Human Eosinophils Release the Lymphocyte and Eosinophil Active Cytokines, RANTES and Lymphocyte Chemoattractant Factor

K.G.	Kaiser G.	Lim ^{a,c}
H.-C.	Hsiao-Ching	Wan ^{a,b}
M.	Murray	Resnick ^a
D.T.W.	David T.W.	Wong ^b
W.W.	William W.	Cruikshank ^c
H.	Hardy	Kornfeld ^c
D.M.	David M.	Center ^c
P.F.	Peter F.	Weller ^a

^aDepartment of Medicine, Beth Israel Hospital, Harvard Medical School, ^bHarvard School of Dental Medicine, and ^cPulmonary Center, Boston University School of Medicine, Boston, Mass., USA

Key Words

Eosinophils

RANTES

Lymphocyte chemoattractant factor

Correspondence to: Dr. Peter F. Weller MD, Associate Professor, Harvard Medical School, Beth Israel Hospital, Department of Infectious Disease, Dana 617, 330 Brookline Avenue, Boston, MA 02215 (USA)

We investigated whether eosinophils can release two cytokines that could stimulate migration and other responses of lymphocytes and eosinophils [1, 2]. Eosinophils from healthy nonatopic donors were purified by isolation of gra-nulocytes on Ficoll-Paque gradients followed by negative immunomagnetic bead depletion of CD16⁺ neutrophils and any residual CD3⁺ or CD19⁺ lymphocytes and CD14⁺ monocytes. RT-PCR of mRNA from > 99% pure eosinophils yielded appropriately sized RNA products with primer pairs specific for RANTES and lymphocyte chemoattractant factor (LCF). By ELISA assays, immunoreactive RANTES was detected in supernatants of highly purified eosinophils. Moreover, the supernatants of cultured eosinophils contained potent chemotactic activities which were largely due to RANTES and LCF. Significant eosinophil-derived lymphocyte chemotactic activity was inhibited 25% by anti-RANTES, 45% by anti-LCF, and 60% by both anti-RANTES and anti-LCF. Eosinophil-derived lymphocyte chemotactic activity was also partially blocked by anti-CD4 monoclonal antibody, compatible with the chemotactic activity being LCF. Thus, eosinophils are sources of two cytokines, RANTES and LCF, that are chemoattractants for memory and CD4⁺ lymphocytes, respectively, and recruit and activate these lymphocytes and eosinophils.

References

Alam R, Stafford S, Forsythe P, Harrison R, Faubion D, Lett-Brown MA, Grant JA: RANTES is a chemotactic and activating factor for human eosinophils. *J Immunol* 1993; 150: 3442-3448.

Rand TH, Cruikshank WW, Center DM, Weller PF: CD4-mediated stimulation of human eosinophils: Lymphocyte chemoattractant factor and other CD4-binding ligands elicit eosinophil migration. JExpMed 1991;173:1521-1528.

© 1995 S.KargerAG, Basel 1018-2438/95/1073-0342 \$8.00/0