RADIOIMMUNOASSAY USING PURIFIED CEA BY ANTIBODY-ACID GLYCOPROTEIN CHROMATOGRAPHY.
Hamazu, Y.*; Nakasui, Y.*; Kitano, T.*; Miyazaki, T.*; Hachiya, T.*; and Kajita, Y.*.
Dept of Radiology* and Internal Medicine**, Shiga Univ. of Medical Science and Kyoto Prefect. Univ of Medicine**.
Commerically available radio-labeled CEA preparations (Roche and CIS) had the immunoreactive activity with anti-CEA antibody. Therefore, it was decided that the affinity chromatography using anti-Ag bound to Sepharose was performed. When I-CEA was applied to the column, the unbound fraction (UF) to the column showed decreased reactivity with either anti-Ag or anti-CEA. However, the bound fraction (BF) showed significantly enhanced reactivity with either anti-Ag or anti-CEA.
The UF and the BF from I-CEA preparation of Roche and CIS kit was incubated with anti-CEA preparation of each kit, and standard curve of the RIA for determination of CEA was drawn. In both RIA methods the BF showed significantly steep curve with high binding, while the UF showed flattened curve with low binding. Standard curve using the BF was significantly improved in comparison with the before fractionation. By the practical determination of CEA amounts in test sample the improvement of sensitivity and accuracy were found. By this method the purification of CEA is possible.

THE RELATION OF CEA AND ALKALINE PHOSPHATASE LEVELS WITH THE BONE METASTASIS OF LUNG CANCER.
T. Kitano, Y. Fukunaga, T. Nakasui, S. Kimura, K. Fukuda, T. Takada, T. Takao and A. Ichinosawa
Osaka Prefectural Habikino Hospital
In this experiment a sample of 200 lung cancer cases in the early stage(stages I through III in the TNM classification) were for purposes of comparison measured for bone scintigram, blood serum CEA, and alkaline phosphatase(ALP). In each lung cancer tissue type about 50% of cases tested positive for bone scintigram. In cases of adenocarcinoma, CEA and ALP levels were found to be much higher than normal, at least one exhibiting high levels in 83% of cases. No such striking results were obtained in squamous carcinoma cases, CEA and ALP levels both falling within the norm in 71% of cases.
As a result of these observations, we see that if we take the extreme accumulation of nuclide in bone tissue as the criterion for metastasis, it is not necessarily true that in a high percentage of cases bone metastasis is accompanied by an increase in ALP, as has been reported. We see that there is no such increase in cases of squamous carcinoma. However, we also see that in most types of cases, observation of CEA and ALP levels may allow us to predict changes in bone tissue.

ENZYME IMMUNOASSAY OF CEA. A COMPARATIVE STUDY.
Tokyo Metropolitan Geriatric Hospital
Enzymeimmunoassay (EIA) has several advantages over RIA, that is EIA has longer shelf-life and dose not use radioisotope. Disadvantages of EIA supposedly include more assay steps needed and possible inferior sensitivity. The purpose of this paper is to compare results obtained by EIA and RIA of CEA.
Absorbance of substrate solution was changed with time after stopping enzyme-substrate reaction. However values of CEA obtained immediately and 150 minutes after putting a stop to the reaction showed an excellent correlation (r = 0.9995) and differences of values were less than 1 %. Response-error-relationship of both EIA and RIA was almost similar. Between-assy reproducibility was 10.6 in RIA. However long-term quality control chart of RIA showed increase of values of QC samples in assays performed for recent three months. While CV of between-assays of EIA was 7 - 8 % and comparable with RIA, EIA showed extremely good results in dilution study up to 160 times dilution. Results of clinical samples showed about twice higher in EIA than in RIA in low value range. But in ranges of higher values EIA showed much higher values. Therefore quadratic relationship was obtained between EIA and RIA. The results of clinical samples well agreed each other between EIA and RIA.