Current Issue
Browse Issues
Search
About this Journal
Instruction to Authors
Online Submission
Subscription
Contact Us
RSS Feed

Acta Medica Iranica
2009;47(4) : 51-56

A new monoclonal antibody radiopharmaceutical for radioimmunoscintigraphy of breast cancer: direct labeling of antibody and its quality control

Mojtaba Salouti, Hossein Rajabi, Mohammad Hossein Babaei, Mohammad Javad Rasaee, Reza Najafi, Malihe Paknejad, Mohammad Hasan, Taghi. Altarihi, Javad Mohammad Nejad

Abstract:

Radioimmunoscintigraphy (RIS) has found widespread clinical application in tumor diagnosis. The antibody (Ab) PR81 is a new murine anti-MUC1 monoclonal antibody (MAb) against human breast carcinoma. In this study a very simple, rapid and efficient method for labeling of this MAb with 99mTc, particularly suitable for development of a 'kit'is described. The reduction of Ab was performed with 2-mercaptoethanol (2-ME) at a molar ratio of 2000:1 (2-ME:MAb) and the reduced Ab was labeled with 99mTc via methylene diphosphonate (MDP) as a transchelator. The labeling efficiency which was determined by instant thin layer chromatography (ITLC) was 94.2%±2.3. Radiocolloides measured by cellulose nitrate electrophoresis were 2.5%±1.7. In vitro stability of the labeled product in human serum which was measured by gel filtration chromatography (FPLC) was 70%±5.7 over 24 hr. The integrity of labeled MAb was checked by means of SDS-PAGE and no significant fragmentation was observed. The results of the cell-binding studies showed that both labeled and unlabeled PR81 were able to compete for binding to MCF 7 cells. Biodistribution studies were performed in normal BALB/c mice at 4 and 24 hrs post-injection and no important accumulation was observed in vital organs. These results show that the new radiopharmaceutical may be considered as a promising candidate for imaging of breast cancer.

TUMS ID: 2123

Full Text HTML Full Text PDF 438 KB

top ▲