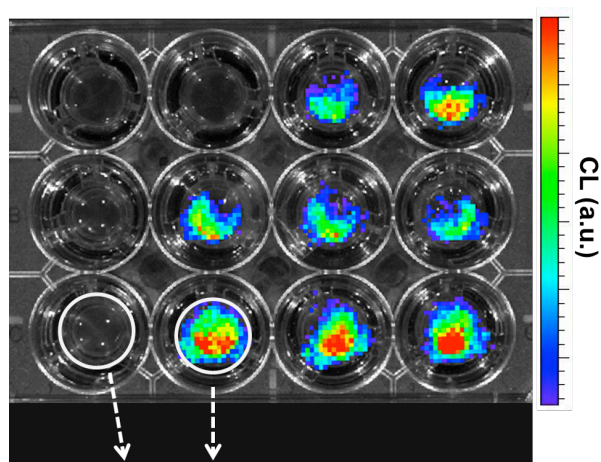


Supporting Information



Assignment of calculation range at NHNE cells

Calculation of Radiance by IVIS imaging system

Figure S1. Assignment of region of interest (ROI; indicated by white circles) for the calculation of radiance from NHNE cells by IVIS imaging system.

Assignment of calculation range on in vivo nose

Calculation of Radiance by IVIS imaging system

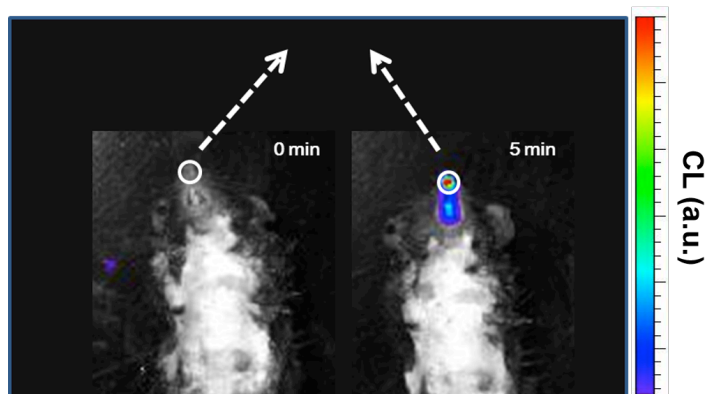


Figure S2. Assignment of region of interest (ROI; indicated by white circles) for the calculation of radiance from mouse mucosa by IVIS imaging system.

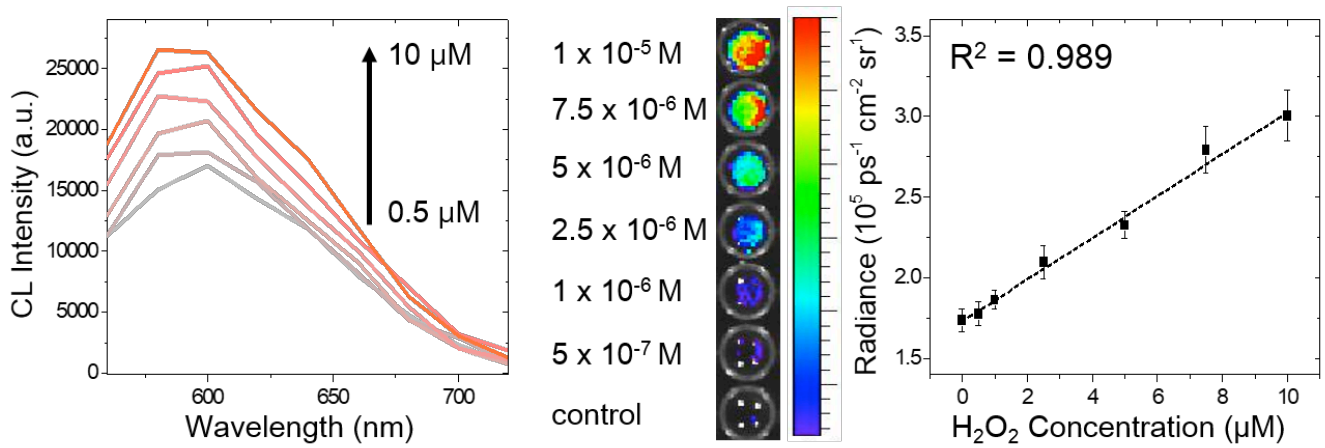


Figure S3. H_2O_2 concentration-dependent CL emission intensity of BioNT measured by IVIS imaging (right).

