

Nachrichten

COST281 initiative as a successor of COST244 bis

In spring 2001, it was decided to continue research efforts made by the two initiatives COST and COST244 bis on effects of electromagnetic fields on biological systems. The third initiative named 'COST action 281' will run for another 5 years. Invited to participate again are experts from medicine, biology and technology.

In the COST244 bis initiative participated 16 European and/or EU-associated countries. The first session of the new initiative will take place at the end of June 2001 in Brussels. Further information may be obtained via the administrative office of the Research Association for Radio Applications.

Project commissioning concerning studies on the blood/brain barrier

A project recently commissioned by the FGF will deal with the question whether electromagnetic fields (EMF) of mobile radio have any disadvantageous effect on the functions of the blood/brain barrier (BBB). It will use a well-established in vitro model (i.e. replication of crucial components involved in a test tube). The BBB plays a decisive part in the protection of our brain substance by preventing the transfer of possibly damaging material from blood capillaries (smallest type of venes) to the brain fluid. Simultaneously,

it controls the regular transfer of all nutrients necessary for the brain like glucose, aminosoureas and oxygen. The BBB is located at the inner walls of the blood capillaries within the brain. There, the plane endothel cells forming the inner walls of the capillaries create particularly solid gap-less bonding structures - so-called 'tight junctions' preventing or at least strongly limiting the transport and exchange especially of bigger molecules between blood and brain. Malfunctions of the BBB, that is, a loosening of the barrier, may lead to damaging effects on the brain connected with certain disease patterns. Best known perhaps is the so-called sunstroke supposedly caused by such a temporary malfunction.

In the past, a series of scientific studies on the effect of EMF on the BBB showed contradictory results. Nearly all of these studies examined the permeability of animal BBB. In part, tests applied unrealistic very high-dosed EMF. Last year, Schirmacher et al. published results of their study for the first time examining the effect of weak (non-thermal) mobile radio fields of the E net (1800 MHz, SAR 0.3 W/kg) on an in vitro model: cell layers used as a model after 2 or 4 days became more permeable for the test substance saccharine (a sugar molecule) than non-exposed control preparations. In petri dishes containing a preparation consisting of two dense cell layers, permeability of the thus formed BBB model could be examined under much better defined conditions than in animal experiments. Similar models are since long in use in pharmaceutical research.

The recently initiated project of the FGF will examine mentioned findings by means

of the same methods further using four new physiologically relevant test substances (bigger sugar molecules, protein molecules, aminosoureas, ions). Should an altered permeability caused by weak EMF be indicated, the planned study could draw conclusions on affected mechanisms and metabolism channels. Apart from the E net mobile radio frequency, also UMTS radio frequencies will be applied. The study will be finished in approximately two years.

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