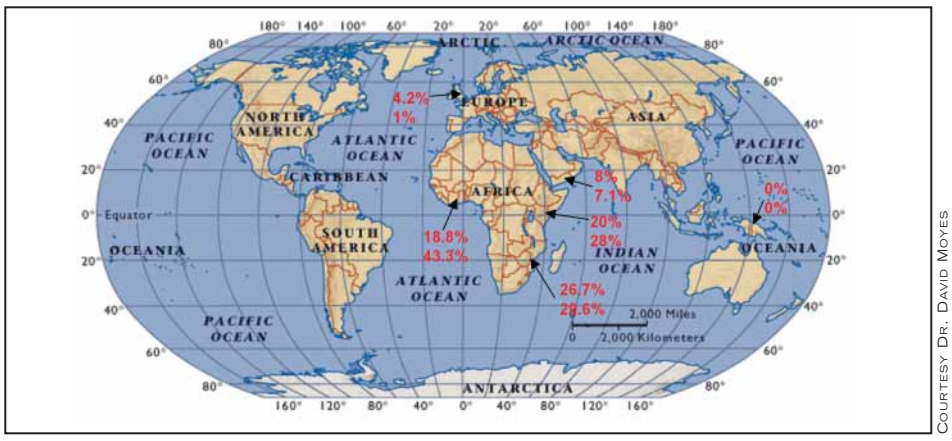

COURTESY DR. DAVID MOYES

Map shows the prevalence of human endogenous retrovirus (HERV)-K113 (upper number) and the prevalence of HERV-K115 (lower number) in each country.

Out of Africa: Retrovirus Linked to Autoimmunity

BY NANCY WALSH
New York Bureau

BIRMINGHAM, ENGLAND — A newly identified human endogenous retrovirus that is much more prevalent in Africa than in other parts of the world may place its carriers at risk for certain autoimmune diseases, David Moyes, Ph.D., said at the joint meeting of the British Society for Rheumatology and the German Society for Rheumatology.

Patients with autoimmune diseases often have elevated antibody levels to certain structural proteins of human endogenous retroviruses (HERVs), suggesting a possible role for these viruses in autoimmune disease, Dr. Moyes said.

Until recently it was thought that HERVs were ubiquitous and fixed in the population, having been incorporated into the genome before the initial wave of human migration out of Africa some 200,000 years ago. But two of these viruses, HERV-K113 and HERV-K115 are now known to vary widely in prevalence across different populations. "This means that both viruses are likely to have been incorporated into the genome during more recent human evolution and that both could potentially induce an autoimmune response," he said.

The mean prevalence of HERV-K113 identified by polymerase chain reaction testing in a sample of 174 subjects from Kenya, Malawi, and Côte d'Ivoire was 21.8%, compared with 4.2% in a sample of 96 subjects from the United Kingdom, said Dr. Moyes of the Kennedy Institute of Rheumatology, Imperial College, London.

Similarly, HERV-K115 was present in 34% of subjects from Africa and in only 1% of those in the United Kingdom.

"When you move off the African continent to the Arabian peninsula the prevalence drops off markedly. Neither virus was detected in any of 54 samples from Papua New Guinea," he said.

"Because of the possibility that one or both of these retroviruses could be involved in autoimmune disease, we went on to analyze their prevalence in two U.K. disease cohorts," Dr. Moyes said.

Among 96 patients with Sjögren's syndrome, the prevalence of the K113 allele was significantly increased, at 15.6%, compared with 4.2% among 96 normal controls. The allele also was more prevalent among 100 patients with multiple sclerosis, at 11.6%, he said.

Increases in these diseases were not associated with K115, however, which is a defective virus. "Both are full length proviruses, but HERV-K113 is a complete virus that has open reading frames and can fully express all its genes. HERV-K115 has a single deletion that prevents the expression of the *Pro/Pol* genes," he said.

An audience member asked if there was any evidence that these viruses were pathogenic, and whether there was an association with the autoantibodies Ro and La that are present in many autoimmune diseases.

Dr. Moyes replied that there does not appear to be an association with Ro and La specifically, but that there is an increase in many other autoantibodies seen in patients with scleroderma, rheumatoid arthritis, and Sjögren's syndrome.

"The exact relevance of those increases is open to question, but there is also a degree of evidence suggesting that proteins from these viruses can induce inflammation," he said. ■