I. INTRODUCTION

Penicillium marneffei is the only thermal dimorphic pathogenic Penicillium. This organism was first isolated in 1956 from a captive bamboo rats (*Rhizomys sinensis*) living in the highlands in central Vietnam (Capponi et al, 1956), and it can be found in another bamboo rat *(R. pruinosus)* (Li, 1989). In 1973, it was recognized as an agent of natural infection among immunocompromised American patients who had travelled in Southeast Asia. *P. marneffei* infection has been reported in southern China, Hong Kong, Indonesia and Thailand among native healthy or immunocompromised patients as a systemic mycosis since 1984.

Since 1988, numerous cases of *P. marneffei* infection were reported in AIDS patients from France, Great Britain, Italy, Netherlands, USA, and Australia. Almost all of these patients had travelled to the Southeast Asia, Hong Kong or Southern China where believed as the endemic areas.

Before AIDS era in Thailand, five cases of natural infections caused by *P. marneffei* diagnosed in the Ramathibodi Hospital, Bangkok, during the year 1974-1982 (Jayanetra et al., 1984) and 5 additional cases in the Maharaj Nakorn Chiang Mai Hospital during the year 1987-1991 were reported (Supparatpinyo, 1990; Supparatpinyo et al., 1992). Since 1989, *P. marneffei* infection in AIDS patients has been recognized, especially in Maharaj Nakorn Chiang Mai Hospital. During the year 1990-1991, 35 AIDS patients infected with *P. marneffei* were diagnosed in this hospital (Vithayasai, 1992). It increased to 86 casesin June, 1992

(Supparatpinyo et al, 1994) and the total number of cases reached to approximately 500 cases in 1994 (Chariyalertsak et al., 1996).

The acquired immunodeficiency syndrome (AIDS) induced by the retrovirus HIV was characterized by a marked depression of cellular immunity due to the reduction and destruction of $CD4^+$ T lymphocytes and some macrophages by the virus and the viral productions. This often leads to multiple opportunistic infections including fungal infections, and amongst of these, include with penicilliosis caused by *P. marneffei*, (Drouhet, 1993). *P. marneffei* is ranked second common systemic fungal infection manifested in AIDS patients after cryptococcosis in northern Thailand (Vithayasai, 1993).

The opportunistic microorganisms in AIDS patients were the low virulence organisms and found in the common environment, such as *P. marneffei*, the fungus was isolated from soil of bamboo rats burrow (Deng et al., 1988). These animals limitedly contact with people living in villages and towns. Since few people eat bamboo rats, contaminating is probably via respiratory tract rather than digestive one. Furthermore, many yeast forms of *P. marneffei* could be isolated from nasal smear of the HIV patients infected with this fungus (Vithayasai, 1994). Deng and his colleagues suggested that both bamboo rats and human are infected by the conidia of *P. marneffei* producing in the enviroment. This might be the reason that healthy individuals are probably naturaly infected with *P. marneffei*. Those infected individuals without symptom, might be due to their own immunity. In immunocompromised hosts such as AIDS with

impaired immunity, the manifestations of penicilliosis marneffei may be disseminated involved various organs (Vithayasai, 1994).

The major objectives of this study are:

1. To evaluate the ability of cell mediated immune response against crude sonicated *P. marneffei* antigen and mitogen (PHA-P), in asymptomatic HIV-infected individuals, AIDS patients without and with *P. marneffei* infection by tritiated-thymidine incorporation, compared to the HIV-negative donors.

2. To determine whether plasma of AIDS patients with *P. marneffei* infection might have the inhibitory factors against normal PBMC stimulated with PHA-P.

The results will be helpful in understanding the responses of cell mediated immunity against the opportunistic fungi such as *P. marneffei* in AIDS patients.

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