**CHEMOBRAIN: ASSESSING THE POTENTIAL TO RECOVERY FROM DOXORUBICIN-INDUCED NEUROTOXIC EFFECTS IN CD-1 MICE**

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**Introduction**

‘Chemobrain’ is a well-recognized side effect of chemotherapy, being the designation chosen for the cognitive dysfunction caused by systemic chemotherapy. Doxorubicin (DOX) is a topoisomerase II inhibitor used to treat a wide range of tumours, nevertheless it can cause neurotoxicity. Memory and executive function were reported to be affected by chemotherapy, although it is not clear how long they last. Therefore, this work aims to determine if the neurotoxic effects promoted by clinically relevant doses of DOX are long lasting in the brain of adult mice.

**Methodology**

Cumulative dose of 9 mg/kg of DOX, through bi-weekly intraperitoneal administrations

<table>
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<tr>
<th>Group 1</th>
<th>Group 2</th>
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<td>1 week</td>
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Used for immunofluorescent detection of proteins Bax and p53 in hippocampal formation (HF) and pre-frontal cortex (PFC).

**Results**

Figure 1 - Representative image of merged immuno stained sections for immunofluorescent detection of proteins Bax (red) and p53 (green) in different areas of HF of mice treated with a total cumulative dose of 9 mg/kg DOX. [A] CA3 subregion; [B and C] DG and hilo subregions; [D] CA1 subregion.

**Discussion and Conclusions**

DOX increased apoptotic proteins (Bax and p53) one week after last administration, both in the PFC and CA3, HF subregion. At 5 months post administration (Group 2), the data collected so far showed an increase of the two markers in HF. In a future perspective, more studies are needed to elucidate other neurotoxic mechanisms involved.