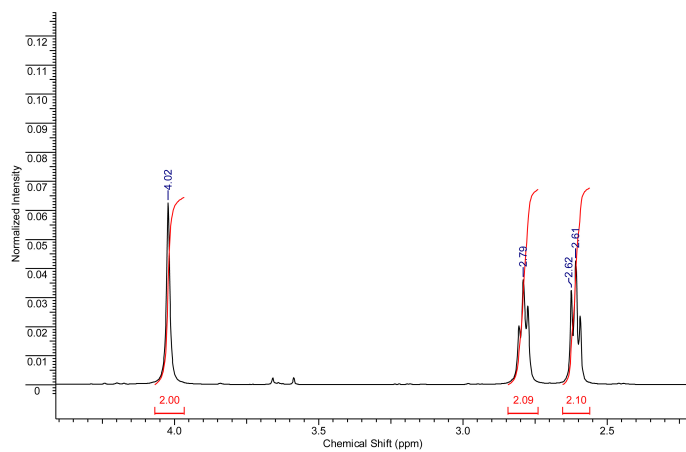
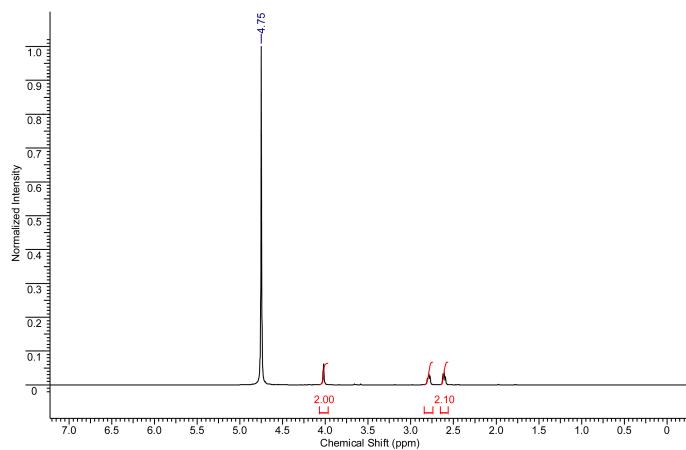


Stem Cell-Based Photodynamic Therapy

Tej B. Shrestha,* Gwi M. Seo, Matthew T. Basel, Mausam Kalita, Hongwang Wang, David Villanueva, Marla Pyle, Sivasai Balivada, Raja Shekar Rachakatla, Heather Shinogle, Prem S. Thapa, David Moore, Deryl L. Troyer* and Stefan H. Bossmann*

Supplementary Information

5-Aminolevulinic Acid: ^1H NMR (D_2O) 2.61 (t, 2H); 2.79 (t, 2H); 4.02 (s, 2H)



^1H NMR (D_2O) 2.61 (t, 2H); 2.79 (t, 2H); 4.02 (s, 2H)

Figure S1: ^1H -NMR of 5-aminolevulinic acid, synthesized according to M. S. Kang, D. M. Kim, J. S. Kim and J. H. Jeong, *Arch Pharm Res*, 2005, **28**, 1111-3.

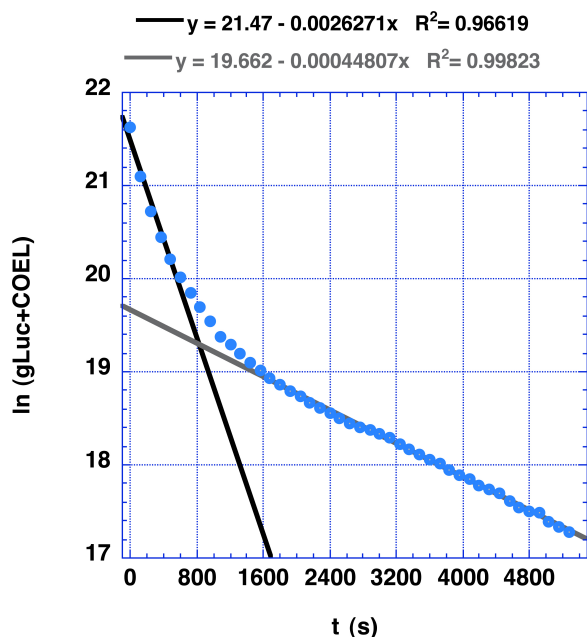


Figure S2: Kinetic Analysis of the time-profile of the bioluminescence occurring from gLuc: 100 μ L of supernatant from the medium, in which gLuc transfected neural stem cells (NSC) have been grown for 24h and 8 μ l of coelenterazine (1mg/mL).

