



Experiment Report Form

The double page inside this form is to be filled in by all users or groups of users who have had access to beam time for measurements at the ESRF.

Once completed, the report should be submitted electronically to the User Office via the User Portal:

<https://www.esrf.fr/misapps/SMISWebClient/protected/welcome.do>

Reports supporting requests for additional beam time

Reports can be submitted independently of new proposals – it is necessary simply to indicate the number of the report(s) supporting a new proposal on the proposal form.

The Review Committees reserve the right to reject new proposals from groups who have not reported on the use of beam time allocated previously.

Reports on experiments relating to long term projects

Proposers awarded beam time for a long term project are required to submit an interim report at the end of each year, irrespective of the number of shifts of beam time they have used.

Published papers

All users must give proper credit to ESRF staff members and proper mention to ESRF facilities which were essential for the results described in any ensuing publication. Further, they are obliged to send to the Joint ESRF/ ILL library the complete reference and the abstract of all papers appearing in print, and resulting from the use of the ESRF.

Should you wish to make more general comments on the experiment, please note them on the User Evaluation Form, and send both the Report and the Evaluation Form to the User Office.

Deadlines for submission of Experimental Reports

- 1st March for experiments carried out up until June of the previous year;
- 1st September for experiments carried out up until January of the same year.

Instructions for preparing your Report

- fill in a separate form for each project or series of measurements.
- type your report, in English.
- include the reference number of the proposal to which the report refers.
- make sure that the text, tables and figures fit into the space available.
- if your work is published or is in press, you may prefer to paste in the abstract, and add full reference details. If the abstract is in a language other than English, please include an English translation.



	Experiment title: Prevention of hippocampal seizure spreading using dentate gyrus microbeam transections in a murine model of mesio-temporal lobe epilepsy	Experiment number: MD620
Beamline: 17	Date of experiment: from: September 30th, 2011 to: October 3rd, 2011	Date of report: 20/09/2012
Shifts: 9	Local contact(s): Elke Brauer	<i>Received at ESRF:</i>
Names and affiliations of applicants (* indicates experimentalists): Jean Laissue* – Institute of Pathology Bern Antoine Depaulis* - Grenoble Institut des Neurosciences, INSERM U836 Elke Brauer-Krisch* - ESRF Raphael Serduc* - Grenoble Institut des Neurosciences, INSERM U836 Benoit Pouyatos* - Grenoble Institut des Neurosciences, INSERM U836 François Estève - Grenoble Institut des Neurosciences, INSERM U836		

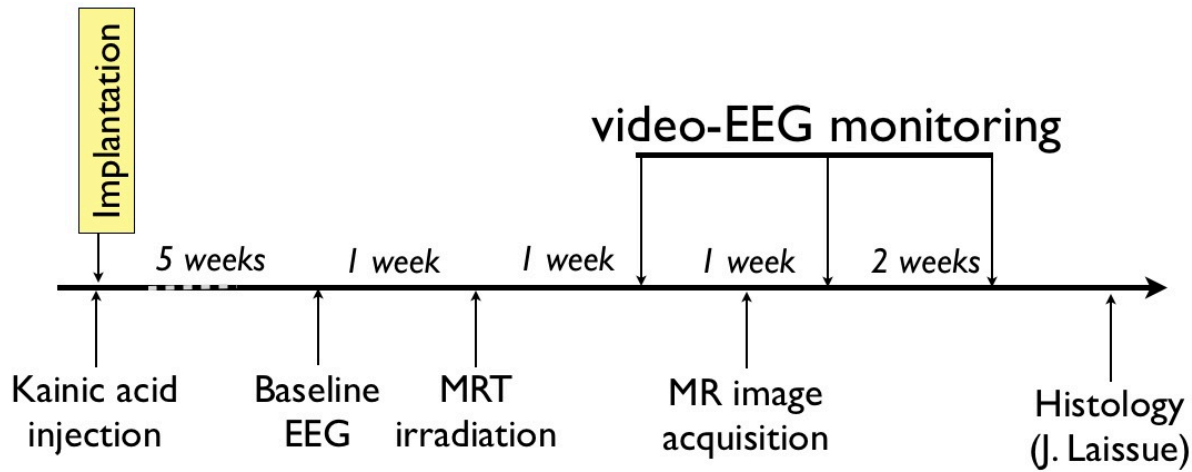
Report:

Rationale:

The results obtained with MD571 beamtime suggested that a disconnection between the dentate gyrus and the amon horn of the hippocampus was not sufficient to prevent seizures. It was therefore unlikely that transections of the dentate gyrus would be effective to stop seizures, as suggested by this proposal. Instead, we decided to perform a longitudinal EEG follow up in kainate mice before and after seamless irradiation in the dorsal hippocampus (100Gy).

