

## **PROPYLTHIOURACIL (Group 2B)**

### **A. Evidence for carcinogenicity to humans (*inadequate*)**

In one survey of 331 hyperthyroid patients treated with antithyroid drugs, including propylthiouracil, and later with thyroidectomy, four thyroid cancers (an excess of unspecified proportion) were diagnosed more than one year after the beginning of drug therapy<sup>1</sup>. There has been one case report of acute myeloblastic leukaemia following propylthiouracil treatment<sup>2</sup>.

**B. Evidence for carcinogenicity to animals (sufficient)**

Propylthiouracil produced thyroid tumours in mice, rats, hamsters and guinea-pigs and pituitary adenomas in mice after its oral administration<sup>3</sup>. When administered orally to rats with *N*-methyl-*N*-nitrosourea given intravenously<sup>4</sup> or *N*-nitrosobis(2-hydroxypropyl)-amine intraperitoneally<sup>5</sup>, it induced malignant thyroid tumours.

**C. Other relevant data**

No adequate data were available to the Working Group.

**References**

- <sup>1</sup>Dobyns, B.M., Sheline, G.E., Workman, J.B., Tompkins, E.A., McConahey, W.M. & Becker, D.V. (1974) Malignant and benign neoplasms of the thyroid in patients treated for hyperthyroidism: a report of the cooperative thyrotoxicosis therapy follow-up study. *J. clin. Endocrinol. Metab.*, *38*, 976-998
- <sup>2</sup>Aksoy, M., Erdem, S., Tezel, H. & Tezel, T. (1974) Acute myeloblastic leukaemia after propylthiouracil. *Lancet*, *i*, 928-929
- <sup>3</sup>*IARC Monographs*, *7*, 67-76, 1974
- <sup>4</sup>Milmore, J.E., Chandrasekaran, V. & Weisburger, J.H. (1982) Effects of hypothyroidism on development of nitrosomethylurea-induced tumors of the mammary gland, thyroid gland, and other tissues. *Proc. Soc. exp. Biol. Med.*, *169*, 487-493
- <sup>5</sup>Kitahori, Y., Hiasa, Y., Konishi, N., Enoki, N., Shimoyama, T. & Miyashiro, A. (1984) Effect of propylthiouracil on the thyroid tumorigenesis induced by *N*-bis(2-hydroxypropyl)nitrosamine in rats. *Carcinogenesis*, *5*, 657-660