Cytogenetic Studies on the Plasmacytomagenesis in SCID mice

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Cytogenetic Studies on the Plasmacytomagenesis in SCID mice

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Section

Joint Research

Research Institution

Cancer Research Institute Kanazawa University

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Research Abstract

In order to determine the timing of the chromosomal translocations specific for murine plasmacytomas (t (12 ; 15) or t (6 ; 15)) with respect to the stages of B-cell development, C.B-17 scid/scid mice were reconstituted with SRBC-immunized or normal BALB/c6.15 mouse spleen and bone

marrow cells. Plasmacytomas were induced by i.p.injection of pristane alone or of pristane + Abelson murine leukemia virus (A-MuLV).
Five plasmacytomas developed in 19 SCID mice. Karyotype analysis showed that 3 were of donor (BALB/c6.15) origin and 2 were of host (C.B-17scid/scid) origin. Plasmacytomas originated in SCID mice (ABPC-SCID-IM-B and IM-D) had a・ t (6 ; 15) chromosomal translocation. Precursor cells from which the plasmacaytomas carrying t (6 ; 15) chromosomal translocation developed might be in a pro-, pre-B cell stage, because no functional B-cells develop in SCID mice by the defect of V- (D) -J recombination system. Ig allotype of C.B-17scid/scid mouse is "b". However, both IM-B and IM-D were IgA-producers of "a" allotype. This indicates that IM-B and IM-D did not develop from "leaky" SCID cells. SSLP (Simple Sequarance Repeat Length Polymorphism) analysis using several microsatellite DNAs of known chromosomal locations suggested that the Igh-C regions of chromosome 12 of IM-B and IM-D were replaced by those of chromosome 12 of BALB/c6.15 cells, therefore synthesizing IgA of "a" allotype.
In the next series of experiments, C.B-17scid/scid mice were reconstituted with surface Ig-positive cells (immature and mature B) obtained from BALB/c6.15 mouse spleens. Plasmacytomas were induced as mentioned above. Six plasmacytomas were induced by pristane + A-MuLV in 80 SCID mice. Four plasmacytomas developed by pristane alone in 40 SCID mice, so far. Karyotype analysis revealed that all the plasmacytomas developed were of donor mouse (BALB/c6.15) cell origin. Interestingly, all the plasmacytomas developed so far carried t (12 ; Rb (6.del 15)) chromosomal translocation irrespective of the inducing agents. Therefore, precursor cells from which the plasmacytomas carrying a t (12 ; 15) chromosomal translocation develop are suggested to be sIg-positive, immature and/or mature B cells.▲ Less

Research Products (12 results)

All Other

All Publications (12 results)

[Publications] Shinsuke OHNO et al.: "Development of plasmacytomas in C.B-17scid/scid mice reconstituted with BALB/c6.15 mouse cells" Cancer Research Institute Report. 22-23 (1991-1993)

[Publications] Sachiko SUEMATSU et al.: "Generation of plasmacytomas with the chromosomal translocation t(12;15)in IL-6 transgenic mice" Proc.Natl.Acad.Sci.USA. 89. 232-235 (1992)

[Publications] Francis WIENER et al.: "Functional homology between N-myc and c-myc in murine plasmacytomagenesis" Oncogene. 7. 1241-1249 (1992)

[Publications] Francis WIENER et al.: "Plasmacytomagenesis in mice:Model for neoplastic development upon chromosomal translocation" Carcinogenesis. 12. 1681-1697 (1992)

[Publications] 大野眞介: "SCIDマウス" キーワード癌｀95. (印刷中). (1995)

[Publications] Francis WIENER et al.: "Non-random chromosomal change (trisomy 11)in murine plasmacytomas induced by an ABL-MYC retrovirus" Cancer Research. (in press). (1995)

[Publications] Shinsuke OHNO et al.: "Development of plasmacytomas in C.B-17scid/scid mice reconstituted with BALB/c6.15 mouse cells" Cancer Research Institute Report. 22-23 (1991-1993)

[Publications] Sachiko SUEMATSU et al.: "Generation of plasmacytomas with the chromosomal translocation t (12 ; 15) in IL-6 transgenic mice" Proc.Natl.Acad.Sci.USA. 89. 232-235 (1992)

[Publications] Francis WIENER et al.: "Functional homology between N-myc and c-myc in murine plasmacytomagenesis" Oncogene. 7. 1241-1249 (1992)

[Publications] Francis WIENER et al.: "Plasmacytomagenesis in mice : Model for neoplastic development upon chromosomal translocation" Carcinogenesis. 12. 1681-1697 (1992)

[Publications] Seishi MURAKAMI et al.: "Transactivation of Human Hepatitis B virus X protein, HBx, is operated through the mechanism distinct from the protein kinase C and Okadaic acid activation pathways.Virology" 199. 243-246 (1994)

[Publications] Francis WIENER et al.: "Non-random chromosomal change (trisomy 11) in murine plasmacytomas induced by ABL-MYC retrovirus" Cancer Research. (in press). (1995)

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