

Deep Underground Laboratory Integrated Activity in biology (DULIA-bio)



Contribution ID: 10

Type: not specified

Low Background Radiation Intensity Appears to be Harmful to Life

M.Balata⁵, D.Capece¹, M.Chiti⁶, A.Esposito⁶, G.Esposito^{7,8}, E. Fratini¹, M.Belli⁷, L.Satta¹, G.Simone⁷, M.A.Tabocchini¹⁷, M.Tomasi⁷,

¹Museo Storico della Fisica e Centro Studi e Ricerche Enrico Fermi, Roma, Italy; ²L'Aquila University, Italy;

³Flinders University, Adelaide, Australia; ⁴La Sapienza University, Rome, Italy; ⁵INFN-LNGS; ⁶INFN-LNF; ⁷

Istituto Superiore di Sanità and INFN Roma1-Gr.coll.Sanità, Roma, Italy.

Summary

Very little is known about the influence of environmental radiation on living matter. In principle, relevant information can be acquired by analyzing possible differences between parallel biological systems, one in a reference radiation environment (RRE) and the other in a low-radiation environment (LRE). We took advantage of the unique opportunity represented by the cell culture facilities at the underground Gran Sasso National Laboratories (LNGS) of the Istituto Nazionale di Fisica Nucleare. We tested immortalized Human lymphoblast (TK6) cells and Chinese hamster lung (V79) cells against cell doubling time, mutation frequency, spontaneous and induced by X-rays micronuclei production, enzymatic activity against ROS. Our results corroborate the hypothesis that environmental radiation contributes to the development and maintenance of defence mechanisms in organisms living today

Author: Prof. SATTA, Luigi (Centro Fermi, Roma)

Presenter: Prof. SATTA, Luigi (Centro Fermi, Roma)