improving the administration of Bleomycin. For analysis of cell kinetics, "cumulative labeling method" was used, that is, ^{3}H-thymidine was injected into a peritoneal cavity repeatedly, and for making radioautogram, tumor biopsy was performed at 1, 6 and 24 hours respectively after the first injection of ^{3}H-TdR.

Kinetic parameter of tumor cell are follows: DNA synthesis time (ts) ranged from 6 to 10 hours and generation time (tg), from 34 to 38 hours.

Taking the ts and tg into consideration, 0.08 mg of Bleomycin was injected subcutaneously 5 times at the interval of 5 (Group 1), 24 (Group 2), and 48 hours (Group 3) respectively and radioautography was taken after 48 hours of last injection of Bleomycin.

Results are as follows: Labeling Index of Group 1 and 2 show 16.7% and 26.6%, whereas that of control group was 32.8%. Prolongation of ts and tg of Group 1 was observed, but the Prolongation of Group 2 and 3 was not remarkable. The 5 hours interval administration of Bleomycin was the most effective about the depression of cell proliferation.

The effects of Bleomycin on the normal tissue cell were also discussed.

Kinetic Analysis of Calcium Metabolism in Human

T. Uchikawa, E. Yabumoto, T. Matsumoto, N. Fukuda and T. Iinuma

National Institute of Radiological Sciences, Chiba

Calcium kinetics were studied in patients with various disorders of calcium metabolism by measuring the time course of radioatcive Ca or Sr concentrations in blood, and whole body retention after a intravenous injection, and fitting the curves thus obtained to sums of exponential functions.

Various compartment models were then formulated, and their validies were examined by computing the transfer rates and pool sibes of the compartments. Two models were compatible to data in three compartment models, and four models in four compartment analysis. There were, however, marked discrepancies between the calculated and observed whole body retention values, which was due to the isotope uptake in the fixed compartment of the bone.

The new way of computing this accretion rate was devised, and tested with all parameters obtainable from the area and shape of the blood radioactivity curves and whole body retention curves without assuming particular compartment models.

Some Observation on Estriol-4-^{14}C Incorporation into Some Organs in Fetus

H. Kawada and F. Akasu

Department of Obstetrics-Gynecology, Kanazawa University, Kanazawa

Present experiments were performed to study how Estriol-4-^{14}C was incorporated into each fraction of the organs.

Each fetus was given Estriol-4-^{14}C by umbilical cord injection.

Some organs were homogenized and were

fractionated into four fractions by Schneider's Method.

Specific activities in each fraction were counted by Liquid Scintillation Counter.

The results were as follows.

1) Acidsoluble fractions:

Incorporation into organs most increased.

2) Nucleic acids fractions:

No definite changes in each group were observed.

Fetuses, weighing 235–680 gr, were devided according to the period of pregnancy into 20–26 weeks.

Incorporation into livers most increased except case one.

Analyses of Transcobalamins from Various Animals Using ^{57}Co-Labeled Cyanocobalamin

H. NATORI, A. YAMAMOTO, K. MOTOYAMA and M. FUKUDA

Department of Medicine, Cancer Research Institute, Sapporo Medical College, Sapporo

Serum B_{12} (B_{12}) binding protein and B_{12} binder in leucocytes are called as transcobalamin (TC) and leucocyte binder (LB), respectively. Due to the extreme low contents of these proteins in serum and leucocyte, most of the work pertaining to B_{12}-binders were carried out using radioactive B_{12} bound to TC and LB as a traer. In this report, TC and LB from chicken, rat, cow, dog, and human were analyzed by gel filtration on Sephadex G-150 or Sepharose 6B, and paper electrophoresis followed by autoradiography. Isoelectric fractionation (IEF) was performed on human TC and LB. Radioactive cyanocobalamin (100 μCi/μg) was obtained from RCC (Amersham, England). Radioactivity was determined by the well type scintillation counter equipped with a spectrometer. Three TCs were separated by gel filtration except chicken in which single binder was found, and named as TC-0, -1, -2 according to Hom et al. Molecular sizes of TC and LB were calculated by Determann's method with the aid of the computer (Olivetti Programma 101), and listed as follows.

	TC-0	TC-1	TC-2	LB
Chiken	—	11×10^4	—	11×10^4
Rat	$>30\times10^4$	20×10^4	35000	35000
Bovine	$>30\times10^4$	11×10^4	34000	$>30\times10^4$, 11×10^4
Canine	$>30\times10^4$	13×10^4	34000	13×10^4
Human	80×10^4	12×10^4	35000	12×10^4

Electrophoretic pattern of TC and LB revealed one band on autoradiograms except human TC-1. Human TC-1 was divided into two bands at α_1 and α_2 region. IEF pattern of TC-1 revealed also heterogeneity and two peaks emerged at the acidic portion of the column. IEF pattern of LB was identical with TC-1. Mobility of human TC-2 was α_2 and pI was 6.75. Electrophoretic mobility of human TC-O coincided to α_2 globulin. Based upon the fact that, LB has same molecular size and same pattern on IEF to TC-1, and significant correlation was found between WBC and amount of TC-1 in CML patient, it is concluded that a significant portion of TC-1 is undoubtedly derived from wbs. Multiplicity of TCs found in different species indicated that some future work is needed to elucidate the origin of TCs found in serum.