Ga-67 labeled MoAb have been prepared by using dextrorotatory (DFO) as a bifunctional labeling agent. In the present study, we have used two model systems; hCG-87A (a MoAb against hCG) and osteosarcoma xenograft-OBST7 (a MoAb against osteosarcoma). Three coupling reagents, glutaraldehyde, SPDP and EMCS, were employed for the attachment of DFO to antibody. All Ga-67 labeled and radioiodinated MoAb showed similar immunoreactivity in vitro. Because glutaraldehyde was a homocoupling reagent, polymerized Abs were detectable in the radiolabeled prepared with glutaraldehyde, and biodistribution study revealed the increased accumulation in liver. The formation of polymerized Ab was not detectable in the case of heterocoupling reagents; SPDP and EMCS. The radiolabel with SPDP, which was introduced disulfide bonds between DFO and Ab, showed in vitro serum instability and rapid clearance. The radiolabel with EMCS, which was introduced thioether bonds, appeared most feasible for in vivo use due to its low liver-to-blood ratio and in vivo stability.

Clinical evaluation of immunoscintigraphy using iodine-131 labeled anti CEA and anti CA19-9 monoclonal antibody
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The clinical usefulness of iodine-131 labeled anti CEA and anti CA19-9 monoclonal antibody cocktail (IMACIS 1), was evaluated for the detection of malignant tumor by scintigraphy.
Whole body and spot images were taken at 3-5days after drip infusion of 1-3 mCi of IMACIS 1.Image data were simultaneously fed into a computer.Lugol solution or sodium perchlorate was administered to block thyroid uptake of iodine-131.Fourteen patient's baring malignant tumors confirmed by histological examination or other imaging techniques were studied,which included 6 of gastric cancer,3 of pancreatic cancer,2 of colorectal cancer,2 of lung cancer and 1 of primary unknown cancer.At least one lesion with abnormal accumulation of IMACIS 1 was shown in all of 14 cases.
Optical image processing and/or combined imaging with other organ scintigraphy may prove useful for immunodetection of malignant tumor with IMACIS 1.