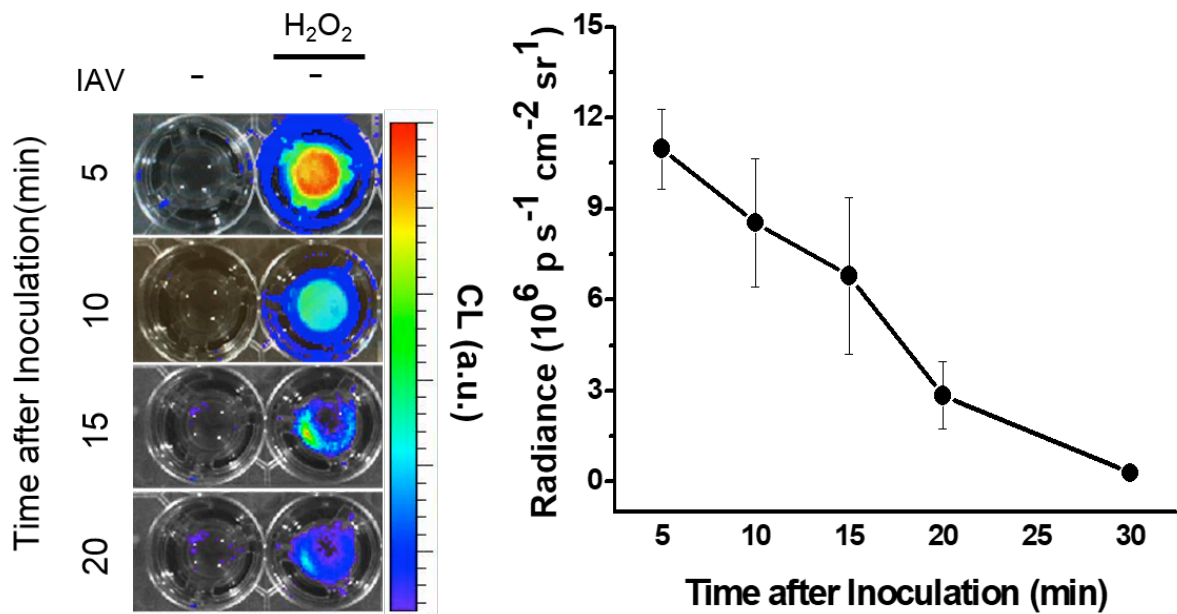


Figure S4. Optical and CL images of BioNT (6.6 mg in 300 μL PBS) in NHNE cells in the presence or absence of exogenous H_2O_2 (250 μM , left), and the corresponding temporal evolution of the CL intensities. Time points after inoculation of BioNT are indicated.

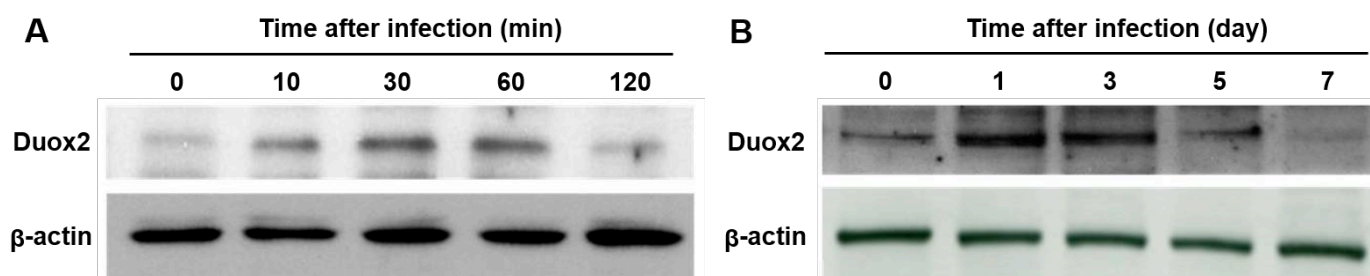


Figure S5. Duox2 protein expression in (A) IAV-infected NHNE cells and (B) nasal mucosa of IAV-infected mouse was determined by western blot analysis (n = 5).

