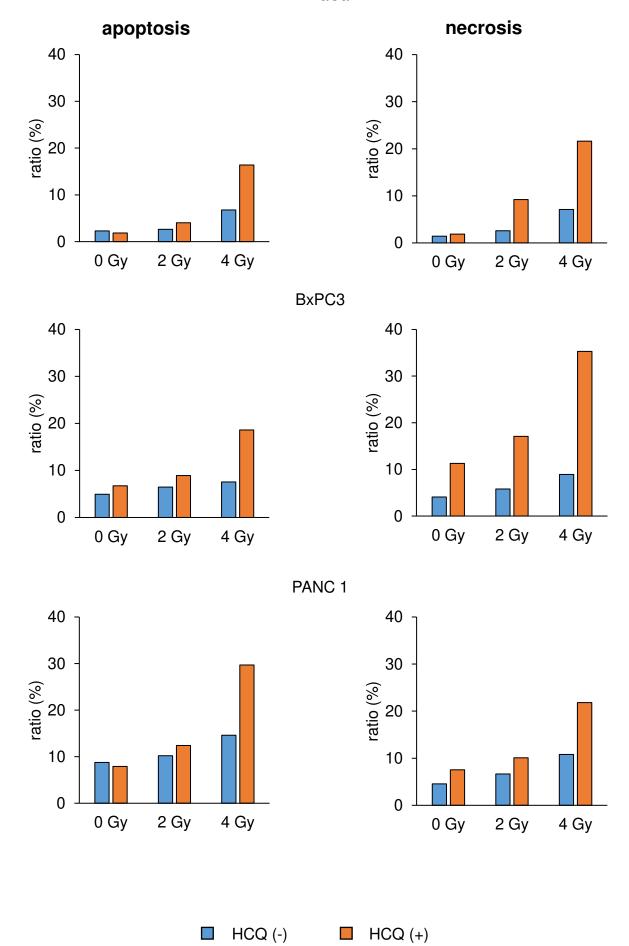
## **Supplementary Material**

## Autophagy Inhibition Increased Sensitivity of Pancreatic Cancer Cells to Carbon Ion Radiotherapy

Makoto Sudo<sup>a</sup> Hiroko Tsutsui<sup>a</sup> Shuhei Hayashi<sup>b</sup> Koubun Yasuda<sup>c</sup> Keiko Mitani<sup>a</sup> Nana Iwami<sup>d</sup> Makoto Anzai<sup>e</sup> Toshiro Tsubouchi<sup>e</sup> Mitsuaki Ishida<sup>f</sup> Sohei Satoi<sup>g, h</sup> Tatsuaki Kanai<sup>e</sup> Seiko Hirono<sup>a</sup> Etsuro Hatano<sup>i</sup> Jiro Fujimoto<sup>a, e</sup>

<sup>a</sup>Department of Gastroenterological Surgery, Hyogo Medical University, Hyogo, Japan, <sup>b</sup>Department of Microbiology, Hyogo Medical University, Hyogo, Japan, <sup>c</sup>Department of Immunology, Hyogo Medical University, Hyogo, Japan, <sup>d</sup>Department of Physiology, Hyogo Medical University, Hyogo, Japan, <sup>e</sup>Osaka Heavy Ion Therapy Center, Osaka, Japan, <sup>f</sup>Department of Pathology, Osaka Medical and Pharmaceutical University, Osaka, Japan, <sup>g</sup>Department of Surgery, Kansai Medical University, Osaka, Japan, <sup>h</sup>Division of Surgical Oncology, University of Colorado Anschutz Medical Campus, Aurora, CO, USA, <sup>i</sup>Department of Surgery, Graduate School of Medicine, Kyoto University, Kyoto, Japan



## **Figure Legends**

**Supplementary Figure 1.** Hydroxychloroquine treatment enhances the cytotoxicity of carbon ion irradiation in pancreatic cancer cells.

Pancreatic cancer cells were carbon-ion-irradiated at the indicated dose (LET: 80 keV/ $\mu$ m) with or without hydroxychloroquine (HCQ: 10  $\mu$ M). Three days after irradiation, apoptotic and necrotic cells were detected via flow cytometry. The apoptotic and necrotic cell ratios are shown. Blue bar indicates no HCQ treatment. Orange bar indicates HCQ treatment. MIA PaCa-2 (upper), BxPC3 (middle), and PANCI (lower) cells.