

**ENHANCED SURVIVAL AND CURE OF F98 GLIOMA BEARING RATS
FOLLOWING INTRACEREBRAL DELIVERY OF CARBOPLATIN IN
COMBINATION WITH PHOTON IRRADIATION.**

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Purpose: The goal of the present study was to evaluate the efficacy of intracerebral (i.c.) administration of carboplatin by means of convection-enhanced delivery (CED) in combination with fractionated, external beam photon irradiation for the treatment of F98 glioma-bearing rats.

Experimental Design: Carboplatin (20 µg/20 µl) was administrated i.c. by CED to F98 glioma-bearing rats, thirteen days following stereotactic implantation of 10³ tumor cells. One day following initiation of CED a 24 Gy X-ray dose was administered in 3 daily fractions of 8 Gy each. Photon irradiation was carried out using either a conventional (6 MV) linear accelerator (LINAC) or a (80 keV) monochromatic synchrotron source at the European Synchrotron Radiation Facility (ESRF). The primary endpoint of this study was overall survival.

Results: The median survival times were 79 days and 60 days and the corresponding percent

increase in life spans were 182% and 114%, respectively, for the combination of carboplatin chemotherapy and irradiation with either 6 MV or 80 keV photons. A subset of long-term survivors (>200 days) were observed in both chemo-radiotherapy groups: 16.6% and 8.3% for 6 MV and 80 keV, respectively. In contrast, the median survival times for 6 MV or 80 keV irradiated controls, chemotherapy alone, and untreated controls, were 42, 51, 45 and 28 days, respectively.

Conclusions: Our results convincingly demonstrate the therapeutic efficacy of i.c. administration of carboplatin by means of CED in combination with either 6 MV or 80 keV photons. Further studies are warranted to optimize this combination of chemo-radiotherapy for malignant gliomas.