#### Supplementary Information:



**Supplementary Figure 1** : Establishment of In-vivo and in- vitro model and MLT treatment design.





**Supplementary Figure 2:** Bar Diagram representing relative viability of HepG2 cells upon Melatonin treatment.



Full western Blot images of "Supplementary Figure 1"

### **Raw Western Blot Images:**

## Figure 1

**(D**)





SLC7A11

GPX4

55kDa



β actin 42kDa

22kDa

## Figure 2

(**C**)



SLC7A11 55kDa





22 kDa



β actin 42 kDa

Figure 3

**(F)** 



HO - 1 28 kDa



Keap 1 69 kDa



Nrf2 110 kDa



β actin 42 kDa

## Figure 4

(A)



Nrf2 110 kDa



β actin 42 kDa

(**C**)



SLC7A11 55 kDa

GPX4 22 kDa

### Figure 6

**(B**)





p AMPK α 62 kDa

AMPK a

62 kDa





PPAR y





PPAR α 52 kDa



FAS





β actin

228kDa

42 kDa

Figure : 8

(**C**)





GPX4 22 kDa

SLC7A11 55 kDa





## Figure: 9

(A)



Nrf 2 110 kDa



HO 1 28 kDa





#### Figure : 10

(A)

Keap 1





pAMPKα 62 kDa



PPAR α 52 kDa



AMPK α



PPAR γ 58 kDa



SREBP1c 150 kDa FAS 228 kDa

β actin 42 kDa

## Figure : 10

(A)



β actin

42 kDa

# Supplementary Figure 1:



FAS



β actin