The role of perivascular cells in brain tumor immunology

1997 Fiscal Year Final Research Report Summary

The role of perivascular cells in brain tumor immunology

Research Project

Project/Area Number

08671570

Research Category

Grant-in-Aid for Scientific Research (C)

Allocation Type

Single-year Grants

Section

一般

Research Field

Cerebral neurosurgery

Research Institution

Kanazawa University

Principal Investigator

KIDA Shinya Kanazawa University, Hospital, Assistant Professor, 医学部・附属病院, 講師 (10214826)

Project Period (FY)

1996 – 1997

Keywords

Neuroimmunology / cervical lymph node / brain tumor / perivascular cell / microglia / cerebrospinal fluid / MHC class II

Research Abstract

Recent physiological and anatomical studies have demonstrated that a major fraction of brain interstitial and cerebrospinal fluid drains into cervical lymph nodes in a number of experimental animals. Perivascular cells form an immunophenotypically defined population that plays an important scavenging role in the perivascular fluid drainage pathways in the rat brain ; such cells may also act as antigen-presenting cells. To investigate the role of cervical lymph nodes in brain tumor immunity, temporal profiles of MHC class II molecules expression and T lymphocyte subsets in brain tumors, cervical lymph nodes and other lymphoid tissues were analyzed by immunocytochemistry and by flow cytometry. The present study also

tests the hypotheses that (a) perivascular cells in human brain are distinct from microglia and haematogenous macrophages, and (b) perivascular cells within astrocytic tumors and peritumoral edematous brain tissue react in a similar way to perivascular cells in the rat brain. The results suggest that cervical lymph nodes act as regional lymph nodes in brain tumor immunity. In human brain, perivascular cells form a defined population of resident cells and are distinct from microglia, monocytes and macrophages. Upregulation of MHC class II and PGMI expression on perivascular cells in tumors and edematous brain, suggest that they play a similar scavenging role in the human brain to that seen in the rat brain.

Research Products (8 results)

All | Other

All | Publications (8 results)

[Publications] 木多 真也: "脳組織定住性免疫細胞perivascular cellのMHC class-II発現能の検討" 神経免疫研究. 9. 29-33 (1996)

[Publications] Weller RO: "Immunological significance of lymphatic drainage of the brain" Bull Acad Natle Med. 181. 661-671 (1997)

[Publications] Kida S: "Significance of cervical lymphnodes as regional lymph nodes of the brain" Brain Pathol. 7. 1349- (1997)

[Publications] 木多 真也: "髄膜をめぐる諸問題" 早石修.吉岡享.山下純宏.山嶋哲盛.木多真也, 157 (1997)

[Publications] Kida S: "Upregulation of MHC class II on brain perivascular cell" Neuroimmunol Res. 9. 29-33 (1996)

[Publications] Weller RO: "Immunological significance of lymphatic drainage of the brain" Bull Acad Natle Med. 181. 661-671 (1997)

[Publications] Kida S: "Significance of cervical lymph nodes as regional lymph nodes of the brain" Brain Pathol. 7. 1349 (1997)

[Publications] Kida S: "CSF circilation and Neuroimmunology" Current research on Meninges. SiMed Publications, Tokyo. 44-47 (1997)

URL: https://kaken.nii.ac.jp/report/KAKENHI-PROJECT-08671570/086715701997kenkyu_seika_hokoku_

Published: 1999-03-15