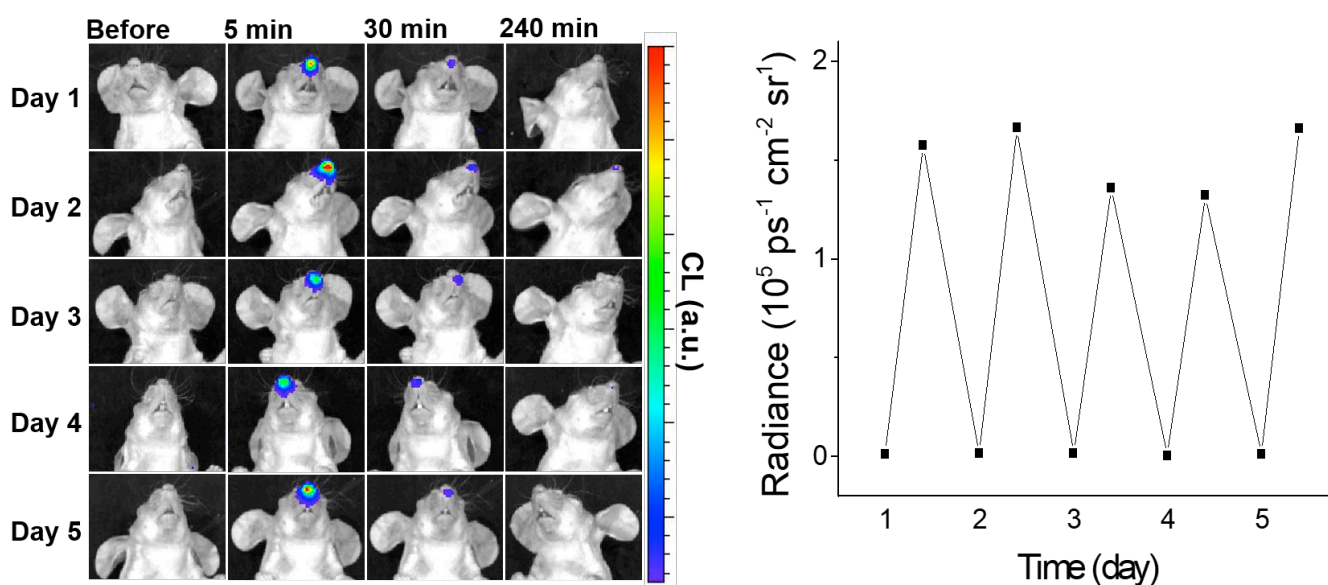


Figure S6. (Left, each row) Optical/CL overlay images of mice before and after probe inoculation at the indicated imaging time points for 240 min. Each mouse was daily administered with fresh BioNT in the presence of exogenous H_2O_2 (100 μM) and subjected to CL imaging. Such an imaging session was repeated up to 5 days (n = 5). (Right) Plot shows the daily change of CL intensities from the same mouse before and 5 min after probe inoculation, indicating that after 24 hours the CL signal from the earlier session was completely extinguished without interference to the next-session imaging.

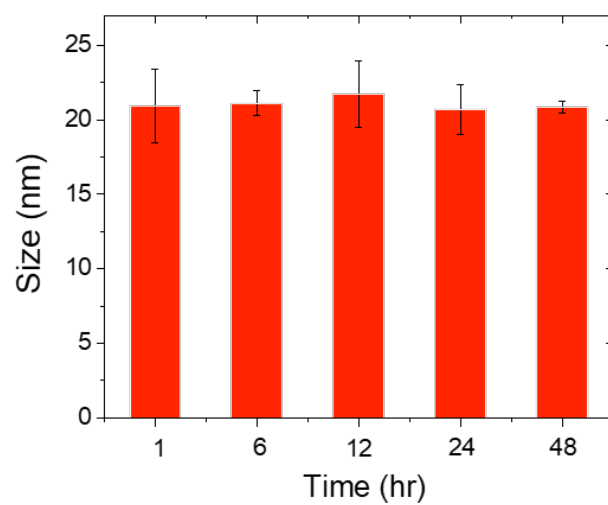


Figure S7. Colloidal stability of BioNT evaluated by temporal variation of the number-averaged hydrodynamic size under physiological condition (pH 7.4). The incubation time at 37 °C are indicated.