will be changed.

After the drug loading, the carbon percentage on the silica surface changed from 31% to 92%.

However, on the surface of the gold NPs, the carbon percentage changed from 87.4 % to 91.3%.

So, from the results, we attribute it that the drug is loaded mostly on the surface of the MNPs.

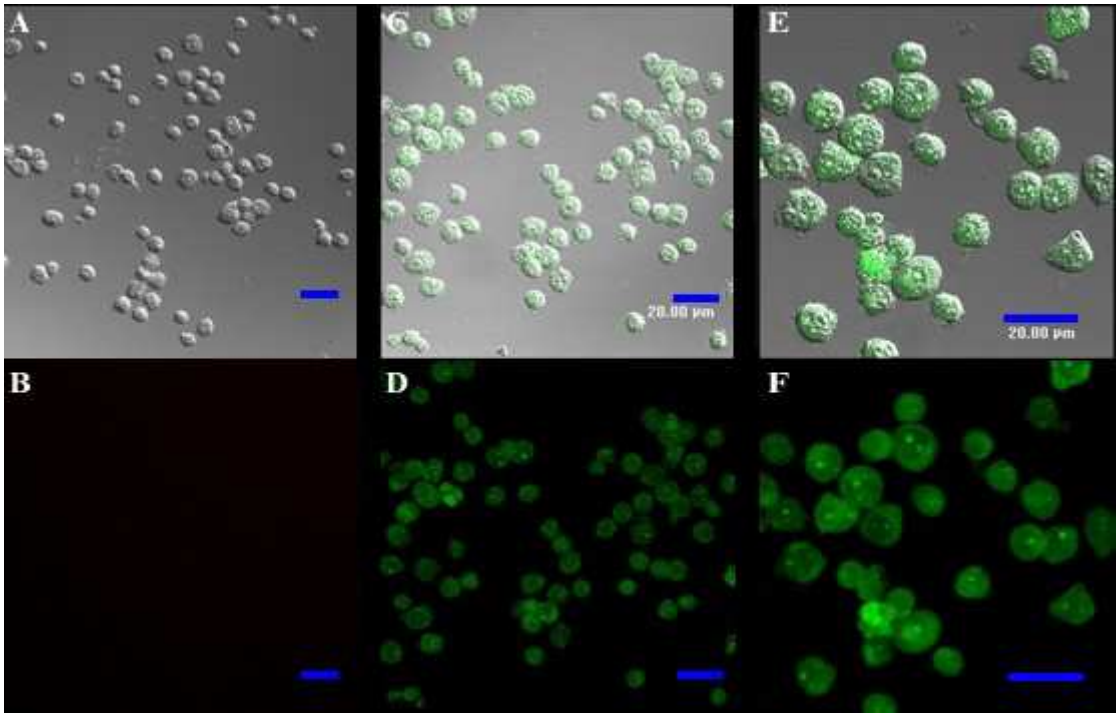


Figure CSLM. The CLSM images for the detection of early stage apoptotic HL60 cells by Annexin V-FITC (green fluorescence). (A-B) normal HL60 cells; (C-F) HL60 cells incubated with MPA-PEG-curcumin. Bar in figure: 20 μm.