

Expression and analysis of McAbs antigen against human hepatocellular carcinoma

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Abstract

AIM: To analyze the cause of tumor antigen heterogeneity and solve the problem of targeting diagnosis and therapy.

METHODS: Using flow cytometry, the expression of McAbs antigen against human hepatocellular carcinoma (HAb18, E₅, F₁₁ and HAb27) was investigated. Analyses of the antigen sites were made quantitatively on the human hepatoma cell lines (SMMC-7721; QGY-7701; BEL-7402; HHCC and 9204). In particular, expression of human hepatoma, its association with antigen HAg18, and its relations with cell cycle in four human hepatoma cell lines using the methods of indirect immunofluorescence and dual-parameter DNA dyeing were studied.

RESULTS: The corresponding antigen of McAbs HAb18, HAb27, E₅ were expressed on the five hepatoma cell lines and F₁₁ was expressed only on the 7721 and 7701 hepatoma cell lines, but their mean fluorescence intensity showed different values on each cell line. HAb18 and HAb27 showed a relatively high level of expression,

while E₅ and F₁₁ showed a lower level of expression. The value of AI (additivity index) was 136% for HAb18 and E₅, 108% for HAb18 and HAb27, and 118.6% for E₅ and H27As AI < 30% shows that both antibodies sites are the same, AI > 40% shows that both anti bodies sites are different, so the HAb18, HAb27 or E₅ McAbs were combined in pairs, showing that their antigen sites were different. Furthermore, HAg18 antigen was expressed very highly and the positive rate of HAg18 was 100% in all the four human hepatoma cell lines. The was a mean intensity fluorescence was 8.237 ± 1.168 for SMMC-7721; 5.627 ± 1.678 for QGY-7701; 4.378 ± 1.525 for BEL-7402 is 4.378 ± 1.525 and 7.38 ± 1.919 for HHCC. However, in the normal human liver cell (QZG), HAg18 antigen showed low expression (0.534 ± 0.018) and its positive rate was only 9%. The relationship between human hepatoma associated antigen HAb18 and the cell cycle was expressed at the lowest level in G₀-G₁ stages, a higher level in S stage and the highest level in G₂-M stage.

CONCLUSION: Analysis of the anti-hepatoma McAbs corresponding to antigen may provide the basis for targeted diagnosis and therapy. The expression heterogeneity of human hepatoma-associated antigen HAg18 is related to the stage of cell cycle in the same cell lines, but not related to the stage of cell cycle in different cell lines.

Key words: Liver; Carcinoma, hepatocellular; Antigens, neoplasms; Flow cytometry; Antibodies, monoclonal

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