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Development of new immunoradiometric assay for CA 125 antigen using two monoclonal antibodies produced by immunizing lung cancer cells

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CA 125 is an antigen associated with non-mucinous epithelial ovarian cancer, which is defined by OC 125 antibody developed by immunizing ovarian cancer cells. We have produced two monoclonal antibodies, 130–22 and 145–9, by using the human lung adenocarcinoma cell line PC-9. Both 130–22 and 145–9 antibodies recognized CA 125 antigen. However, the binding sites seemed to be separate from those of OC 125. Testing by 9 immunoradiometric assays (IRMA), using different combinations of the 3 monoclonal antibodies 130–22, 145–9 and OC 125 demonstrated that the best standard curve for detecting CA 125 could be obtained by a "simultaneous sandwich" assay based on a mixture of ^{125}I-labeled OC 125 and 130–22 or 145–9 coated beads. One-step IRMA, using 130–22 as a tracer and 145–9 as an immunoadsorbent, also showed good reproducibility and sensitivity for measuring CA 125. Antigens were detectable in the culture supernatants of PC-9 cells and 5 of 6 ovarian cancer and endometrial adenocarcinoma cells. These results indicate that one-step IRMA using 130–22 and 145–9 is useful for detecting CA 125 antigen.

Key words: Monoclonal antibody, CA 125, Immunoradiometric assay, Ovarian cancer, Lung cancer