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## Nanotechnology in liver cancer

Therapies of liver tumors display diverse treatment alternatives. The administration of cytostatics coupled with and without iron oxides ( $Fe_3O_4$ ) has been presented in an experimental series with 36 animals with prior implantation of an  $R_1H$  rhabdomyosarcoma in the liver, since iron undergoes selective phagocytosis in the liver. In Group I, mitoxantrone is injected into the lateral tail vein of the animals (n = 12) in a dosage of 1 mg/kg of body weight. Group III (n = 12 animals) received mitoxantrone coupled with iron oxide ( $Fe_3O_4$ ), and Group II (n = 12 animals) received NaCl, in the same dosage for all groups. In the Sonography and in the measurement of the volume, a significantly smaller tumor growth is found in Group II compared with Group I and III. The volume was measured manually post mortally in mm3 (length × breadth × height). The tumor volume showed the lowest growth in Group II, which was treated with mitoxantrone-coupled iron oxides. Three animals from Group II died. The autopsy revealed no indication of the cause of death. There were neither thromboses nor allergic reactions in any of the animals. It can be clearly seen that Group I has a smaller mean volume and less scatter than Group II. The mean of Group I is also below that of Group II.

## **Biography**

Manfred George Krukemeyer MD, is a Doctor of Medicine, Professor of Surgery, Board Certified Surgeon at the Paracelsus-Hospital Osnabrueck, Germany. His Study of Medicine was University of Vienna, Medical School, Austria, University of Kiel and University of Bonn, Medical School, Germany, 1982 – 1989, Department of Internal Medicine University of New York, Mount Sinai School of Medicine, USA, 1988. Priztker School of Medicine University of Illinois, Department of Abdominal and Transplant Surgery, Chicago, USA, 1988. Resident of surgery 1991, University of Düsseldorf, Medical School, Humboldt University of Berlin, Medical School, Germany, Department of Surgery Raphaels Hospital Münster, Germany, teaching hospital of University of Münster, Medical School, Germany. He is Specialist in Surgical and research focusing on oncology, Nanomedicine and Transplantation; He is Reviewer of international journals in Nanomedicine. He has more than 90 publications in national and international journals, publication of 10 books, over 70 lectures about surgery and oncology in Germany, Europe, America and China. Since 1994 shareholder and chairperson of Paracelsus Hospitals, Germany, from 1994 to 2004, chairperson of Paracelsus Hospital Teufen, Switzerland. He got Doctor of Honor of the University of Sana'a, Republic of Yemen. In 2016, He got honorary professorship of surgery of the University of Chengdu, China.

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