Experimental report exp MD4(2-10 October 2002)

In-vivo experimentation MD4

These experiments were carried out as a continuation of the LS2121 (29 April-6 May 2002) experiments. The LS2121 gave a very large difference ($p < 0.0001$) between rats irradiated alone versus rats treated with CDDP *and* radiation (MeST = 206.5 days), although we were unable to distinguish any difference between rats treated with CDDP and irradiated either above or below the platinum K-edge. After one year, 6 out of 18 rats treated with CDDP *and* radiation, are cured. This dramatic increase in life span (694 %) is to our knowledge, the largest obtained up to now with the F98 glioma model.

During October experiments we increased the platinum concentrations (from 3 to 5 μg) into the tumor and decreased the X-rays dose (from 15 to 10 and 5 Gy) to attempt to reveal the difference between PAT and non-PAT conditions of irradiation. We have also duplicated the LS2121 experiment. The first results have been confirmed: same trend for the survival curves and no difference between rats irradiated above and below the platinum k-edge at 5 and 10 Gy.
Furthermore, no significant difference in median survivals times was found between the "5 Gy and 10 Gy" groups. However the "10 Gy" group did show a more important increase in the number of animals with prolonged survival as 78 % lived more than 50 days compared to 54 % for "5 Gy". In each group we have one long-term survival (still alive after 300 days). Another important fact is that rats treated by 5μg CDDP and 5 Gy have the same survival as rats treated with 15 Gy only (excepted that the group 15 Gy only had no long survival). Therefore, the combined treatment needs three times lower X-ray dose for the same therapeutic efficiency, in other words, the *dose enhancement factor could be estimated of about 3.*

Publication:

Corde, S., Balosso, J., Elleaume, H., Renier, M., Joubert, A., Biston, M. C., Adam, J. F., Charvet, A. M., Brochard, T., Le_Bas, J. F., Esteve, F., and Foray, N. Synchrotron photoactivation of cisplatin elicits an extra number of DNA breaks that stimulate RAD51-mediated repair pathways., *Cancer Research. 63:* 3221-7, 2003.