



Fig. 2. Tests for  $SIV_{agm}$  in normal kidney-cell cultures after  $SIV_{agm}$  inoculation. Reverse transcriptase activity in the supernatants of normal kidney-cell cultures (■, AGM no. 3; ●, AGM no. 4) and the activity in positive control cells (▲, MOLT-4) after inoculation of  $SIV_{agm}$ (TYO-1).

mend that AGM naturally infected with  $SIV_{agm}$  should not be used for preparation of vaccines. In Japan, polio vaccines currently in use are produced in kidney-cell cultures from  $SIV_{agm}$ -free AGM.

Sir

#### Absence of HIV infection in low- and high-risk groups in the Santa Cruz region, Bolivia

In a series of epidemiological investigations conducted in collaboration with the local Unidad Sanitaria in the department of Santa Cruz in southeastern Bolivia, we carried out a seroprevalence survey to evaluate the prevalence of HIV antibody in the area.

During the months November–December 1986, we collected blood samples from 446 individuals of three different localities, Camiri, Boyuibe and Javillo, in the southern part of the Santa Cruz region. Camiri is a city of 25 000 inhabitants, situated in the foothills of the Andes at an altitude of about 800 metres above sea level; Boyuibe is a town with a population of about 2500 situated approximately 60 km south of Camiri and 150 km from the Paraguay border. The population of both areas is predominantly composed of mestizos with some Guarani Indians. The third locality, Javillo, is a very small community of about 110 people, completely isolated in the jungle north-east of Camiri. It is situated at an altitude of about 1500 metres and is difficult to reach even by jeep. The entire population is ethnically pure Guarani. The study group consisted of 446 people, 139 males (average age 17.3 years) and 307 females (average age 18.6 years), including

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subjects in hospital or who had attended the out-patient clinics of the Camiri hospital, hospital staff (Camiri and Boyuibe), elementary and middle school students (Camiri and Boyuibe) and almost the entire population of Javillo.

Samples of 10 cc venous blood were taken from all subjects. The sera were stored at  $-20^{\circ}\text{C}$  in Bolivia, transported to Italy in dry ice and then tested for HIV antibody by enzyme-linked immunosorbent assay (Wellcome Diagnostics, England).

Table 1 shows the results of the samples tested in this first survey. None of the 446 subjects studied was positive for anti-HIV. This was not an unexpected finding because contact between these populations and possibly infected individuals from other countries is rare, as are homosexual practices and the use of intravenous drugs. On the other hand, we note the lack of exposure of these populations to the presumably indigenous virus which is naturally endemic in certain areas of South America as reported by Rodriguez *et al.* [1] in aboriginal Amazonian Indians.

In December 1987, we collected blood samples (as specified above) from 334 licenced female prostitutes working in Santa Cruz (capital of the department, with

Table 1. Seroepidemiological study of HIV-antibody prevalence in the Santa Cruz region, November–December 1986.

Place	Sex	Mean age in years (range)	Number tested	HIV antibody-positive
Camiri	Male	22.1 (4–74)	28	0
	Female	20.7 (1–72)	151	0
	Total	20.9 (1–74)	179	0
Boyuibe	Male	13.5 (6–38)	74	0
	Female	14.6 (4–75)	109	0
	Total	14.1 (4–75)	183	0
Javillo	Male	21.3 (4–70)	37	0
	Female	21.4 (4–70)	47	0
	Total	21.3 (4–70)	84	0
Total	Male	17.3 (4–74)	139	0
	Female	18.6 (1–75)	307	0
	Total	18.2 (1–75)	446	0

Table 2. Seroepidemiological study of HIV-antibody prevalence in the Santa Cruz region, December 1987.

Place	Occupation	Number tested	HIV antibody-positive
Santa Cruz	Prostitute (F)	295	0
	Homosexual (M)	12	0
	House of prostitution worker (F)	83	0
	House of prostitution worker (M)	27	0
Camiri	Prostitute (F)	22	0
	Prostitute (F)	17	0

Total number tested, 456; F, female; M, male.

about 700 000 inhabitants), Camiri and Montero (a town of about 20 000 inhabitants situated 50 km north of Santa Cruz), 150 workers in houses of prostitution in Santa Cruz and 12 male homosexuals from Santa Cruz. None of these subjects was an intravenous drug user.

The results of this, second, survey are summarized in Table 2. Like the low-risk group in the first survey (Table 1), these very sexually active subjects were also all negative for HIV antibodies.

In conclusion, our study shows that in this area of Bolivia the population, including female prostitutes and homosexual men, seems to be free from HIV infection. This may change and surveillance by seroepidemiological studies to identify infected individuals should continue. Vigilance and public education about HIV infection, es-

pecially directed to the risk groups, are recommended to keep this population group free from HIV infection.

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