

Zeitschrift: Schweizer Archiv für Tierheilkunde SAT : die Fachzeitschrift für Tierärztinnen und Tierärzte = Archives Suisses de Médecine Vétérinaire
ASMV : la revue professionnelle des vétérinaires

Herausgeber: Gesellschaft Schweizer Tierärztinnen und Tierärzte

Band: 132 (1990)

Heft: 8

Artikel: T-Lymphocyte subpopulations in fiv-positive and -negative cats

Autor: Hoffmann-Fezer, G. / Thum, I. / Ackley, C.

DOI: <https://doi.org/10.5169/seals-593539>

Nutzungsbedingungen

Die ETH-Bibliothek ist die Anbieterin der digitalisierten Zeitschriften auf E-Periodica. Sie besitzt keine Urheberrechte an den Zeitschriften und ist nicht verantwortlich für deren Inhalte. Die Rechte liegen in der Regel bei den Herausgebern beziehungsweise den externen Rechteinhabern. Das Veröffentlichen von Bildern in Print- und Online-Publikationen sowie auf Social Media-Kanälen oder Webseiten ist nur mit vorheriger Genehmigung der Rechteinhaber erlaubt. [Mehr erfahren](#)

Conditions d'utilisation

L'ETH Library est le fournisseur des revues numérisées. Elle ne détient aucun droit d'auteur sur les revues et n'est pas responsable de leur contenu. En règle générale, les droits sont détenus par les éditeurs ou les détenteurs de droits externes. La reproduction d'images dans des publications imprimées ou en ligne ainsi que sur des canaux de médias sociaux ou des sites web n'est autorisée qu'avec l'accord préalable des détenteurs des droits. [En savoir plus](#)

Terms of use

The ETH Library is the provider of the digitised journals. It does not own any copyrights to the journals and is not responsible for their content. The rights usually lie with the publishers or the external rights holders. Publishing images in print and online publications, as well as on social media channels or websites, is only permitted with the prior consent of the rights holders. [Find out more](#)

Download PDF: 08.08.2025

ETH-Bibliothek Zürich, E-Periodica, <https://www.e-periodica.ch>

The results document that atrazine has a toxicity for gills and renal and hemopoietic tissue also in fish. Even relatively low concentra-

tions comparable to those in some surface waters may induce distinct lesions at chronic exposure.

Institut für Immunologie, GSF, Munich, FRG

T-LYMPHOCYTE SUBPOPULATIONS IN FIV-POSITIVE AND -NEGATIVE CATS

*G. Hoffmann-Fezer, I. Thum, C. Ackley, J. Mysliwicz,
K. Hartmann, W. Kraft*

Strong similarities have been shown between feline immunodeficiency virus infection (FIV) and the human AIDS-complex concerning virus structure as well as clinical and epidemiological manifestations (Pedersen, 1989; Yamamoto et al., 1989).

The human counterpart HIV is known to infect predominantly CD4⁺ T helper lymphocytes and cells of the monocyte/macrophage lineage (Detels et al., 1983; Levy, 1985; for review Sattentau et al., 1988). Gradual reduction in CD4⁺ T helper subpopulation absolute numbers as well as in percentage is one of the most striking immunological consequences of HIV infection. We wondered if T-helper and T-suppressor lymphocytes were also changed in FIV-infected cats.

Therefore we have examined peripheral blood lymphocytes of FIV antibody positive domestic cats using recently developed monoclonal antibodies against cat CD4 homologue (Ackley et al., 1990) and cat CD8 homologue (Klotz et al., 1986).

The most prominent clinical symptoms of cats included in this study were: chronic infections of the mouth, chronic upper respiratory infections, fever, chronic infections of the skin, inappetence, weight loss and in some cats, neurological signs or uremia. Control animals were FIV and FeLV seronegative cats without signs of disease.

Immunofluorescence analysis of mononuclear cells of peripheral blood was performed as two-colour staining using goat-anti-cat-Ig-PE for demonstration of B-cells together with either FITC-labeled anti-fCD4 or FITC-labeled anti-fCD8. Lymphocytes were analysed by automated flow cytometry (FACScan, Becton Dickinson, Mountain View, CA). FACS analyses of peripheral blood lymphocytes of healthy seronegative cats revealed a percentage of 37% of fCD4⁺ cells and 11.36% of fCD8⁺ cells (table), whereas seropositive cats had 26% fCD4⁺ and 17.2% fCD8⁺ labeled lymphocytes, all of which

were negative for feline Ig. The percentage of Ig⁺ B-lymphocytes in seropositive cats were not different from those of seronegative animals.

When the absolute numbers of fCD4⁺ and fCD8⁺ cells were calculated, there was a similar appearance of figures, however an increase in fCD8⁺ cells was less prominent than a decrease in fCD4⁺ cells.

Changes in T-cell subsets in FIV-antibody positive, clinically affected cats show a clear tendency of decreased fCD4⁺ cells and of an increase in fCD8⁺ lymphocytes. These alterations result in a fCD4/fCD8 ratio of 1.6 in FIV-positive cats compared with a ratio of 3.4 in control animals. A relationship between severity of illness and low fCD4⁺ cells counts (as demonstrated in HIV-infection) could be revealed. But there were also low fCD4⁺ values in cats without severe clinical symptoms. A correlation between virus antigen positivity and fCD4⁺ counts could not be detected, since virus positivity is not yet available. The alterations in T-cell subsets are a further evidence for a strong similarity between human AIDS and FIV induced feline AIDS-like disease concerning the pathogenesis. Therefore FIV induced disease is an animal model better suitable for treatment and immunization approaches than for example, SIV infections.

Table: Percent and absolute numbers of fCD4⁺ and fCD8⁺ cells in FIV seropositive and seronegative cats.

	CD4 ⁺ %	abs/μl	CD8 ⁺ %	abs/μl	CD4/CD8 ratio
seropositive n = 20	26.05 [±] 10.02	733 [±] 461	17.2 [±] 7.9	477 [±] 382	1.6 [±] 0.83
seronegative n = 22	37.32 [±] 14.11	1305 [±] 761	11.36 [±] 3.98	379 [±] 153	3.4 [±] 1.6

Institute of Veterinary Pathology, University of Berne, Switzerland

ALTERNATIVES TO IN VIVO ANIMAL EXPERIMENTATION: DEVELOPMENT OF A NOVEL IN VITRO ASSAY TO STUDY NEUTROPHIL-ENDOTHELIUM INTERACTION

W. Holden, R. Zwahlen, M. Holub

Adhesion of neutrophil granulocytes (PMN) to endothelial cells (EC) is an essential event in the triggering of further steps in the inflammation process. A substantial number of drugs such as steroidal or non-steroidal antiinflammatories are used either therapeutically or prophylactically. Therefore, it is important to study the mechanisms of action of those drugs and their eventual cytotoxic effects on the endothelium.

We developed a novel physiological model, based on endothelial cell culture to study those cellular interactions in conditions simulating

the *in vivo* situation. Cultures of EC were initiated from bovine aortas obtained at the local slaughterhouse. The cells were isolated enzymatically with collagenase 0.2%. The primary cultures were fed with growth medium containing 10% fetal calf serum and antibiotics. After the first passage the cells were fed with a medium free of antibiotics to preserve the integrity of the receptors. The cells were passaged until purity: the endothelial nature was confirmed morphologically by the typical «cobblestone pattern» and immunohistochemically by the presence of factor VIII (Fig. 1). In the final stage of the culture, the EC were grown on collagen-coated microcarriers