Establishment of oncogene-monitoring system in hematologic malignancies using SFME cells

1992 Fiscal Year Final Research Report Summary

Establishment of oncogene-monitoring system in hematologic malignancies using SFME cells

Research Project

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03671181

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Grant-in-Aid for General Scientific Research (C)

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Single-year Grants

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Hematology

Research Institution

Kanazawa University

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SFME cell / Oncogene / Hematologic malignancy

Research Abstract

1. Objective: In this study, it has been attempted to establish an useful method for monitoring oncogenes in hematologic and other malignancies using Serum-Free Mouse Embryo (SFME) cells which are readily transformed by human cancer cells-derived proto-oncogenes.
2. Establishment of culture condition of SFME cells: First, in order to obtain the best culture condition for SFME cells, the cells were cultured under various conditions. It became clear that it is essential to use purified water for cultures and to add various additives (EGF etc.) at the time of medium exchange. Furthermore, a glass apparatus is not suitable for culturing SFME.

3. Tumorigenicity of H-ras and c-myc proto-oncogenes-transformed SFME cells: It was confined that transformed SFME cells are transplantable to syngeneic mouse (BALB/C), and are able to develop tumor in mouse.
4. Characteristics of transformed SFME cells: Transformed SFME cells were injected subcutaneously into BALB/C mouse and patterns of involvement in the various organs were observed sequentially. Consequently,a transformed cell line which frequently metastasize to the lung (r/mHM-SFME-1) were established. In an attempt to develop a gene-monitoring system, numbers of metastasized r/mHM-SFME-1 cells in the lung of BALB/C were analyzed using PCR method. The detectable minimum number of metastasized cells in the lung per mouse was 1X10^4 cells, and there was a linear correlation between the amount of DNA and a number of metastasized cell.
5. Application of this system for oncogene monitor in hematologic malignancies: Analizing SFME cells transformed by human leukemic cells-derived proto-oncogene make it possible to evaluate chemotherapeutic effects and to detect minimal residual disease readily.

Research Products (12 results)

All | Other

All | Publications (12 results)

[Publications] Nakamura,S.: "Application of bromodeoxyuridine(BrdU)and anti-BrdU monoclonal antibody for the in vivo analysis of proliferative characteristics of human leukemic cells in bone marrows." Oncology. 48. 285-289 (1991)

[Publications] Nakamura,S.: "Analysis of the proliferative characteristics of acute leukemic cells." Proceeding of the 4th Meeting og the German-Japanese Cooperative Congress of Clinical Cytology. P.149-158 (1991)

[Publications] Nakamura,S.: "Argyrophilic proteins of the nucleolar organizer region in acute leukemias and its relation to the S-phase fraction of leukemic cells." Acta Haematol. 87. 6-10 (1992)

[Publications] Nakamura,S.: "Analysis of proliferative characteristics of tumor cells by the silver-staining technique of the nucleolar organizer regions." Mitteilungsdienst der GBK. 20. 24-27 (1992)

[Publications] Nomura,T.: "Non-transformed,but not ras/myc-transformed,serum-free mouse embryo cells recover from growth suppresion by azatyrosine." Jpn J Cancer Res. 83. 851-858 (1992)

[Publications] Uehara,T.: "Apoptotic cell death of primed CD45RO^+ T lymphocytes in Epstein-Barr virus-induced infections mononucleosis." Blood. 80. 452-458 (1992)

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[Publications] Nakamura,S.: "Analysis of the proliferative characteristics of acute leukemic cells." Proceeding of the 4th Meeting of the German-Japanese Cooperative Congress of Clinical Cytology. 149-158 (1991)

[Publications] Nakamura,S.: "Argyrophilic proteins of the nucleolar organizer region in acute leukemias and its relation to the S-phase fraction of leukemic cells." Acta Haematol. 87(1-2). 6-10 (1992)

[Publications] Nakamura,S.: "Analysis of proliferative characteristics of tumor cells by the silver-staining technique of the nucleolar organizer regions." Mitteilungsdienst der GBK. 20(62). 24-27 (1992)

[Publications] Nomura,T.: "Non-transformed, but not ras/myc-transformed, serum-free mouse embryo cells recover from growth suppression by azatyrosine." Jpn J Cancer Res. 83(8). 851-858 (1992)

[Publications] Uehara,T.: "Apoptotic cell death of primed CD45RO^+ T lymphocytes in Epstein-Barr virusinduced infectious mononucleosis." Blood. 80(2). 452-458 (1992)

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