The anti-tumor effect of ACNU and DFUR, and the effects of chemotherapy on living tumor cells was examined in vivo. The inhibition rate of 203G1 cells transplanted subcutaneously into mice (n=5) was 52.3% in weight after treatment with 5-DFUR, 400mg/kg/day for 10 consecutive days. Flowcytometric (FCM) analysis in vivo 203G1 cells showed an accumulation in the cells between the 2C and 4C-components after treatment of 5-DFUR. A delay in DNA treatment with 5‰³DFUR is 400mg/kg for 10 days, and the recovery of the DNA content was observed in 203G1, the drug resistance of 203G1 cells was more efficiently established by MR imaging than CT evaluation of the clinical usefulness of MR and MR imaging in last few years. The sensitivity of Na-23 NMR imaging in the diagnosis of pituitary adenoma, especially microadenoma, has been reported. In a recent study, the signal intensity of pituitary adenoma was over 0.1mmol/L, which is about one thousandth of that of normal brain. However, in recent years, machines and software of MRI and software of MRI had so developed that we realized the Na-23-NMR imaging of human brain and now we report about some experimental study and several clinical studies of Na-23-NMR imaging. For the reason of short T2 relaxation time and low sensitivity of sodium, which is about one thousandth of that of proton. We made ten phantoms of sodium chloride solution of different consistency, 0.1mmol/L, 0.2mmol/L, 1.0mmol/L. We used 1.5T machine (Magnetom) and we chose spin-echo pulse sequence TR:70-140msec and TE13-30msec. We made ten images and we found that the signal intensity of phantom has proportional relationship to the consistency of sodium. And we applied this technique to clinical studies. In some cases the lesion of disease, such as astrocytoma, and the edema was detected as the high signal intensity area likely, and we didn't eliminate this artifial area, but we have succeed of making of Na-23-NMR image. And we found the lesion as high signal intensity area of Na-23-NMR, which reveals that the intense of Na-23-NMR image.