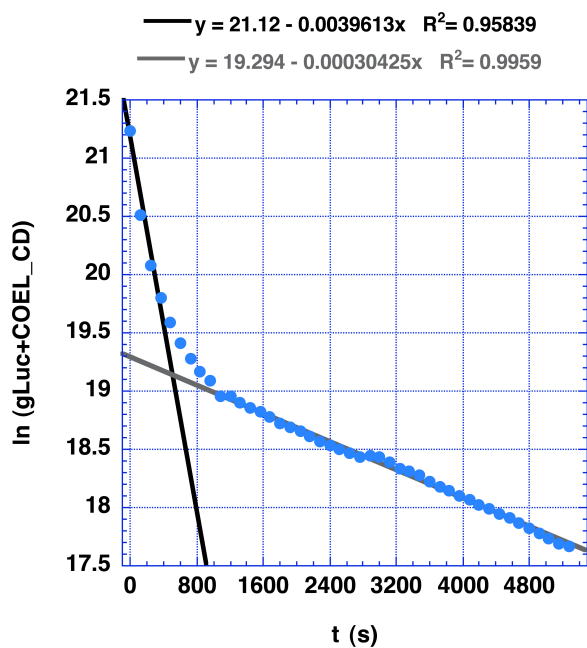


Figure S3: Kinetic Analysis of the time-profile of the bioluminescence occurring from gLuc: 100 μ L of supernatant from the medium, in which gLuc transfected neural stem cells (NSC) have been grown for 24h and 8 μ l of coelenterazine in β -cyclodextrin, ratio coelenterazine:cyclodextrin = 1:50 weight/weight).

It is noteworthy that coelenterazine and coelenterazine in β -cyclodextrin in water did not result in significant bioluminescence during the window of observation. The gLuc containing medium was not biofluorescent.

Detailed Statistical Analysis

In Vivo Experiment – 12 hours

ANOVA p value = 0.000925651

Multiple Comparisons Method: LSD

Multiple Comparisons Significance: 0.01

Multiple Comparisons:

	Treatment	Coel+gluc	Coel	Control
Coel+gluc	no			
Coel	no	no		
Control	yes	yes	yes	
ALA	yes	yes	yes	no

Homogenous Subsets

	1	2
Treatment	x	
Coel+gluc	x	
Coel	x	
Control		x
ALA		x

In Vivo Experiment – 24 hours

ANOVA p value = 0.001059569

Multiple Comparisons Method: LSD

Multiple Comparisons Significance: 0.01

Multiple Comparisons:

	Treatment	Coel+gluc	Coel	Control
Coel+gluc	no			
Coel	no	no		
Control	yes	no	no	
ALA	yes	yes	yes	no

Homogenous Subsets

	1	2	3
Treatment	x		
Coel+gluc	x	x	
Coel	x	x	
Control		x	x
ALA			x

In Vivo Experiment – 36 hours

ANOVA p value = 5.61951E-07

Multiple Comparisons Method: LSD

Multiple Comparisons Significance: 0.01

Multiple Comparisons:

	Treatment	Coel+gluc	Coel	Control
Coel+gluc	yes			
Coel	yes	no		
Control	yes	yes	no	
ALA	yes	yes	yes	no

Homogenous Subsets

	1	2	3	4
Treatment	x			
Coel+gluc		x		
Coel		x	x	
Control			x	x
ALA				x

Multiple Comparisons Method: LSD

Multiple Comparisons Significance: 0.0001

Multiple Comparisons:

	Treatment	Coel+gluc	Coel	Control
Coel+gluc	yes			
Coel	yes	no		
Control	yes	no	no	
ALA	yes	no	no	no