Methods:

- *Timeline*

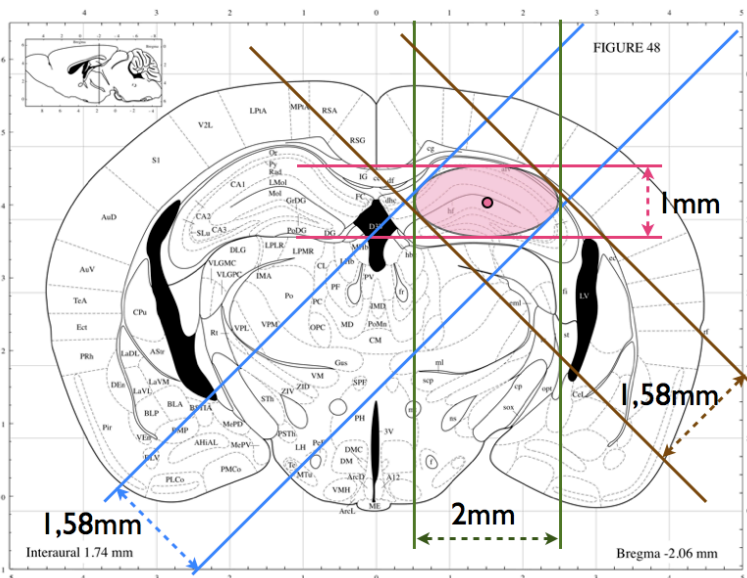


Note: EEG electrodes were custom-made carbon electrodes (MRI and MRT compatible).

- *Experimental groups:*
 Irradiated kainate mice 100Gy n=8
 Control kainate mice 0Gy n=3

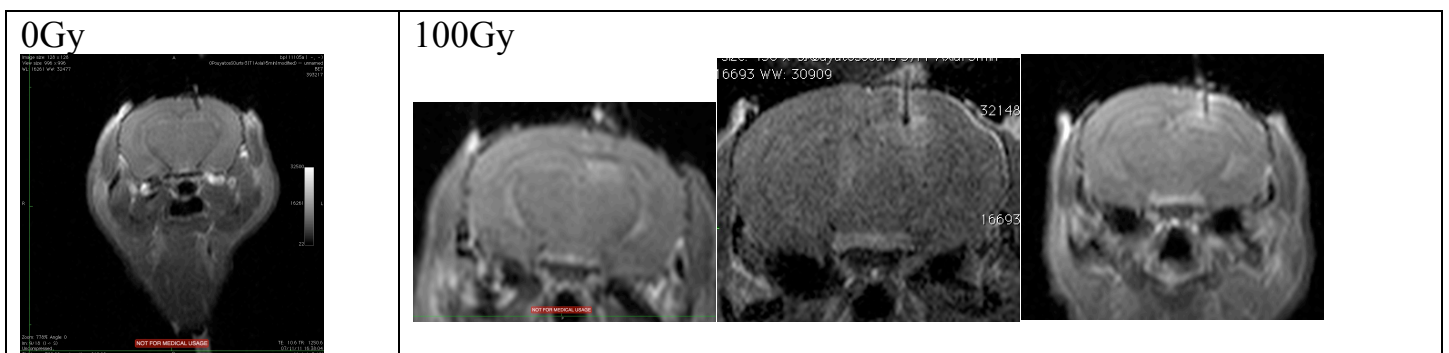
Results:

