

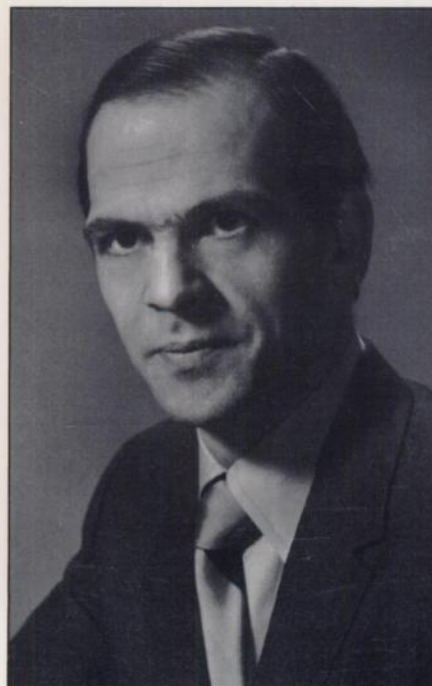
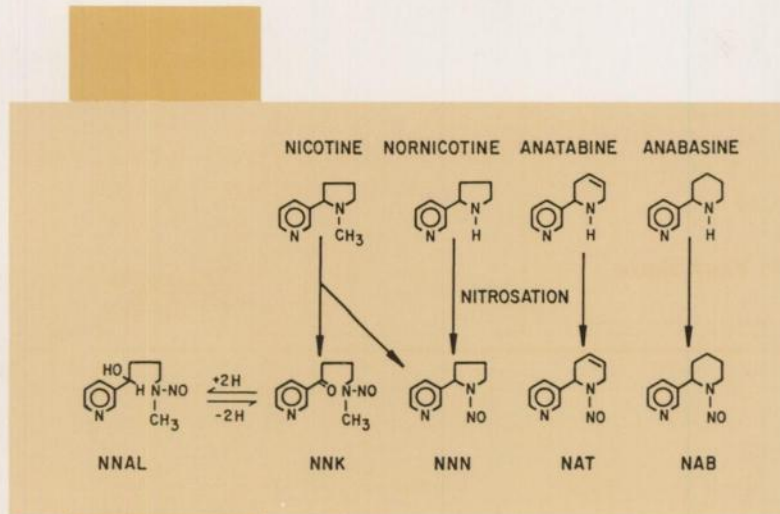
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# Cancer Research

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This space contributed as a public service.

## **THE NATIONAL NEUROFIBROMATOSIS FOUNDATION**

**announces the availability of  
YOUNG INVESTIGATOR AWARDS**

**which will provide salary support not to exceed  
\$35,000 annually for periods up to two years**

**and**

**RESEARCH GRANTS**

**which will provide up to \$50,000 for up to 2 years  
for research on the cause and treatment of neuro-  
fibromatosis.**

**The deadline for filing applications for awards  
to be activated during the 1988-1989 academic  
year is April 1, 1988.**

**For information or applications please contact:**

**The National Neurofibromatosis  
Foundation  
141 Fifth Avenue, Suite 7-S  
New York, NY 10010  
(212) 460-8980  
1-800-323-7938 outside New York State**



### **Some People Commit Child Abuse Before Their Child Is Even Born.**

According to the  
surgeon general, smoking  
by a pregnant woman may  
result in a child's premature  
birth, low birth weight and  
fetal injury. If that's not  
child abuse, then what is?

**AMERICAN  
CANCER  
SOCIETY**

## **THE HAYASHIBARA INTERNATIONAL CANCER RESEARCH FELLOWSHIP**

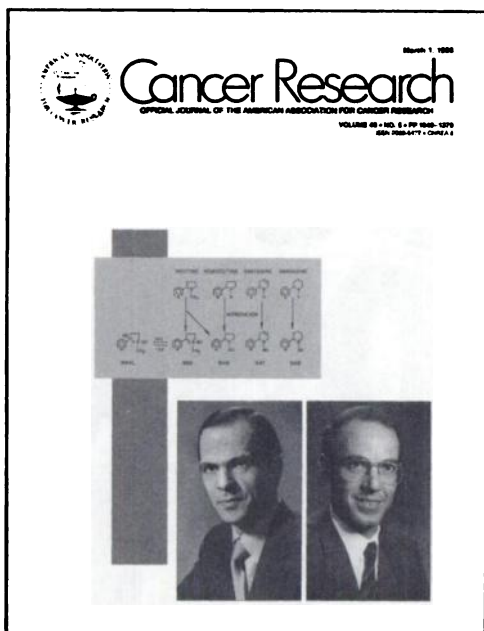
The Hayashibara Mutual Aid Fund (Hayashibara Kyosaikai, Chairman of Board of Trustees: Ken Hayashibara) a non-profit making organization within the Hayashibara Group, announces a newly created fellowship program. Two awards will be made annually. Fellowship will be taken up at the newly opened Fujisaki Cell Center which is devoted for the basic and applied research related to the programs in human cancer. The Fellowship is normally made for one year and is renewable for up to five years. The awards are for high quality research work in one of the three categories described below.

1. Fundamental Leukemia-Lymphoma Research
2. Cytokine-Lymphokine Research
3. Hematopoietic Cell Lines

Qualified person who is holding a Ph.D., M.D. or equivalent qualification should make inquiry for additional information and application forms from Jun Minowada, M.D., Director, Fujisaki Cell Center, 675-1, Fujisaki, Okayama 702, Japan.

# COVER LEGEND

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Although it is generally and perhaps correctly assumed that the carcinogenic effects of tobacco are associated with the polycyclic aromatic hydrocarbons from the tars produced during combustion, there is evidence that the alkaloids, of which nicotine is the major component, also contribute. Nicotine was first identified in tobacco by Henri Nicot in 1828, but it was over a century before it was recognized to be a precursor of carcinogens in tobacco. In the 1960s

Druckrey and Preussman suggested that nicotine and nornicotine could form nitrosamines; Boyland, in 1964, determined that *N*-nitrosonornicotine could indeed cause lung cancer in mice (*Cancer Lett.*, 26: 67, 1985).

In 1974 Hoffmann and Hecht, working at the American Health Foundation in Rye, NY, documented the occurrence of *N*-nitrosonornicotine in tobacco and tobacco smoke [*Science (Wash. DC)*, 186: 265, 1974] and found it to be a strong carcinogen in mice, rats, and hamsters [*J. Natl. Cancer Inst.*, 54: 1237, 1975, 60: 819, 1978; *Cancer Lett.*, 2: 169, 1977].

Since then a large body of evidence has been amassed on the metabolic activation, carcinogenicity, and organ specificity of alkaloid-derived nitrosamines from tobacco and their etiological potential when either inhaled or taken in chewing or sniffing.

Pictured are Dietrich Hoffmann (*left*) and Stephen S. Hecht (*right*) and a diagram illustrating reactions of the tobacco alkaloids. *N*-Nitrosonornicotine (*NNN*), the first nicotine-derived nitrosamine, identified in tobacco in 1974, is shown in the scheme together with 4-(methylnitrosamino)-1-(3-pyridyl)-butan-1-ol (*NNAL*), 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone (*NNK*), *N*-nitrosoanatabine (*NAT*), and *N*-nitrosoanabasine (*NAB*). Metabolism studies have now demonstrated the DNA-alkylating potential of several of these tobacco-specific *N*-nitrosamines.

We are indebted to John Weisburger for assistance in preparation of the legend.

M. B. S.