Homogenous Subsets

	1	2
Treatment	x	
Coel+gluc		x
Coel		x
Control		x
ALA		x

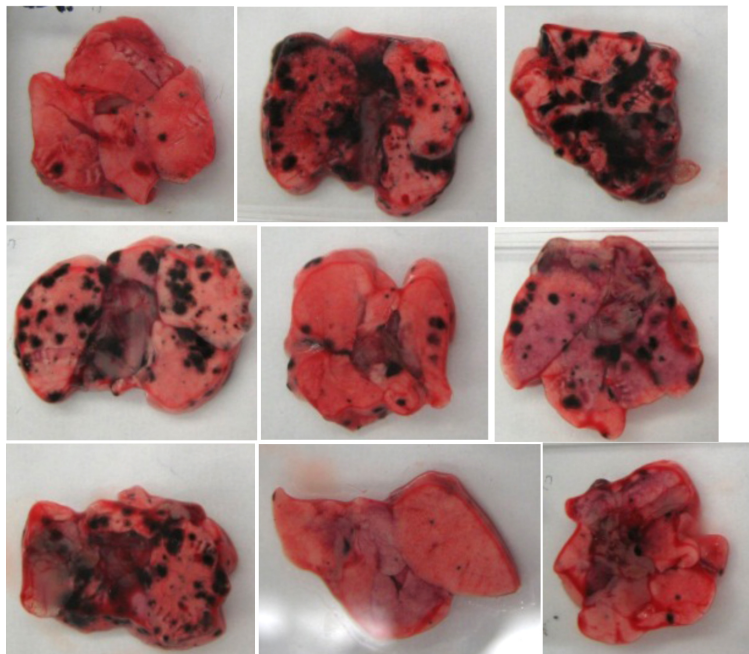


Figure S4: Lungs obtained from the treatment group (RUCMSC/gLuc + ALA + DFO + COEL)

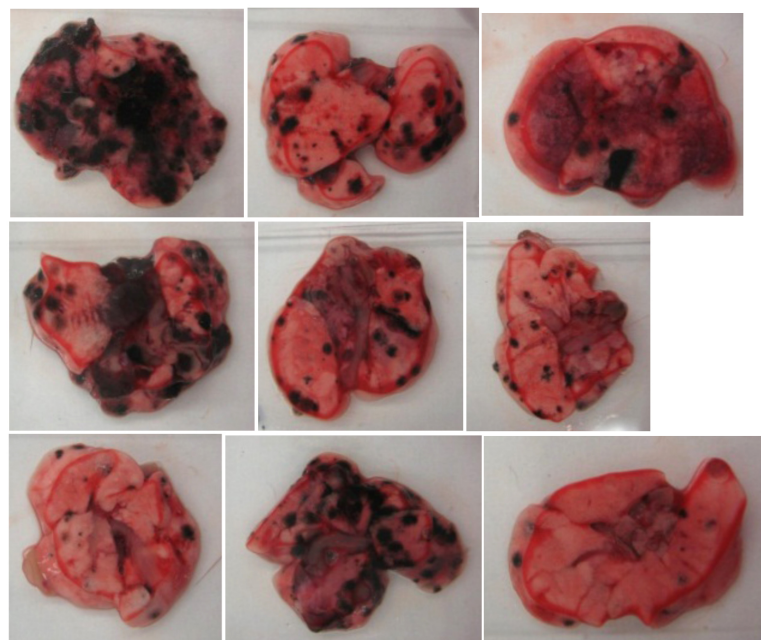


Figure S5: Lungs obtained from group 2 (RUCMSC/gLuc + ALA + DFO)

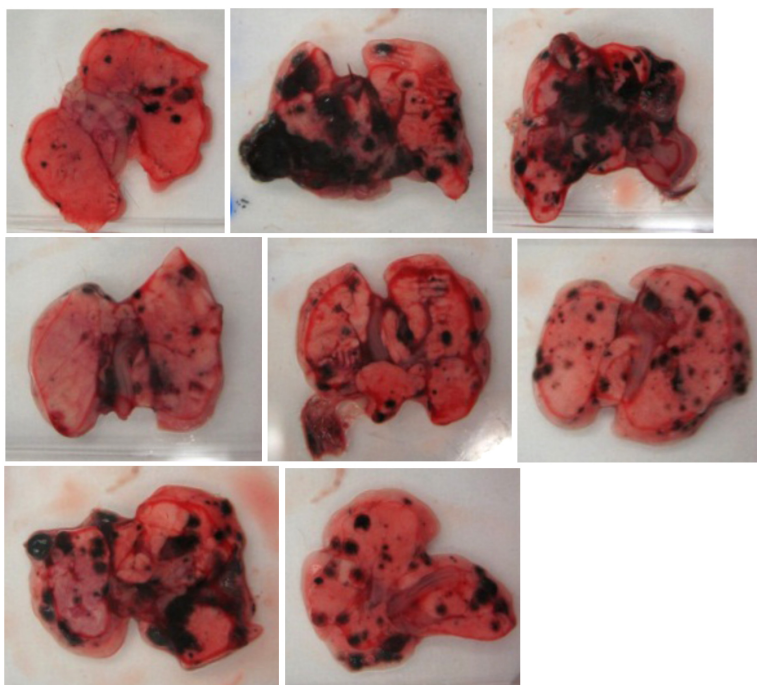


Figure S6: Lungs obtained from the control group (saline)