P-439	**EFFECT OF GSM-1800 AND UMTS EXPOSURES ON MICROGLIAL ACTIVATION AND HEAT SHOCK PROTEINS INDUCTION IN BRAIN: A STUDY ON YOUNG ADULT AND ELDERLY RATS.** LACLAU M[1], BILLAUDEL B[1], TAXIL M[1], HARO E[1], RUFFIÉ G[1], SANCHEZ S[1], POULLETIER DE GANNES F[1], LAGROYE I[1], VEYRET B[1] (1) PIOM/Bioelecromagnetics Laboratory, ENSCPB/EPHE, 33607 Pessac, France
Presentation preference: Poster Only Major scientific thematic areas: TA10 - Non Ionizing Radiations	Contradictory results have emerged from recent studies describing low-level radiofrequency radiation (RFR) as a hazardous factor for the central nervous system while others described such type of exposure as totally safe. In the brain, heat shock proteins (Hsps) are often induced under harmful conditions such as ischemia, traumatic injury, epilepsy, hyperthermia, drug administration, and neuro-degenerative diseases. Under those conditions, activation of the microglial cell population is often observed. In this work we studied the effect of two types of mobile phone signals, GSM-1800 and UMTS on the expression of two major Hsps, induced in the brain under harmful conditions, Hsp 70 and Hsp 25. We also studied microglial activation in young adult (8 weeks) and elderly (17 months) Wistar rats. Height animals by group were exposed. Exposures were performed using a brain-averaged SAR of 2 W/kg following two types of protocols: an acute exposure, with exposure lasting only two hours, and a subchronic exposure in which the animals were exposed for two hours per day, five days per week, during four weeks. In all cases, rats were progressively habituated to the exposure setup (rockets) over two weeks to avoid stress and a sham group was exposed for each condition. Positive controls were performed by induction of a status epilepticus using a subcutaneous injection kainic acid (10mg/kg). At the end of exposure, rats were anesthetized with isofluran and perfused from the heart with PBS then paraformaldehyde prior to removing of the brain. Sections (10 m m thick) were prepared on slides for immunohistochemistry. Brain samples were coded and the analysis was performed in a blind manner. The sections were immunohistochemically stained with antibodies raised in rabbits against Hsp25 and against the inducible form of Hsp70. The whole glial cell population was detected by its common cell surface glycoconjugates, which bind the plant Griffonia simplicifolia I isolectin (Iso*B*4). Activated microglia was specifically detected by immunostaining with a polyclonal antibody raised against a type-3 complement receptor (CD11b). The qualitative analyses were done on three zones of the cerebral cortex as well as on the CA3-hippocampus. Preliminary results on 3 animals per group showed that, after subchronic exposure of young adult rats, a significant decrease in Hsp25 expression was seen in the frontal cortex after UMTS exposure, while no effect was observed under GSM-1800 exposure in the same zone. No alteration of the expression of Hsp70 after subchronic exposure to either GSM or UMTS was observed in any brain area. Histochemical analysis of microglia as well as data on elderly rats are in progress. Our data show a clear decrease of the 25 kDa Hsp family in the frontal cortex after subchronic 2-h/d 4-w exposure to UMTS. This may suggest an adaptation of cortical brain tissues to RFR exposure. Results on elderly rats and microglia will be presented at the meeting. This work was supported by the French Ministry for Research and New Technologies under contract RTM0004.