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# **Cancer**

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## **Title: Treatment with Stem Cell Differentiation Stage Factors of Hepatocellular Carcinoma in Intermediated-advanced Stage: The Results of a Clinical Trial**

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### ***Abstract***

Experiments on different human tumor cell lines treated with stem cell differentiation stage factors taken from zebrafish embryos during cell differentiation, whereby totipotent stem cells differentiate into pluripotent stem cells, demonstrated a significant slowdown in tumor growth. The same results were obtained when tumor cells were treated with factors present in other different cell differentiation stages, like 5 somites and 20 somites stages. In addition, a significant decrease in Lewis lung carcinoma injected in C57BL/6 mice treated with differentiation factors was observed. The studies to determine which regulation pathways are involved in this mechanism of tumor growth inhibition demonstrated that key-role cell cycle regulator molecules, such as p53 and pRb, are modified by transcriptional or post-translational processes. A product prepared for human therapy was used in a randomized clinical trial on 179 patients affected with intermediate-advanced hepatocellular carcinoma and unresponsive to transplantation, resection, ablation therapy or chemoembolization. Containing factors taken from zebrafish embryos during the phase of cell differentiation in which totipotent stem cells differentiate into pluripotent cells (50% epiboly), the product was administered sublingually at a dose of 30 drops to patients at a concentration of a 40 micrograms/ml three times a day. Response in terms of tumor size, survival and performance status were evaluated. Evaluation showed that 19.8% of the patients experienced regression and 16% disease stabilization, with a survival rate of over 60% in 40 months in patients that responded to treatment, against just over 10% in the remaining patients. The performance status improved in 82.6% of the patients, including those in advanced stages of the disease (14).

### ***Biography***

Pier Mario Biava graduated in Medicine at the University of Pavia, specialised in Occupational Medicine at the University of Padova and in Hygiene at the University of Trieste. He has been studying environmental carcinogens since 1974. He has performed many epidemiological researches particularly about the relationship between asbestos and cancer. He has been studying the relationships between stem cell differentiation and cancer since 1982 and he has isolated the stem cell differentiation stage factors able to stop or delay tumor growth. Head of Occupational Medicine at the Hospital of Sesto S.G. (Milano) and Professor at the Post-Graduate School of Occupational Medicine of University of Trieste until 2003, he works now at the Institute of Research and Cure of Scientific Character (IRCSC) Multimedica of Milano. He is author of more than hundred scientific publications and of some books: "L'Aggressione Nascosta. Limiti Sanitari di Esposizione ai Rischi" edited by Feltrinelli, "Complexity and Biology" edited by B. Mondadori, "Cancer and the Search for Lost Meaning" edited by Springer. He is Vice-President of the International Academy of Tumor Marker Oncology and member of Editorial Advisory Boards of some scientific Journals. He is President of the Foundation for Research into the Biological Therapies of Cancer.