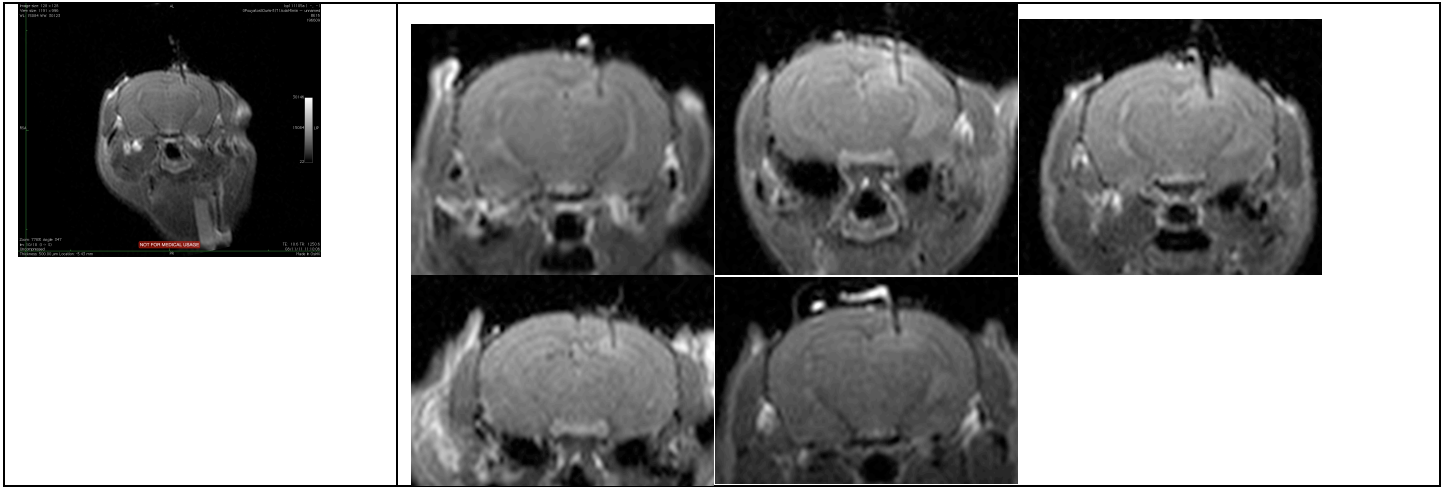
- Irradiation:



The postero-ventral hippocampus (which did not receive the kainate injection) was not irradiated.

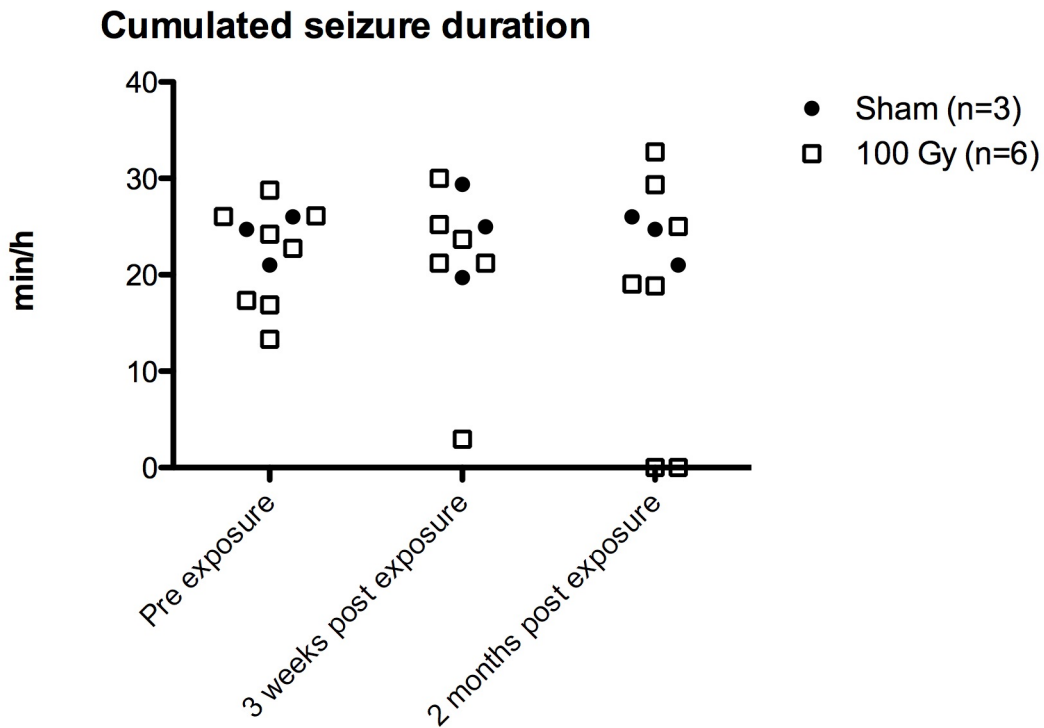
- 1 month post-irradiation T1-gado MRI





>>> Hypersignals are related to gadolinium diffusion through vessel microruptures due to irradiation. There's a clear hypersignal in the right hippocampus of mice irradiated with 100Gy. Carbon electrodes are visible in the hippocampi.

- EEG



- Histology: Being performed (Nissl).

Conclusions:

- Once again, only some of the animals (2 out of 8) irradiated at 100Gy display a disappearance of seizures after treatment. It seems to be an all-or-nothing mechanism.
- Does it depend on the location of the irradiation. Histology will tell us that.