**GO-Chl induce DNA damage in A549 lung cancer cells through SQSTM1/p62 mediated autophagy modulation**

**Supplementary Information**



Figure S1. Optical, functional, structural and morphological analysis of GO and GO-Chl nanoconjugate: (a) UV-Vis spectrum of GO and GO-Chl, (b) Fourier transform infrared spectrum of GO, Chl and GO–Chl, (c) Raman Spectrum of Graphite, GO and GO-Chl, (d) Field emission scanning electron microscope photomicrograph (e) High resolution transmission electron microscopy image of GO and (f) Selected area electron diffraction pattern of GO.

Figure S2. XPS survey spectra of graphene oxide (GO), Graphene oxide – chloroquine nanoconjugate (GO-Chl) and chloroquine (Chl).

**Table S1.** Summary of fitting parameters for the C 1s core level spectra for GO,Chl and GO-Chl samples. Uncertainty in determining the binding energy (B.E.) position and full width half maximum (FWHM) is estimated to be ±0.05 eV. Uncertainty in determining relative percentage is estimated to be ±5 % of the base value.

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **GO** | | | **Chl** | | | **GO-Chl** | | |
| **Peak** | **B.E. (eV)** | **FWHM (eV)** | **Relative %** | **B.E. (eV)** | **FWHM (eV)** | **Relative %** | **B.E. (eV)** | **FWHM (eV)** | **Relative %** |
| **C=C** | 284.4 | 1.62 | 7.27 | 284.4 | 1.65 | 13.64 | 284.5 | 1.63 | 13.85 |
| **C-OH** | 285.6 | 1.63 | 20.09 | 285.6 | 1.65 | 14.15 | 285.5 | 1.63 | 38.13 |
| **C-O** | 286.6 | 1.38 | 20.83 | 286.5 | 1.41 | 42.69 | 286.7 | 1.38 | 11.88 |
| **C=O** | 287.7 | 1.48 | 21.54 | 287.7 | 1.41 | 25.52 | 287.7 | 1.43 | 26.79 |
| **COOH** | 288.8 | 1.73 | 30.25 | 288.9 | 1.68 | 3.98 | 289.0 | 1.88 | 9.32 |